



**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 320-35148-1**

*Naval Air Warfare Center Warminster  
Warminster, Pennsylvania*

August 2019

N62269\_001165  
WARMINSTER\_NAWC  
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-35148-1, NAS WILLOW GROVE NAWC**  
**WARMINSTER PA**  
02/06/2018  
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

## ANALYTICAL REPORT

Job Number: 320-35148-1

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  
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2/6/2018 3:57 PM

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02/06/2018

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# Definitions/Glossary

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

TestAmerica Job ID: 320-35148-1

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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.

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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**  
**320-35148-1**

**Receipt**

The samples were received on 1/18/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 4.5° C.

**LCMS**

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

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

**Organic Prep**

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206271.

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

# Detection Summary

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

TestAmerica Job ID: 320-35148-1

## Client Sample ID: NAWC-011618-RW-334

## Lab Sample ID: 320-35148-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	53	M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	42		30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.7	J	9.9	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-334

## Lab Sample ID: 320-35148-2

No Detections.

## Client Sample ID: NAWC-011618-RW-280

## Lab Sample ID: 320-35148-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	17	J 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)	6.9	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.2	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-280

## Lab Sample ID: 320-35148-4

No Detections.

## Client Sample ID: NAWC-011618-RW-262

## Lab Sample ID: 320-35148-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	13	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	15	J	21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	5.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.6	J	10	2.0	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-262

## Lab Sample ID: 320-35148-6

No Detections.

## Client Sample ID: WGNA-011618-RW-3295

## Lab Sample ID: 320-35148-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	8.3	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.0	J	10	2.0	ng/L	1		537	Total/NA

## Client Sample ID: WGNA-011618-FRB-3295

## Lab Sample ID: 320-35148-8

No Detections.

## Client Sample ID: NAWC-011618-RW-272

## Lab Sample ID: 320-35148-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	21	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.1	J	10	1.9	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento



# Detection Summary

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

TestAmerica Job ID: 320-35148-1

## Client Sample ID: NAWC-011618-FRB-272

Lab Sample ID: 320-35148-10

No Detections.

## Client Sample ID: NAWC-011618-RW-258

Lab Sample ID: 320-35148-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	24		20	2.8	ng/L	1		537	Total/NA
Perfluorononanoic acid (PFNA)	13	J	24	8.1	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.1	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-258

Lab Sample ID: 320-35148-12

No Detections.

## Client Sample ID: NAWC-011618-RW-234

Lab Sample ID: 320-35148-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5.0	J	20	2.8	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-234

Lab Sample ID: 320-35148-14

No Detections.

## Client Sample ID: WGNA-011618-DUP20

Lab Sample ID: 320-35148-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5.2	J	20	2.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-RW-264

Lab Sample ID: 320-35148-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	6.1	J	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.1	J M	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-011618-FRB-264

Lab Sample ID: 320-35148-17

No Detections.

## Client Sample ID: WGNA-011618-RW-0560

Lab Sample ID: 320-35148-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	30	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	35		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	23	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.9	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: WGNA-011618-FRB-0560

Lab Sample ID: 320-35148-19

No Detections.

## Client Sample ID: WGNA-011618-RW-0515

Lab Sample ID: 320-35148-20

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: 320-35148-1

## Client Sample ID: WGNA-011618-RW-0515 (Continued)

## Lab Sample ID: 320-35148-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	34	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	38		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	27	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.4	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: WGNA-011618-FRB-0515

## Lab Sample ID: 320-35148-21

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: 320-35148-1

**Client Sample ID: NAWC-011618-RW-334**

**Lab Sample ID: 320-35148-1**

Date Collected: 01/16/18 08:10

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	53	M	39	6.7	ng/L		01/30/18 12:48	02/02/18 22:45	1
Perfluorooctanoic acid (PFOA)	22		20	2.8	ng/L		01/30/18 12:48	02/02/18 22:45	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		01/30/18 12:48	02/02/18 22:45	1
Perfluorohexanesulfonic acid (PFHxS)	42		30	5.4	ng/L		01/30/18 12:48	02/02/18 22:45	1
Perfluoroheptanoic acid (PFHpA)	8.7	J	9.9	1.9	ng/L		01/30/18 12:48	02/02/18 22:45	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/30/18 12:48	02/02/18 22:45	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				01/30/18 12:48	02/02/18 22:45	1
13C2 PFDA	99		70 - 130				01/30/18 12:48	02/02/18 22:45	1

**Client Sample ID: NAWC-011618-FRB-334**

**Lab Sample ID: 320-35148-2**

Date Collected: 01/16/18 08:05

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		01/30/18 12:48	02/02/18 22:50	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 22:50	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/02/18 22:50	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/30/18 12:48	02/02/18 22:50	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 22:50	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/02/18 22:50	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				01/30/18 12:48	02/02/18 22:50	1
13C2 PFDA	98		70 - 130				01/30/18 12:48	02/02/18 22:50	1

**Client Sample ID: NAWC-011618-RW-280**

**Lab Sample ID: 320-35148-3**

Date Collected: 01/16/18 08:40

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	J M	41	6.9	ng/L		01/30/18 12:48	02/02/18 22:55	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L		01/30/18 12:48	02/02/18 22:55	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.1	ng/L		01/30/18 12:48	02/02/18 22:55	1
Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	5.6	ng/L		01/30/18 12:48	02/02/18 22:55	1
Perfluoroheptanoic acid (PFHpA)	4.2	J	10	1.9	ng/L		01/30/18 12:48	02/02/18 22:55	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/30/18 12:48	02/02/18 22:55	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	92		70 - 130				01/30/18 12:48	02/02/18 22:55	1
13C2 PFDA	92		70 - 130				01/30/18 12:48	02/02/18 22:55	1

# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: NAWC-011618-FRB-280**

**Lab Sample ID: 320-35148-4**

**Date Collected: 01/16/18 08:35**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		01/30/18 12:48	02/02/18 23:00	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:00	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/02/18 23:00	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/30/18 12:48	02/02/18 23:00	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:00	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/02/18 23:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130	01/30/18 12:48	02/02/18 23:00	1
13C2 PFDA	110		70 - 130	01/30/18 12:48	02/02/18 23:00	1

**Client Sample ID: NAWC-011618-RW-262**

**Lab Sample ID: 320-35148-5**

**Date Collected: 01/16/18 09:10**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	13	J M	41	7.0	ng/L		01/30/18 12:48	02/02/18 23:04	1
Perfluorooctanoic acid (PFOA)	15	J	21	2.9	ng/L		01/30/18 12:48	02/02/18 23:04	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		01/30/18 12:48	02/02/18 23:04	1
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	5.7	ng/L		01/30/18 12:48	02/02/18 23:04	1
Perfluoroheptanoic acid (PFHpA)	4.6	J	10	2.0	ng/L		01/30/18 12:48	02/02/18 23:04	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		01/30/18 12:48	02/02/18 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	01/30/18 12:48	02/02/18 23:04	1
13C2 PFDA	96		70 - 130	01/30/18 12:48	02/02/18 23:04	1

**Client Sample ID: NAWC-011618-FRB-262**

**Lab Sample ID: 320-35148-6**

**Date Collected: 01/16/18 09:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/02/18 23:09	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:09	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/02/18 23:09	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/02/18 23:09	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:09	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/02/18 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130	01/30/18 12:48	02/02/18 23:09	1
13C2 PFDA	93		70 - 130	01/30/18 12:48	02/02/18 23:09	1

# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: WGNA-011618-RW-3295**

**Lab Sample ID: 320-35148-7**

**Date Collected: 01/16/18 10:10**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	8.3	J M	41	7.0	ng/L		01/30/18 12:48	02/02/18 23:14	1
Perfluorooctanoic acid (PFOA)	12	J	21	2.9	ng/L		01/30/18 12:48	02/02/18 23:14	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/30/18 12:48	02/02/18 23:14	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/30/18 12:48	02/02/18 23:14	1
Perfluoroheptanoic acid (PFHpA)	5.0	J	10	2.0	ng/L		01/30/18 12:48	02/02/18 23:14	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/30/18 12:48	02/02/18 23:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	01/30/18 12:48	02/02/18 23:14	1
13C2 PFDA	85		70 - 130	01/30/18 12:48	02/02/18 23:14	1

**Client Sample ID: WGNA-011618-FRB-3295**

**Lab Sample ID: 320-35148-8**

**Date Collected: 01/16/18 10:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/02/18 23:18	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:18	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/02/18 23:18	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/02/18 23:18	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:18	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/02/18 23:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130	01/30/18 12:48	02/02/18 23:18	1
13C2 PFDA	105		70 - 130	01/30/18 12:48	02/02/18 23:18	1

**Client Sample ID: NAWC-011618-RW-272**

**Lab Sample ID: 320-35148-9**

**Date Collected: 01/16/18 11:10**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	21	J M	41	6.9	ng/L		01/30/18 12:48	02/02/18 23:32	1
Perfluorooctanoic acid (PFOA)	22	M	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:32	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/02/18 23:32	1
Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	5.6	ng/L		01/30/18 12:48	02/02/18 23:32	1
Perfluoroheptanoic acid (PFHpA)	8.1	J	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:32	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		01/30/18 12:48	02/02/18 23:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130	01/30/18 12:48	02/02/18 23:32	1
13C2 PFDA	98		70 - 130	01/30/18 12:48	02/02/18 23:32	1

# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: NAWC-011618-FRB-272**

**Lab Sample ID: 320-35148-10**

**Date Collected: 01/16/18 11:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		01/30/18 12:48	02/02/18 23:37	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:37	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/02/18 23:37	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/30/18 12:48	02/02/18 23:37	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:37	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/02/18 23:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	01/30/18 12:48	02/02/18 23:37	1
13C2 PFDA	104		70 - 130	01/30/18 12:48	02/02/18 23:37	1

**Client Sample ID: NAWC-011618-RW-258**

**Lab Sample ID: 320-35148-11**

**Date Collected: 01/16/18 12:10**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	20	J M	40	6.9	ng/L		01/30/18 12:48	02/02/18 23:42	1
Perfluorooctanoic acid (PFOA)	24		20	2.8	ng/L		01/30/18 12:48	02/02/18 23:42	1
Perfluorononanoic acid (PFNA)	13	J	24	8.1	ng/L		01/30/18 12:48	02/02/18 23:42	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	5.6	ng/L		01/30/18 12:48	02/02/18 23:42	1
Perfluoroheptanoic acid (PFHpA)	9.1	J	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:42	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/02/18 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		70 - 130	01/30/18 12:48	02/02/18 23:42	1
13C2 PFDA	89		70 - 130	01/30/18 12:48	02/02/18 23:42	1

**Client Sample ID: NAWC-011618-FRB-258**

**Lab Sample ID: 320-35148-12**

**Date Collected: 01/16/18 12:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/02/18 23:46	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:46	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/30/18 12:48	02/02/18 23:46	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/02/18 23:46	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		01/30/18 12:48	02/02/18 23:46	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/30/18 12:48	02/02/18 23:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130	01/30/18 12:48	02/02/18 23:46	1
13C2 PFDA	96		70 - 130	01/30/18 12:48	02/02/18 23:46	1

# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: NAWC-011618-RW-234**

**Lab Sample ID: 320-35148-13**

**Date Collected: 01/16/18 13:10**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	40	6.8	ng/L		01/30/18 12:48	02/02/18 23:51	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>5.0</b>	<b>J</b>	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:51	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/02/18 23:51	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	5.5	ng/L		01/30/18 12:48	02/02/18 23:51	1
Perfluoroheptanoic acid (PFHpA)	4.0	U M	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:51	1
Perfluorobutanesulfonic acid (PFBS)	36	U M	90	16	ng/L		01/30/18 12:48	02/02/18 23:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	01/30/18 12:48	02/02/18 23:51	1
13C2 PFDA	94		70 - 130	01/30/18 12:48	02/02/18 23:51	1

**Client Sample ID: NAWC-011618-FRB-234**

**Lab Sample ID: 320-35148-14**

**Date Collected: 01/16/18 13:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/02/18 23:56	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 23:56	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/02/18 23:56	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/02/18 23:56	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 23:56	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/02/18 23:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/30/18 12:48	02/02/18 23:56	1
13C2 PFDA	91		70 - 130	01/30/18 12:48	02/02/18 23:56	1

**Client Sample ID: WGNA-011618-DUP20**

**Lab Sample ID: 320-35148-15**

**Date Collected: 01/16/18 07:00**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

**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		01/30/18 12:48	02/03/18 00:00	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>5.2</b>	<b>J</b>	20	2.9	ng/L		01/30/18 12:48	02/03/18 00:00	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		01/30/18 12:48	02/03/18 00:00	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	5.6	ng/L		01/30/18 12:48	02/03/18 00:00	1
Perfluoroheptanoic acid (PFHpA)	4.1	U M	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:00	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/30/18 12:48	02/03/18 00:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/30/18 12:48	02/03/18 00:00	1
13C2 PFDA	96		70 - 130	01/30/18 12:48	02/03/18 00:00	1

# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: NAWC-011618-RW-264**

**Lab Sample ID: 320-35148-16**

Date Collected: 01/16/18 15:10

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	40	6.8	ng/L		01/30/18 12:48	02/03/18 00:05	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>6.1</b>	<b>J</b>	20	2.8	ng/L		01/30/18 12:48	02/03/18 00:05	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/03/18 00:05	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	5.5	ng/L		01/30/18 12:48	02/03/18 00:05	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>2.1</b>	<b>J M</b>	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:05	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/03/18 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	01/30/18 12:48	02/03/18 00:05	1
13C2 PFDA	97		70 - 130	01/30/18 12:48	02/03/18 00:05	1

**Client Sample ID: NAWC-011618-FRB-264**

**Lab Sample ID: 320-35148-17**

Date Collected: 01/16/18 15:05

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		01/30/18 12:48	02/03/18 00:10	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/30/18 12:48	02/03/18 00:10	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/03/18 00:10	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/30/18 12:48	02/03/18 00:10	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:10	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/03/18 00:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130	01/30/18 12:48	02/03/18 00:10	1
13C2 PFDA	100		70 - 130	01/30/18 12:48	02/03/18 00:10	1

**Client Sample ID: WGNA-011618-RW-0560**

**Lab Sample ID: 320-35148-18**

Date Collected: 01/16/18 16:10

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>30</b>	<b>J M</b>	41	6.9	ng/L		01/30/18 12:48	02/03/18 00:14	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>35</b>		20	2.8	ng/L		01/30/18 12:48	02/03/18 00:14	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/30/18 12:48	02/03/18 00:14	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>23</b>	<b>J</b>	30	5.6	ng/L		01/30/18 12:48	02/03/18 00:14	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>7.9</b>	<b>J</b>	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:14	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		01/30/18 12:48	02/03/18 00:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	01/30/18 12:48	02/03/18 00:14	1
13C2 PFDA	105		70 - 130	01/30/18 12:48	02/03/18 00:14	1



# Client Sample Results

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: WGNA-011618-FRB-0560**

**Lab Sample ID: 320-35148-19**

**Date Collected: 01/16/18 16:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/03/18 00:28	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:48	02/03/18 00:28	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/03/18 00:28	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/03/18 00:28	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:28	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/03/18 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	01/30/18 12:48	02/03/18 00:28	1
13C2 PFDA	100		70 - 130	01/30/18 12:48	02/03/18 00:28	1

**Client Sample ID: WGNA-011618-RW-0515**

**Lab Sample ID: 320-35148-20**

**Date Collected: 01/16/18 16:40**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	34	J M	41	6.9	ng/L		01/30/18 12:48	02/03/18 00:33	1
Perfluorooctanoic acid (PFOA)	38		20	2.8	ng/L		01/30/18 12:48	02/03/18 00:33	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.1	ng/L		01/30/18 12:48	02/03/18 00:33	1
Perfluorohexanesulfonic acid (PFHxS)	27	J	30	5.6	ng/L		01/30/18 12:48	02/03/18 00:33	1
Perfluoroheptanoic acid (PFHpA)	8.4	J	10	1.9	ng/L		01/30/18 12:48	02/03/18 00:33	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/30/18 12:48	02/03/18 00:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	01/30/18 12:48	02/03/18 00:33	1
13C2 PFDA	100		70 - 130	01/30/18 12:48	02/03/18 00:33	1

**Client Sample ID: WGNA-011618-FRB-0515**

**Lab Sample ID: 320-35148-21**

**Date Collected: 01/16/18 16:35**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:52	02/06/18 12:15	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:52	02/06/18 12:15	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:52	02/06/18 12:15	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:52	02/06/18 12:15	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:52	02/06/18 12:15	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:52	02/06/18 12:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130	01/30/18 12:52	02/06/18 12:15	1
13C2 PFDA	102		70 - 130	01/30/18 12:52	02/06/18 12:15	1

# Default Detection Limits

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

TestAmerica Job ID: 320-35148-1

## 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: 320-35148-1

## 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)
320-35148-1	NAWC-011618-RW-334	94	99
320-35148-2	NAWC-011618-FRB-334	96	98
320-35148-3	NAWC-011618-RW-280	92	92
320-35148-4	NAWC-011618-FRB-280	97	110
320-35148-5	NAWC-011618-RW-262	89	96
320-35148-6	NAWC-011618-FRB-262	91	93
320-35148-7	WGNA-011618-RW-3295	87	85
320-35148-8	WGNA-011618-FRB-3295	97	105
320-35148-9	NAWC-011618-RW-272	91	98
320-35148-10	NAWC-011618-FRB-272	101	104
320-35148-11	NAWC-011618-RW-258	85	89
320-35148-12	NAWC-011618-FRB-258	92	96
320-35148-13	NAWC-011618-RW-234	93	94
320-35148-14	NAWC-011618-FRB-234	94	91
320-35148-15	WGNA-011618-DUP20	94	96
320-35148-16	NAWC-011618-RW-264	93	97
320-35148-17	NAWC-011618-FRB-264	86	100
320-35148-18	WGNA-011618-RW-0560	100	105
320-35148-19	WGNA-011618-FRB-0560	95	100
320-35148-20	WGNA-011618-RW-0515	99	100
320-35148-20 MS	WGNA-011618-RW-0515	96	95
320-35148-20 MSD	WGNA-011618-RW-0515	97	96
320-35148-21	WGNA-011618-FRB-0515	104	102
LCS 320-206187/2-A	Lab Control Sample	92	102
LCS 320-206188/2-A	Lab Control Sample	110	111
LCSD 320-206188/3-A	Lab Control Sample Dup	104	107
MB 320-206187/1-A	Method Blank	95	97
MB 320-206188/1-A	Method Blank	95	104

**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: 320-35148-1

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

**Lab Sample ID: MB 320-206187/1-A**  
**Matrix: Water**  
**Analysis Batch: 206870**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 206187**

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:48	02/02/18 22:36	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:48	02/02/18 22:36	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:48	02/02/18 22:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:48	02/02/18 22:36	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:48	02/02/18 22:36	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:48	02/02/18 22:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	95		70 - 130	01/30/18 12:48	02/02/18 22:36	1
13C2 PFDA	97		70 - 130	01/30/18 12:48	02/02/18 22:36	1

**Lab Sample ID: LCS 320-206187/2-A**  
**Matrix: Water**  
**Analysis Batch: 206870**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 206187**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	66.7	72.5		ng/L		109	70 - 130
Perfluorononanoic acid (PFNA)	66.7	68.3		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	113		ng/L		113	70 - 130
Perfluoroheptanoic acid (PFHpA)	33.3	39.1		ng/L		117	70 - 130
Perfluorobutanesulfonic acid (PFBS)	300	302		ng/L		101	70 - 130

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	92		70 - 130
13C2 PFDA	102		70 - 130

**Lab Sample ID: 320-35148-20 MS**  
**Matrix: Water**  
**Analysis Batch: 206874**

**Client Sample ID: WGNA-011618-RW-0515**  
**Prep Type: Total/NA**  
**Prep Batch: 206187**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	34	J M	135	158	M	ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	38		67.4	102		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	20	U M	67.4	66.3		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	27	J	101	131		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	8.4	J	33.7	42.6		ng/L		102	70 - 130
Perfluorobutanesulfonic acid (PFBS)	36	U	303	308		ng/L		102	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	96		70 - 130
13C2 PFDA	95		70 - 130

# QC Sample Results

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

TestAmerica Job ID: 320-35148-1

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

**Lab Sample ID: 320-35148-20 MSD**

**Matrix: Water**

**Analysis Batch: 206874**

**Client Sample ID: WGNA-011618-RW-0515**

**Prep Type: Total/NA**

**Prep Batch: 206187**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	
Perfluorooctanesulfonic acid (PFOS)	34	J M	134	162	M	ng/L		96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	38		66.9	104		ng/L		100	70 - 130	3	30
Perfluorononanoic acid (PFNA)	20	U M	66.9	68.2		ng/L		102	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	27	J	100	132		ng/L		105	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	8.4	J	33.5	42.9		ng/L		103	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	36	U	301	324		ng/L		108	70 - 130	5	30
<b>Surrogate</b>		<b>MSD</b>	<b>MSD</b>	<b>Limits</b>							
13C2 PFHxA		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>							
		97		70 - 130							
13C2 PFDA		96		70 - 130							

**Lab Sample ID: MB 320-206188/1-A**

**Matrix: Water**

**Analysis Batch: 207174**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 206188**

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/30/18 12:51	02/06/18 11:38	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/30/18 12:51	02/06/18 11:38	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/30/18 12:51	02/06/18 11:38	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/30/18 12:51	02/06/18 11:38	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/30/18 12:51	02/06/18 11:38	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/30/18 12:51	02/06/18 11:38	1
<b>Surrogate</b>		<b>MB</b>	<b>MB</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			01/30/18 12:51	02/06/18 11:38	1
		95		70 - 130					
13C2 PFDA		104		70 - 130			01/30/18 12:51	02/06/18 11:38	1

**Lab Sample ID: LCS 320-206188/2-A**

**Matrix: Water**

**Analysis Batch: 207174**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 206188**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Perfluorooctanesulfonic acid (PFOS)	222	223	M	ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	111	131		ng/L		117	70 - 130
Perfluorononanoic acid (PFNA)	111	119		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	181		ng/L		109	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	69.9		ng/L		126	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	501		ng/L		100	70 - 130
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>	<b>Limits</b>			
13C2 PFHxA		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			
		110		70 - 130			
13C2 PFDA		111		70 - 130			

TestAmerica Sacramento

# QC Sample Results

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

TestAmerica Job ID: 320-35148-1

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

**Lab Sample ID: LCSD 320-206188/3-A**  
**Matrix: Water**  
**Analysis Batch: 207174**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 206188**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Prep Batch: 206188		RPD Limit
							%Rec. Limits	RPD	
Perfluorooctanesulfonic acid (PFOS)	222	238	M	ng/L		107	70 - 130	7	30
Perfluorooctanoic acid (PFOA)	111	130		ng/L		117	70 - 130	0	30
Perfluorononanoic acid (PFNA)	111	121		ng/L		109	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	167	187		ng/L		112	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	55.6	70.1		ng/L		126	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	500	479		ng/L		96	70 - 130	4	30
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>				<b>Limits</b>		
13C2 PFHxA		104					70 - 130		
13C2 PFDA		107					70 - 130		

# QC Association Summary

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

TestAmerica Job ID: 320-35148-1

## LCMS

### Prep Batch: 206187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-1	NAWC-011618-RW-334	Total/NA	Water	537	
320-35148-2	NAWC-011618-FRB-334	Total/NA	Water	537	
320-35148-3	NAWC-011618-RW-280	Total/NA	Water	537	
320-35148-4	NAWC-011618-FRB-280	Total/NA	Water	537	
320-35148-5	NAWC-011618-RW-262	Total/NA	Water	537	
320-35148-6	NAWC-011618-FRB-262	Total/NA	Water	537	
320-35148-7	WGNA-011618-RW-3295	Total/NA	Water	537	
320-35148-8	WGNA-011618-FRB-3295	Total/NA	Water	537	
320-35148-9	NAWC-011618-RW-272	Total/NA	Water	537	
320-35148-10	NAWC-011618-FRB-272	Total/NA	Water	537	
320-35148-11	NAWC-011618-RW-258	Total/NA	Water	537	
320-35148-12	NAWC-011618-FRB-258	Total/NA	Water	537	
320-35148-13	NAWC-011618-RW-234	Total/NA	Water	537	
320-35148-14	NAWC-011618-FRB-234	Total/NA	Water	537	
320-35148-15	WGNA-011618-DUP20	Total/NA	Water	537	
320-35148-16	NAWC-011618-RW-264	Total/NA	Water	537	
320-35148-17	NAWC-011618-FRB-264	Total/NA	Water	537	
320-35148-18	WGNA-011618-RW-0560	Total/NA	Water	537	
320-35148-19	WGNA-011618-FRB-0560	Total/NA	Water	537	
320-35148-20	WGNA-011618-RW-0515	Total/NA	Water	537	
MB 320-206187/1-A	Method Blank	Total/NA	Water	537	
LCS 320-206187/2-A	Lab Control Sample	Total/NA	Water	537	
320-35148-20 MS	WGNA-011618-RW-0515	Total/NA	Water	537	
320-35148-20 MSD	WGNA-011618-RW-0515	Total/NA	Water	537	

### Prep Batch: 206188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-21	WGNA-011618-FRB-0515	Total/NA	Water	537	
MB 320-206188/1-A	Method Blank	Total/NA	Water	537	
LCS 320-206188/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-206188/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 206870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-1	NAWC-011618-RW-334	Total/NA	Water	537	206187
320-35148-2	NAWC-011618-FRB-334	Total/NA	Water	537	206187
320-35148-3	NAWC-011618-RW-280	Total/NA	Water	537	206187
320-35148-4	NAWC-011618-FRB-280	Total/NA	Water	537	206187
320-35148-5	NAWC-011618-RW-262	Total/NA	Water	537	206187
320-35148-6	NAWC-011618-FRB-262	Total/NA	Water	537	206187
320-35148-7	WGNA-011618-RW-3295	Total/NA	Water	537	206187
320-35148-8	WGNA-011618-FRB-3295	Total/NA	Water	537	206187
MB 320-206187/1-A	Method Blank	Total/NA	Water	537	206187
LCS 320-206187/2-A	Lab Control Sample	Total/NA	Water	537	206187

### Analysis Batch: 206872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-9	NAWC-011618-RW-272	Total/NA	Water	537	206187
320-35148-10	NAWC-011618-FRB-272	Total/NA	Water	537	206187
320-35148-11	NAWC-011618-RW-258	Total/NA	Water	537	206187
320-35148-12	NAWC-011618-FRB-258	Total/NA	Water	537	206187

TestAmerica Sacramento

# QC Association Summary

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

TestAmerica Job ID: 320-35148-1

## LCMS (Continued)

### Analysis Batch: 206872 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-13	NAWC-011618-RW-234	Total/NA	Water	537	206187
320-35148-14	NAWC-011618-FRB-234	Total/NA	Water	537	206187
320-35148-15	WGNA-011618-DUP20	Total/NA	Water	537	206187
320-35148-16	NAWC-011618-RW-264	Total/NA	Water	537	206187
320-35148-17	NAWC-011618-FRB-264	Total/NA	Water	537	206187
320-35148-18	WGNA-011618-RW-0560	Total/NA	Water	537	206187

### Analysis Batch: 206874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-19	WGNA-011618-FRB-0560	Total/NA	Water	537	206187
320-35148-20	WGNA-011618-RW-0515	Total/NA	Water	537	206187
320-35148-20 MS	WGNA-011618-RW-0515	Total/NA	Water	537	206187
320-35148-20 MSD	WGNA-011618-RW-0515	Total/NA	Water	537	206187

### Analysis Batch: 207174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35148-21	WGNA-011618-FRB-0515	Total/NA	Water	537	206188
MB 320-206188/1-A	Method Blank	Total/NA	Water	537	206188
LCS 320-206188/2-A	Lab Control Sample	Total/NA	Water	537	206188
LCSD 320-206188/3-A	Lab Control Sample Dup	Total/NA	Water	537	206188



# Lab Chronicle

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

TestAmerica Job ID: 320-35148-1

## Client Sample ID: NAWC-011618-RW-334

Date Collected: 01/16/18 08:10

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 22:45	JRB	TAL SAC

## Client Sample ID: NAWC-011618-FRB-334

Date Collected: 01/16/18 08:05

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 22:50	JRB	TAL SAC

## Client Sample ID: NAWC-011618-RW-280

Date Collected: 01/16/18 08:40

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 22:55	JRB	TAL SAC

## Client Sample ID: NAWC-011618-FRB-280

Date Collected: 01/16/18 08:35

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 23:00	JRB	TAL SAC

## Client Sample ID: NAWC-011618-RW-262

Date Collected: 01/16/18 09:10

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 23:04	JRB	TAL SAC

## Client Sample ID: NAWC-011618-FRB-262

Date Collected: 01/16/18 09:05

Date Received: 01/18/18 10:20

## Lab Sample ID: 320-35148-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 23:09	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: WGNA-011618-RW-3295**

**Lab Sample ID: 320-35148-7**

Date Collected: 01/16/18 10:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 23:14	JRB	TAL SAC

**Client Sample ID: WGNA-011618-FRB-3295**

**Lab Sample ID: 320-35148-8**

Date Collected: 01/16/18 10:05

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206870	02/02/18 23:18	JRB	TAL SAC

**Client Sample ID: NAWC-011618-RW-272**

**Lab Sample ID: 320-35148-9**

Date Collected: 01/16/18 11:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:32	JRB	TAL SAC

**Client Sample ID: NAWC-011618-FRB-272**

**Lab Sample ID: 320-35148-10**

Date Collected: 01/16/18 11:05

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:37	JRB	TAL SAC

**Client Sample ID: NAWC-011618-RW-258**

**Lab Sample ID: 320-35148-11**

Date Collected: 01/16/18 12:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:42	JRB	TAL SAC

**Client Sample ID: NAWC-011618-FRB-258**

**Lab Sample ID: 320-35148-12**

Date Collected: 01/16/18 12:05

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:46	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: NAWC-011618-RW-234**

**Lab Sample ID: 320-35148-13**

Date Collected: 01/16/18 13:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:51	JRB	TAL SAC

**Client Sample ID: NAWC-011618-FRB-234**

**Lab Sample ID: 320-35148-14**

Date Collected: 01/16/18 13:05

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/02/18 23:56	JRB	TAL SAC

**Client Sample ID: WGNA-011618-DUP20**

**Lab Sample ID: 320-35148-15**

Date Collected: 01/16/18 07:00

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/03/18 00:00	JRB	TAL SAC

**Client Sample ID: NAWC-011618-RW-264**

**Lab Sample ID: 320-35148-16**

Date Collected: 01/16/18 15:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/03/18 00:05	JRB	TAL SAC

**Client Sample ID: NAWC-011618-FRB-264**

**Lab Sample ID: 320-35148-17**

Date Collected: 01/16/18 15:05

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/03/18 00:10	JRB	TAL SAC

**Client Sample ID: WGNA-011618-RW-0560**

**Lab Sample ID: 320-35148-18**

Date Collected: 01/16/18 16:10

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206872	02/03/18 00:14	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-35148-1

**Client Sample ID: WGNA-011618-FRB-0560**

**Lab Sample ID: 320-35148-19**

**Date Collected: 01/16/18 16:05**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206874	02/03/18 00:28	JRB	TAL SAC

**Client Sample ID: WGNA-011618-RW-0515**

**Lab Sample ID: 320-35148-20**

**Date Collected: 01/16/18 16:40**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206187	01/30/18 12:48	KMK	TAL SAC
Total/NA	Analysis	537		1	206874	02/03/18 00:33	JRB	TAL SAC

**Client Sample ID: WGNA-011618-FRB-0515**

**Lab Sample ID: 320-35148-21**

**Date Collected: 01/16/18 16:35**

**Matrix: Water**

**Date Received: 01/18/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206188	01/30/18 12:52	KMK	TAL SAC
Total/NA	Analysis	537		1	207174	02/06/18 12:15	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: 320-35148-1

## Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	01-20-21
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	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
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: 320-35148-1

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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: 320-35148-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35148-1	NAWC-011618-RW-334	Water	01/16/18 08:10	01/18/18 10:20
320-35148-2	NAWC-011618-FRB-334	Water	01/16/18 08:05	01/18/18 10:20
320-35148-3	NAWC-011618-RW-280	Water	01/16/18 08:40	01/18/18 10:20
320-35148-4	NAWC-011618-FRB-280	Water	01/16/18 08:35	01/18/18 10:20
320-35148-5	NAWC-011618-RW-262	Water	01/16/18 09:10	01/18/18 10:20
320-35148-6	NAWC-011618-FRB-262	Water	01/16/18 09:05	01/18/18 10:20
320-35148-7	WGNA-011618-RW-3295	Water	01/16/18 10:10	01/18/18 10:20
320-35148-8	WGNA-011618-FRB-3295	Water	01/16/18 10:05	01/18/18 10:20
320-35148-9	NAWC-011618-RW-272	Water	01/16/18 11:10	01/18/18 10:20
320-35148-10	NAWC-011618-FRB-272	Water	01/16/18 11:05	01/18/18 10:20
320-35148-11	NAWC-011618-RW-258	Water	01/16/18 12:10	01/18/18 10:20
320-35148-12	NAWC-011618-FRB-258	Water	01/16/18 12:05	01/18/18 10:20
320-35148-13	NAWC-011618-RW-234	Water	01/16/18 13:10	01/18/18 10:20
320-35148-14	NAWC-011618-FRB-234	Water	01/16/18 13:05	01/18/18 10:20
320-35148-15	WGNA-011618-DUP20	Water	01/16/18 07:00	01/18/18 10:20
320-35148-16	NAWC-011618-RW-264	Water	01/16/18 15:10	01/18/18 10:20
320-35148-17	NAWC-011618-FRB-264	Water	01/16/18 15:05	01/18/18 10:20
320-35148-18	WGNA-011618-RW-0560	Water	01/16/18 16:10	01/18/18 10:20
320-35148-19	WGNA-011618-FRB-0560	Water	01/16/18 16:05	01/18/18 10:20
320-35148-20	WGNA-011618-RW-0515	Water	01/16/18 16:40	01/18/18 10:20
320-35148-21	WGNA-011618-FRB-0515	Water	01/16/18 16:35	01/18/18 10:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206761

Lab Sample ID: CCVL 320-206761/1 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/02/18 14:10 Lab File ID: 2018.02.02\_537A\_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	User Assigned	phomsophat	02/02/18 14:52

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206870

Lab Sample ID: CCV 320-206870/1 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/02/18 22:27 Lab File ID: 2018.02.02\_537B\_001.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:03

Lab Sample ID: LCS 320-206187/2-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/02/18 22:41 Lab File ID: 2018.02.02\_537B\_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:07

Lab Sample ID: 320-35148-1 Client Sample ID: NAWC-011618-RW-334

Date Analyzed: 02/02/18 22:45 Lab File ID: 2018.02.02\_537B\_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:02
Perfluorononanoic acid (PFNA)	2.07	Missed Peak	barnettj	02/06/18 11:02

Lab Sample ID: 320-35148-3 Client Sample ID: NAWC-011618-RW-280

Date Analyzed: 02/02/18 22:55 Lab File ID: 2018.02.02\_537B\_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/06/18 11:09
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:09

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206870

Lab Sample ID: 320-35148-5 Client Sample ID: NAWC-011618-RW-262

Date Analyzed: 02/02/18 23:04 Lab File ID: 2018.02.02\_537B\_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	barnettj	02/06/18 11:10

Lab Sample ID: 320-35148-7 Client Sample ID: WGNA-011618-RW-3295

Date Analyzed: 02/02/18 23:14 Lab File ID: 2018.02.02\_537B\_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:13

Lab Sample ID: CCV 320-206870/13 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/02/18 23:23 Lab File ID: 2018.02.02\_537B\_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206872

Lab Sample ID: CCV 320-206872/13 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/02/18 23:23 Lab File ID: 2018.02.02\_537B\_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:05

Lab Sample ID: 320-35148-9 Client Sample ID: NAWC-011618-RW-272

Date Analyzed: 02/02/18 23:32 Lab File ID: 2018.02.02\_537B\_015.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.80	Incomplete Integration	barnettj	02/06/18 11:14
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:14

Lab Sample ID: 320-35148-11 Client Sample ID: NAWC-011618-RW-258

Date Analyzed: 02/02/18 23:42 Lab File ID: 2018.02.02\_537B\_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	1.62	Missed Peak	barnettj	02/06/18 11:15
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 11:15

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206872

Lab Sample ID: 320-35148-13 Client Sample ID: NAWC-011618-RW-234

Date Analyzed: 02/02/18 23:51 Lab File ID: 2018.02.02\_537B\_019.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	02/06/18 11:18
Perfluoroheptanoic acid (PFHpA)	1.62	Missed Peak	barnettj	02/06/18 11:16
Perfluorohexanesulfonic acid (PFHxS)	1.62	Wrong peak	barnettj	02/06/18 11:17
Perfluorooctanesulfonic acid (PFOS)	2.05	Wrong peak	barnettj	02/06/18 11:17

Lab Sample ID: 320-35148-15 Client Sample ID: WGNA-011618-DUP20

Date Analyzed: 02/03/18 00:00 Lab File ID: 2018.02.02\_537B\_021.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	02/06/18 11:19
Perfluorohexanesulfonic acid (PFHxS)	1.62	Wrong peak	barnettj	02/06/18 11:19
Perfluorooctanesulfonic acid (PFOS)	2.06	Missed Peak	barnettj	02/06/18 11:19

Lab Sample ID: 320-35148-16 Client Sample ID: NAWC-011618-RW-264

Date Analyzed: 02/03/18 00:05 Lab File ID: 2018.02.02\_537B\_022.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	02/06/18 11:20
Perfluorohexanesulfonic acid (PFHxS)	1.62	Missed Peak	barnettj	02/06/18 11:20
Perfluorooctanesulfonic acid (PFOS)	1.96	Missed Peak	barnettj	02/06/18 11:21

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206872

Lab Sample ID: 320-35148-18 Client Sample ID: WGNA-011618-RW-0560

Date Analyzed: 02/03/18 00:14 Lab File ID: 2018.02.02\_537B\_024.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	User Assigned	barnettj	02/06/18 11:21

Lab Sample ID: CCV 320-206872/25 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/03/18 00:19 Lab File ID: 2018.02.02\_537B\_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206874

Lab Sample ID: CCV 320-206874/25 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/03/18 00:19 Lab File ID: 2018.02.02\_537B\_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:05

Lab Sample ID: 320-35148-20 Client Sample ID: WGNA-011618-RW-0515

Date Analyzed: 02/03/18 00:33 Lab File ID: 2018.02.02\_537B\_028.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	User Assigned	barnettj	02/06/18 11:22
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/06/18 11:22

Lab Sample ID: 320-35148-20 MS Client Sample ID: WGNA-011618-RW-0515 MS

Date Analyzed: 02/03/18 00:38 Lab File ID: 2018.02.02\_537B\_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 11:23

Lab Sample ID: 320-35148-20 MSD Client Sample ID: WGNA-011618-RW-0515 MSD

Date Analyzed: 02/03/18 00:42 Lab File ID: 2018.02.02\_537B\_030.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:06

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 206874

Lab Sample ID: CCV 320-206874/31 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/03/18 00:47 Lab File ID: 2018.02.02\_537B\_031.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 11:07



LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 207097

Lab Sample ID: CCVL 320-207097/1 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/06/18 08:30 Lab File ID: 2018.02.06\_537A\_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	roycea	02/06/18 09:48

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Analysis Batch Number: 207174

Lab Sample ID: CCV 320-207174/1 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/06/18 11:29 Lab File ID: 2018.02.06\_537B\_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	barnettj	02/06/18 13:47

Lab Sample ID: LCS 320-206188/2-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/06/18 11:43 Lab File ID: 2018.02.06\_537B\_032.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 13:49

Lab Sample ID: LCSD 320-206188/3-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/06/18 11:47 Lab File ID: 2018.02.06\_537B\_033.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 13:50

Lab Sample ID: CCV 320-207174/12 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/06/18 12:20 Lab File ID: 2018.02.06\_537B\_040.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 13:48

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
<b>LC537-HSP_00023</b>	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutane Sulfonate	1250.1 ng/mL		
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL		
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
..LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFOS_00002	0.0992 g	Perfluorobutane Sulfonate	2 mg/mL		
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g		
							Perfluorobutanesulfonic acid (PFBS)	1 g/g		
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
...LC537_PFHpA_00002	04/01/18		Aldrich, Lot 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		
<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		
							13C4 PFOS	28.68 ng/mL		
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL		
							LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM_00019	20 uL	Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
							Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
							Perfluorononanoic acid (PFNA)	20.1272 ng/mL
							Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
				Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL			
.LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	50.0597 ug/mL
					LC537-PFHpA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	4.99806 ug/mL
					LC537-PFHxS2_00008	0.122 mL	Perfluorohexanesulfonic acid (PFHxS)	10.038 ug/mL
					LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	10.0636 ug/mL
					LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
					LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537_PFBS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
...LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFHpA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537_PFHpA2_00002	0.0635 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
...LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..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)	0.9094 g/g
..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)	0.996 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537_PFOA2_00002	0.0424 g	Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
...LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
..LC537-PFOS2_00010	01/25/18	08/01/17	Methanol, Lot 090285	22 mL	LC537_PFOS2_00002	0.0561 g	Perfluorooctanesulfonic acid (PFOS)	1985.68 ug/mL
...LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00055	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.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-IS_00057</b>	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
<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
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V			(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	1 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHpa_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpa_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpa_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
...LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L2_00020</b>	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	80 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22277 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66817 ng/mL
							Perfluorononanoic acid (PFNA)	4.44524 ng/mL
							Perfluorooctanoic acid (PFOA)	4.44816 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.89106 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpa_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					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-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
<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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	8.92684 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V				(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)
								1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V				(Purchased Reagent)	Perfluoroheptanoic acid (PFHpA)
								0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V				(Purchased Reagent)	Perfluorohexanesulfonic acid (PFHxS)
								0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F				(Purchased Reagent)	Perfluorononanoic acid (PFNA)
								0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V				(Purchased Reagent)	Perfluorooctanoic acid (PFOA)
								0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV				(Purchased Reagent)	Perfluorooctanesulfonic acid (PFOS)
								0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916				(Purchased Reagent)	13C2 PFDA
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116				(Purchased Reagent)	13C2 PFHxA
								50 ug/mL
								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



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL		
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL		
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL		
							LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFDA	10 ng/mL		
							13C2 PFDA	10 ng/mL		
							13C2 PFHxA	10 ng/mL		
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL		
							LC537-PFHxA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 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-PFHxA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/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-PFHxA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537-PFHxA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537-PFHxA_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		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....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	12/12/21		Wellington Laboratories, Lot MPFOS1216		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
..LCMPFDA 00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA 00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA 00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L3_00024</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA 00007	60 uL	13C4 PFOS	28.68 ng/mL
..LCM2PFOA 00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		LCMPFOS 00021	180 uL	13C2-PFOA	0.1 ug/mL
..LCMPFOS 00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
<b>LC537-L3_00024</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	720 uL	13C2-PFOA	50 ug/mL
							13C4 PFOS	47.8 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00094 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0049 ng/mL
							Perfluorononanoic acid (PFNA)	10.0032 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0553 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0854 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..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
					(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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..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_00024</b>	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		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..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-IS_00059	2 mL	13C2-PFOA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C4 PFOS	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		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-L5_00025</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	2160 uL	Perfluorobutanesulfonic acid (PFBS)	50 ug/mL
							Perfluoroheptanoic acid (PFHpA)	47.8 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	135.011 ng/mL
							Perfluorononanoic acid (PFNA)	15.0028 ng/mL
							Perfluorooctanoic acid (PFOA)	45.0147 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	30.0096 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	30.1658 ng/mL
							13C2 PFHxA	60.2562 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	10 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	1250.1 ng/mL
							Perfluorononanoic acid (PFNA)	138.915 ng/mL
							Perfluorooctanoic acid (PFOA)	416.802 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	277.867 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	279.313 ng/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	557.928 ng/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	90 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	10.0011 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	30.0074 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	20.0048 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)	20.1089 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...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 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	0.99 g/g
							Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-MSP_00027</b>	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutane Sulfonate	750.15 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL
							Perfluorononanoic acid (PFNA)	166.716 ng/mL
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							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	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35148-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
..LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V				Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpa_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpa_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
...LC537_PFHpa_00002	04/01/18		Aldrich, Lot BCM2579V				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				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				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				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				Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
<b>LC537-SU_00053</b>	05/27/18	11/27/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916				13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116				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

Email USA: techserv@sial.com

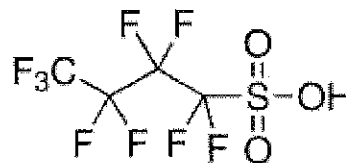
Outside USA: eurtechserv@sial.com

## Certificate of Analysis

Product Name:

Nonafluorobutane-1-sulfonic acid - 97%

**Product Number:** 562629  
**Batch Number:** MKBP8842V  
**Brand:** ALDRICH  
**CAS Number:** 375-73-5  
**MDL Number:** MFCD01320794  
**Formula:** C4HF9O3S  
**Formula Weight:** 300.10 g/mol  
**Storage Temperature:** Store at 2 - 8 °C  
**Quality Release Date:** 11 OCT 2013



PFBS

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

Jamie Gleason, Manager  
 Quality Control  
 Milwaukee, Wisconsin US

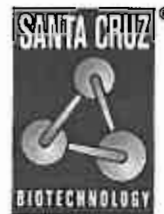
Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser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

Reagent

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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

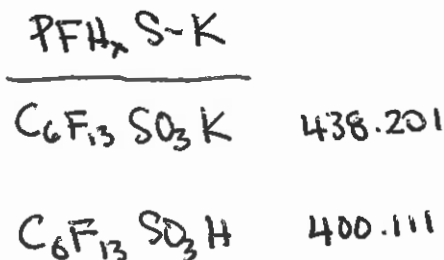


The Future of Science

# 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)

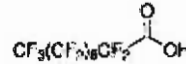
Email USA: [techserv@sial.com](mailto:techserv@sial.com)

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**

C: 11/30/16 SKV  
PFA

**SIGMA-ALDRICH**

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

## Certificate of Analysis

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

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



Dr. Claudia Geitner  
Manager Quality Control  
Buchs, Switzerland

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

Reagent

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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%

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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 <sup>®</sup>	

**Reference Material (RM)**

**1. General Information**

Formula: C8F17KO3S	Molar mass: 538.22 g/Mole
CAS-No.: [2795-39-3]	Recomm. storage temp.: roomtemp.
Usage : PFOS	

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	complying
Assay (LC-MS)	98 %
Date of Analysis	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:** HEPTADEC AFLUORO OCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT  
 98 %  
**Product Number:** 365289  
**Batch Number:** BCBQ0108V  
**Brand:** Aldrich  
**CAS Number:** 56773-42-3  
**Formula:**  $CF_3(CF_2)_6CF_2SO_3N(C_2H_5)_4$   
**Formula Weight:** 629.37  
**Quality Release Date:** 11 JUN 2015

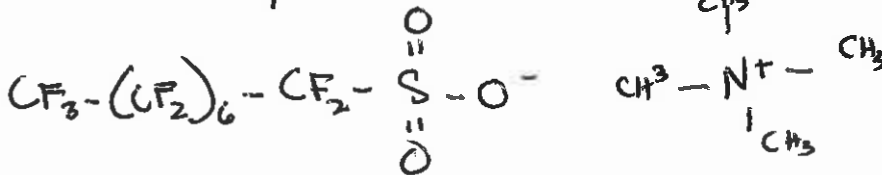
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

*Claudia Geitner*

Dr. Claudia Geitner  
 Manager Quality Control  
 Buchs, Switzerland

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

Purity & MW correction = 77.87%



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

Reagent

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**LCM2PFOA\_00007**



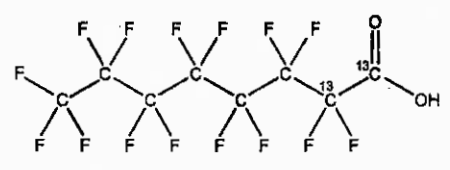
# WELLINGTON LABORATORIES

## 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:**

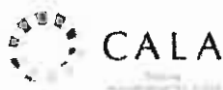
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **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.

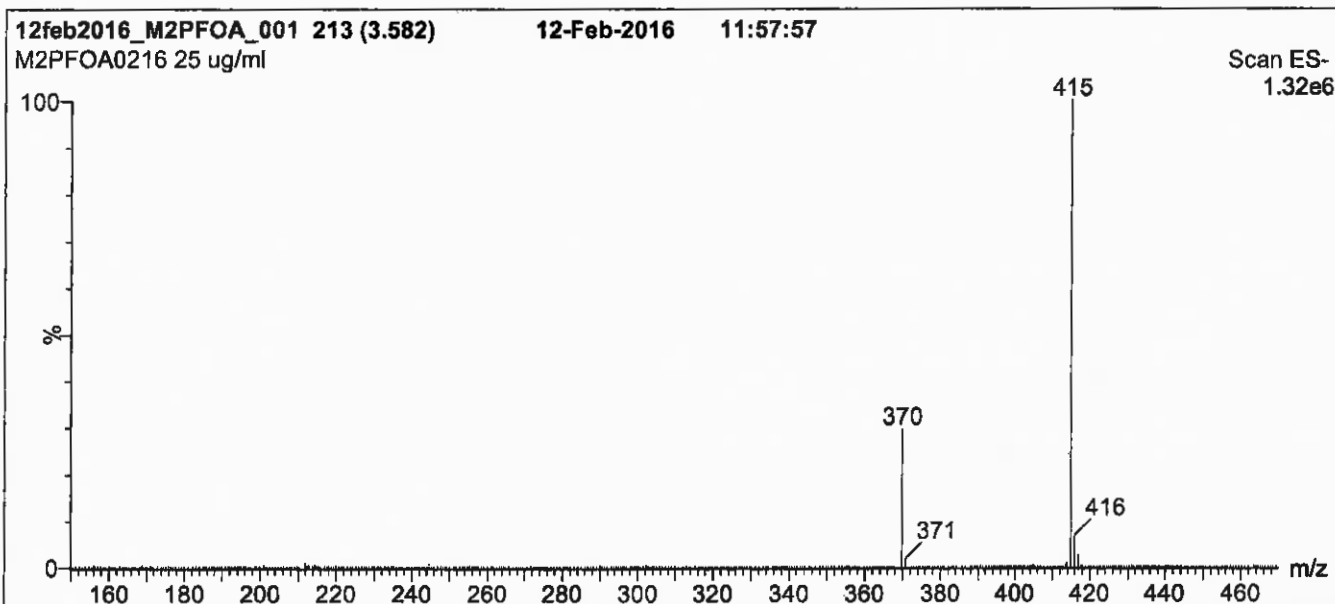
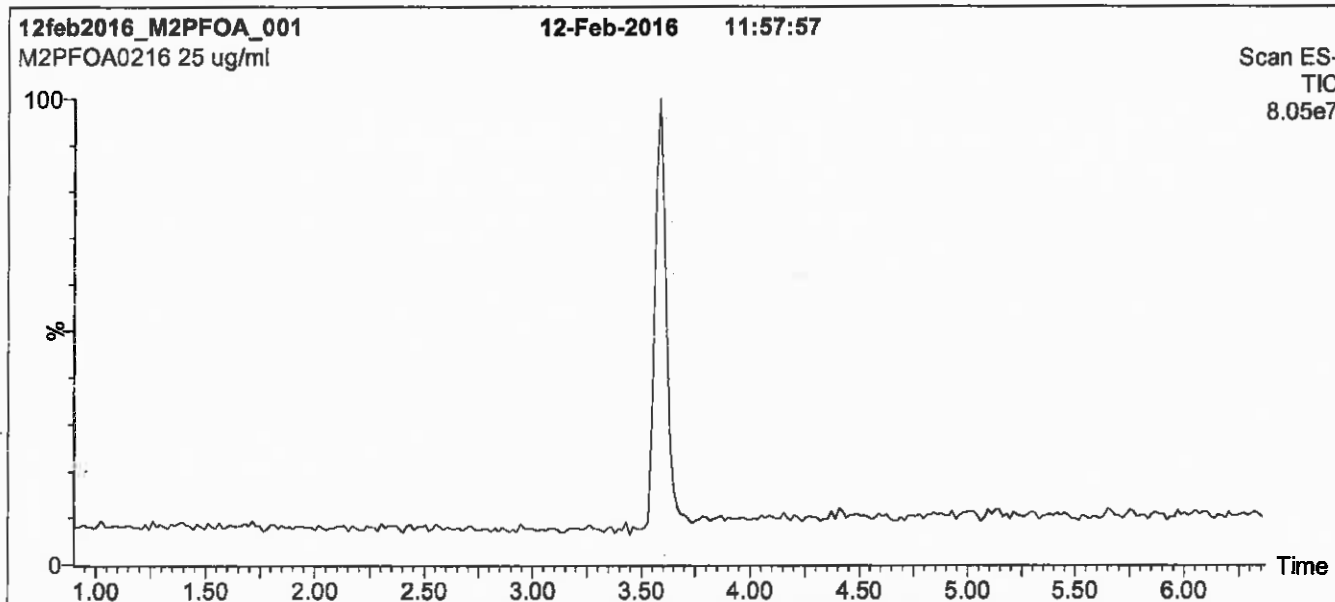
### **QUALITY MANAGEMENT:**

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

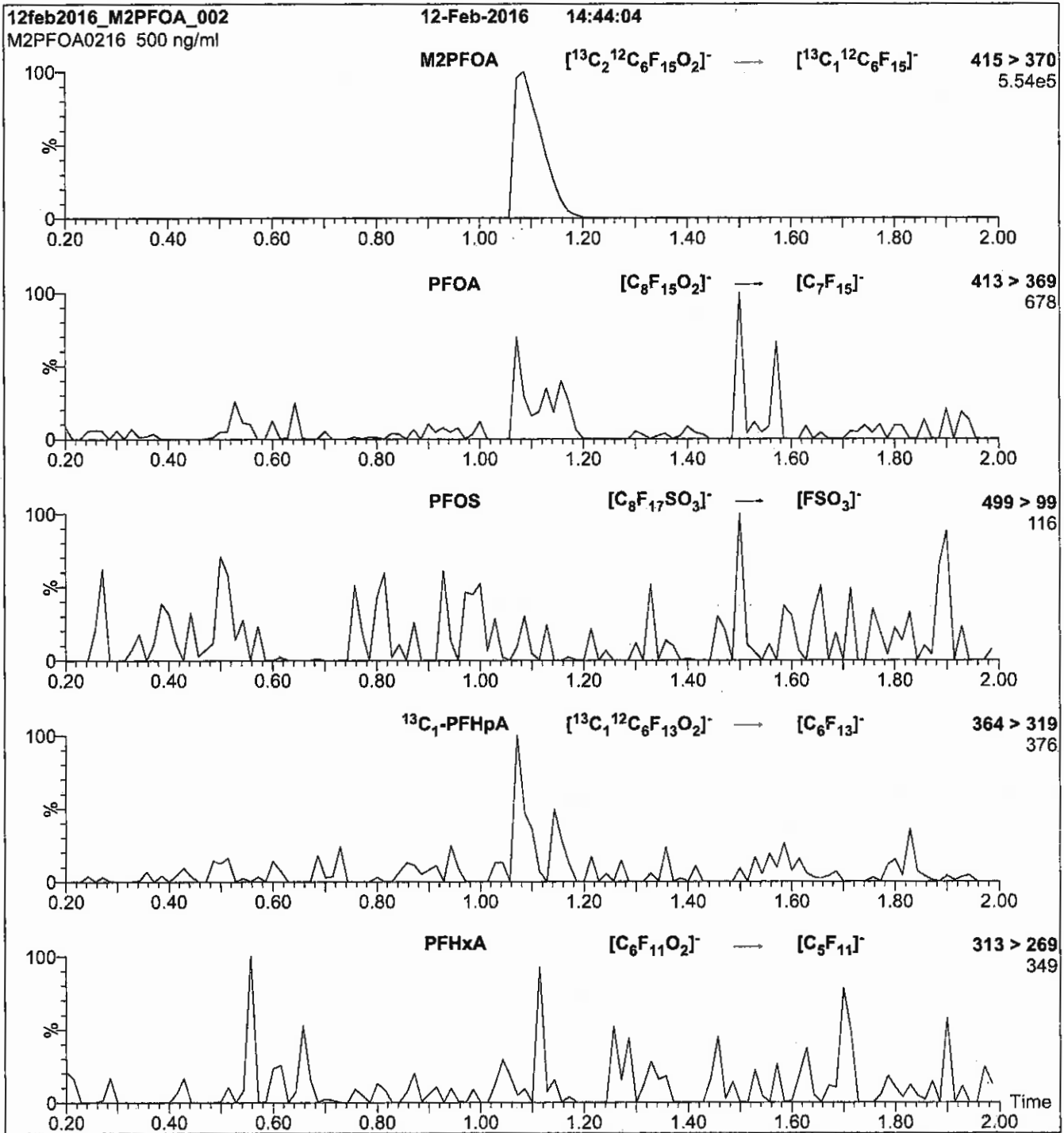
Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7.5 min and hold for 1.5 min  
before returning to initial conditions in 0.5 min.  
Time: 10 min

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:**

Injection: Direct loop injection  
 10  $\mu\text{l}$  (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H<sub>2</sub>O

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

**MS Parameters**

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

Reagent

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**LCMPFDA\_00012**

R: SBC 12/21/16



814255

ID: LCMPPFDA\_00012

Exp: 09/30/21 Prod: SBC

13C2-Perfluorodecanoic a

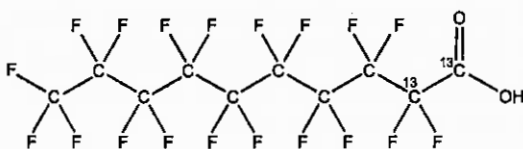


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFDA **LOT NUMBER:** MPFDA0916  
**COMPOUND:** Perfluoro-n-[1,2-<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.

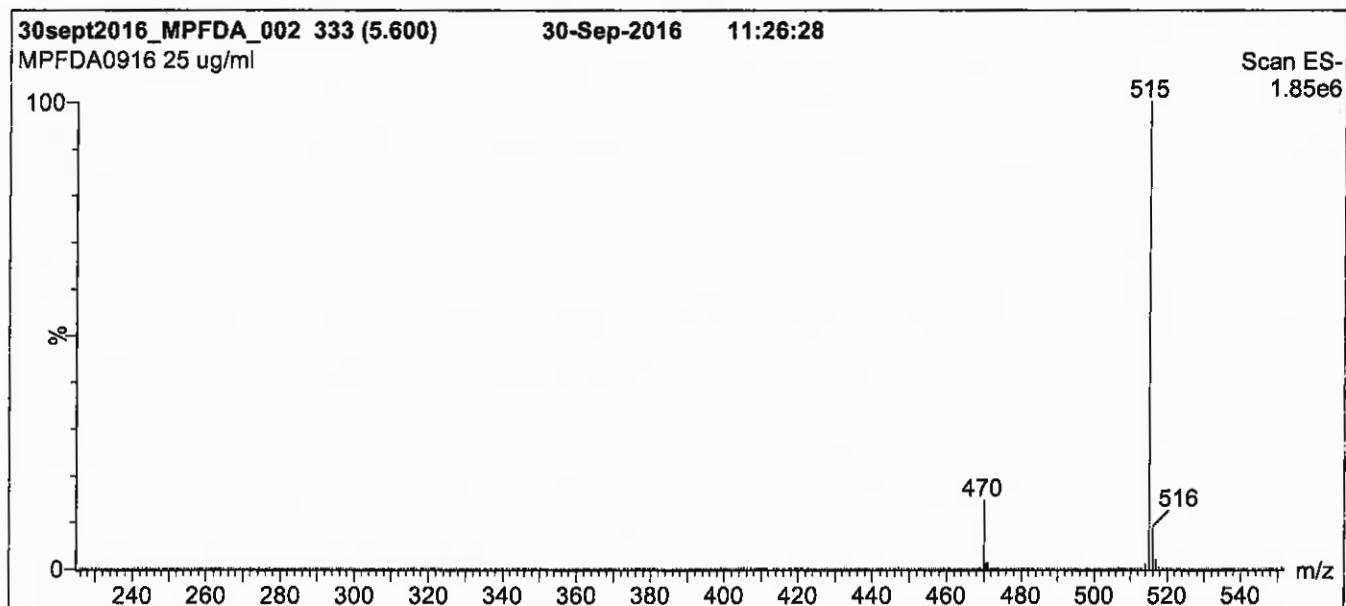
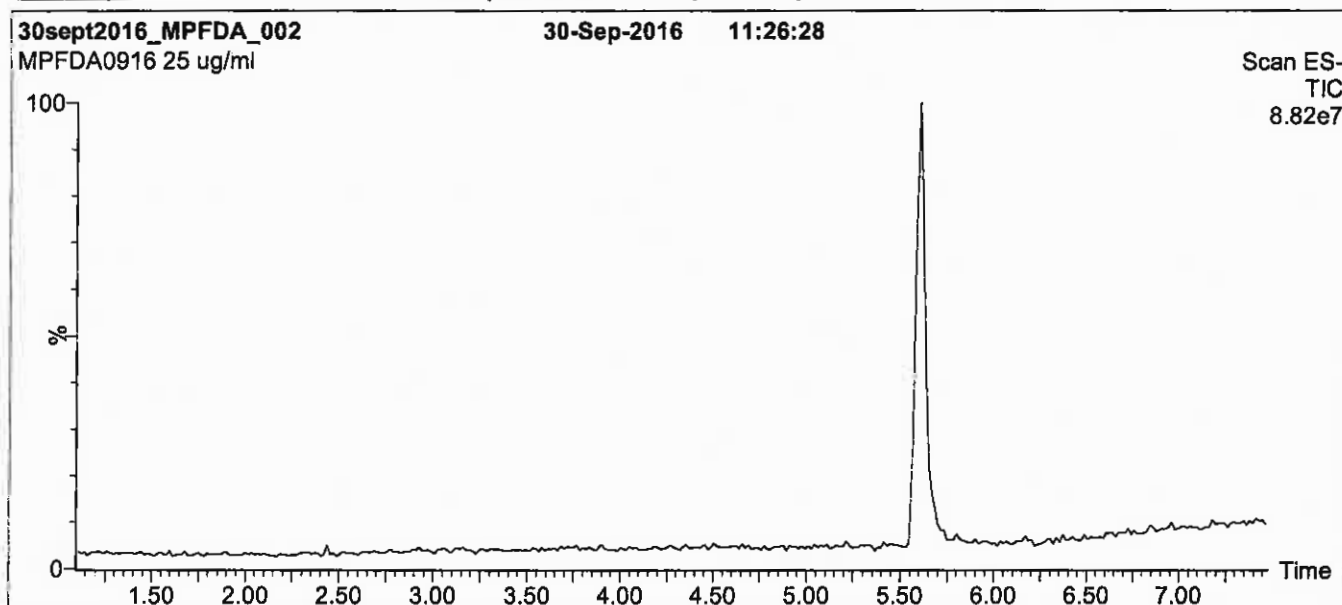
### **QUALITY MANAGEMENT:**

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**

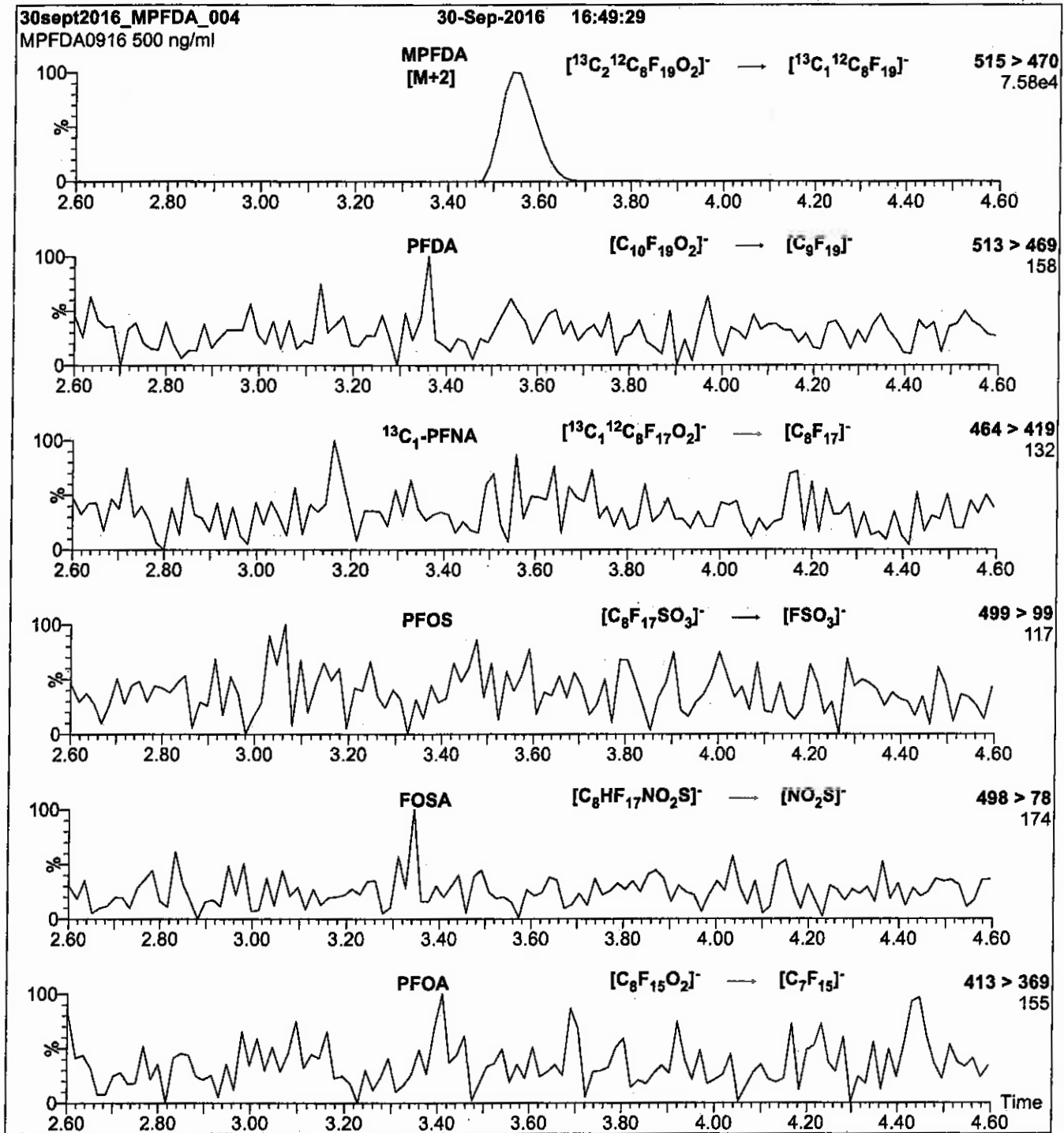
Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm  
Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 1.5 min  
before returning to initial conditions in 0.5 min.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

---

**LCMPFHxA\_00013**

R: SBC 12/21/16



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



# WELLINGTON LABORATORIES

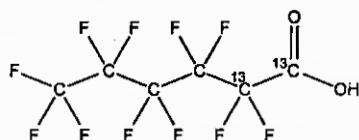
## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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

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

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


**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

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

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

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

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

### **INTENDED USE:**

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

### **HAZARDS:**

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

### **SYNTHESIS / CHARACTERIZATION:**

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

### **HOMOGENEITY:**

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

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

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

### **LIMITED WARRANTY:**

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

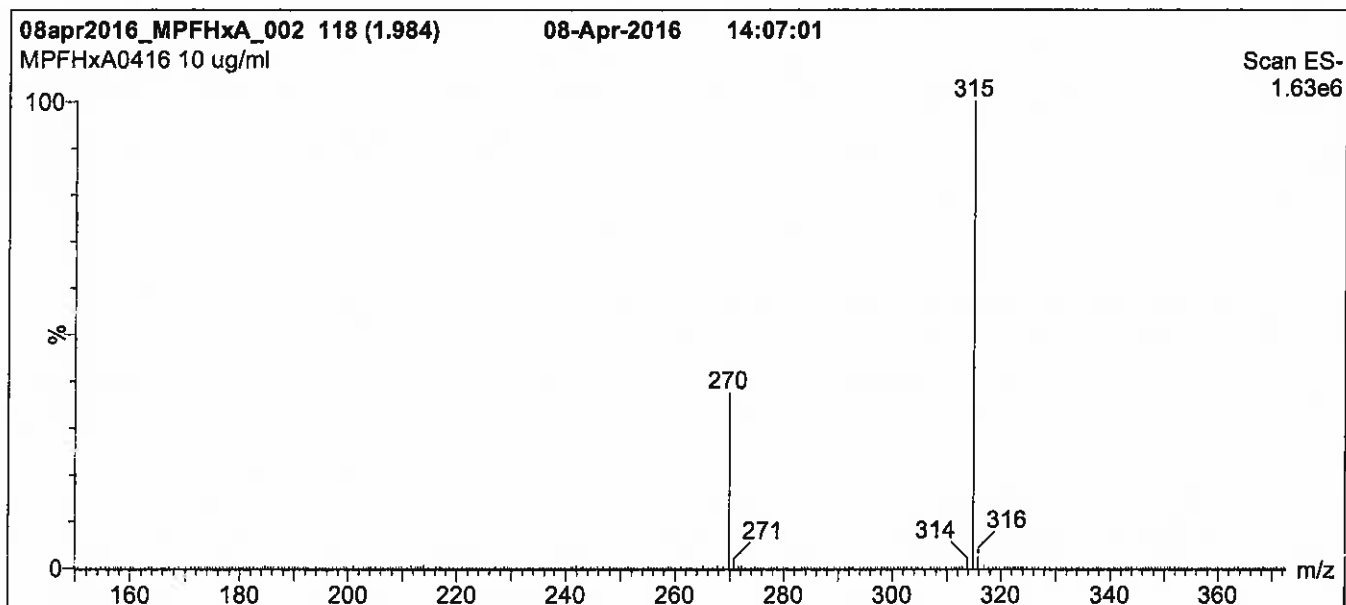
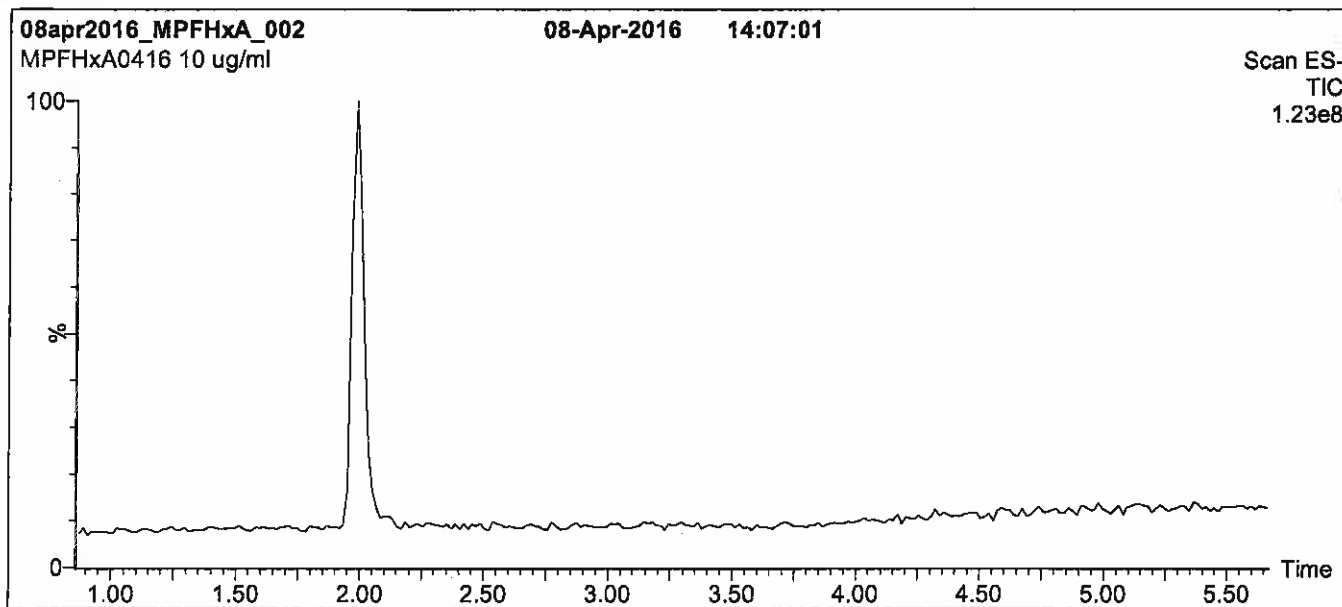
### **QUALITY MANAGEMENT:**

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: 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

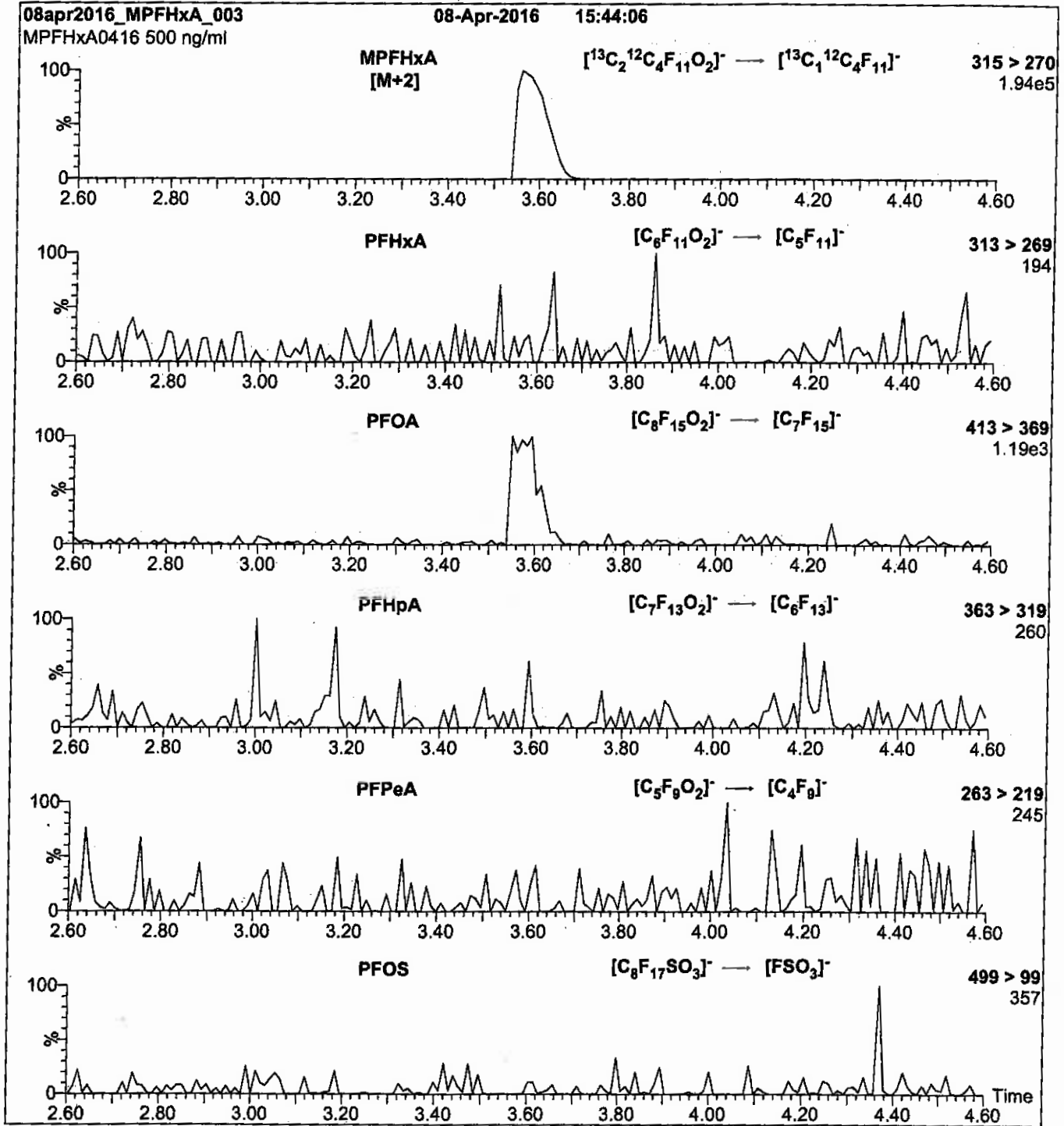
Flow: 300  $\mu$ l/min

**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

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**LCMPFHxA\_00015**

r: 5/10/17 skd



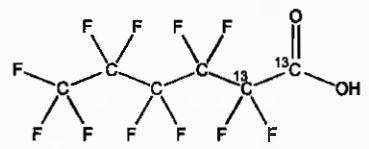
# WELLINGTON LABORATORIES

## 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%  
**LAST TESTED:** (mm/dd/yyyy) 11/22/2016  
**EXPIRY DATE:** (mm/dd/yyyy) 11/22/2021

**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.
- Contains < 0.1% of perfluoro-n-hexanoic acid and ~ 0.3% of perfluoro-n-octanoic acid.

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

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

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

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

**INTENDED USE:**

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

**HAZARDS:**

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

**SYNTHESIS / CHARACTERIZATION:**

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

**HOMOGENEITY:**

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

**UNCERTAINTY:**

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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

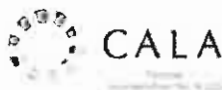
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

**LIMITED WARRANTY:**

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

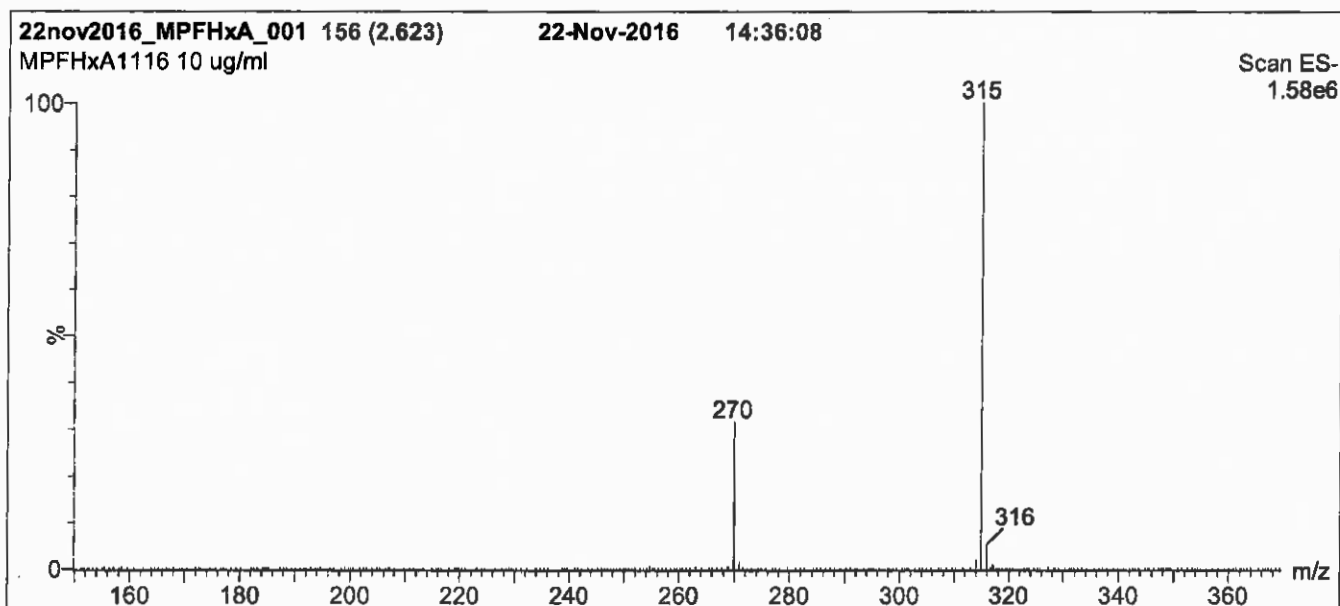
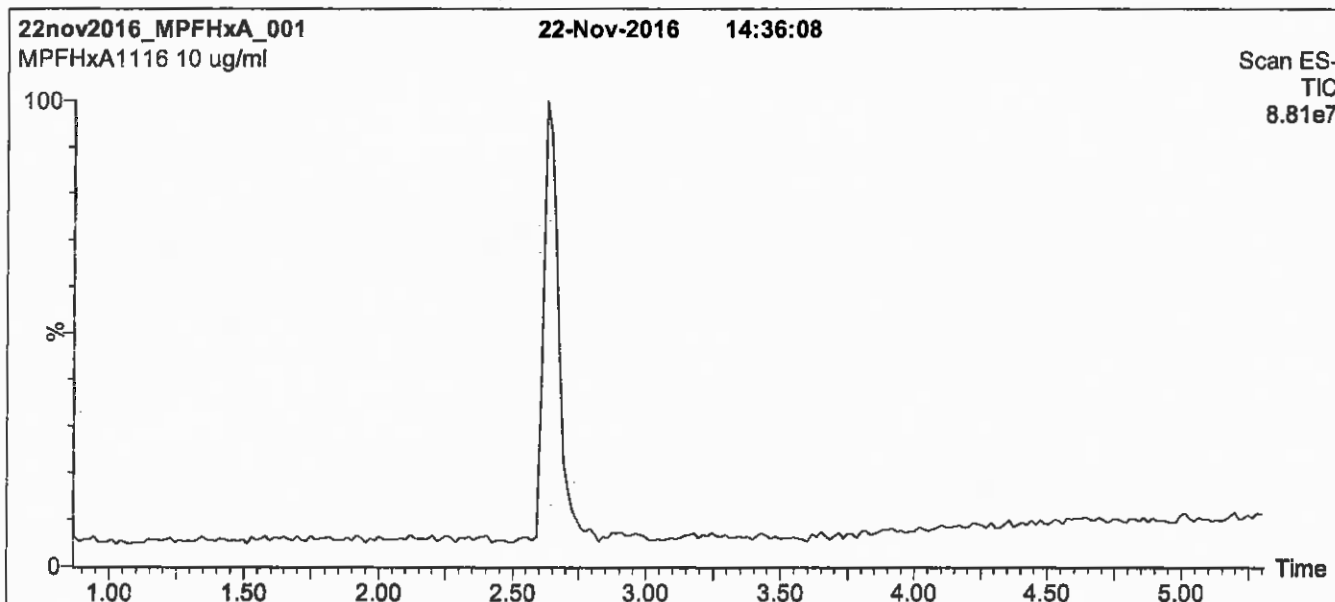
**QUALITY MANAGEMENT:**

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



\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

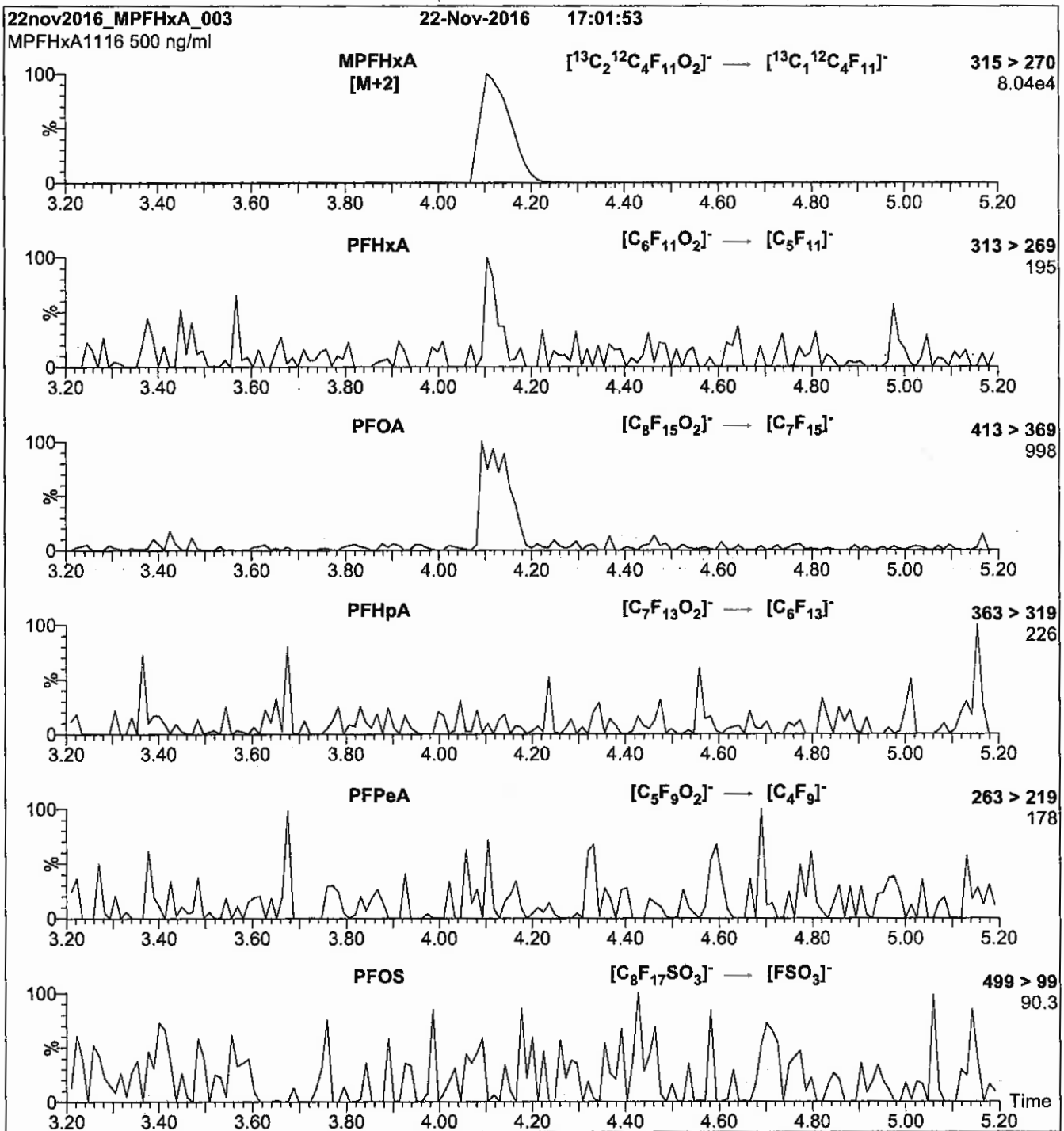
Mobile phase: Gradient  
Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 2 min  
before returning to initial conditions over 0.5 min.  
Time: 10 min

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

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

Reagent

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**LCMPFOS\_00019**

R: SBC 12/21/16



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

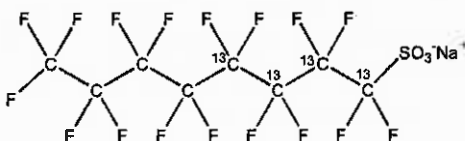


# WELLINGTON LABORATORIES

## 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



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


### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-<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

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### **HOMOGENEITY:**

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

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

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

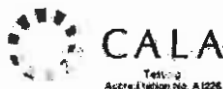
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

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### **QUALITY MANAGEMENT:**

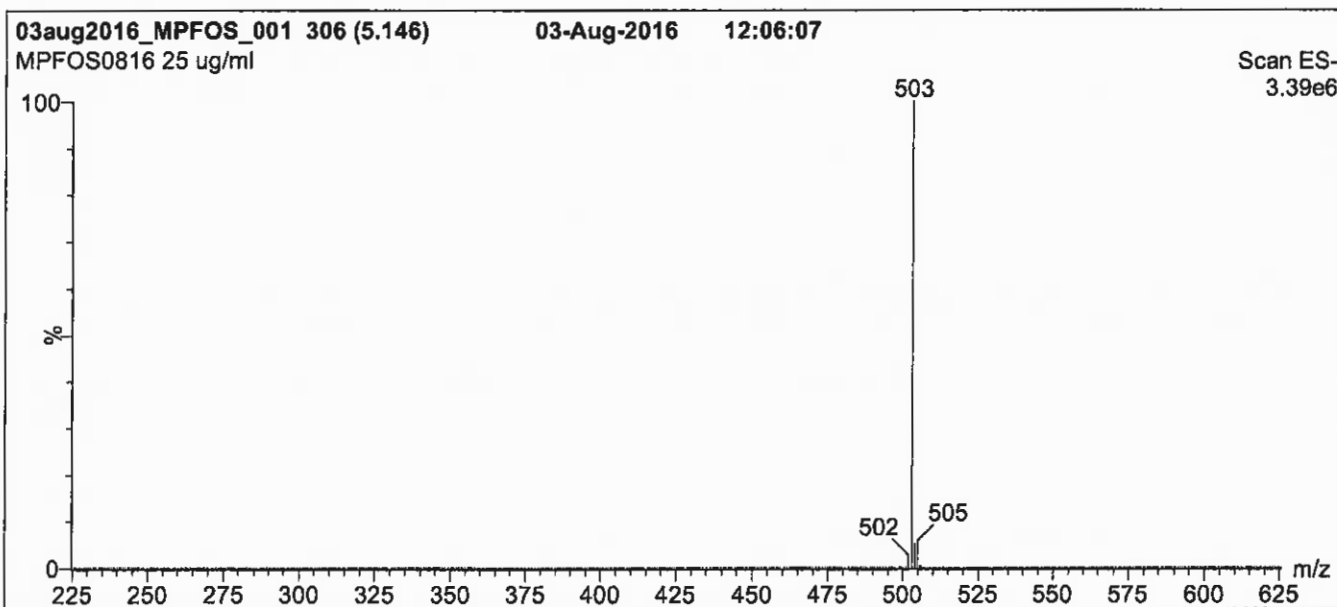
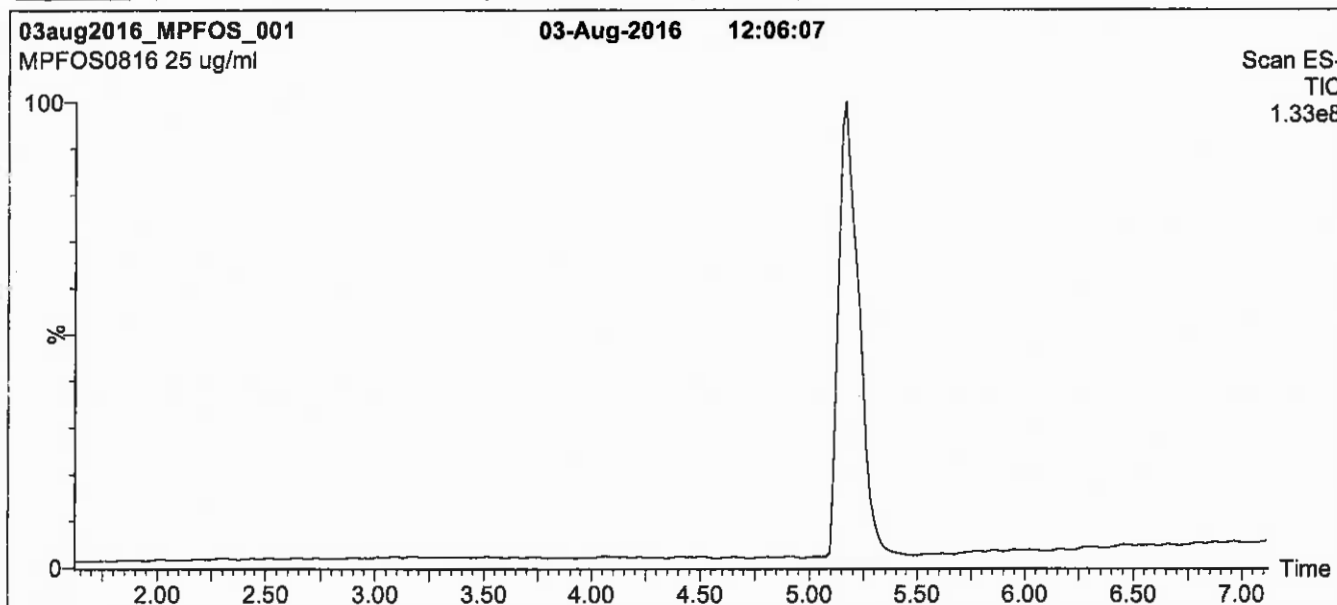
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



\*\*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: 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

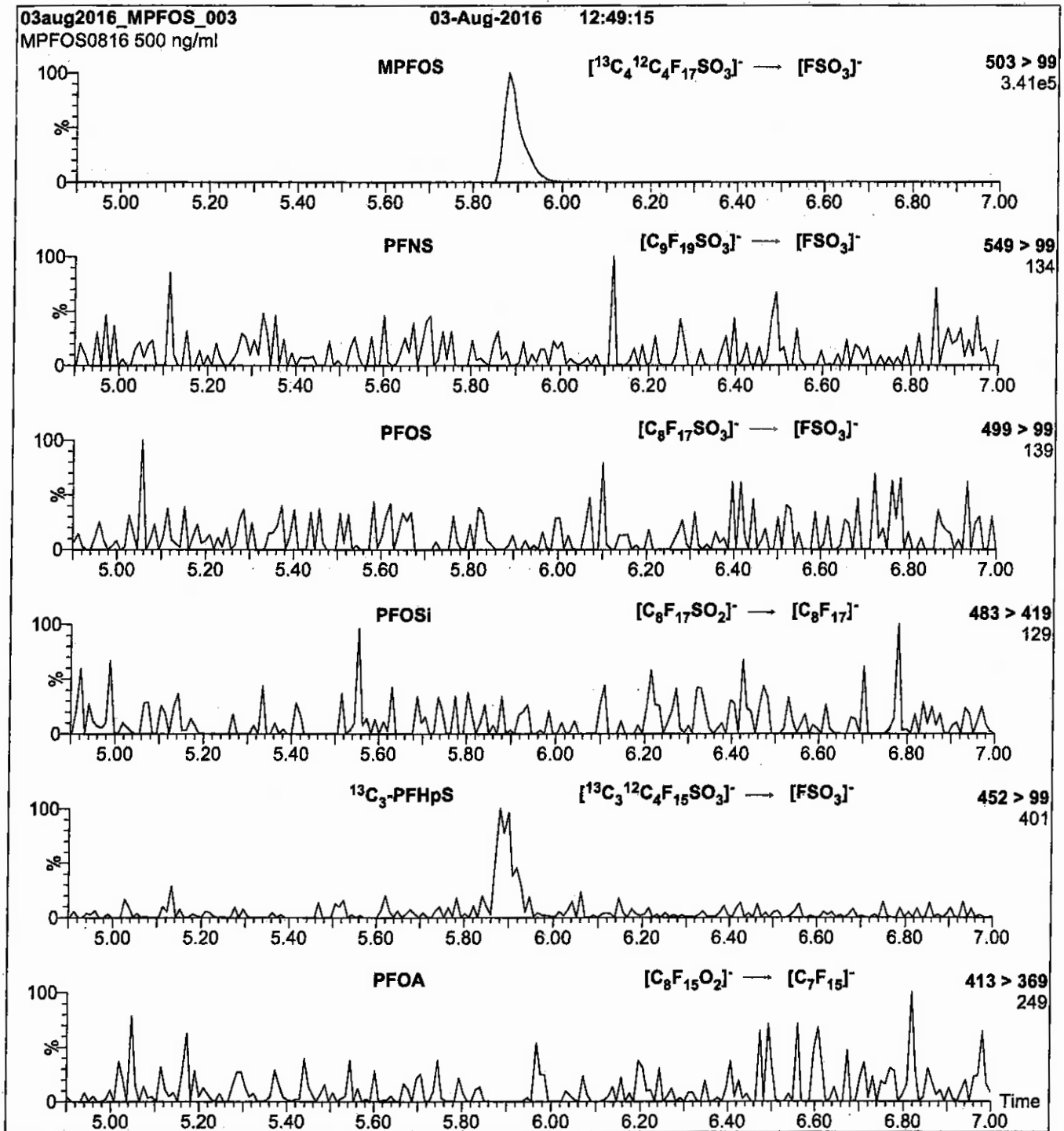
Flow: 300  $\mu$ l/min

**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

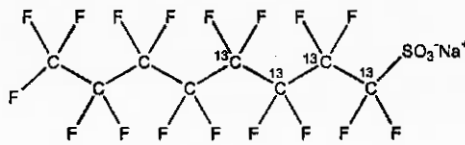


# WELLINGTON LABORATORIES

## 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



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

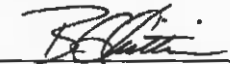
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-<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

**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.

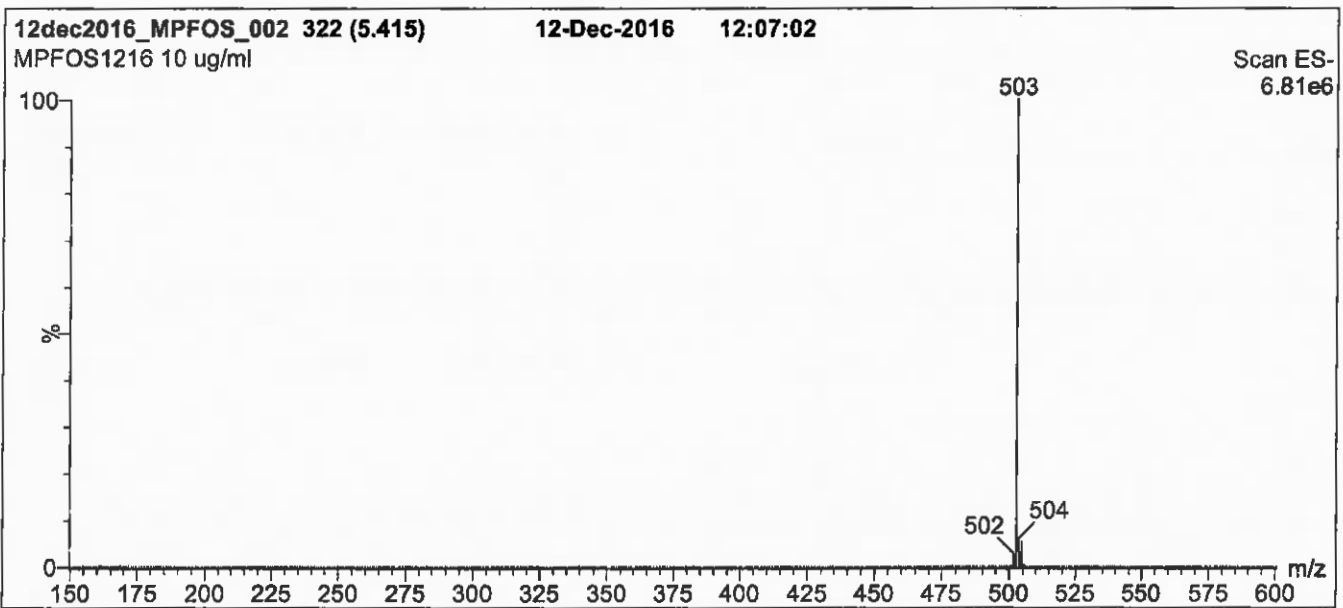
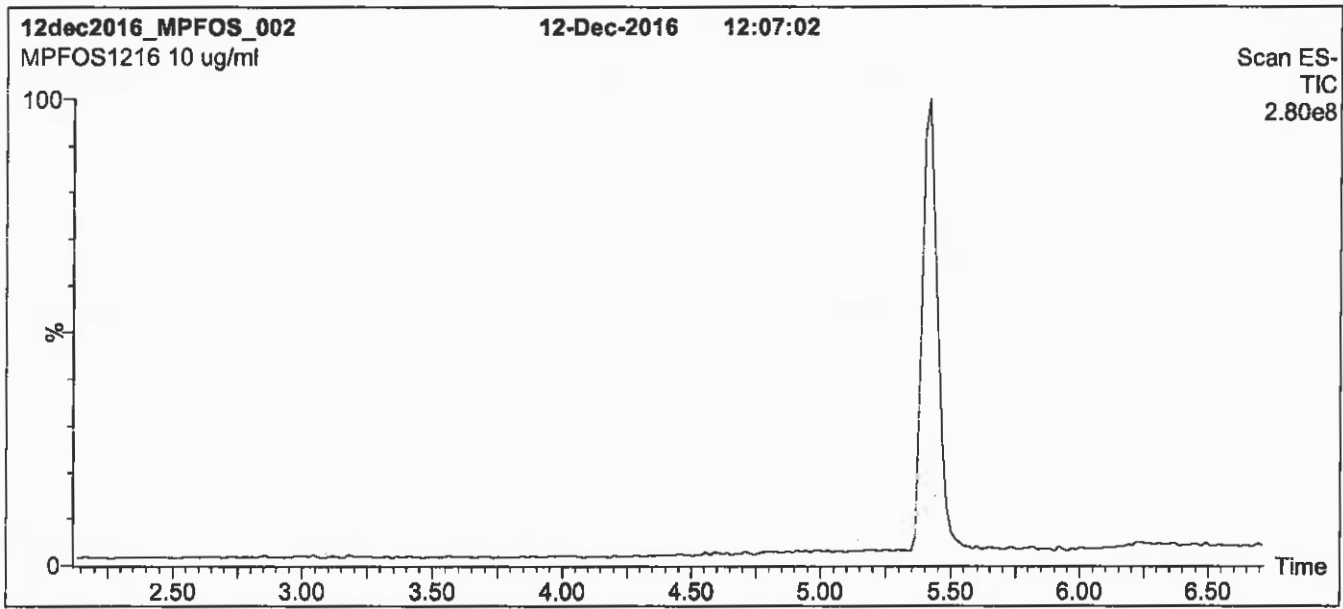
**QUALITY MANAGEMENT:**

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: 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

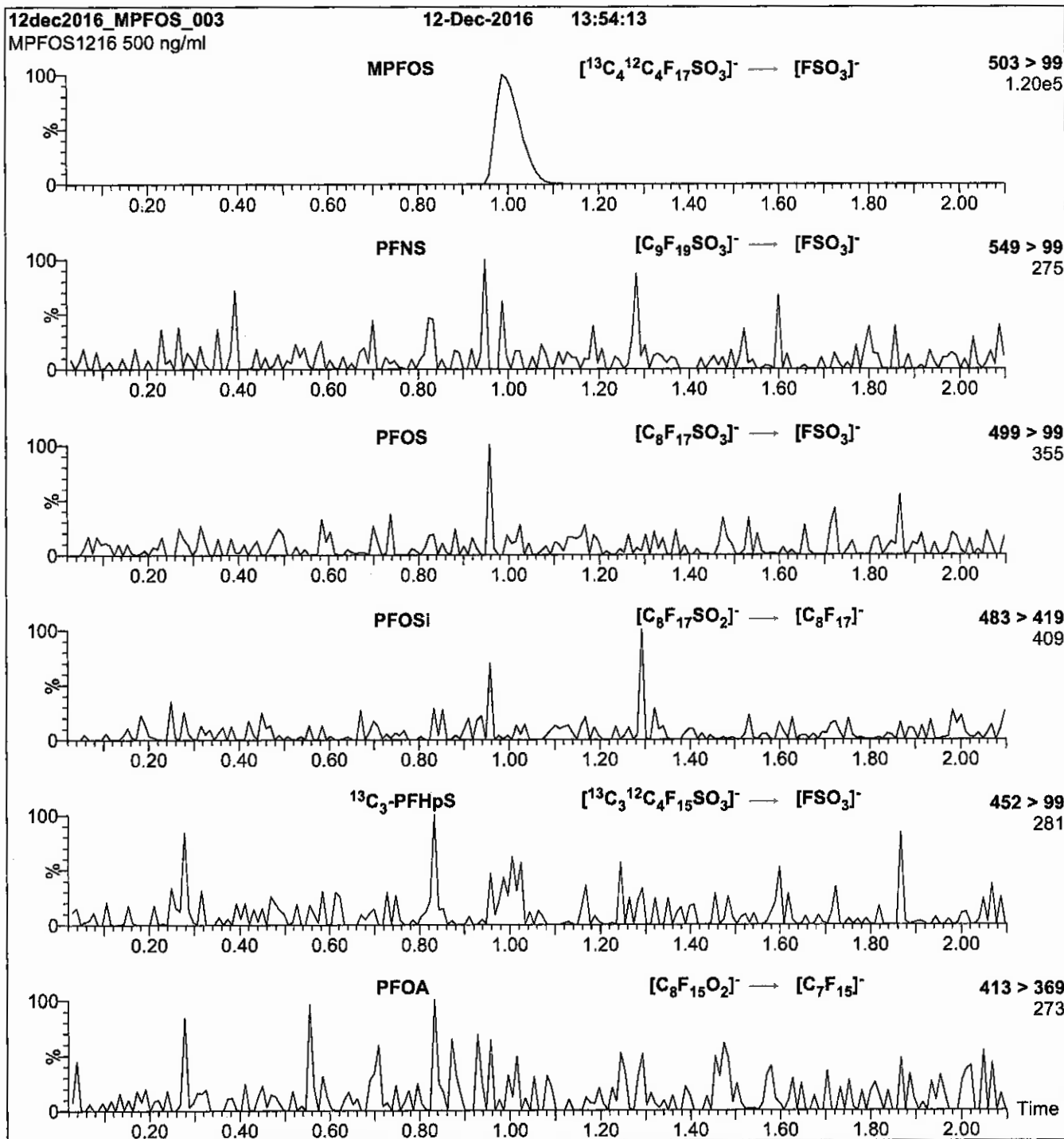
**Flow:** 300  $\mu$ l/min

**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.: 320-35148-1

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

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-011618-RW-334	320-35148-1	94	99
NAWC-011618-FRB-334	320-35148-2	96	98
NAWC-011618-RW-280	320-35148-3	92	92
NAWC-011618-FRB-280	320-35148-4	97	110
NAWC-011618-RW-262	320-35148-5	89	96
NAWC-011618-FRB-262	320-35148-6	91	93
WGNA-011618-RW-3295	320-35148-7	87	85
WGNA-011618-FRB-3295	320-35148-8	97	105
NAWC-011618-RW-272	320-35148-9	91	98
NAWC-011618-FRB-272	320-35148-10	101	104
NAWC-011618-RW-258	320-35148-11	85	89
NAWC-011618-FRB-258	320-35148-12	92	96
NAWC-011618-RW-234	320-35148-13	93	94
NAWC-011618-FRB-234	320-35148-14	94	91
WGNA-011618-DUP20	320-35148-15	94	96
NAWC-011618-RW-264	320-35148-16	93	97
NAWC-011618-FRB-264	320-35148-17	86	100
WGNA-011618-RW-0560	320-35148-18	100	105
WGNA-011618-FRB-0560	320-35148-19	95	100
WGNA-011618-RW-0515	320-35148-20	99	100
WGNA-011618-FRB-0515	320-35148-21	104	102
	MB 320-206187/1-A	95	97
	MB 320-206188/1-A	95	104
	LCS 320-206187/2-A	92	102
	LCS 320-206188/2-A	110	111
	LCSD 320-206188/3-A	104	107
WGNA-011618-RW-0515 MS	320-35148-20 MS	96	95

PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA

QC LIMITS  
70-130  
70-130

# Column to be used to flag recovery values

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-011618-RW-051 5 MSD	320-35148-20 MSD	97	96

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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_004.d  
 Lab ID: LCS 320-206187/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	132	99	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	72.5	109	70-130	
Perfluorononanoic acid (PFNA)	66.7	68.3	102	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	113	113	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	39.1	117	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	302	101	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.06\_537B\_032.d  
 Lab ID: LCS 320-206188/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	223	100	70-130	M
Perfluorooctanoic acid (PFOA)	111	131	117	70-130	
Perfluorononanoic acid (PFNA)	111	119	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	181	109	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	69.9	126	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	501	100	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Matrix: Water Level: Low Lab File ID: 2018.02.06\_537B\_033.d

Lab ID: LCSD 320-206188/3-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	222	238	107	7	30	70-130	M
Perfluorooctanoic acid (PFOA)	111	130	117	0	30	70-130	
Perfluorononanoic acid (PFNA)	111	121	109	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	187	112	3	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	70.1	126	0	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	479	96	4	30	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_029.d  
 Lab ID: 320-35148-20 MS Client ID: WGNA-011618-RW-0515 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	135	34 J	158	92	70-130	M
Perfluorooctanoic acid (PFOA)	67.4	38	102	95	70-130	
Perfluorononanoic acid (PFNA)	67.4	20 U	66.3	98	70-130	
Perfluorohexanesulfonic acid (PFHxS)	101	27 J	131	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.7	8.4 J	42.6	102	70-130	
Perfluorobutanesulfonic acid (PFBS)	303	36 U	308	102	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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_030.d  
 Lab ID: 320-35148-20 MSD Client ID: WGNA-011618-RW-0515 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	134	162	96	2	30	70-130	M
Perfluorooctanoic acid (PFOA)	66.9	104	100	3	30	70-130	
Perfluorononanoic acid (PFNA)	66.9	68.2	102	3	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	132	105	0	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.5	42.9	103	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	301	324	108	5	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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.02\_537B\_003.d Lab Sample ID: MB 320-206187/1-A  
 Matrix: Water Date Extracted: 01/30/2018 12:48  
 Instrument ID: A8\_N Date Analyzed: 02/02/2018 22:36  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206187/2-A	2018.02.02_537B 004.d	02/02/2018 22:41
NAWC-011618-RW-334	320-35148-1	2018.02.02_537B 005.d	02/02/2018 22:45
NAWC-011618-FRB-334	320-35148-2	2018.02.02_537B 006.d	02/02/2018 22:50
NAWC-011618-RW-280	320-35148-3	2018.02.02_537B 007.d	02/02/2018 22:55
NAWC-011618-FRB-280	320-35148-4	2018.02.02_537B 008.d	02/02/2018 23:00
NAWC-011618-RW-262	320-35148-5	2018.02.02_537B 009.d	02/02/2018 23:04
NAWC-011618-FRB-262	320-35148-6	2018.02.02_537B 010.d	02/02/2018 23:09
WGNA-011618-RW-3295	320-35148-7	2018.02.02_537B 011.d	02/02/2018 23:14
WGNA-011618-FRB-3295	320-35148-8	2018.02.02_537B 012.d	02/02/2018 23:18
NAWC-011618-RW-272	320-35148-9	2018.02.02_537B 015.d	02/02/2018 23:32
NAWC-011618-FRB-272	320-35148-10	2018.02.02_537B 016.d	02/02/2018 23:37
NAWC-011618-RW-258	320-35148-11	2018.02.02_537B 017.d	02/02/2018 23:42
NAWC-011618-FRB-258	320-35148-12	2018.02.02_537B 018.d	02/02/2018 23:46
NAWC-011618-RW-234	320-35148-13	2018.02.02_537B 019.d	02/02/2018 23:51
NAWC-011618-FRB-234	320-35148-14	2018.02.02_537B 020.d	02/02/2018 23:56
WGNA-011618-DUP20	320-35148-15	2018.02.02_537B 021.d	02/03/2018 00:00
NAWC-011618-RW-264	320-35148-16	2018.02.02_537B 022.d	02/03/2018 00:05
NAWC-011618-FRB-264	320-35148-17	2018.02.02_537B 023.d	02/03/2018 00:10
WGNA-011618-RW-0560	320-35148-18	2018.02.02_537B 024.d	02/03/2018 00:14
WGNA-011618-FRB-0560	320-35148-19	2018.02.02_537B 027.d	02/03/2018 00:28
WGNA-011618-RW-0515	320-35148-20	2018.02.02_537B 028.d	02/03/2018 00:33
WGNA-011618-RW-0515 MS	320-35148-20 MS	2018.02.02_537B 029.d	02/03/2018 00:38



FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.02.02\_537B\_003.d Lab Sample ID: MB 320-206187/1-A  
Matrix: Water Date Extracted: 01/30/2018 12:48  
Instrument ID: A8\_N Date Analyzed: 02/02/2018 22:36  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-011618-RW-0515 MSD	320-35148-20 MSD	2018.02.02_ 537B 030.d	02/03/2018 00:42

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.06\_537B\_031.d Lab Sample ID: MB 320-206188/1-A  
 Matrix: Water Date Extracted: 01/30/2018 12:51  
 Instrument ID: A8\_N Date Analyzed: 02/06/2018 11:38  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206188/2-A	2018.02.06_537B_032.d	02/06/2018 11:43
	LCSD 320-206188/3-A	2018.02.06_537B_033.d	02/06/2018 11:47
WGNA-011618-FRB-0515	320-35148-21	2018.02.06_537B_039.d	02/06/2018 12:15

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 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 320-206761/1		1655390	1.87	3269547	2.12	
CCV 320-206870/1 CCVIS		1487657	1.81	3177197	2.06	
MB 320-206187/1-A		1470153	1.81	3110781	2.06	
LCS 320-206187/2-A		1413534	1.81	3145452	2.06	
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	
CCV 320-206870/13 CCVIS		1404353	1.81	3064489	2.06	
CCV 320-206872/13 CCVIS		1404353	1.81	3064489	2.06	
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	
CCV 320-206872/25 CCVIS		1472845	1.81	3176583	2.06	
CCV 320-206874/25 CCVIS		1472845	1.81	3176583	2.06	

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

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A8\_N Calibration Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	1535518	1.91	3276559	2.15		
UPPER LIMIT	2303277	2.41	4914839	2.65		
LOWER LIMIT	767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	
CCV 320-206874/31 CCVIS		1416822	1.81	2991430	2.06	
CCVL 320-207097/1		1375995	1.81	3051061	2.05	
CCV 320-207174/1 CCVIS		1298792	1.83	2946157	2.07	
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	
CCV 320-207174/12 CCVIS		1284307	1.81	3001651	2.06	

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

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206870/1 Date Analyzed: 02/02/2018 22:27  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_001 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1487657	1.81	3177197	2.06		
UPPER LIMIT	2082720	2.31	4448076	2.56		
LOWER LIMIT	1041360	1.31	2224038	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206187/1-A		1470153	1.81	3110781	2.06	
LCS 320-206187/2-A		1413534	1.81	3145452	2.06	
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206870/13 Date Analyzed: 02/02/2018 23:23  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_013 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1404353	1.81	3064489	2.06		
UPPER LIMIT	1966094	2.31	4290285	2.56		
LOWER LIMIT	983047	1.31	2145142	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206187/1-A		1470153	1.81	3110781	2.06	
LCS 320-206187/2-A		1413534	1.81	3145452	2.06	
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206872/13 Date Analyzed: 02/02/2018 23:23  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_013 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1404353	1.81	3064489	2.06		
UPPER LIMIT	1966094	2.31	4290285	2.56		
LOWER LIMIT	983047	1.31	2145142	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206872/25 Date Analyzed: 02/03/2018 00:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_025 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1472845	1.81	3176583	2.06		
UPPER LIMIT	2061983	2.31	4447216	2.56		
LOWER LIMIT	1030992	1.31	2223608	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206874/25 Date Analyzed: 02/03/2018 00:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_025 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1472845	1.81	3176583	2.06		
UPPER LIMIT	2061983	2.31	4447216	2.56		
LOWER LIMIT	1030992	1.31	2223608	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206874/31 Date Analyzed: 02/03/2018 00:47  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_031 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1416822	1.81	2991430	2.06		
UPPER LIMIT	1983551	2.31	4188002	2.56		
LOWER LIMIT	991775	1.31	2094001	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-207174/1 Date Analyzed: 02/06/2018 11:29  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.06\_537B\_029 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1298792	1.83	2946157	2.07		
UPPER LIMIT	1818309	2.33	4124620	2.57		
LOWER LIMIT	909154	1.33	2062310	1.57		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-207174/12 Date Analyzed: 02/06/2018 12:20  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.06\_537B\_040 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1284307	1.81	3001651	2.06		
UPPER LIMIT	1798030	2.31	4202311	2.56		
LOWER LIMIT	899015	1.31	2101156	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-334 Lab Sample ID: 320-35148-1  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_005.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 253.2 (mL) Date Analyzed: 02/02/2018 22:45  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	53	M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	42		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.7	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_005.d  
 Lims ID: 320-35148-A-1-A  
 Client ID: NAWC-011618-RW-334  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:45:58 ALS Bottle#: 3 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:03:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	166916	1.36		273	
298.90 > 99.00	1.366	1.373	-0.007	1.000	131898		1.27(0.00-0.00)	229	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1514348	9.40		8183	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	1958979	10.6		2090	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	301408	2.20		79.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1464547	10.0		6134	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	748210	5.52		134	
413.00 > 169.00	1.813	1.813	0.0	1.004	455990		1.64(0.00-0.00)	1126	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.056	0.008	1.000	1375976	13.3		589	Ma
499.00 > 99.00	2.064	2.056	0.008	1.000	291859		4.71(0.00-0.00)	501	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3159562	28.7		4999	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.079	-0.008	1.000	50968	0.5240		8.2	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1112920	9.93		8954	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_005.d

Injection Date: 02-Feb-2018 22:45:58

Instrument ID: A8\_N

Lims ID: 320-35148-A-1-A

Lab Sample ID: 320-35148-1

Client ID: NAWC-011618-RW-334

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

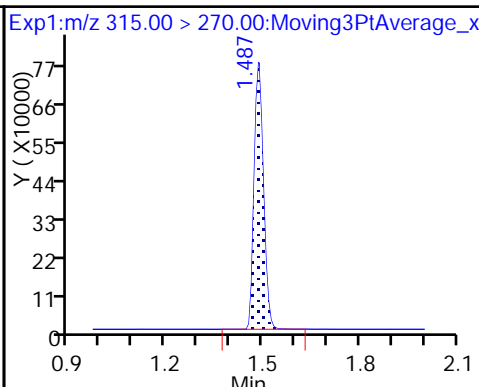
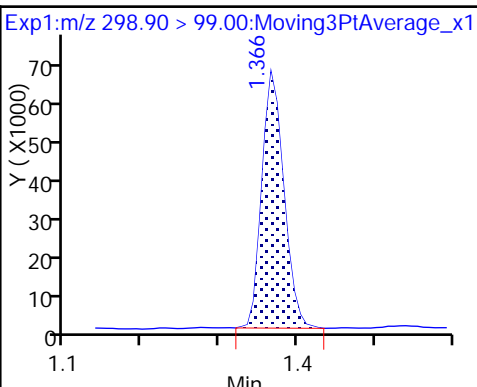
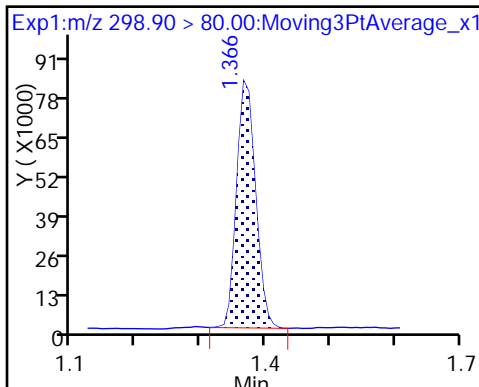
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

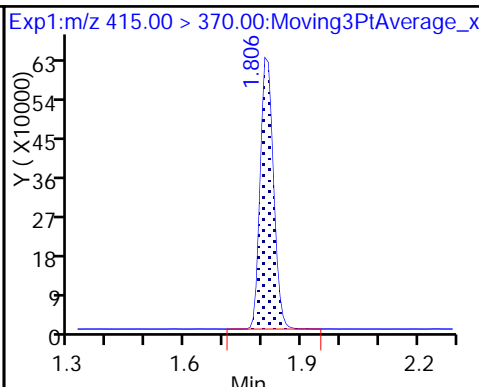
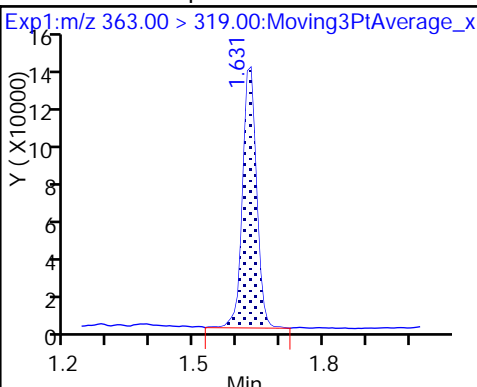
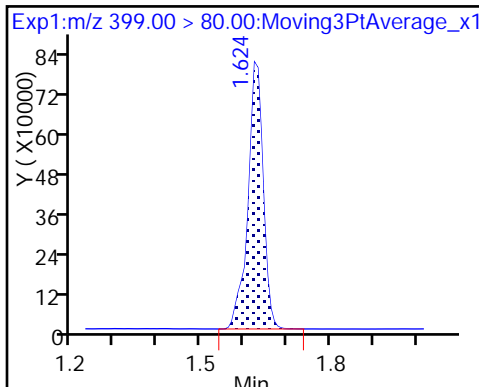
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

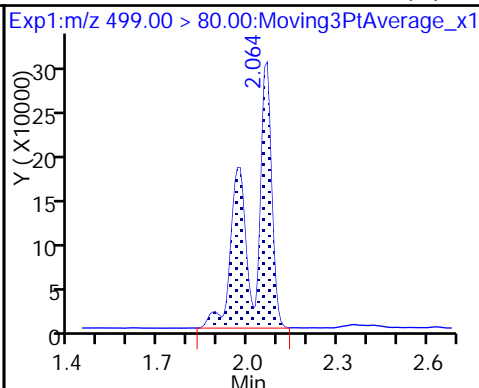
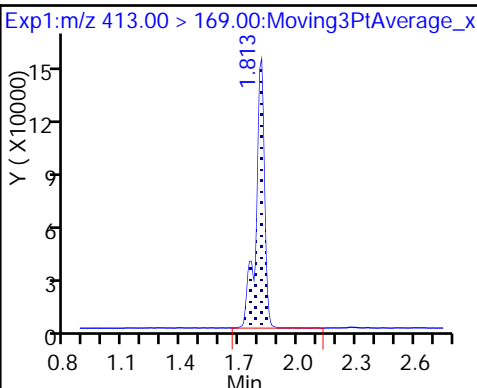
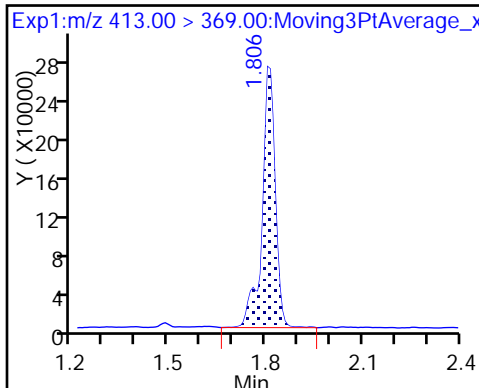
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

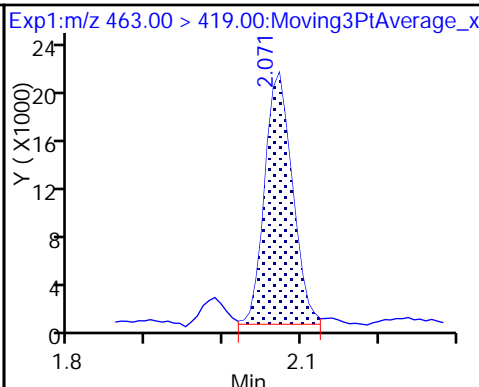
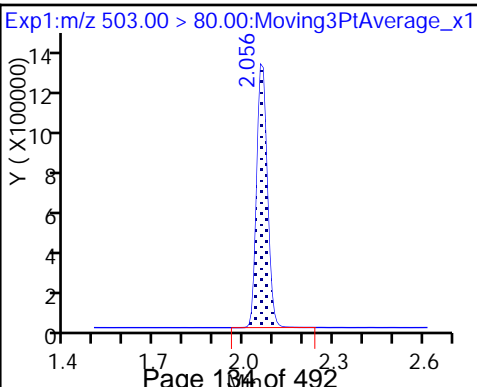
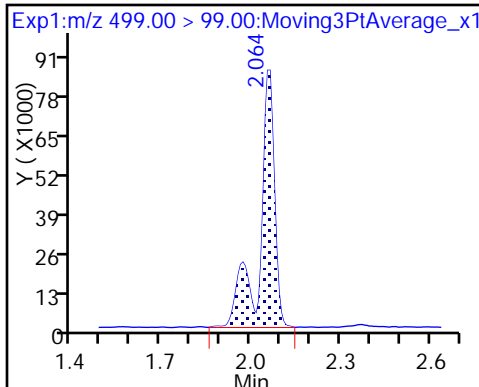
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

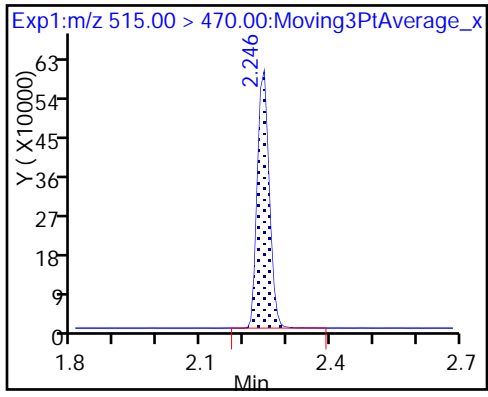
\* 7 13C4 PFOS

9 Perfluorononanoic acid (M)





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_005.d  
 Lims ID: 320-35148-A-1-A  
 Client ID: NAWC-011618-RW-334  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:45:58 ALS Bottle#: 3 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:03:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.40	93.98
\$ 10 13C2 PFDA	10.0	9.93	99.31

TestAmerica Sacramento

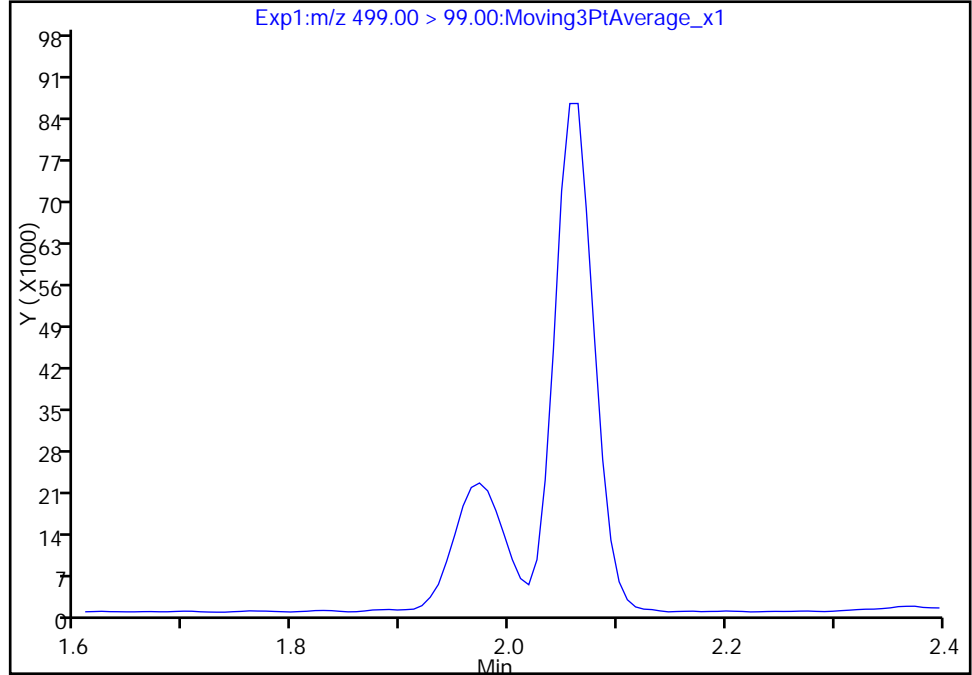
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Injection Date: 02-Feb-2018 22:45:58 Instrument ID: A8\_N  
Lims ID: 320-35148-A-1-A Lab Sample ID: 320-35148-1  
Client ID: NAWC-011618-RW-334  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

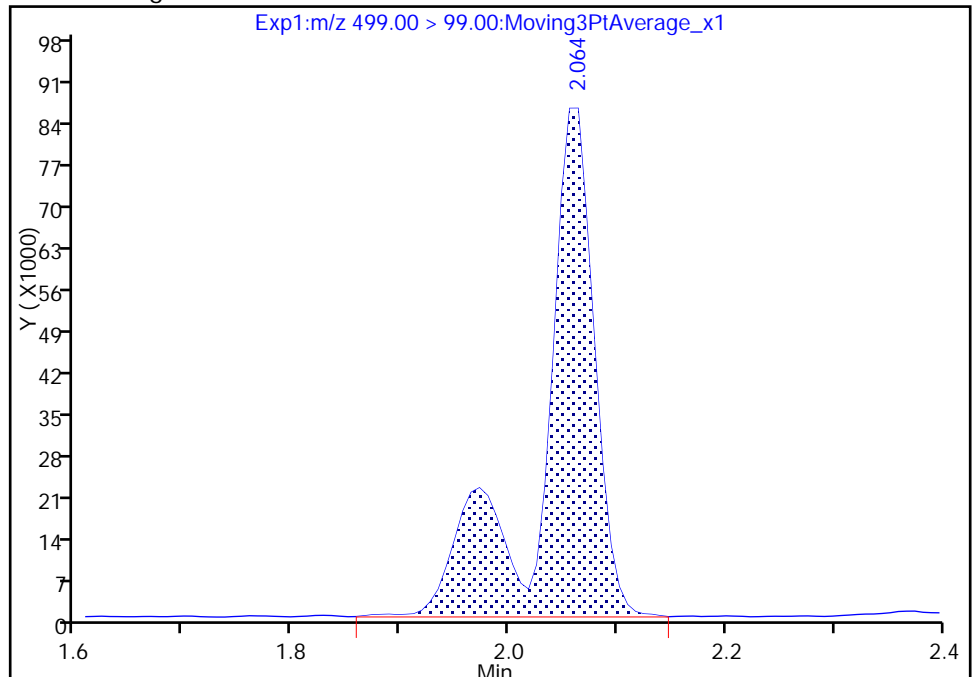
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 291859  
Amount: 13.302132  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:02:25  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

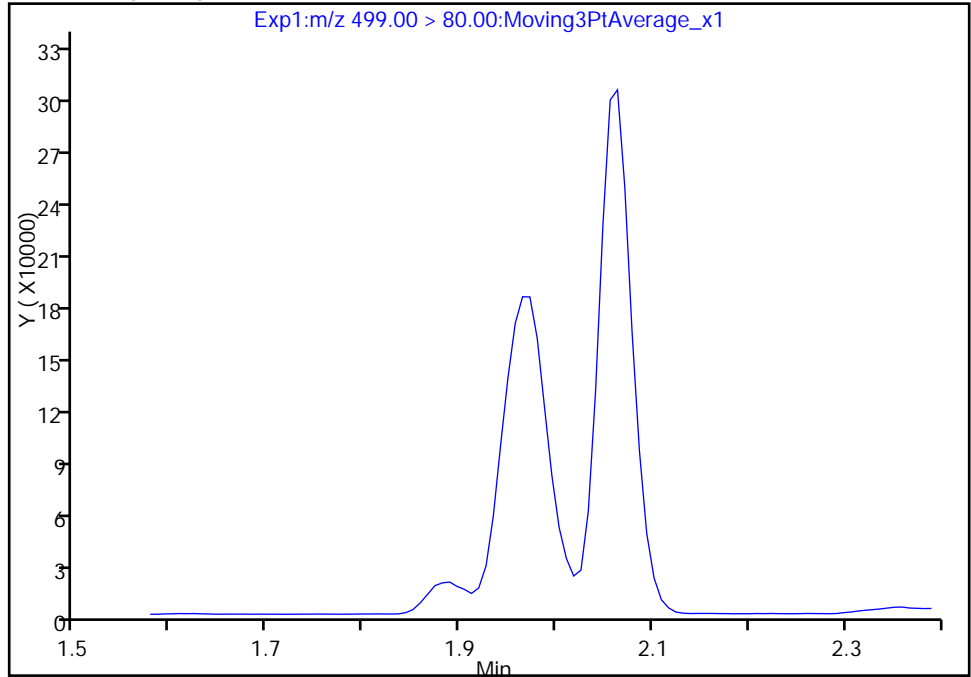
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Injection Date: 02-Feb-2018 22:45:58 Instrument ID: A8\_N  
Lims ID: 320-35148-A-1-A Lab Sample ID: 320-35148-1  
Client ID: NAWC-011618-RW-334  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

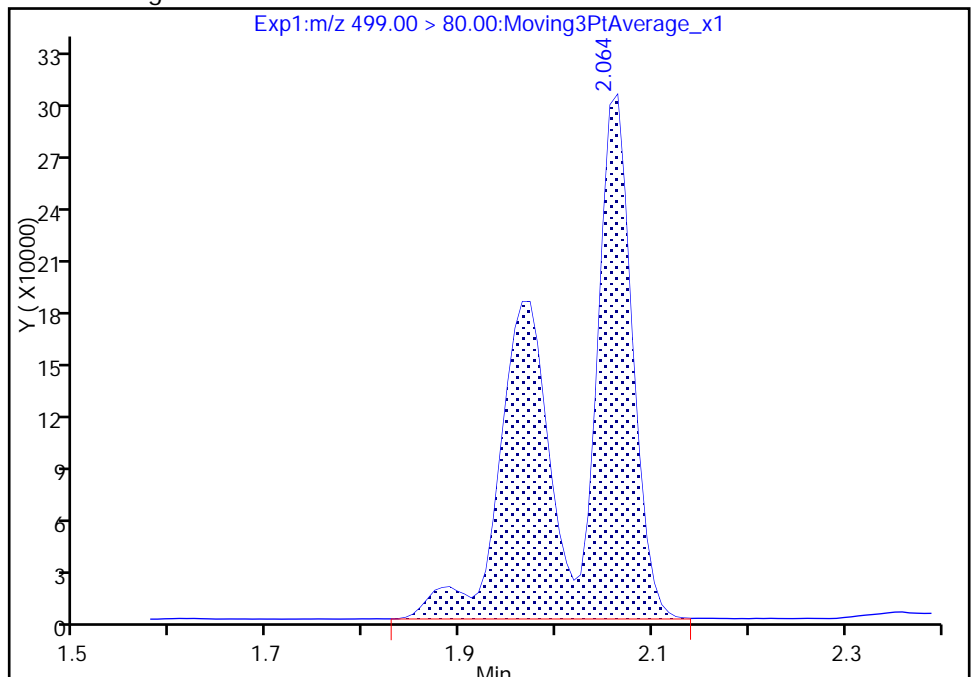
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 1375976  
Amount: 13.302132  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

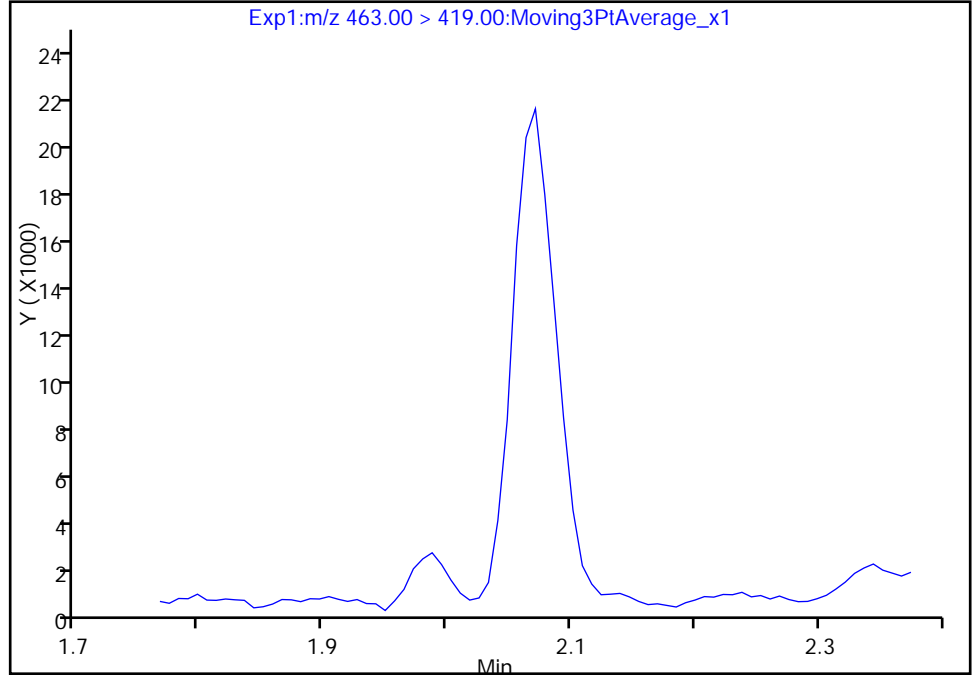
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Injection Date: 02-Feb-2018 22:45:58 Instrument ID: A8\_N  
Lims ID: 320-35148-A-1-A Lab Sample ID: 320-35148-1  
Client ID: NAWC-011618-RW-334  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

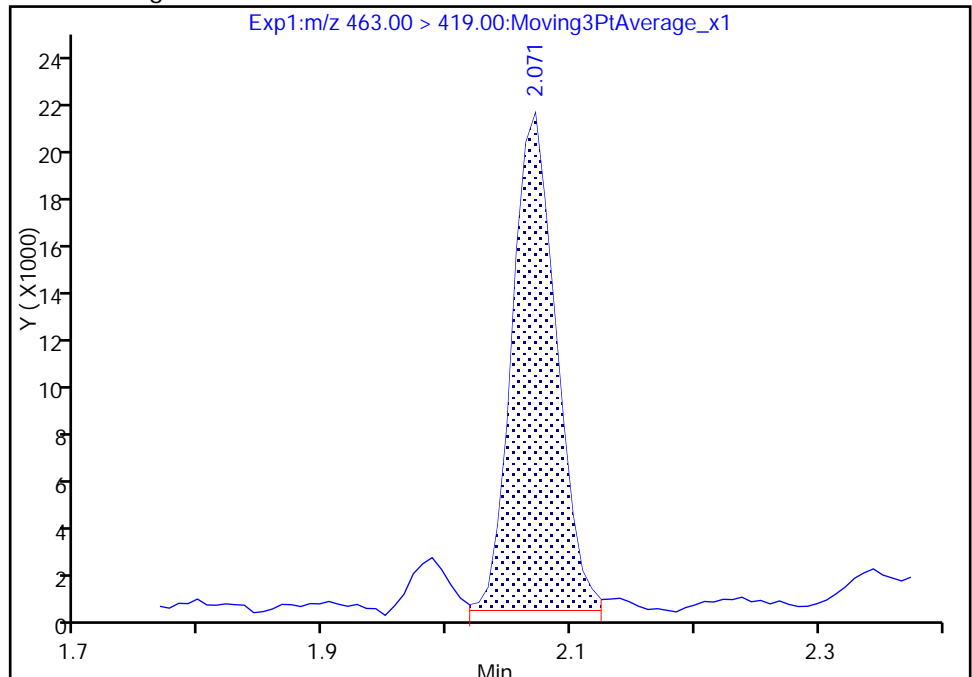
Not Detected  
Expected RT: 2.08

Processing Integration Results



Manual Integration Results

RT: 2.07  
Area: 50968  
Amount: 0.523988  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:02:44  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-334 Lab Sample ID: 320-35148-2  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_006.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.7(mL) Date Analyzed: 02/02/2018 22:50  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_006.d  
 Lims ID: 320-35148-A-2-A  
 Client ID: NAWC-011618-FRB-334  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:50:39 ALS Bottle#: 4 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.487	0.0	1.000	1521670	9.64	7154	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.813	-0.007		1434872	10.0	6846	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.064	-0.008		3161835	28.7	7345	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.246	-0.008	1.000	1079652	9.83	8257	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_006.d

Injection Date: 02-Feb-2018 22:50:39

Instrument ID: A8\_N

Lims ID: 320-35148-A-2-A

Lab Sample ID: 320-35148-2

Client ID: NAWC-011618-FRB-334

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 6

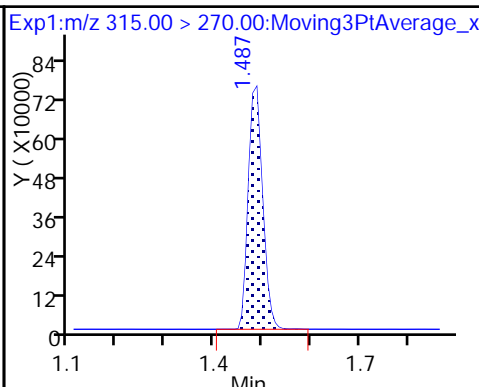
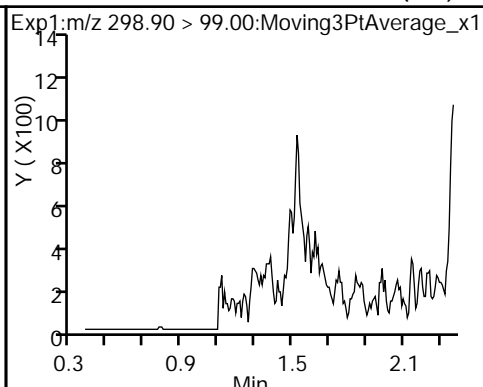
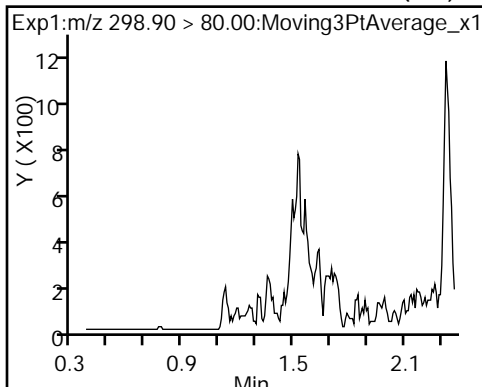
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

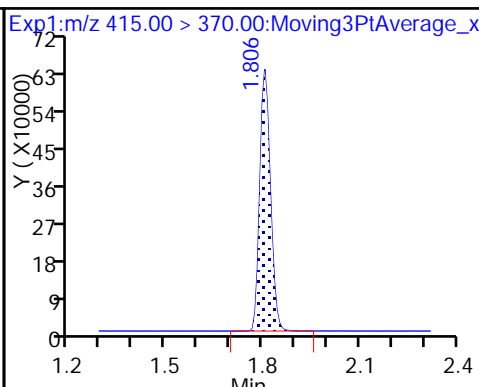
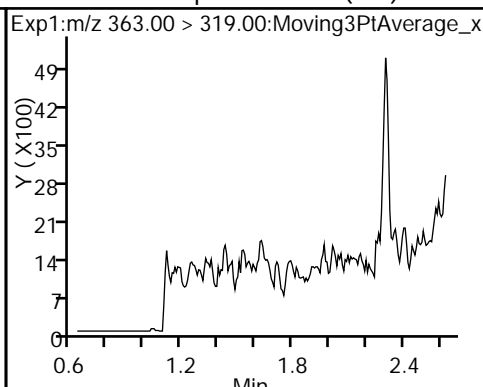
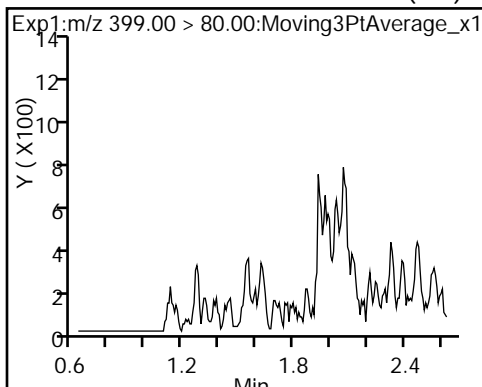
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

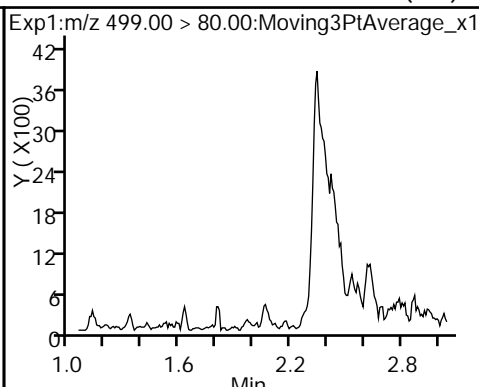
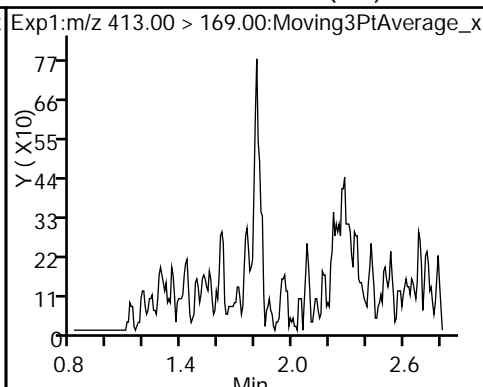
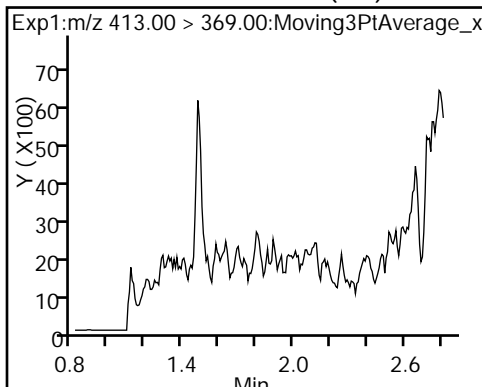
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



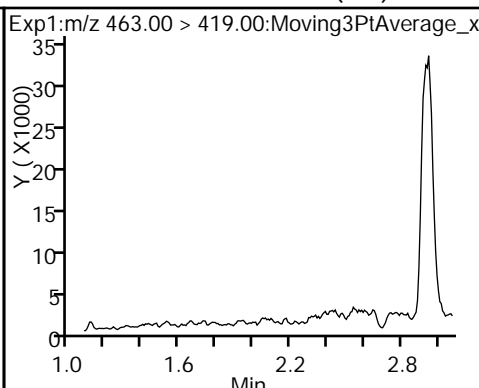
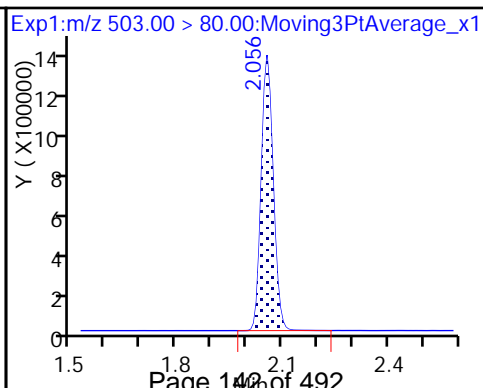
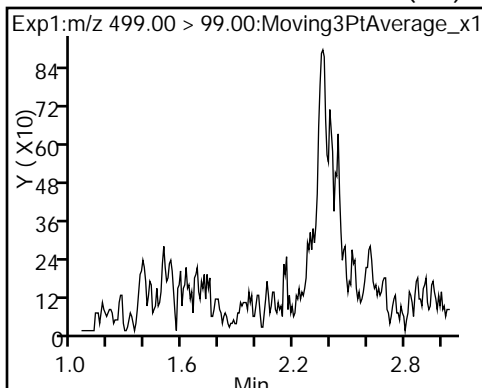
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



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

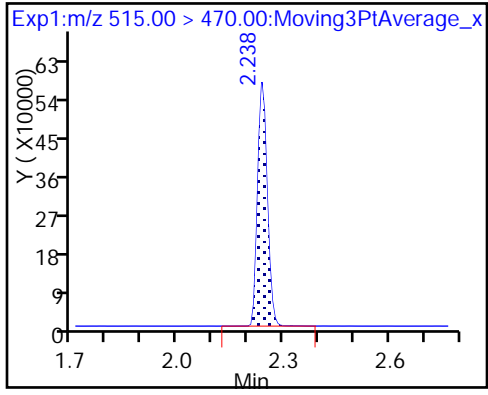


8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_006.d  
 Lims ID: 320-35148-A-2-A  
 Client ID: NAWC-011618-FRB-334  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:50:39 ALS Bottle#: 4 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.64	96.38
\$ 10 13C2 PFDA	10.0	9.83	98.33

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-280 Lab Sample ID: 320-35148-3  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_007.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245.8(mL) Date Analyzed: 02/02/2018 22:55  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J 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 M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	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	92		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_007.d  
 Lims ID: 320-35148-A-3-A  
 Client ID: NAWC-011618-RW-280  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:55:20 ALS Bottle#: 5 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-3-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:09:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	148098	1.20		208	
298.90 > 99.00	1.366	1.373	-0.007	1.000	108276		1.37(0.00-0.00)	188	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1526913	9.23		7923	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	313146	1.70		272	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	145518	1.03		30.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1503230	10.0		6445	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	412414	2.96		63.5	
413.00 > 169.00	1.806	1.813	-0.007	1.000	261262		1.58(0.00-0.00)	672	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	440675	4.25		172	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	74378		5.92(0.00-0.00)	129	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3163549	28.7		4745	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.079	-0.015	1.000	35175	0.3523		5.6	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1063766	9.25		8944	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_007.d

Injection Date: 02-Feb-2018 22:55:20

Instrument ID: A8\_N

Lims ID: 320-35148-A-3-A

Lab Sample ID: 320-35148-3

Client ID: NAWC-011618-RW-280

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

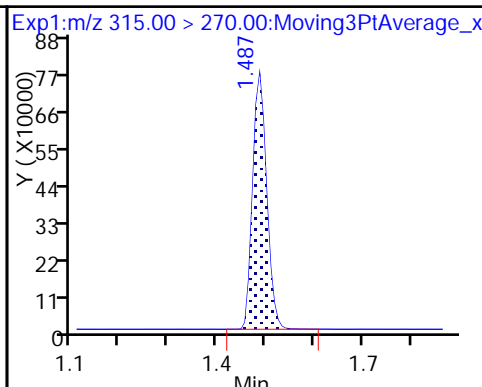
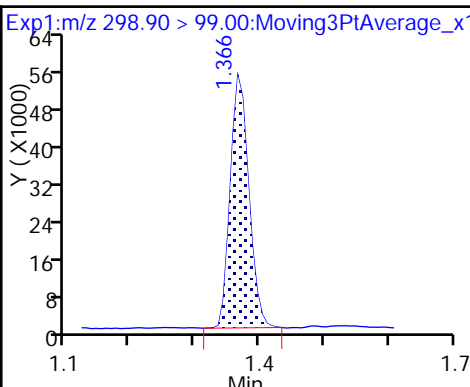
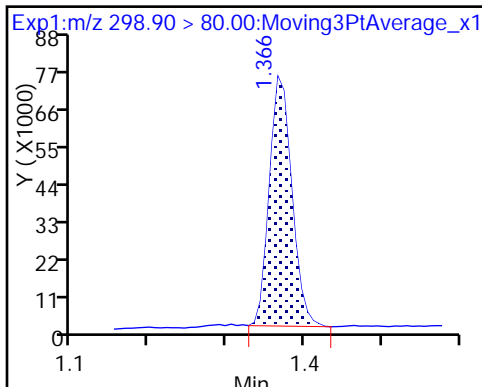
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

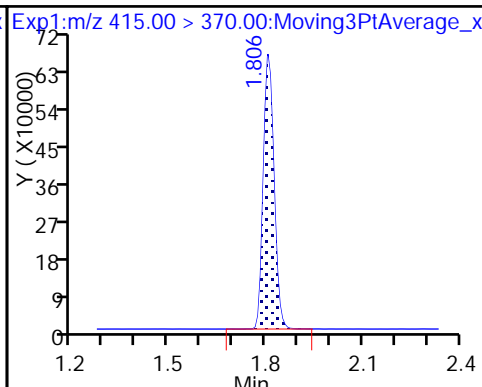
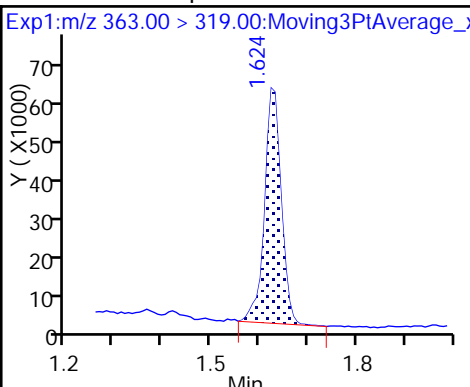
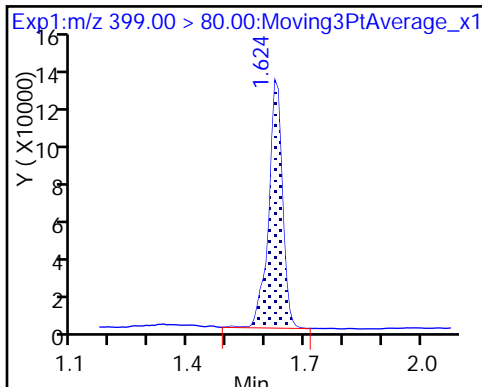
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

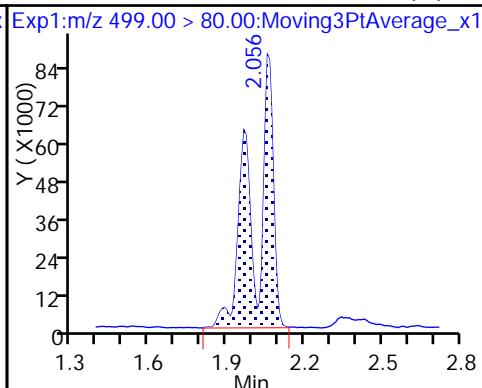
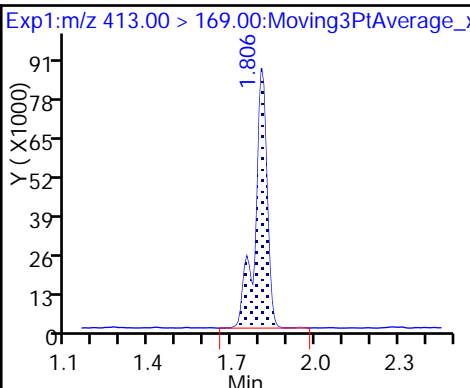
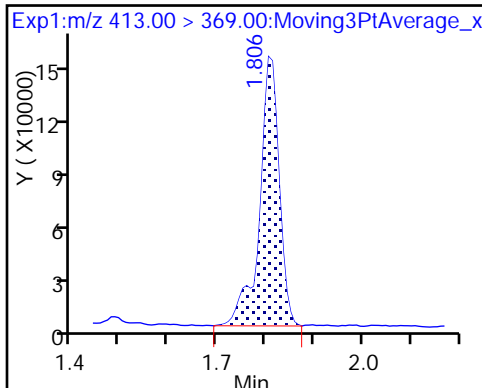
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

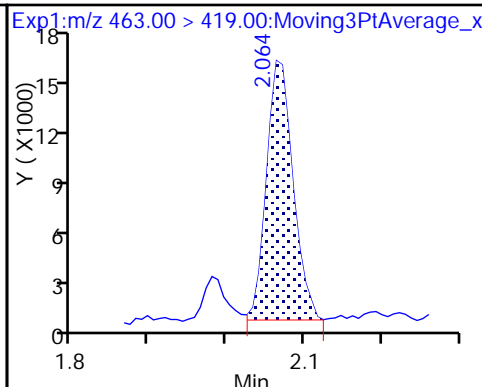
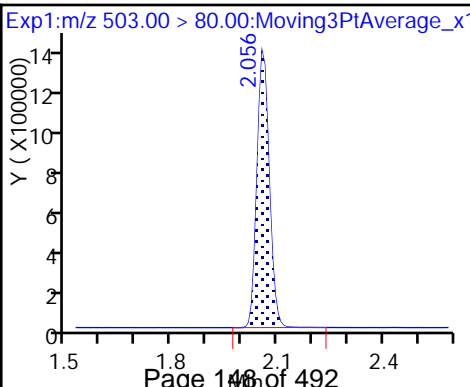
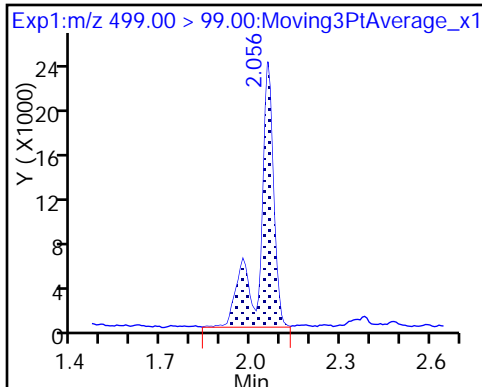
8 Perfluorooctane sulfonic acid (M)



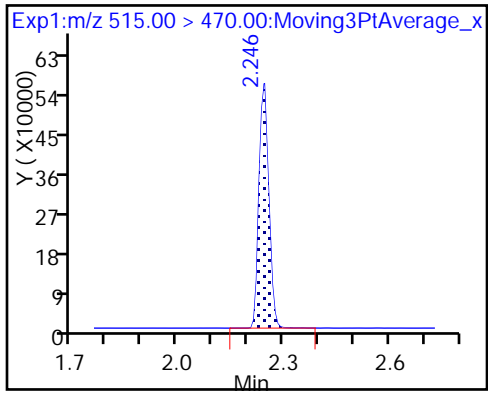
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_007.d  
 Lims ID: 320-35148-A-3-A  
 Client ID: NAWC-011618-RW-280  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 22:55:20 ALS Bottle#: 5 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-3-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:09:39

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.23	92.32
\$ 10 13C2 PFDA	10.0	9.25	92.48



TestAmerica Sacramento

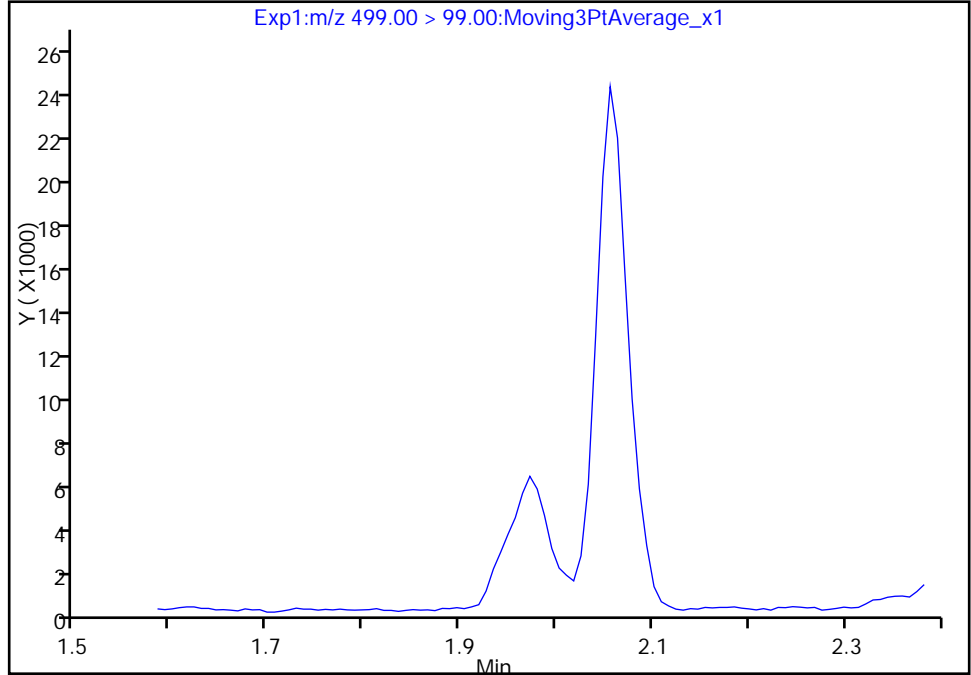
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Injection Date: 02-Feb-2018 22:55:20 Instrument ID: A8\_N  
Lims ID: 320-35148-A-3-A Lab Sample ID: 320-35148-3  
Client ID: NAWC-011618-RW-280  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

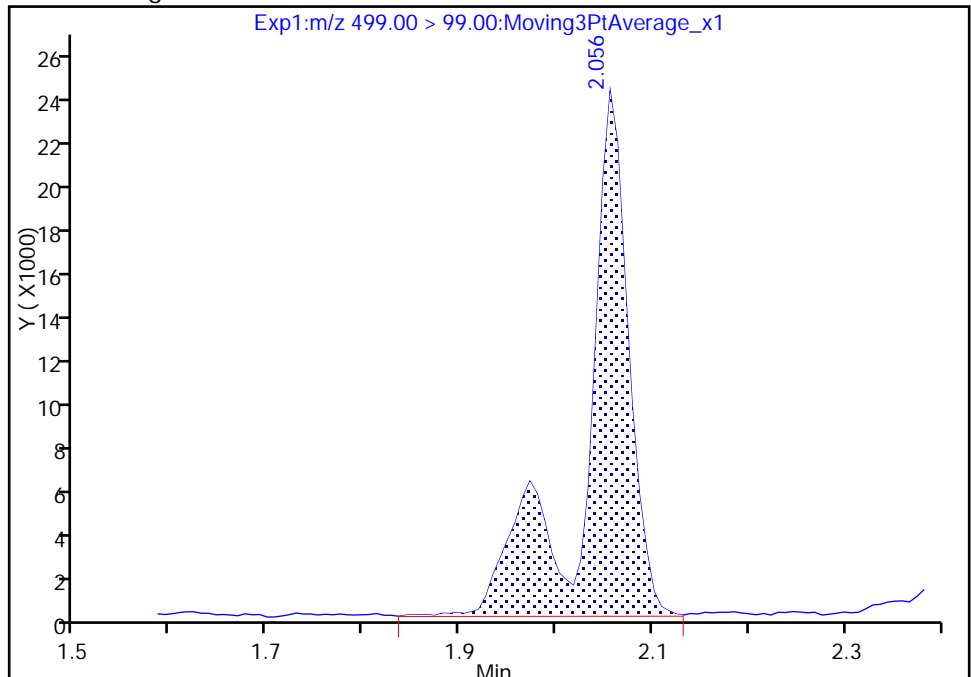
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 74378  
Amount: 4.254819  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:09:02  
Audit Action: Manually Integrated

TestAmerica Sacramento

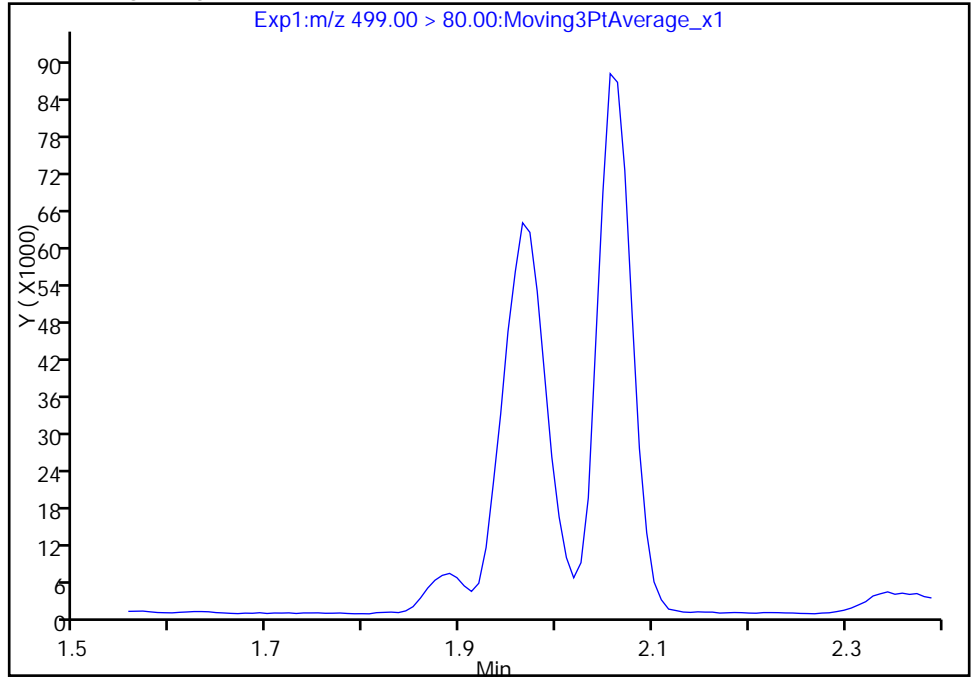
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Injection Date: 02-Feb-2018 22:55:20 Instrument ID: A8\_N  
Lims ID: 320-35148-A-3-A Lab Sample ID: 320-35148-3  
Client ID: NAWC-011618-RW-280  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

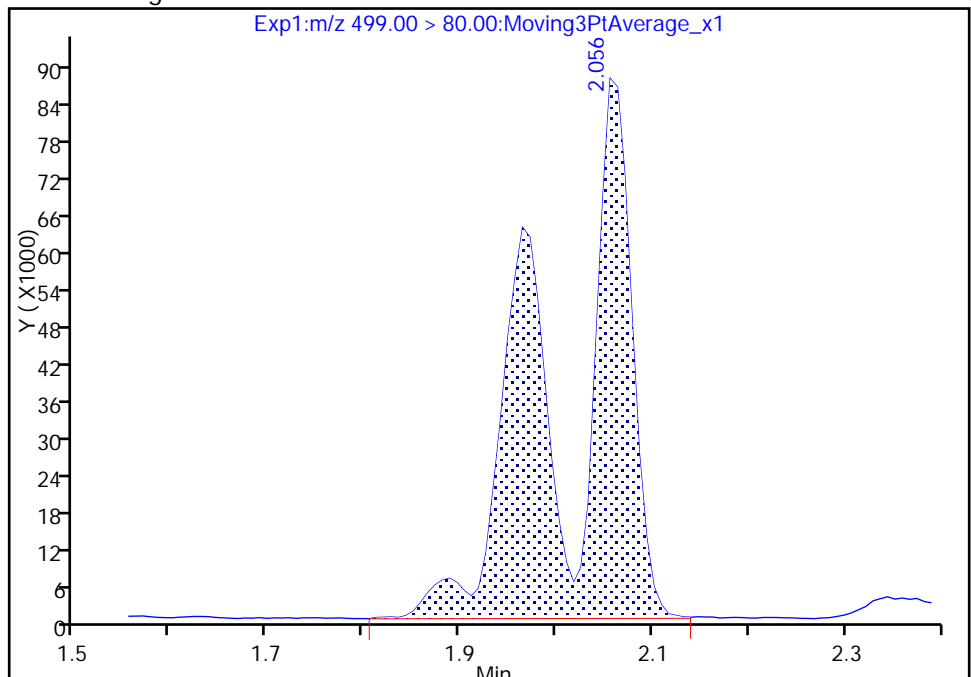
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 440675  
Amount: 4.254819  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

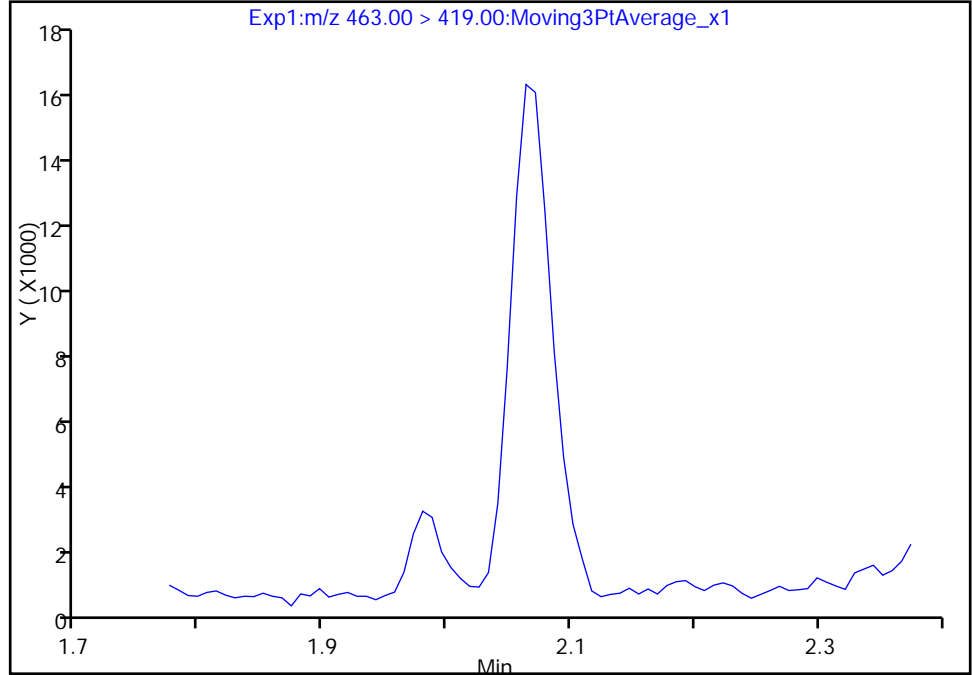
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Injection Date: 02-Feb-2018 22:55:20 Instrument ID: A8\_N  
Lims ID: 320-35148-A-3-A Lab Sample ID: 320-35148-3  
Client ID: NAWC-011618-RW-280  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

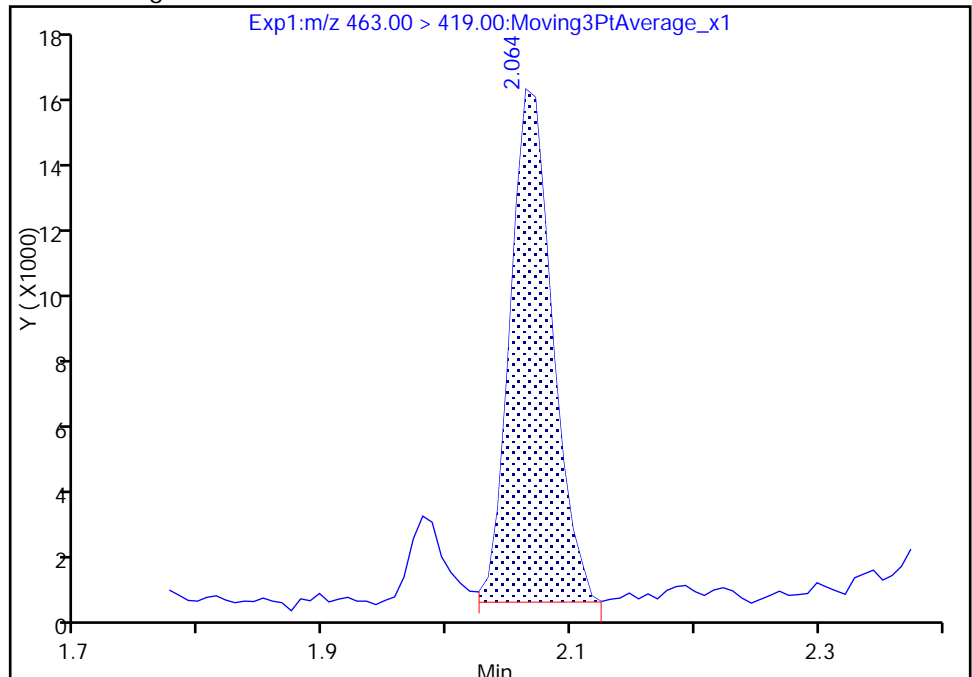
Not Detected  
Expected RT: 2.08

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 35175  
Amount: 0.352319  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:09:20  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-280 Lab Sample ID: 320-35148-4  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_008.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.4 (mL) Date Analyzed: 02/02/2018 23:00  
 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.: 206870 Units: ng/L

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

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_008.d  
 Lims ID: 320-35148-A-4-A  
 Client ID: NAWC-011618-FRB-280  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:00:00 ALS Bottle#: 6 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-4-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.487	0.0	1.000	1508658	9.74	7475	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.813	-0.007		1408269	10.0	6655	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.064	-0.008		3191149	28.7	6715	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.246	-0.008	1.000	1180296	11.0	8104	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_008.d

Injection Date: 02-Feb-2018 23:00:00

Instrument ID: A8\_N

Lims ID: 320-35148-A-4-A

Lab Sample ID: 320-35148-4

Client ID: NAWC-011618-FRB-280

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

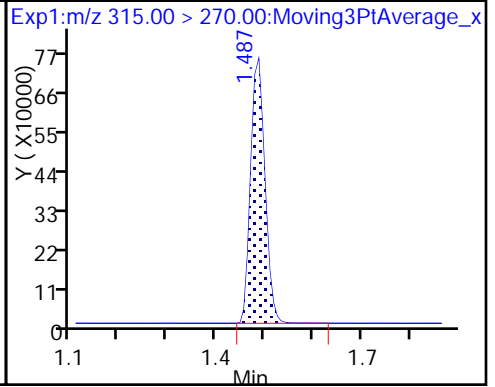
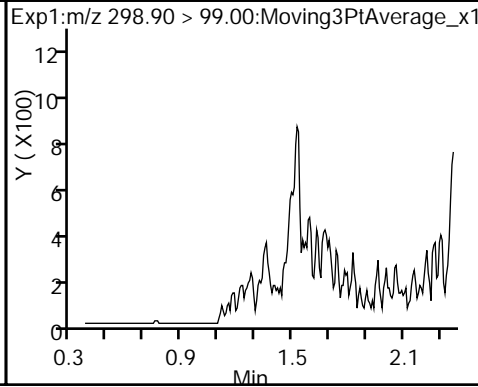
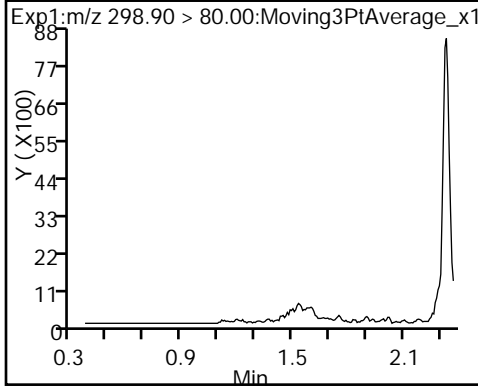
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

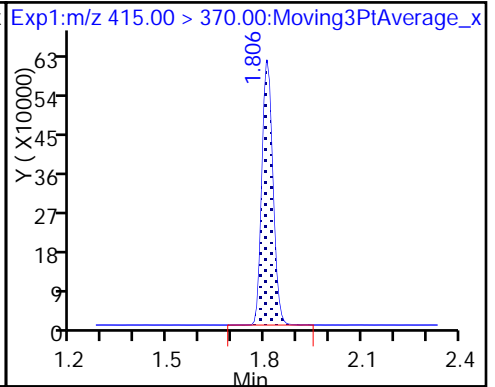
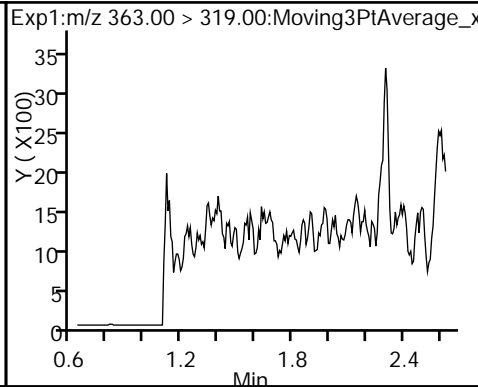
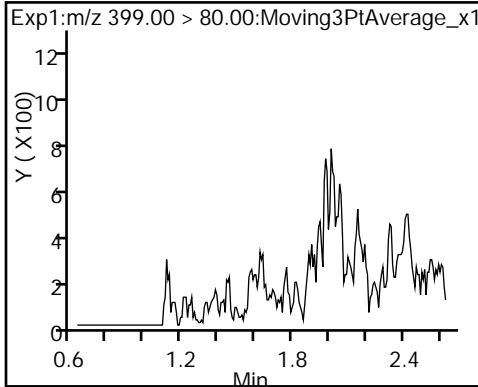
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

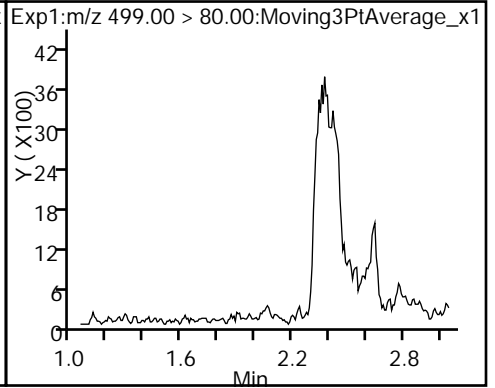
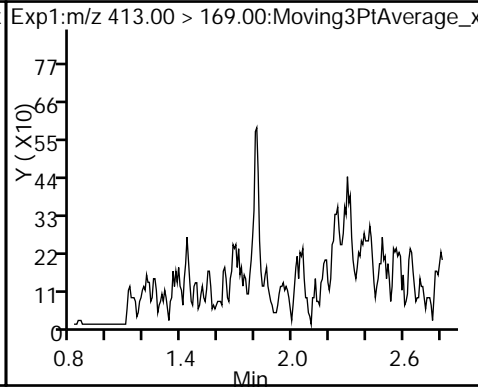
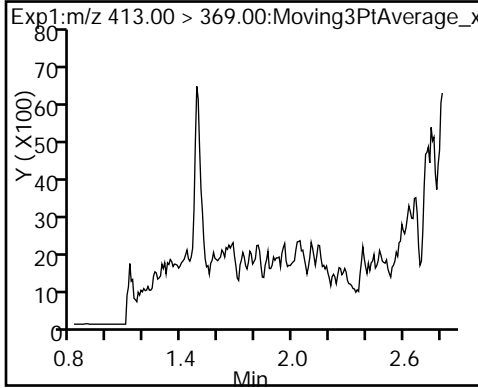
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

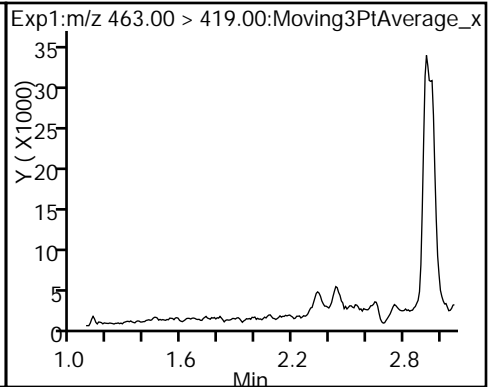
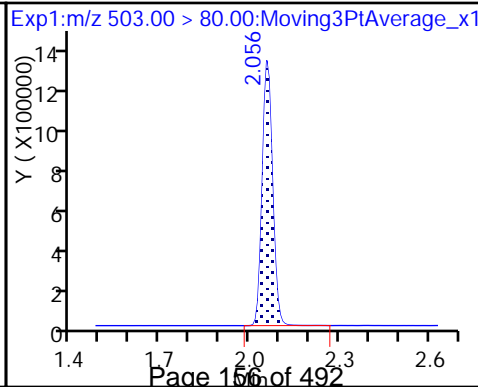
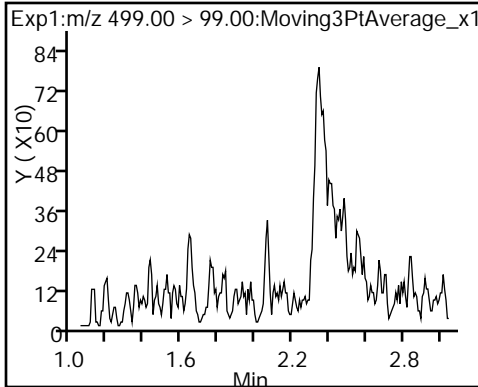
8 Perfluorooctane sulfonic acid (ND)



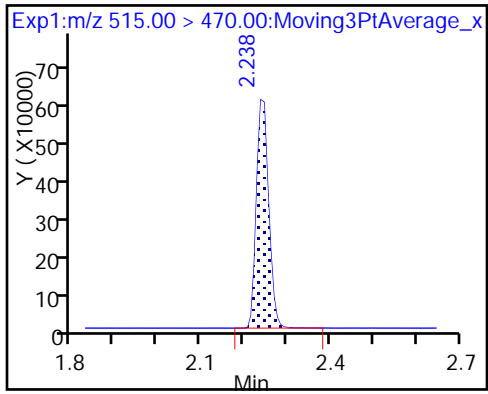
8 Perfluorooctane sulfonic acid (ND)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_008.d  
 Lims ID: 320-35148-A-4-A  
 Client ID: NAWC-011618-FRB-280  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:00:00 ALS Bottle#: 6 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-4-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.74	97.36
\$ 10 13C2 PFDA	10.0	11.0	109.53



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-262 Lab Sample ID: 320-35148-5  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_009.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 243.3(mL) Date Analyzed: 02/02/2018 23:04  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_009.d  
 Lims ID: 320-35148-A-5-A  
 Client ID: NAWC-011618-RW-262  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:04:40 ALS Bottle#: 7 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-5-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:10:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.373	-0.015	1.000	132012	1.02		138	
298.90 > 99.00	1.358	1.373	-0.015	1.000	102234		1.29(0.00-0.00)	184	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1426753	8.86		6845	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	300791	1.55		189	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	155132	1.13		31.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1463855	10.0		5708	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	505919	3.73		77.1	
413.00 > 169.00	1.806	1.813	-0.007	1.000	297117		1.70(0.00-0.00)	688	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	353134	3.24		97.1	a
499.00 > 99.00	2.056	2.056	0.0	1.000	55062		6.41(0.00-0.00)	76.2	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3328426	28.7		3914	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1073174	9.58		8112	

## QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_009.d

Injection Date: 02-Feb-2018 23:04:40

Instrument ID: A8\_N

Lims ID: 320-35148-A-5-A

Lab Sample ID: 320-35148-5

Client ID: NAWC-011618-RW-262

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

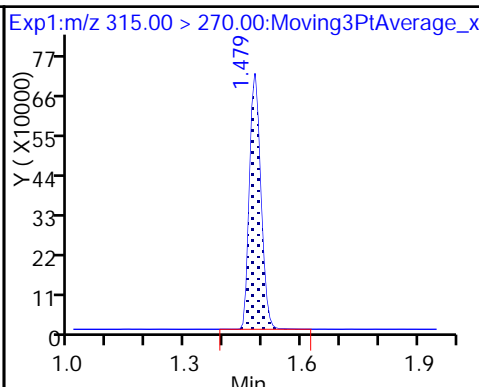
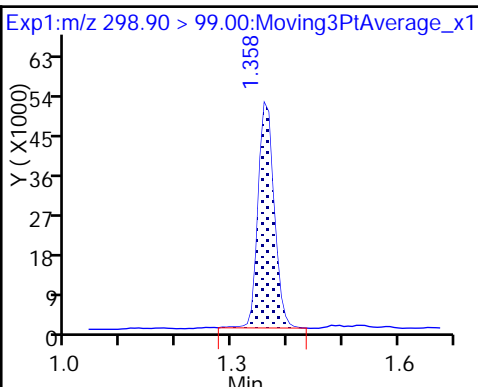
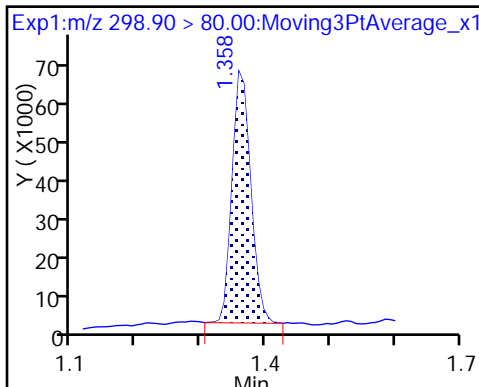
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

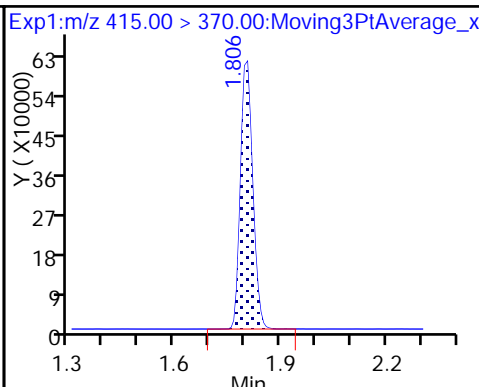
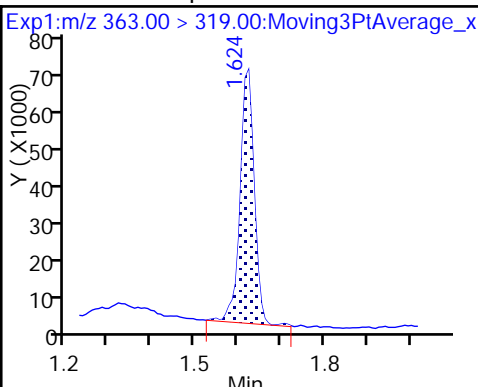
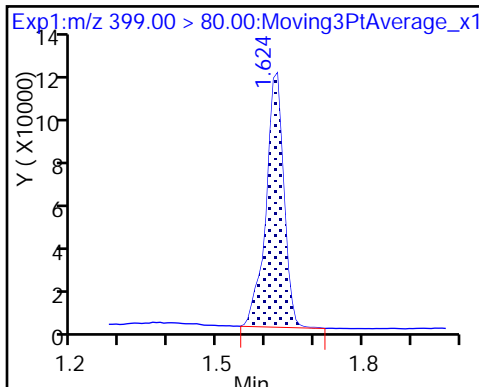
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

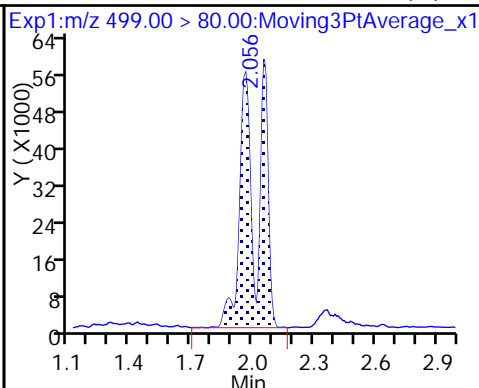
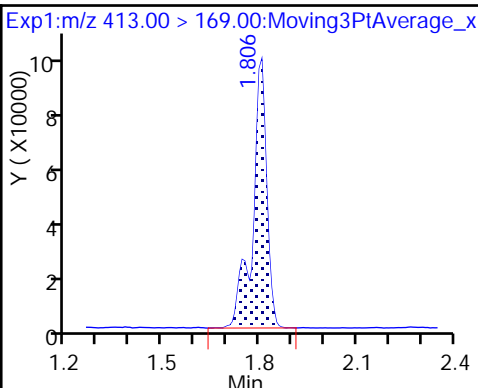
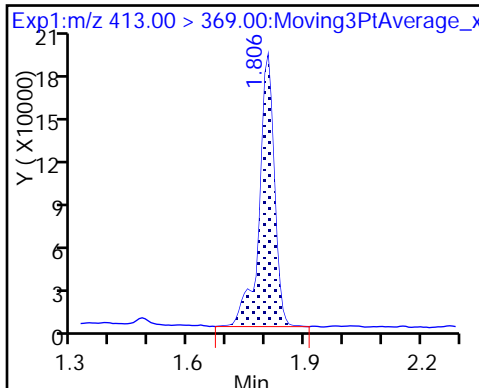
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

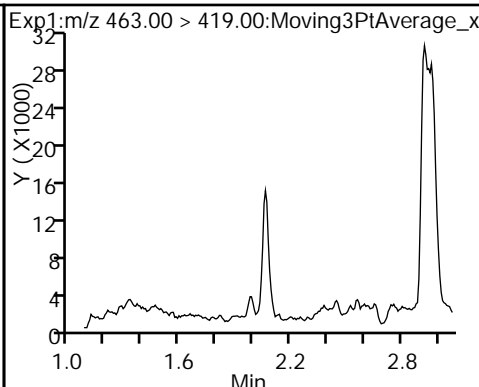
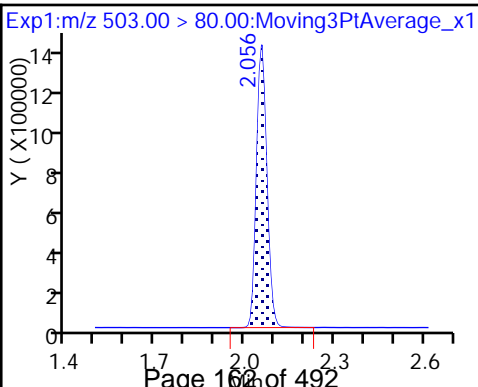
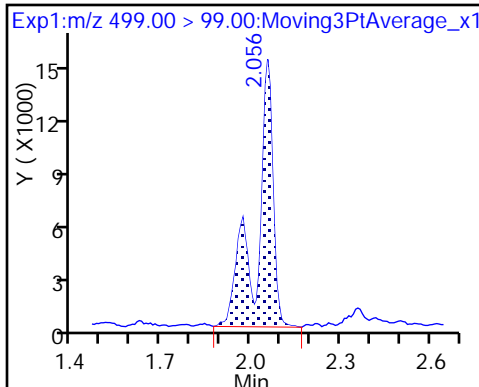
8 Perfluorooctane sulfonic acid (M)



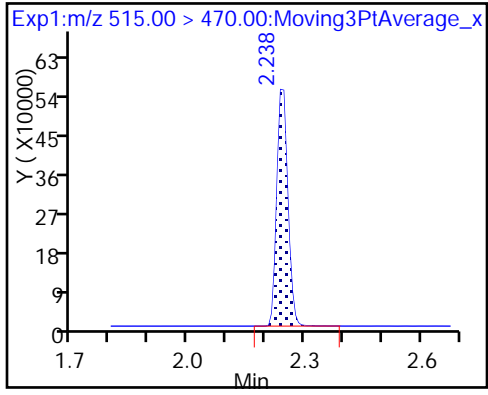
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_009.d  
 Lims ID: 320-35148-A-5-A  
 Client ID: NAWC-011618-RW-262  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:04:40 ALS Bottle#: 7 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-5-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:10:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.86	88.58
\$ 10 13C2 PFDA	10.0	9.58	95.81

TestAmerica Sacramento

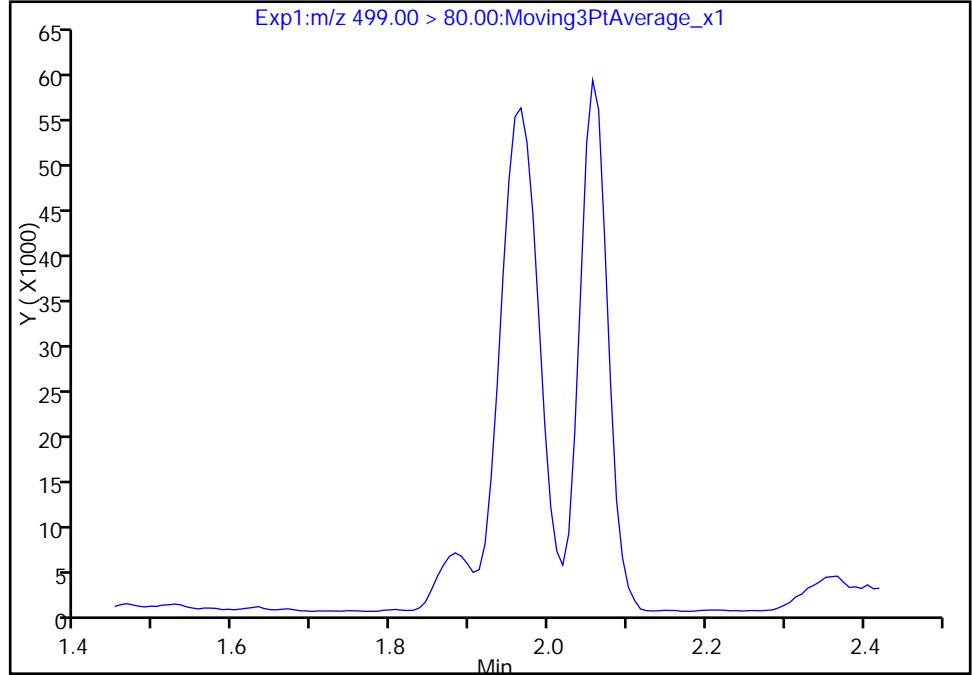
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Injection Date: 02-Feb-2018 23:04:40 Instrument ID: A8\_N  
Lims ID: 320-35148-A-5-A Lab Sample ID: 320-35148-5  
Client ID: NAWC-011618-RW-262  
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 9  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

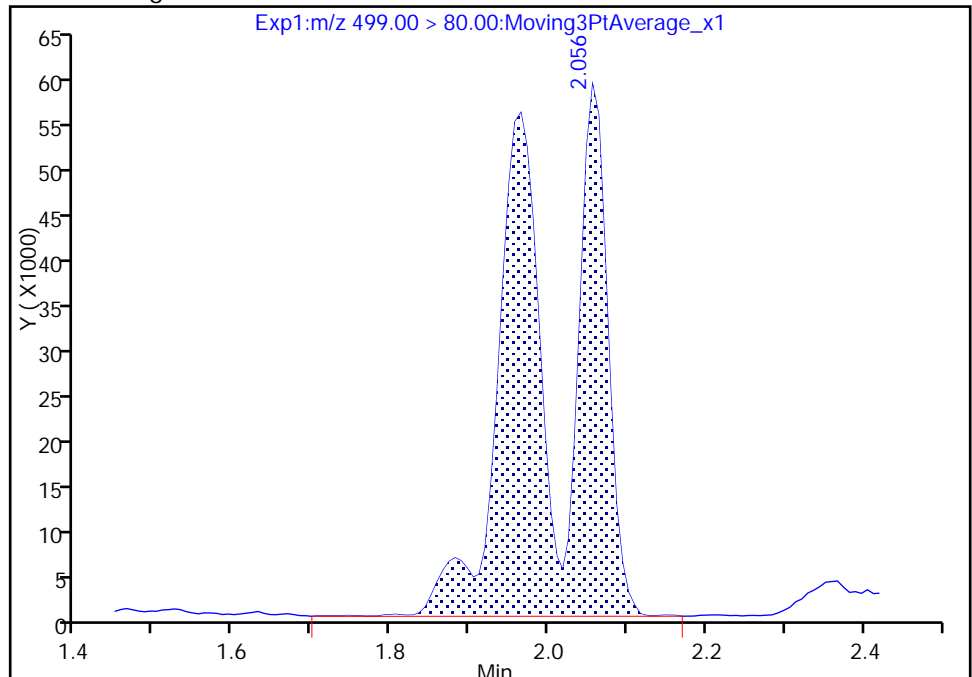
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 353134  
Amount: 3.240693  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:10:08  
Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-262 Lab Sample ID: 320-35148-6  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_010.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/02/2018 23:09  
 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.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_010.d  
 Lims ID: 320-35148-A-6-A  
 Client ID: NAWC-011618-FRB-262  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:09:22 ALS Bottle#: 8 Worklist Smp#: 10  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-6-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.487	0.0	1.000	1491612	9.12	7662	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.813	-0.007		1486846	10.0	6305	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.064	-0.008		3282894	28.7	8087	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.246	0.0	1.000	1055639	9.28	7867	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_010.d

Injection Date: 02-Feb-2018 23:09:22

Instrument ID: A8\_N

Lims ID: 320-35148-A-6-A

Lab Sample ID: 320-35148-6

Client ID: NAWC-011618-FRB-262

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 10

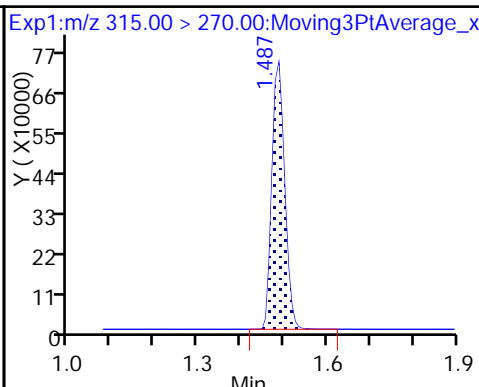
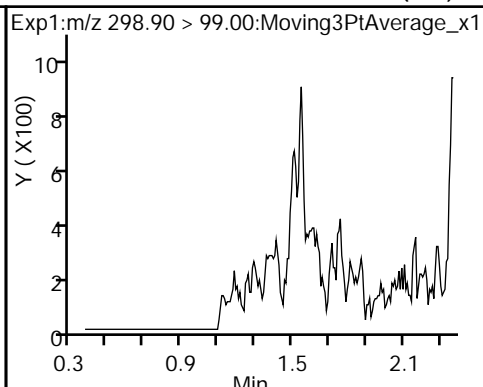
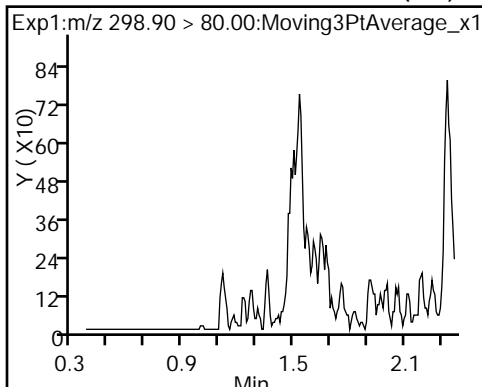
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

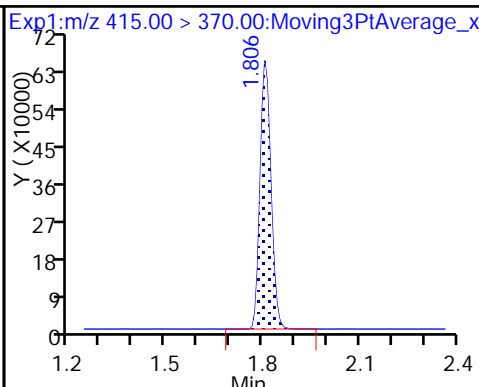
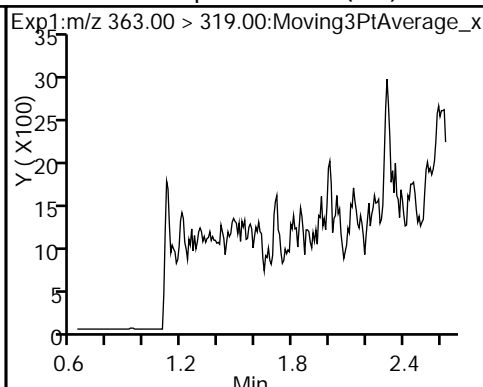
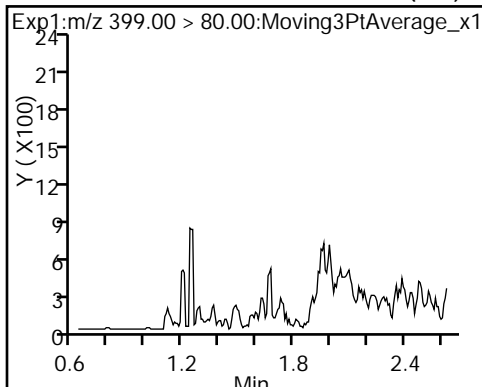
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

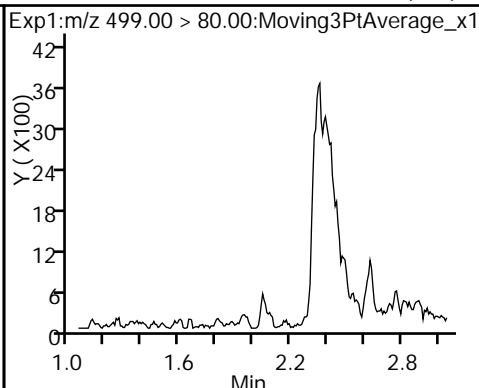
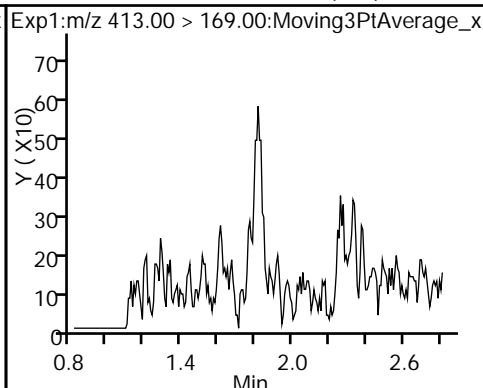
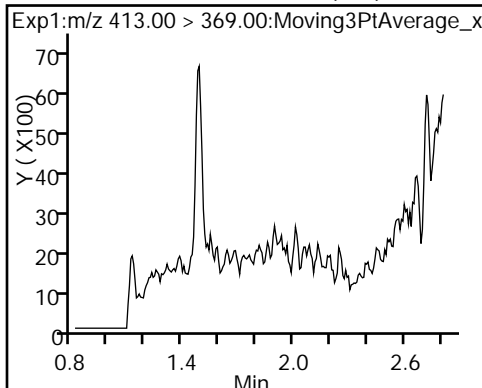
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



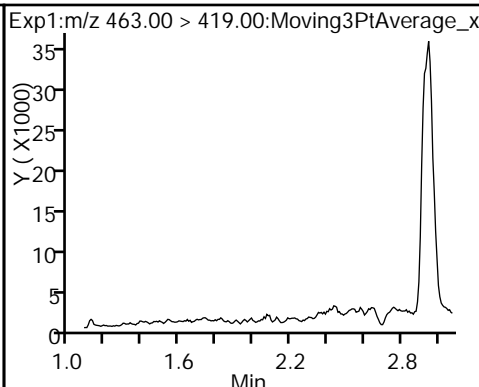
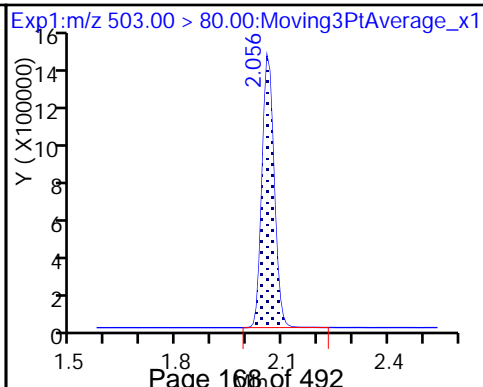
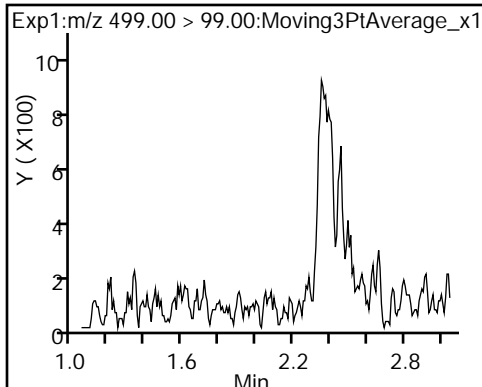
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



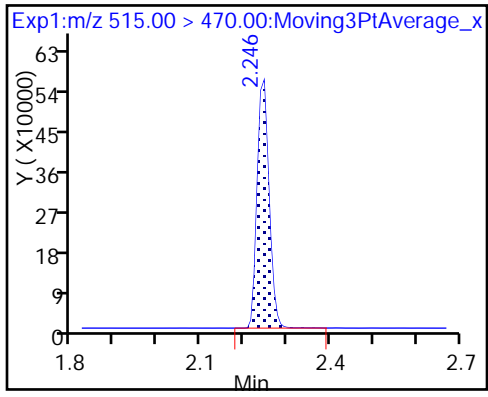
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_010.d  
 Lims ID: 320-35148-A-6-A  
 Client ID: NAWC-011618-FRB-262  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:09:22 ALS Bottle#: 8 Worklist Smp#: 10  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-6-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.12	91.18
\$ 10 13C2 PFDA	10.0	9.28	92.78

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-3295 Lab Sample ID: 320-35148-7  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_011.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 241.9(mL) Date Analyzed: 02/02/2018 23:14  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.3	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	85		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_011.d  
 Lims ID: 320-35148-A-7-A  
 Client ID: WGNA-011618-RW-3295  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:14:02 ALS Bottle#: 9 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-7-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:13:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	89092	0.6983		113	
298.90 > 99.00	1.366	1.373	-0.007	1.000	70308		1.27(0.00-0.00)	104	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1437041	8.65		6568	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	140993	0.7382		103	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	170846	1.21		35.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1509613	10.0		7010	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	411993	2.95		60.5	
413.00 > 169.00	1.806	1.813	-0.007	1.000	244757		1.68(0.00-0.00)	611	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	216150	2.02		84.4	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	35593		6.07(0.00-0.00)	37.7	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3271948	28.7		4359	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	976424	8.45		6811	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_011.d

Injection Date: 02-Feb-2018 23:14:02

Instrument ID: A8\_N

Lims ID: 320-35148-A-7-A

Lab Sample ID: 320-35148-7

Client ID: WGNA-011618-RW-3295

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

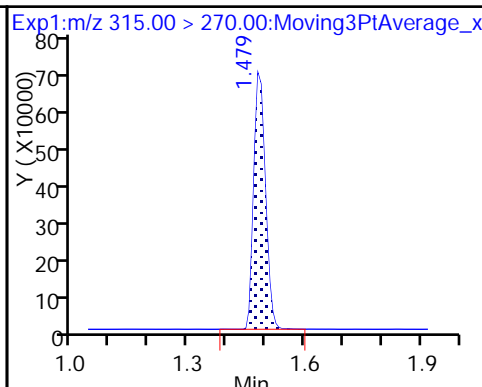
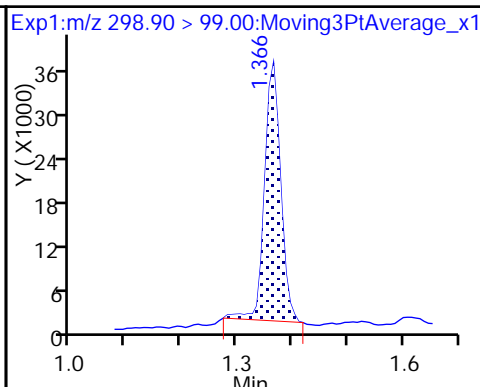
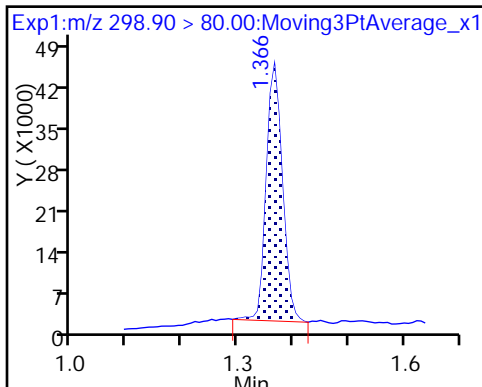
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

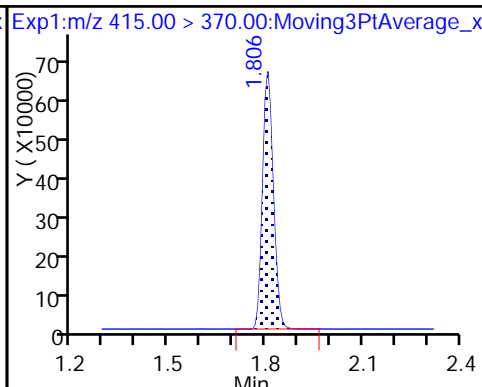
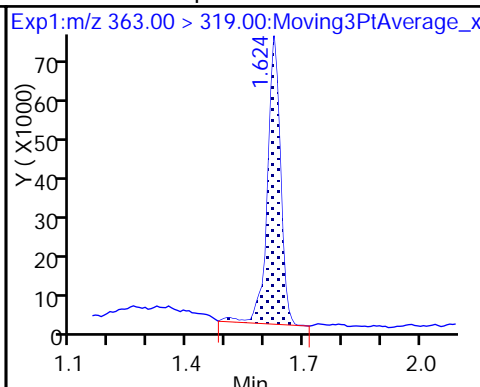
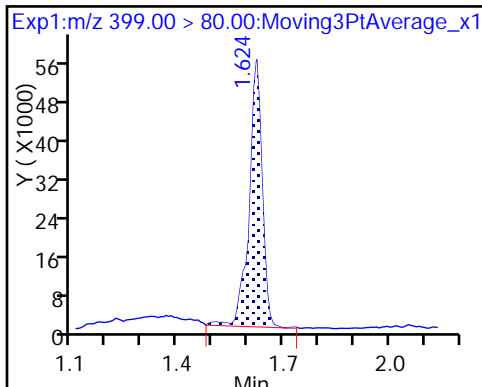
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

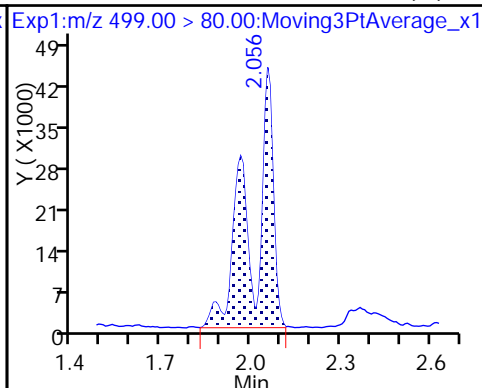
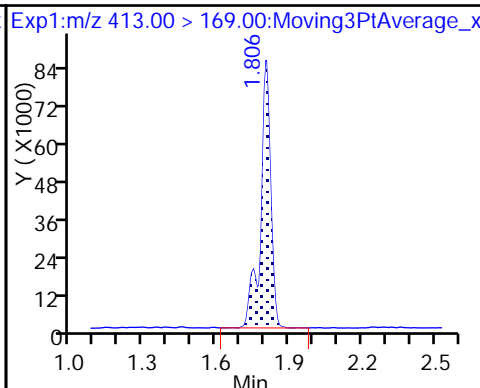
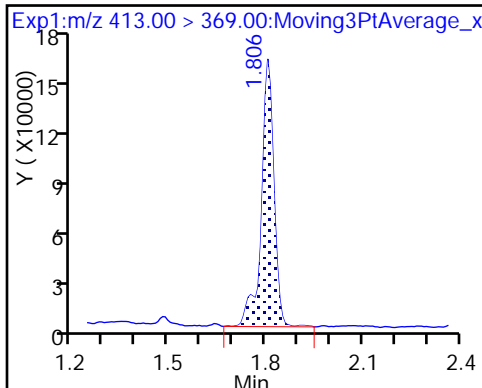
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

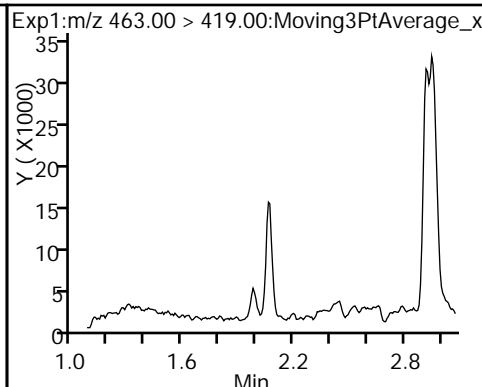
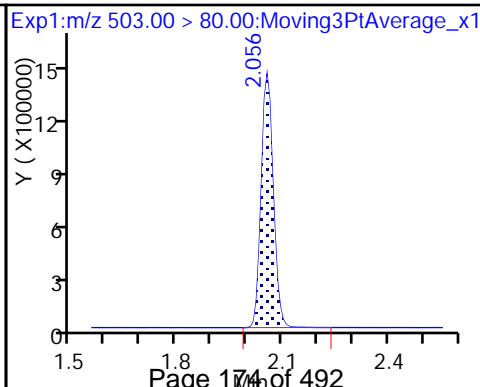
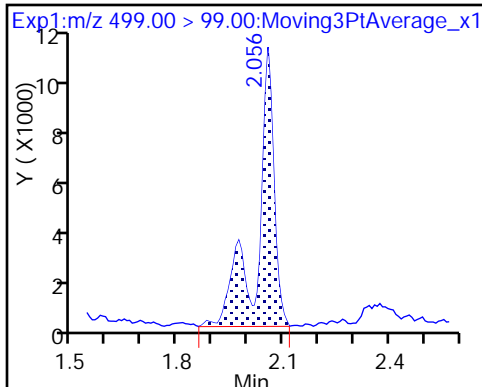
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

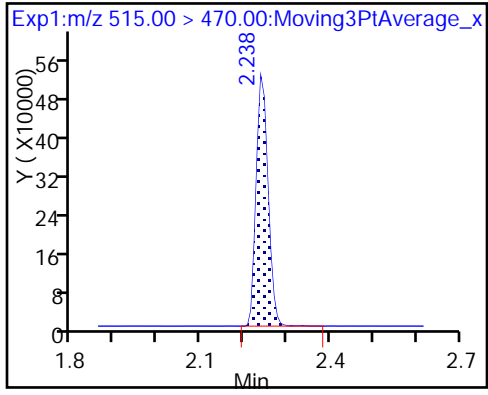
\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_011.d  
 Lims ID: 320-35148-A-7-A  
 Client ID: WGNA-011618-RW-3295  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:14:02 ALS Bottle#: 9 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-7-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:13:19

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.65	86.52
\$ 10 13C2 PFDA	10.0	8.45	84.53

TestAmerica Sacramento

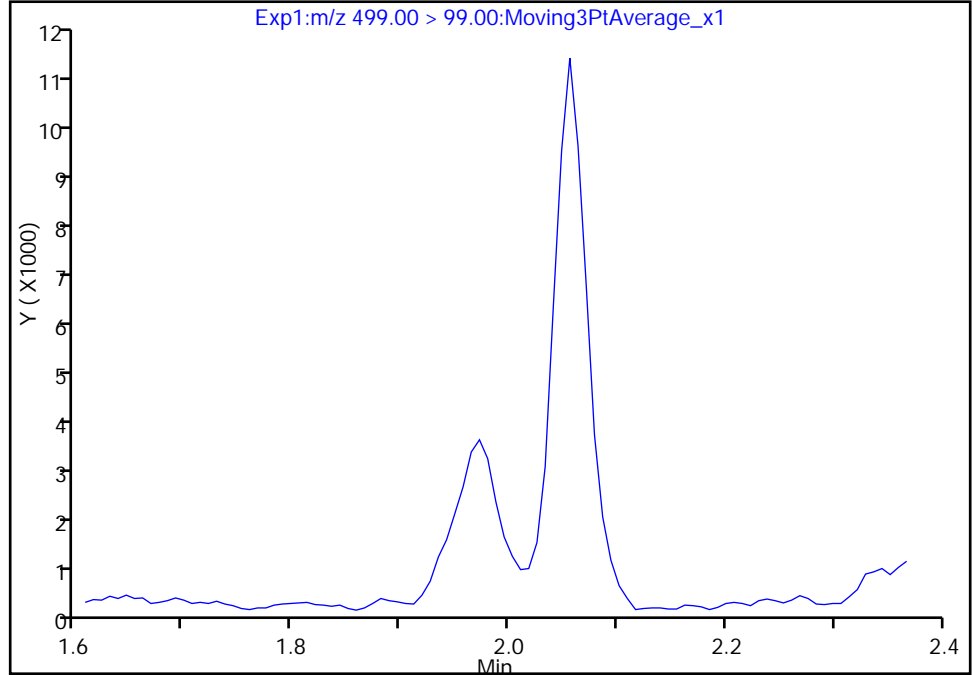
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Injection Date: 02-Feb-2018 23:14:02 Instrument ID: A8\_N  
Lims ID: 320-35148-A-7-A Lab Sample ID: 320-35148-7  
Client ID: WGNA-011618-RW-3295  
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 11  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

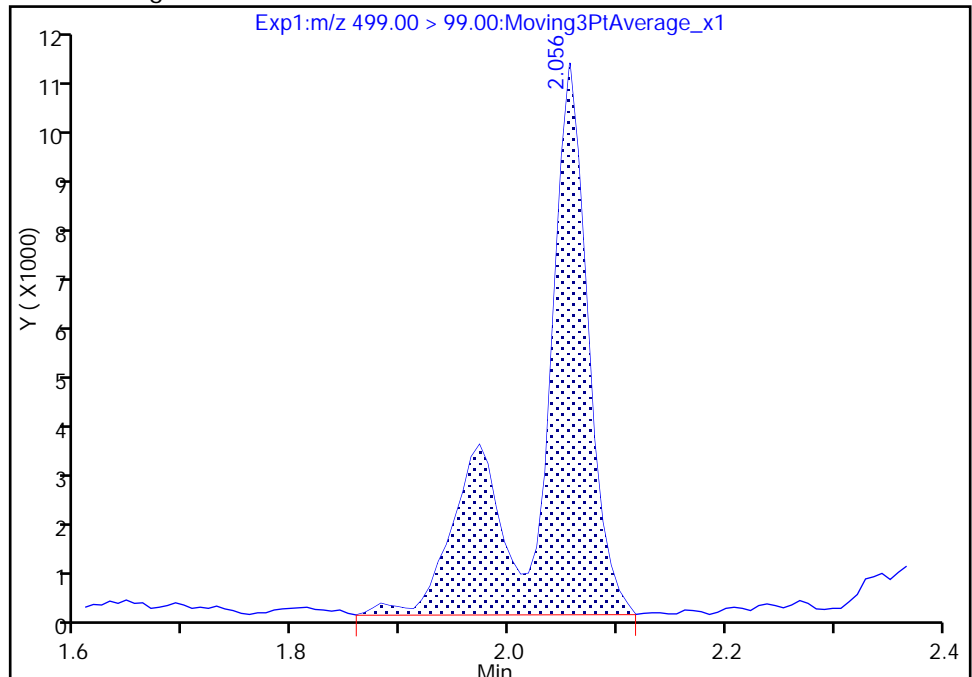
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 35593  
Amount: 2.017837  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:13:10  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

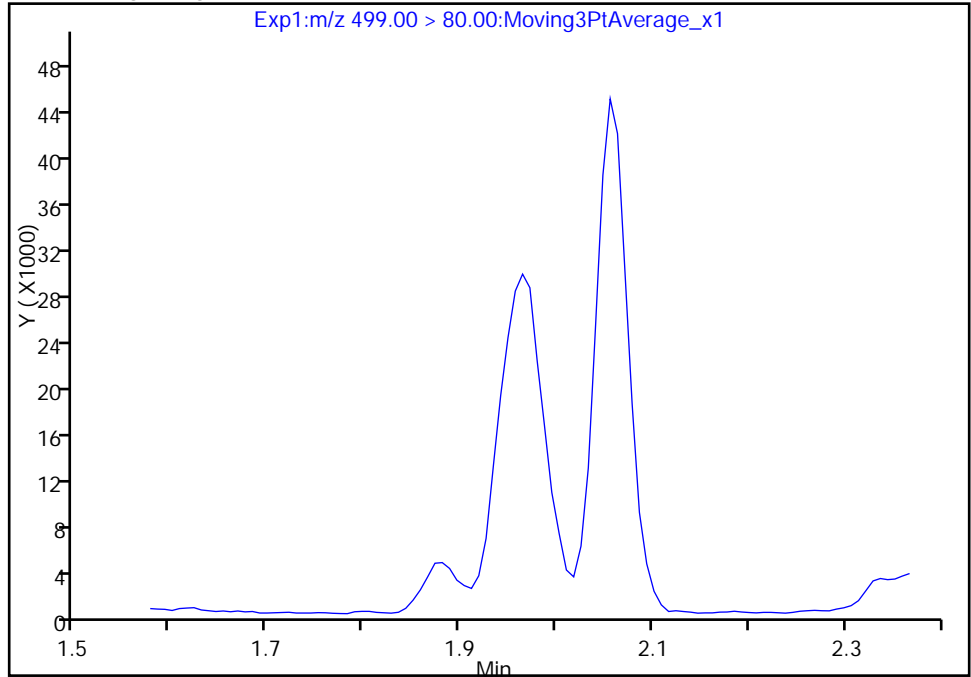
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_011.d  
Injection Date: 02-Feb-2018 23:14:02 Instrument ID: A8\_N  
Lims ID: 320-35148-A-7-A Lab Sample ID: 320-35148-7  
Client ID: WGNA-011618-RW-3295  
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 11  
Injection 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

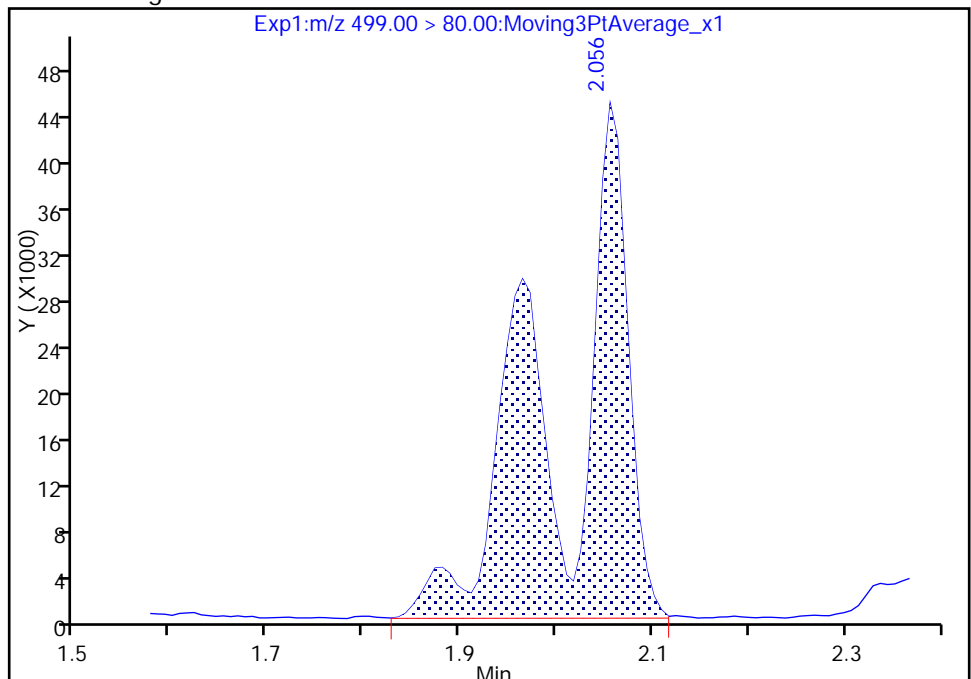
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 216150  
Amount: 2.017837  
Amount Units: ng/ml

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-3295 Lab Sample ID: 320-35148-8  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_012.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/02/2018 23:18  
 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.: 206870 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	97		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_012.d  
 Lims ID: 320-35148-A-8-A  
 Client ID: WGNA-011618-FRB-3295  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:18:42 ALS Bottle#: 10 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-8-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.487	0.0	1.000	1541145	9.68	8531	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.813	-0.007		1446552	10.0	6423	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.064	-0.008		3176697	28.7	7502	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.246	-0.008	1.000	1160600	10.5	9197	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_012.d

Injection Date: 02-Feb-2018 23:18:42

Instrument ID: A8\_N

Lims ID: 320-35148-A-8-A

Lab Sample ID: 320-35148-8

Client ID: WGNA-011618-FRB-3295

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

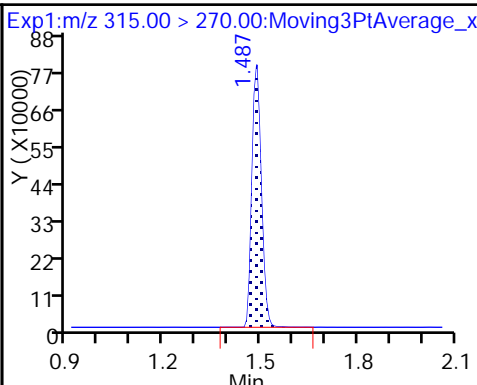
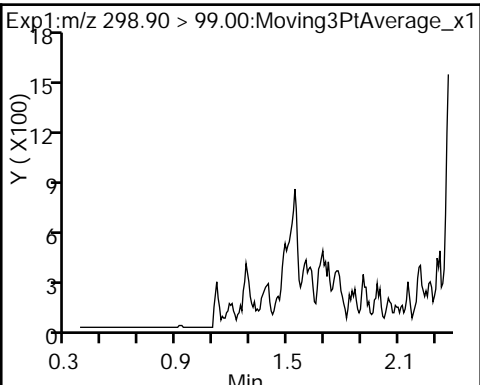
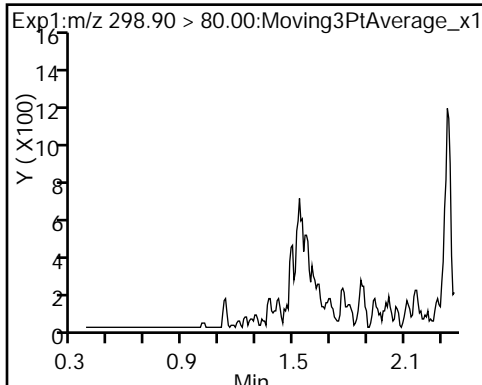
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

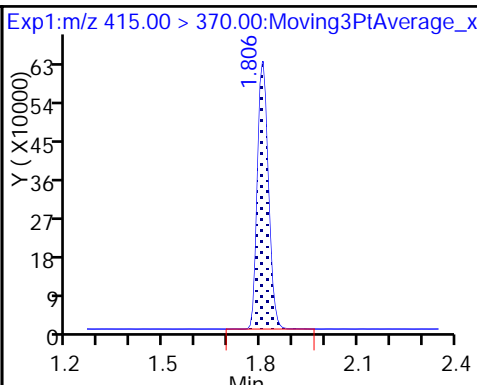
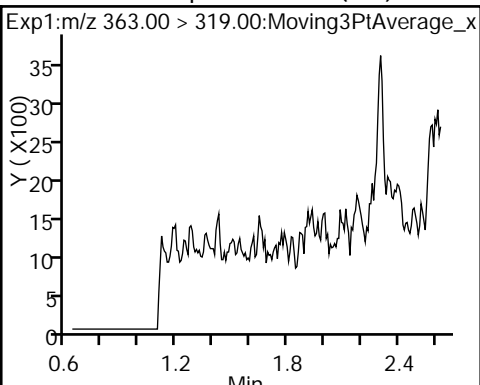
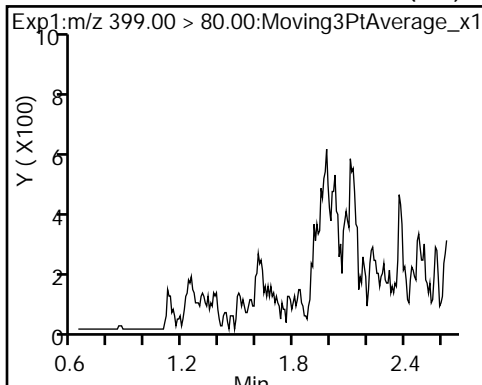
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

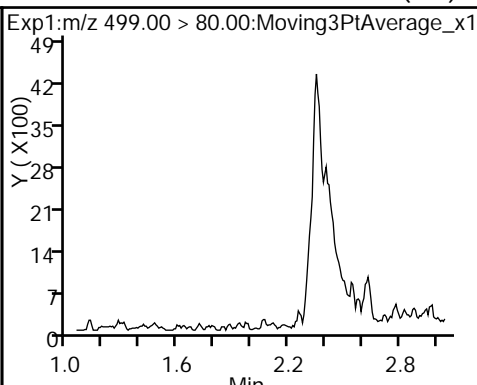
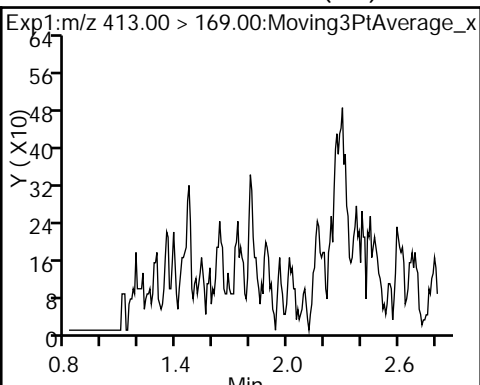
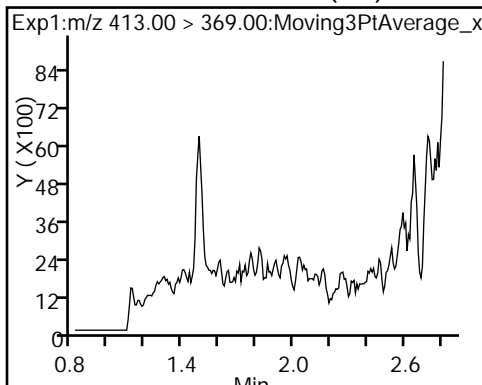
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

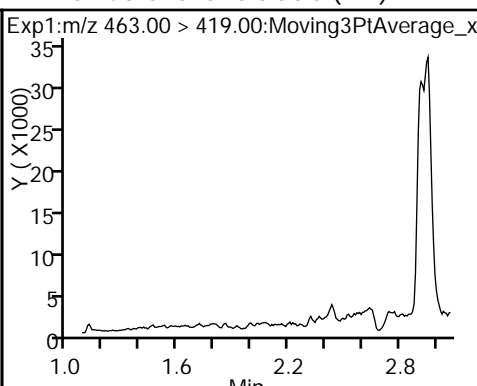
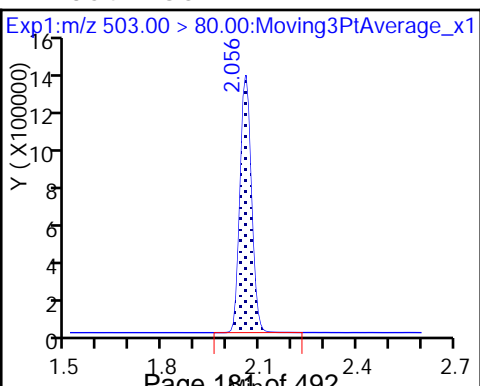
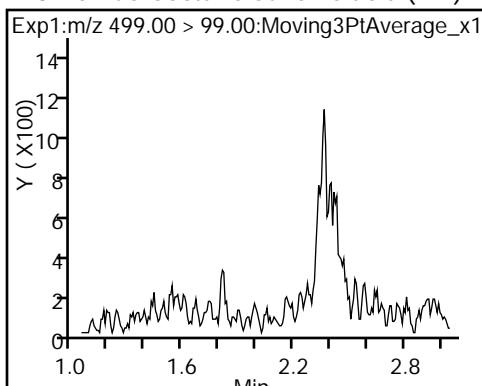
8 Perfluorooctane sulfonic acid (ND)



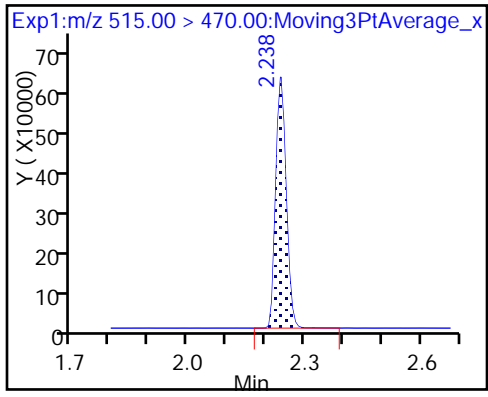
8 Perfluorooctane sulfonic acid (ND)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_012.d  
 Lims ID: 320-35148-A-8-A  
 Client ID: WGNA-011618-FRB-3295  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:18:42 ALS Bottle#: 10 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-8-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.68	96.83
\$ 10 13C2 PFDA	10.0	10.5	104.85

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-272 Lab Sample ID: 320-35148-9  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_015.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.4 (mL) Date Analyzed: 02/02/2018 23:32  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.1	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	91		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_015.d  
 Lims ID: 320-35148-A-9-A  
 Client ID: NAWC-011618-RW-272  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:32:45 ALS Bottle#: 11 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-9-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:14:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	138022	1.08		102	
298.90 > 99.00	1.358	1.366	-0.008	0.994	106982		1.29(0.00-0.00)	202	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1520106	9.14		7794	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	281502	1.47		201	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	284219	2.01		62.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1511152	10.0		6543	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	757279	5.41		133	M
413.00 > 169.00	1.806	1.806	0.0	1.004	448263		1.69(0.00-0.00)	1174	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	561571	5.24		215	Ma
499.00 > 99.00	2.048	2.056	-0.008	0.996	111712		5.03(0.00-0.00)	198	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3272155	28.7		3953	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	64332	0.6410		10.6	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1132500	9.79		9521	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_015.d

Injection Date: 02-Feb-2018 23:32:45

Instrument ID: A8\_N

Lims ID: 320-35148-A-9-A

Lab Sample ID: 320-35148-9

Client ID: NAWC-011618-RW-272

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

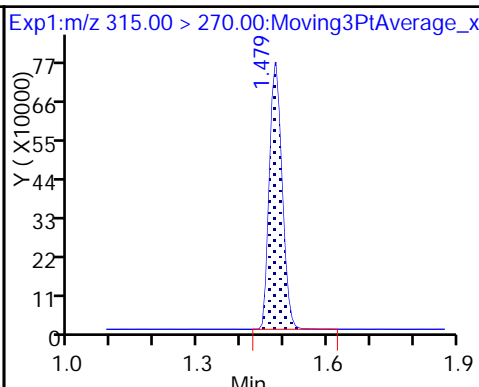
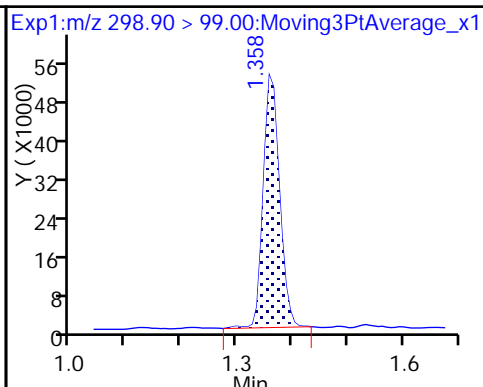
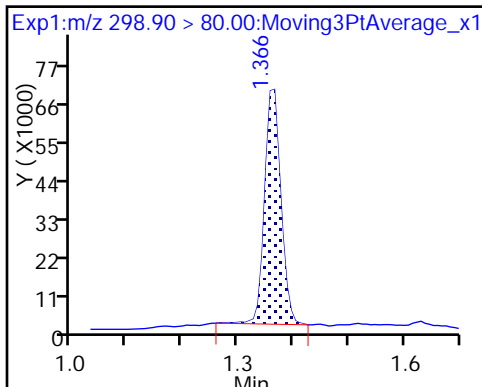
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

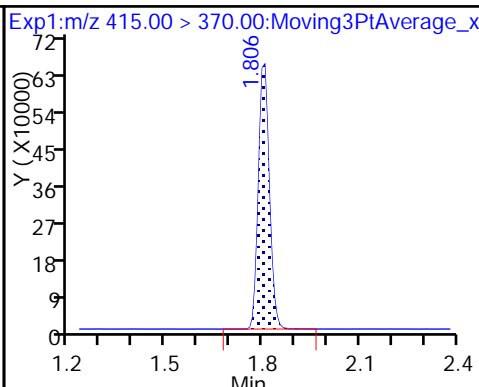
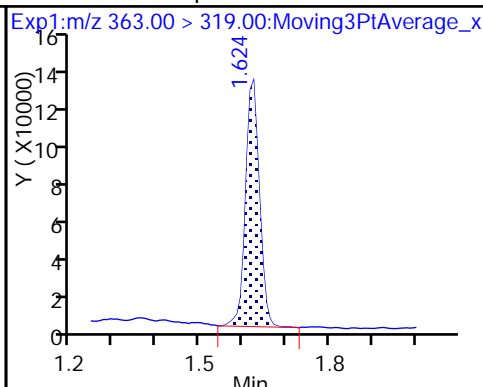
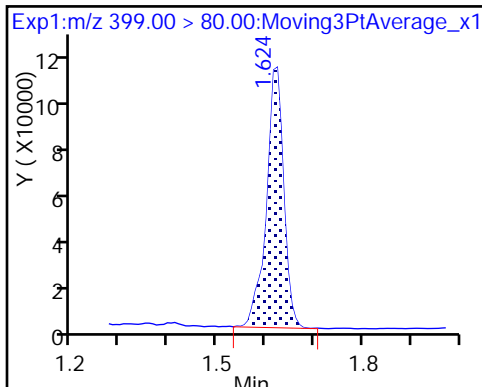
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

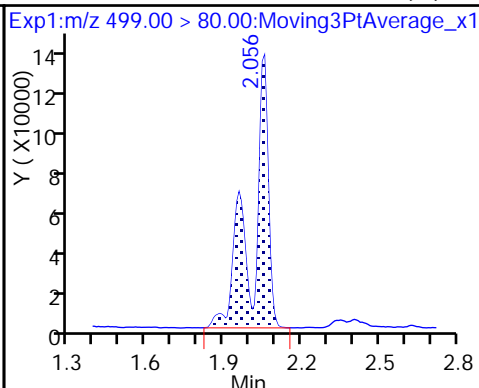
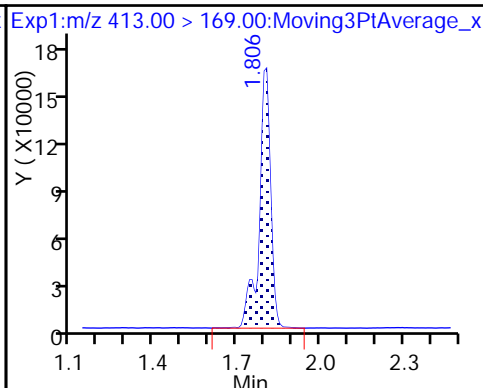
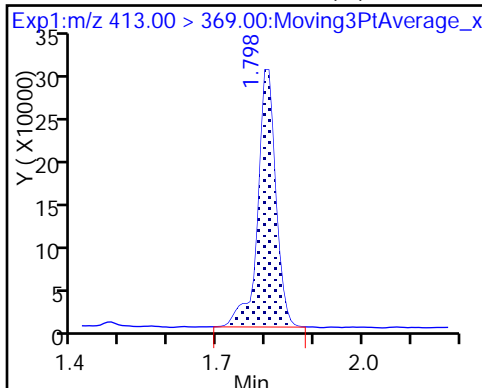
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

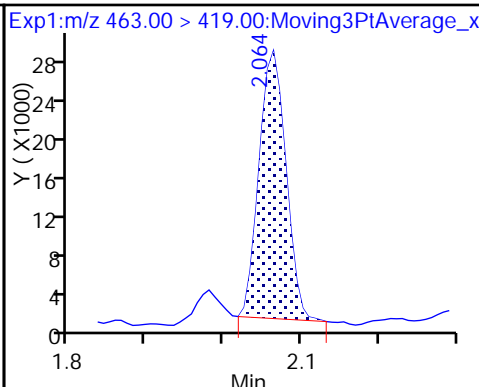
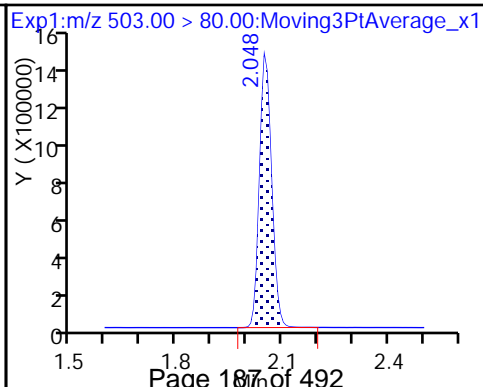
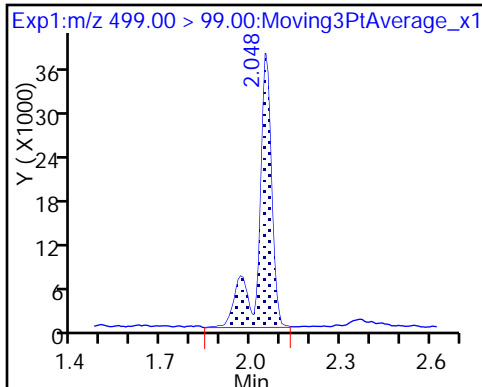
8 Perfluorooctane sulfonic acid (M)



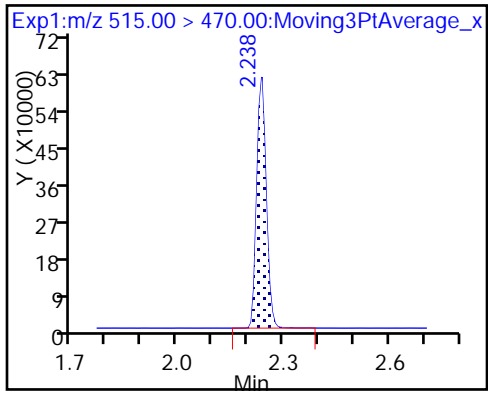
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_015.d  
 Lims ID: 320-35148-A-9-A  
 Client ID: NAWC-011618-RW-272  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:32:45 ALS Bottle#: 11 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-9-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:14:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.14	91.42
\$ 10 13C2 PFDA	10.0	9.79	97.94

TestAmerica Sacramento

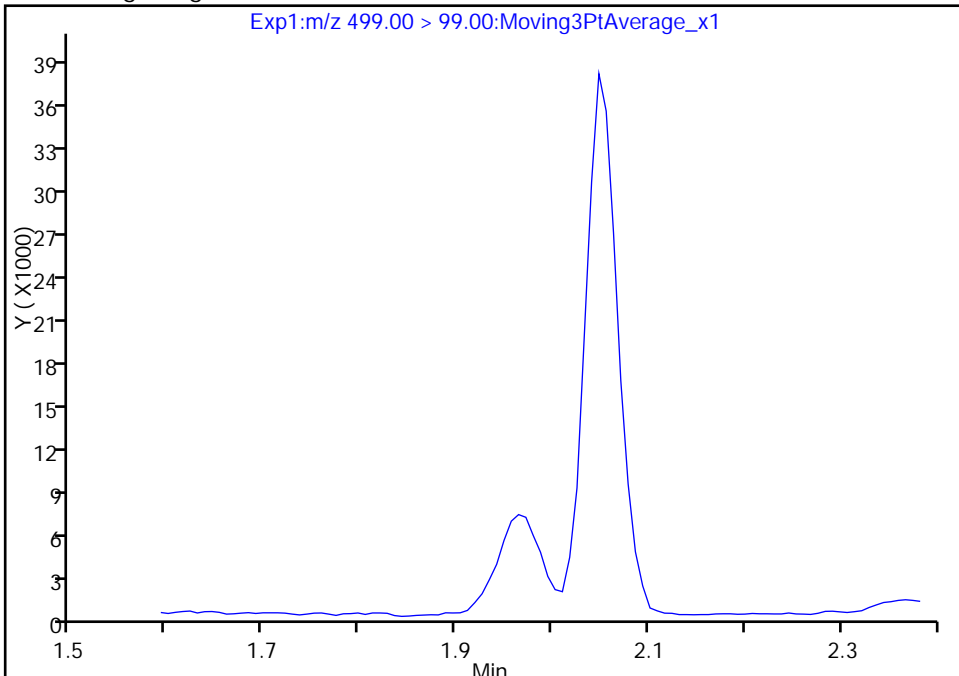
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Injection Date: 02-Feb-2018 23:32:45 Instrument ID: A8\_N  
Lims ID: 320-35148-A-9-A Lab Sample ID: 320-35148-9  
Client ID: NAWC-011618-RW-272  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

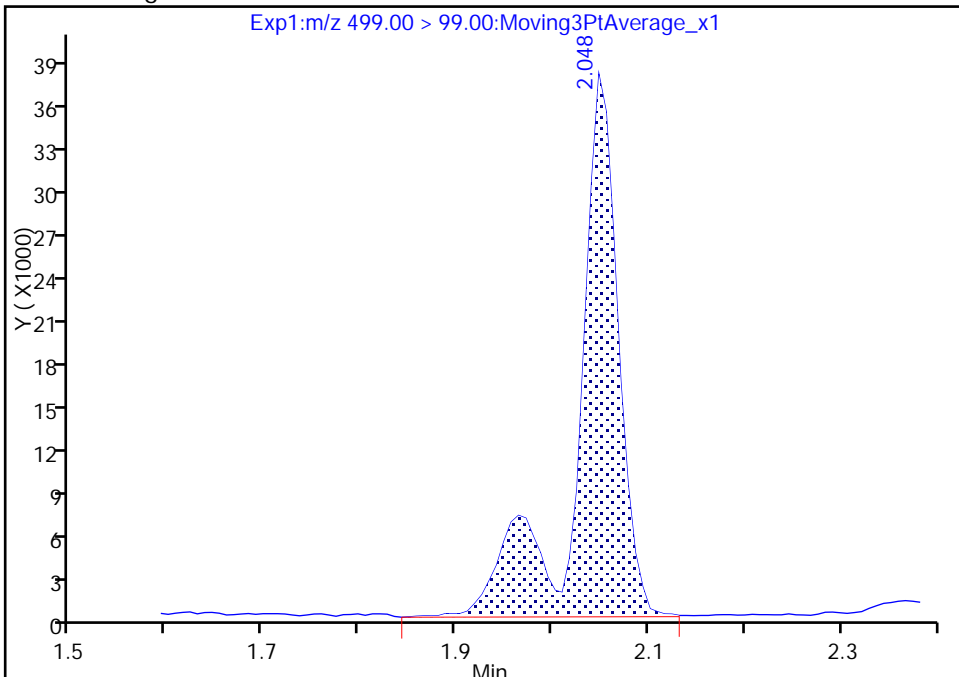
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 111712  
Amount: 5.242134  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:14:13  
Audit Action: Manually Integrated

Audit Reason: Assign Peak  
Page 190 of 492



TestAmerica Sacramento

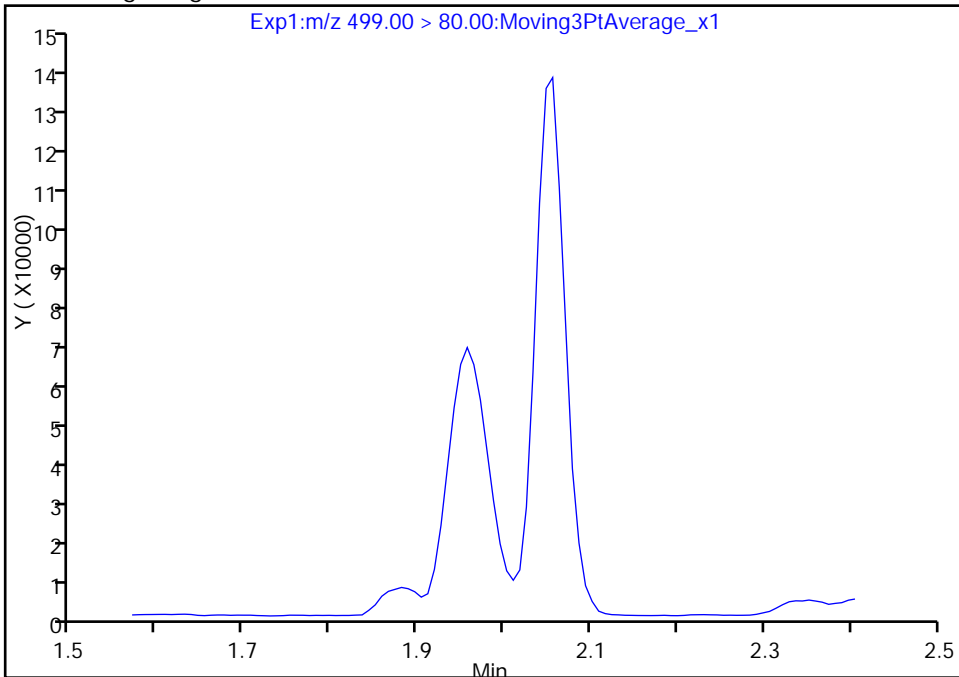
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Injection Date: 02-Feb-2018 23:32:45 Instrument ID: A8\_N  
Lims ID: 320-35148-A-9-A Lab Sample ID: 320-35148-9  
Client ID: NAWC-011618-RW-272  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

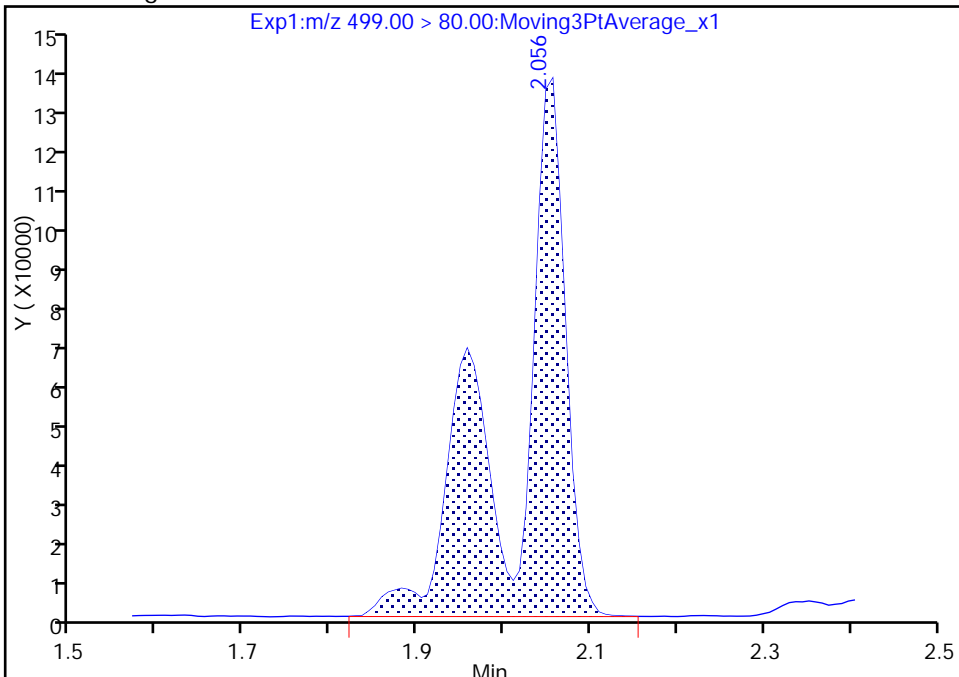
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 561571  
Amount: 5.242134  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

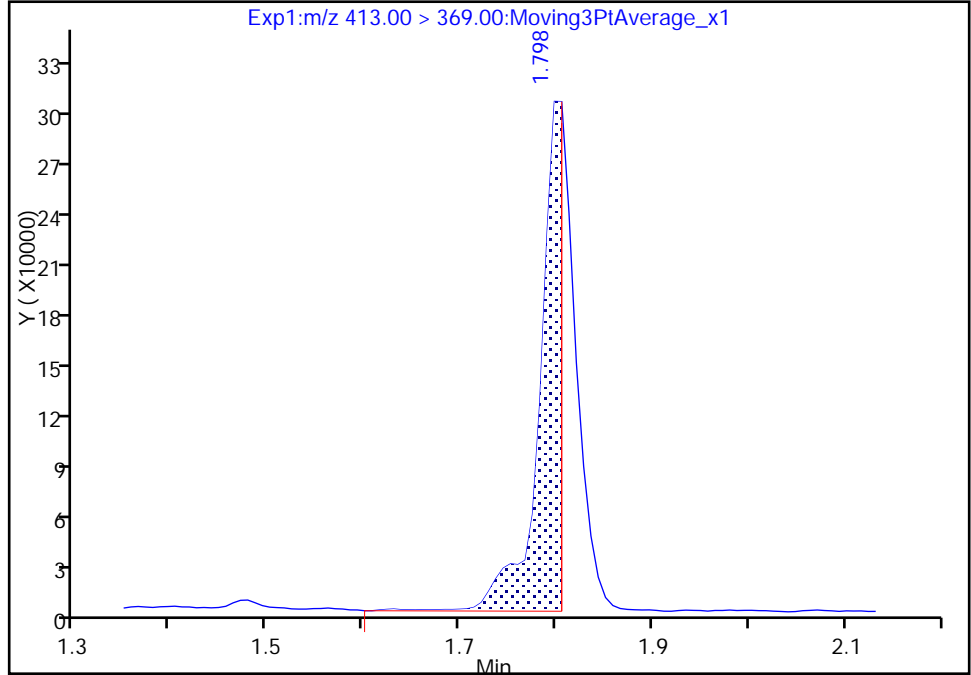
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Injection Date: 02-Feb-2018 23:32:45 Instrument ID: A8\_N  
Lims ID: 320-35148-A-9-A Lab Sample ID: 320-35148-9  
Client ID: NAWC-011618-RW-272  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

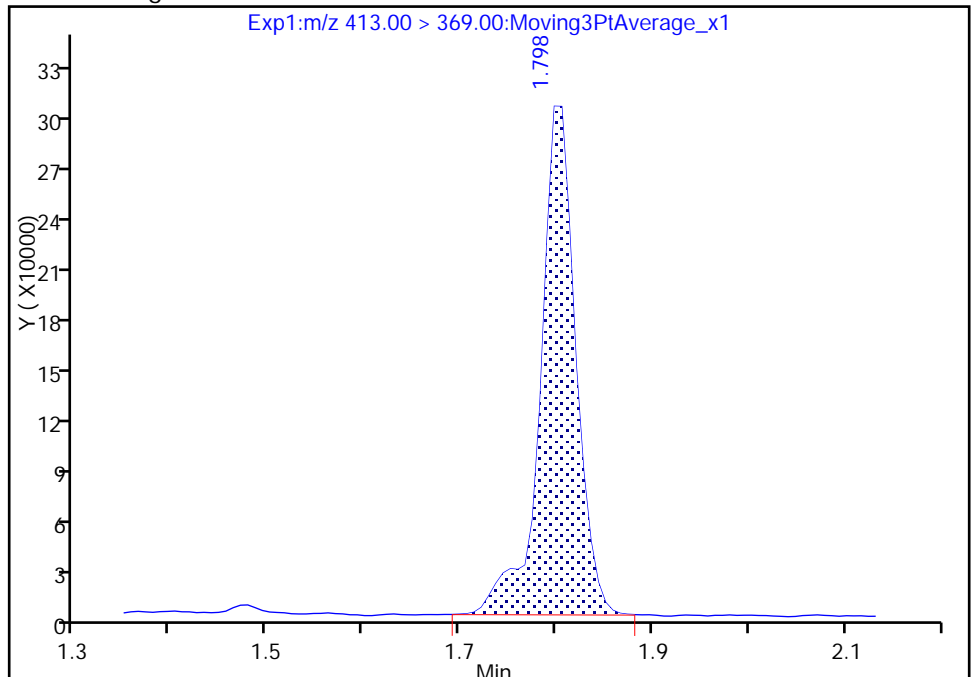
RT: 1.80  
Area: 455211  
Amount: 3.253923  
Amount Units: ng/ml

Processing Integration Results



RT: 1.80  
Area: 757279  
Amount: 5.413155  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:14:35  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-272 Lab Sample ID: 320-35148-10  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_016.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247(mL) Date Analyzed: 02/02/2018 23:37  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_016.d  
 Lims ID: 320-35148-A-10-A  
 Client ID: NAWC-011618-FRB-272  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:37:24 ALS Bottle#: 12 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-10-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.479	0.0	1.000	1624673	10.1	8435	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.806	0.0		1465534	10.0	7218	
* 7 13C4 PFOS	503.00 > 80.00	2.048	2.056	-0.008		3141346	28.7	7635	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	1170347	10.4	8660	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_016.d

Injection Date: 02-Feb-2018 23:37:24

Instrument ID: A8\_N

Lims ID: 320-35148-A-10-A

Lab Sample ID: 320-35148-10

Client ID: NAWC-011618-FRB-272

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 16

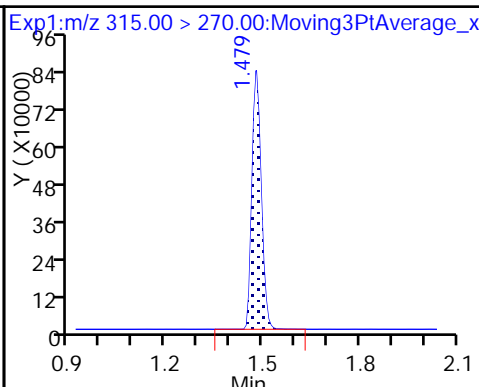
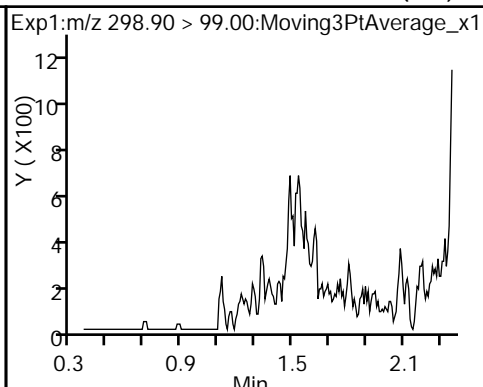
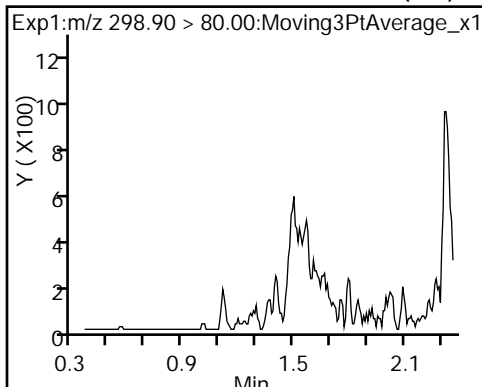
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

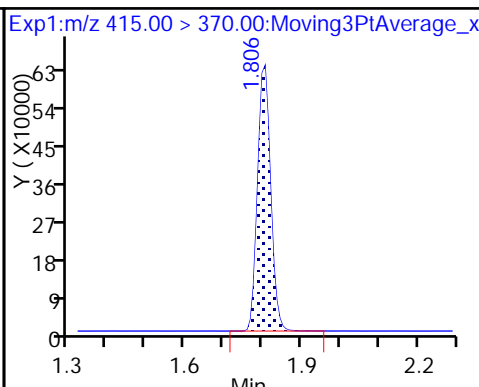
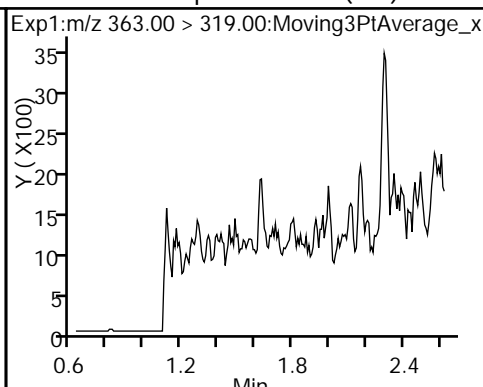
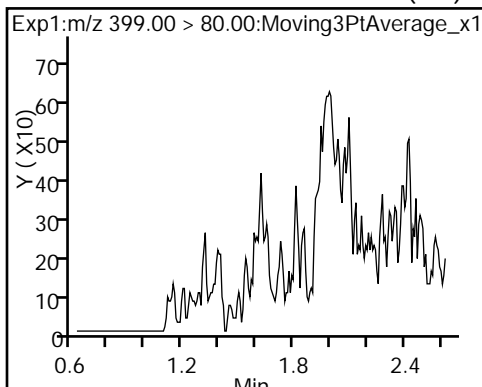
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

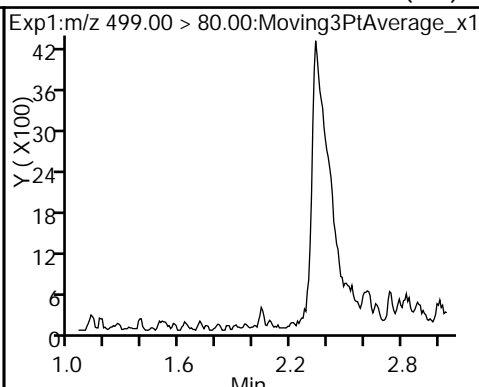
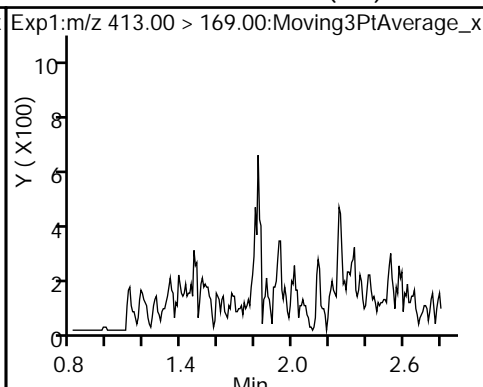
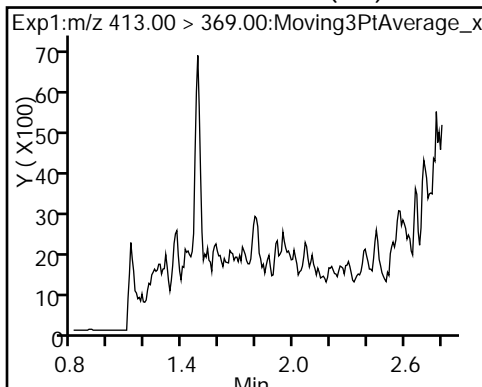
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



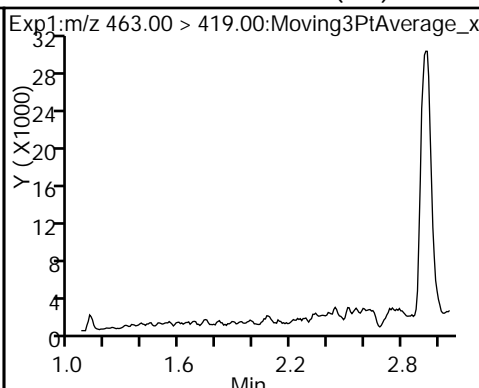
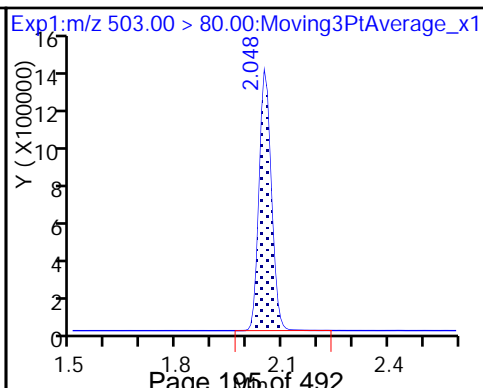
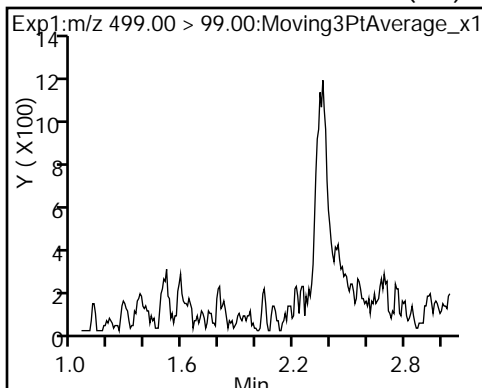
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



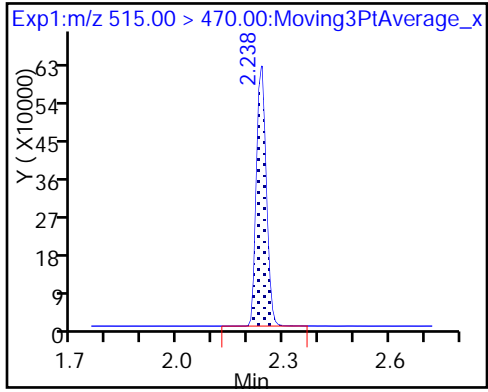
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_016.d  
 Lims ID: 320-35148-A-10-A  
 Client ID: NAWC-011618-FRB-272  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:37:24 ALS Bottle#: 12 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-10-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.75
\$ 10 13C2 PFDA	10.0	10.4	104.36

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-258 Lab Sample ID: 320-35148-11  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_017.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/02/2018 23:42  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	24		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	13	J	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	89		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_017.d  
 Lims ID: 320-35148-A-11-A  
 Client ID: NAWC-011618-RW-258  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:42:05 ALS Bottle#: 13 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-11-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:15:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	296622	2.16		146	
298.90 > 99.00	1.358	1.366	-0.008	1.000	202837		1.46(0.00-0.00)	321	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1477542	8.45		7046	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	108160	0.5256		28.1	M
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.624	-0.008	1.000	334609	2.25		45.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1588703	10.0		6241	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	874309	5.94		95.5	
413.00 > 169.00	1.798	1.806	-0.008	1.000	501686		1.74(0.00-0.00)	1238	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	580000	5.02		132	M
499.00 > 99.00	2.048	2.056	-0.008	1.000	109391		5.30(0.00-0.00)	155	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3525590	28.7		1738	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.064	-0.008	1.000	337979	3.20		44.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1078930	8.88		8336	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_017.d

Injection Date: 02-Feb-2018 23:42:05

Instrument ID: A8\_N

Lims ID: 320-35148-A-11-A

Lab Sample ID: 320-35148-11

Client ID: NAWC-011618-RW-258

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

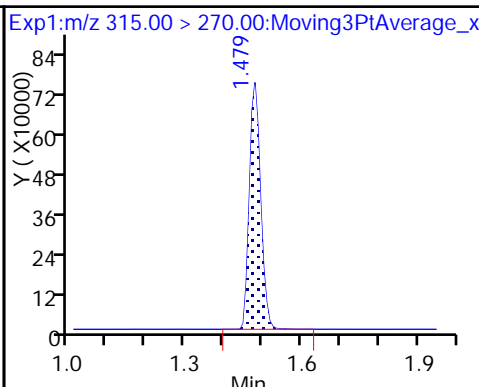
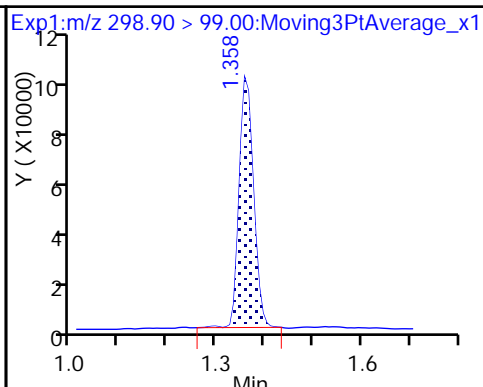
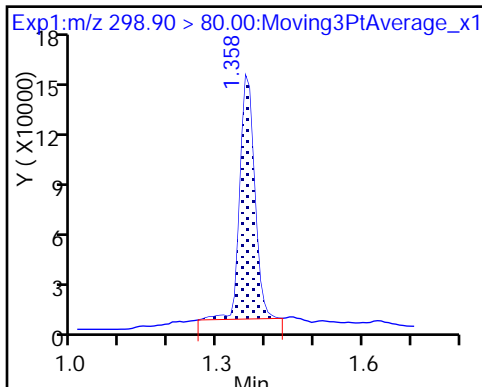
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

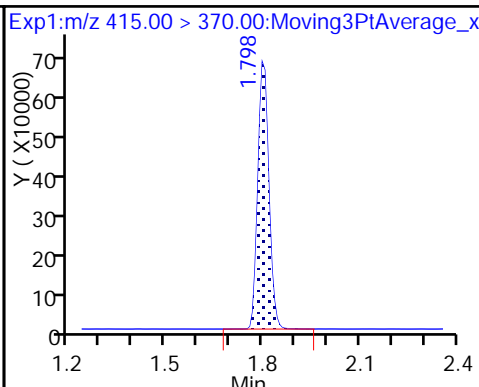
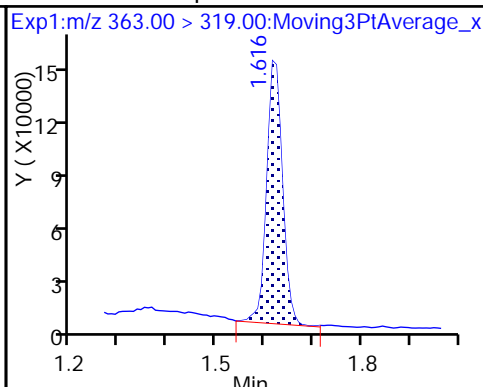
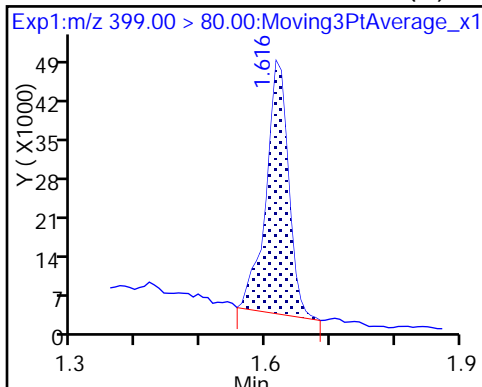
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid

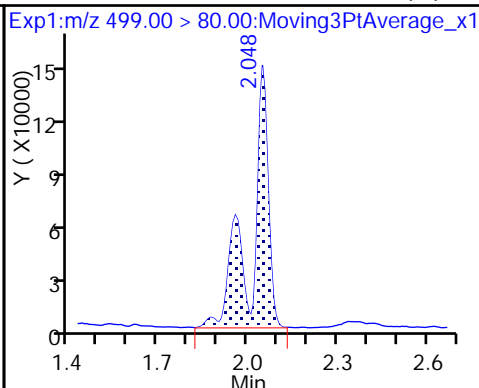
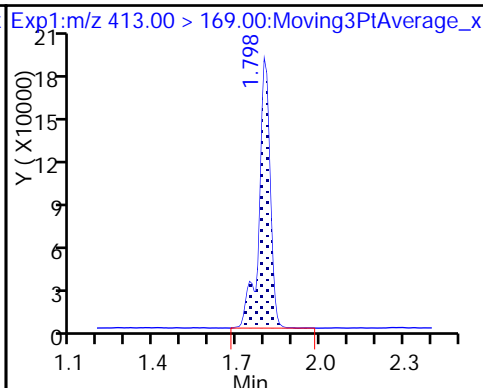
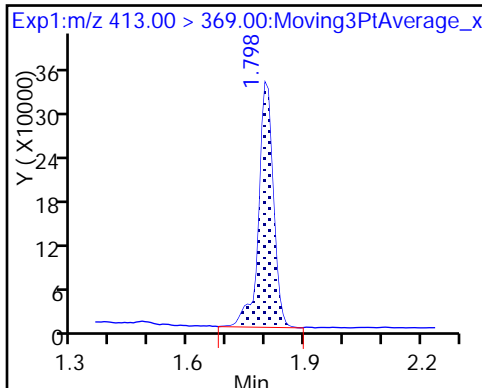
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

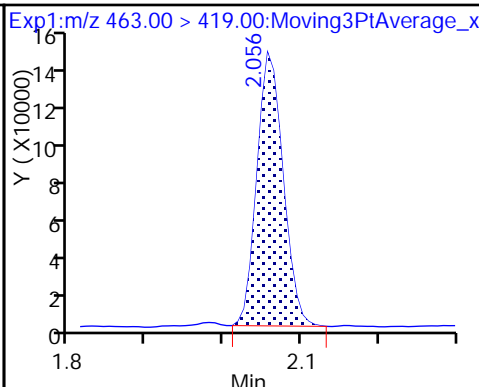
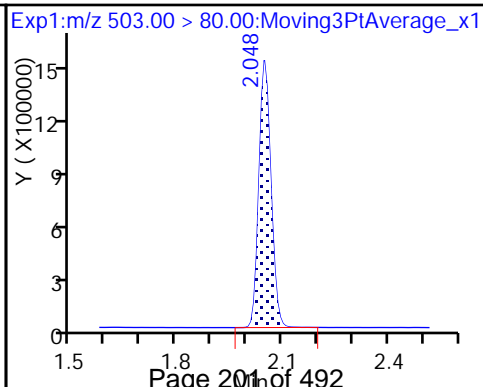
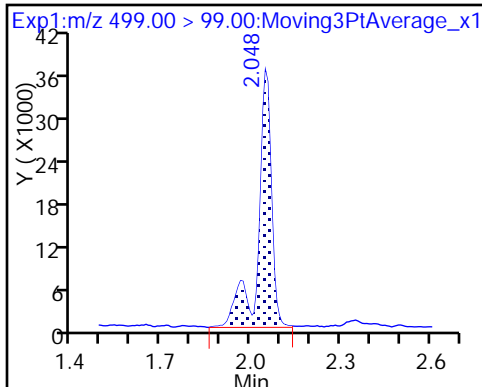
8 Perfluorooctane sulfonic acid (M)



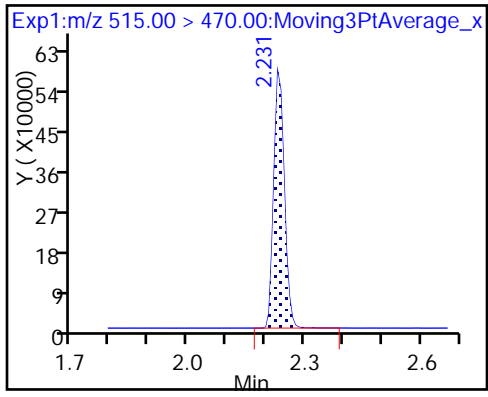
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_017.d  
 Lims ID: 320-35148-A-11-A  
 Client ID: NAWC-011618-RW-258  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:42:05 ALS Bottle#: 13 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-11-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:15:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.45	84.53
\$ 10 13C2 PFDA	10.0	8.88	88.75

TestAmerica Sacramento

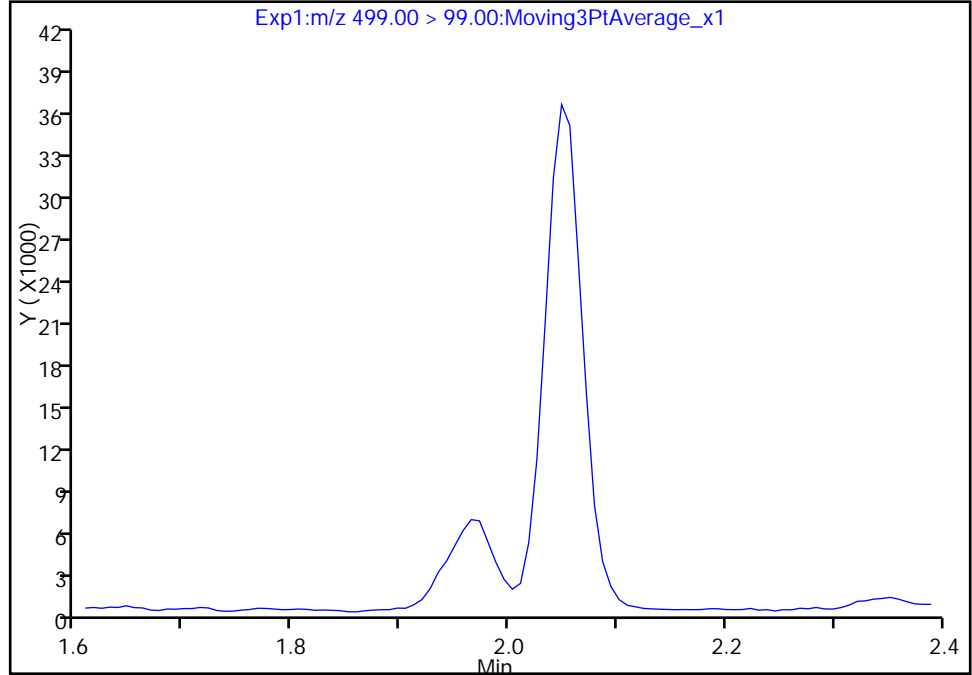
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Injection Date: 02-Feb-2018 23:42:05 Instrument ID: A8\_N  
Lims ID: 320-35148-A-11-A Lab Sample ID: 320-35148-11  
Client ID: NAWC-011618-RW-258  
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

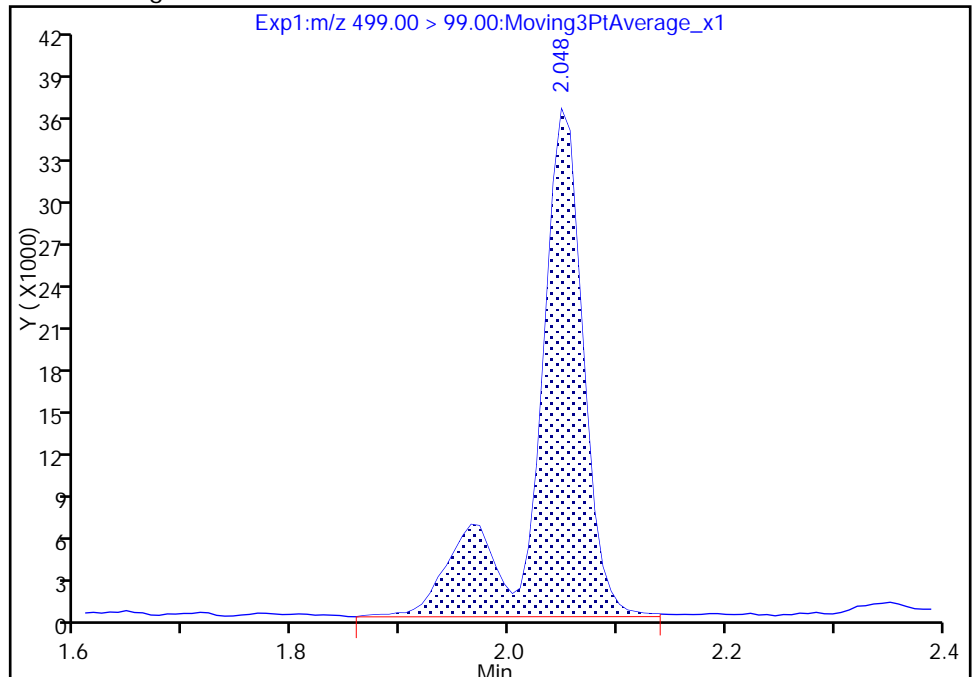
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 109391  
Amount: 5.024970  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:15:38  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

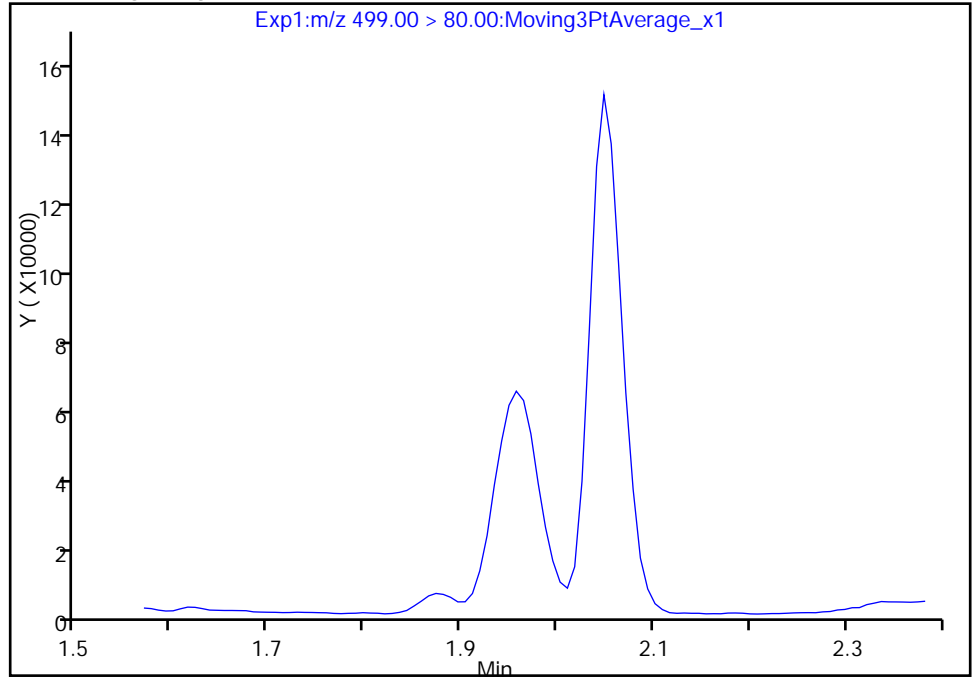
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Injection Date: 02-Feb-2018 23:42:05 Instrument ID: A8\_N  
Lims ID: 320-35148-A-11-A Lab Sample ID: 320-35148-11  
Client ID: NAWC-011618-RW-258  
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

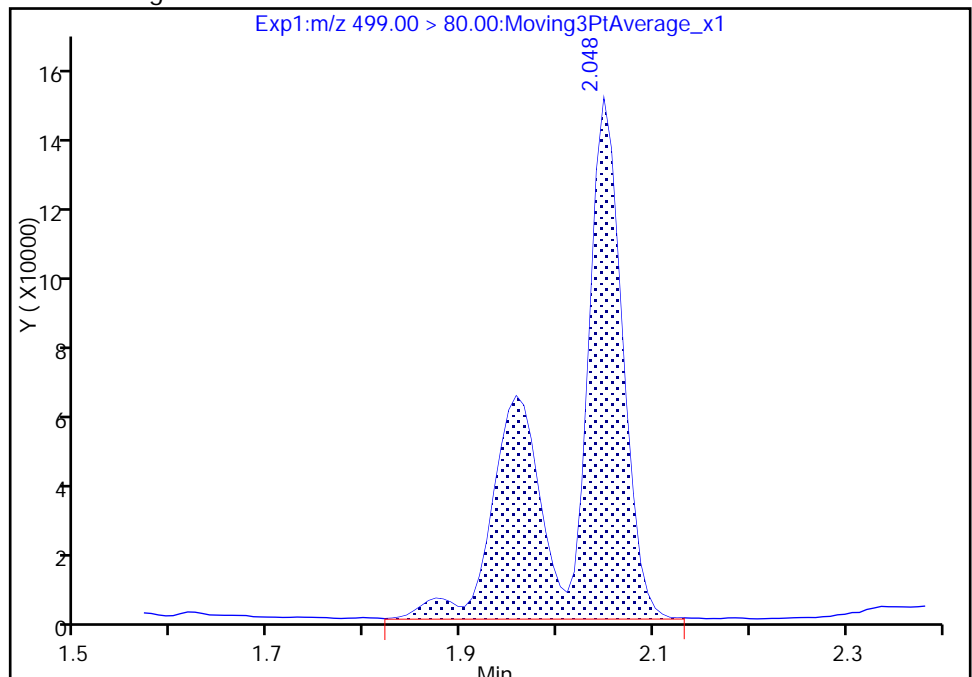
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 580000  
Amount: 5.024970  
Amount Units: ng/ml



TestAmerica Sacramento

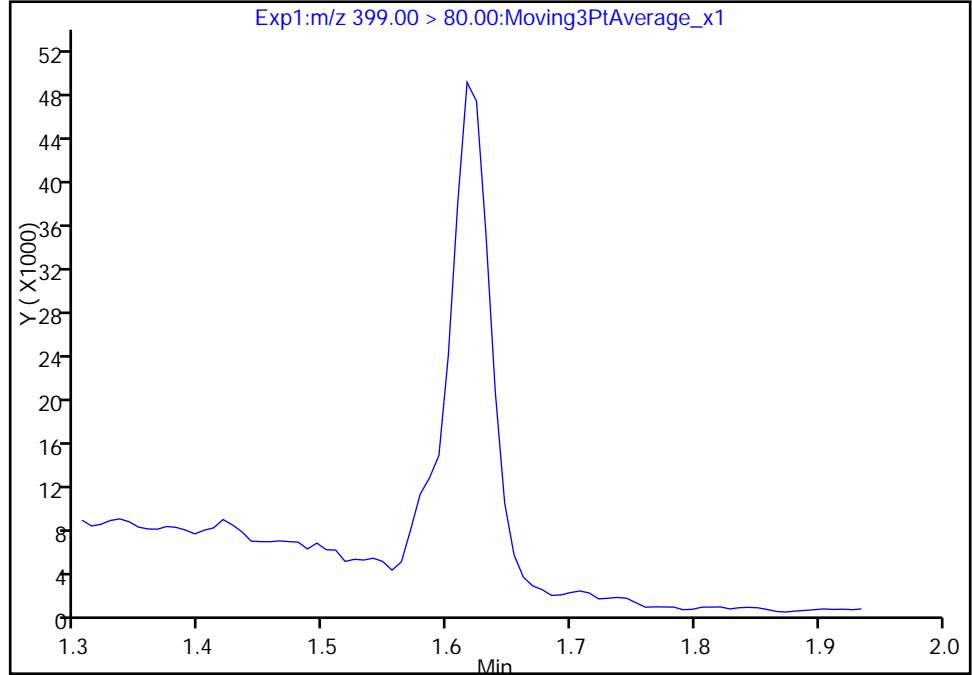
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Injection Date: 02-Feb-2018 23:42:05 Instrument ID: A8\_N  
Lims ID: 320-35148-A-11-A Lab Sample ID: 320-35148-11  
Client ID: NAWC-011618-RW-258  
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

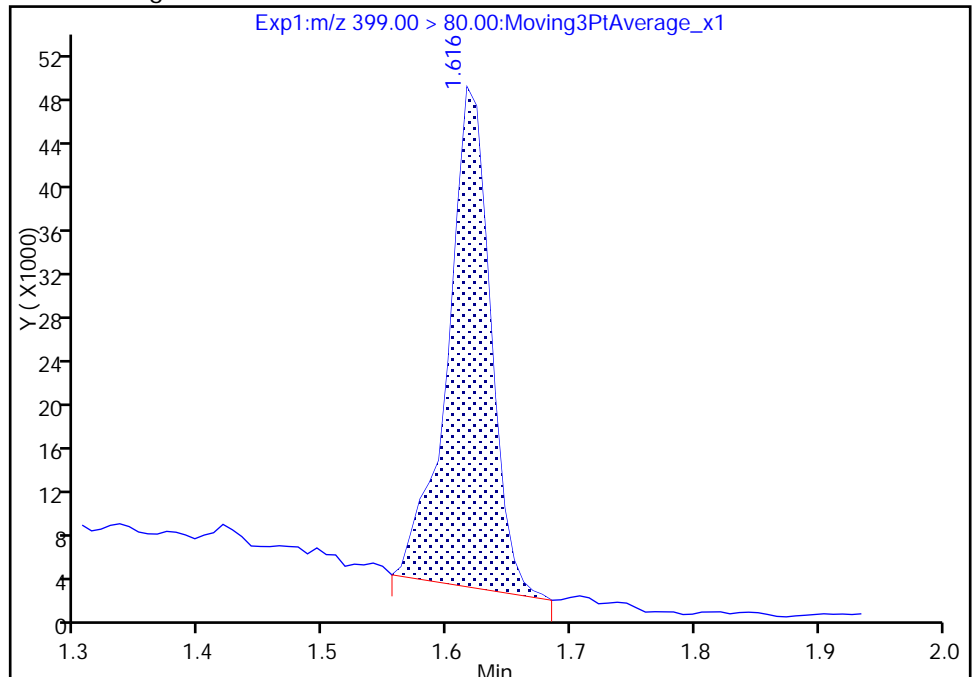
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 108160  
Amount: 0.525567  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:15:09  
Audit Action: Manually Integrated

Audit Reason: Missed Peak



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-258 Lab Sample ID: 320-35148-12  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_018.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 251.8(mL) Date Analyzed: 02/02/2018 23:46  
 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.: 206872 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	92		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_018.d  
 Lims ID: 320-35148-A-12-A  
 Client ID: NAWC-011618-FRB-258  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:46:46 ALS Bottle#: 14 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-12-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.479	0.0	1.000	1537005	9.20	7170	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.806	0.0		1519083	10.0	6582	
* 7 13C4 PFOS	503.00 > 80.00	2.048	2.056	-0.008		3304388	28.7	7431	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	1119992	9.64	7552	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_018.d

Injection Date: 02-Feb-2018 23:46:46

Instrument ID: A8\_N

Lims ID: 320-35148-A-12-A

Lab Sample ID: 320-35148-12

Client ID: NAWC-011618-FRB-258

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

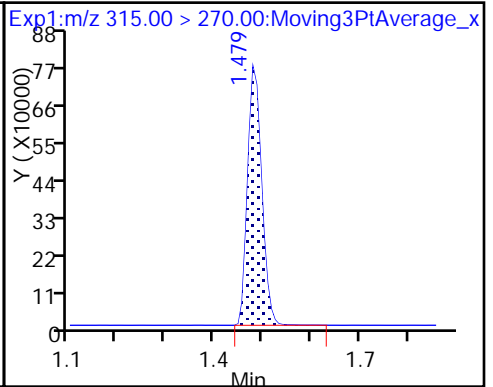
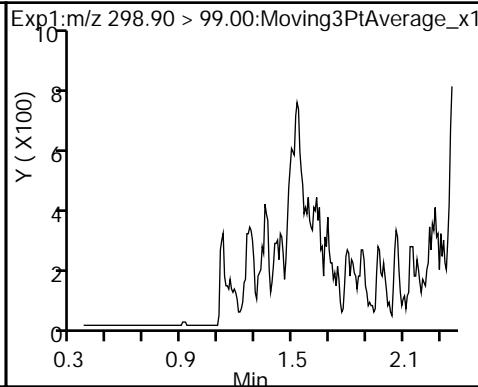
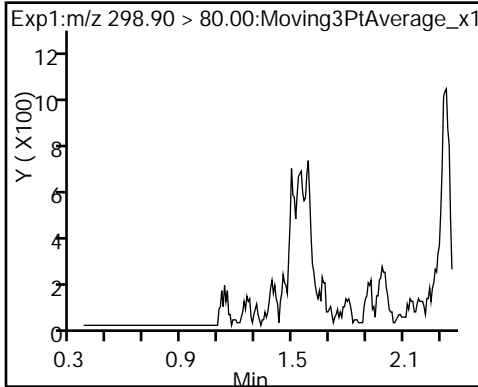
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

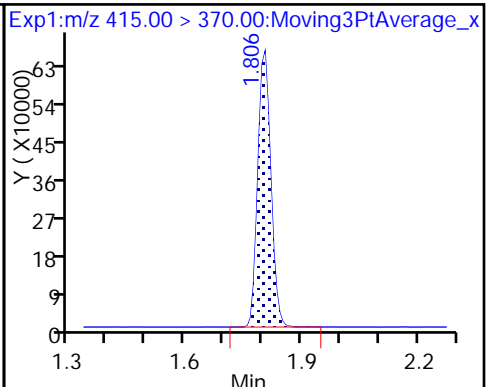
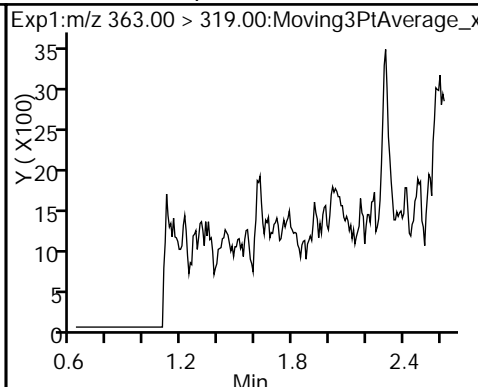
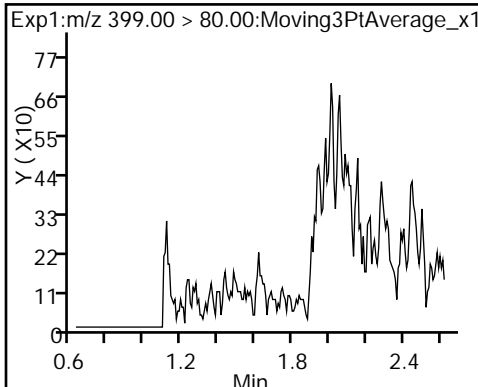
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

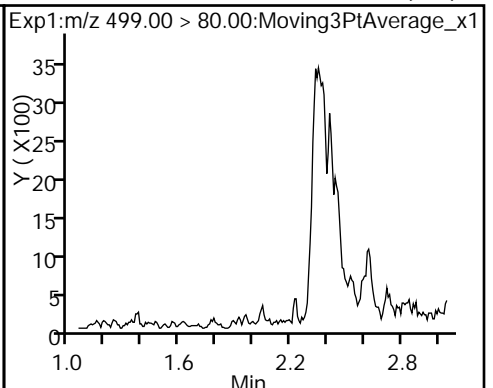
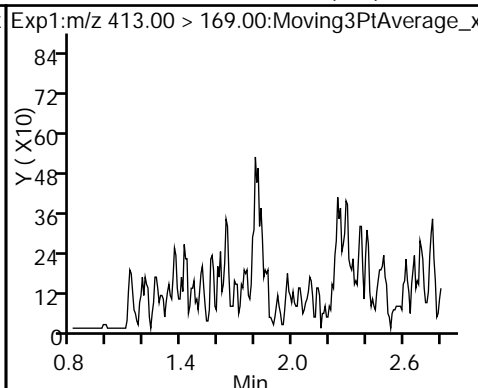
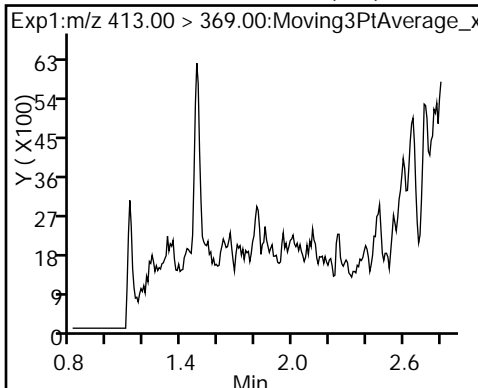
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

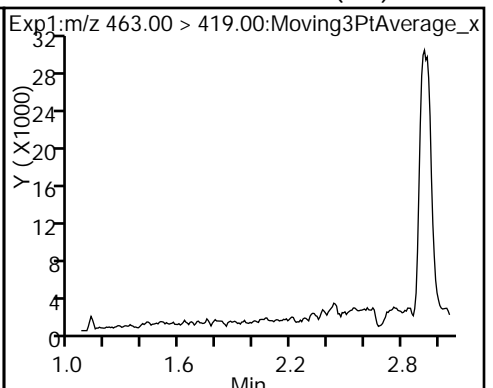
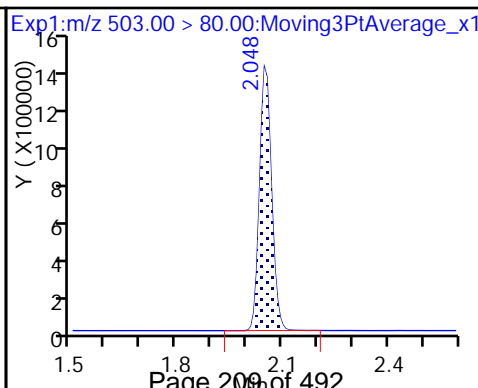
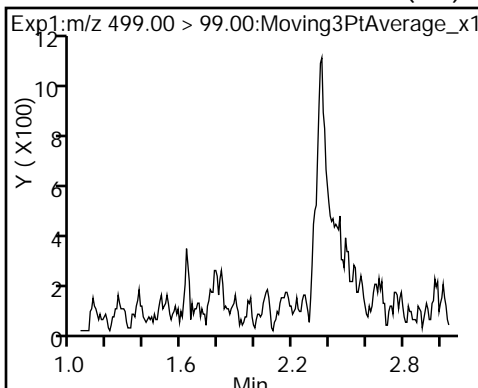
8 Perfluorooctane sulfonic acid (ND)



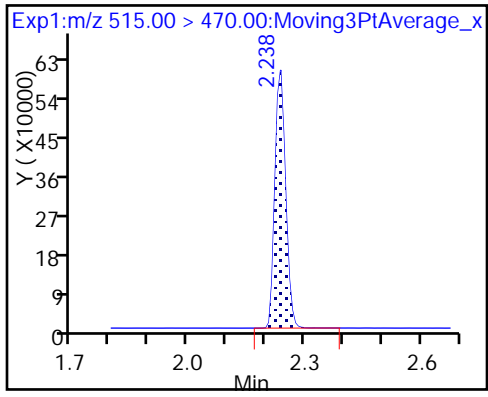
8 Perfluorooctane sulfonic acid (ND)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_018.d  
 Lims ID: 320-35148-A-12-A  
 Client ID: NAWC-011618-FRB-258  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:46:46 ALS Bottle#: 14 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-12-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.20	91.96
\$ 10 13C2 PFDA	10.0	9.64	96.35

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-234 Lab Sample ID: 320-35148-13  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_019.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:51  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	5.0	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U M	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U M	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d  
 Lims ID: 320-35148-A-13-A  
 Client ID: NAWC-011618-RW-234  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:51:27 ALS Bottle#: 15 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-13-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:16:52

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	1.366	-0.008	1.000	34302	0.2735		68.1	M
298.90 > 99.00	1.358	1.366	-0.008	1.000	26990		1.27(0.00-0.00)	54.6	M
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1511331	9.27		7815	
3 Perfluorohexanesulfonic acid									Ma
399.00 > 80.00	1.624	1.624	0.0	1.000	52888	0.2818		30.9	M
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.624	1.624	0.0	1.000	54875	0.3953		14.5	M
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1481746	10.0		7077	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	172186	1.26		34.0	
413.00 > 169.00	1.798	1.806	-0.008	1.000	102289		1.68(0.00-0.00)	239	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.056	-0.008	1.000	63825	0.6063		22.6	a
499.00 > 99.00	2.048	2.056	-0.008	1.000	10048		6.35(0.00-0.00)	17.7	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3215378	28.7		6151	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1068042	9.42		7711	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d

Injection Date: 02-Feb-2018 23:51:27

Instrument ID: A8\_N

Lims ID: 320-35148-A-13-A

Lab Sample ID: 320-35148-13

Client ID: NAWC-011618-RW-234

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

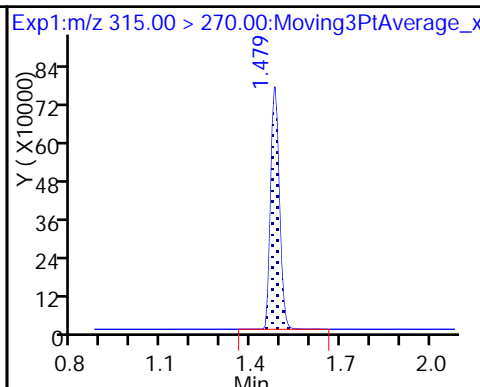
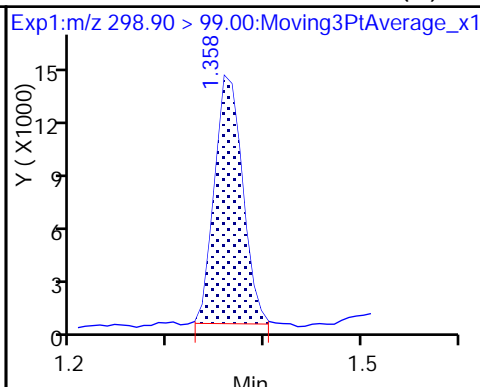
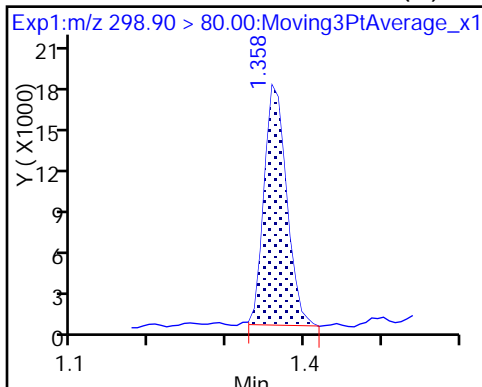
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (M)

1 Perfluorobutanesulfonic acid (M)

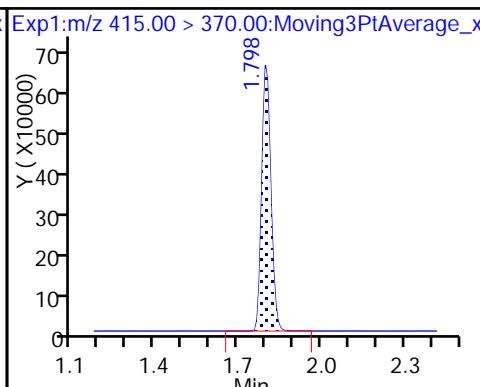
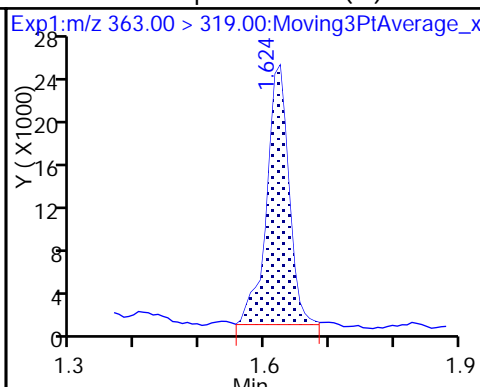
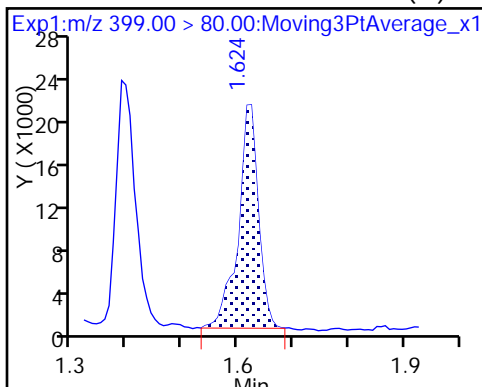
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid (M)

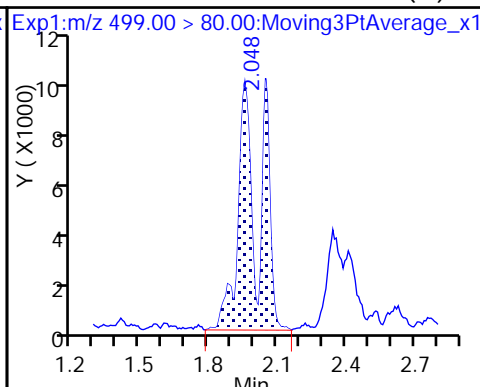
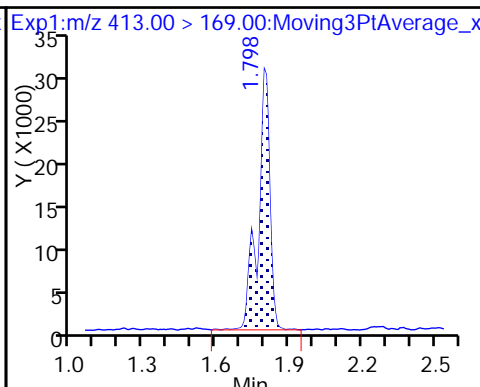
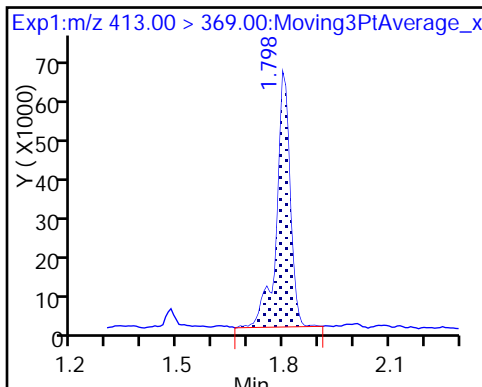
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

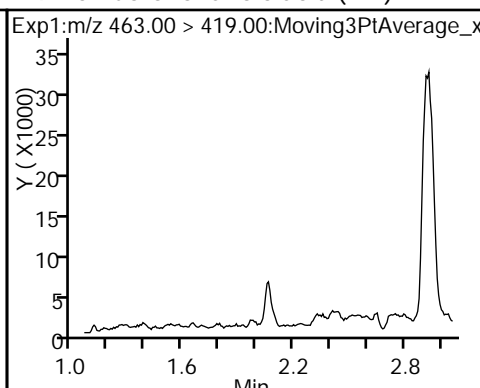
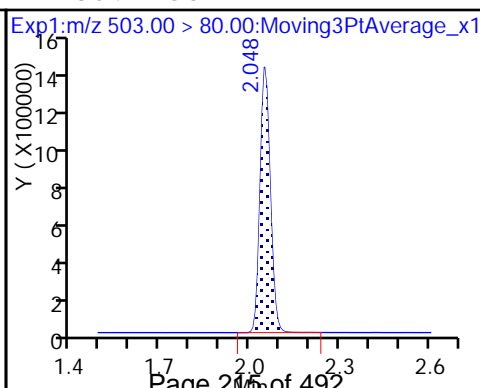
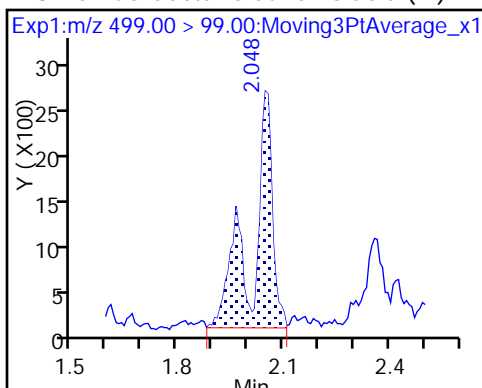
8 Perfluorooctane sulfonic acid (M)



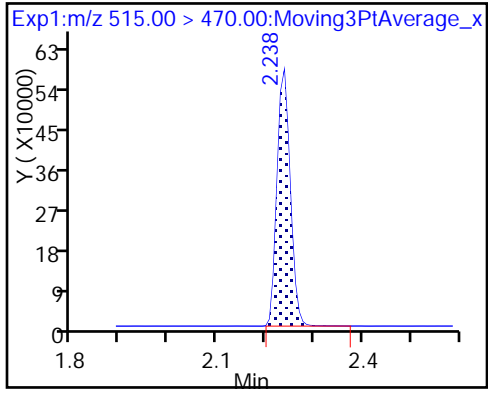
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d  
 Lims ID: 320-35148-A-13-A  
 Client ID: NAWC-011618-RW-234  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:51:27 ALS Bottle#: 15 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-13-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:16:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.27	92.70
\$ 10 13C2 PFDA	10.0	9.42	94.20

TestAmerica Sacramento

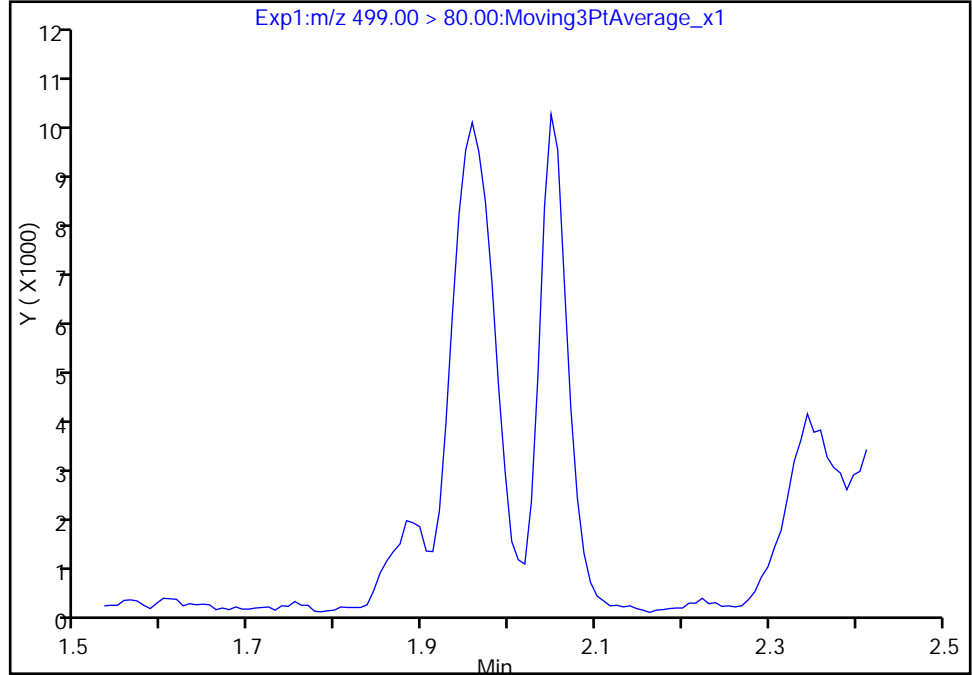
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Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

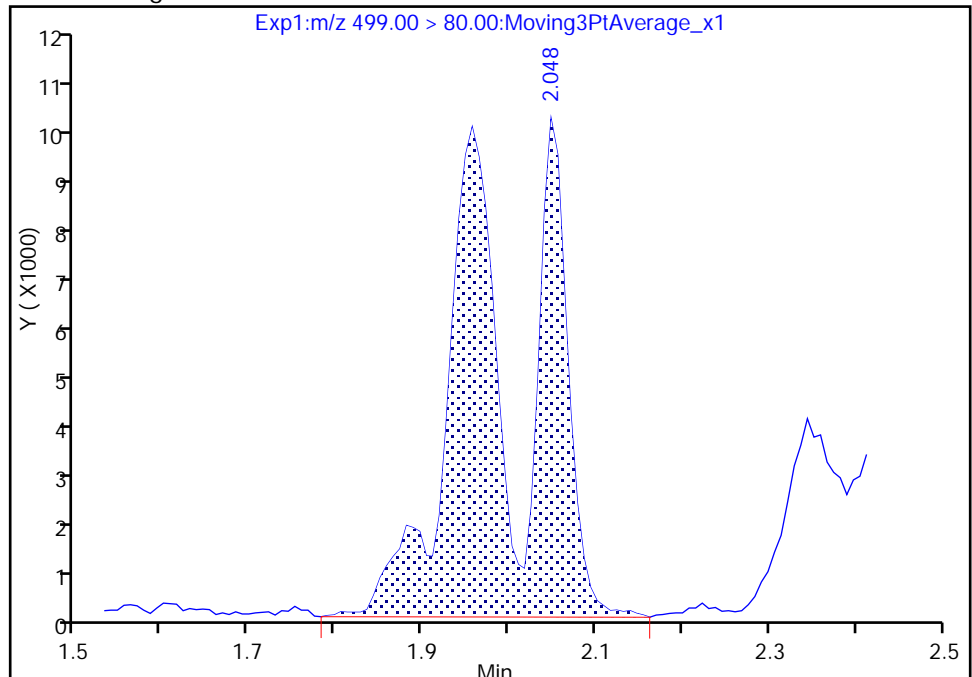
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 63825  
Amount: 0.606312  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:17:56  
Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

TestAmerica Sacramento

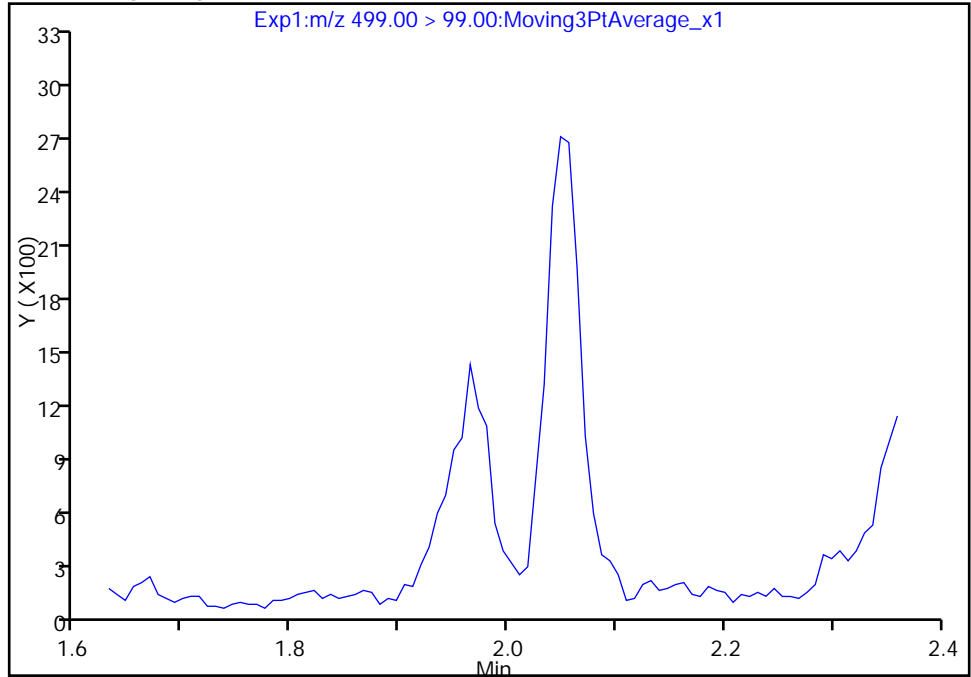
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Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

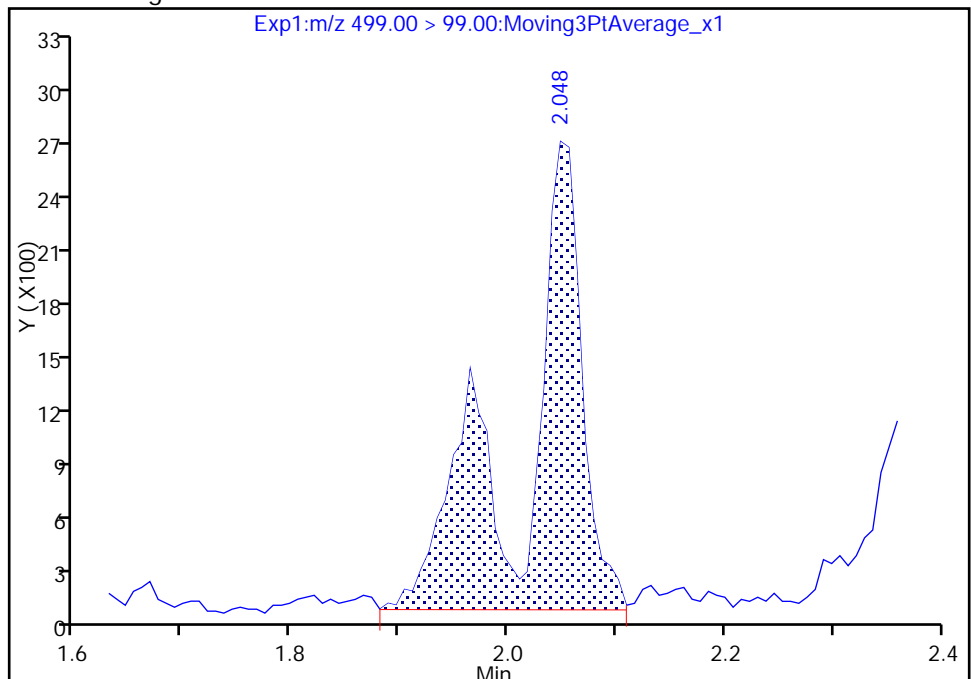
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 10048  
Amount: 0.606312  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:18:11

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

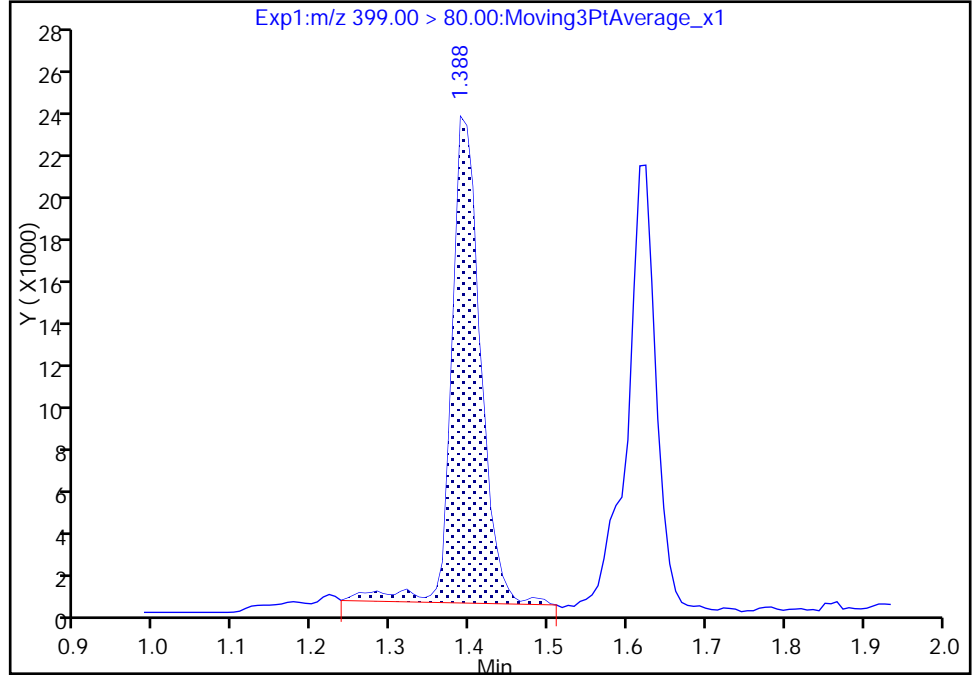
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Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

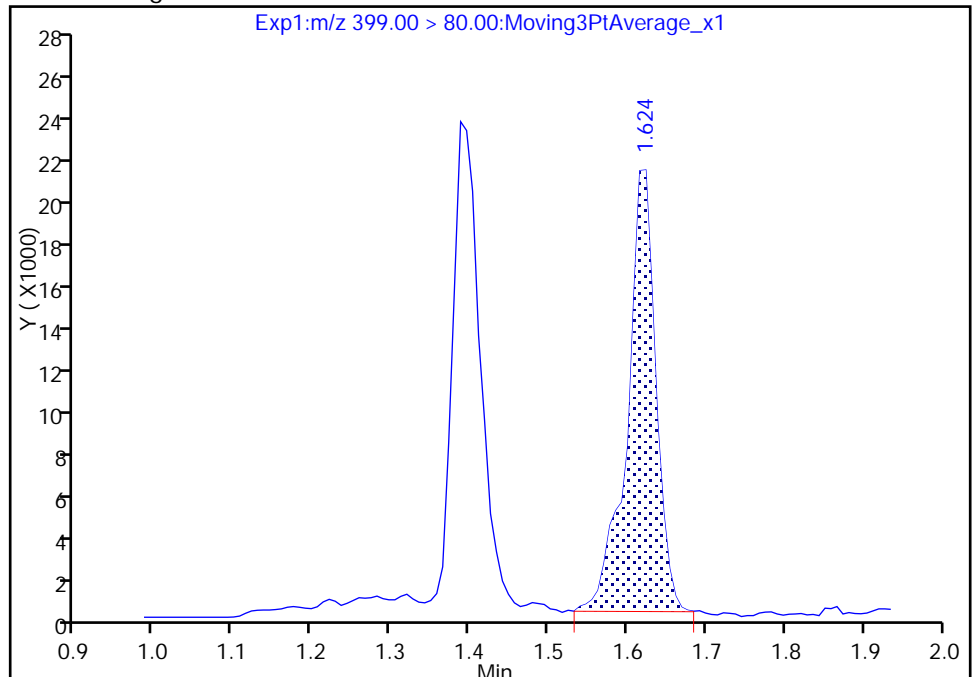
RT: 1.39  
Area: 59220  
Amount: 0.315522  
Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
Area: 52888  
Amount: 0.281785  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

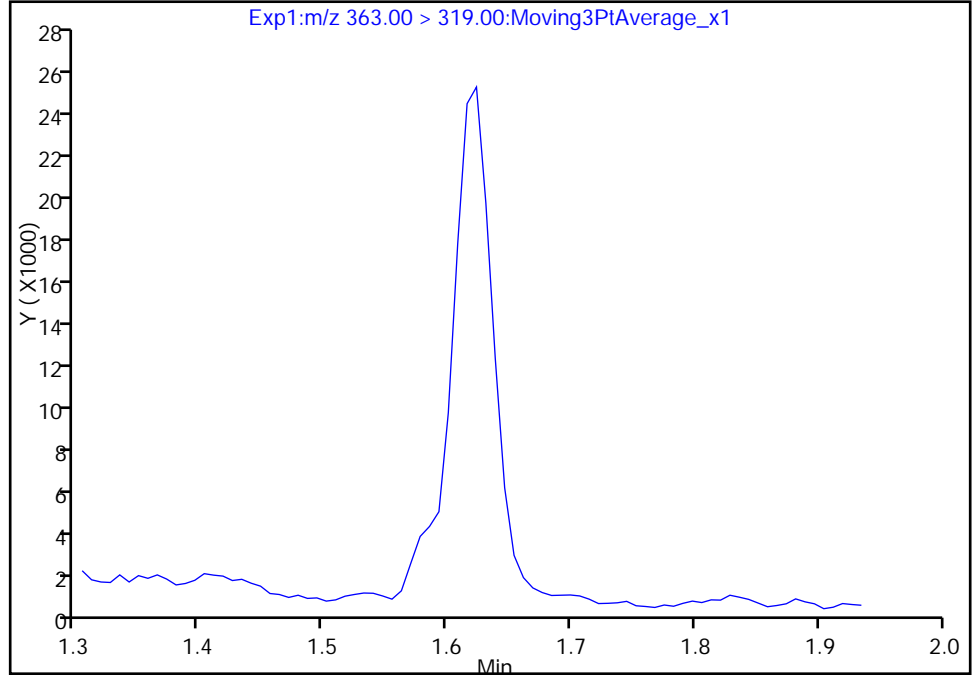
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d  
Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
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

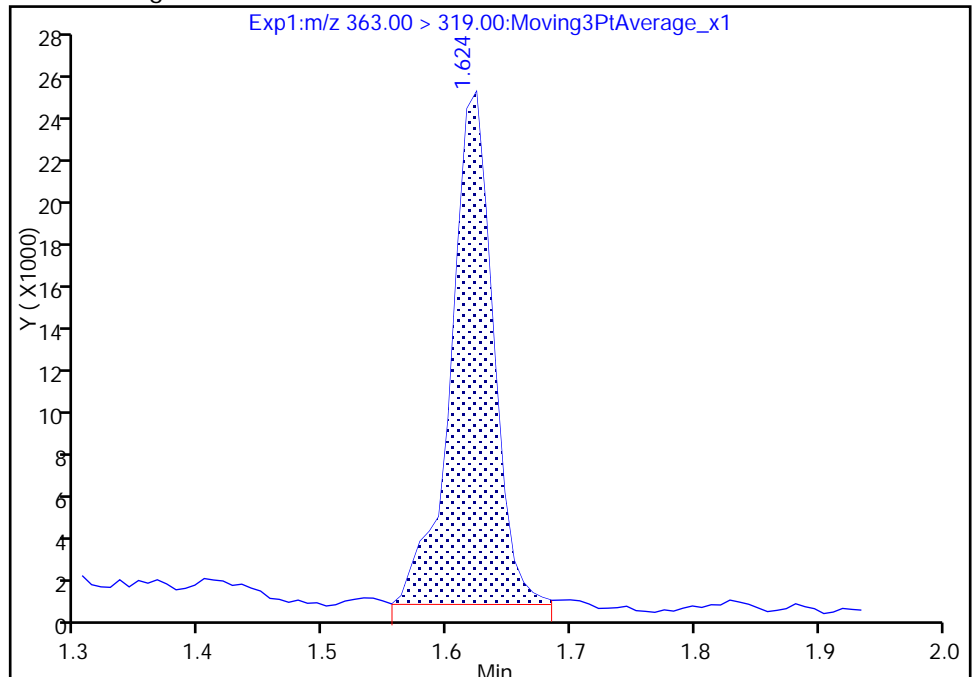
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 54875  
Amount: 0.395276  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:16:36  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

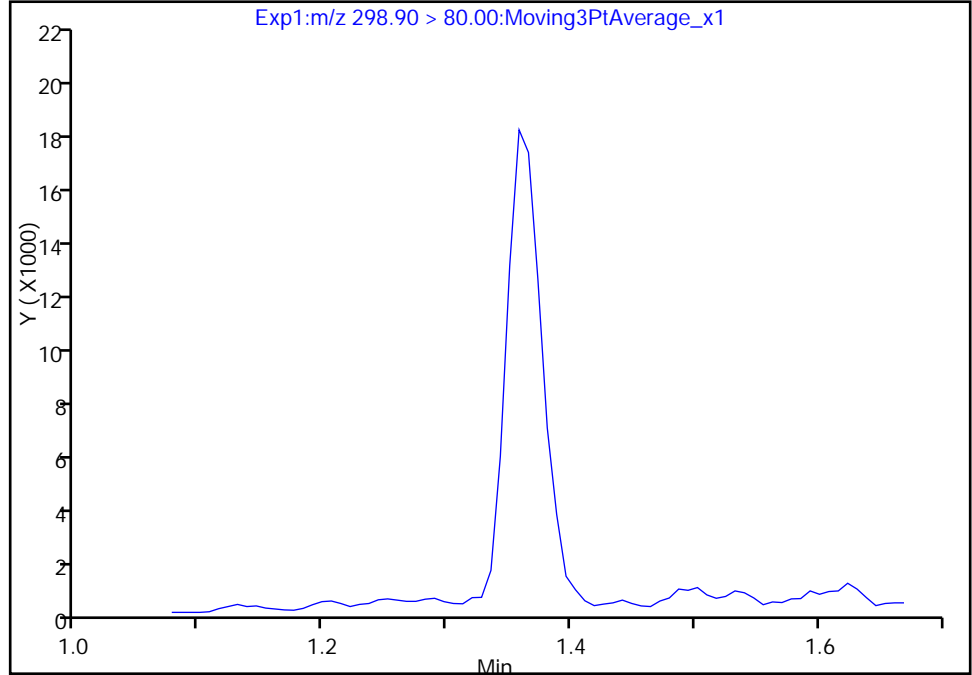
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d  
Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
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

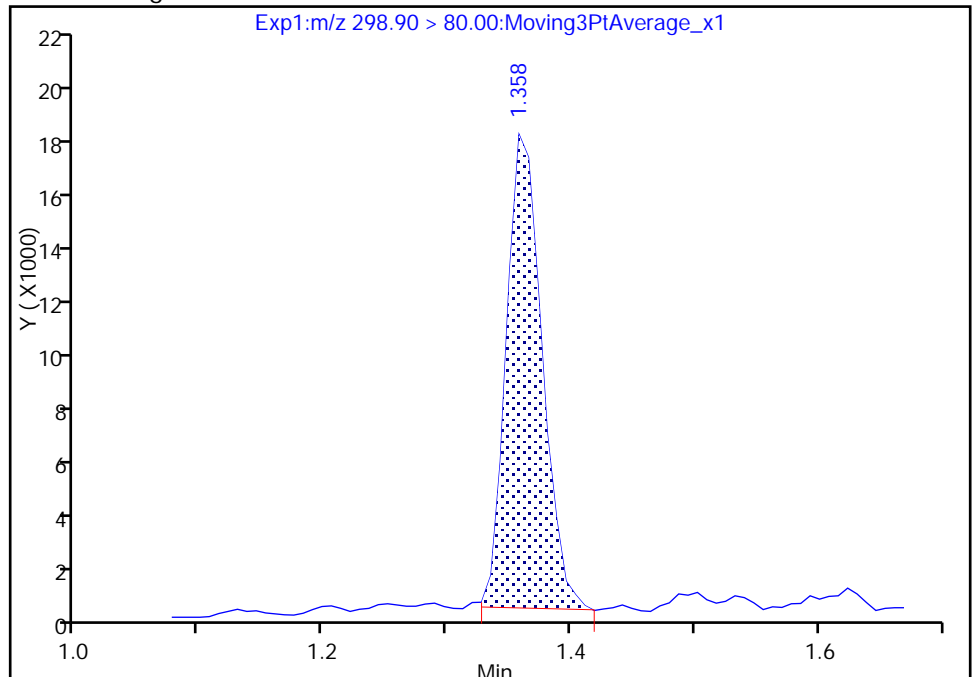
Not Detected  
Expected RT: 1.37

Processing Integration Results



Manual Integration Results

RT: 1.36  
Area: 34302  
Amount: 0.273451  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:18:26  
Audit Action: Manually Integrated

Audit Reason: Missed Peak



TestAmerica Sacramento

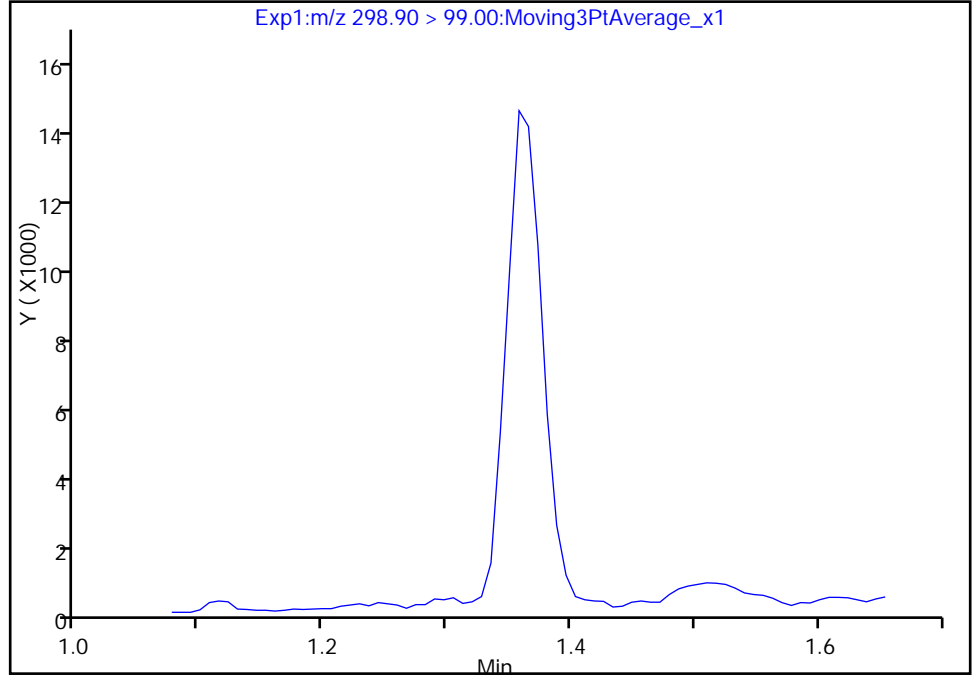
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_019.d  
Injection Date: 02-Feb-2018 23:51:27 Instrument ID: A8\_N  
Lims ID: 320-35148-A-13-A Lab Sample ID: 320-35148-13  
Client ID: NAWC-011618-RW-234  
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19  
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

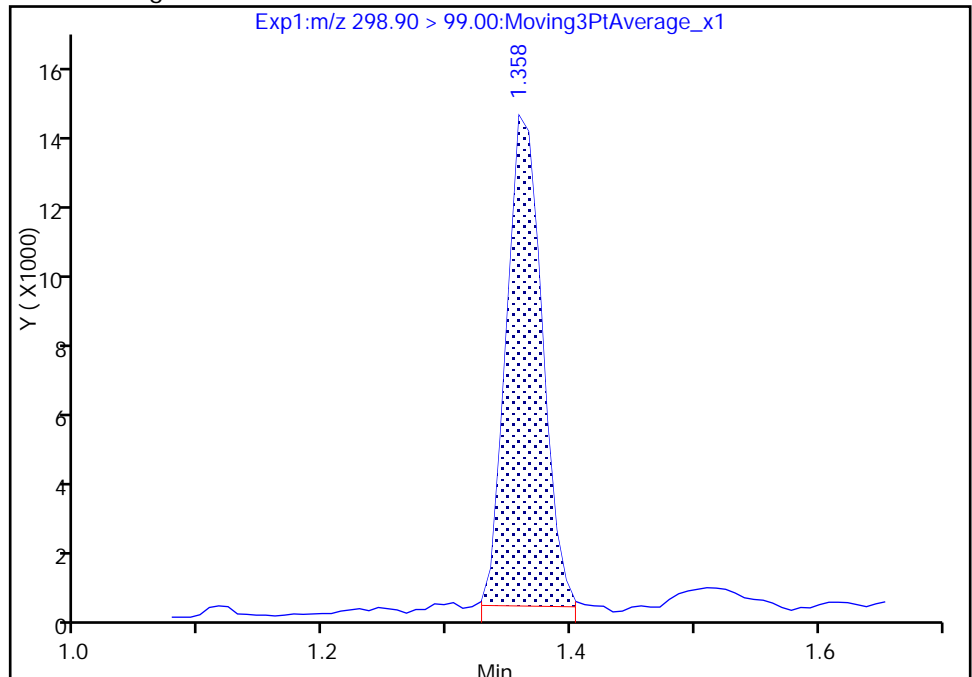
Not Detected  
Expected RT: 1.37

Processing Integration Results



Manual Integration Results

RT: 1.36  
Area: 26990  
Amount: 0.273451  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-234 Lab Sample ID: 320-35148-14  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_020.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:56  
 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.: 206872 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	91		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_020.d  
 Lims ID: 320-35148-A-14-A  
 Client ID: NAWC-011618-FRB-234  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:56:07 ALS Bottle#: 16 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-14-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.479	0.008	1.000	1552454	9.41	6479	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.806	0.0		1499001	10.0	5794	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.056	0.0		3251749	28.7	7832	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	1042942	9.09	7453	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_020.d

Injection Date: 02-Feb-2018 23:56:07

Instrument ID: A8\_N

Lims ID: 320-35148-A-14-A

Lab Sample ID: 320-35148-14

Client ID: NAWC-011618-FRB-234

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 20

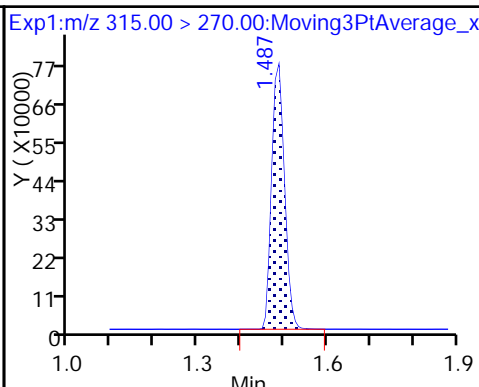
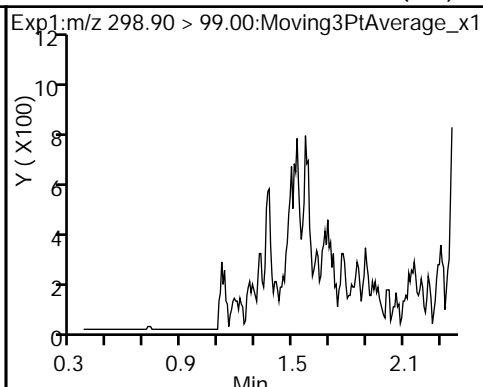
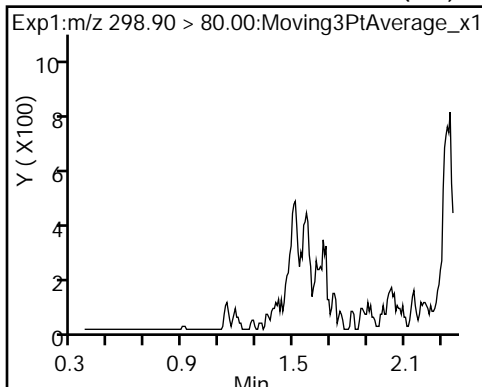
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

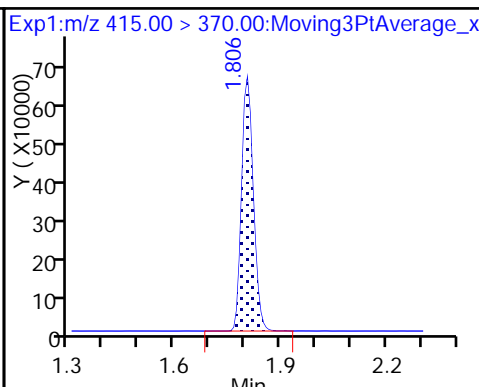
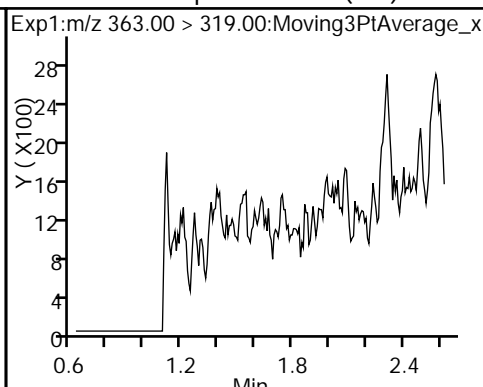
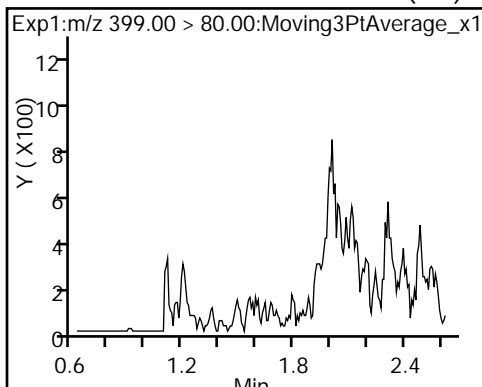
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

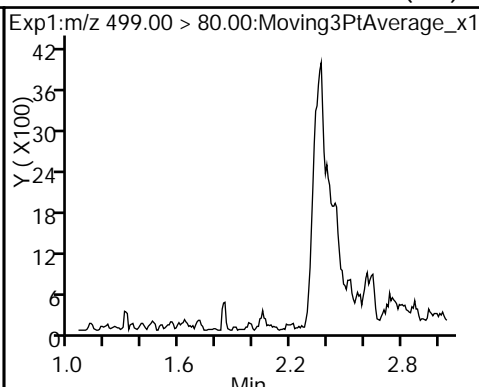
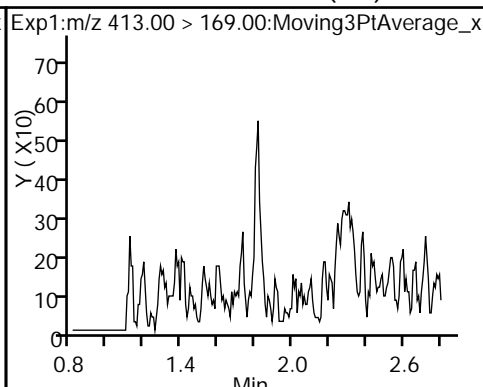
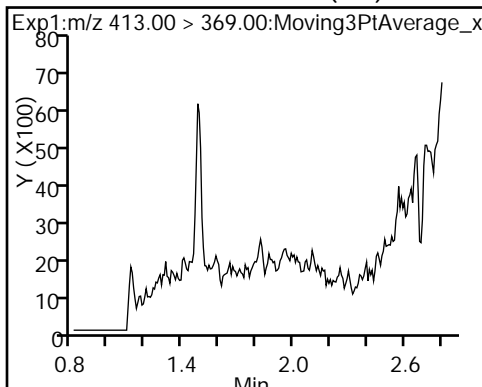
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



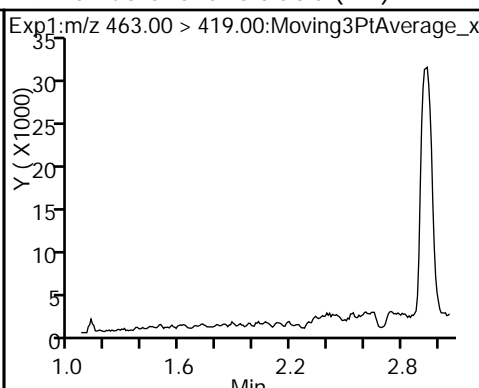
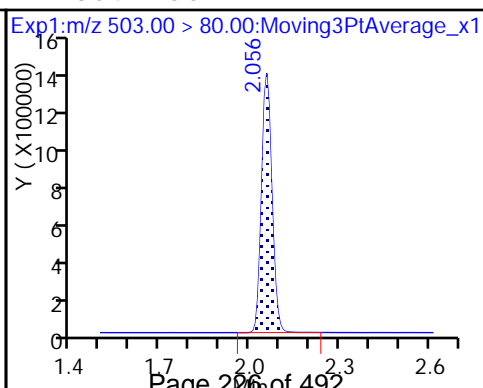
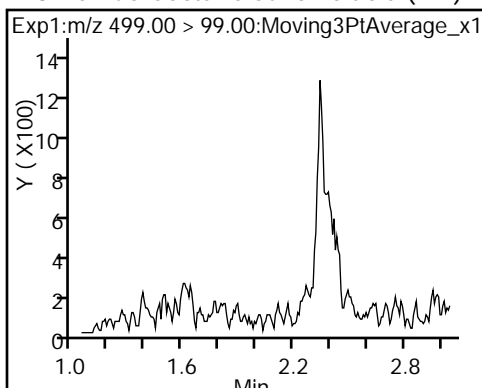
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



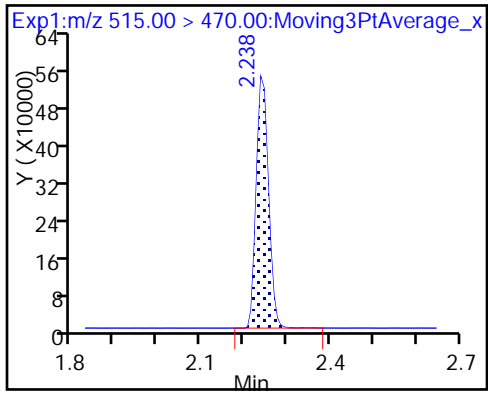
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_020.d  
 Lims ID: 320-35148-A-14-A  
 Client ID: NAWC-011618-FRB-234  
 Sample Type: Client  
 Inject. Date: 02-Feb-2018 23:56:07 ALS Bottle#: 16 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-14-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.41	94.13
\$ 10 13C2 PFDA	10.0	9.09	90.92

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-DUP20 Lab Sample ID: 320-35148-15  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_021.d  
 Analysis Method: 537 Date Collected: 01/16/2018 07:00  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245 (mL) Date Analyzed: 02/03/2018 00:00  
 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.: 206872 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)	5.2	J	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	92	37	16

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d  
 Lims ID: 320-35148-A-15-A  
 Client ID: WGNA-011618-DUP20  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:00:48 ALS Bottle#: 17 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-15-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:20:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.479	0.0	1.000	1536702	9.43	8400	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	1.616	1.624	-0.008	1.000	52718	0.2651		32.0	M
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.624	1.624	0.0	1.000	52007	0.3749		14.4	M
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1480801	10.0		6582	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	173202	1.26		31.9	
413.00 > 169.00	1.798	1.806	-0.008	1.000	102282		1.69(0.00-0.00)	274	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.056	2.056	0.0	1.000	58546	0.5248		24.2	M
499.00 > 99.00	2.048	2.056	-0.008	0.996	9752		6.00(0.00-0.00)	17.0	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3407407	28.7		5757	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1082868	9.56		8009	

QC Flag Legend

Review Flags

M - Manually Integrated



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d

Injection Date: 03-Feb-2018 00:00:48

Instrument ID: A8\_N

Lims ID: 320-35148-A-15-A

Lab Sample ID: 320-35148-15

Client ID: WGNA-011618-DUP20

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 21

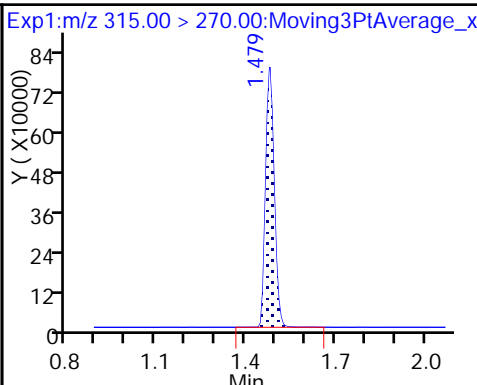
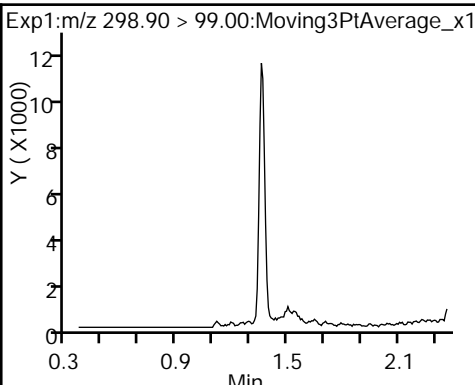
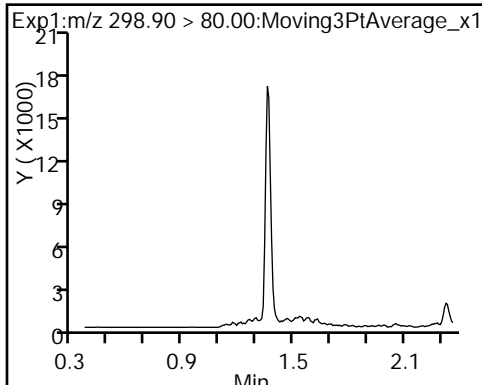
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537\_A8\_N

Limit Group: LC 537 ICAL

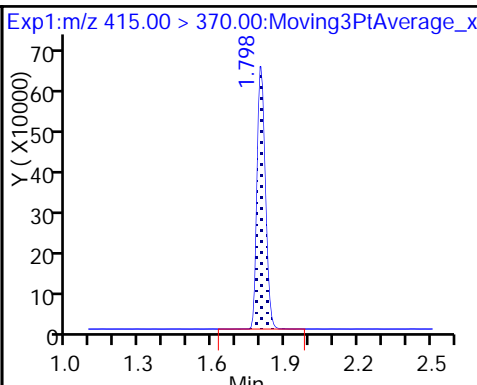
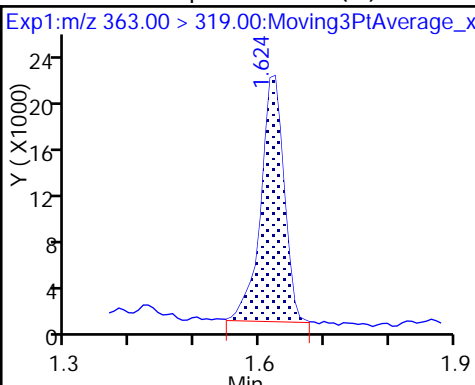
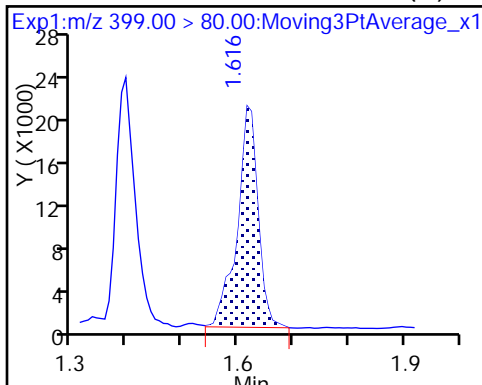
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid (M)

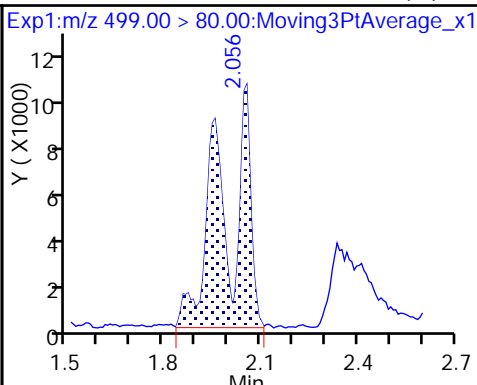
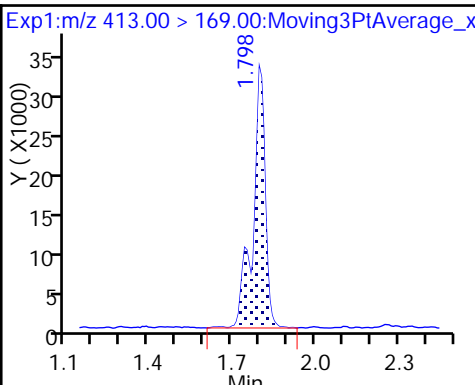
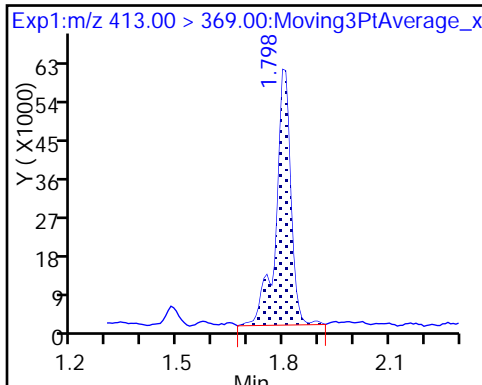
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

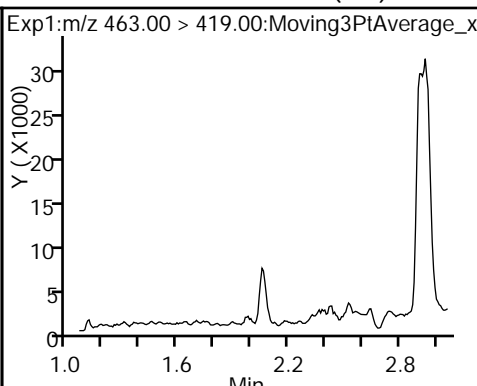
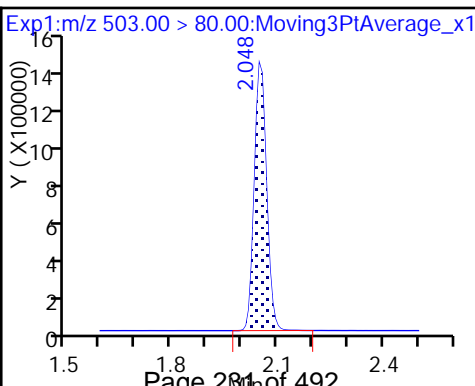
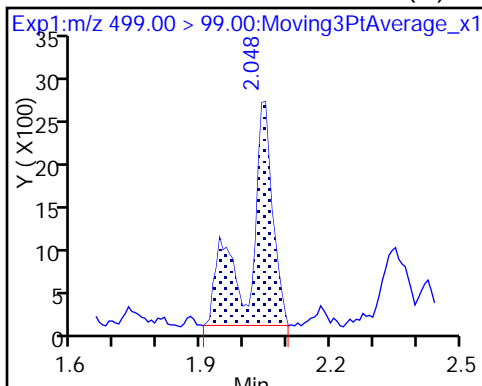
8 Perfluorooctane sulfonic acid (M)



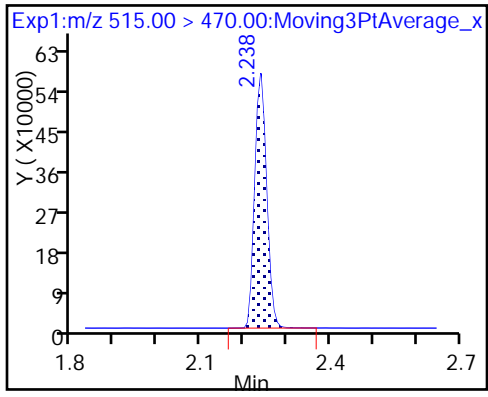
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d  
 Lims ID: 320-35148-A-15-A  
 Client ID: WGNA-011618-DUP20  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:00:48 ALS Bottle#: 17 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-15-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:20:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.43	94.32
\$ 10 13C2 PFDA	10.0	9.56	95.57

TestAmerica Sacramento

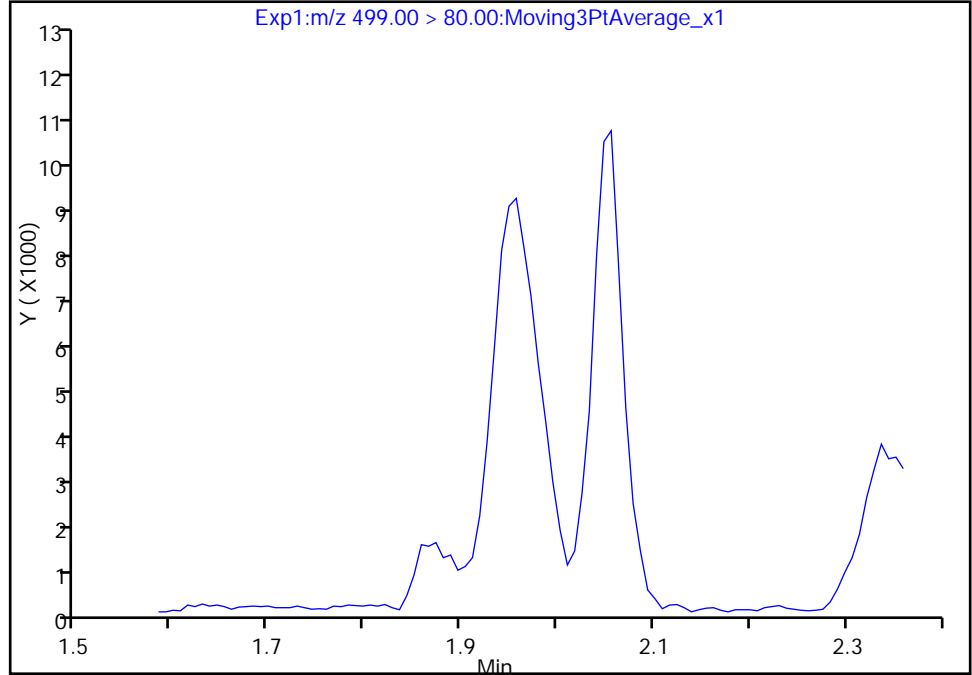
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Injection Date: 03-Feb-2018 00:00:48 Instrument ID: A8\_N  
Lims ID: 320-35148-A-15-A Lab Sample ID: 320-35148-15  
Client ID: WGNA-011618-DUP20  
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

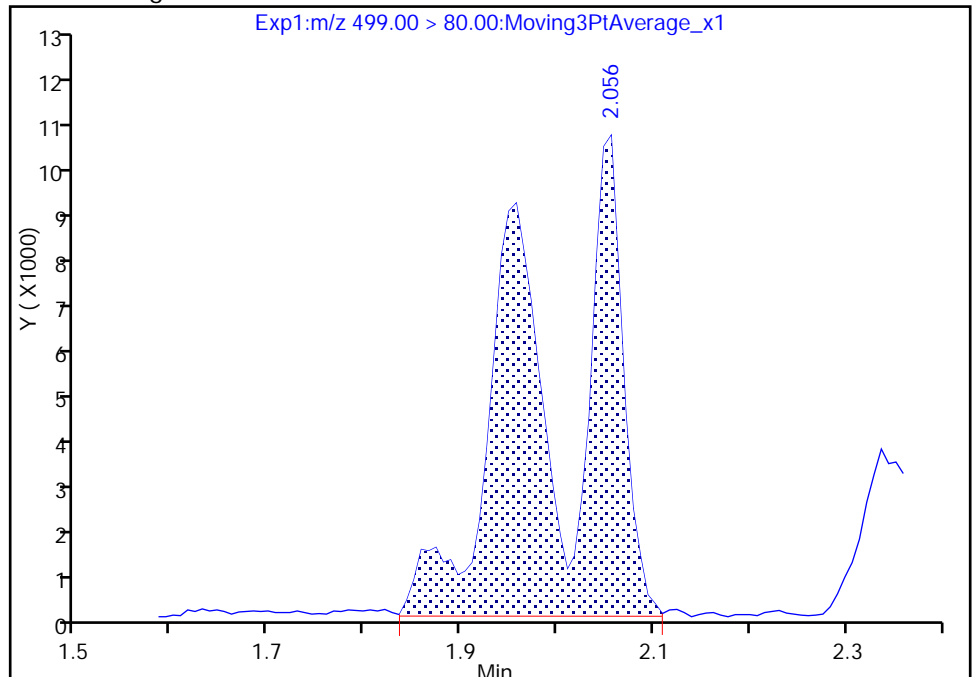
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 58546  
Amount: 0.524820  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:19:41  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

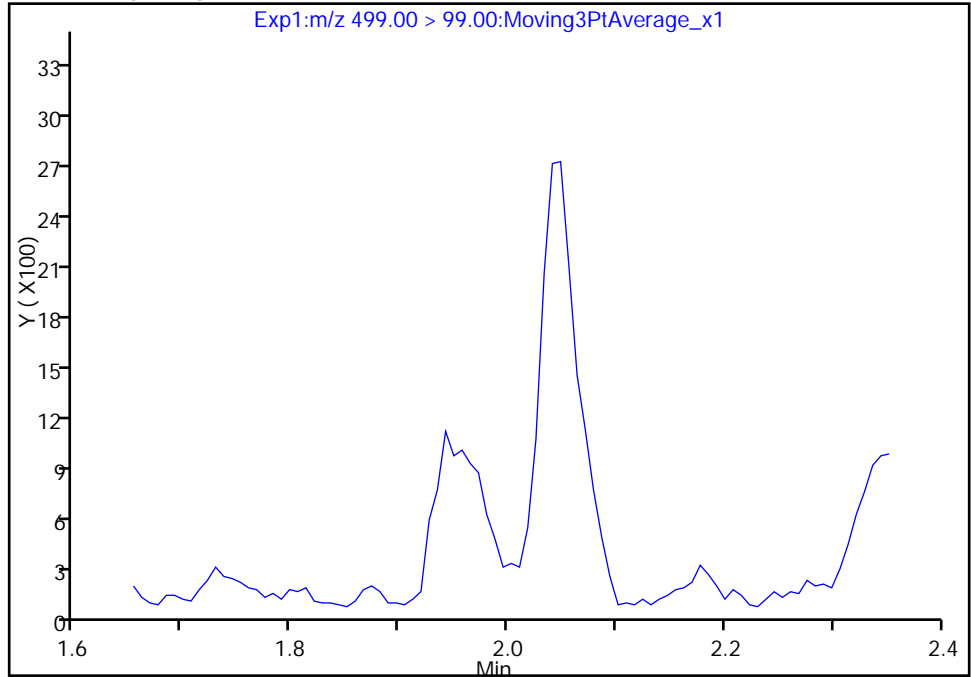
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d  
Injection Date: 03-Feb-2018 00:00:48 Instrument ID: A8\_N  
Lims ID: 320-35148-A-15-A Lab Sample ID: 320-35148-15  
Client ID: WGNA-011618-DUP20  
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 21  
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

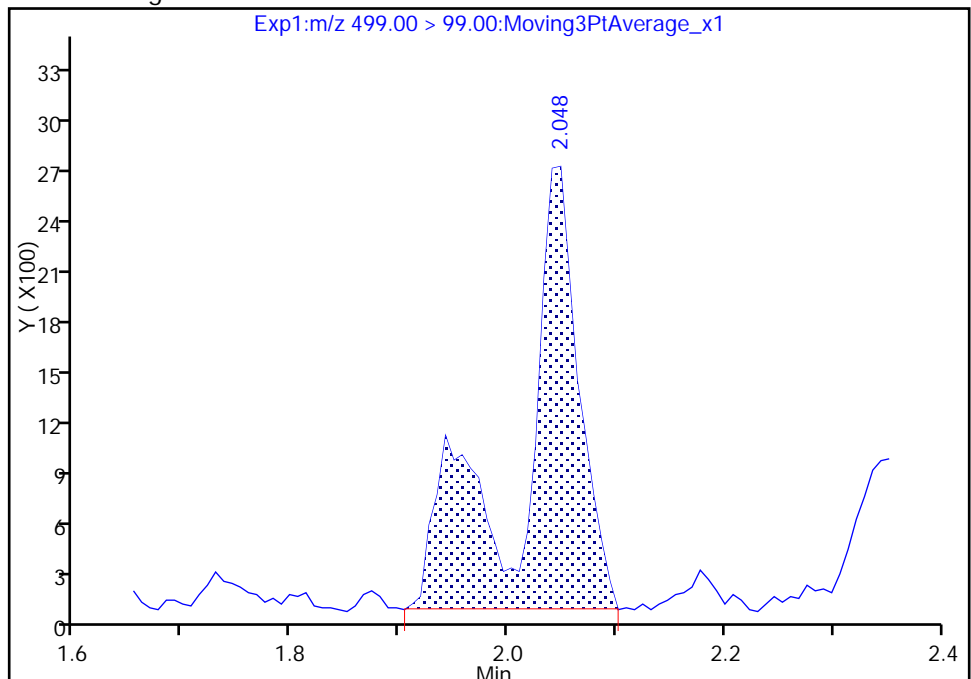
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 9752  
Amount: 0.524820  
Amount Units: ng/ml



TestAmerica Sacramento

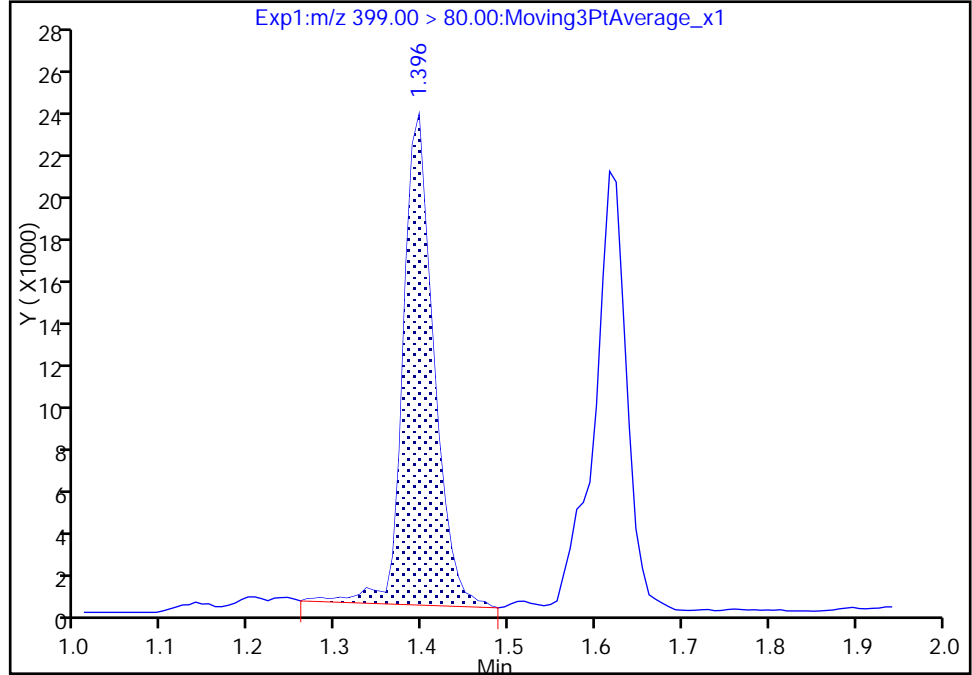
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d  
Injection Date: 03-Feb-2018 00:00:48 Instrument ID: A8\_N  
Lims ID: 320-35148-A-15-A Lab Sample ID: 320-35148-15  
Client ID: WGNA-011618-DUP20  
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 21  
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

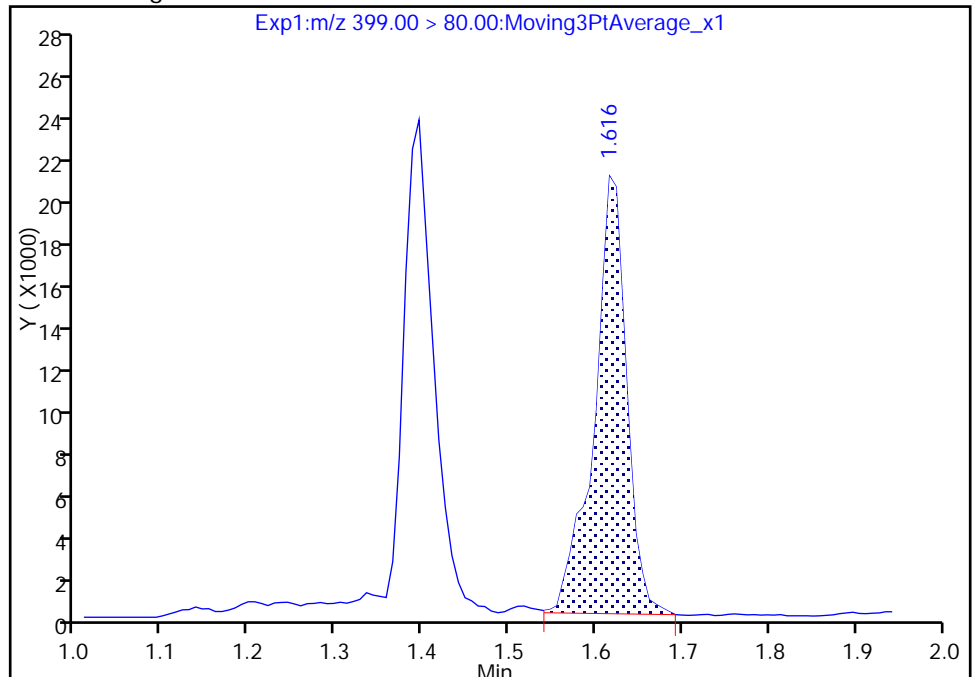
RT: 1.40  
Area: 56008  
Amount: 0.281591  
Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
Area: 52718  
Amount: 0.265050  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:19:10  
Audit Action: Manually Integrated

Audit Reason: Wrong peak

TestAmerica Sacramento

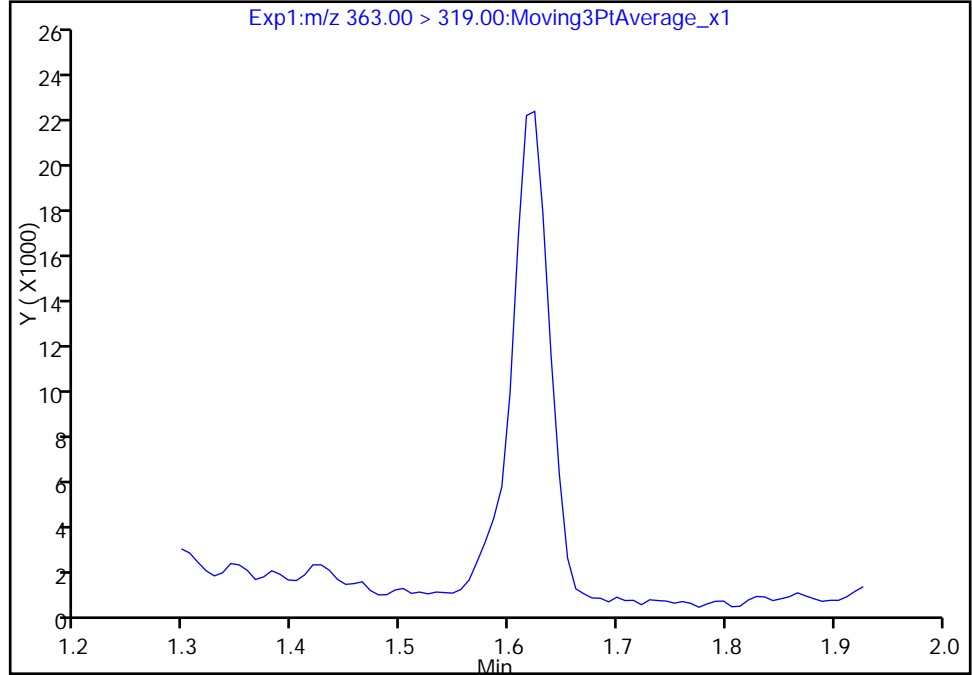
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_021.d  
Injection Date: 03-Feb-2018 00:00:48 Instrument ID: A8\_N  
Lims ID: 320-35148-A-15-A Lab Sample ID: 320-35148-15  
Client ID: WGNA-011618-DUP20  
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 21  
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

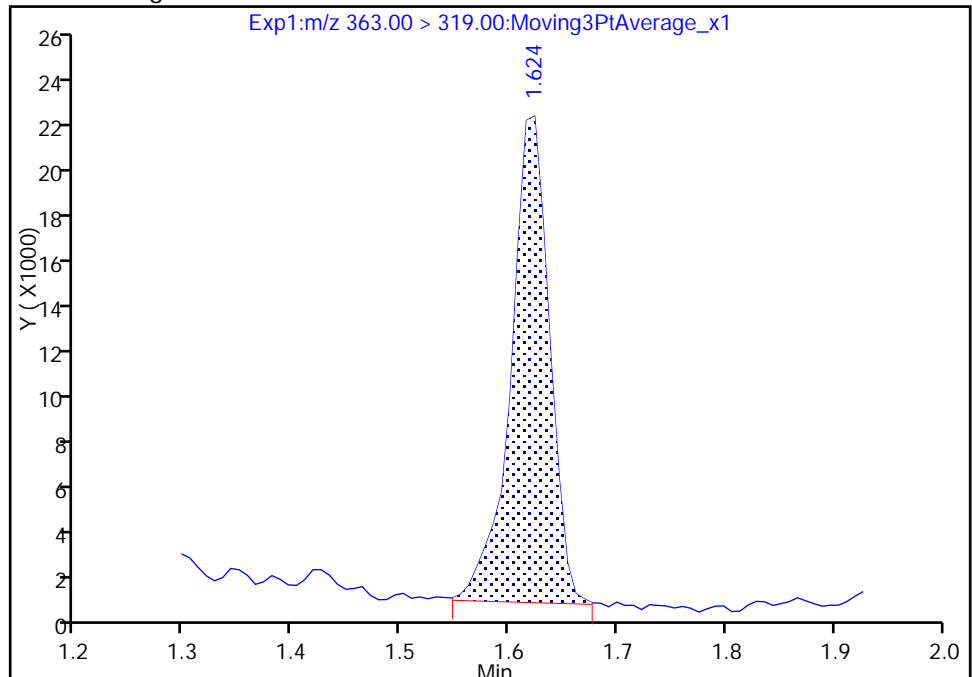
Signal: 1

Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results



RT: 1.62  
Area: 52007  
Amount: 0.374856  
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 11:19:23  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-264 Lab Sample ID: 320-35148-16  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_022.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/03/2018 00:05  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	6.1	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.1	J M	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	93		70-130
STL00996	13C2 PFDA	97		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_022.d  
 Lims ID: 320-35148-A-16-A  
 Client ID: NAWC-011618-RW-264  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:05:28 ALS Bottle#: 18 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-16-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:21:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	45631	0.3439		88.6	
298.90 > 99.00	1.366	1.366	0.0	1.000	35531		1.28(0.00-0.00)	71.4	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1571389	9.29		7956	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	55730	0.2807		29.5	M
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	74090	0.5144		19.3	M
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1537329	10.0		6365	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	215497	1.51		37.9	
413.00 > 169.00	1.798	1.806	-0.008	0.996	129095		1.67(0.00-0.00)	315	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	1.957	2.056	-0.099	1.000	79945	0.7180		31.1	Ma
499.00 > 99.00	2.048	2.056	-0.008	1.047	13469		5.94(0.00-0.00)	21.5	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3400958	28.7		5456	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1141004	9.70		8345	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_022.d

Injection Date: 03-Feb-2018 00:05:28

Instrument ID: A8\_N

Lims ID: 320-35148-A-16-A

Lab Sample ID: 320-35148-16

Client ID: NAWC-011618-RW-264

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

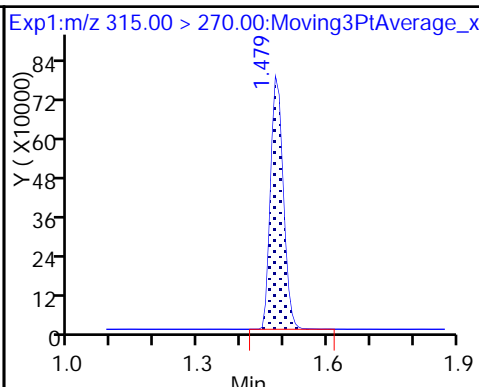
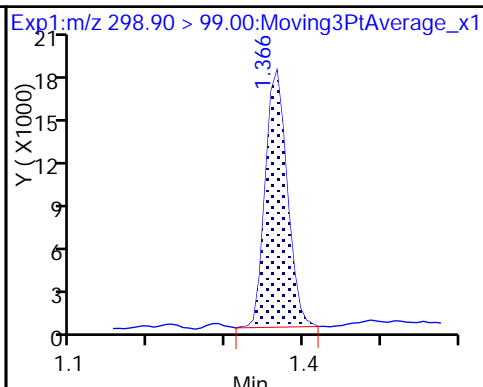
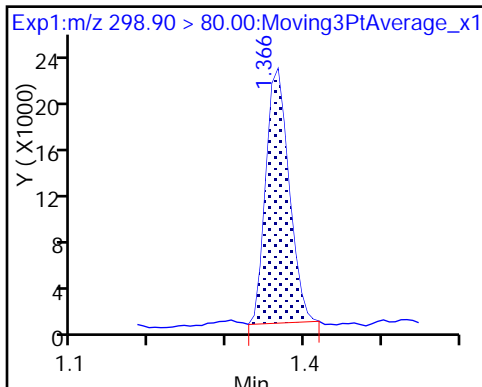
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

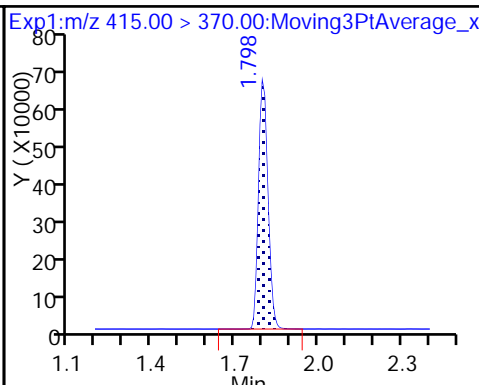
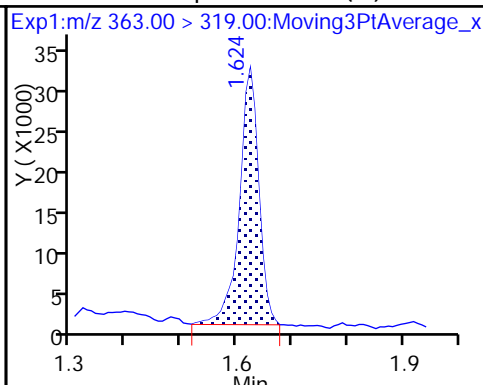
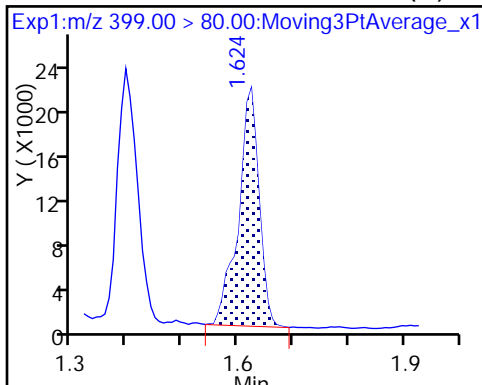
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid (M)

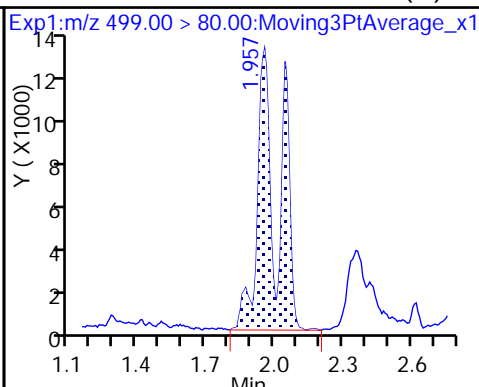
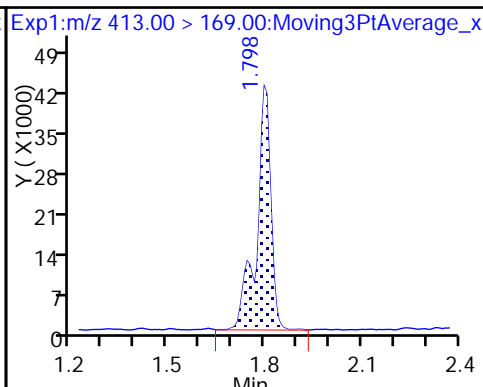
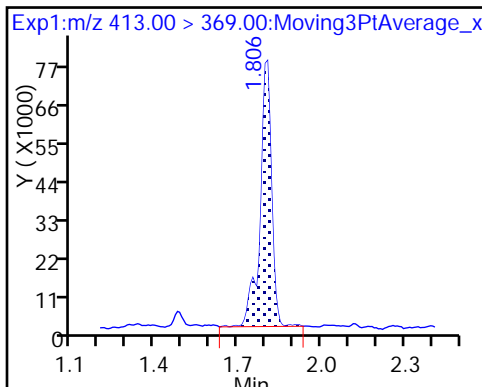
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

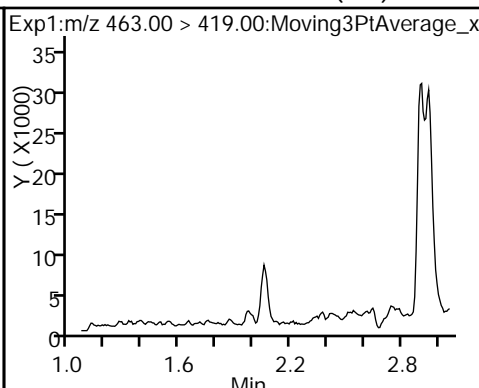
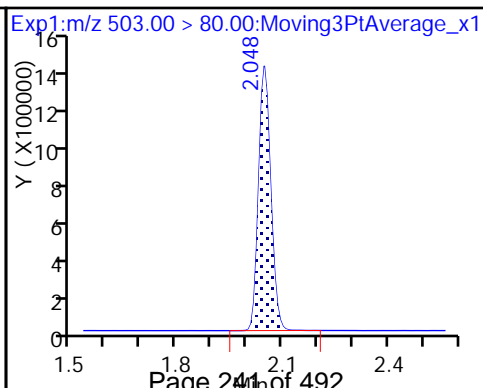
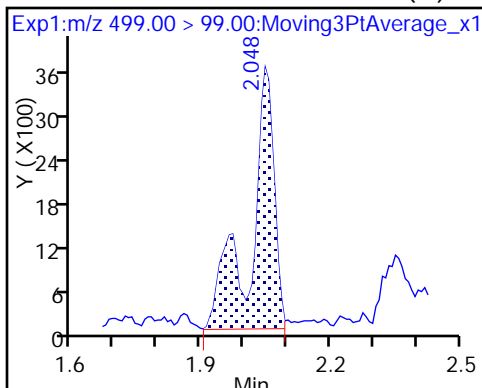
8 Perfluorooctane sulfonic acid (M)



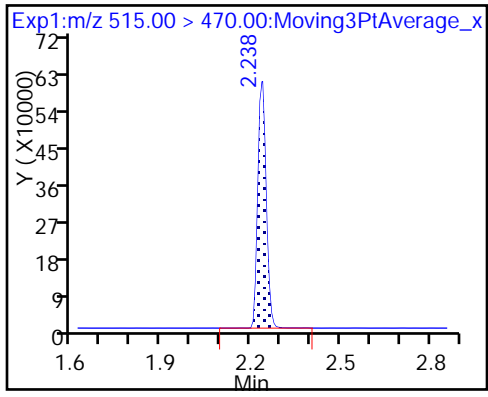
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_022.d  
 Lims ID: 320-35148-A-16-A  
 Client ID: NAWC-011618-RW-264  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:05:28 ALS Bottle#: 18 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-16-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:21:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.29	92.90
\$ 10 13C2 PFDA	10.0	9.70	96.99

TestAmerica Sacramento

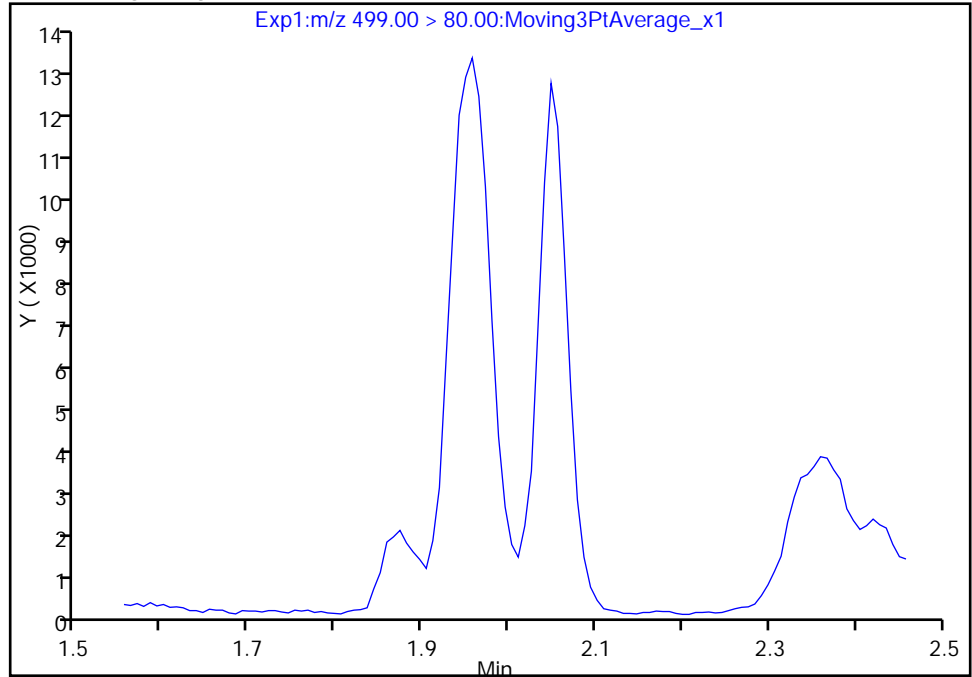
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Injection Date: 03-Feb-2018 00:05:28 Instrument ID: A8\_N  
Lims ID: 320-35148-A-16-A Lab Sample ID: 320-35148-16  
Client ID: NAWC-011618-RW-264  
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

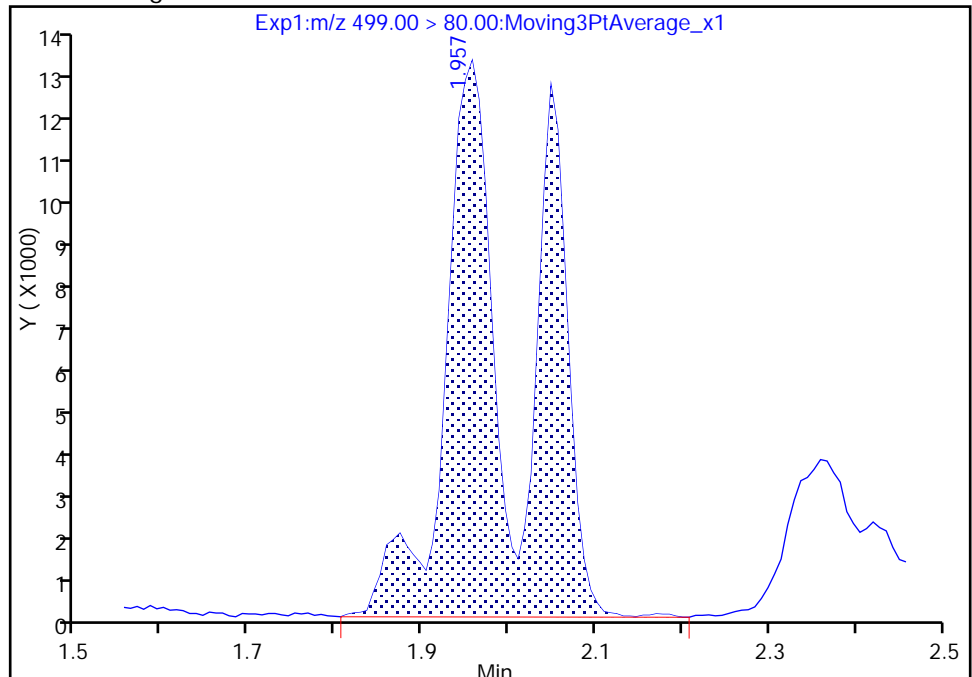
Signal: 1

Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results



RT: 1.96  
Area: 79945  
Amount: 0.718005  
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 11:21:01  
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

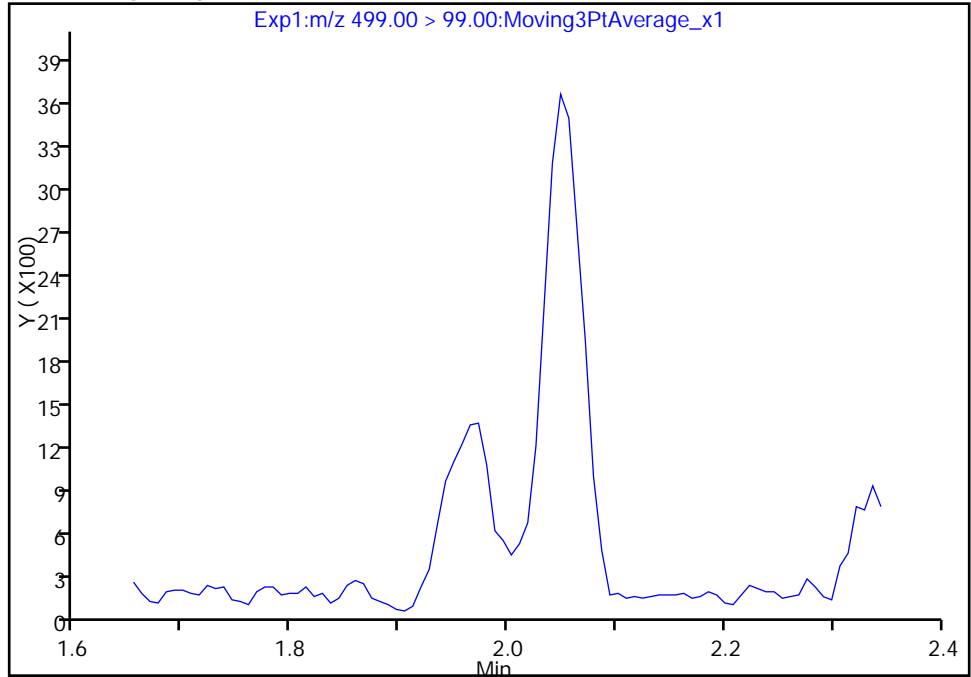
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Injection Date: 03-Feb-2018 00:05:28 Instrument ID: A8\_N  
Lims ID: 320-35148-A-16-A Lab Sample ID: 320-35148-16  
Client ID: NAWC-011618-RW-264  
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

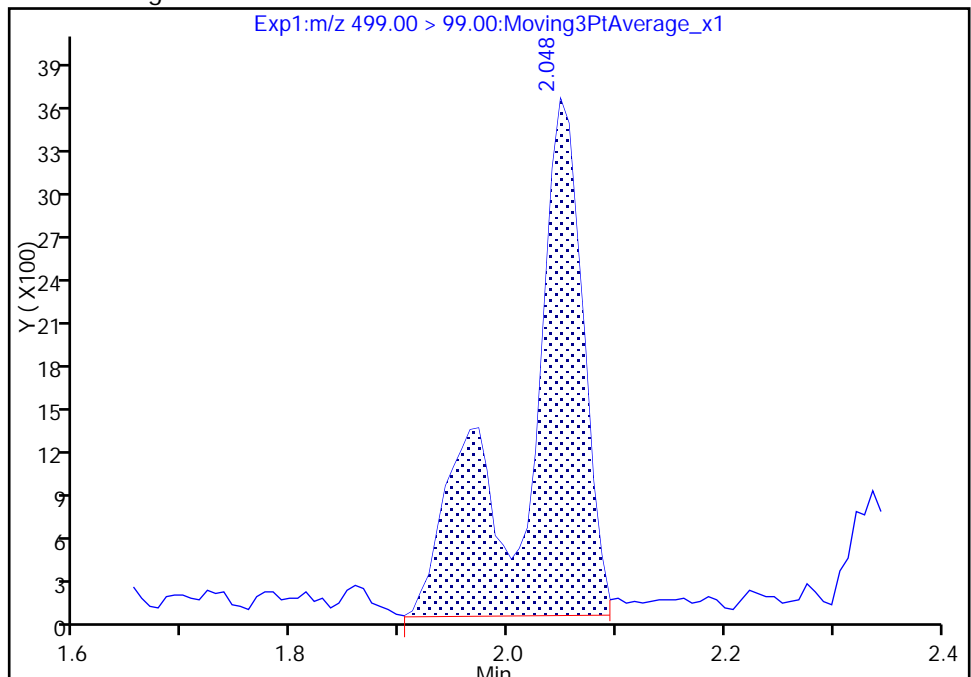
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 13469  
Amount: 0.718005  
Amount Units: ng/ml



TestAmerica Sacramento

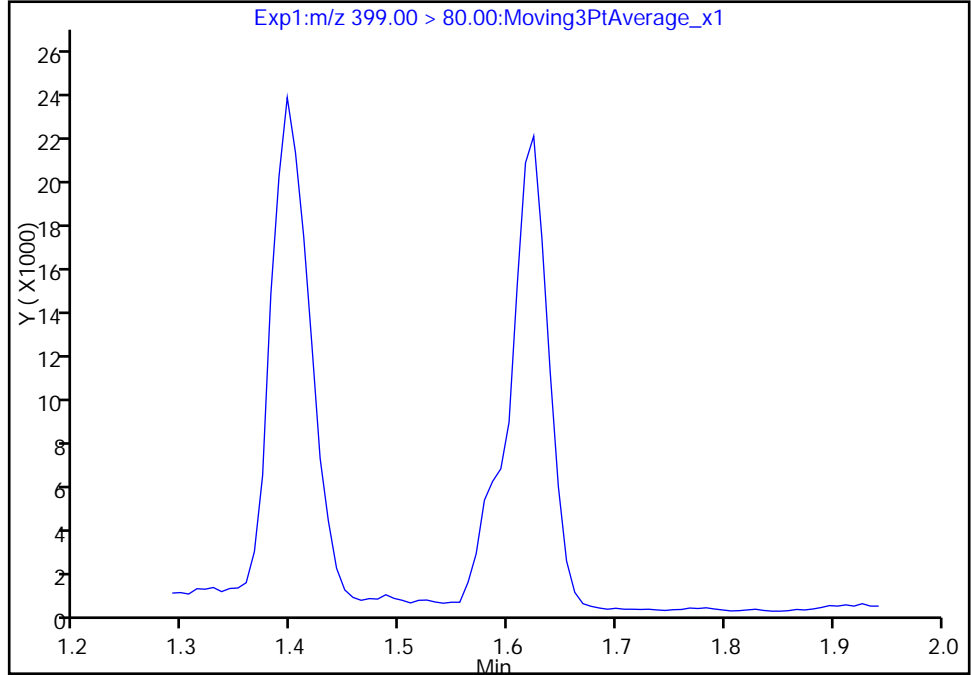
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Injection Date: 03-Feb-2018 00:05:28 Instrument ID: A8\_N  
Lims ID: 320-35148-A-16-A Lab Sample ID: 320-35148-16  
Client ID: NAWC-011618-RW-264  
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

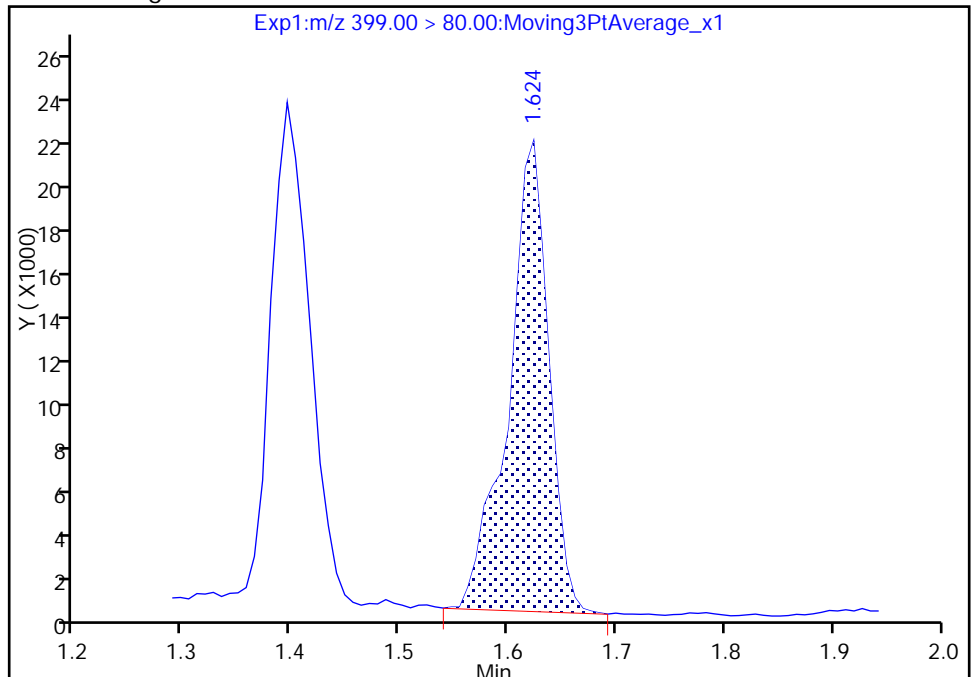
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 55730  
Amount: 0.280725  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:20:41  
Audit Action: Manually Integrated

Audit Reason: Missed Peak



TestAmerica Sacramento

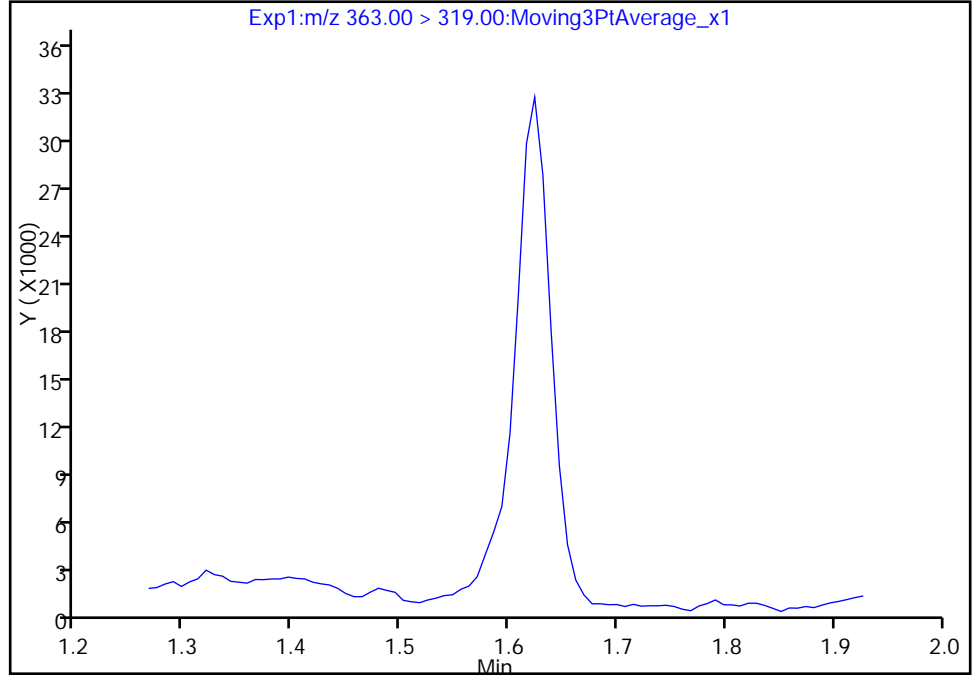
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Injection Date: 03-Feb-2018 00:05:28 Instrument ID: A8\_N  
Lims ID: 320-35148-A-16-A Lab Sample ID: 320-35148-16  
Client ID: NAWC-011618-RW-264  
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

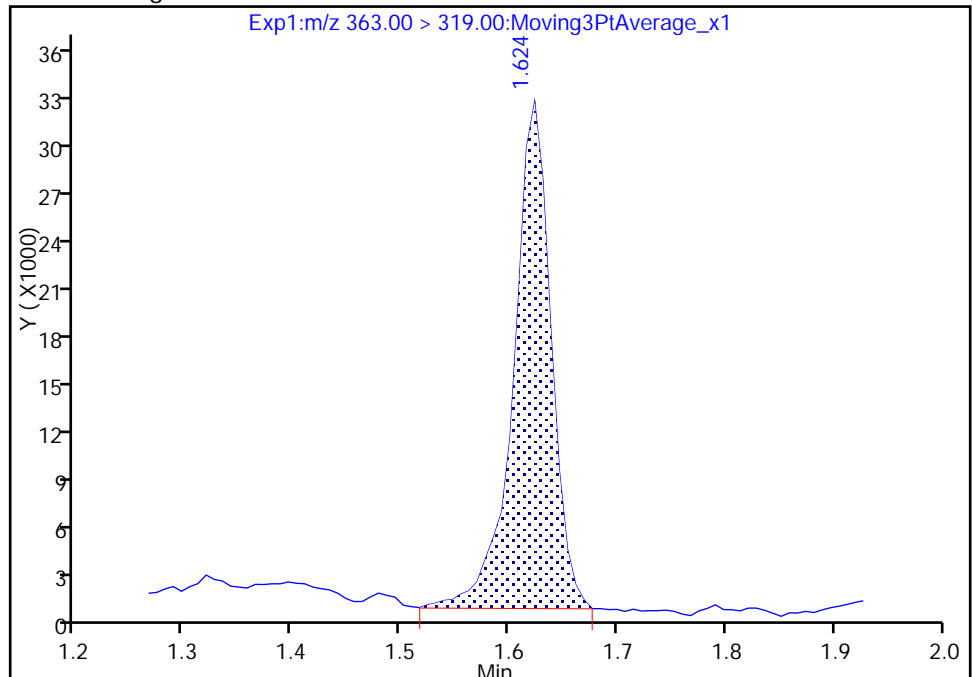
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 74090  
Amount: 0.514390  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:20:48  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-264 Lab Sample ID: 320-35148-17  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_023.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/03/2018 00:10  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_023.d  
 Lims ID: 320-35148-A-17-A  
 Client ID: NAWC-011618-FRB-264  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:10:08 ALS Bottle#: 19 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-17-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.479	0.0	1.000	1447489	8.59	6680	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1530857	10.0	6816	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3310034	28.7	7517	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.238	-0.007	1.000	1175148	10.0	8246	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_023.d

Injection Date: 03-Feb-2018 00:10:08

Instrument ID: A8\_N

Lims ID: 320-35148-A-17-A

Lab Sample ID: 320-35148-17

Client ID: NAWC-011618-FRB-264

Operator ID: SACINSTLCMS01

ALS Bottle#: 19

Worklist Smp#: 23

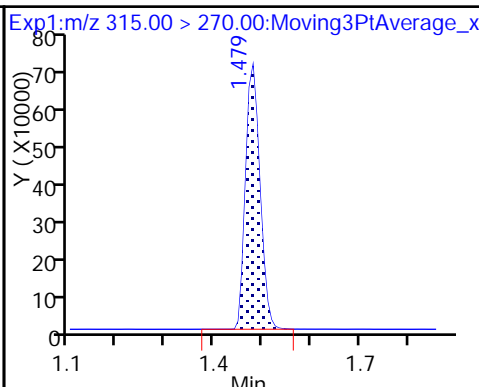
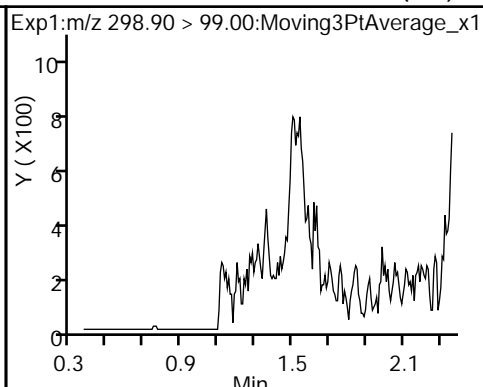
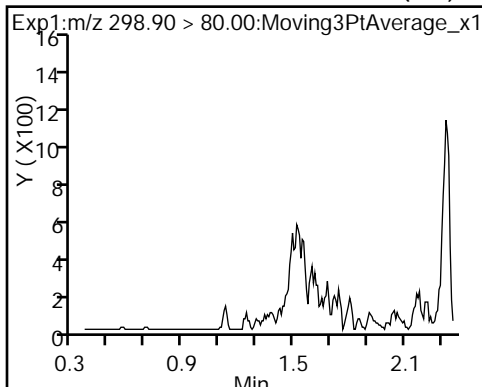
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

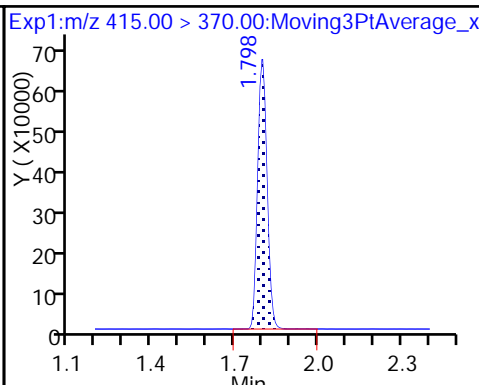
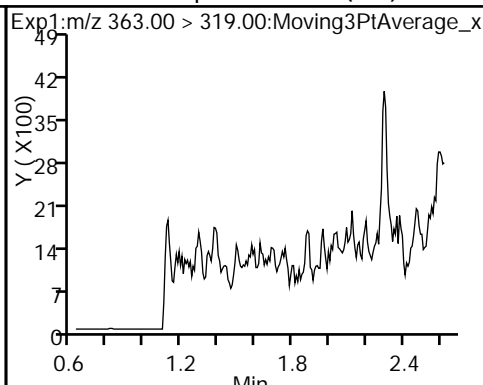
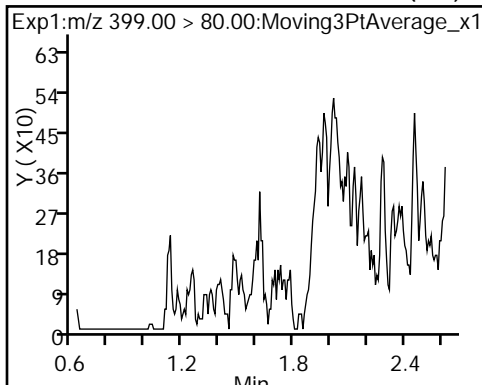
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

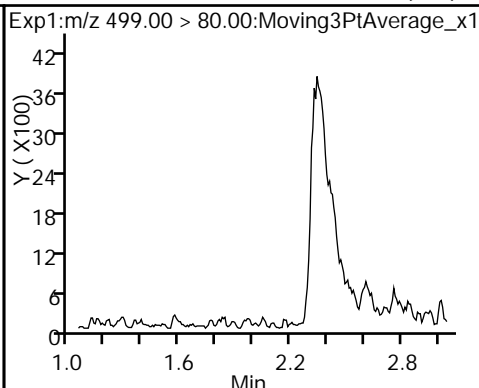
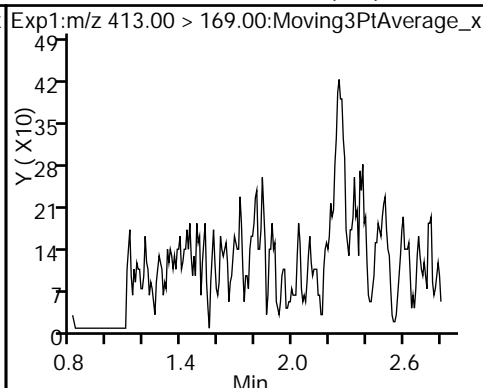
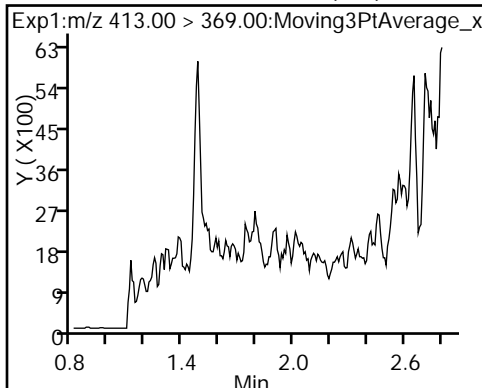
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



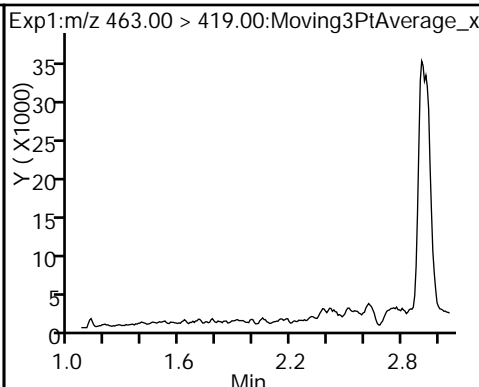
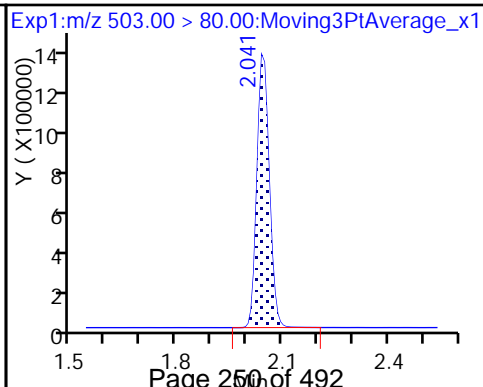
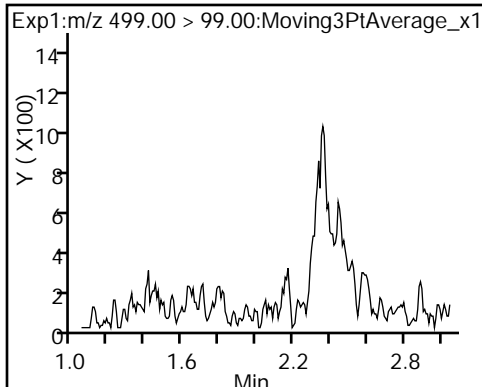
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



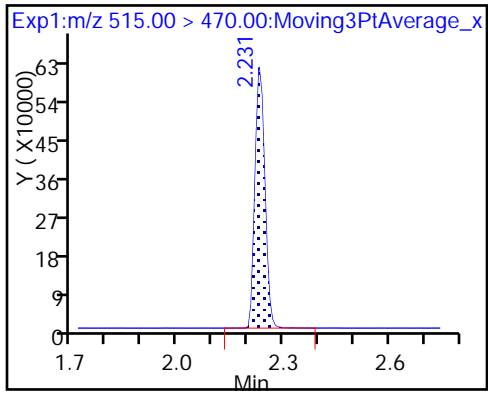
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_023.d  
 Lims ID: 320-35148-A-17-A  
 Client ID: NAWC-011618-FRB-264  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:10:08 ALS Bottle#: 19 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-17-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.59	85.94
\$ 10 13C2 PFDA	10.0	10.0	100.32

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0560 Lab Sample ID: 320-35148-18  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_024.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.2 (mL) Date Analyzed: 02/03/2018 00:14  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	35		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.9	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	100		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_024.d  
 Lims ID: 320-35148-A-18-A  
 Client ID: WGNA-011618-RW-0560  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:14:50 ALS Bottle#: 20 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-18-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:21:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	327170	2.51		386	
298.90 > 99.00	1.358	1.366	-0.008	1.000	243162		1.35(0.00-0.00)	415	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1620608	9.95		7812	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	1111772	5.69		708	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.624	-0.008	1.000	269430	1.94		50.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1479929	10.0		7229	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	1176854	8.59		162	
413.00 > 169.00	1.798	1.806	-0.008	1.000	676383		1.74(0.00-0.00)	1591	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	820435	7.49		236	a
499.00 > 99.00	2.048	2.056	-0.008	1.000	159404		5.15(0.00-0.00)	212	a
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3346015	28.7		3816	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	59962	0.6100		9.1	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1188026	10.5		9943	



## QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_024.d

Injection Date: 03-Feb-2018 00:14:50

Instrument ID: A8\_N

Lims ID: 320-35148-A-18-A

Lab Sample ID: 320-35148-18

Client ID: WGNA-011618-RW-0560

Operator ID: SACINSTLCMS01

ALS Bottle#: 20

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

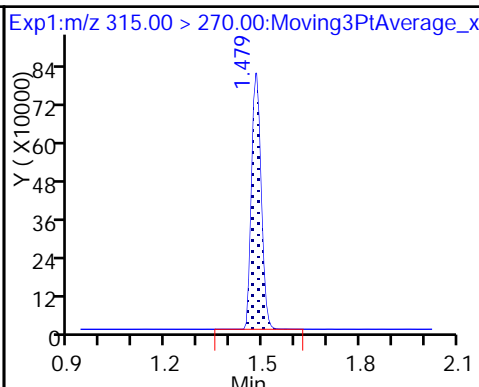
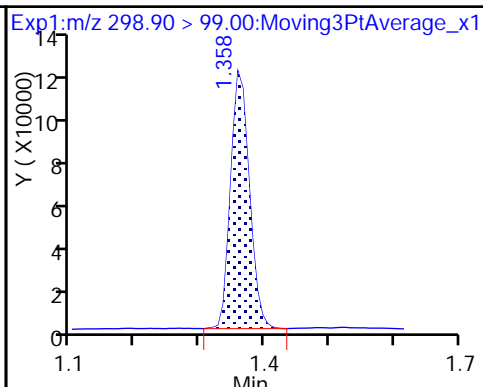
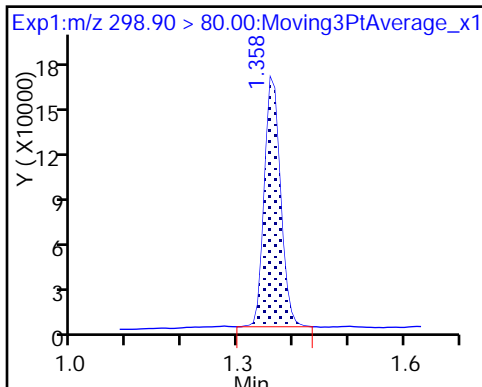
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

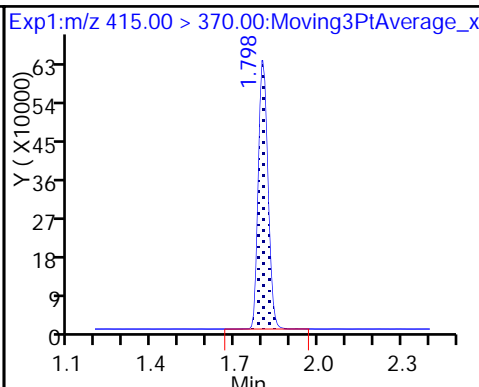
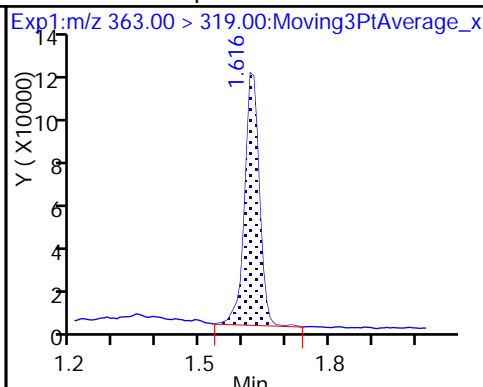
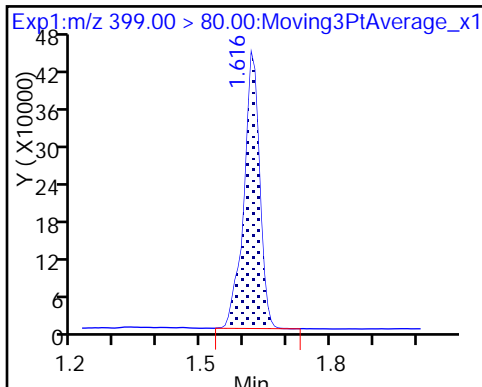
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

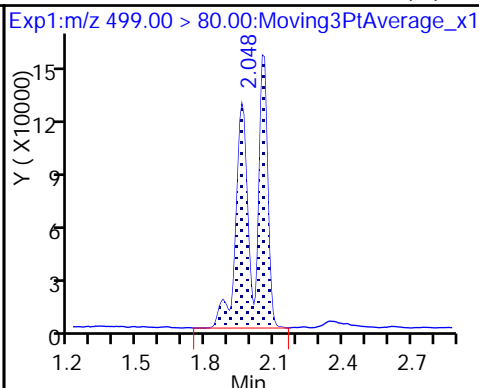
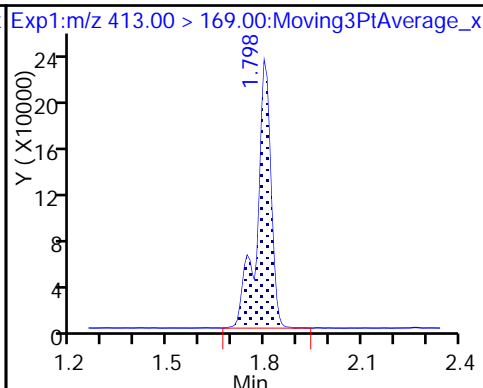
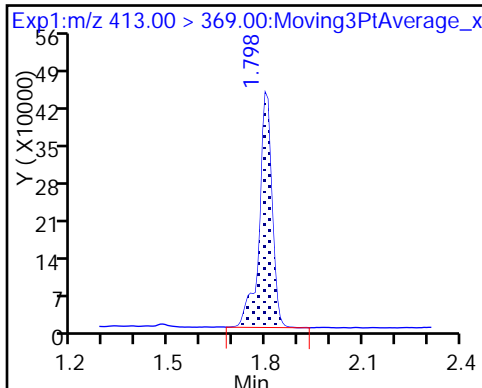
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

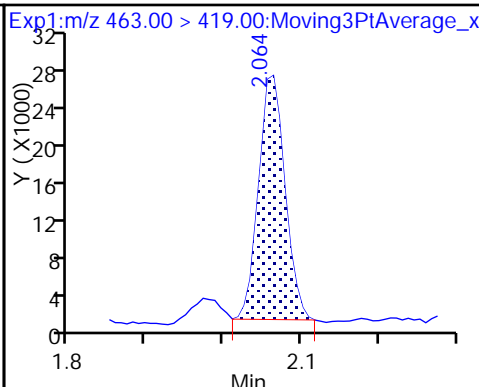
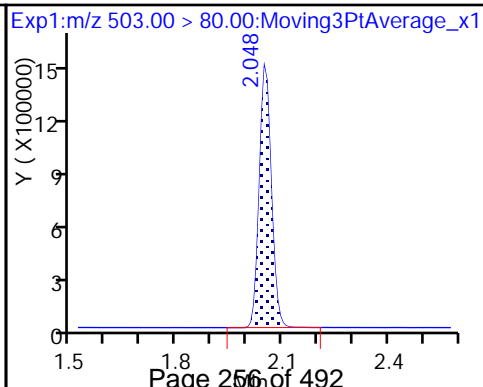
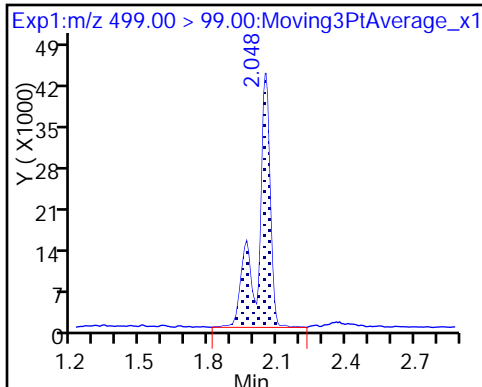
8 Perfluorooctane sulfonic acid (M)



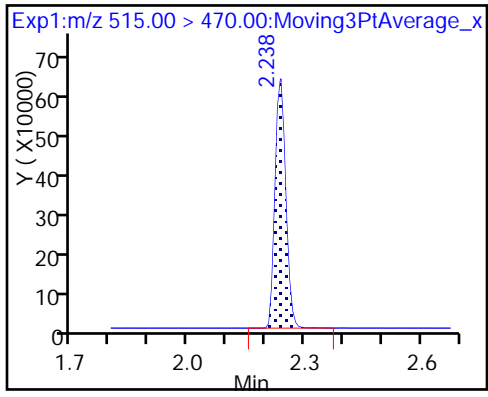
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_024.d  
 Lims ID: 320-35148-A-18-A  
 Client ID: WGNA-011618-RW-0560  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:14:50 ALS Bottle#: 20 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-18-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:21:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.95	99.52
\$ 10 13C2 PFDA	10.0	10.5	104.91

TestAmerica Sacramento

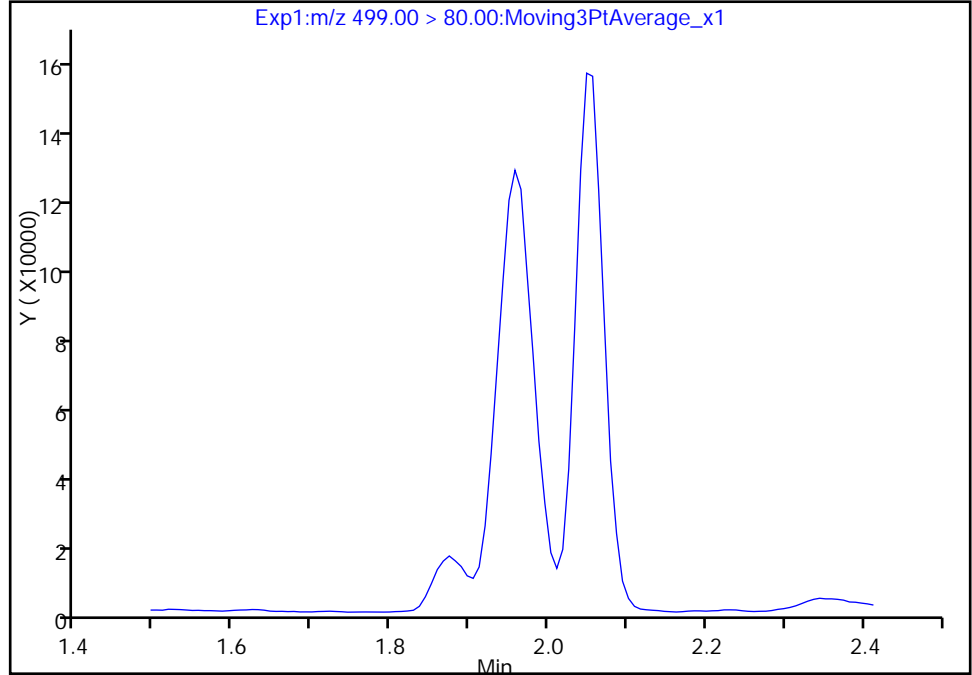
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Injection Date: 03-Feb-2018 00:14:50 Instrument ID: A8\_N  
Lims ID: 320-35148-A-18-A Lab Sample ID: 320-35148-18  
Client ID: WGNA-011618-RW-0560  
Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 24  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

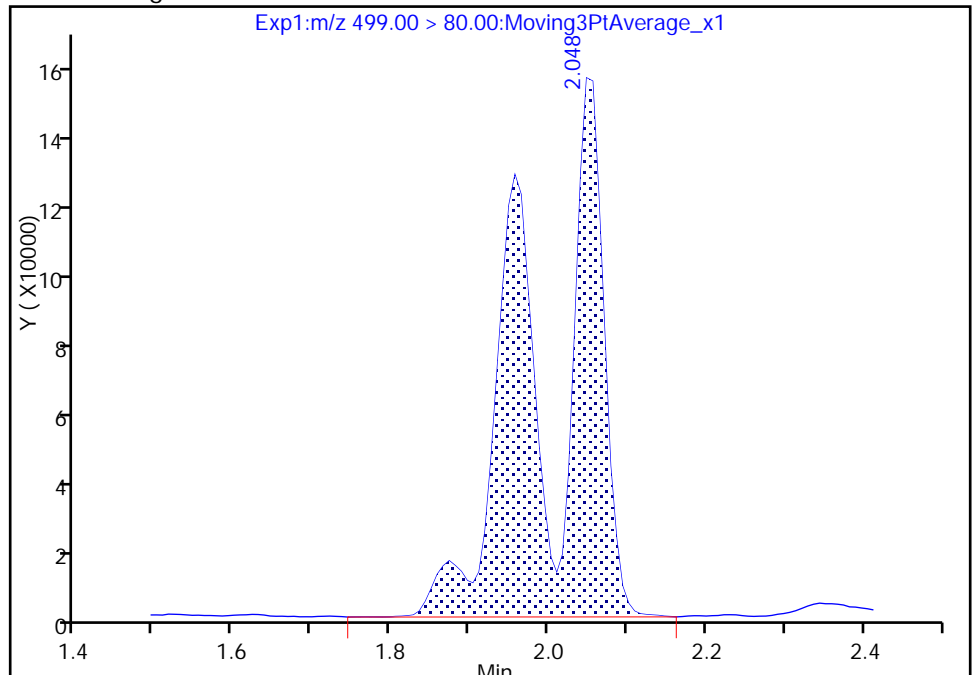
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.05  
Area: 820435  
Amount: 7.489513  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:21:29  
Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0560 Lab Sample ID: 320-35148-19  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_027.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/03/2018 00:28  
 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.: 206874 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	95		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_027.d  
 Lims ID: 320-35148-A-19-A  
 Client ID: WGNA-011618-FRB-0560  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:28:52 ALS Bottle#: 21 Worklist Smp#: 27  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-19-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.487	-0.008	1.000	1510718	9.48	7706	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1447592	10.0	7377	
* 7 13C4 PFOS	503.00 > 80.00	2.048	2.056	-0.008		3079754	28.7	8269	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	1102395	9.95	7643	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_027.d

Injection Date: 03-Feb-2018 00:28:52

Instrument ID: A8\_N

Lims ID: 320-35148-A-19-A

Lab Sample ID: 320-35148-19

Client ID: WGNA-011618-FRB-0560

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 27

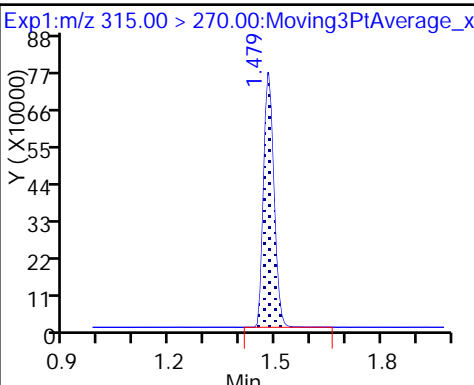
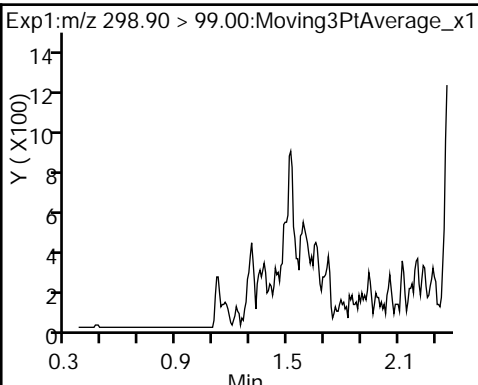
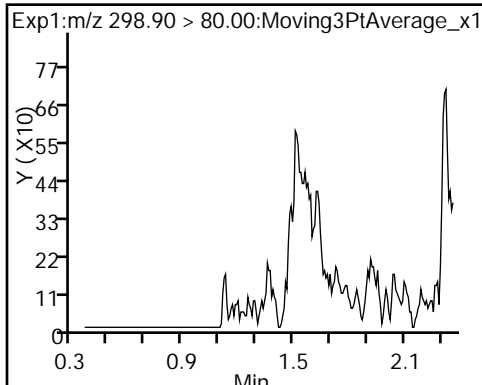
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

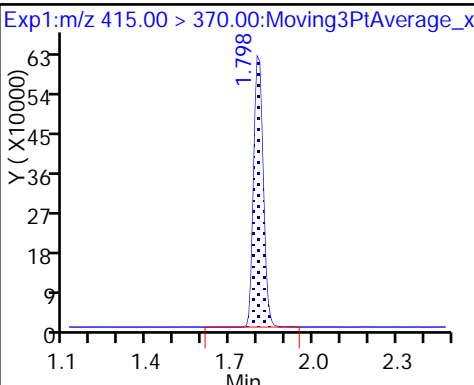
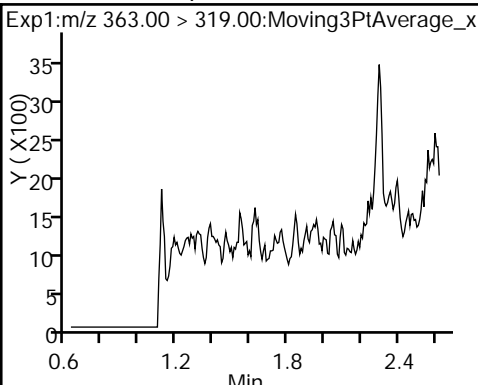
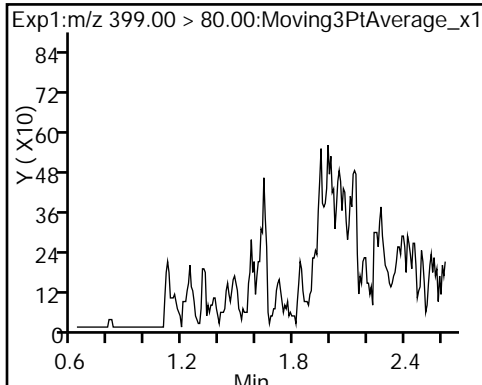
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

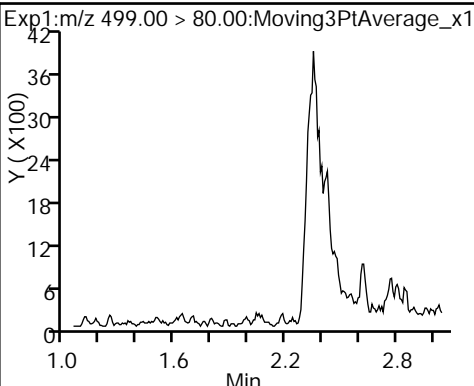
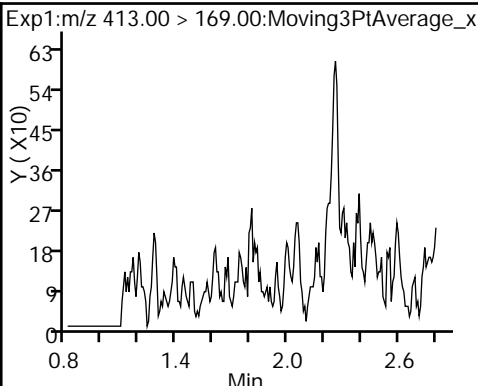
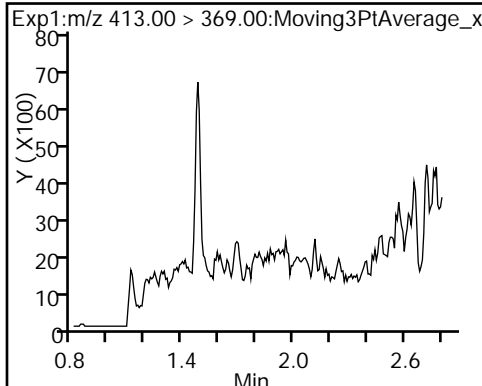
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



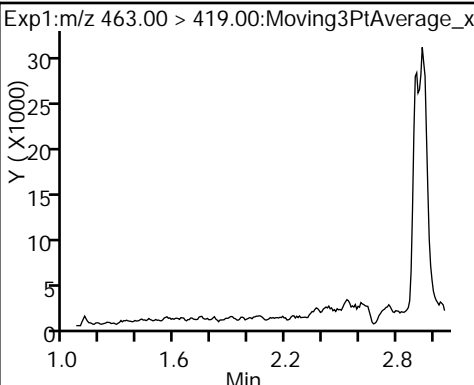
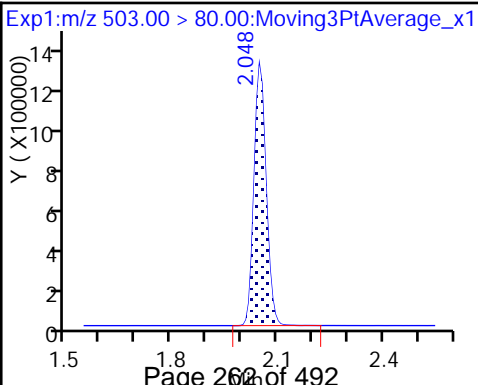
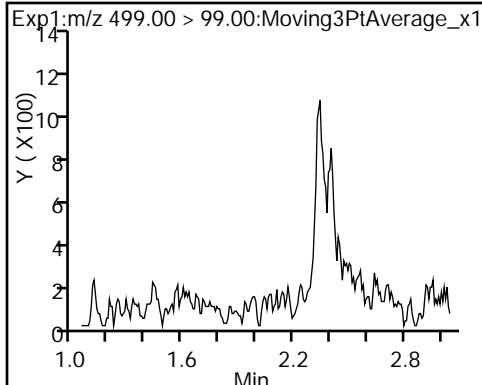
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



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

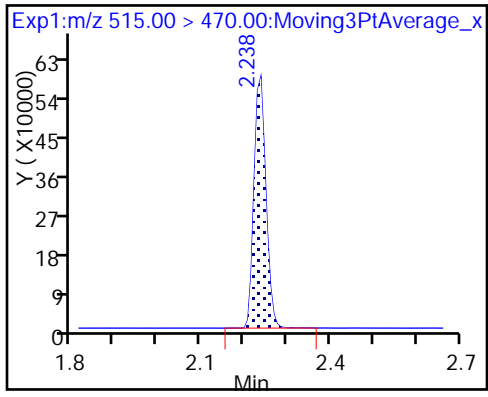


8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_027.d  
 Lims ID: 320-35148-A-19-A  
 Client ID: WGNA-011618-FRB-0560  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:28:52 ALS Bottle#: 21 Worklist Smp#: 27  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-19-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.48	94.85
\$ 10 13C2 PFDA	10.0	9.95	99.52

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0515 Lab Sample ID: 320-35148-20  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_028.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.6(mL) Date Analyzed: 02/03/2018 00:33  
 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.: 206874 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	38		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	27	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.4	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_028.d  
 Lims ID: 320-35148-A-20-A  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:33:33 ALS Bottle#: 22 Worklist Smp#: 28  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:22:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	348982	2.78		513	
298.90 > 99.00	1.358	1.366	-0.008	1.000	260029		1.34(0.00-0.00)	464	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1659385	9.90		7897	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	1238810	6.58		1080	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	295207	2.07		66.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1524115	10.0		6581	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	1305485	9.25		228	
413.00 > 169.00	1.798	1.806	-0.008	1.000	799422		1.63(0.00-0.00)	1920	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	873161	8.27		301	a
499.00 > 99.00	2.048	2.056	-0.008	1.000	163491		5.34(0.00-0.00)	228	a
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3224796	28.7		5209	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.064	-0.008	1.000	59379	0.5866		9.7	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1167102	10.0		8343	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_028.d

Injection Date: 03-Feb-2018 00:33:33

Instrument ID: A8\_N

Lims ID: 320-35148-A-20-A

Lab Sample ID: 320-35148-20

Client ID: WGNA-011618-RW-0515

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

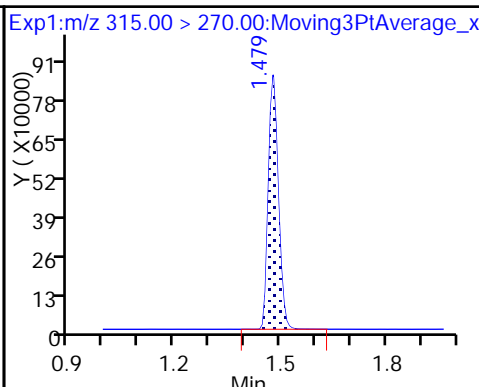
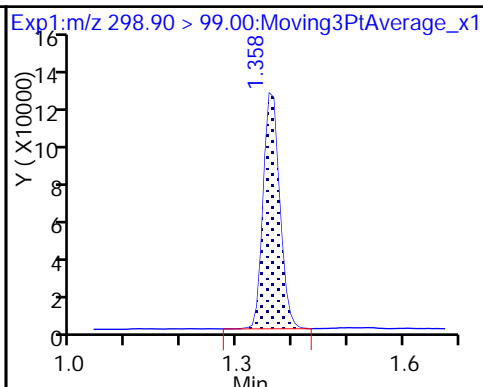
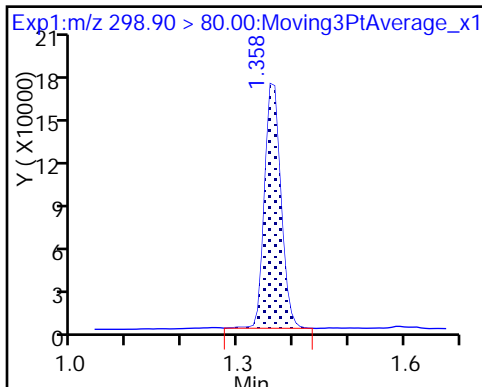
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

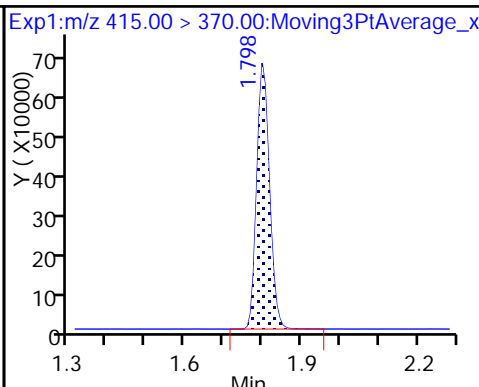
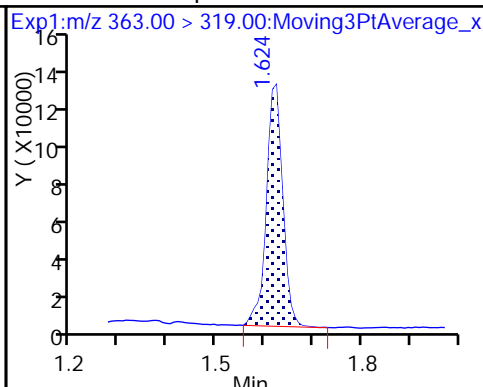
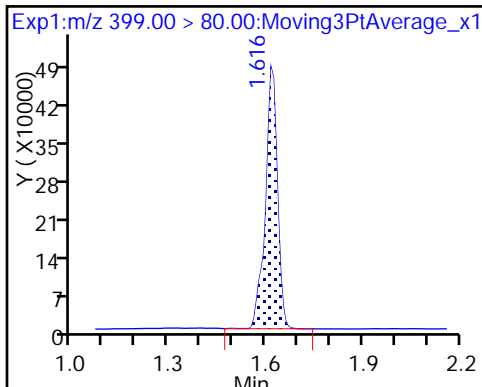
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

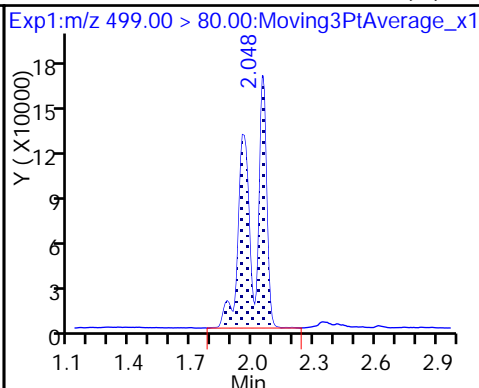
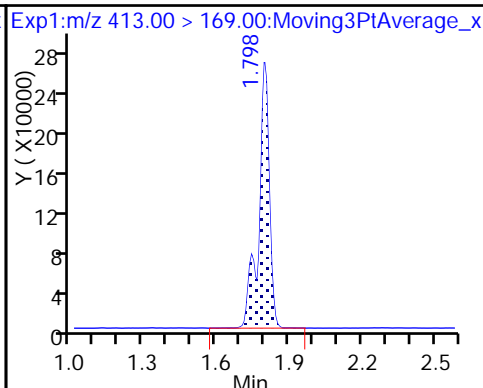
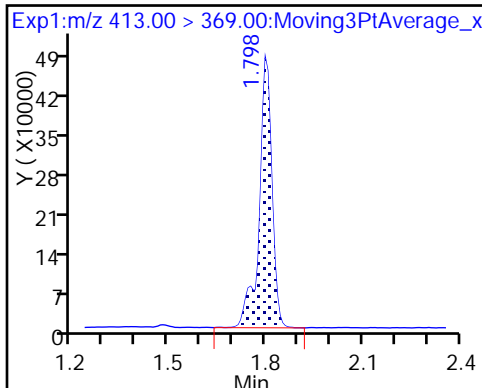
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

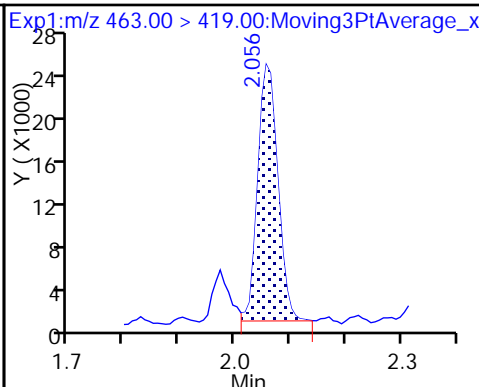
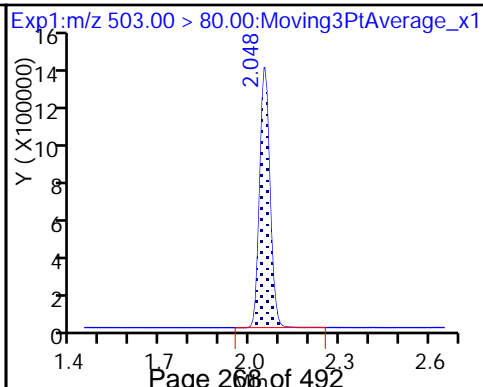
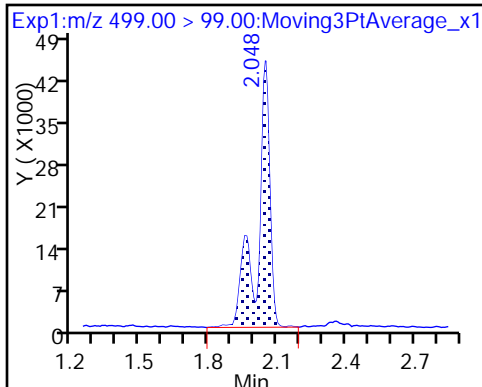
8 Perfluorooctane sulfonic acid (M)



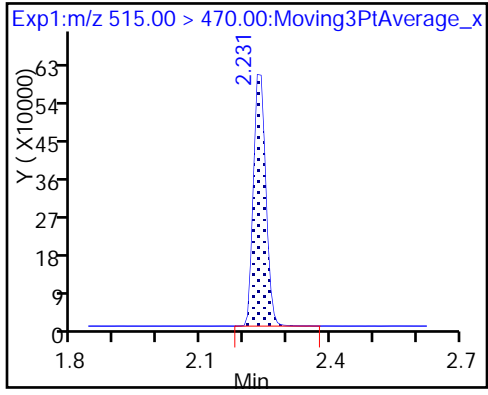
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_028.d  
 Lims ID: 320-35148-A-20-A  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 00:33:33 ALS Bottle#: 22 Worklist Smp#: 28  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:22:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.90	98.95
\$ 10 13C2 PFDA	10.0	10.0	100.07



TestAmerica Sacramento

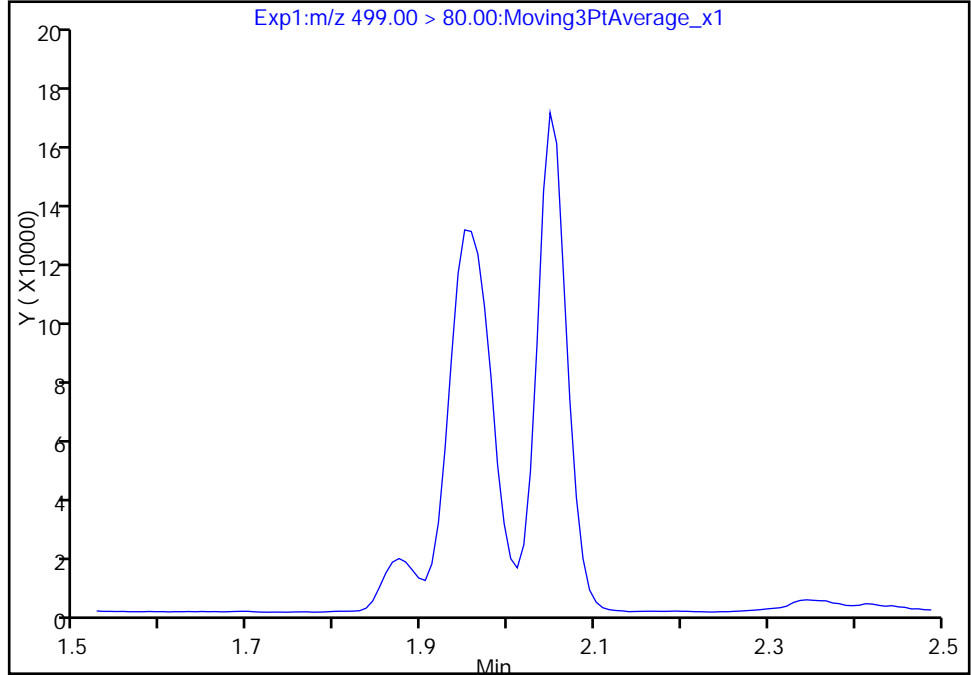
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Injection Date: 03-Feb-2018 00:33:33 Instrument ID: A8\_N  
Lims ID: 320-35148-A-20-A Lab Sample ID: 320-35148-20  
Client ID: WGNA-011618-RW-0515  
Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 28  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

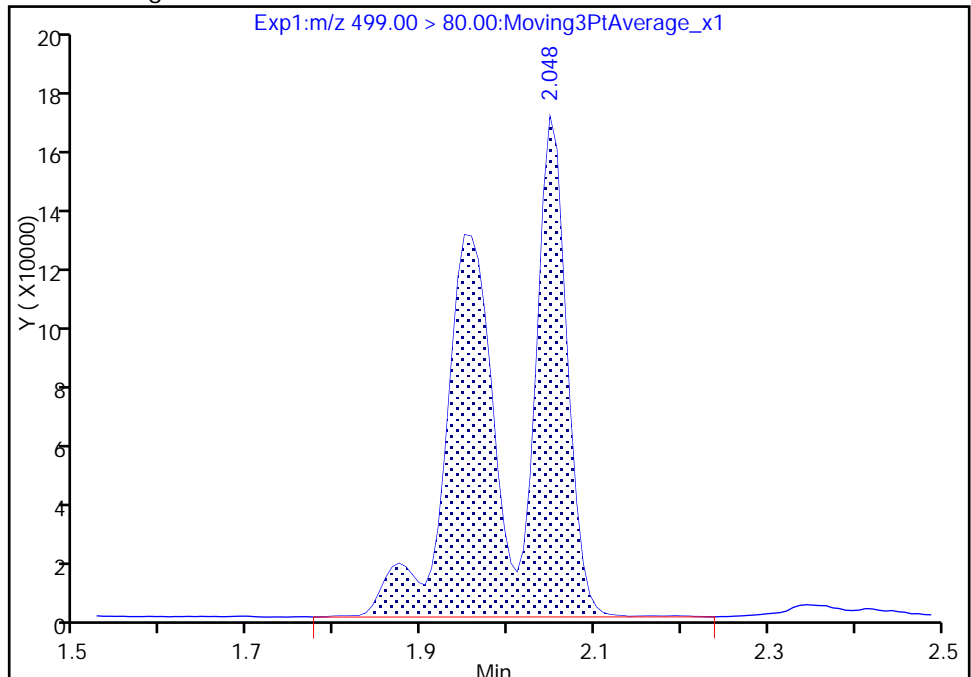
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 873161  
Amount: 8.270454  
Amount Units: ng/ml



TestAmerica Sacramento

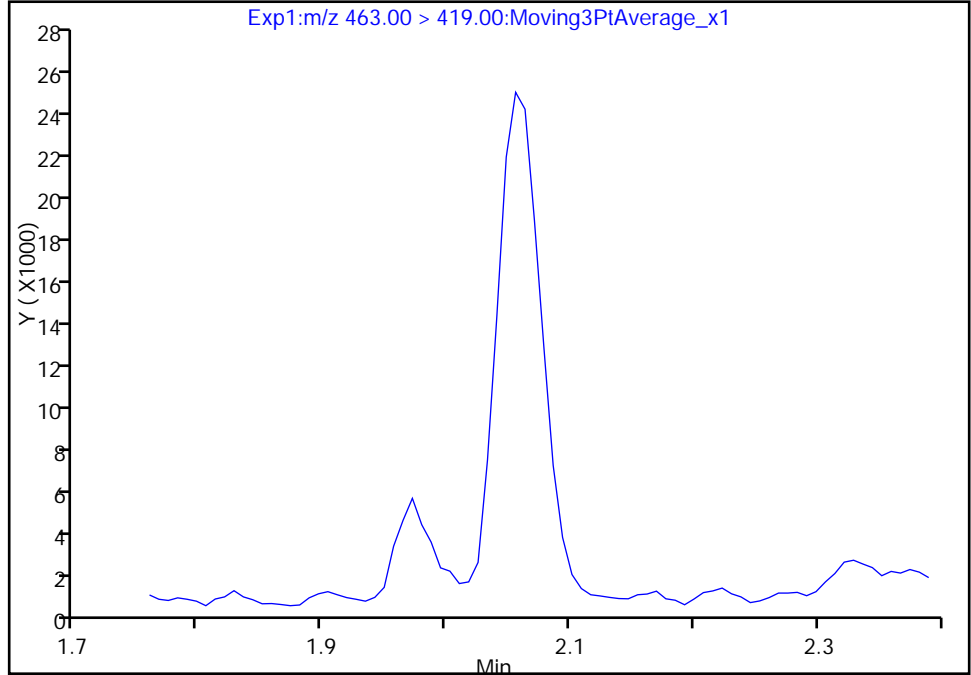
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Injection Date: 03-Feb-2018 00:33:33 Instrument ID: A8\_N  
Lims ID: 320-35148-A-20-A Lab Sample ID: 320-35148-20  
Client ID: WGNA-011618-RW-0515  
Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 28  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

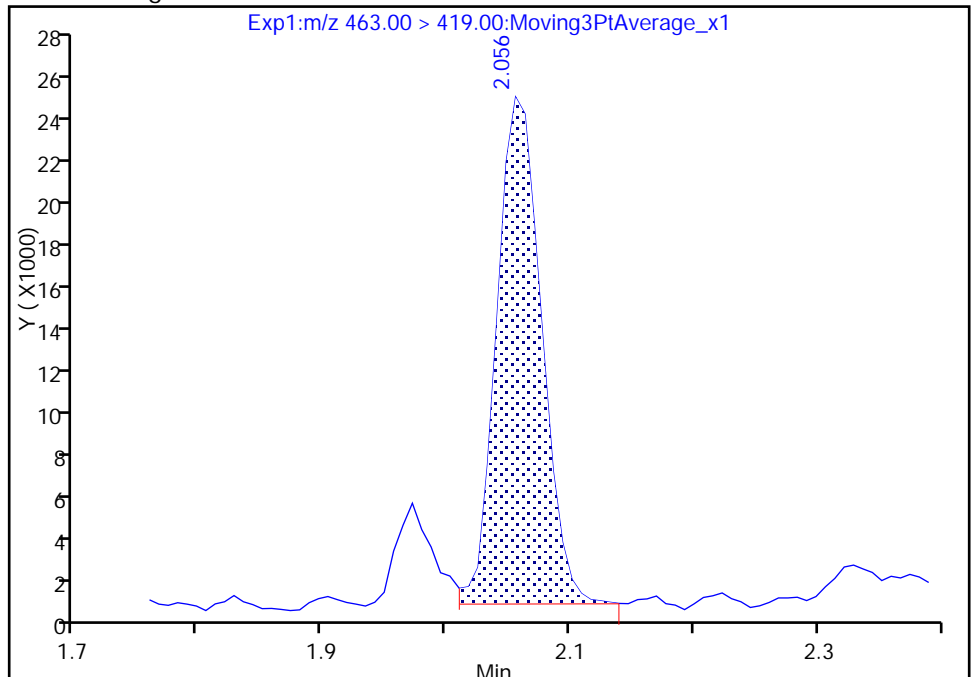
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 59379  
Amount: 0.586600  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:22:34  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0515 Lab Sample ID: 320-35148-21  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_039.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:52  
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 12:15  
 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.: 207174 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	104		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_039.d  
 Lims ID: 320-35148-A-21-A  
 Client ID: WGNA-011618-FRB-0515  
 Sample Type: Client  
 Inject. Date: 06-Feb-2018 12:15:48 ALS Bottle#: 22 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-21-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.517	-0.030	1.000	1546217	10.4	8250	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.828	-0.022		1344869	10.0	5624	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.071	-0.015		3152165	28.7	7459	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.246	0.0	1.000	1046520	10.2	7618	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_039.d

Injection Date: 06-Feb-2018 12:15:48

Instrument ID: A8\_N

Lims ID: 320-35148-A-21-A

Lab Sample ID: 320-35148-21

Client ID: WGNA-011618-FRB-0515

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 11

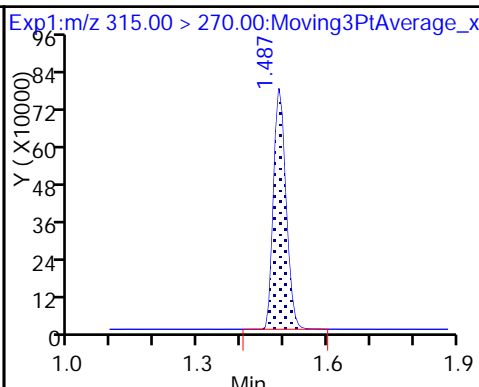
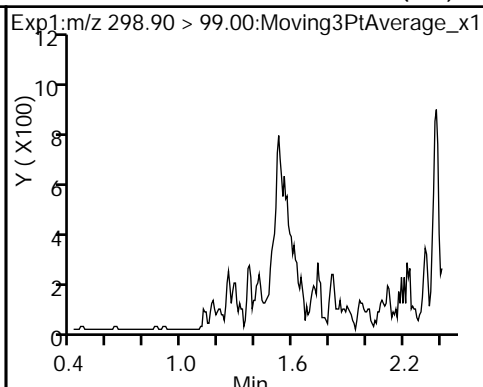
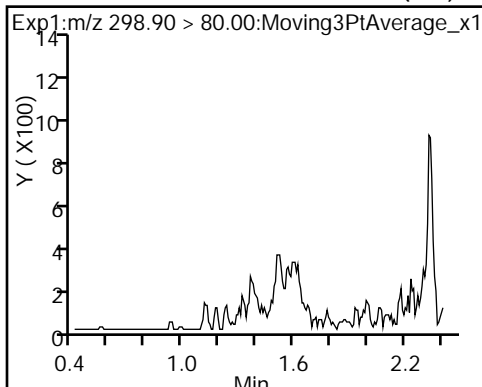
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

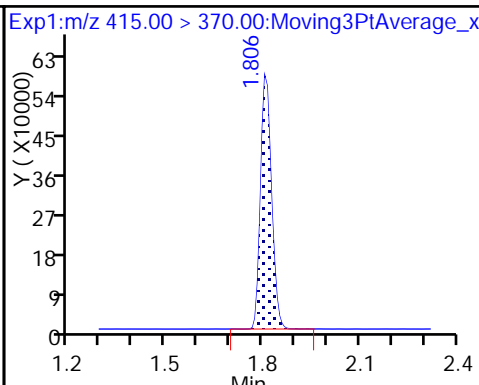
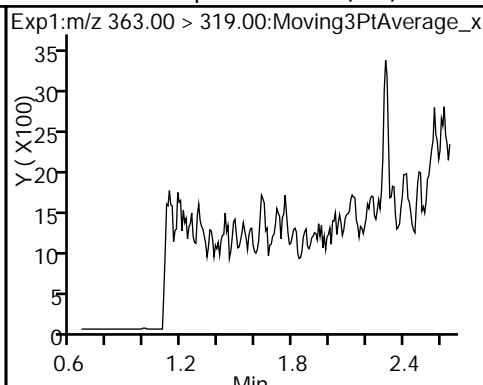
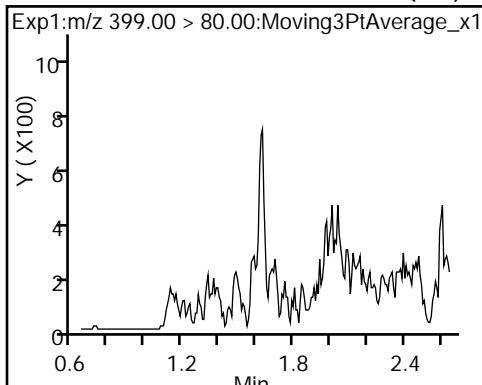
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

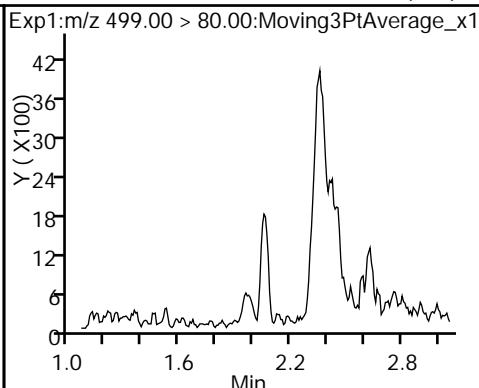
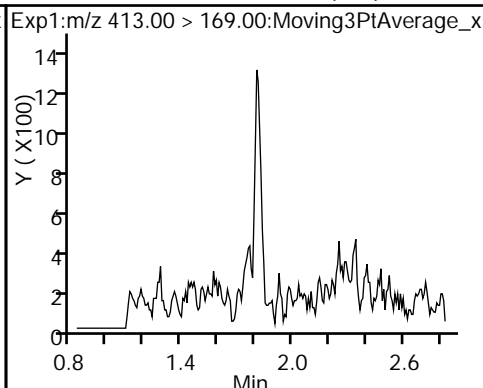
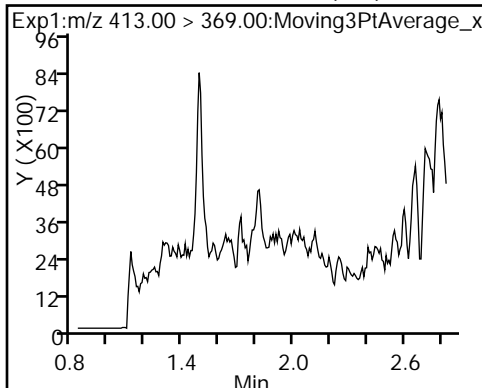
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



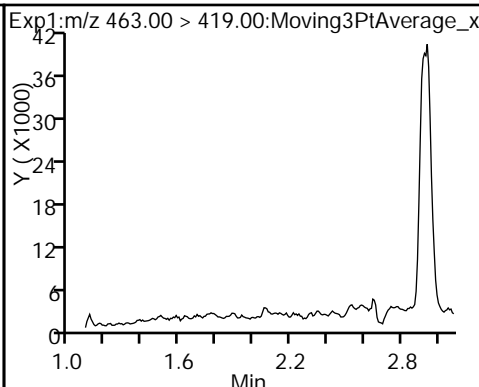
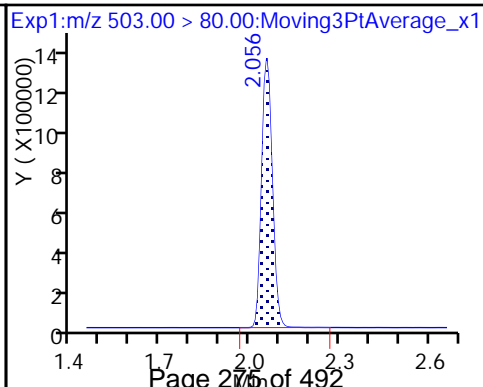
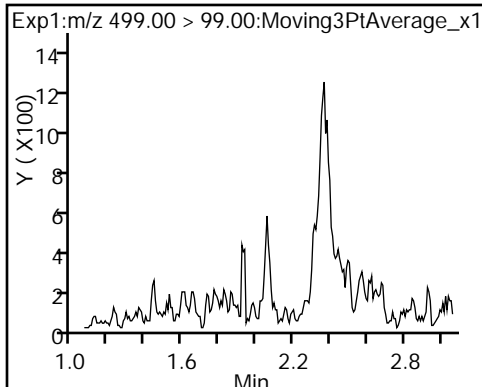
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



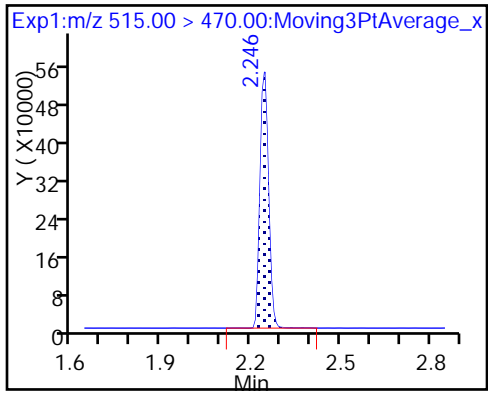
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_039.d  
 Lims ID: 320-35148-A-21-A  
 Client ID: WGNA-011618-FRB-0515  
 Sample Type: Client  
 Inject. Date: 06-Feb-2018 12:15:48 ALS Bottle#: 22 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-21-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	104.49
\$ 10 13C2 PFDA	10.0	10.2	101.69

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

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1 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.: 320-35148-1 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.: 320-35148-1 Analy Batch No.: 192908

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

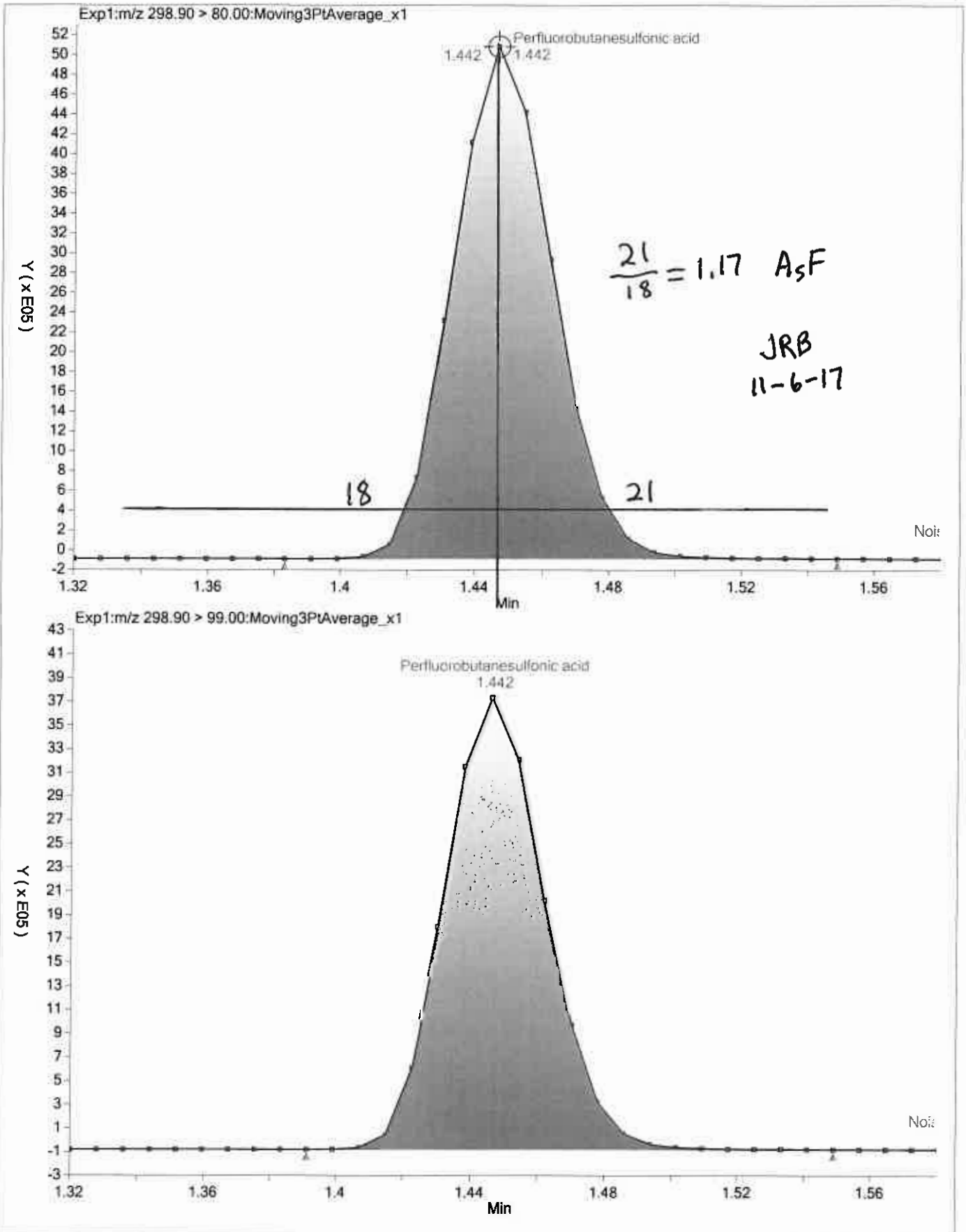
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

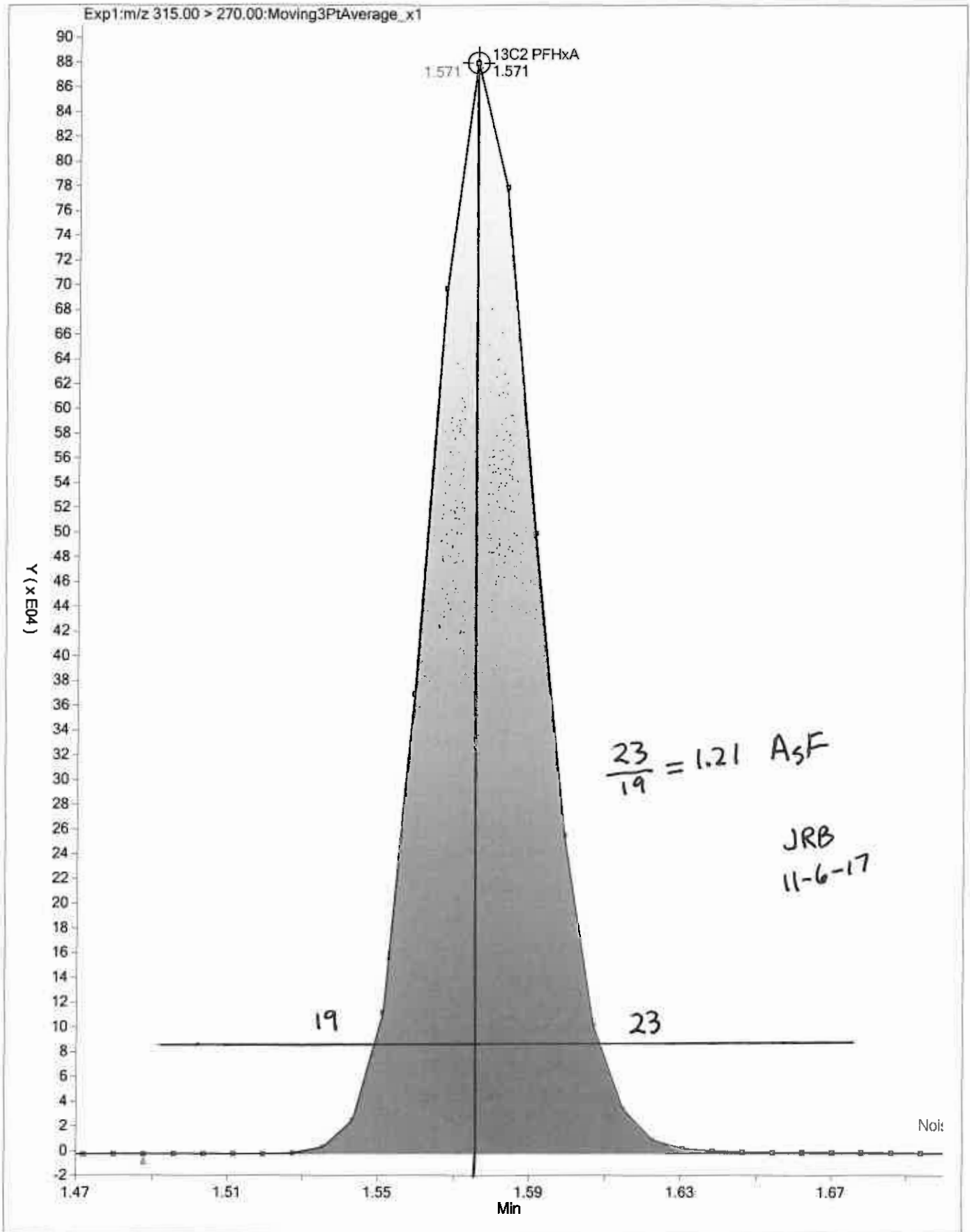
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30





TestAmerica Laboratories  
Istd/Surrogate Recovery Report

Worklist Name: 03NOV2017\_537A\_ICAL

Worklist Num: 49975

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b

Limit Group: LC 537 ICAL

Analysis Type: SemiVOA

Inj Volume: 2.00

Inj Vol Units: ul

Lims Batch: 192908

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

Non-Cal IS Mode: Last Ccal Sample

\$ 2 13C2 PFHxA

\$ 10 13C2 PFDA

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

13C2-PFOA

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

13C4-PFOS

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

JRB  
11-6-17

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_004.d  
 Lims ID: IC L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 03-Nov-2017 13:37:59 ALS Bottle#: 1 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L1\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

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

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L1\_00020

Amount Added: 1.00

Units: mL

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

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

Instrument ID: A8\_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

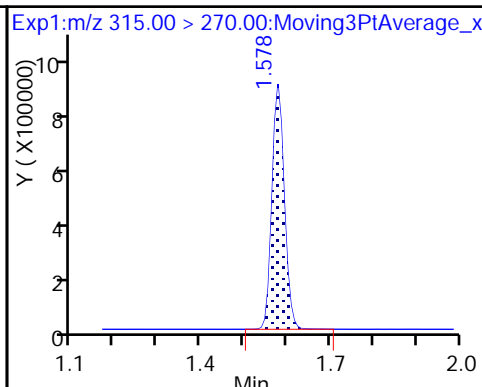
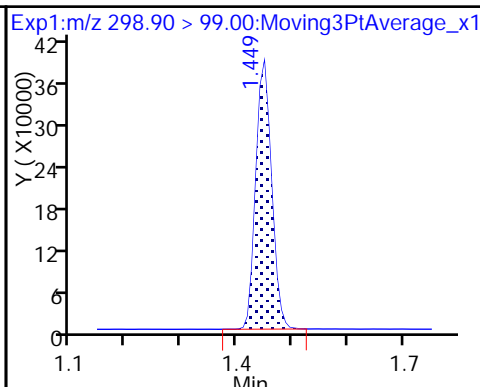
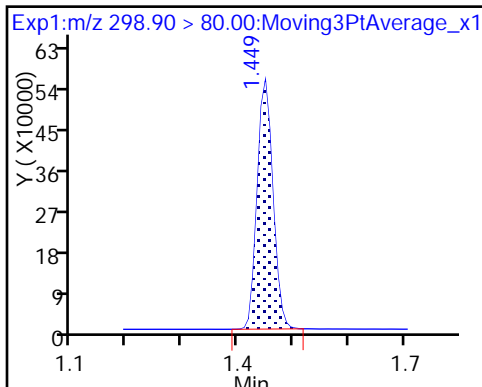
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

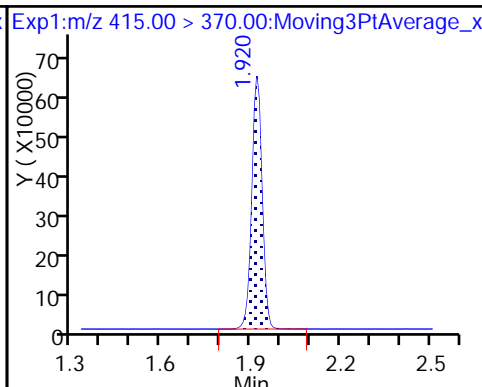
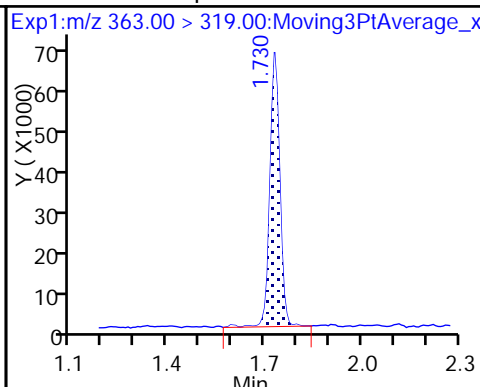
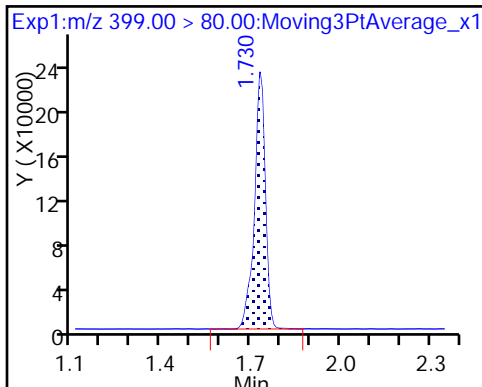
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

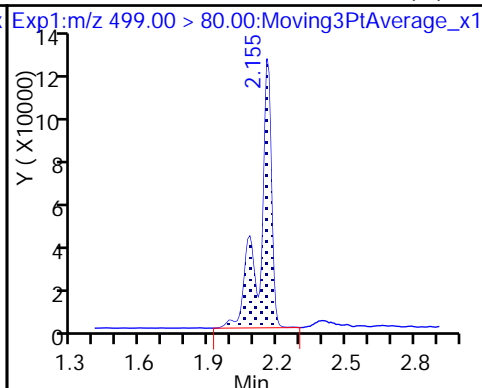
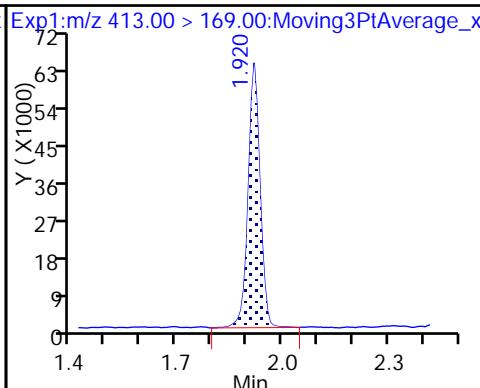
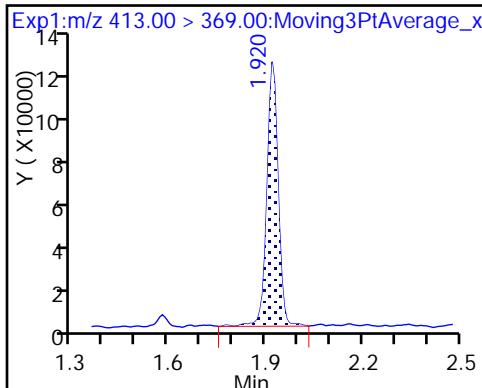
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

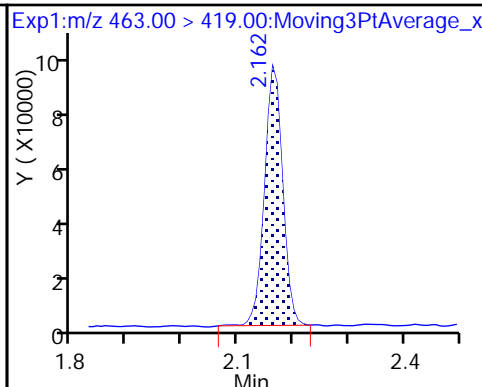
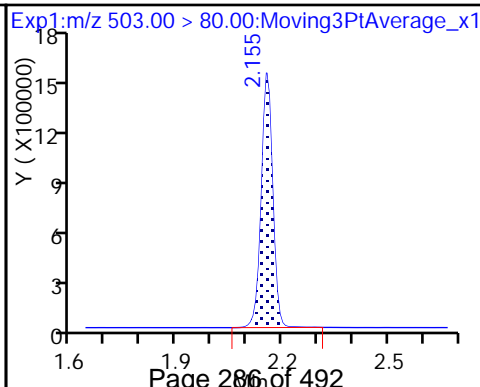
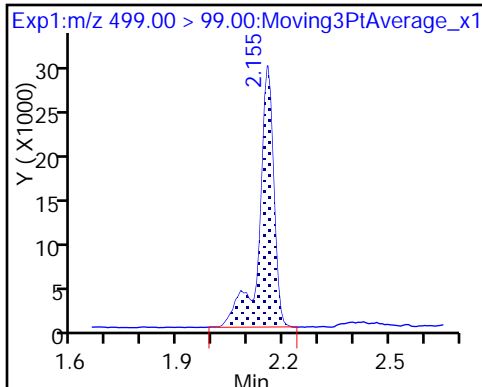
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

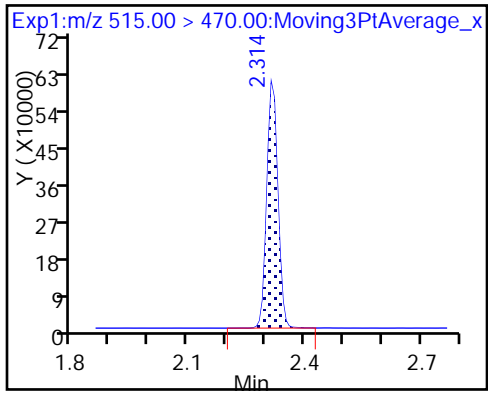
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento

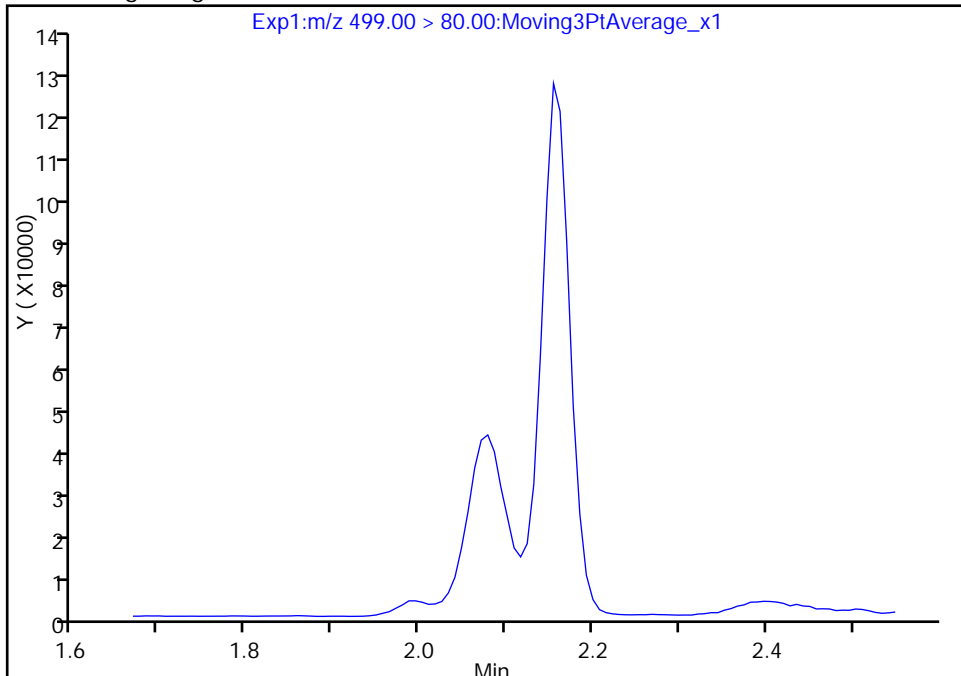
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

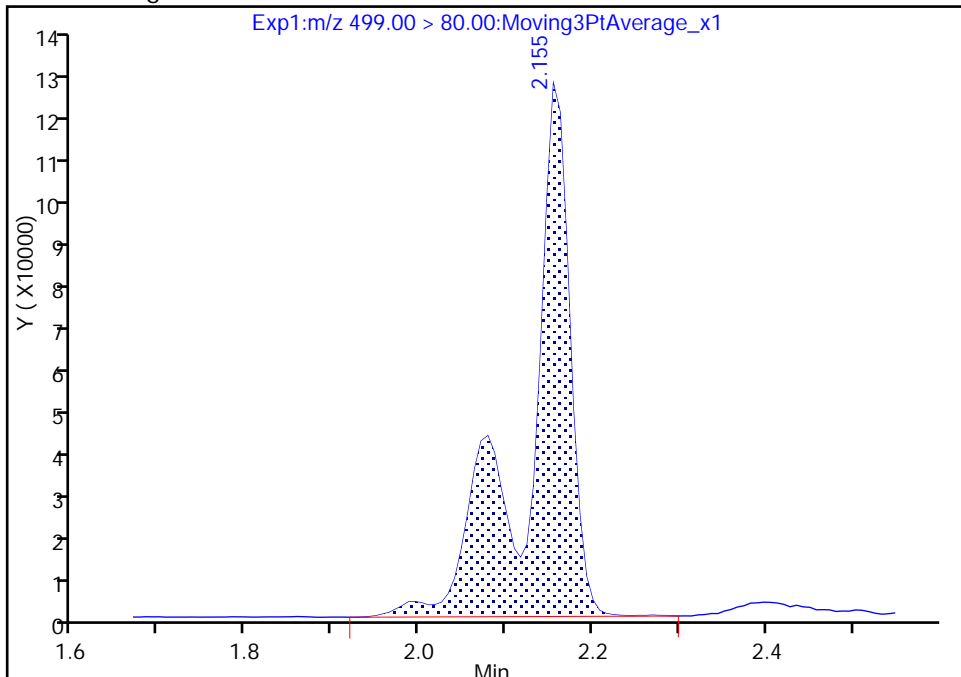
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

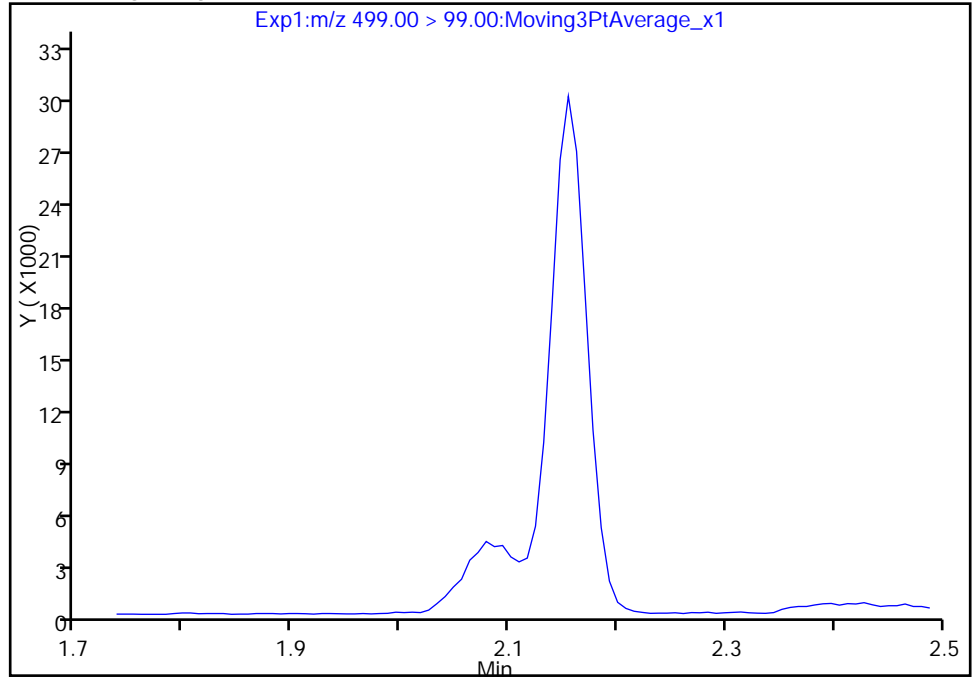
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

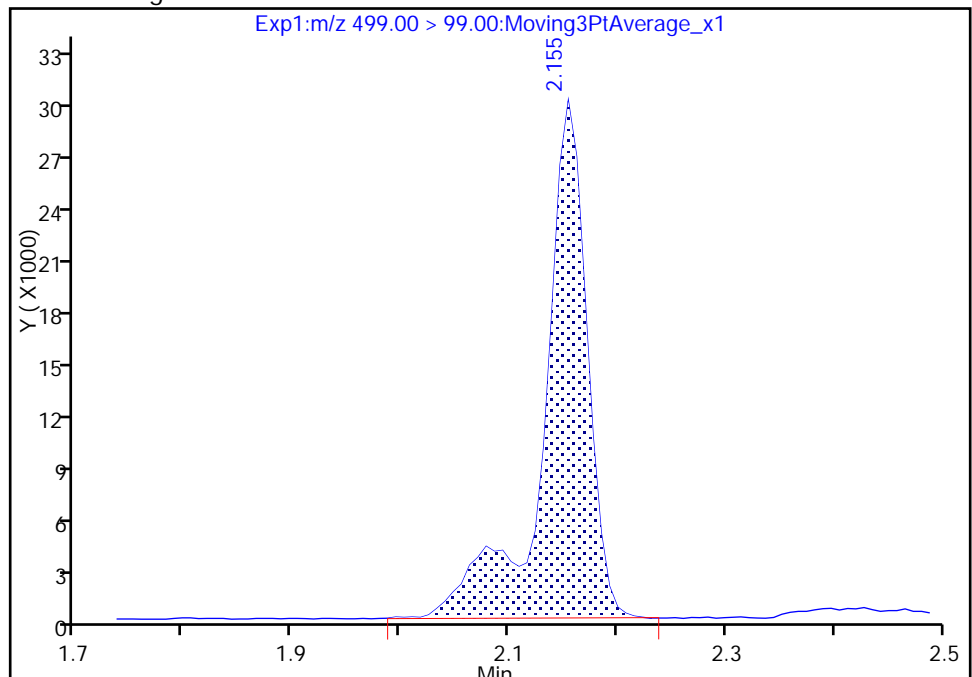
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



TestAmerica Sacramento

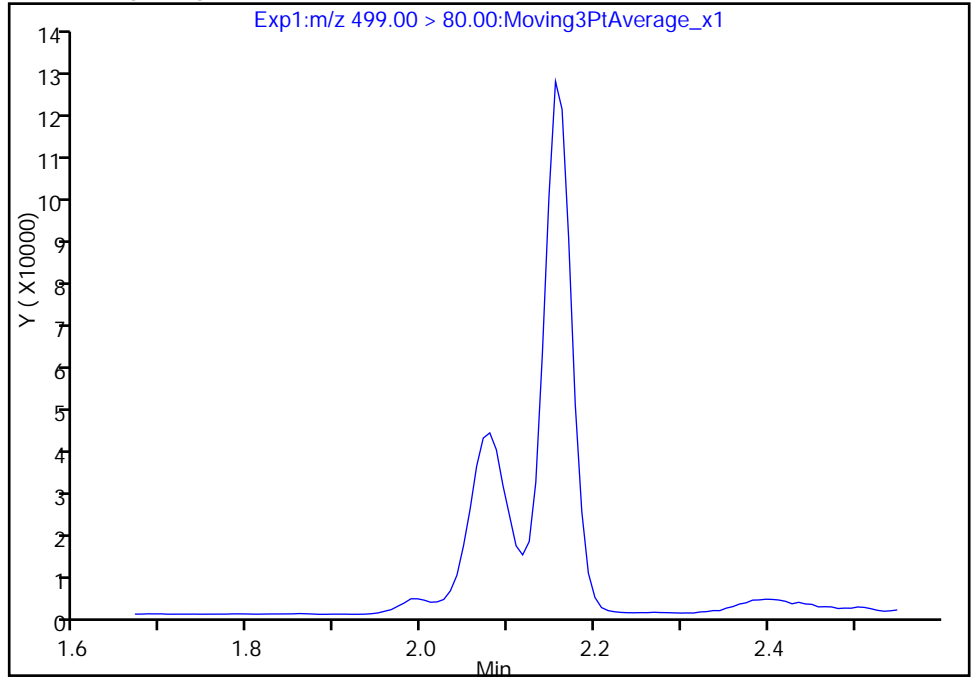
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

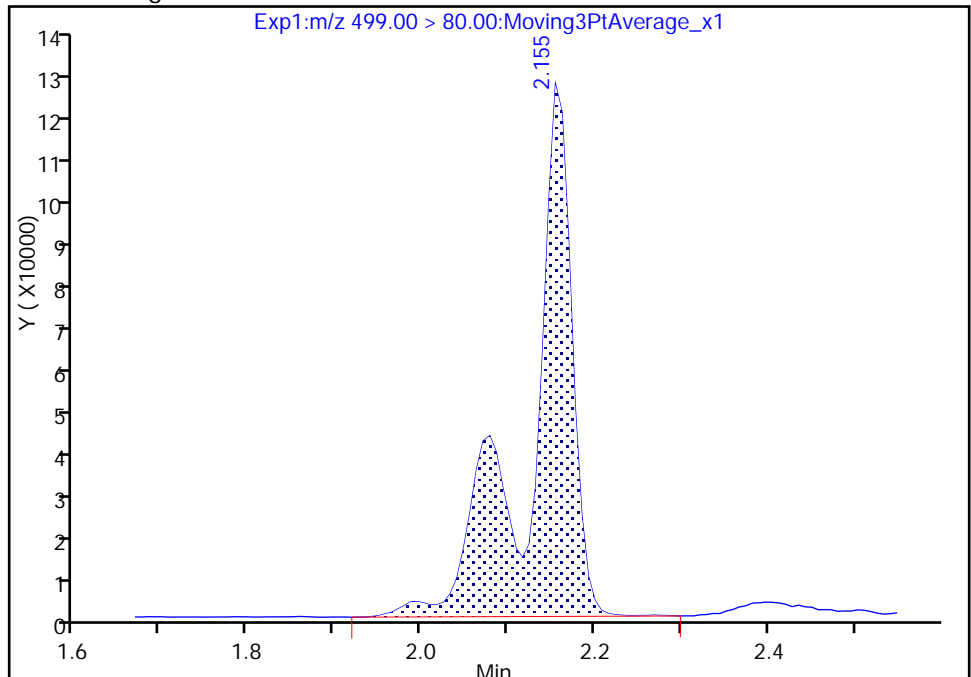
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

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

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

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L2\_00020

Amount Added: 1.00

Units: mL

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

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

Instrument ID: A8\_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

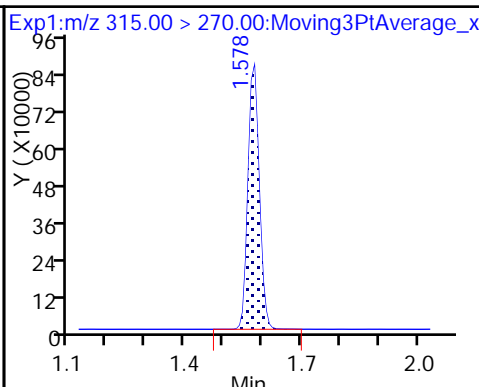
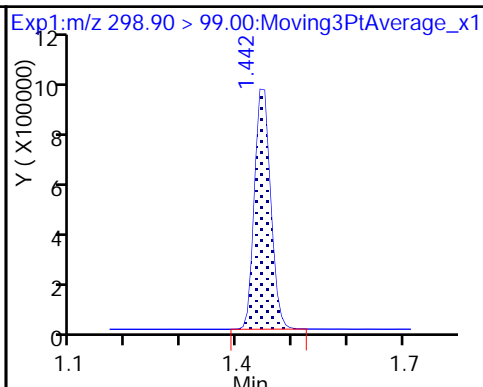
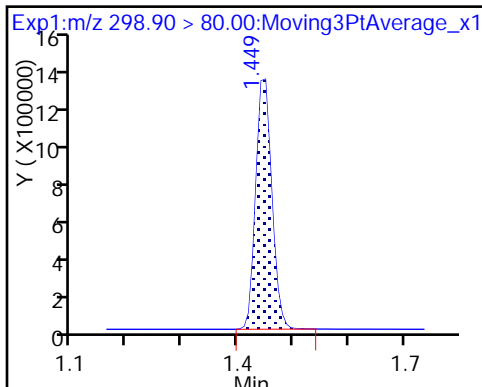
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

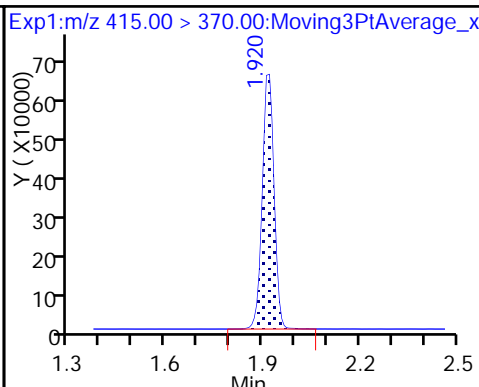
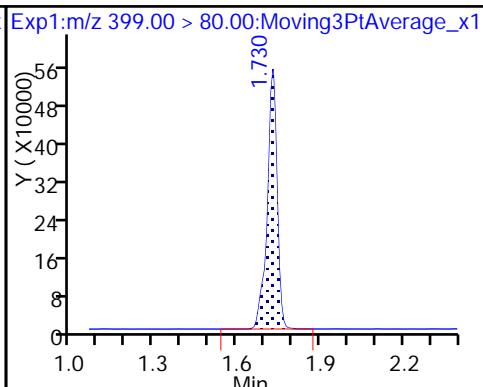
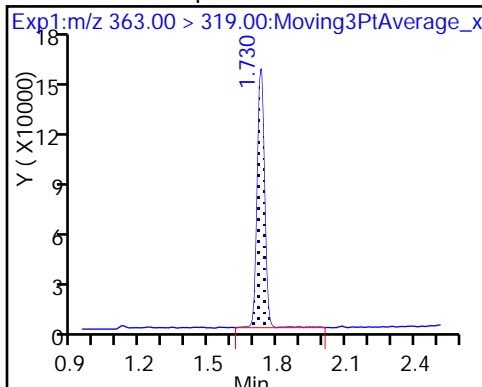
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

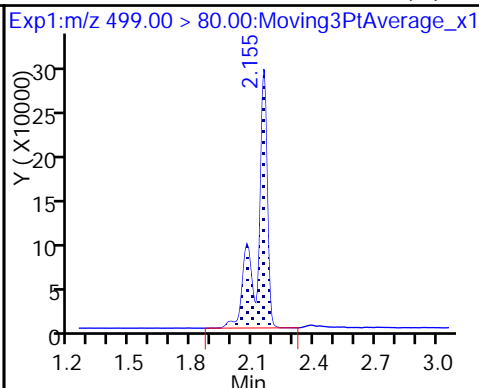
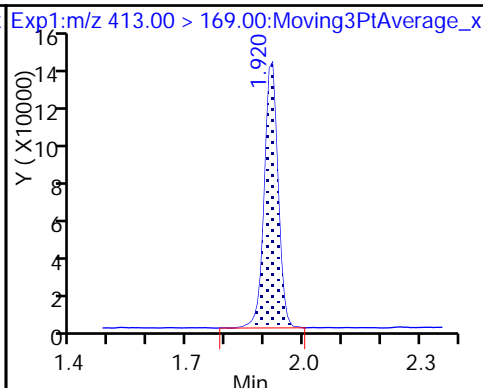
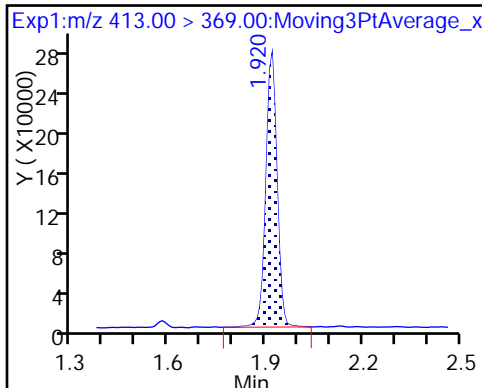
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

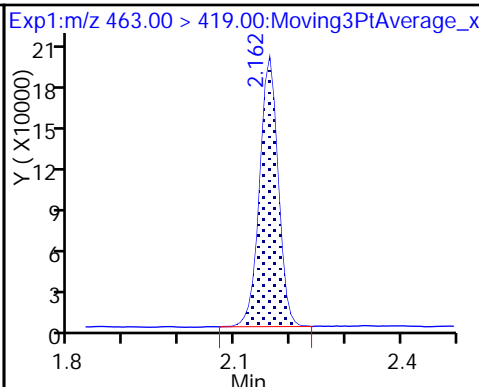
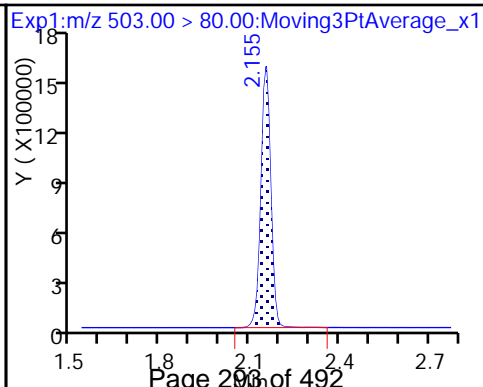
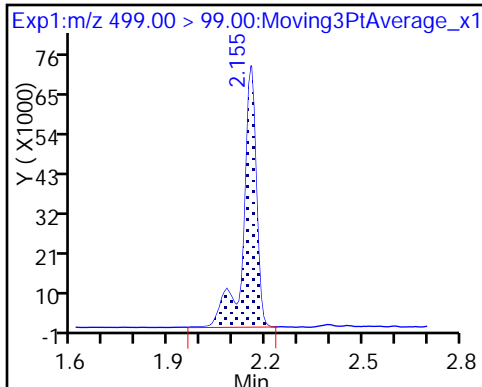
8 Perfluorooctane sulfonic acid (M)



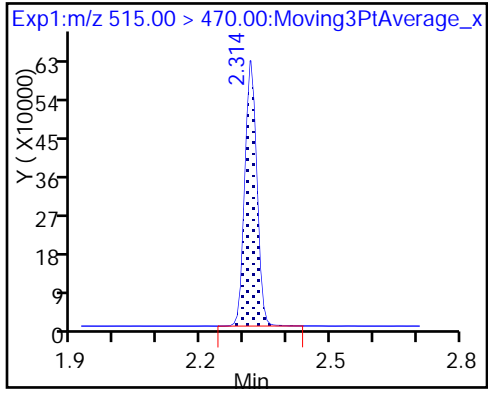
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

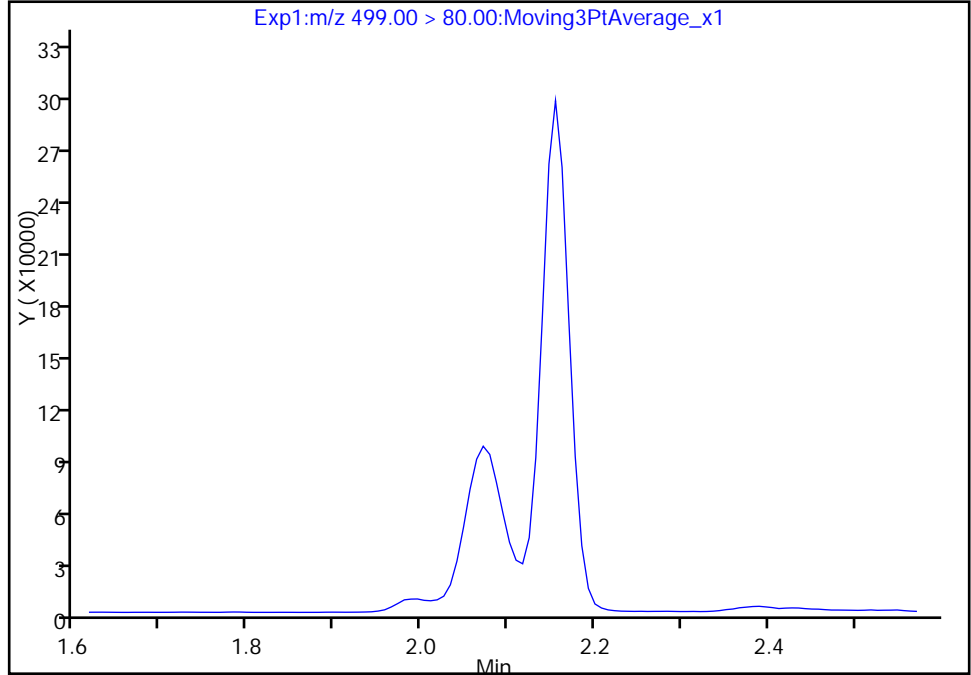
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 1

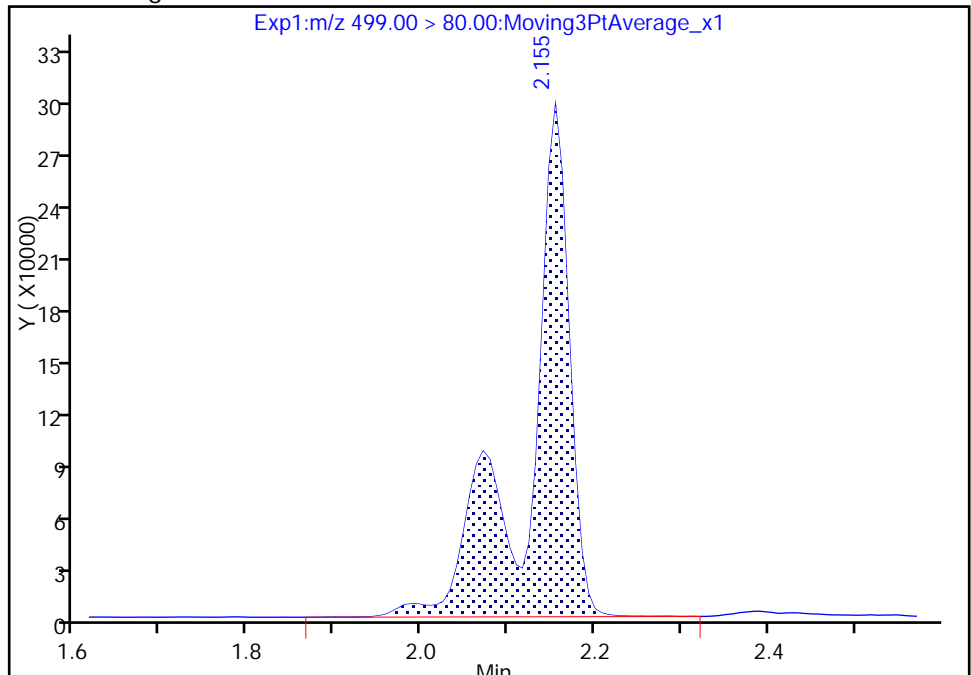
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

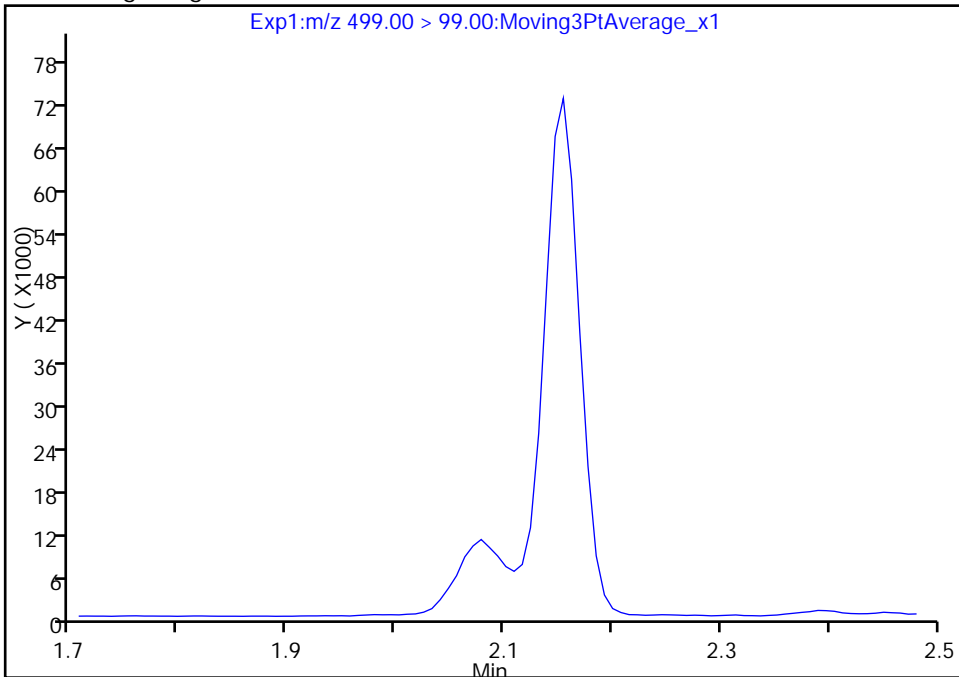
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 2

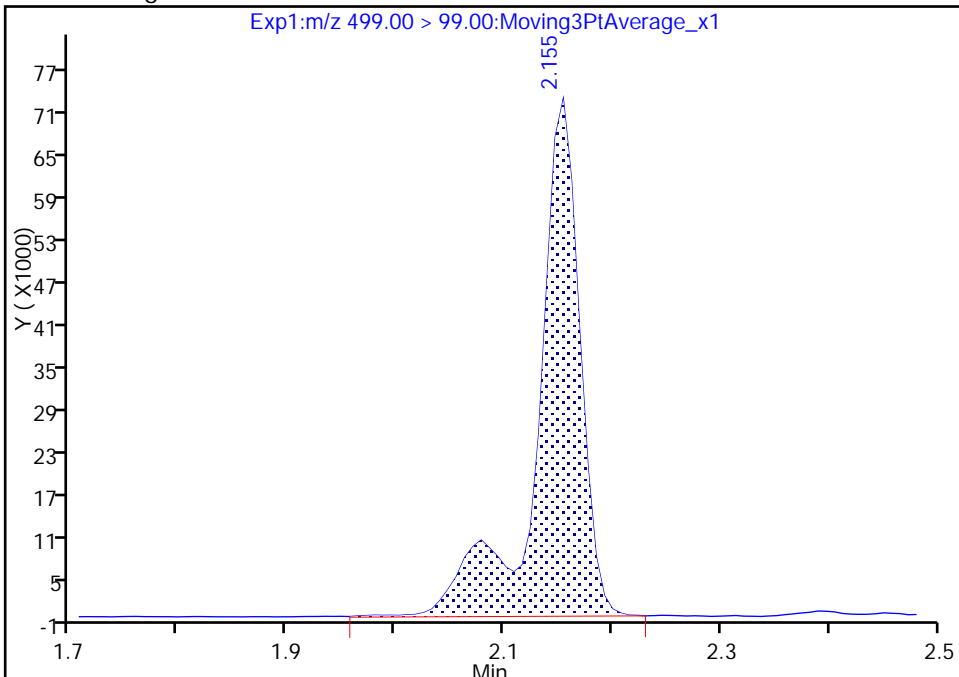
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



TestAmerica Sacramento

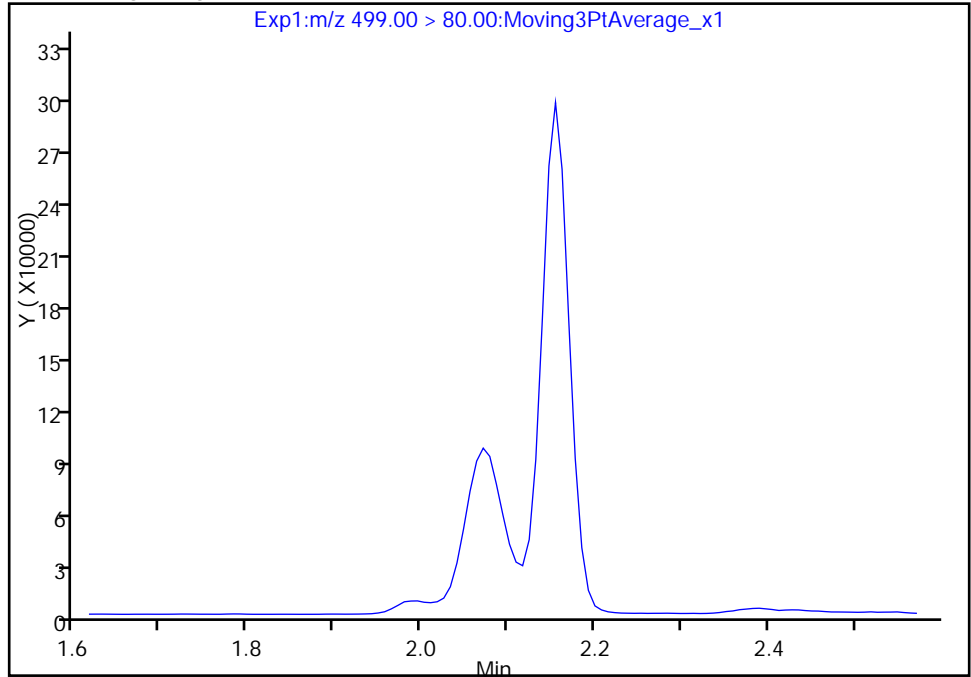
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 1

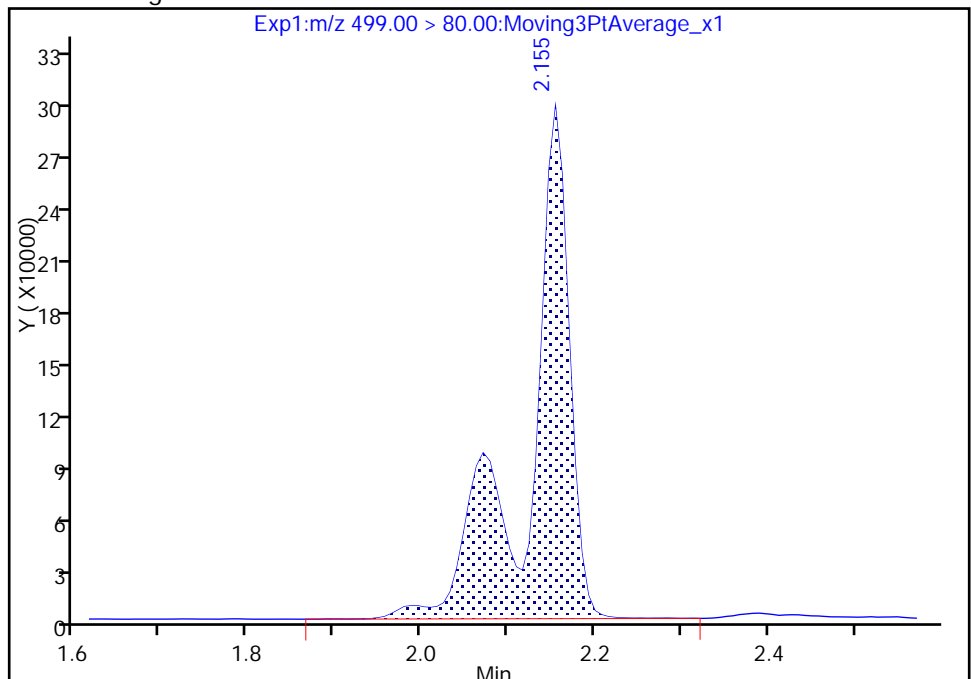
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

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

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

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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

**Reagents:**

LC537-L3\_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

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

Instrument ID: A8\_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

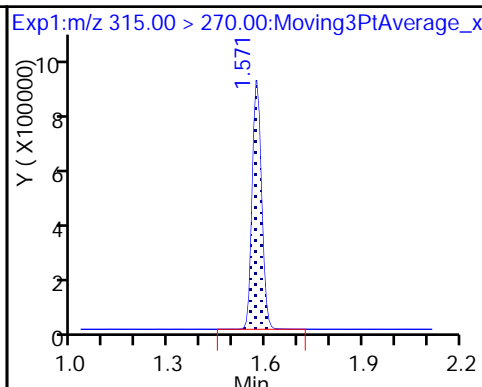
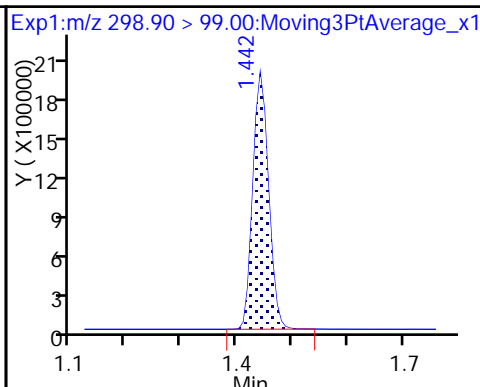
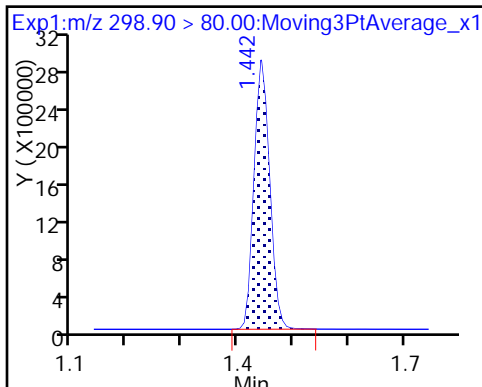
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

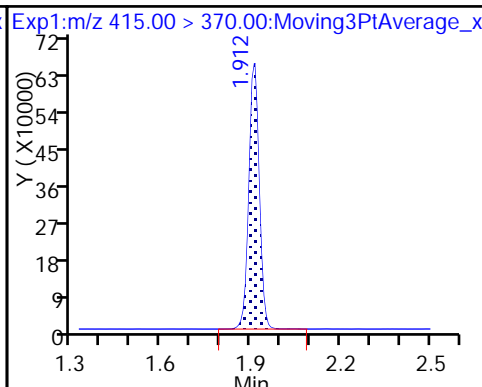
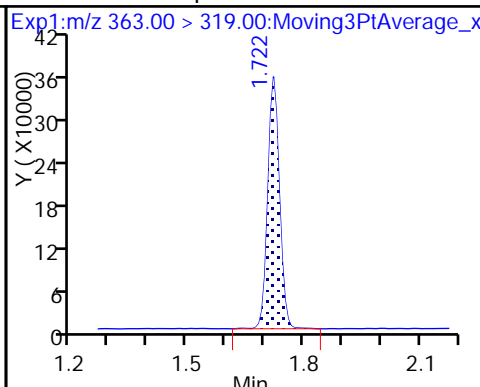
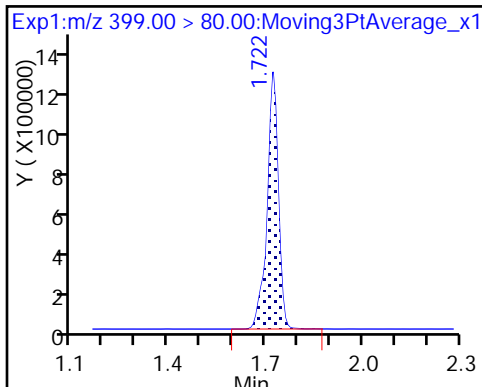
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

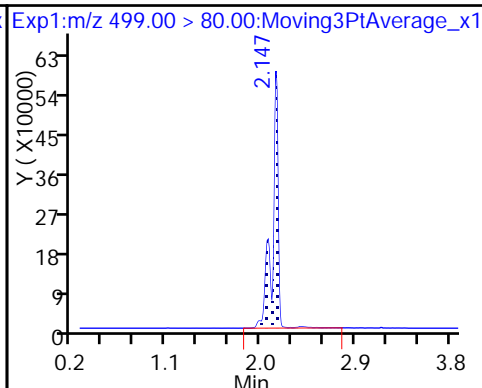
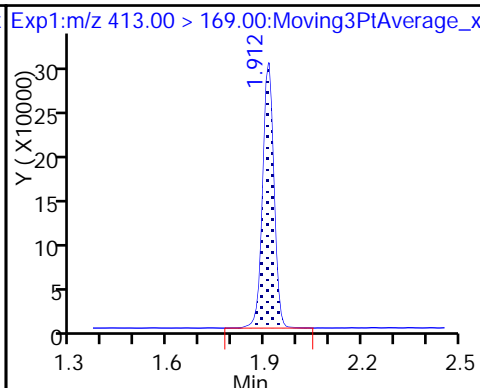
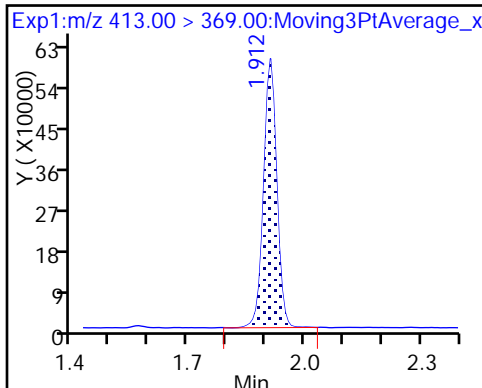
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

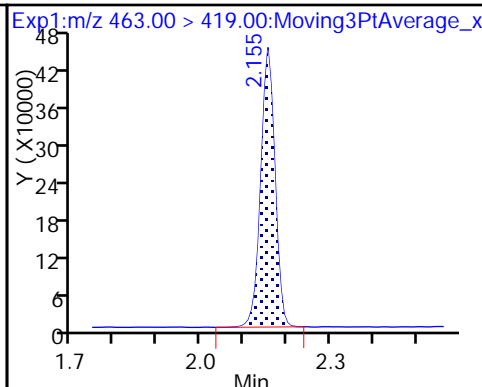
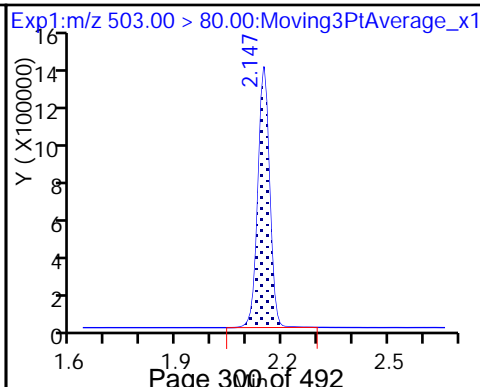
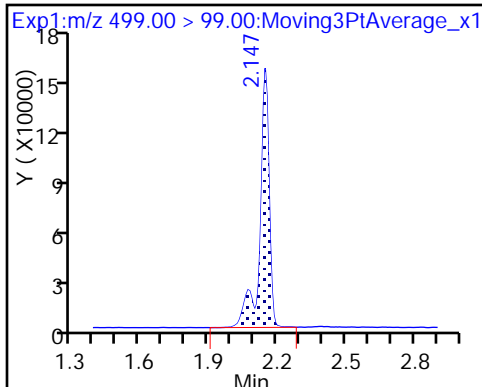
8 Perfluorooctane sulfonic acid



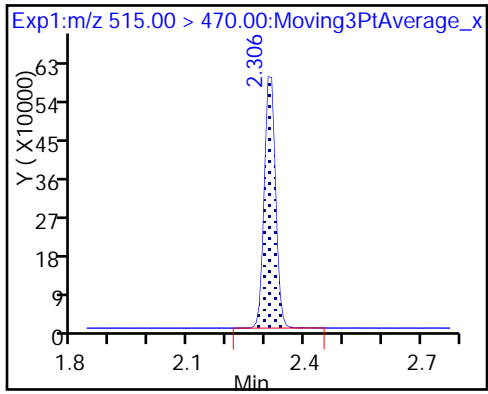
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Target Compound Quantitation Report

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

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

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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



**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L4\_00020

Amount Added: 1.00

Units: mL

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

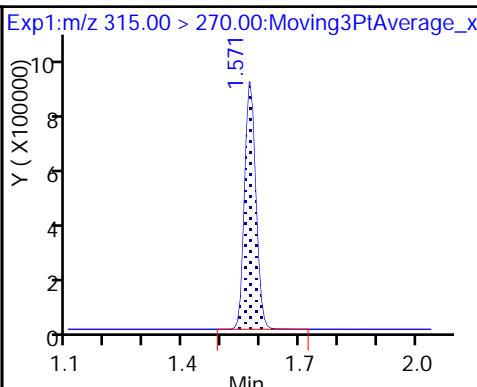
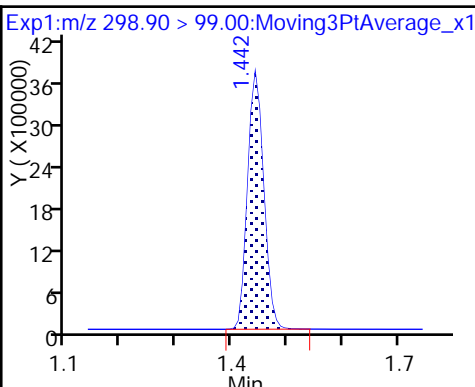
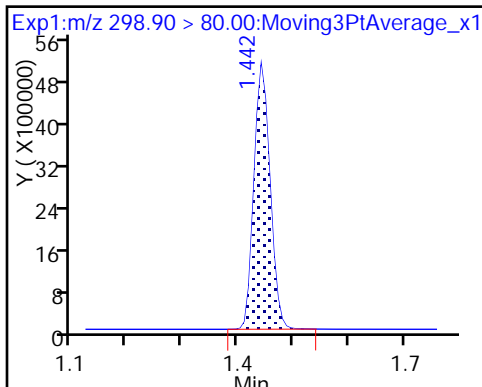
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

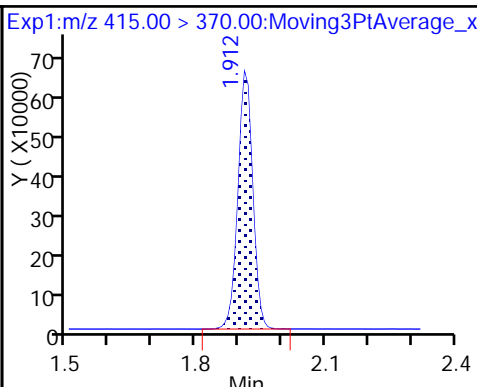
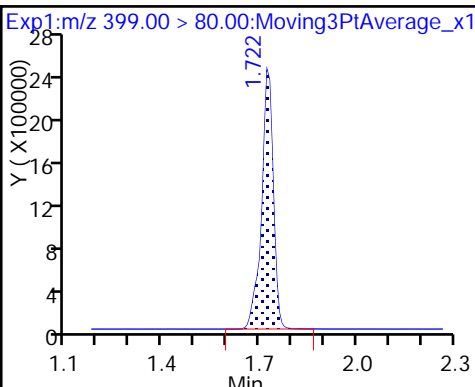
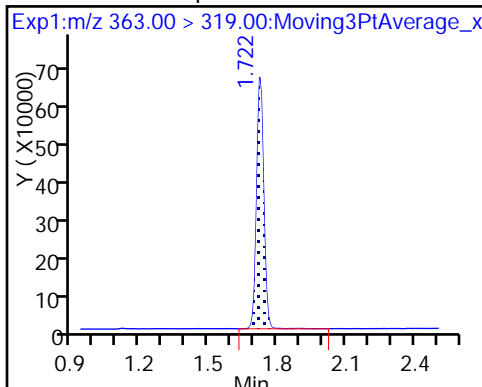
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

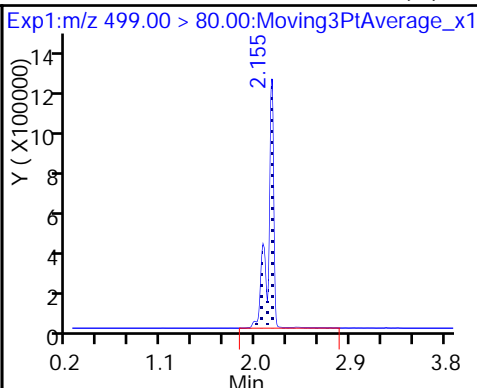
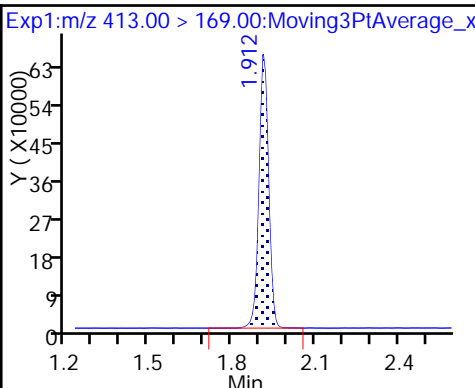
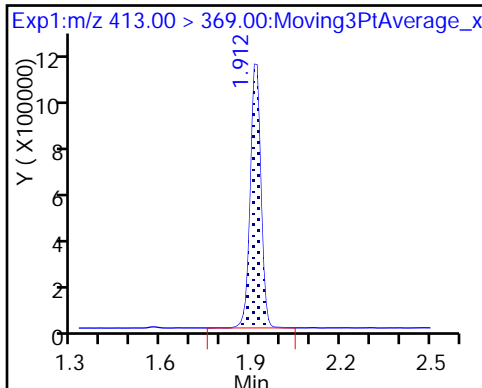
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

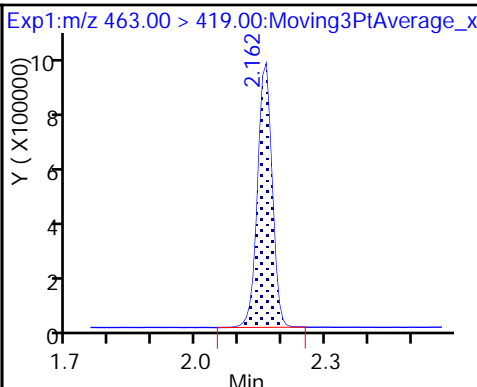
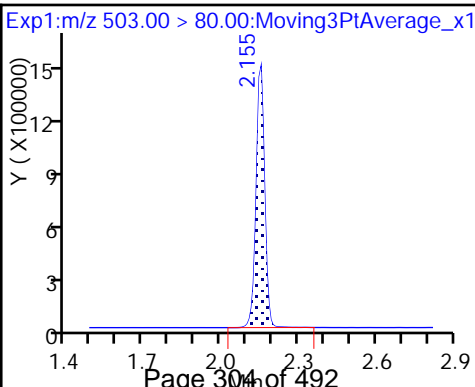
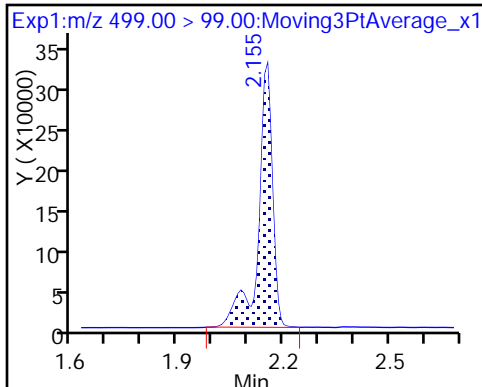
8 Perfluorooctane sulfonic acid (M)



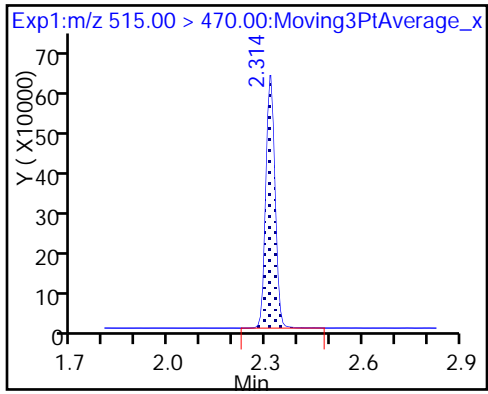
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

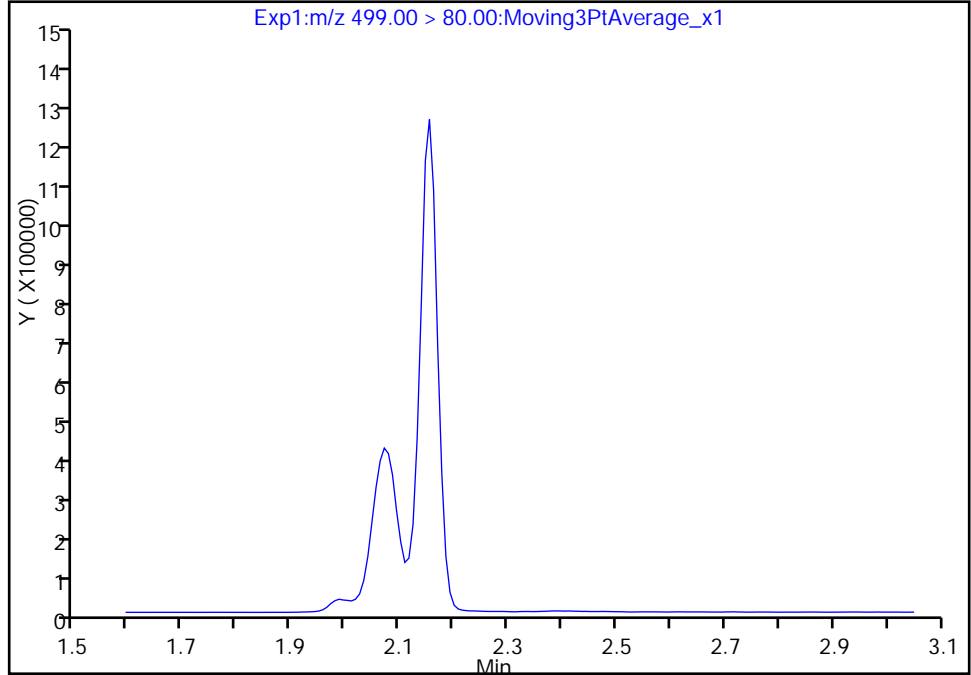
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 1

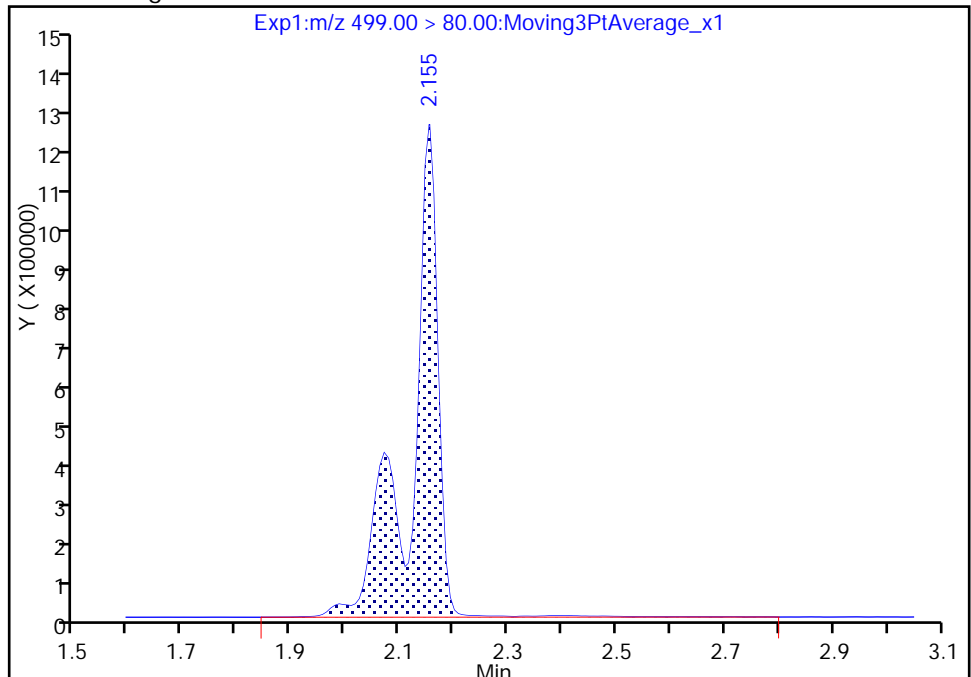
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

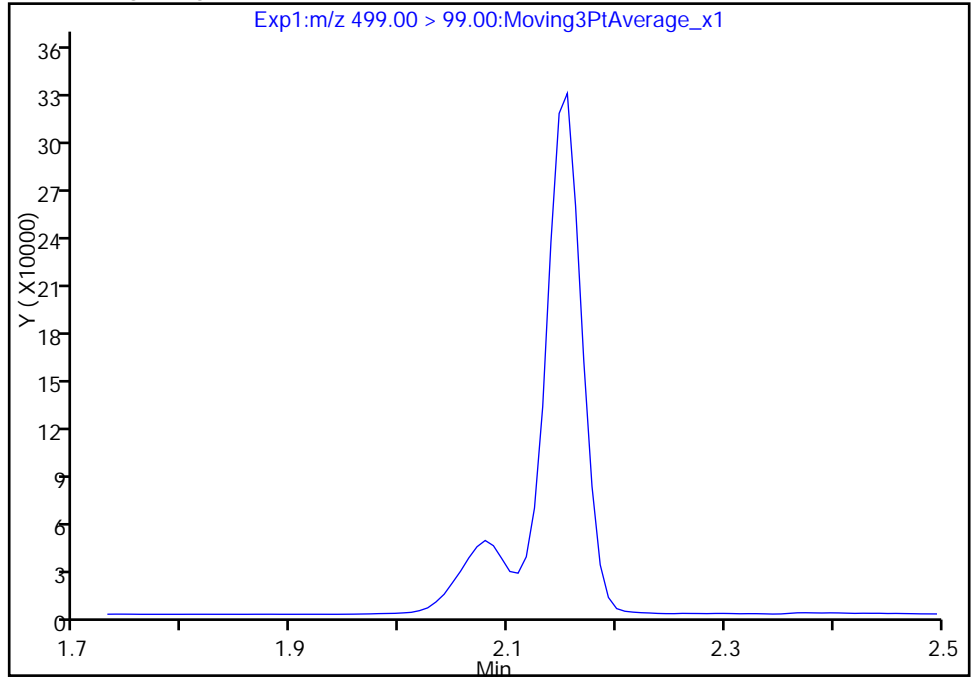
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 2

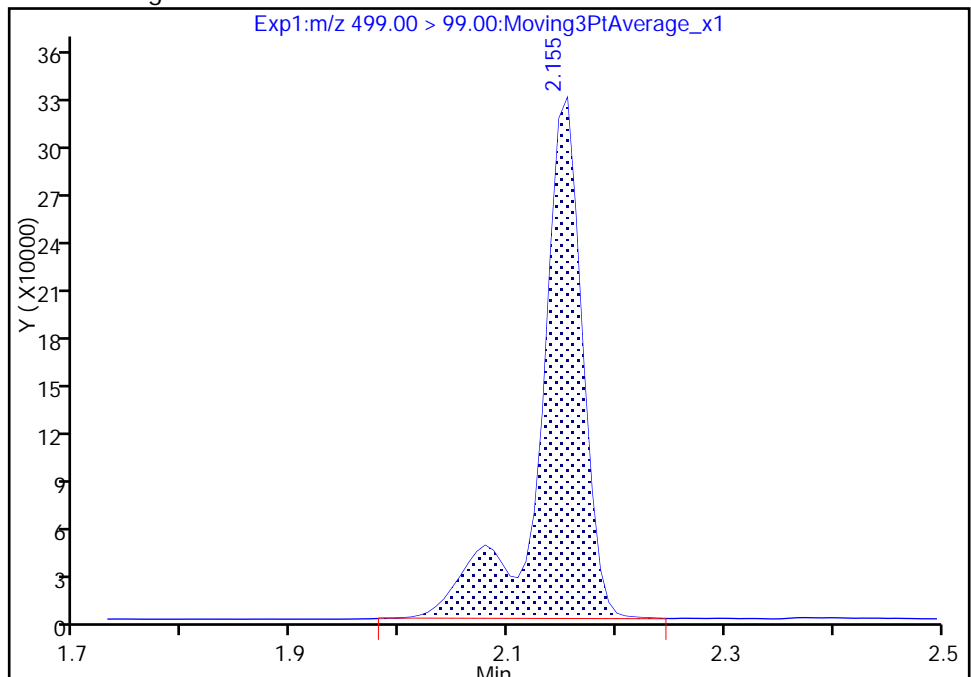
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

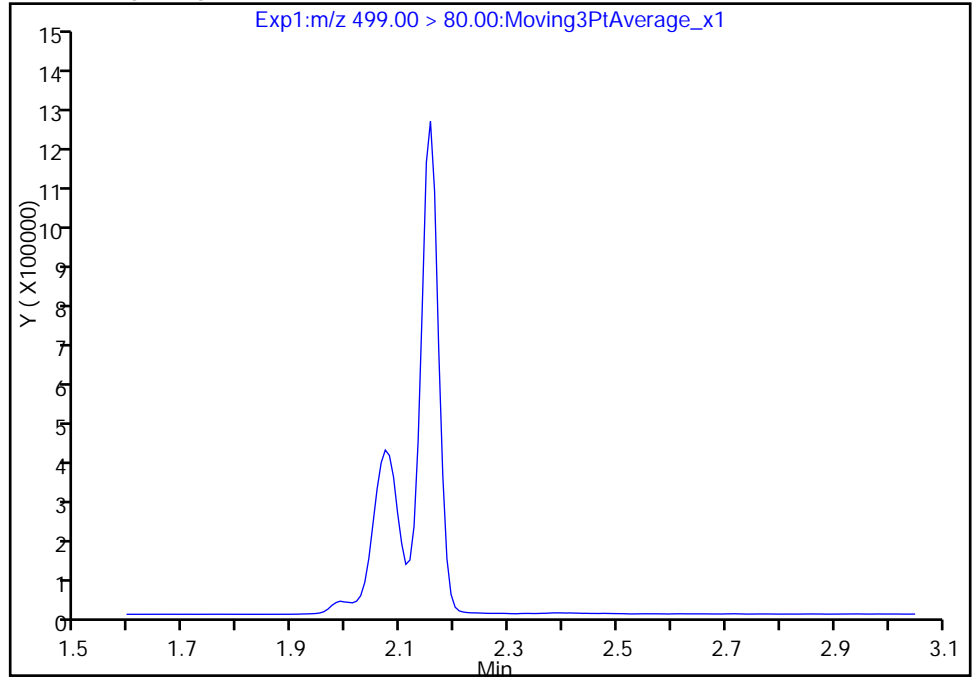
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N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

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

Signal: 1

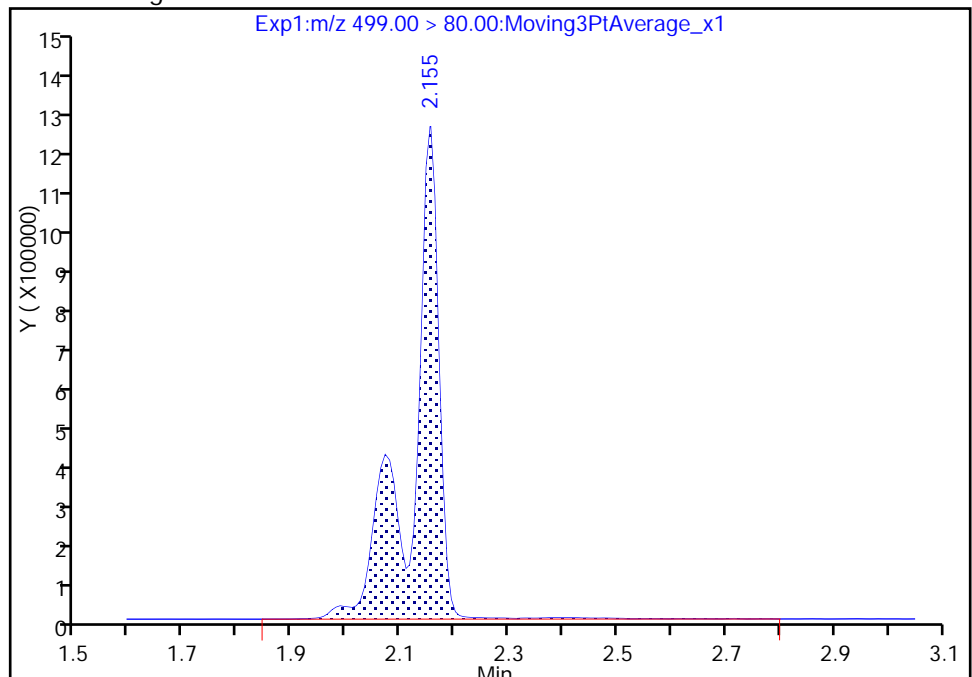
Not Detected  
Expected RT: 2.15

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

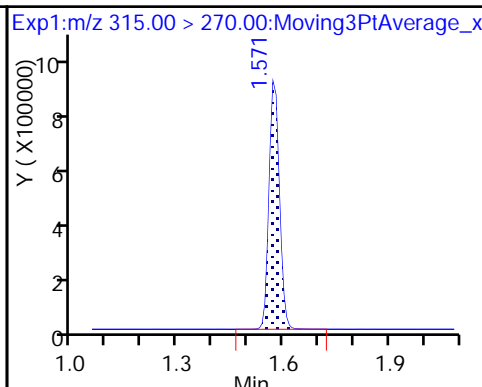
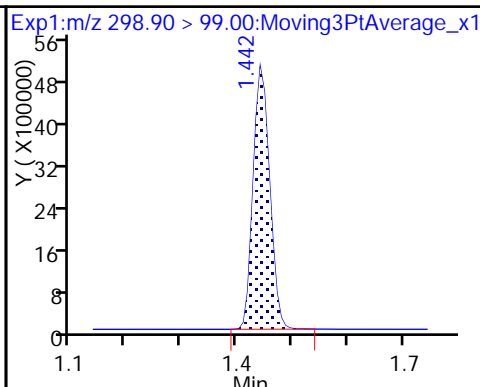
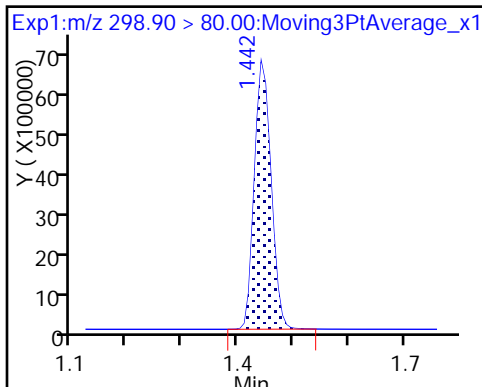
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

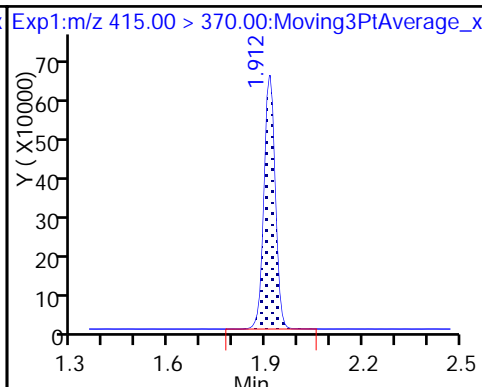
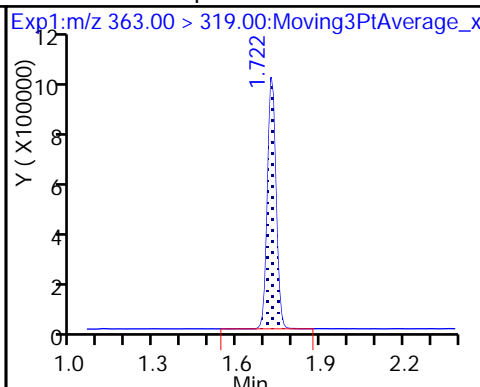
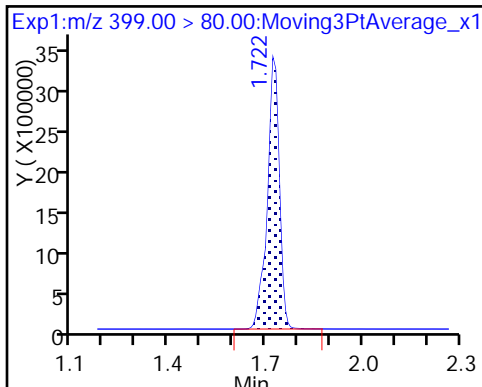
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

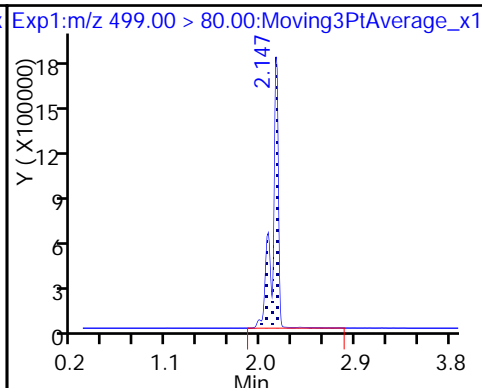
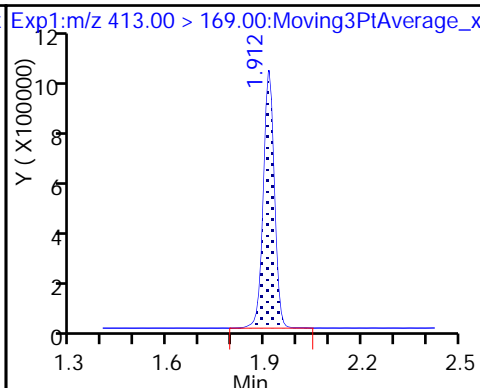
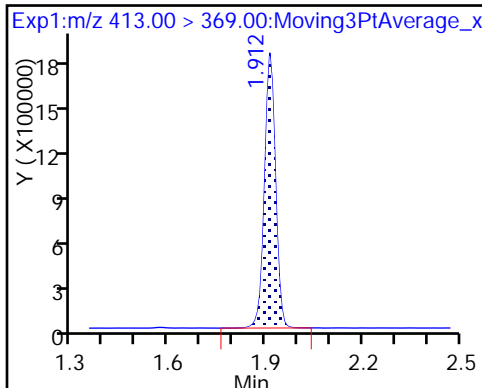
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

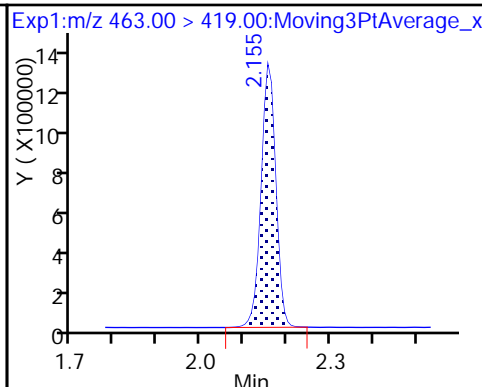
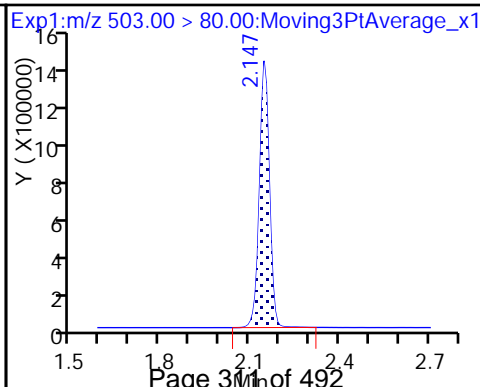
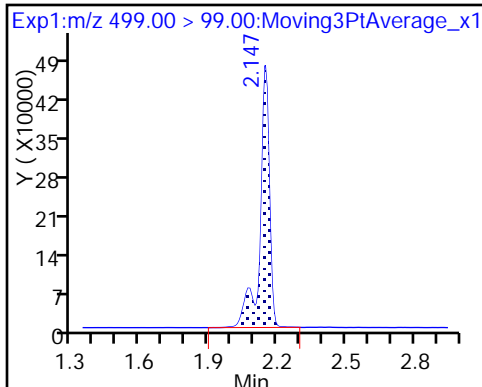
8 Perfluorooctane sulfonic acid



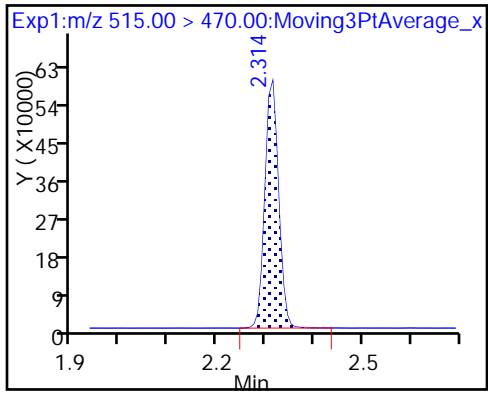
8 Perfluorooctane sulfonic acid

\* 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\_537XICAL\_009.d

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

Instrument ID: A8\_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

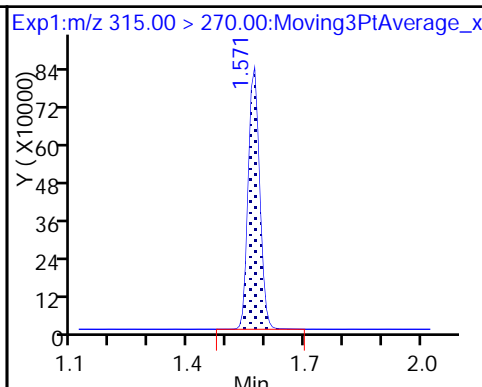
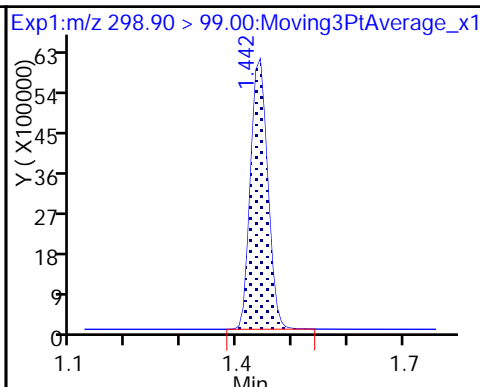
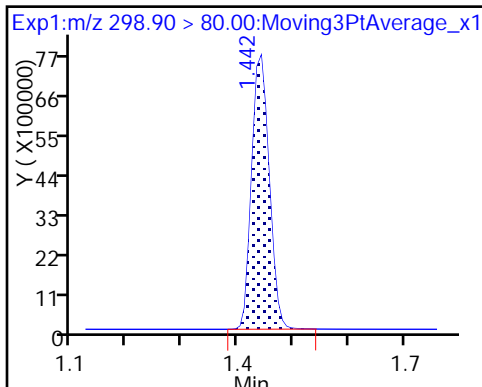
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

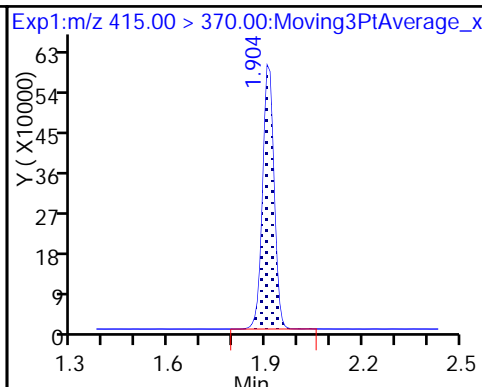
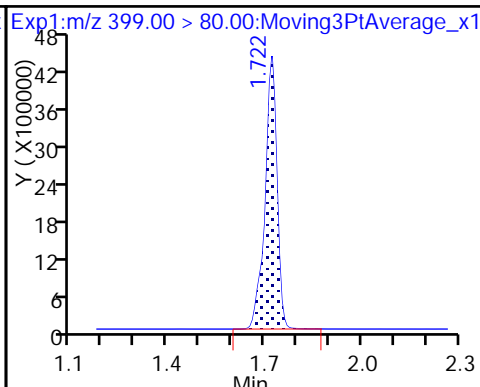
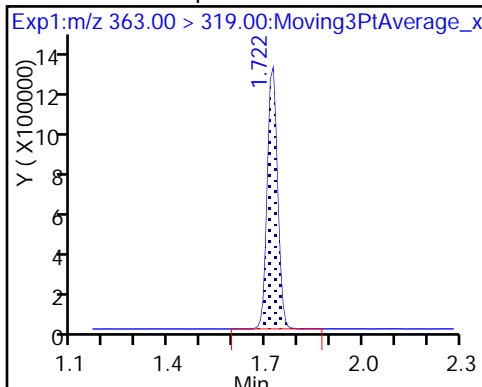
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

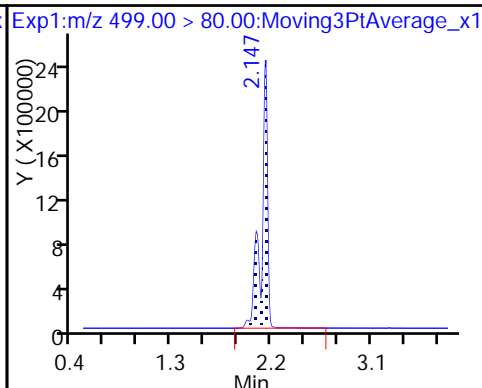
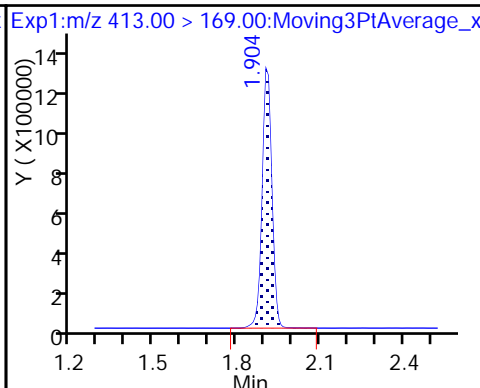
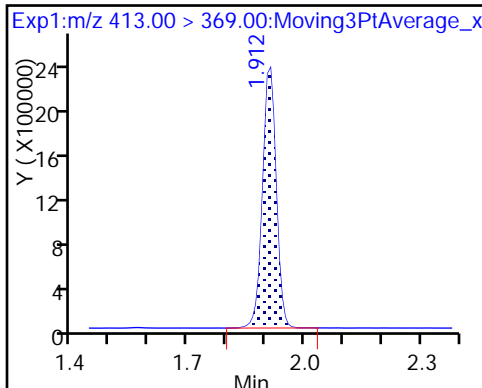
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

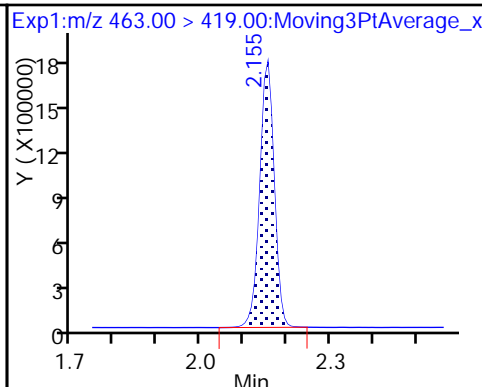
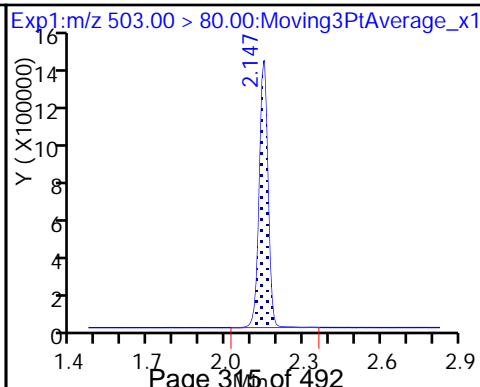
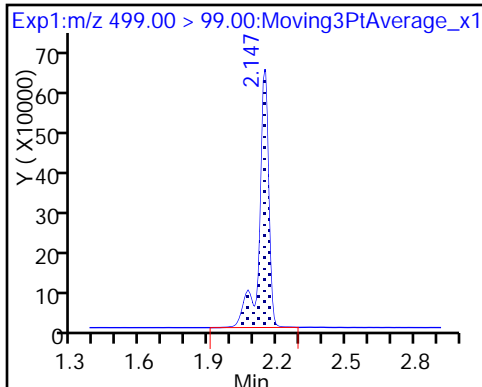
8 Perfluorooctane sulfonic acid



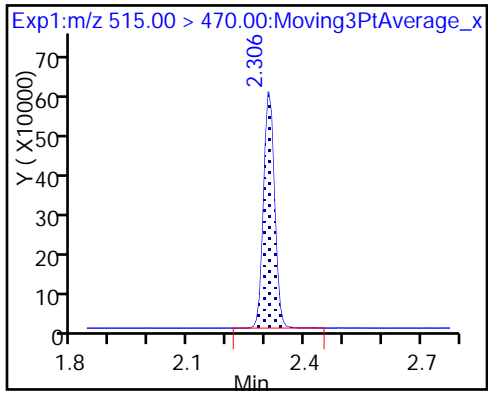
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 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

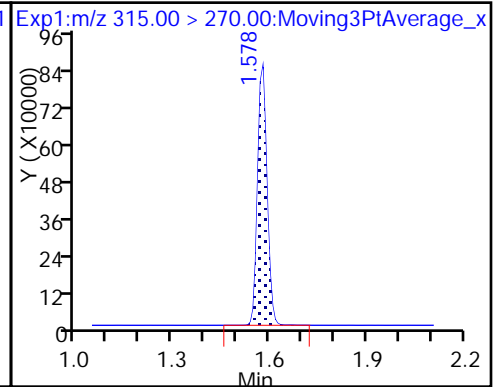
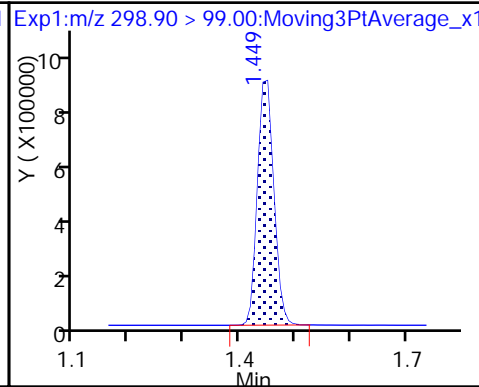
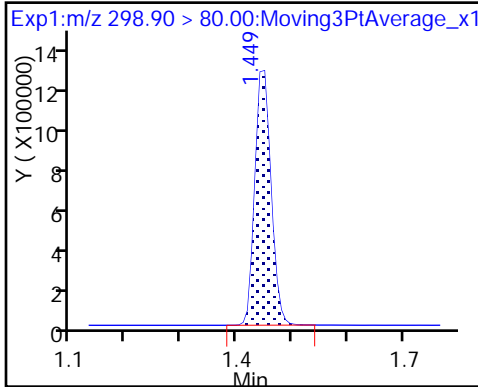
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

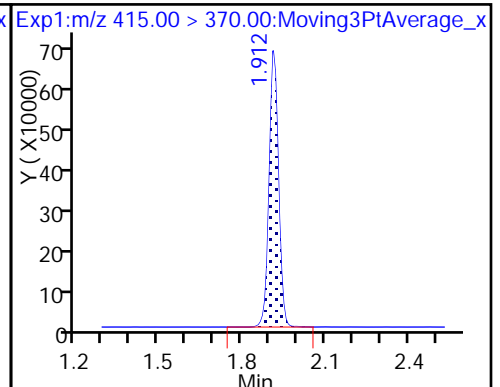
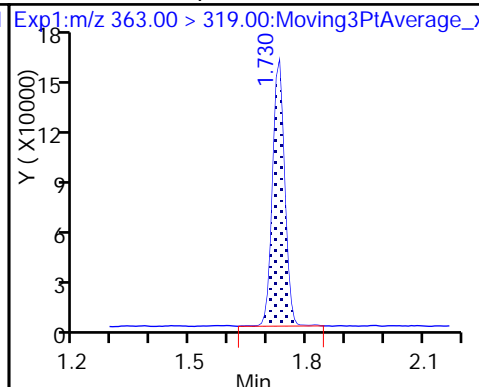
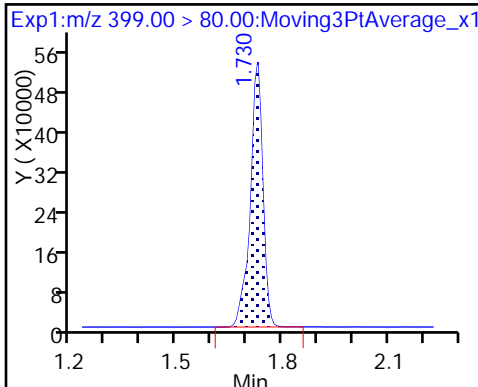
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

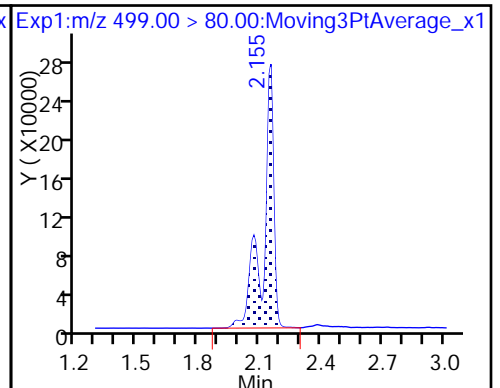
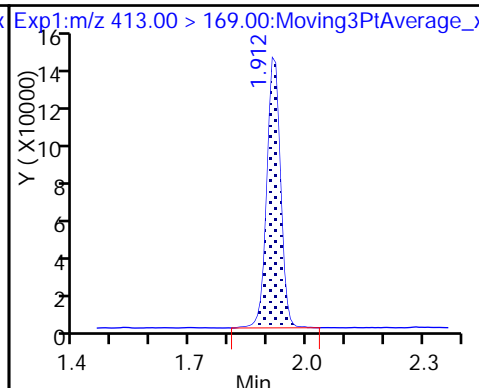
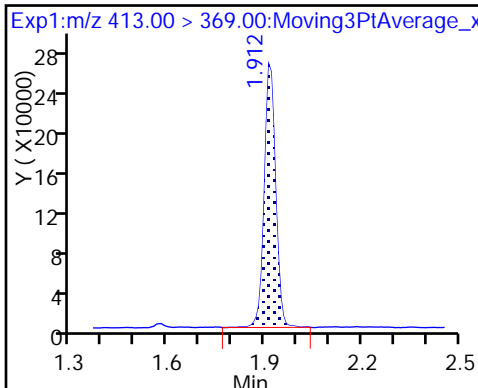
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

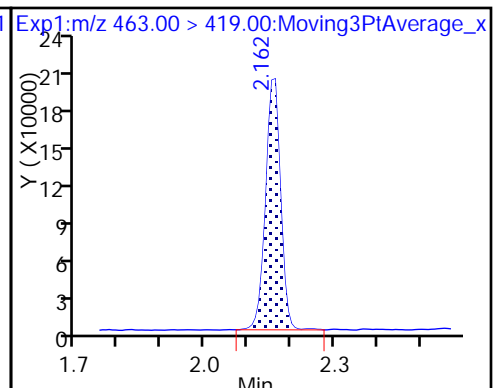
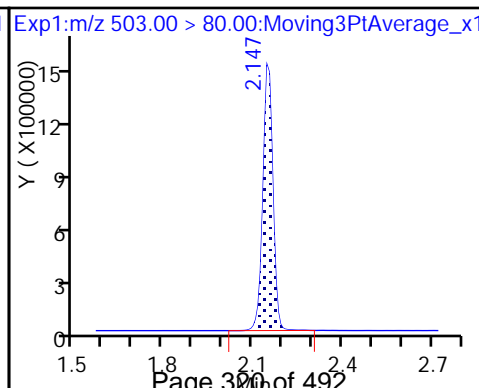
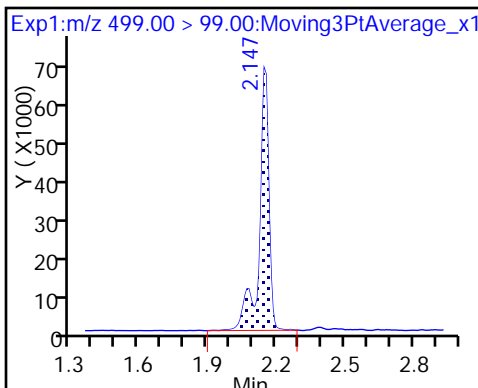
8 Perfluorooctane sulfonic acid



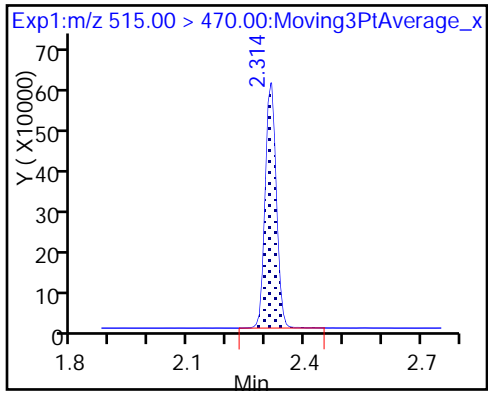
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 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

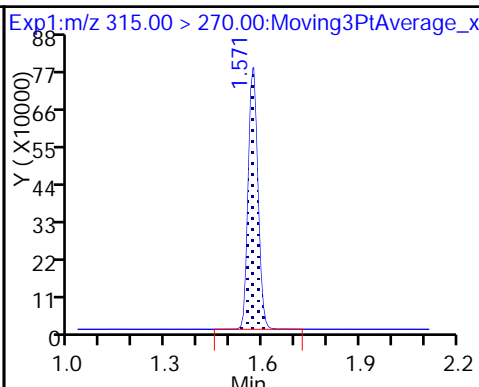
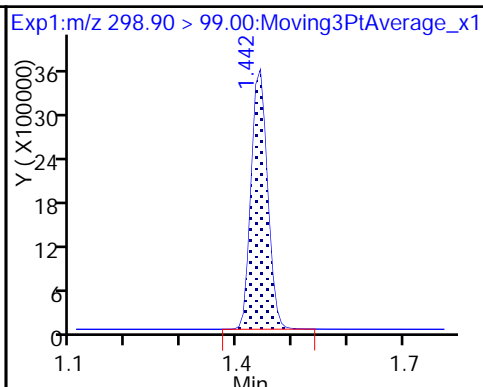
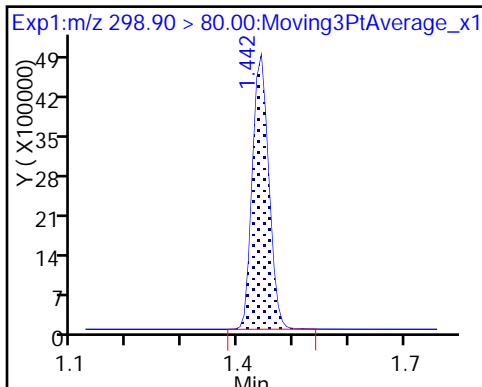
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

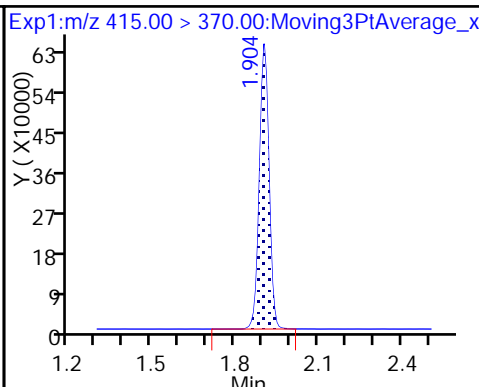
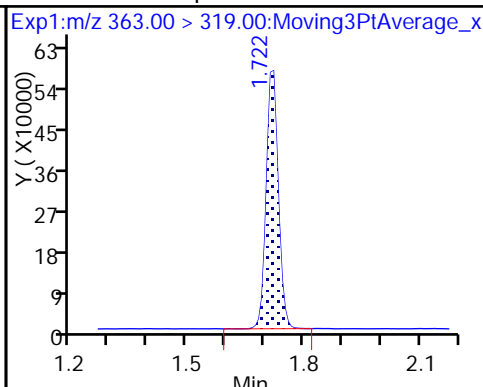
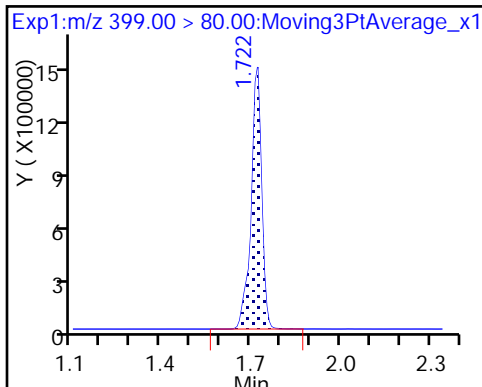
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

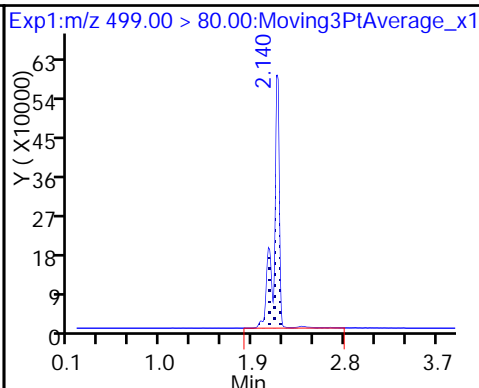
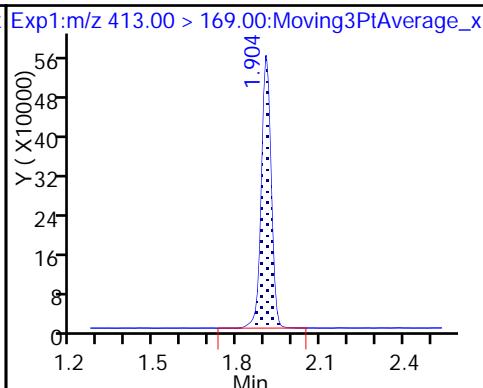
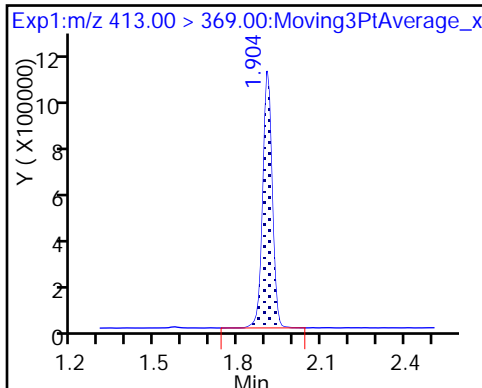
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

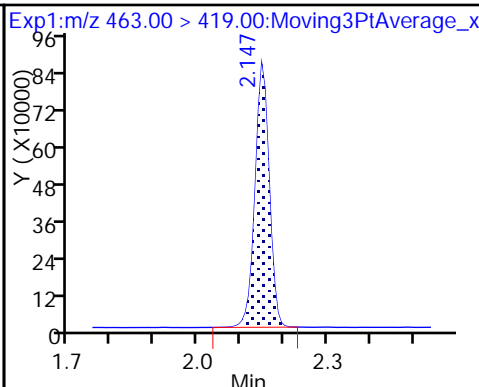
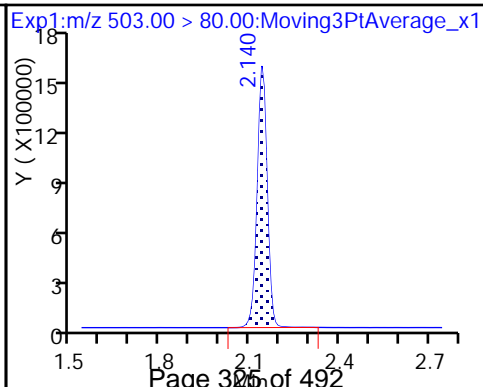
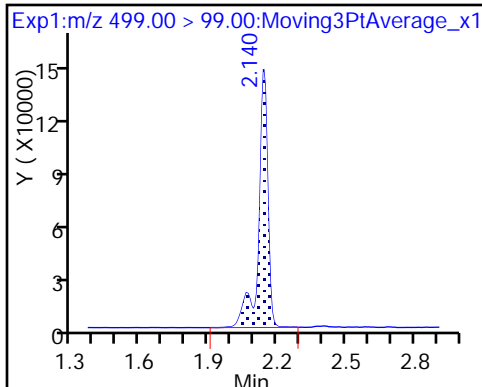
8 Perfluorooctane sulfonic acid



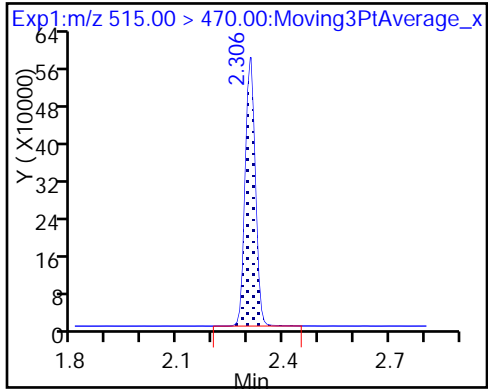
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-206761/1 Calibration Date: 02/02/2018 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: 2018.02.02\_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		1.107		20.3	20.0	1.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8361		1.98	2.22	-10.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.674		6.67	6.67	-0.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9188		4.41	4.45	-0.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9385		8.89	8.89	-0.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.5870		3.93	4.45	-11.6	50.0
13C2 PFHxA	Ave	1.100	0.9771		8.88	10.0	-11.2	30.0
13C2 PFDA	Ave	0.7652	0.7354		9.61	10.0	-3.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180202-53640.b\2018.02.02\_537A\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 02-Feb-2018 14:10:10 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\20180202-53640.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 05-Feb-2018 11:06:50 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: XAWRK004

First Level Reviewer: phomsophat Date: 02-Feb-2018 14:53:02

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	2524904	20.3		3981	
298.90 > 99.00	1.381	1.381	0.0	1.000	1803841		1.40(0.00-0.00)	3565	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.510	0.0	1.000	1617430	8.88		10816	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.662	0.0	1.000	1272250	6.67		2098	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.662	0.0	1.000	307633	1.98		107	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.866	0.0		1655390	10.0		9120	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.866	0.0	1.000	676544	4.41		150	
413.00 > 169.00	1.866	1.866	0.0	1.000	367458		1.84(0.00-0.00)	1388	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.124	0.0	1.000	951235	8.89		1136	a
499.00 > 99.00	2.124	2.124	0.0	1.000	205297		4.63(0.00-0.00)	788	a
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.124	0.0		3269547	28.7		8101	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.132	0.0	1.000	431982	3.93		140	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.284	0.0	1.000	1217329	9.61		8654	

## QC Flag Legend

Review Flags

a - User Assigned ID

## Reagents:

LC537-L2\_00020

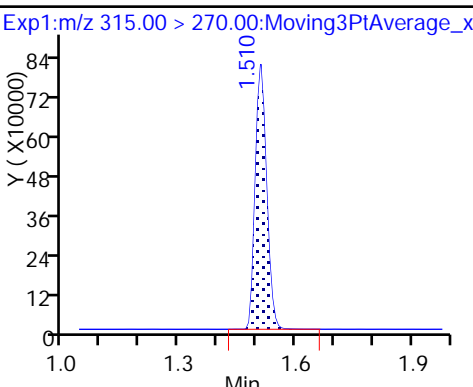
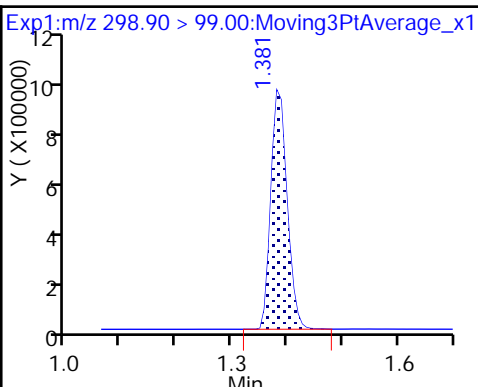
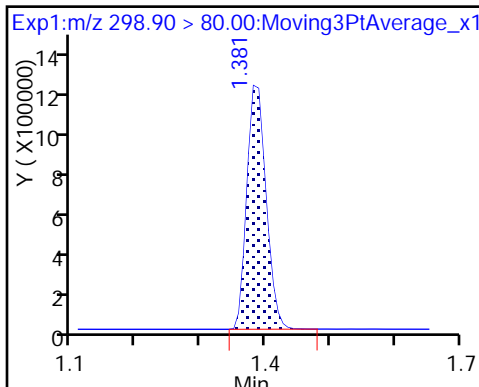
Amount Added: 1.00

Units: mL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

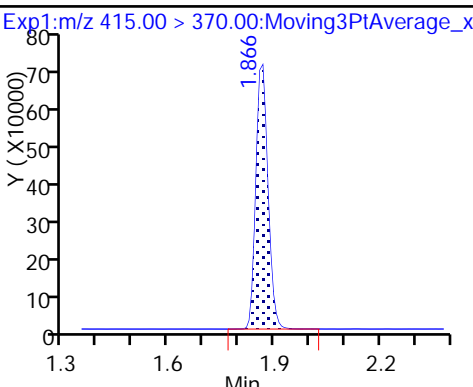
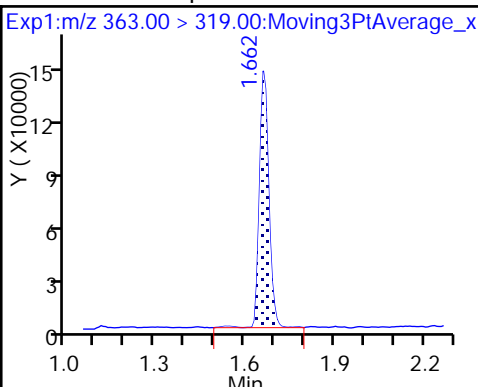
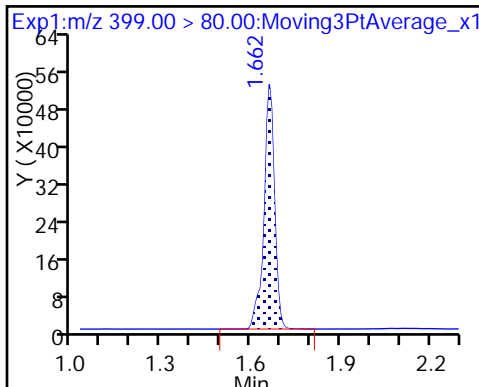
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

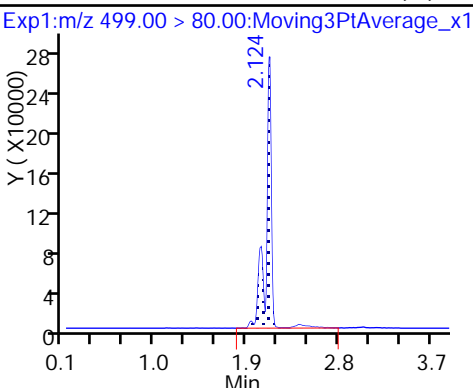
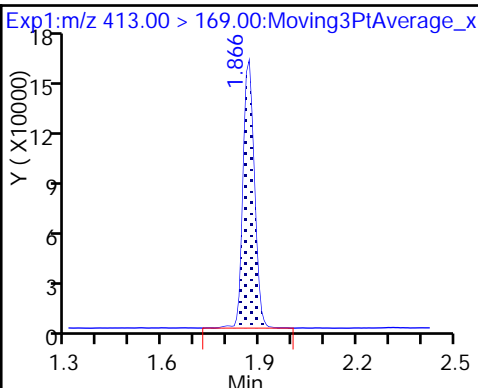
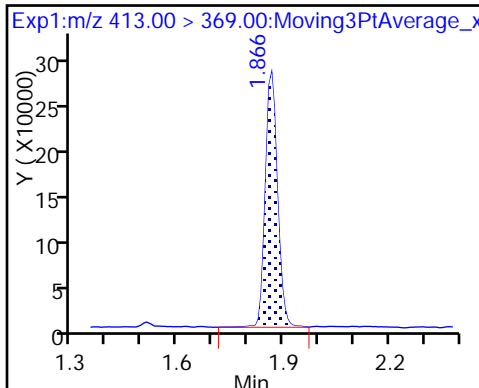
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

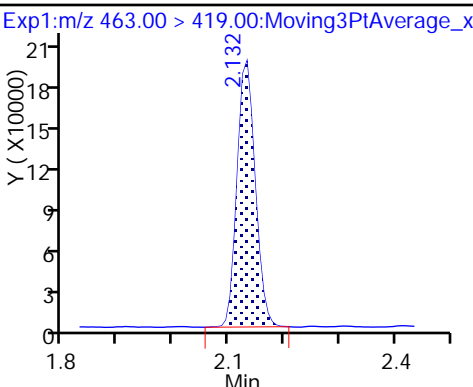
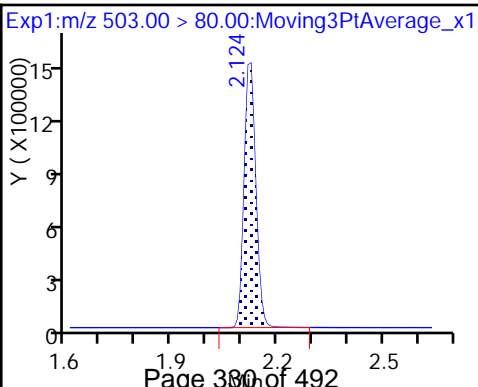
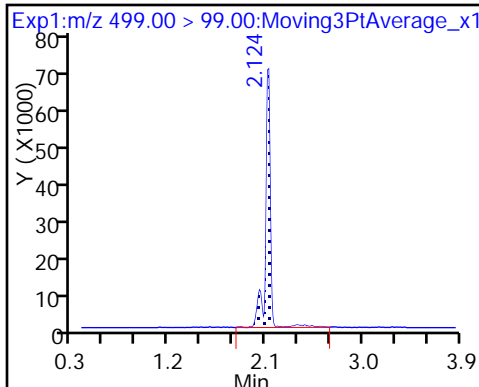
8 Perfluorooctane sulfonic acid (M)



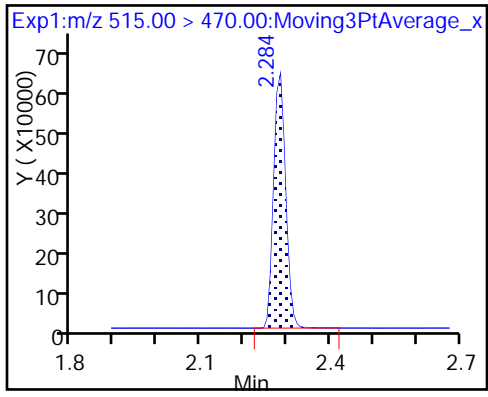
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

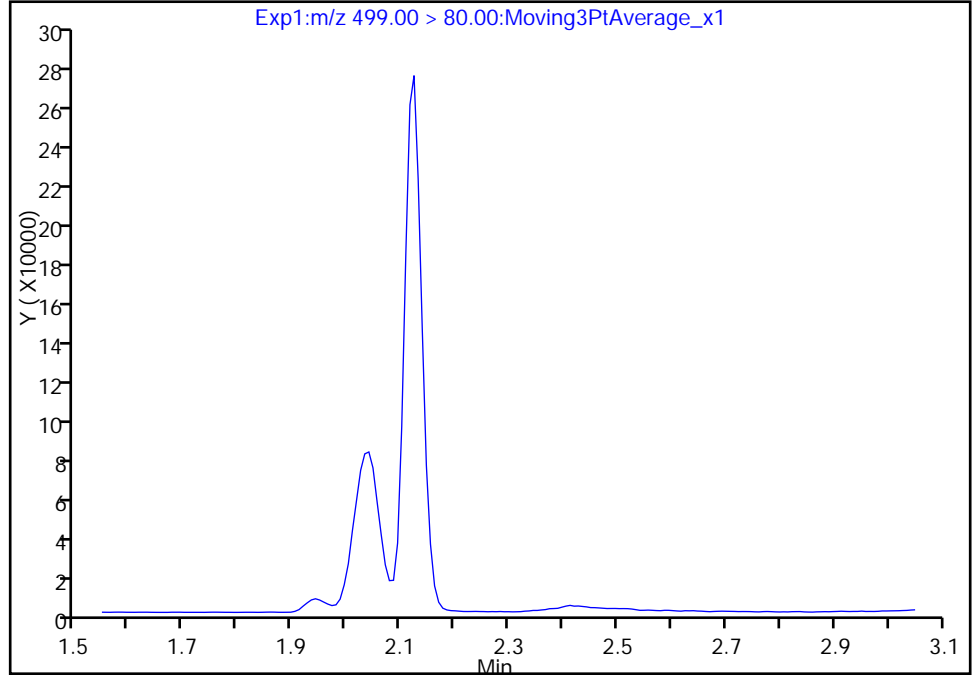
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180202-53640.b\2018.02.02\_537A\_004.d  
Injection Date: 02-Feb-2018 14:10:10 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

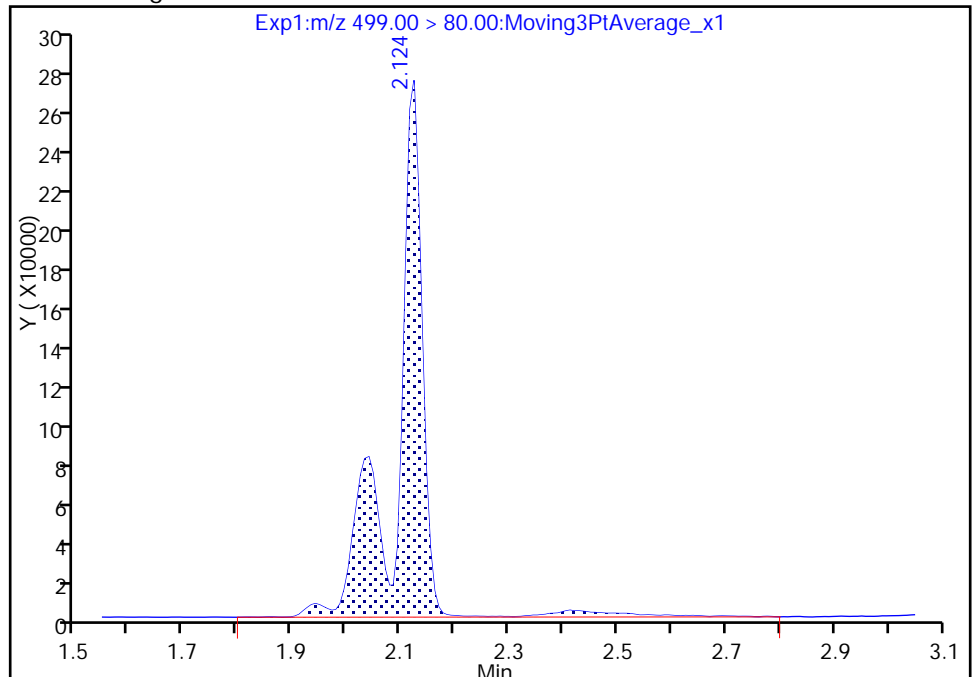
Not Detected  
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12  
Area: 951235  
Amount: 8.886639  
Amount Units: ng/ml



Reviewer: phomsophat, 02-Feb-2018 14:52:07

Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206870/1 Calibration Date: 02/02/2018 22:27  
 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: 2018.02.02\_537B\_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.056		45.2	45.0	0.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9280		4.95	5.00	-1.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.705		15.3	15.0	1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9021		9.75	10.0	-2.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9160		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6204		9.34	10.0	-6.6	30.0
13C2 PFHxA	Ave	1.100	1.103		10.0	10.0	0.2	30.0
13C2 PFDA	Ave	0.7652	0.7258		9.49	10.0	-5.1	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_001.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 02-Feb-2018 22:27:15 ALS Bottle#: 3 Worklist Smp#: 1  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:03:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	5265389	45.2		10462	
298.90 > 99.00	1.373	1.373	0.0	1.000	4076415		1.29(0.00-0.00)	8488	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1640337	10.0		8792	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2833430	15.3		6061	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	690445	4.95		247	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1487657	10.0		6736	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	1343085	9.75		317	
413.00 > 169.00	1.813	1.813	0.0	1.000	685172		1.96(0.00-0.00)	2287	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		3177197	28.7		6765	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.056	0.008	1.000	2030092	19.5		1228	Ma M
499.00 > 99.00	2.064	2.056	0.008	1.000	424095		4.79(0.00-0.00)	1020	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.079	0.0	1.000	923108	9.34		303	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1079760	9.49		7956	



### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L3\_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_001.d

Injection Date: 02-Feb-2018 22:27:15

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

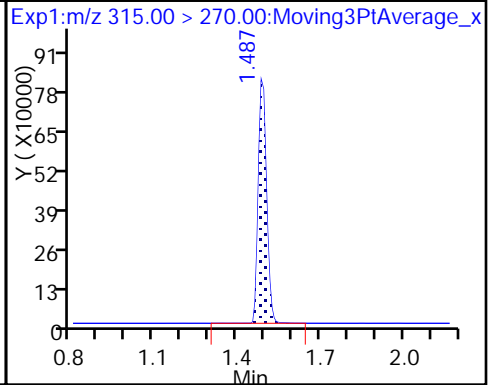
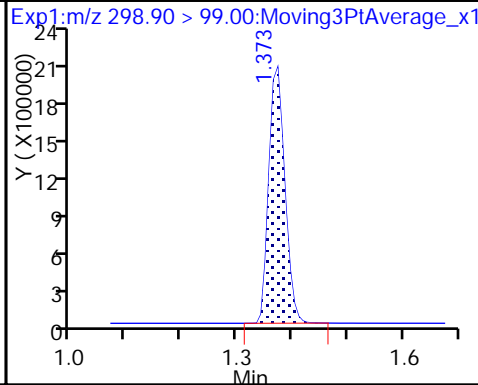
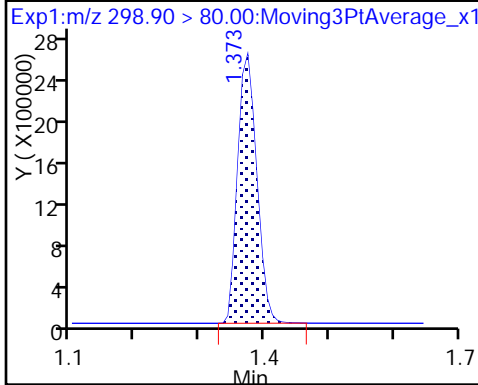
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

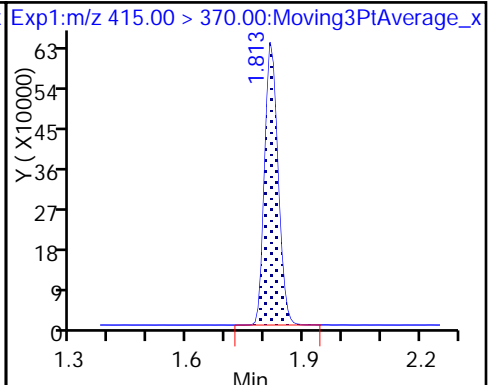
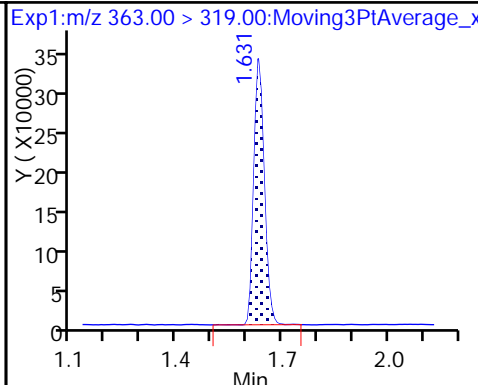
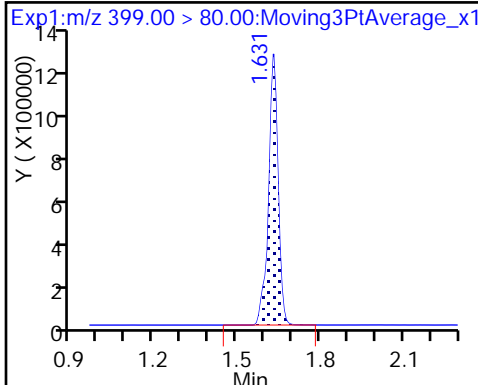
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

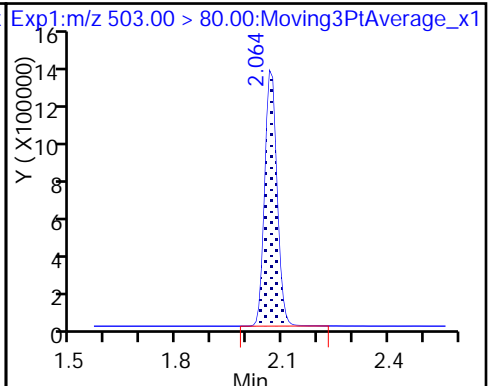
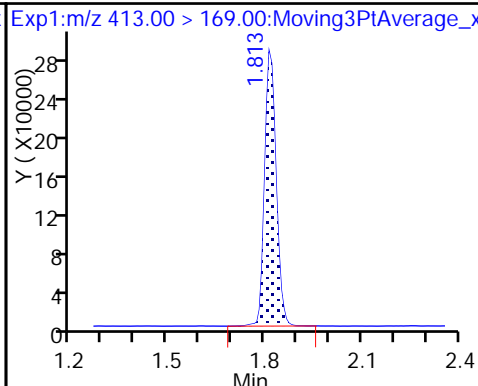
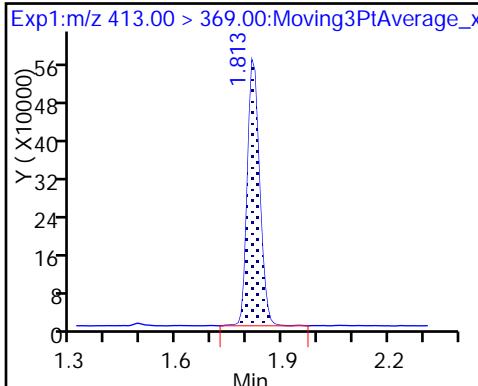
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

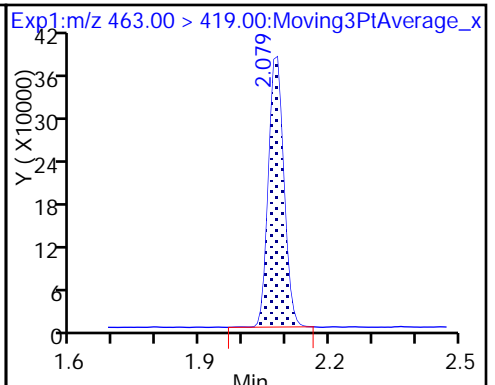
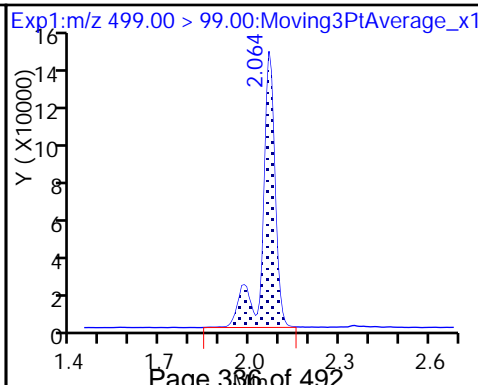
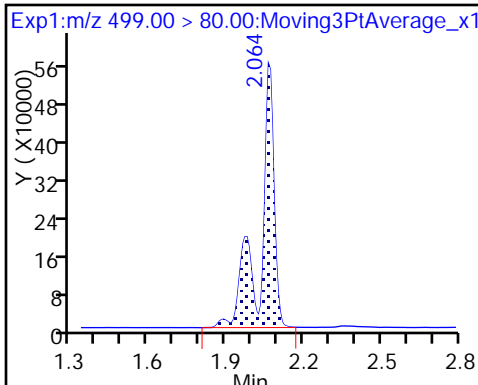
\* 7 13C4 PFOS



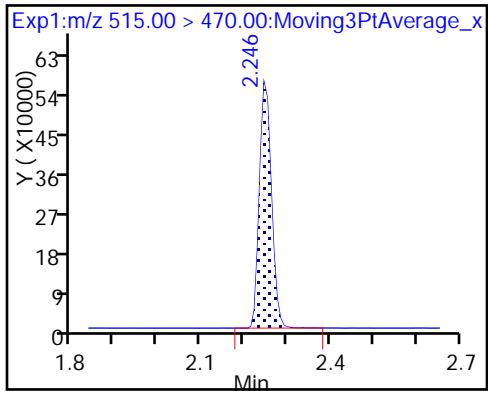
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

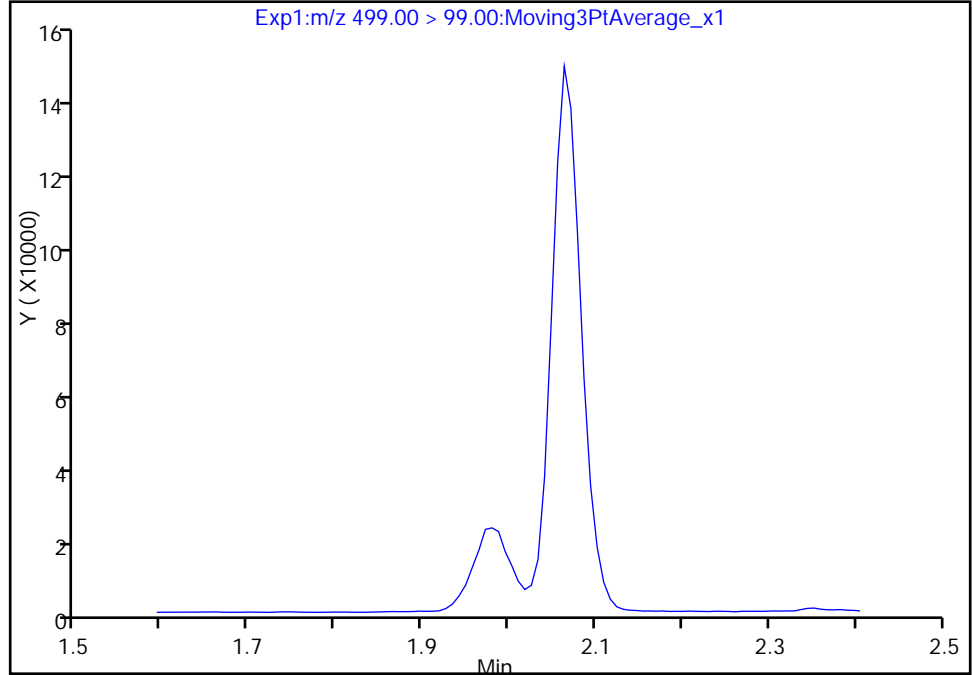
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_001.d  
Injection Date: 02-Feb-2018 22:27:15 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

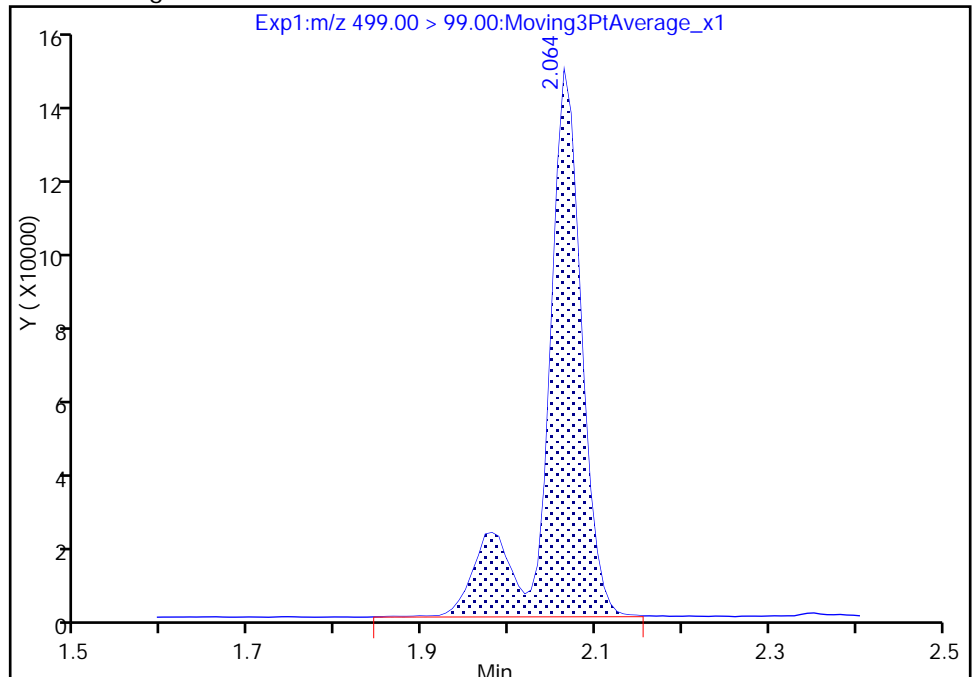
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 424095  
Amount: 19.516811  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:03:48  
Audit Action: Manually Integrated

TestAmerica Sacramento

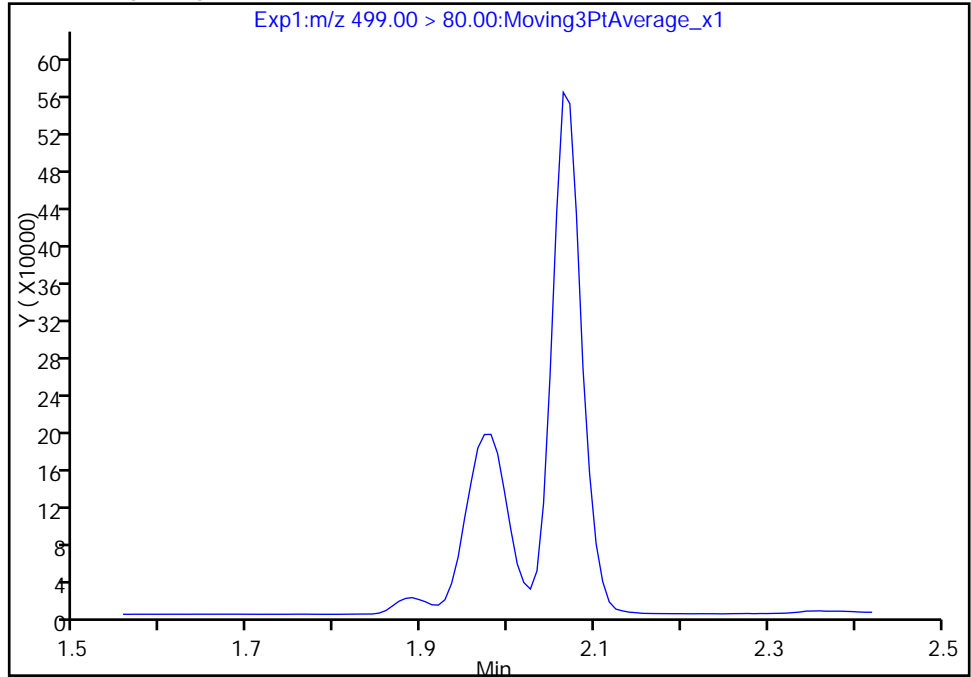
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_001.d  
Injection Date: 02-Feb-2018 22:27:15 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

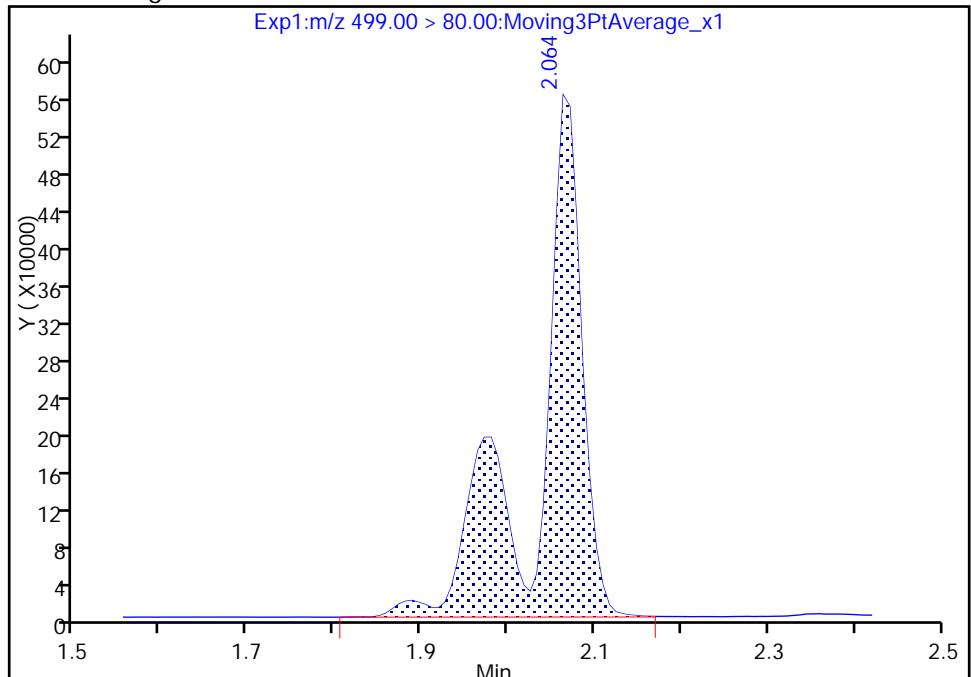
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 2030092  
Amount: 19.516811  
Amount Units: ng/ml

Manual Integration Results



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206870/13 Calibration Date: 02/02/2018 23:23  
 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: 2018.02.02\_537B\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9760		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9520		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.748		47.0	45.0	4.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9211		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9665		61.8	60.0	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6537		29.5	30.0	-1.6	30.0
13C2 PFHxA	Ave	1.100	1.154		10.5	10.0	4.8	30.0
13C2 PFDA	Ave	0.7652	0.7851		10.3	10.0	2.6	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206872/13 Calibration Date: 02/02/2018 23:23  
 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: 2018.02.02\_537B\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9760		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9520		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.748		47.0	45.0	4.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9211		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9665		61.8	60.0	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6537		29.5	30.0	-1.6	30.0
13C2 PFHxA	Ave	1.100	1.154		10.5	10.0	4.8	30.0
13C2 PFDA	Ave	0.7652	0.7851		10.3	10.0	2.6	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 02-Feb-2018 23:23:23 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\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:05:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	14079434	146.4		17675	
298.90 > 99.00	1.366	1.366	0.0	1.000	10630167		1.32(0.00-0.00)	15146	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1620089	10.5		8285	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	8406250	47.0		12309	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2005852	15.2		696	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1404353	10.0		7167	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	3883988	29.9		880	
413.00 > 169.00	1.806	1.806	0.0	1.000	2128059		1.83(0.00-0.00)	7079	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6197552	61.8		2840	Ma
499.00 > 99.00	2.048	2.056	-0.008	0.996	1303836		4.75(0.00-0.00)	2709	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3064489	28.7		7356	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	2754697	29.5		755	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1102591	10.3		7008	



### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L5\_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 02-Feb-2018 23:23:23 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\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:39 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:05:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	14079434	146.4		17675	
298.90 > 99.00	1.366	1.366	0.0	1.000	10630167		1.32(0.00-0.00)	15146	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1620089	10.5		8285	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	8406250	47.0		12309	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2005852	15.2		696	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1404353	10.0		7167	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	3883988	29.9		880	
413.00 > 169.00	1.806	1.806	0.0	1.000	2128059		1.83(0.00-0.00)	7079	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6197552	61.8		2840	Ma
499.00 > 99.00	2.048	2.056	-0.008	0.996	1303836		4.75(0.00-0.00)	2709	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3064489	28.7		7356	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	2754697	29.5		755	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1102591	10.3		7008	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L5\_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d

Injection Date: 02-Feb-2018 23:23:23

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

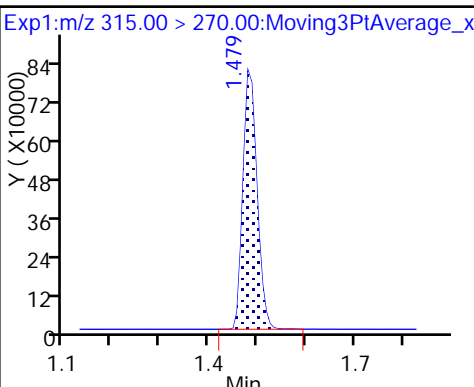
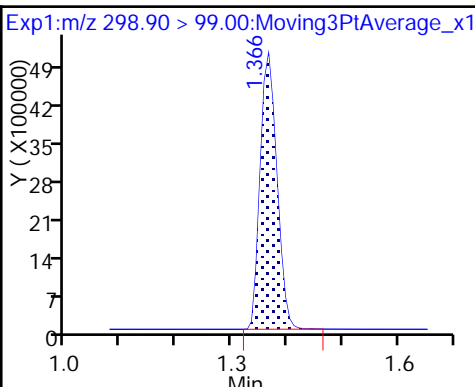
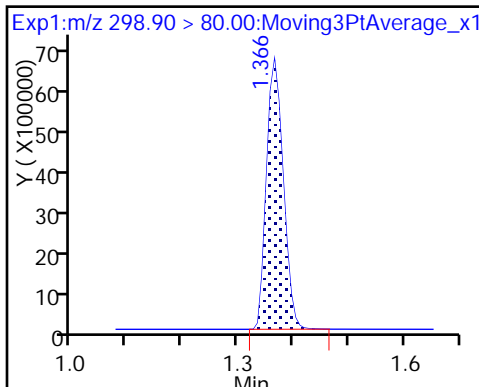
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

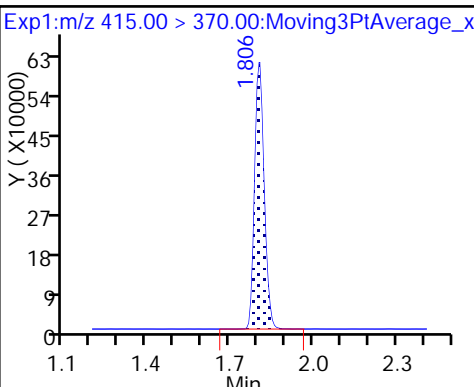
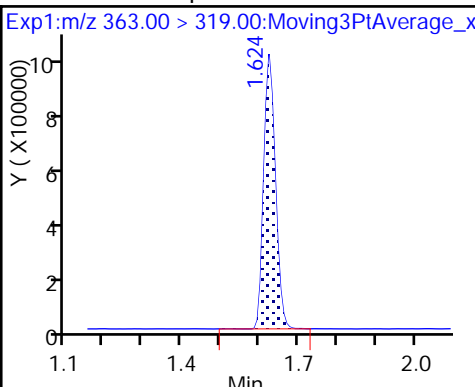
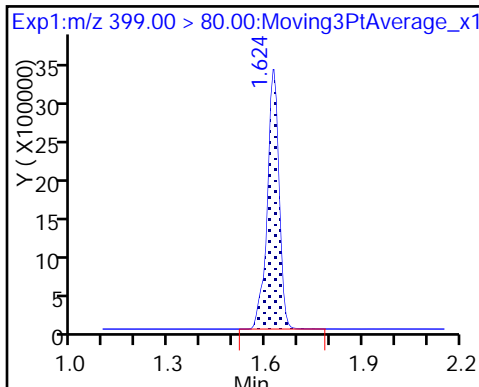
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

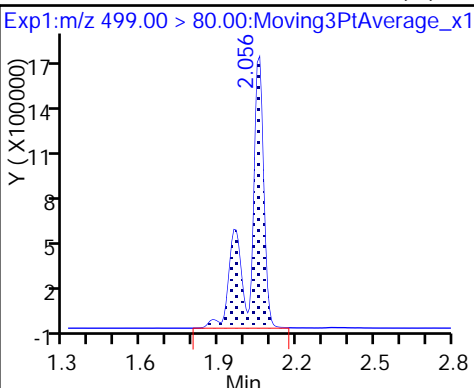
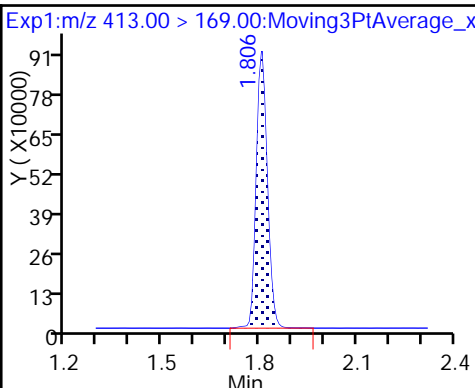
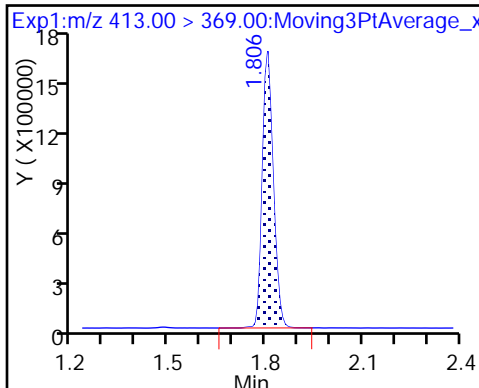
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

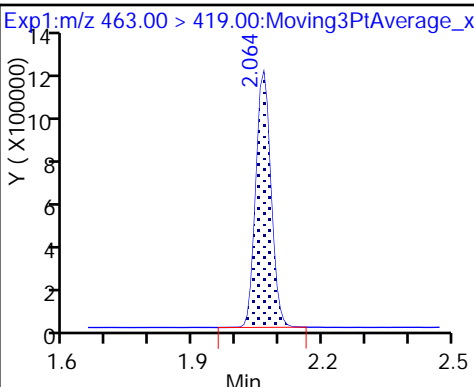
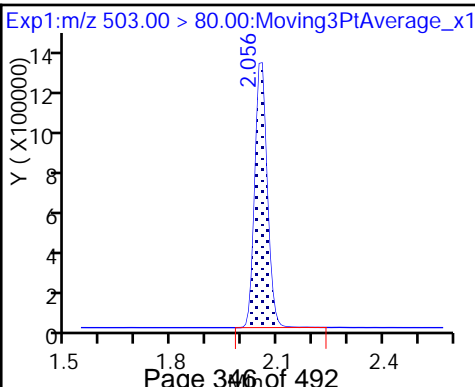
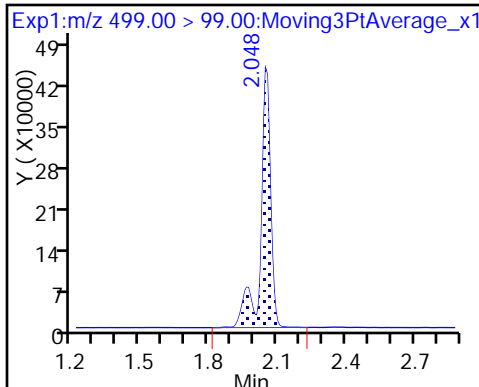
8 Perfluorooctane sulfonic acid (M)



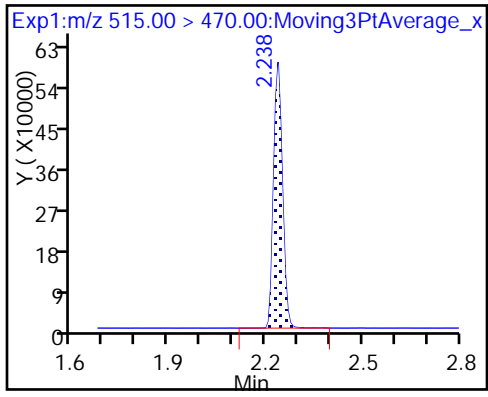
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d

Injection Date: 02-Feb-2018 23:23:23

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

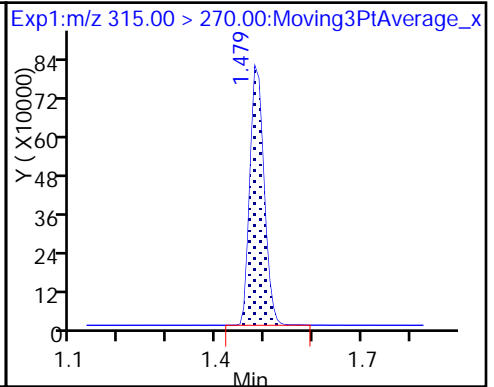
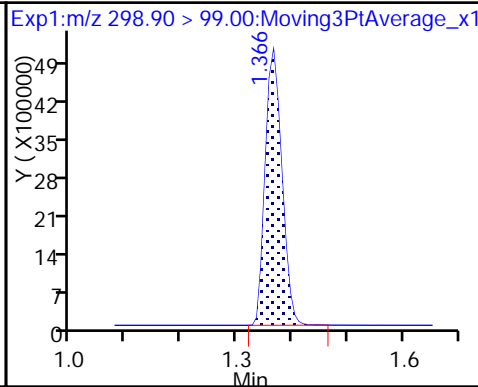
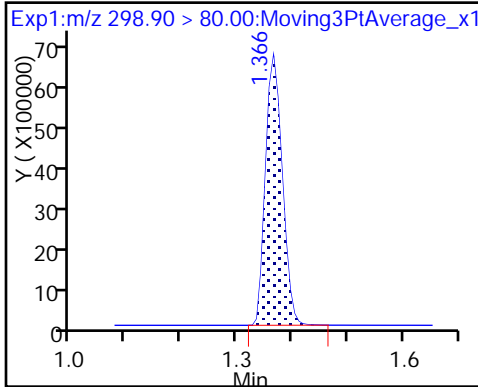
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

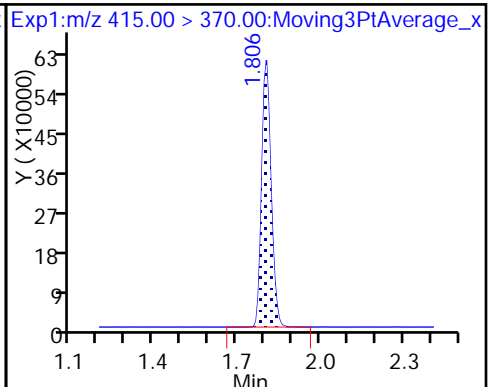
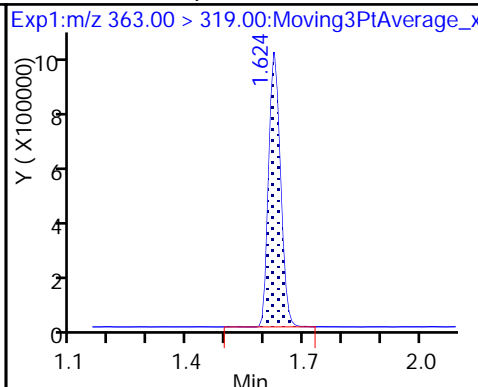
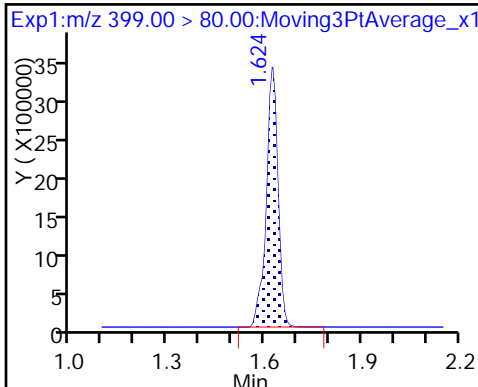
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

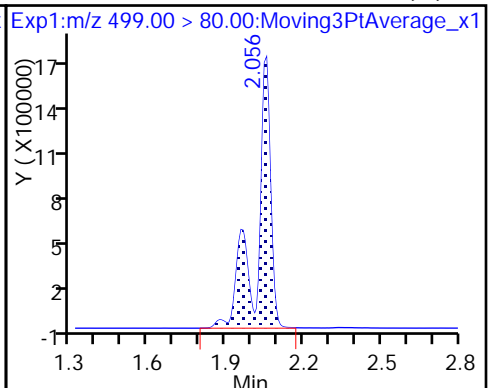
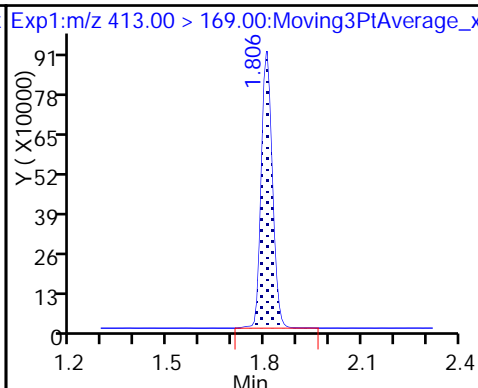
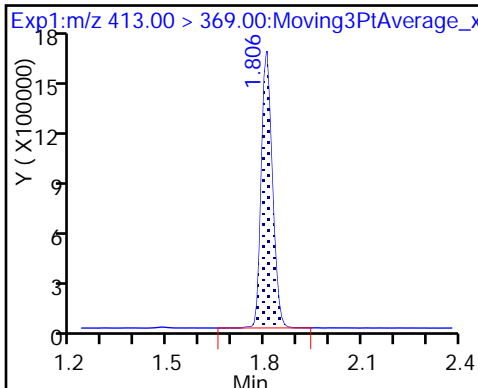
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

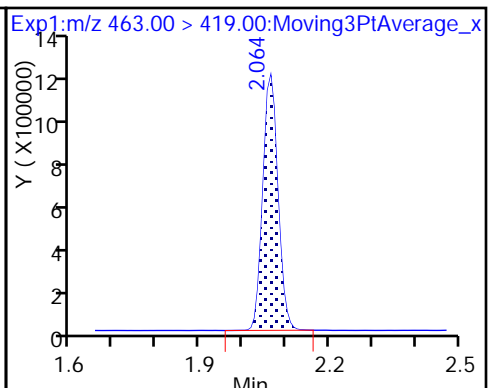
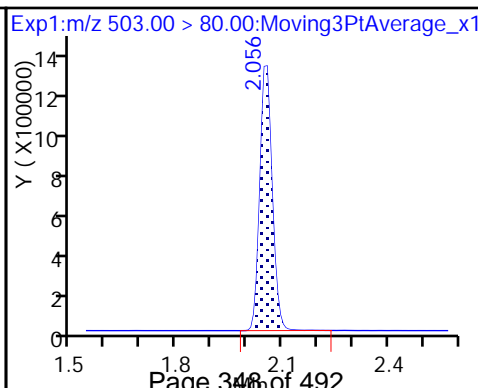
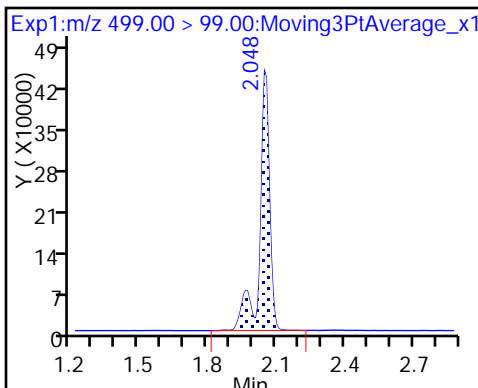
8 Perfluorooctane sulfonic acid (M)



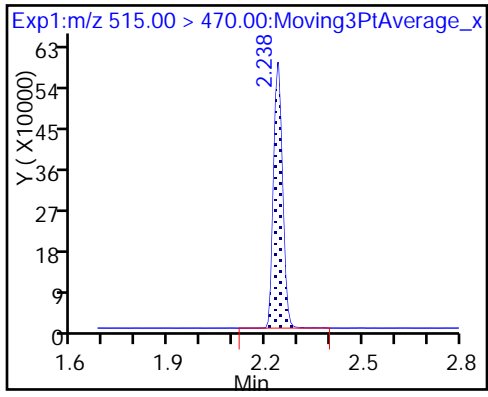
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

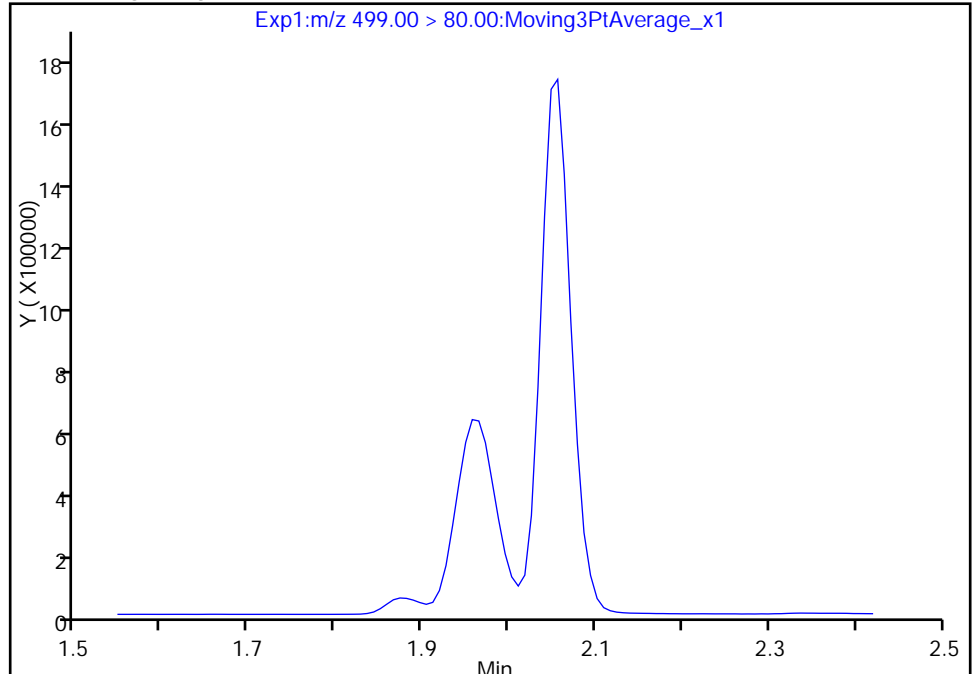
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d  
Injection Date: 02-Feb-2018 23:23:23 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

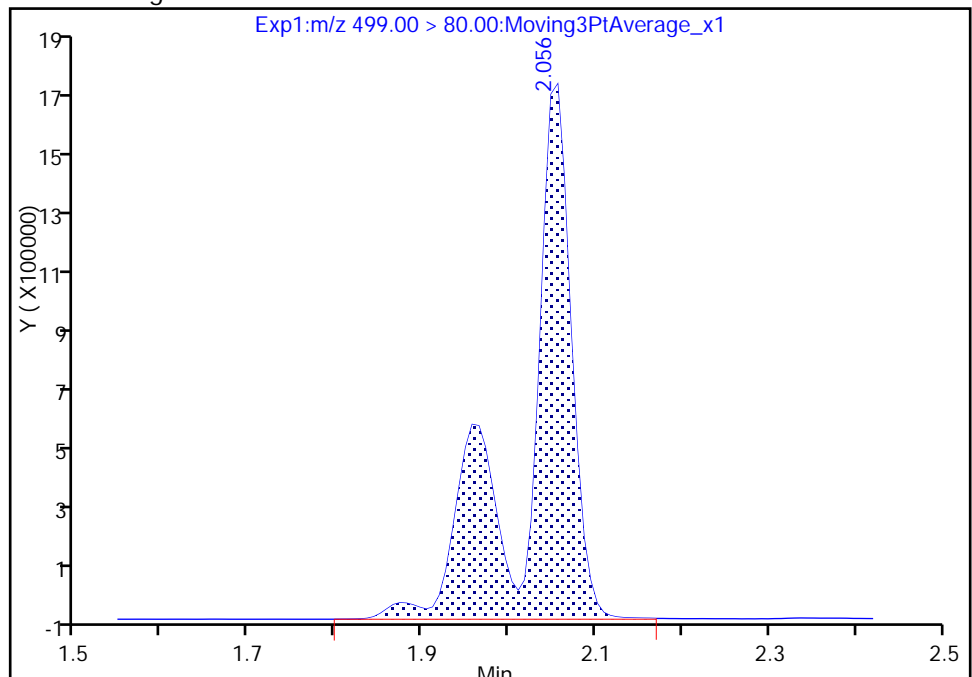
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 6197552  
Amount: 61.773100  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:05:04  
Audit Action: Manually Integrated



TestAmerica Sacramento

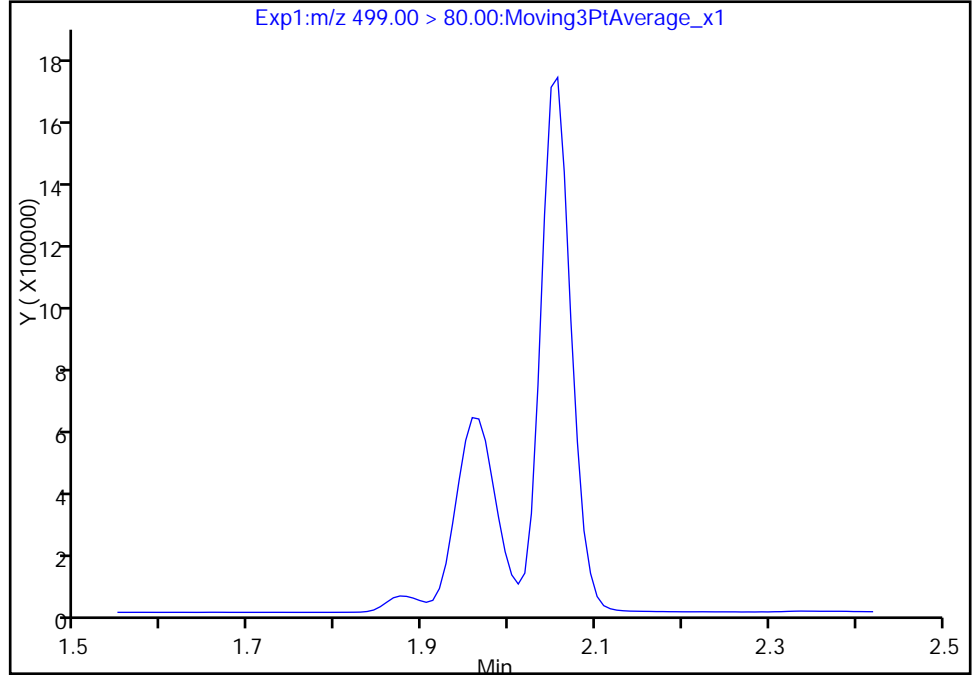
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_013.d  
Injection Date: 02-Feb-2018 23:23:23 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

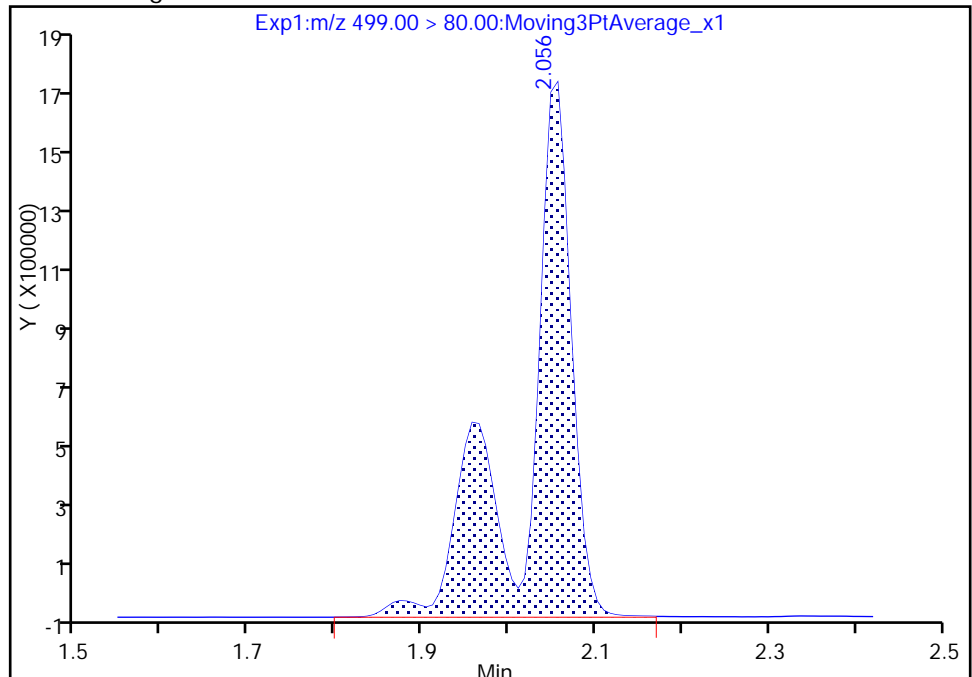
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 6197552  
Amount: 61.773100  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:05:04  
Audit Action: Manually Integrated

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206872/25 Calibration Date: 02/03/2018 00:19  
 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: 2018.02.02\_537B\_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.064		45.6	45.0	1.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9112		4.86	5.00	-2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.742		15.6	15.0	4.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8787		9.50	10.0	-5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8963		19.1	20.0	-4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6296		9.48	10.0	-5.2	30.0
13C2 PFHxA	Ave	1.100	1.127		10.2	10.0	2.5	30.0
13C2 PFDA	Ave	0.7652	0.7513		9.82	10.0	-1.8	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206874/25 Calibration Date: 02/03/2018 00:19  
 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: 2018.02.02\_537B\_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.064		45.6	45.0	1.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9112		4.86	5.00	-2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.742		15.6	15.0	4.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8787		9.50	10.0	-5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8963		19.1	20.0	-4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6296		9.48	10.0	-5.2	30.0
13C2 PFHxA	Ave	1.100	1.127		10.2	10.0	2.5	30.0
13C2 PFDA	Ave	0.7652	0.7513		9.82	10.0	-1.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 03-Feb-2018 00:19:32 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\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:05:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5302805	45.6		10918	
298.90 > 99.00	1.366	1.366	0.0	1.000	3992581		1.33(0.00-0.00)	8232	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1660413	10.2		7785	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2895071	15.6		6327	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	671152	4.86		229	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1472845	10.0		6710	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1295238	9.50		317	
413.00 > 169.00	1.806	1.806	0.0	1.000	718020		1.80(0.00-0.00)	2584	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	1985924	19.1		1221	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	417252		4.76(0.00-0.00)	1012	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3176583	28.7		7006	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	927392	9.48		287	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1106565	9.82		7289	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L3\_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 03-Feb-2018 00:19:32 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\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:05:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5302805	45.6		10918	
298.90 > 99.00	1.366	1.366	0.0	1.000	3992581		1.33(0.00-0.00)	8232	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1660413	10.2		7785	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2895071	15.6		6327	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	671152	4.86		229	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1472845	10.0		6710	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1295238	9.50		317	
413.00 > 169.00	1.806	1.806	0.0	1.000	718020		1.80(0.00-0.00)	2584	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	1985924	19.1		1221	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	417252		4.76(0.00-0.00)	1012	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3176583	28.7		7006	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	927392	9.48		287	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1106565	9.82		7289	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L3\_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d

Injection Date: 03-Feb-2018 00:19:32

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

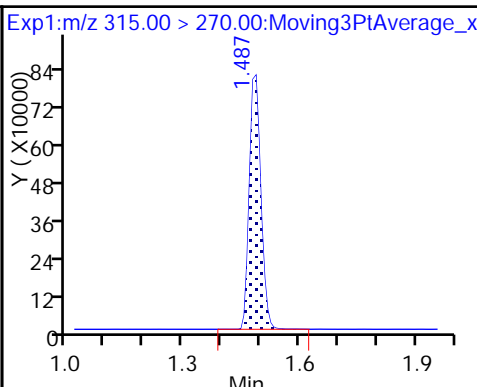
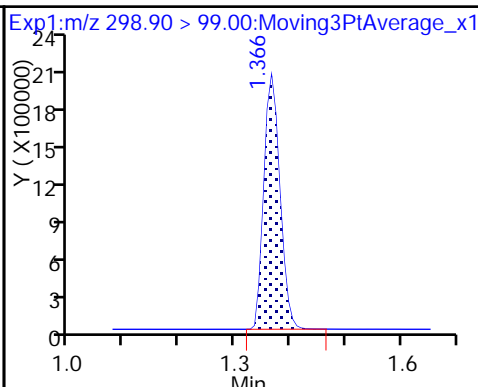
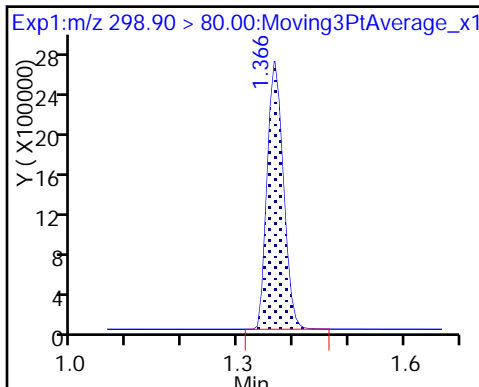
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

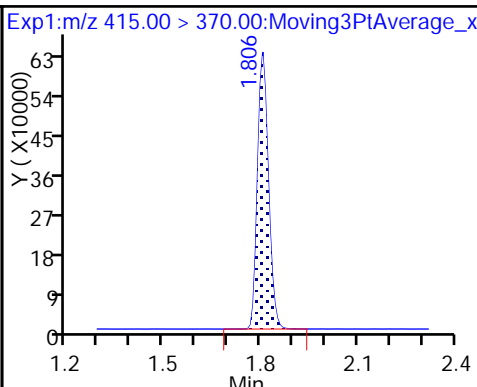
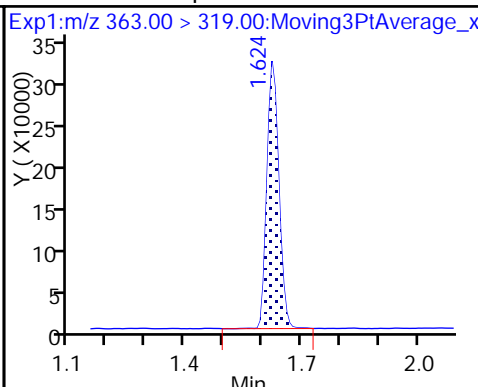
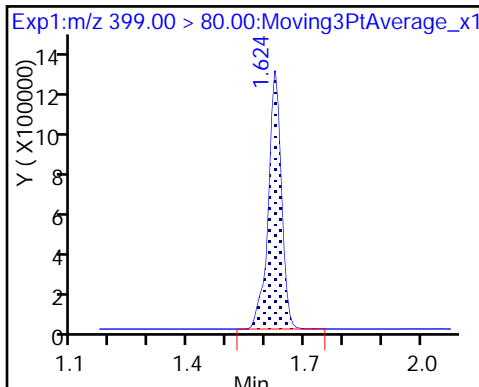
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

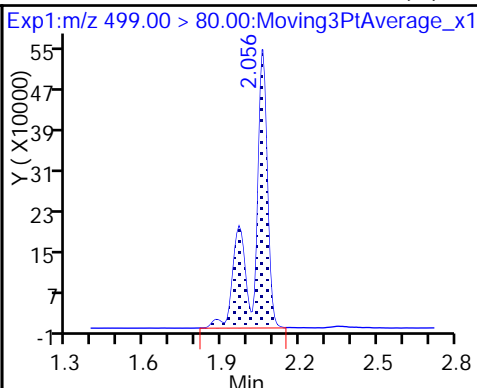
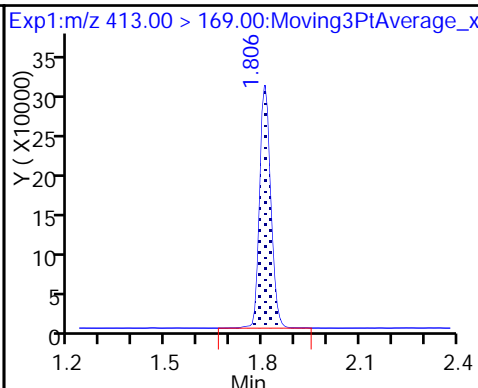
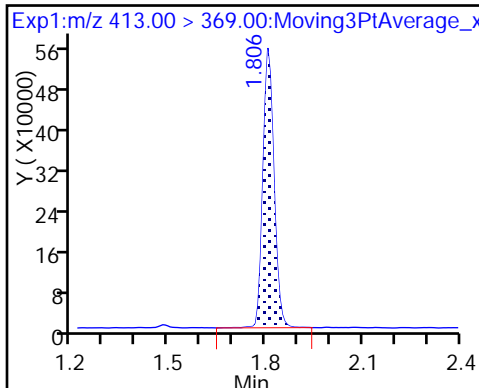
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

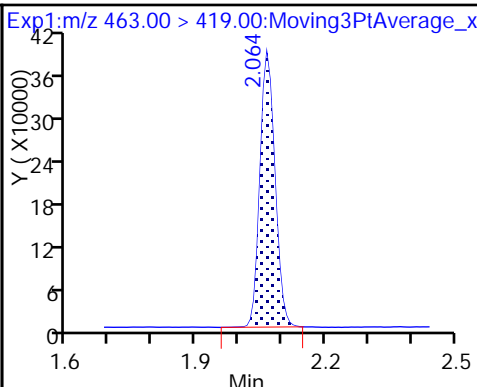
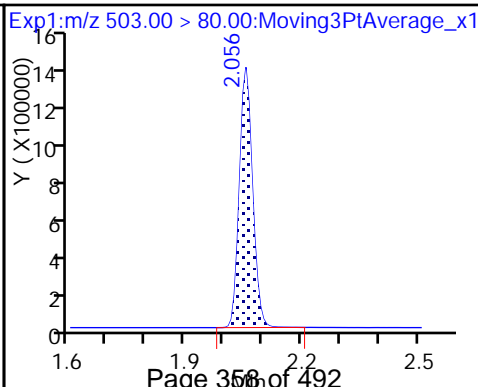
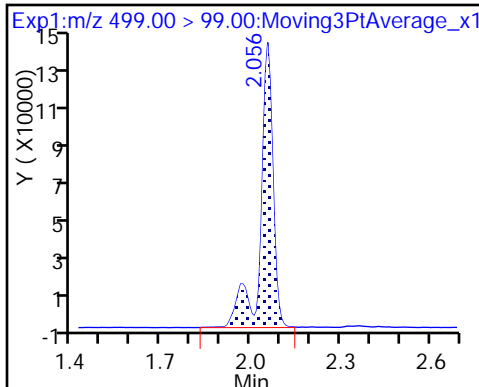
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

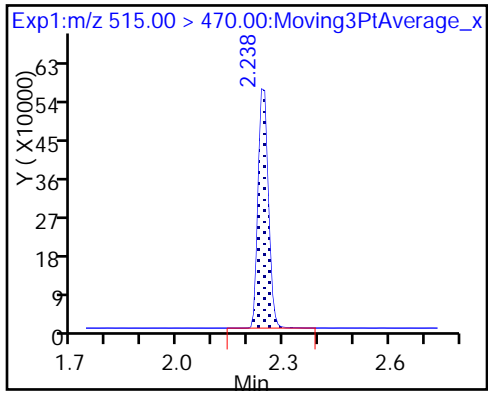
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d

Injection Date: 03-Feb-2018 00:19:32

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

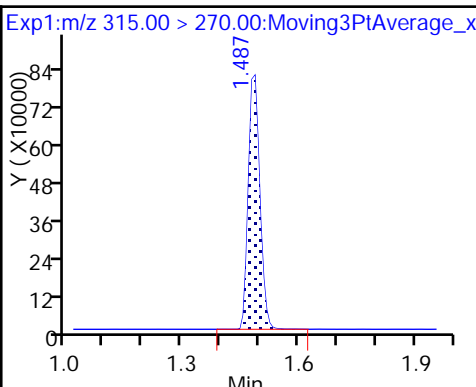
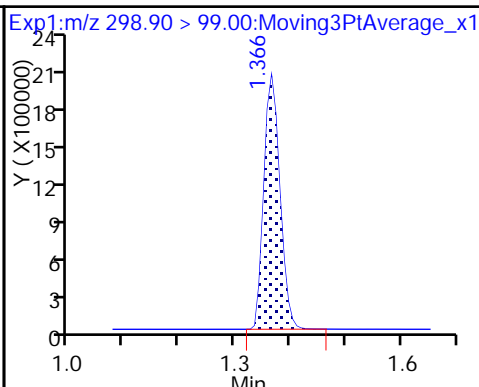
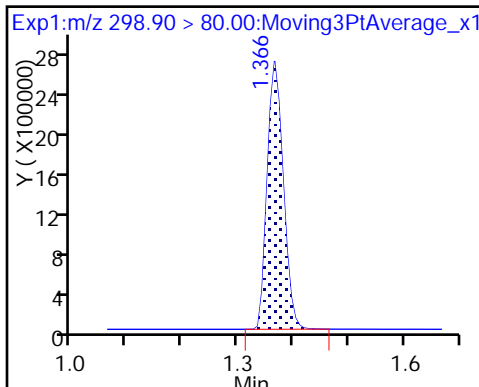
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

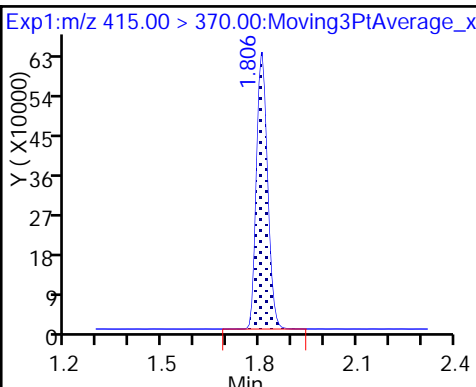
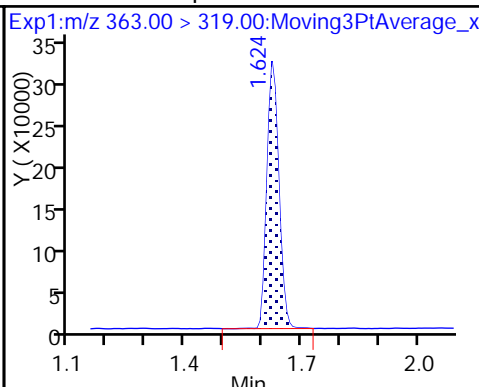
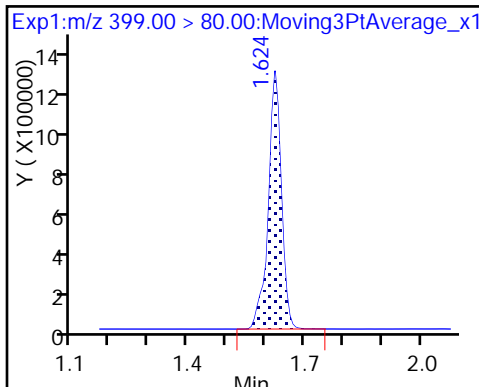
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

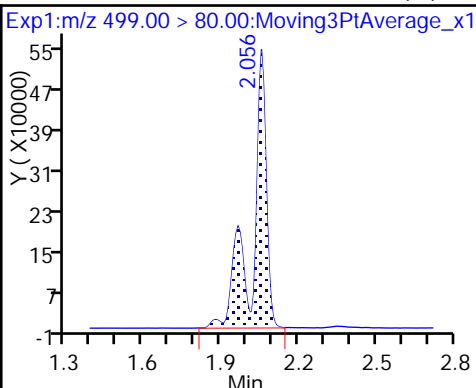
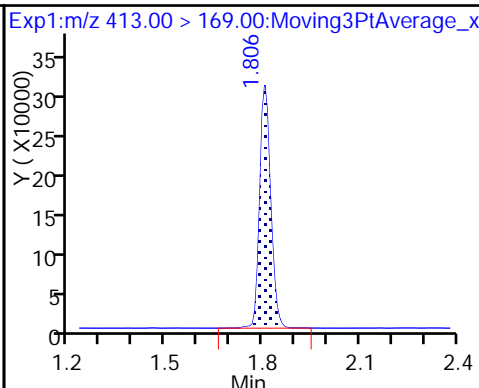
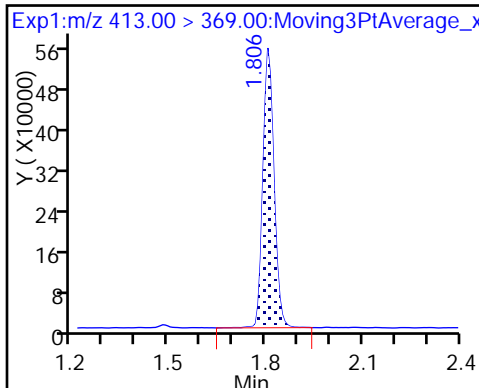
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

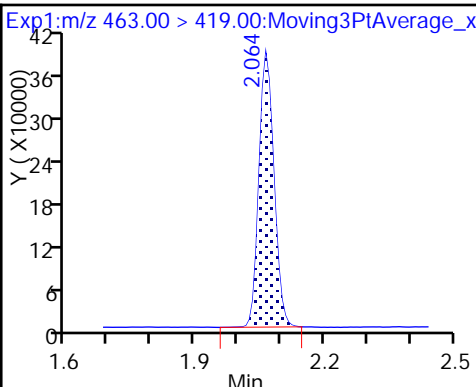
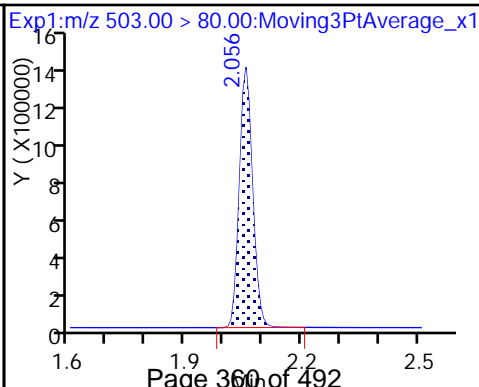
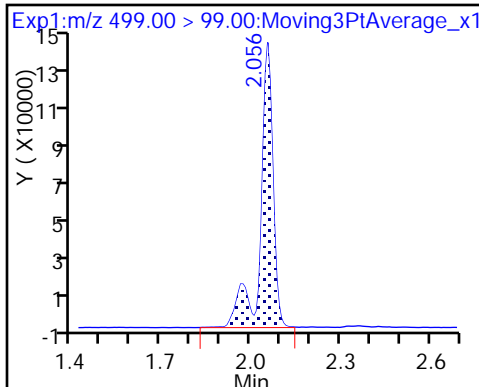
8 Perfluorooctane sulfonic acid (M)



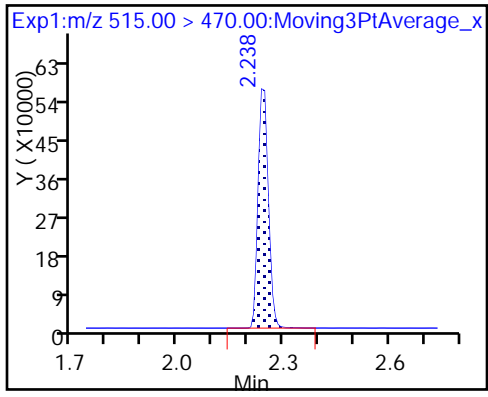
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

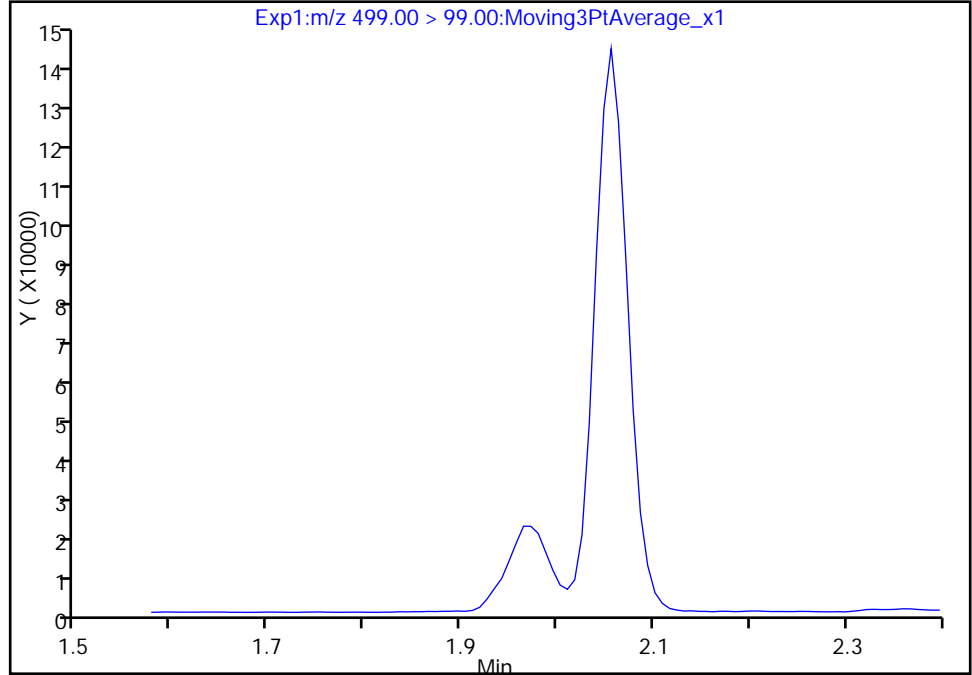
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
Injection Date: 03-Feb-2018 00:19:32 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

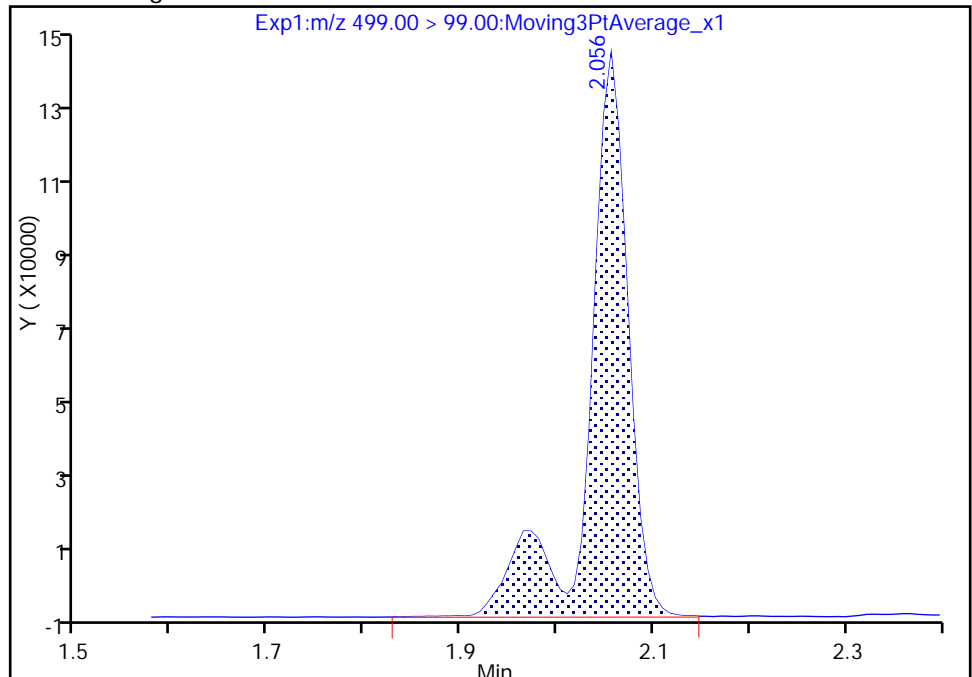
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 417252  
Amount: 19.095881  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:05:47  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

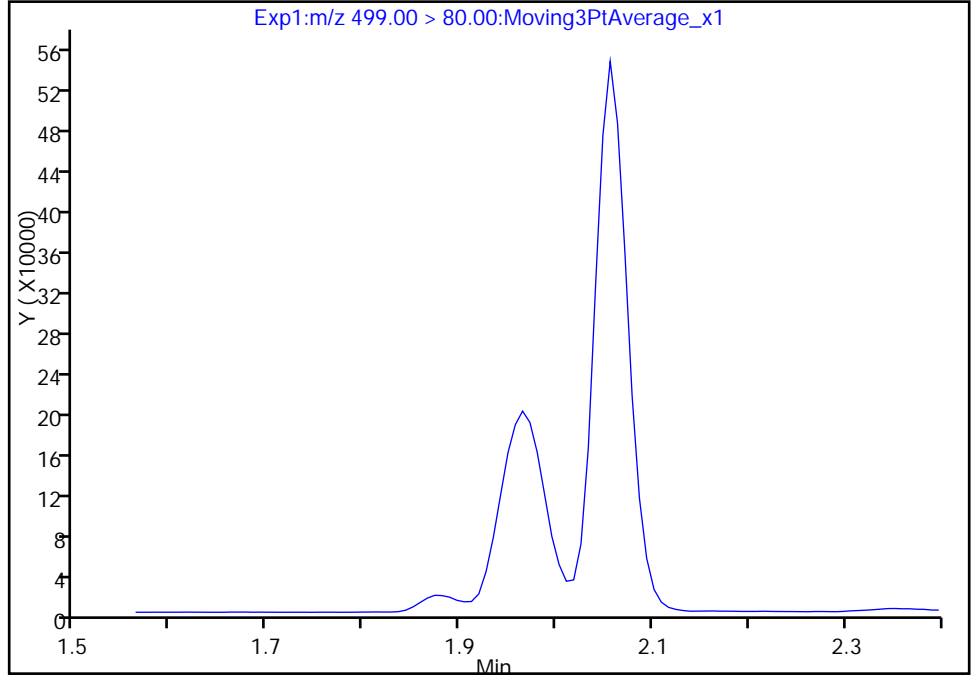
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
Injection Date: 03-Feb-2018 00:19:32 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

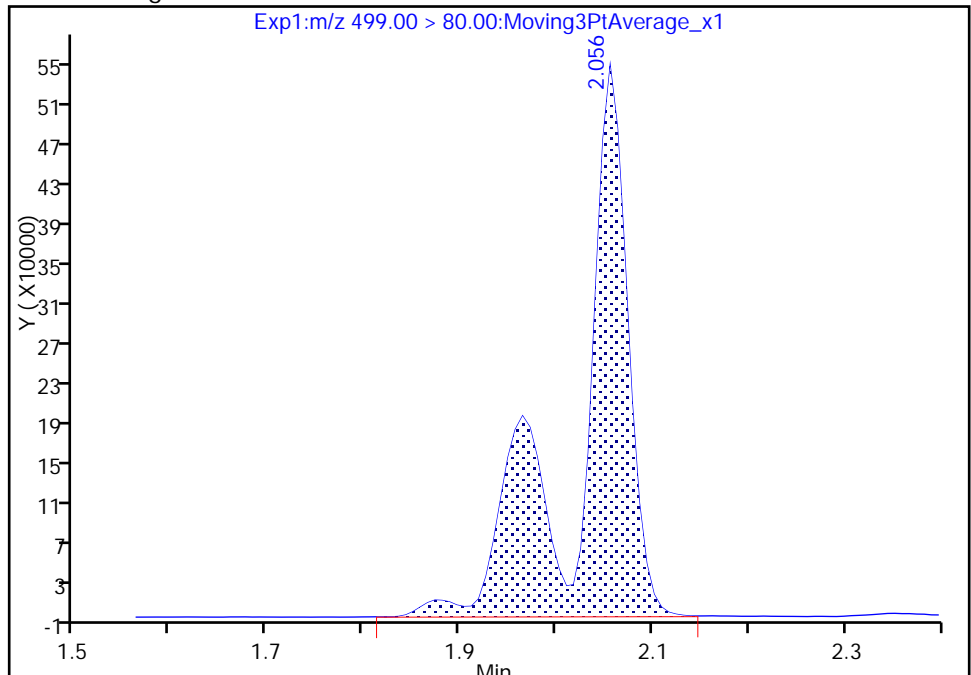
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 1985924  
Amount: 19.095881  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:05:47

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

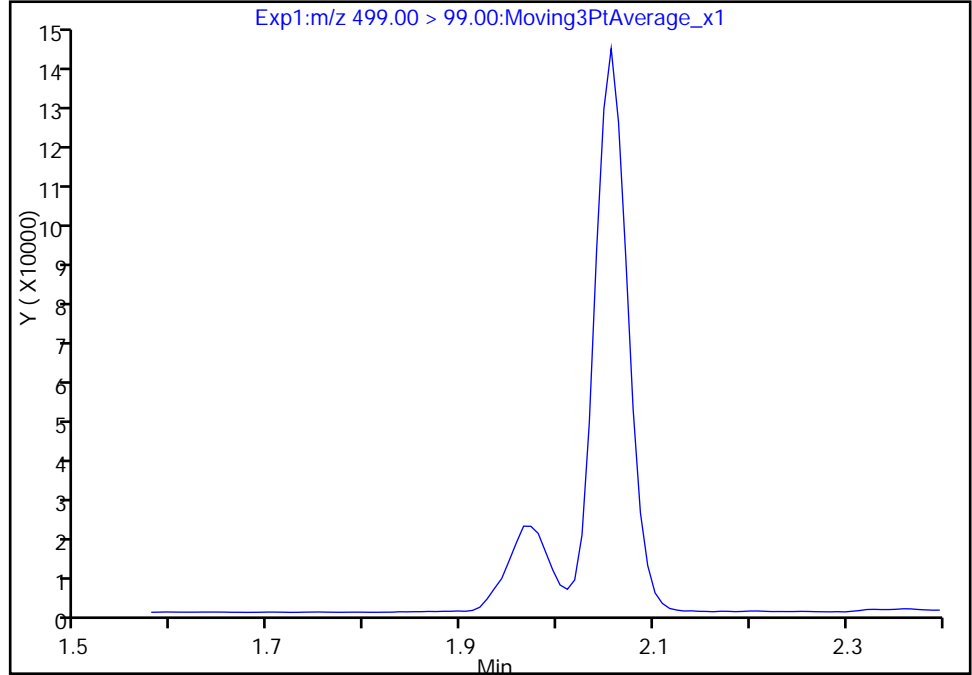
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
Injection Date: 03-Feb-2018 00:19:32 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

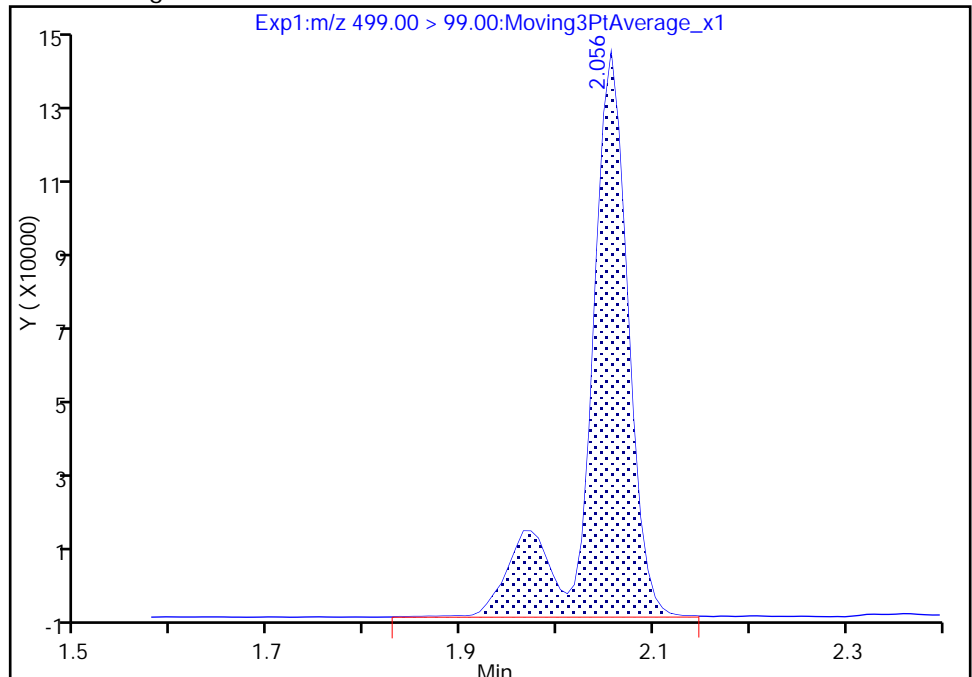
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 417252  
Amount: 19.095881  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:05:47  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

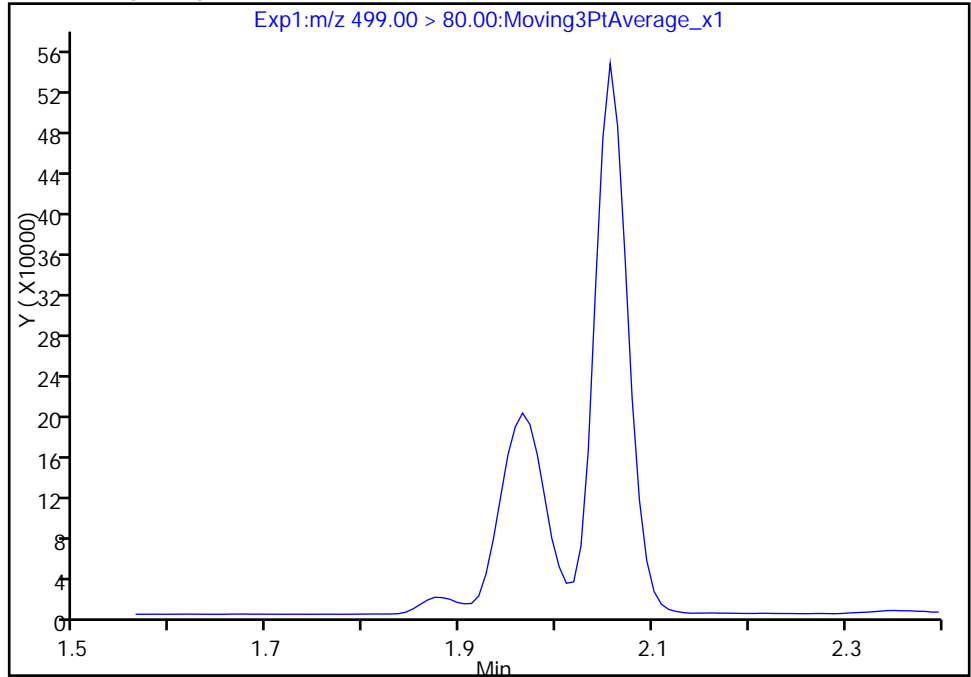
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_025.d  
Injection Date: 03-Feb-2018 00:19:32 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

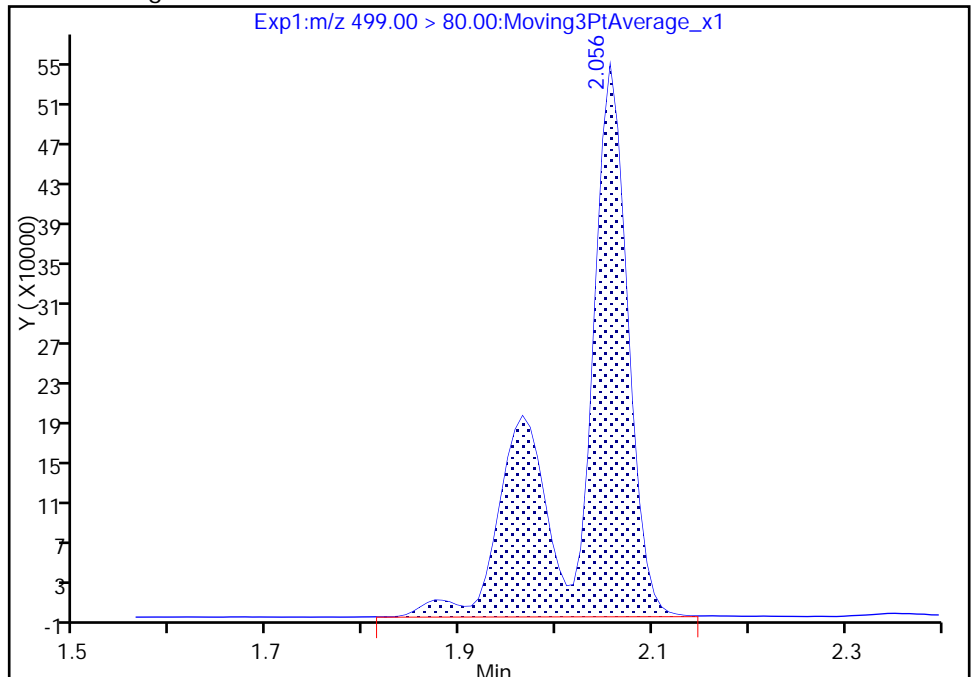
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 1985924  
Amount: 19.095881  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:05:47

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206874/31 Calibration Date: 02/03/2018 00:47  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.02\_537B\_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9436		140	135	3.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9526		15.3	15.0	1.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.720		46.2	45.0	2.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8943		29.0	30.0	-3.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9648		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6329		28.6	30.0	-4.7	30.0
13C2 PFHxA	Ave	1.100	1.115		10.1	10.0	1.4	30.0
13C2 PFDA	Ave	0.7652	0.7769		10.2	10.0	1.5	30.0



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_031.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 03-Feb-2018 00:47:35 ALS Bottle#: 5 Worklist Smp#: 31  
 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\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:53 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:07:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	13287627	140.1		15334	
298.90 > 99.00	1.366	1.366	0.0	1.000	10548906		1.26(0.00-0.00)	14223	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1580253	10.1		7738	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	8075639	46.2		12435	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2025079	15.3		739	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1416822	10.0		6090	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	3804324	29.0		1005	
413.00 > 169.00	1.806	1.806	0.0	1.000	2166847		1.76(0.00-0.00)	6578	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6039476	61.7		2844	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	1250352		4.83(0.00-0.00)	2418	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		2991430	28.7		6678	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	2690466	28.6		841	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1100701	10.2		7324	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L5\_00024

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_031.d

Injection Date: 03-Feb-2018 00:47:35

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

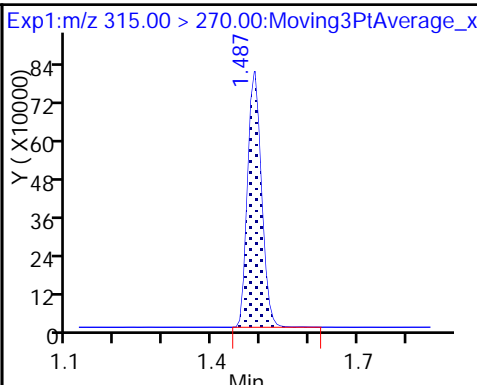
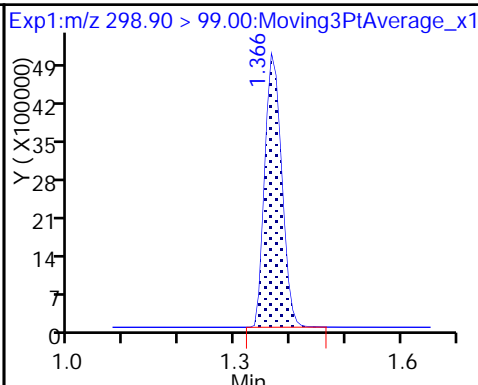
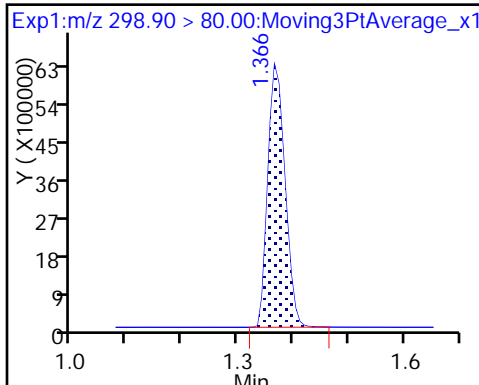
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

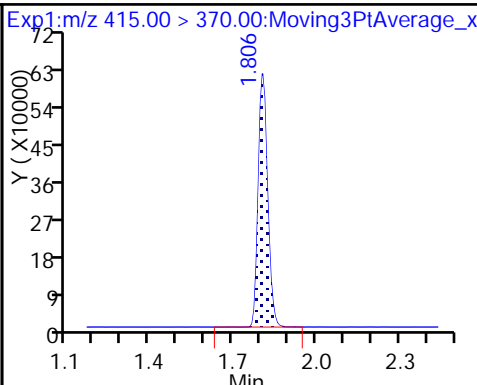
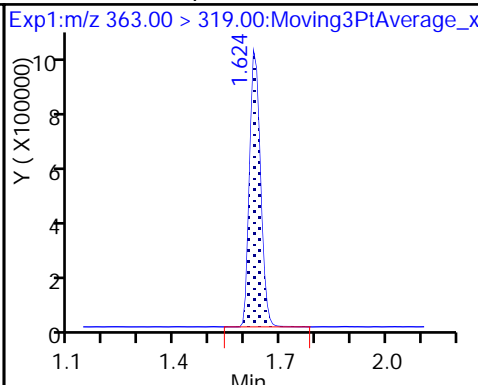
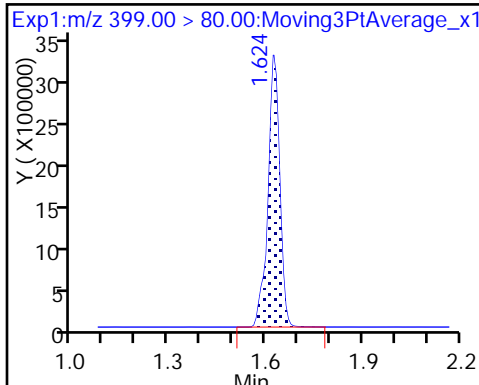
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

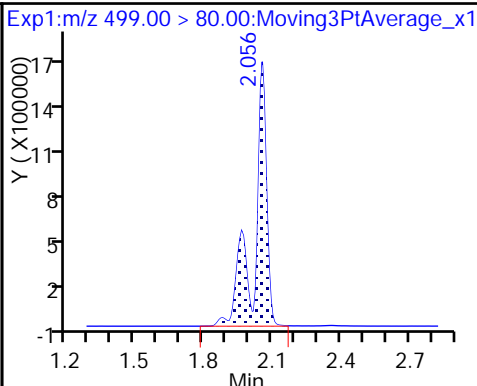
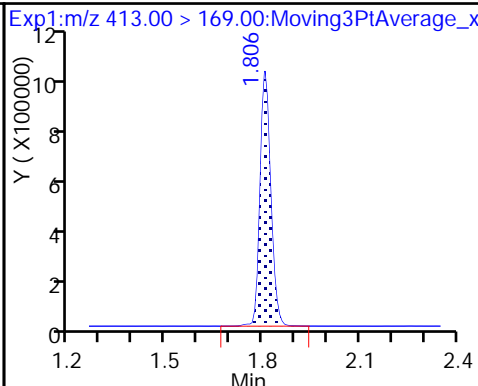
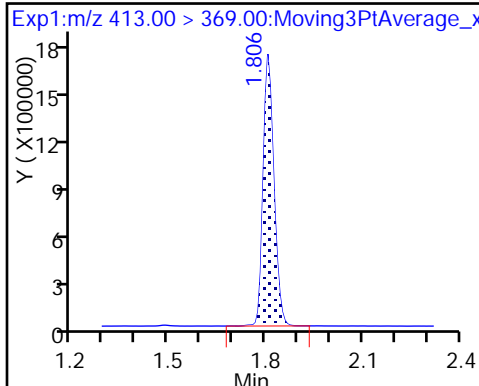
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

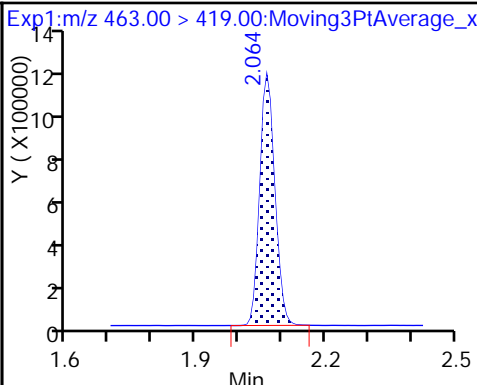
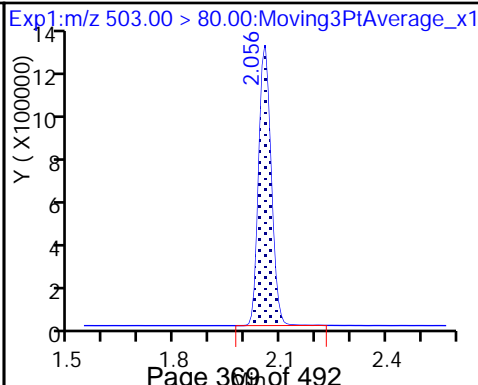
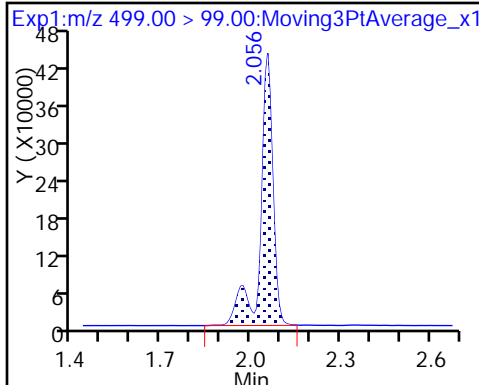
8 Perfluorooctane sulfonic acid (M)



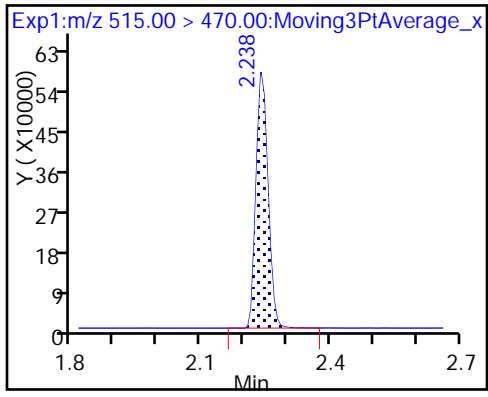
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

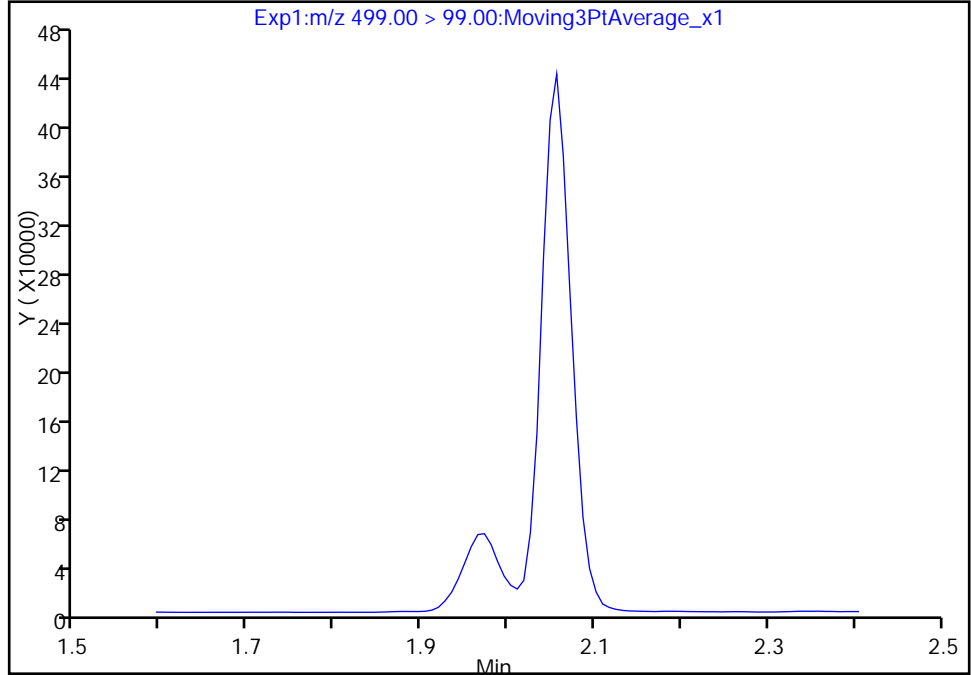
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_031.d  
Injection Date: 03-Feb-2018 00:47:35 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 31  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

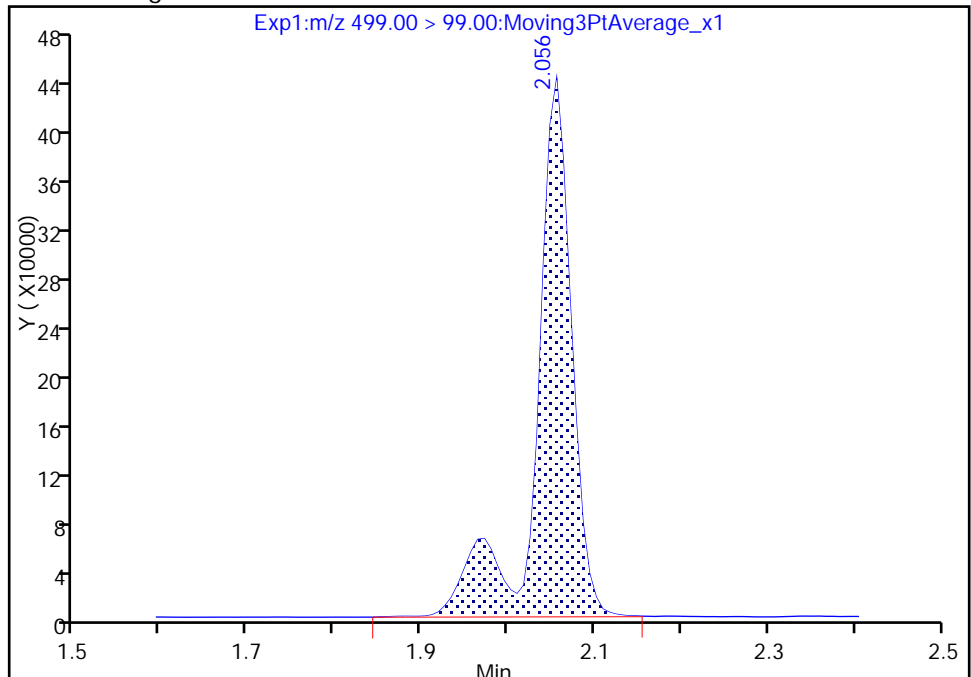
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 1250352  
Amount: 61.667693  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:07:12  
Audit Action: Manually Integrated

TestAmerica Sacramento

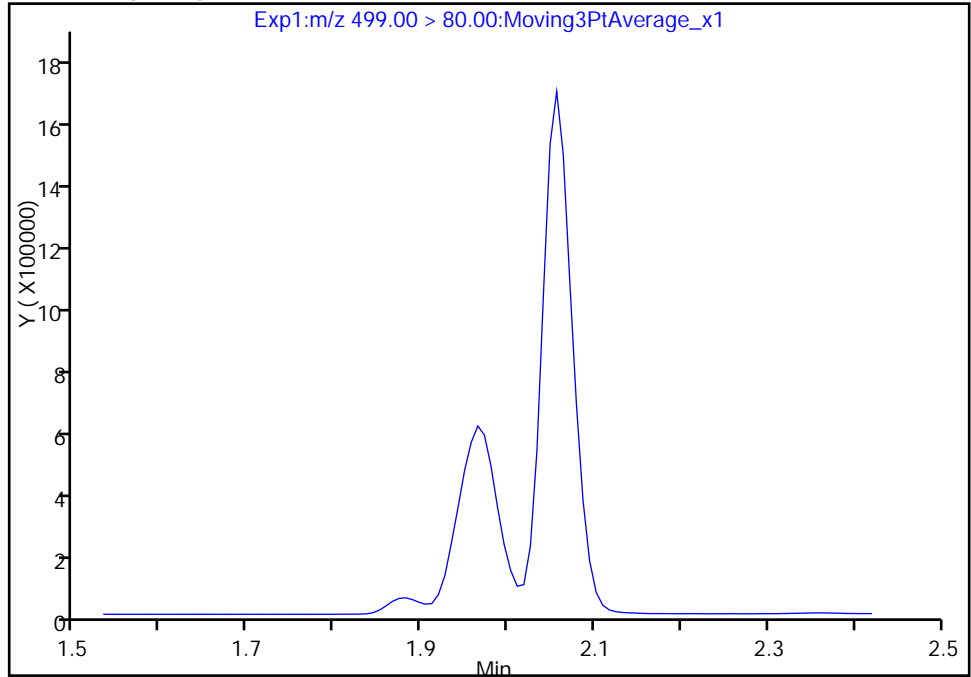
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_031.d  
Injection Date: 03-Feb-2018 00:47:35 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 31  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

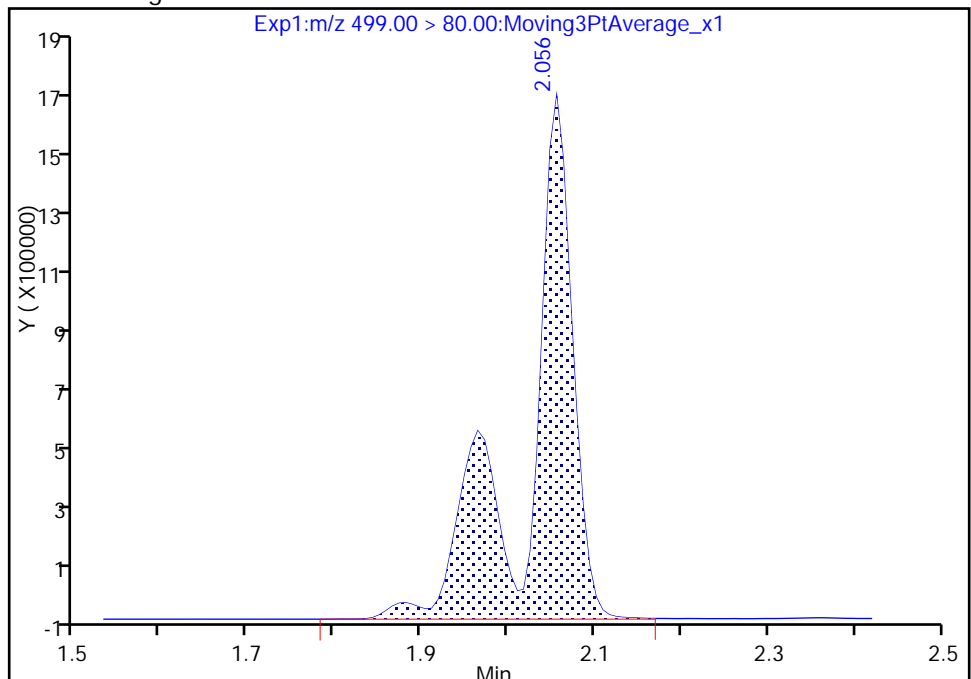
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 6039476  
Amount: 61.667693  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 11:07:12

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-207097/1 Calibration Date: 02/06/2018 08:30  
 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: 2018.02.06\_537A\_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.081		19.8	20.0	-0.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.648		6.56	6.67	-1.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.009		2.39	2.22	7.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9155		4.42	4.47	-1.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9828		9.34	8.93	4.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6745		4.52	4.45	1.6	50.0
13C2 PFHxA	Ave	1.100	1.102		10.0	10.0	0.1	30.0
13C2 PFDA	Ave	0.7652	0.7044		9.21	10.0	-7.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53732.b\2018.02.06\_537A\_003.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 06-Feb-2018 08:30:44 ALS Bottle#: 2 Worklist Smp#: 1  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53732.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 09:58:48 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK002

First Level Reviewer: roycea Date: 06-Feb-2018 09:48:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.366	0.007	1.000	2299622	19.8		6878	
298.90 > 99.00	1.373	1.366	0.007	1.000	1753894		1.31(0.00-0.00)	5999	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1515674	10.0		9438	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	1168960	6.56		3098	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.616	0.015	1.000	308590	2.39		101	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1375995	10.0		5862	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	562983	4.42		86.1	
413.00 > 169.00	1.806	1.798	0.008	1.000	310883		1.81(0.00-0.00)	1116	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.041	0.007		3051061	28.7		6310	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.041	0.015	1.000	933344	9.34		1314	a
499.00 > 99.00	2.048	2.041	0.007	0.996	203117		4.60(0.00-0.00)	879	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.048	0.016	1.000	412629	4.52		115	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	969216	9.21		5297	



**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\20180206-53732.b\2018.02.06\_537A\_003.d

Injection Date: 06-Feb-2018 08:30:44

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

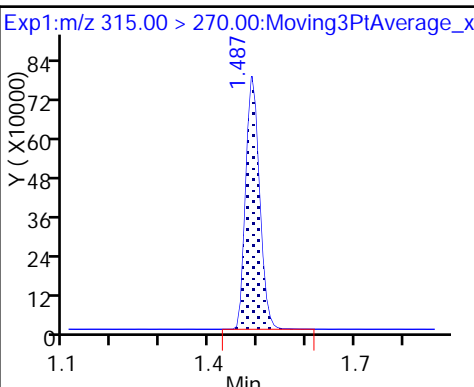
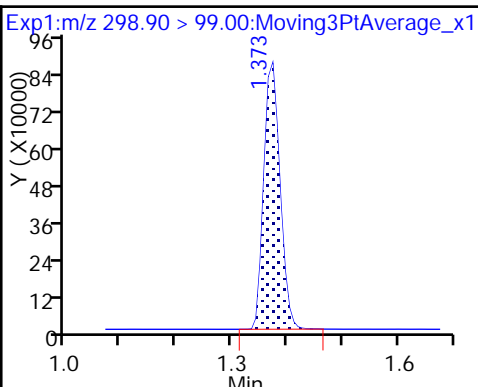
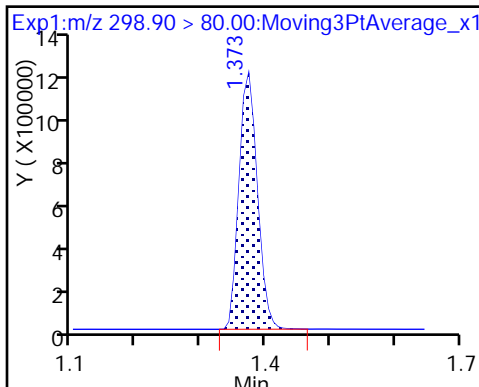
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

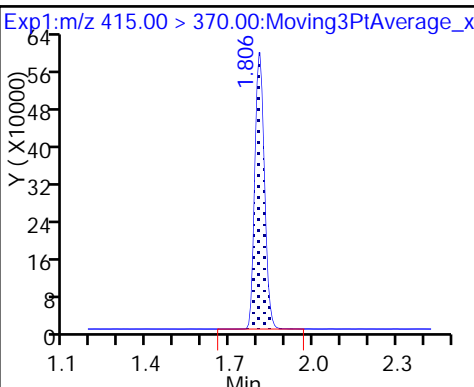
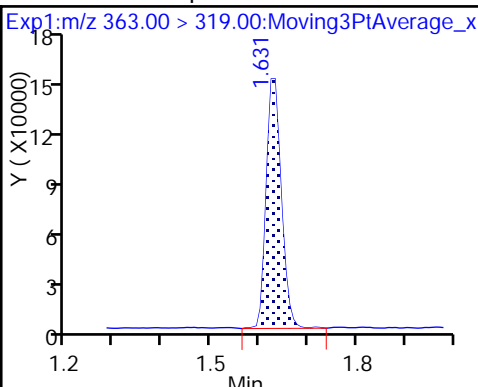
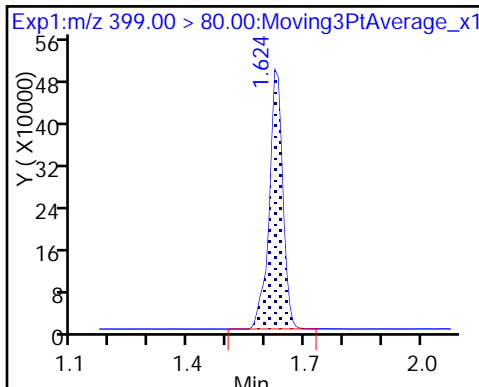
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

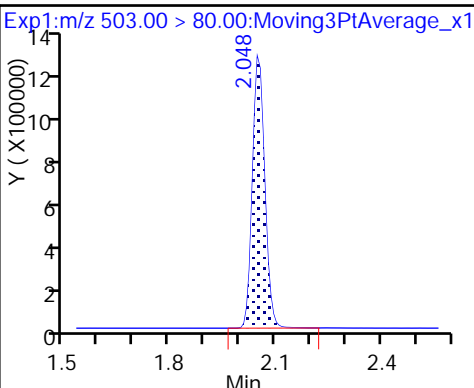
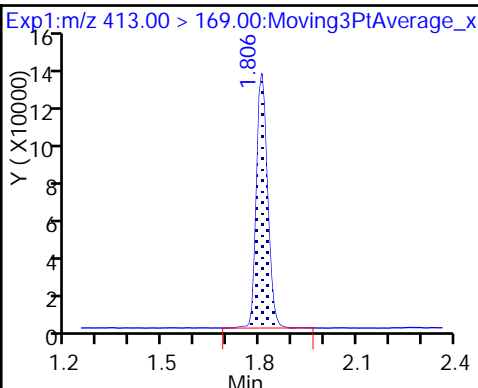
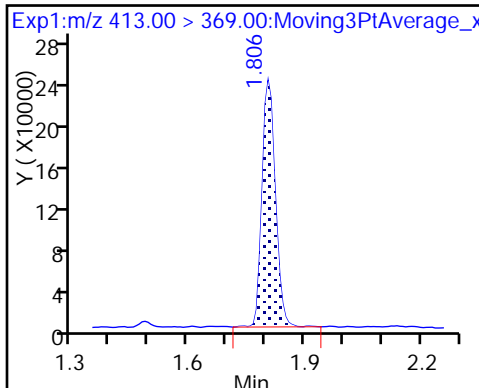
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

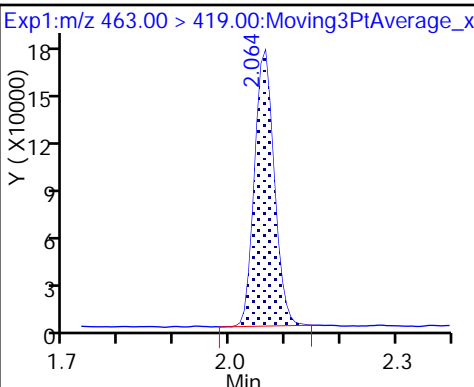
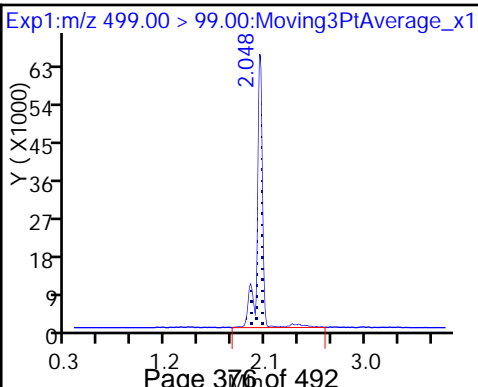
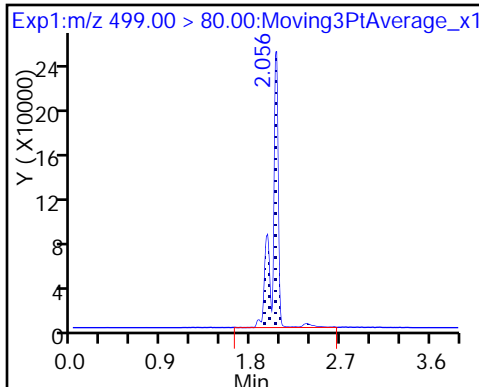
\* 7 13C4 PFOS



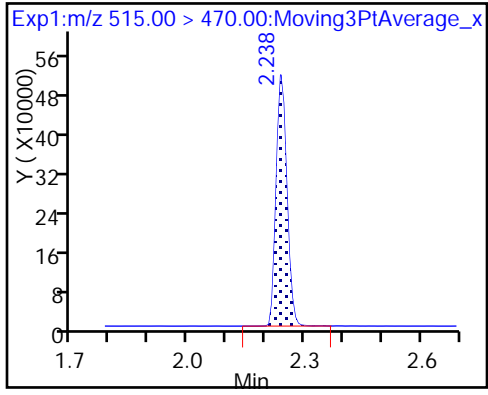
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

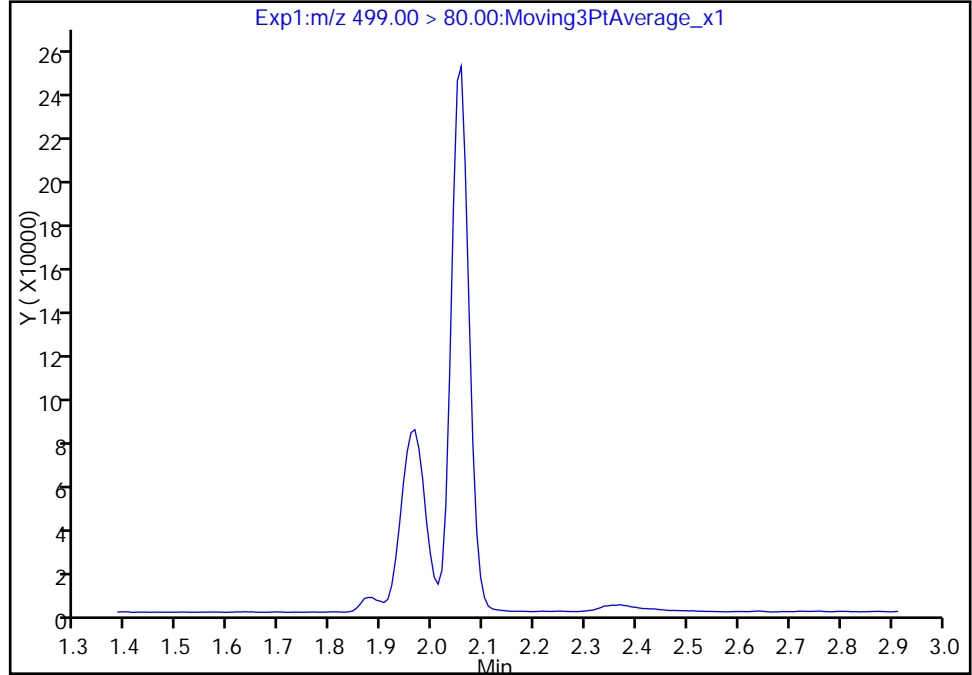
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Injection Date: 06-Feb-2018 08:30:44 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

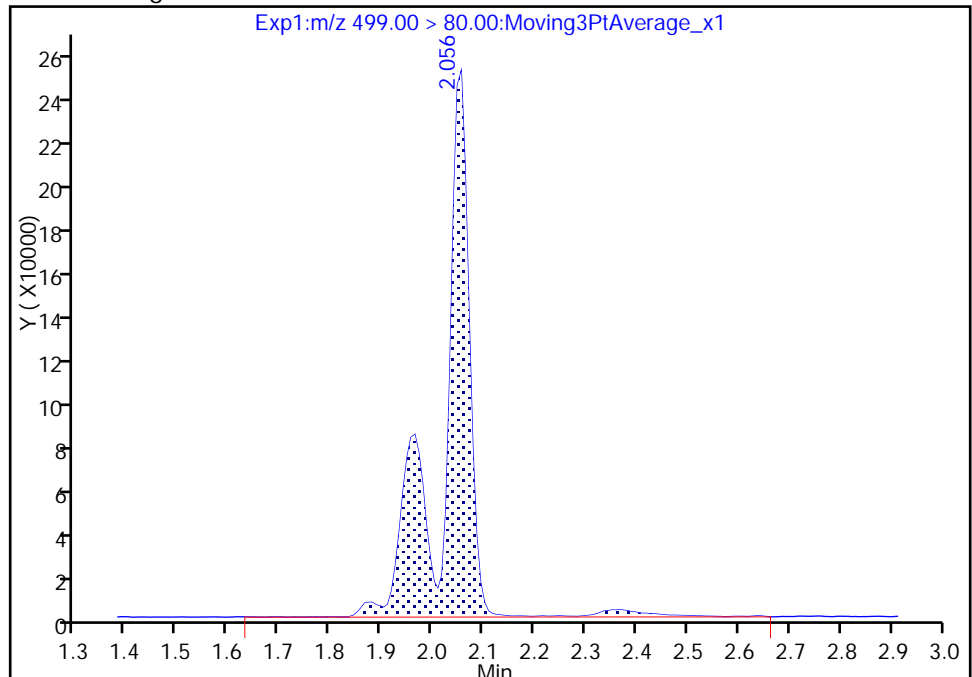
Not Detected  
Expected RT: 2.04

Processing Integration Results



RT: 2.06  
Area: 933344  
Amount: 9.343899  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 06-Feb-2018 09:48:42  
Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-207174/1 Calibration Date: 02/06/2018 11:29  
 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: 2018.02.06\_537B\_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9315		138	135	2.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.657		44.5	45.0	-1.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.000		16.0	15.0	6.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9719		31.7	30.2	5.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9658		62.0	60.3	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6898		31.2	30.0	3.9	30.0
13C2 PFHxA	Ave	1.100	1.107		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.7652	0.7563		9.88	10.0	-1.2	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_029.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 06-Feb-2018 11:29:04 ALS Bottle#: 5 Worklist Smp#: 1  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:47:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.411	1.411	0.0	1.000	12918901	137.8		15221	
298.90 > 99.00	1.404	1.411	-0.007	0.995	9937871		1.30(0.00-0.00)	16671	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.517	1.517	0.0	1.000	1437292	10.1		6938	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.646	1.646	0.0	1.000	7661425	44.5		9095	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.654	0.0	1.000	1949452	16.0		610	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		1298792	10.0		4560	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	3807878	31.7		630	
413.00 > 169.00	1.828	1.828	0.0	1.000	2112791		1.80(0.00-0.00)	5424	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.071	0.0		2946157	28.7		4133	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.056	0.015	1.000	5978157	62.0		1772	Ma M
499.00 > 99.00	2.071	2.056	0.015	1.000	1263778		4.73(0.00-0.00)	1805	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.086	0.0	1.000	2688394	31.2		622	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	982294	9.88		4999	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L5\_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_029.d

Injection Date: 06-Feb-2018 11:29:04

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

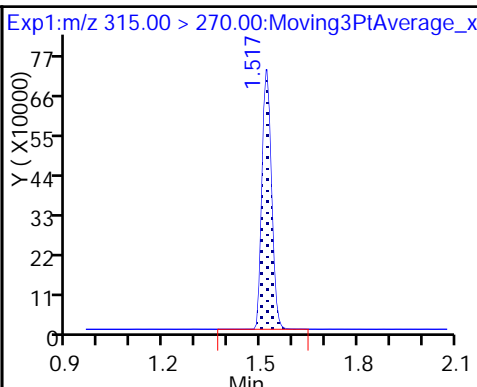
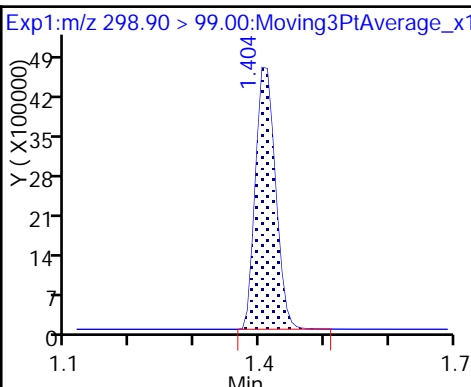
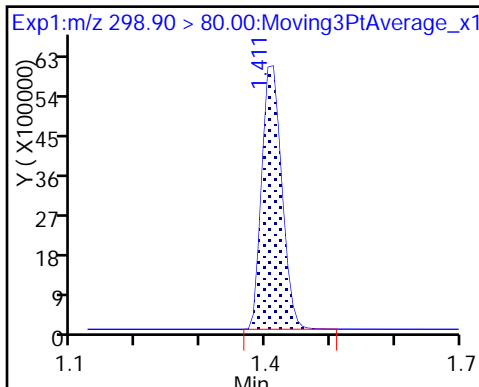
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

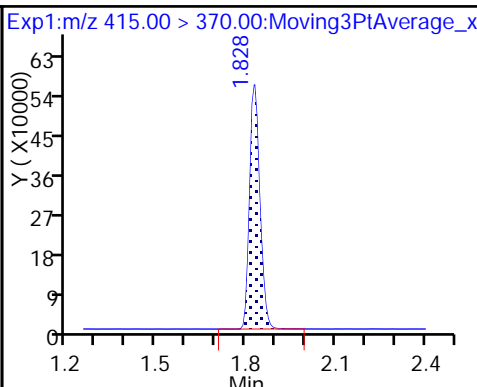
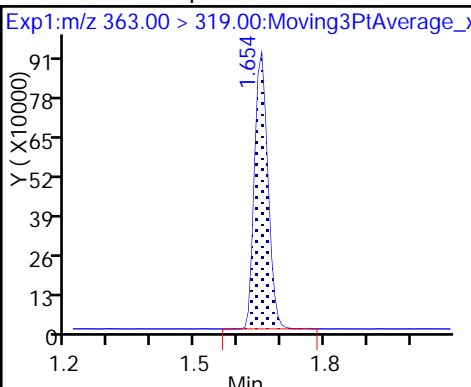
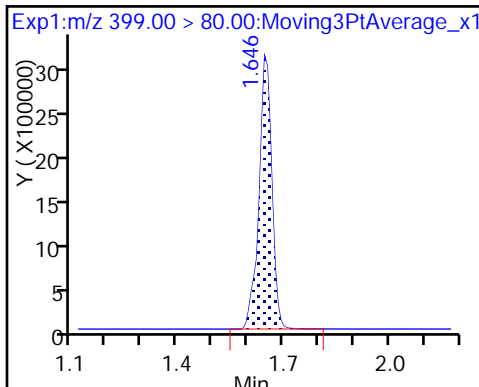
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

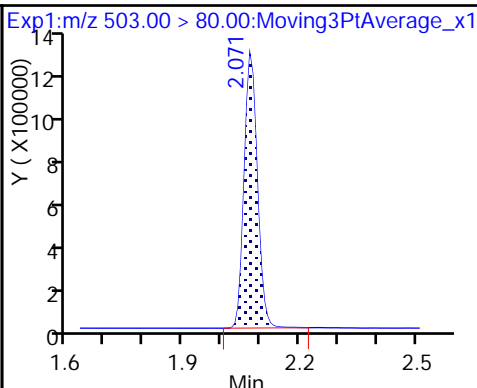
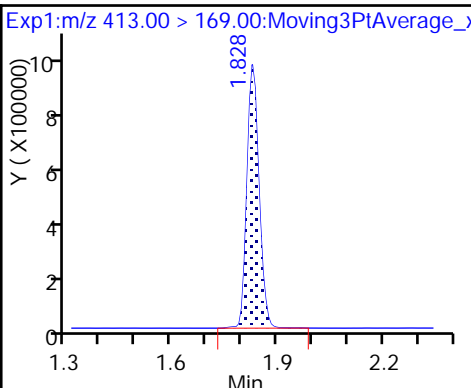
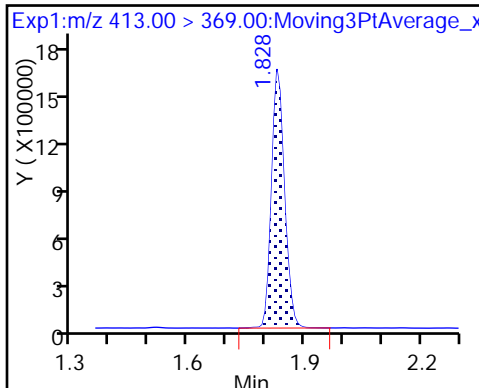
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

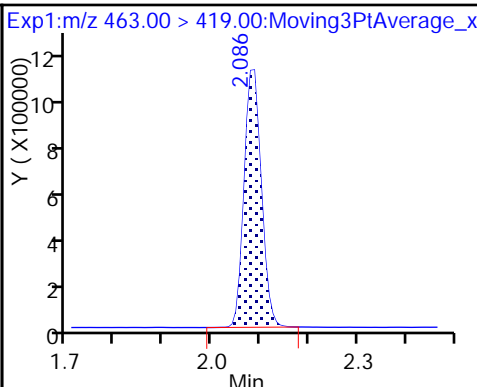
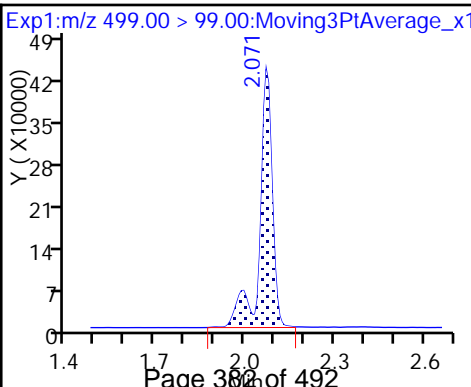
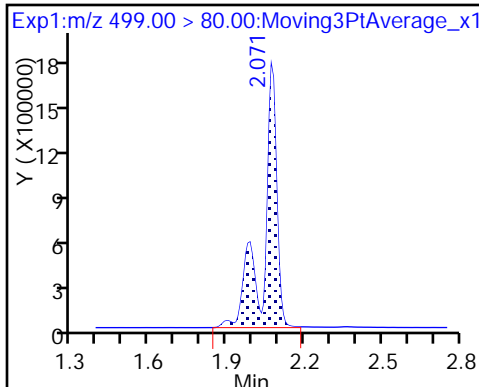
\* 7 13C4 PFOS



8 Perfluorooctane sulfonic acid (M)

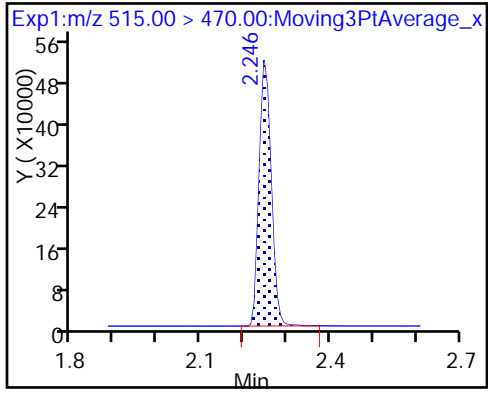
8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento

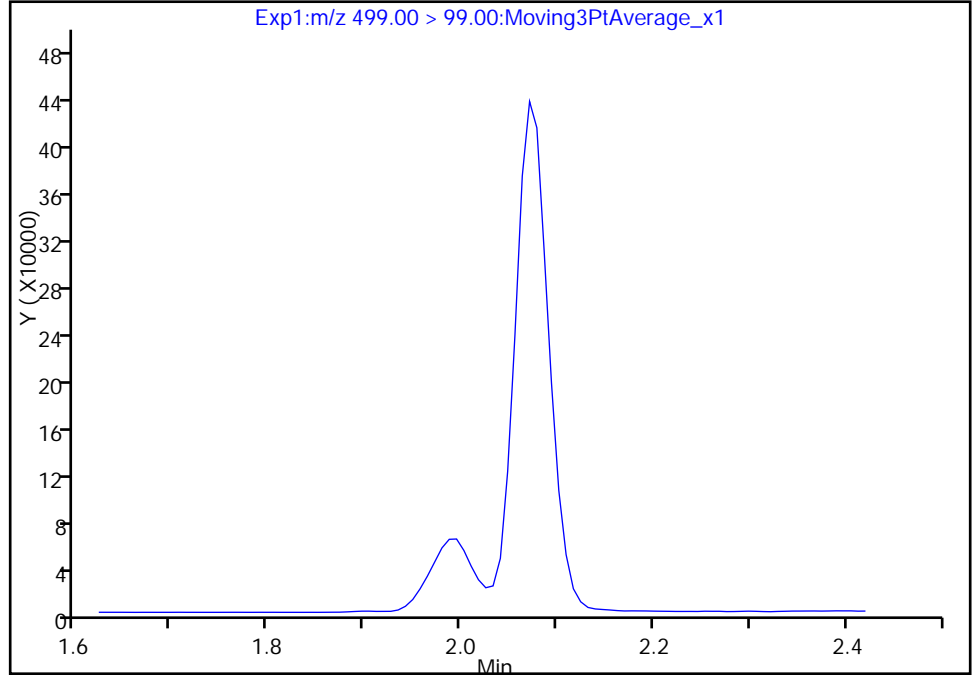
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Injection Date: 06-Feb-2018 11:29:04 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

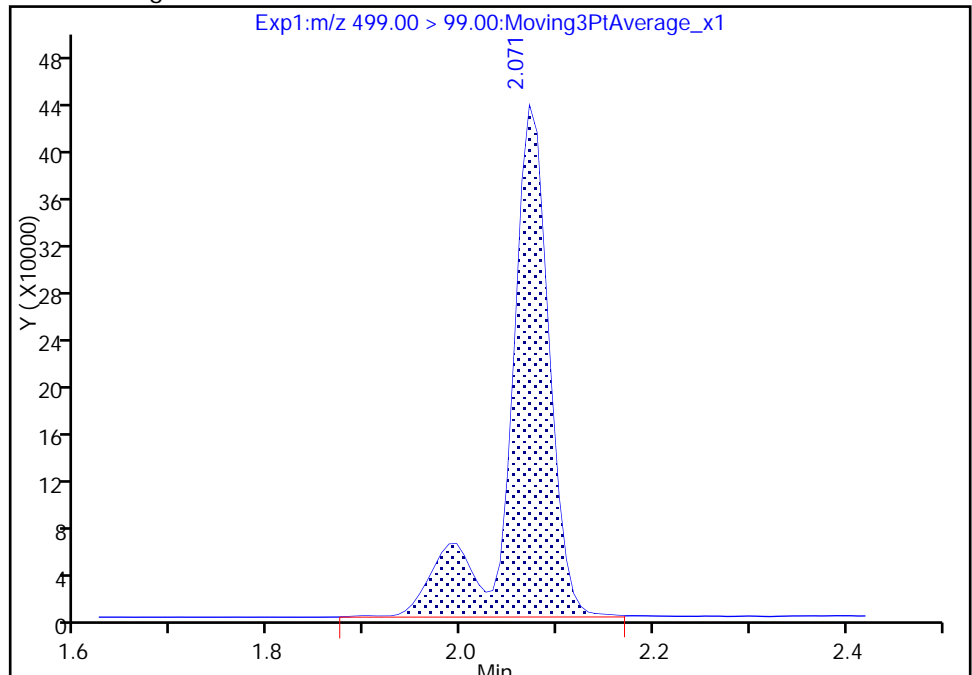
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07  
Area: 1263778  
Amount: 61.979592  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 13:47:31  
Audit Action: Manually Integrated

Audit Reason: Assign Peak  
Page 384 of 492

TestAmerica Sacramento

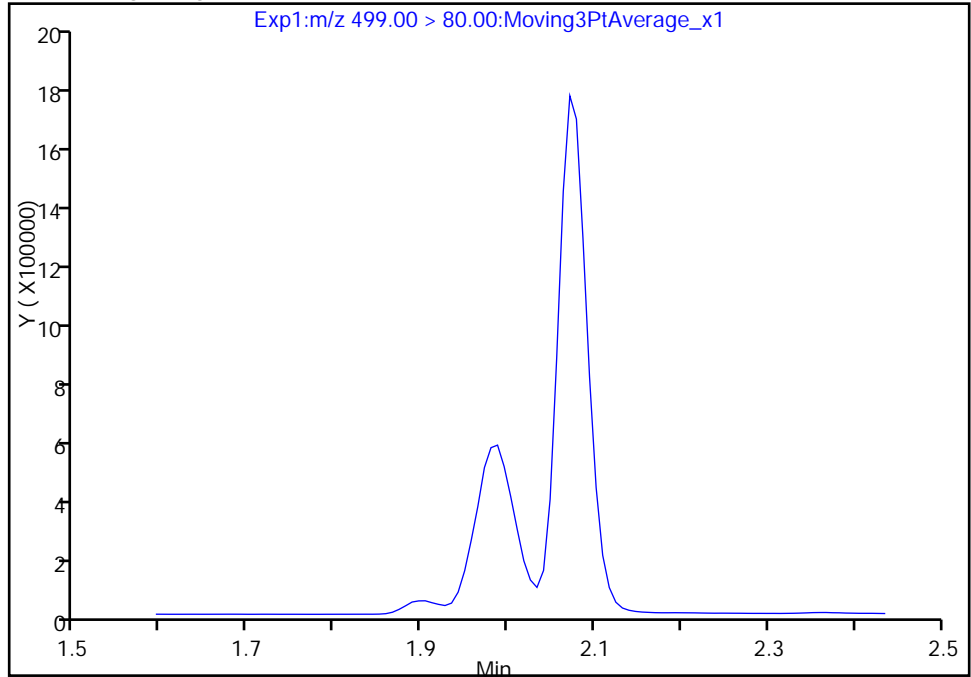
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Injection Date: 06-Feb-2018 11:29:04 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

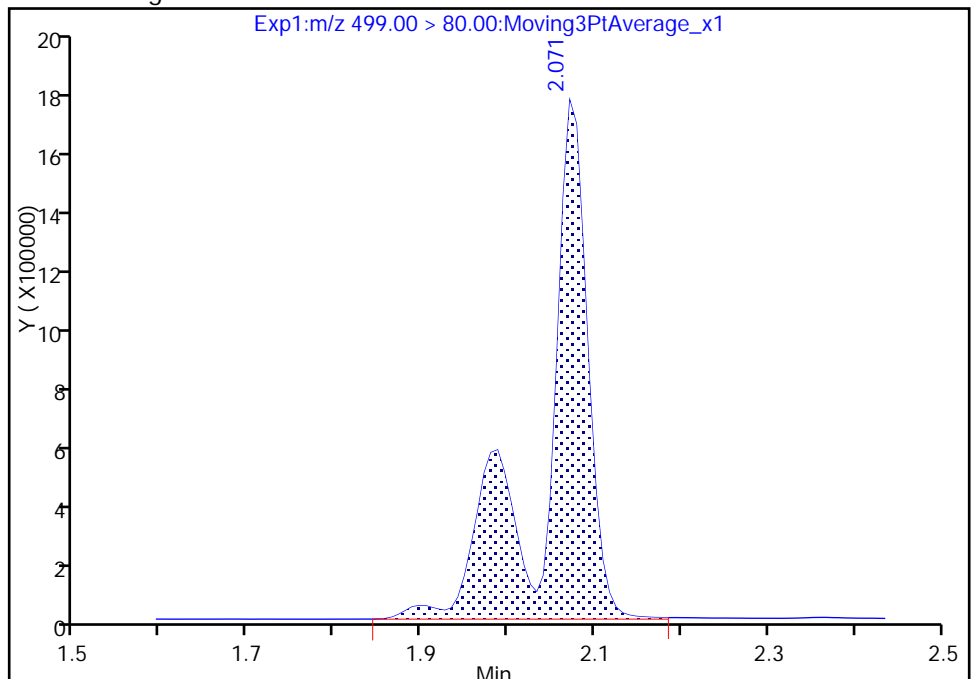
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.07  
Area: 5978157  
Amount: 61.979592  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 13:47:31

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-207174/12 Calibration Date: 02/06/2018 12:20  
 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: 2018.02.06\_537B\_040.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.009		5.38	5.00	7.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.749		15.7	15.0	4.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.022		11.1	10.1	10.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9782		20.9	20.1	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7221		10.9	10.0	8.7	30.0
13C2 PFHxA	Ave	1.100	1.137		10.3	10.0	3.3	30.0
13C2 PFDA	Ave	0.7652	0.7637		9.98	10.0	-0.2	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_040.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 06-Feb-2018 12:20:29 ALS Bottle#: 3 Worklist Smp#: 12  
 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\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:44 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:48:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	5172044	47.1		12540	
298.90 > 99.00	1.373	1.373	0.0	1.000	3876207		1.33(0.00-0.00)	10374	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1460182	10.3		7619	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2747374	15.7		7122	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	647911	5.38		228	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1284307	10.0		5836	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	1319539	11.1		239	
413.00 > 169.00	1.813	1.813	0.0	1.000	708482		1.86(0.00-0.00)	2370	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	2056296	20.9		1205	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	424318		4.85(0.00-0.00)	805	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3001651	28.7		6308	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	927749	10.9		217	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	980768	9.98		6244	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L3\_00024

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_040.d

Injection Date: 06-Feb-2018 12:20:29

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

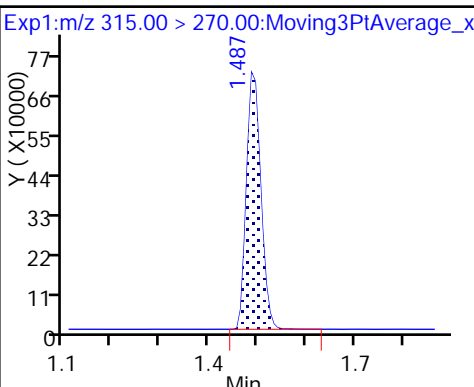
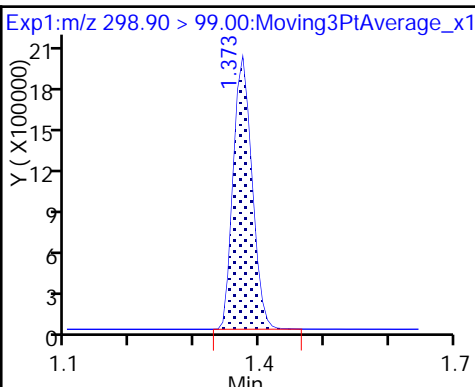
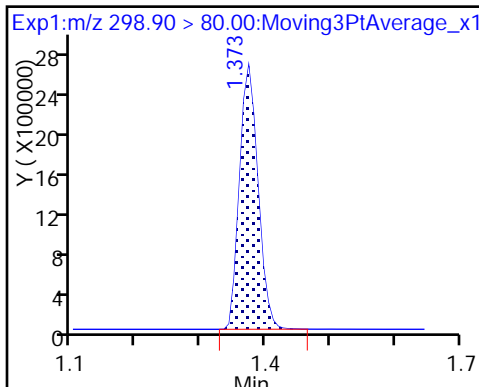
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

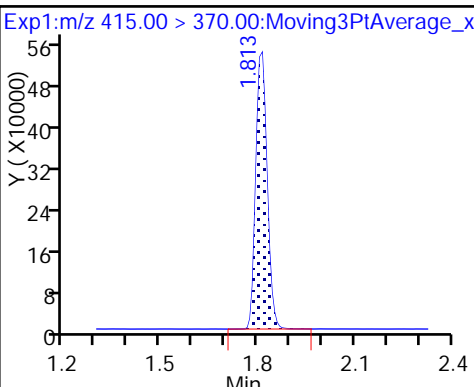
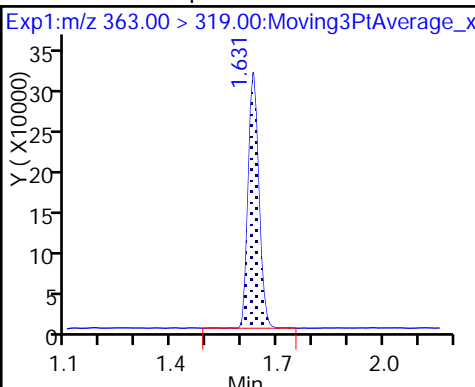
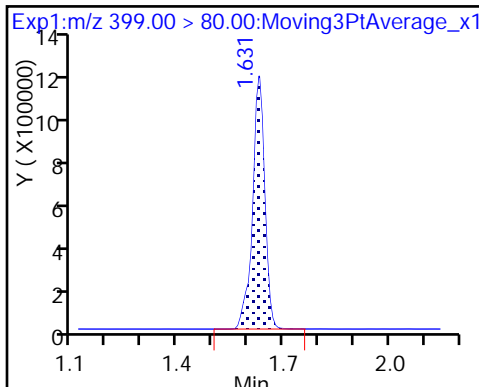
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

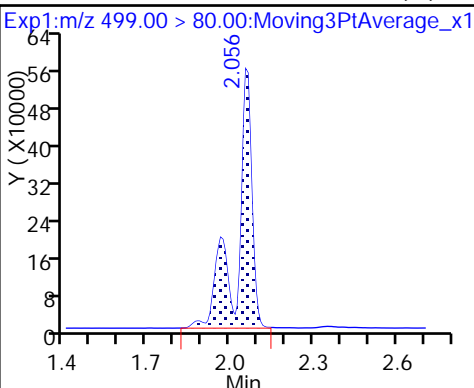
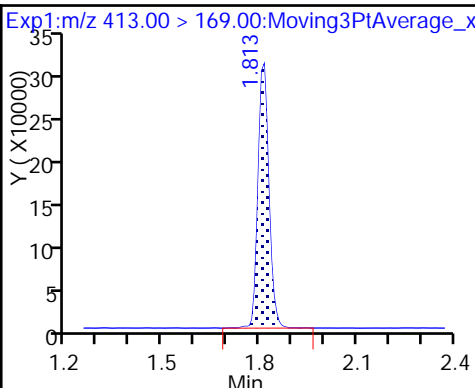
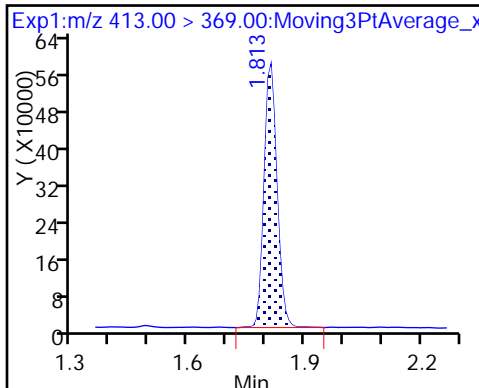
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

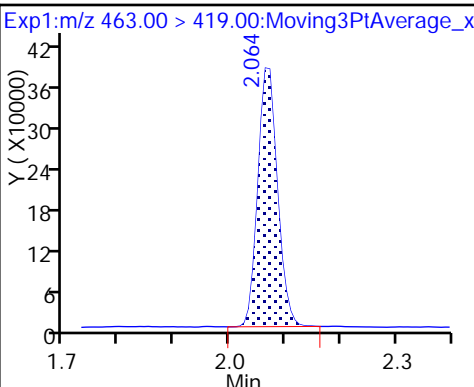
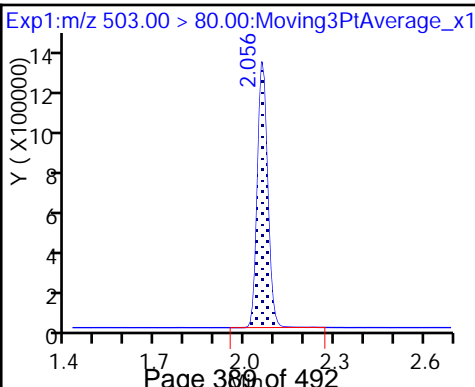
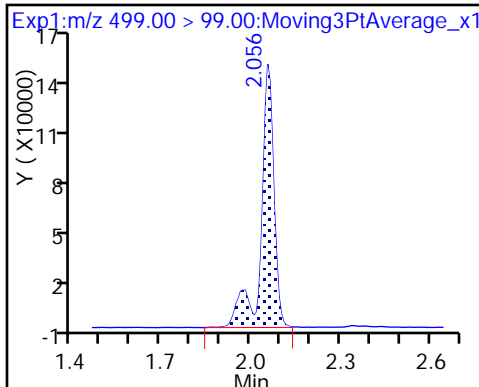
8 Perfluorooctane sulfonic acid (M)



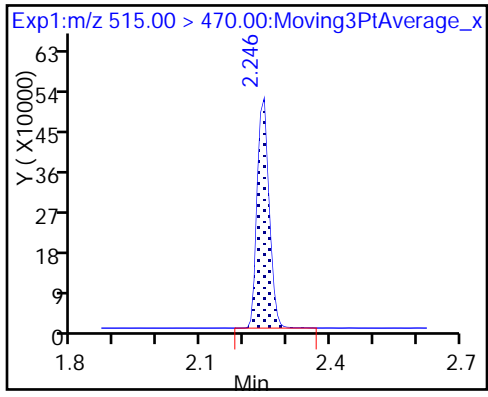
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

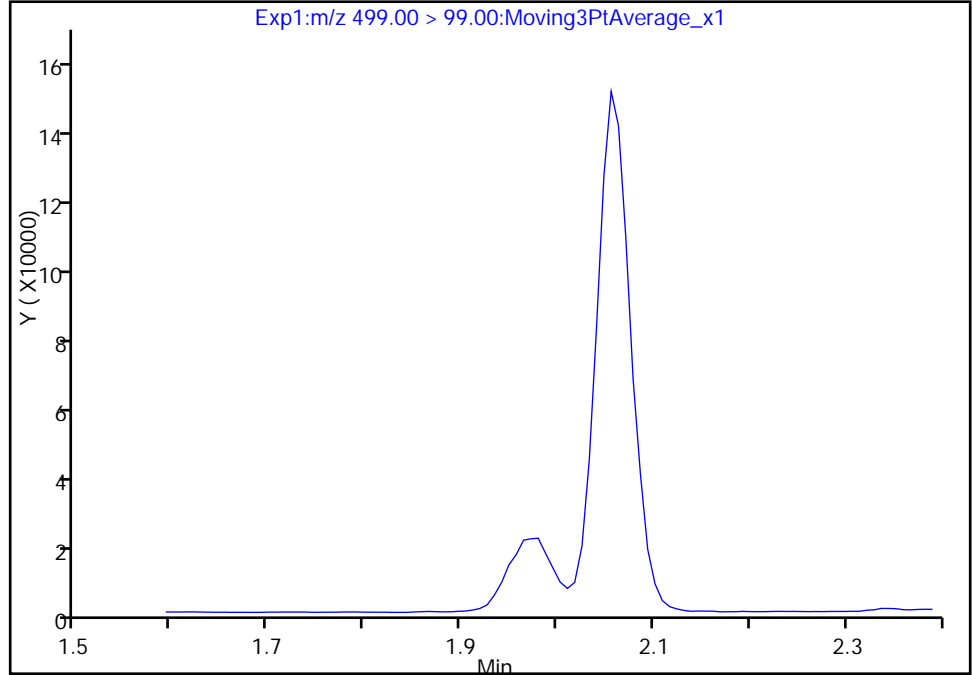
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Injection Date: 06-Feb-2018 12:20:29 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 12  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

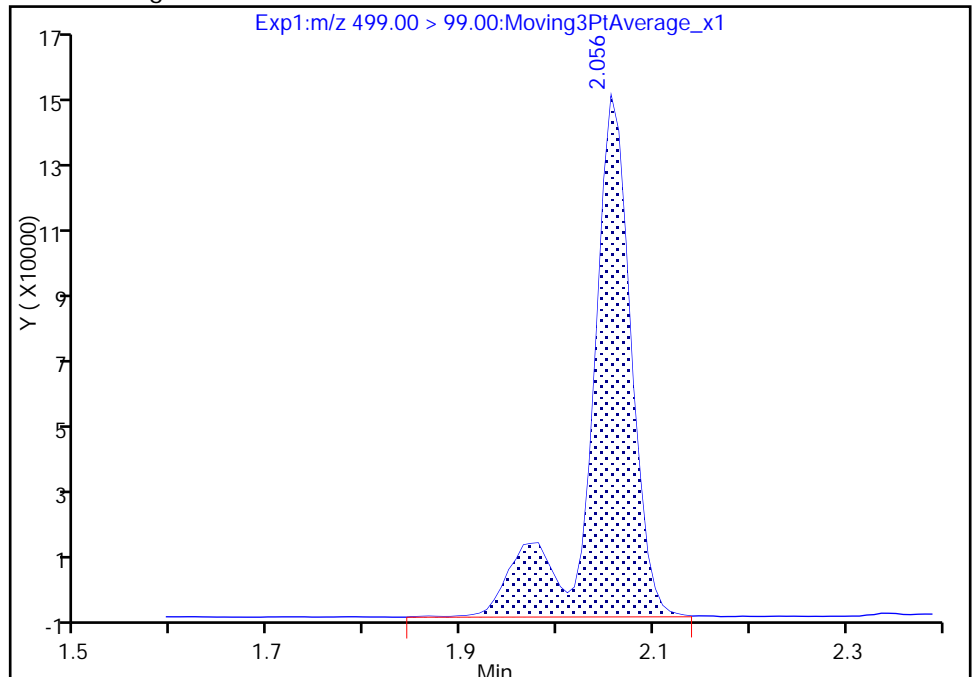
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 424318  
Amount: 20.924868  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 13:48:16  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

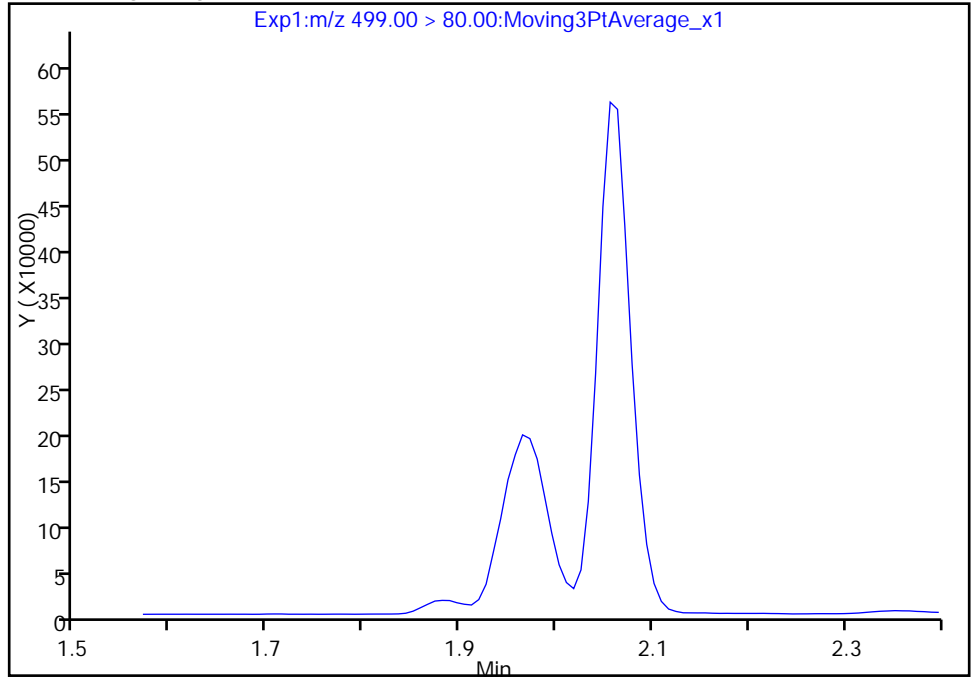
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Injection Date: 06-Feb-2018 12:20:29 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 12  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

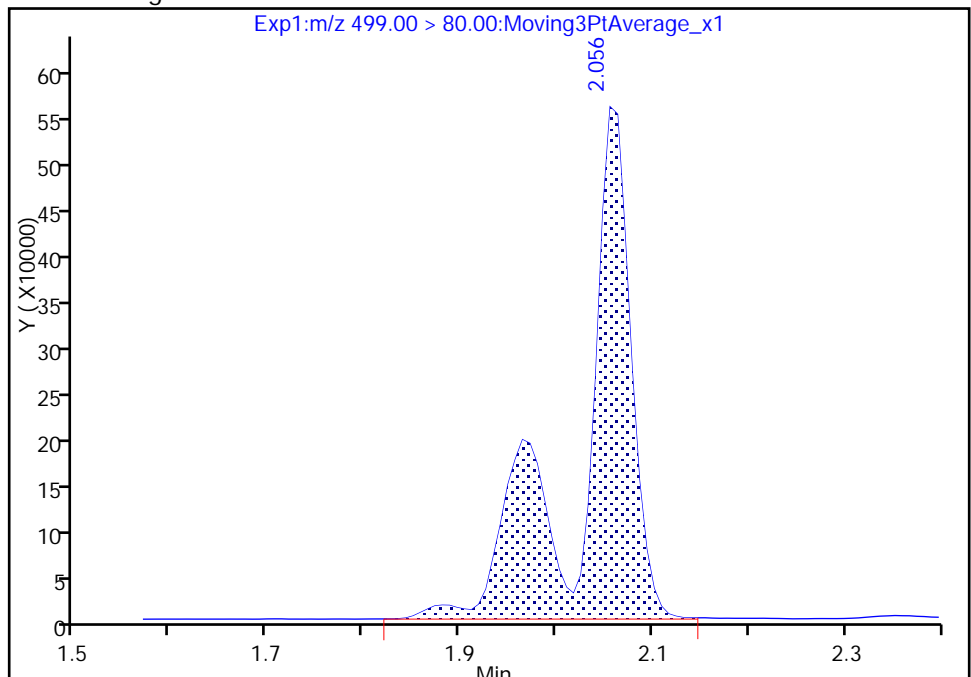
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 2056296  
Amount: 20.924868  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 13:48:16

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-206187/1-A  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_003.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/02/2018 22:36  
 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.: 206870 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	95		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_003.d  
 Lims ID: MB 320-206187/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 02-Feb-2018 22:36:37 ALS Bottle#: 1 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-206187/1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.487	1.487	0.0	1.000	1532187	9.47	7697	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.813	0.0		1470153	10.0	7062	
* 7 13C4 PFOS	503.00 > 80.00	2.064	2.064	0.0		3110781	28.7	7305	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.246	0.0	1.000	1088142	9.67	8110	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_003.d

Injection Date: 02-Feb-2018 22:36:37

Instrument ID: A8\_N

Lims ID: MB 320-206187/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 3

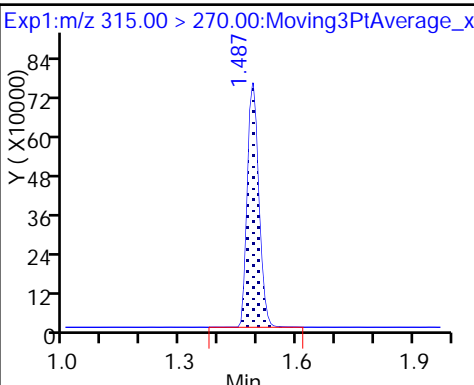
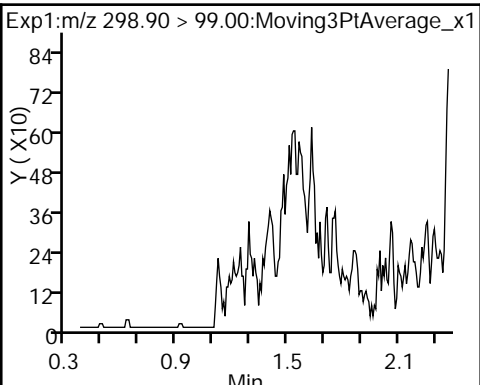
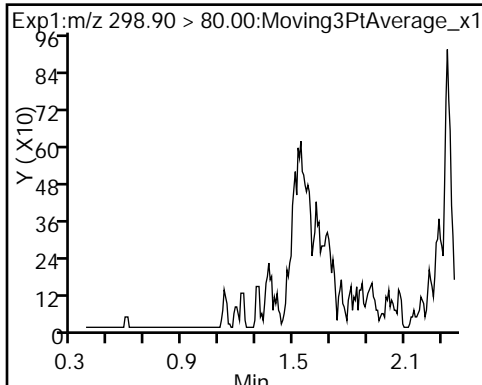
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

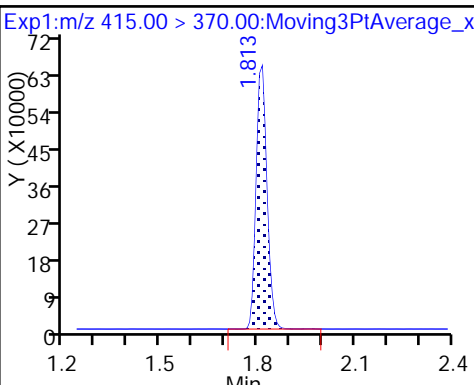
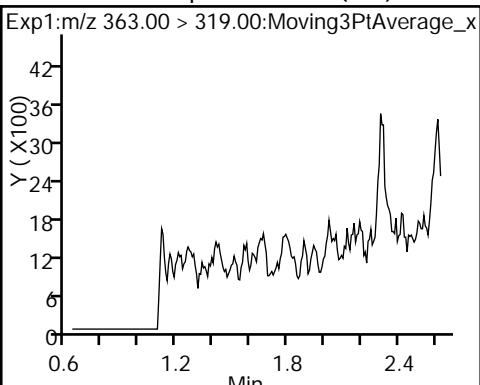
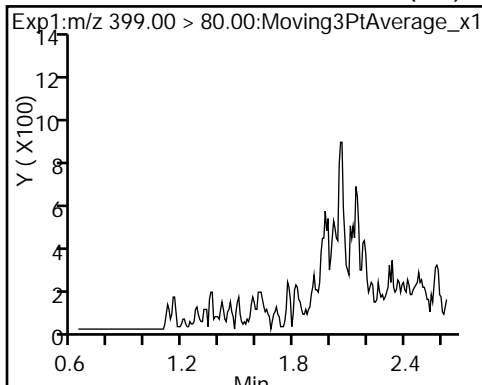
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

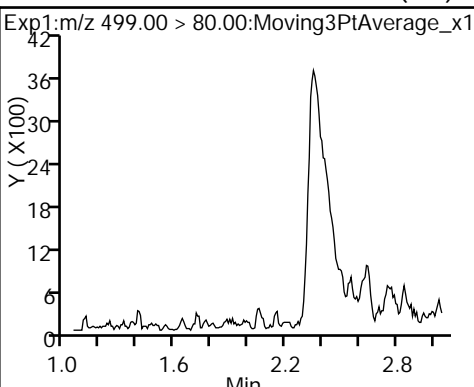
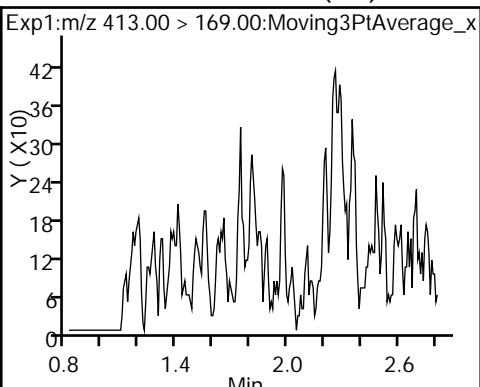
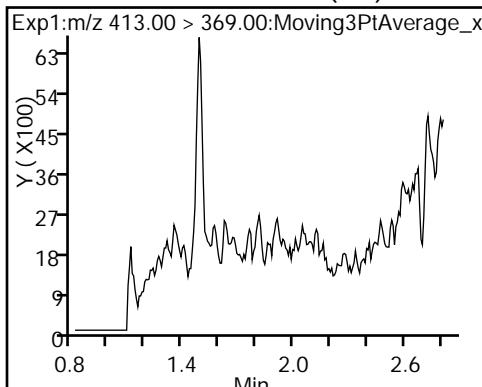
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



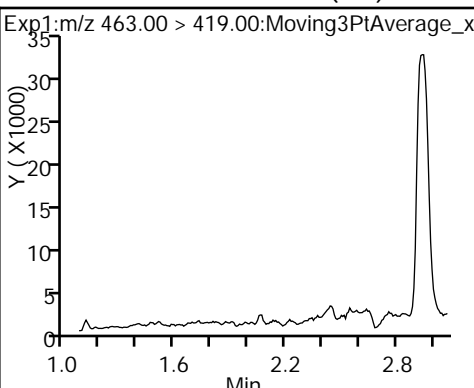
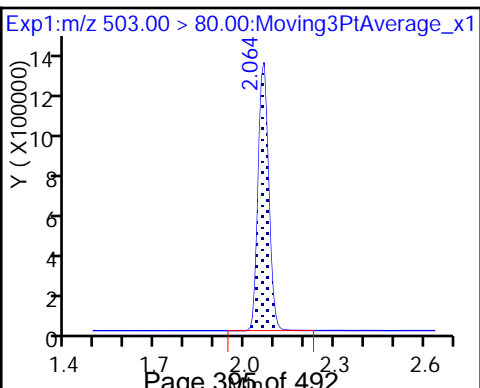
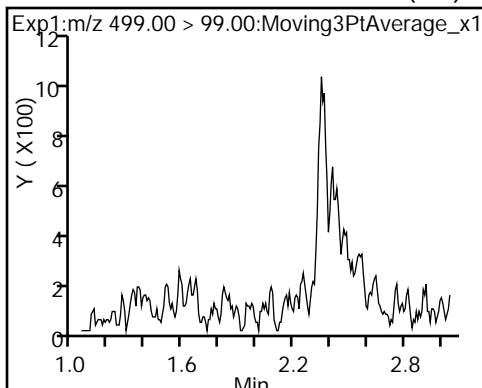
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



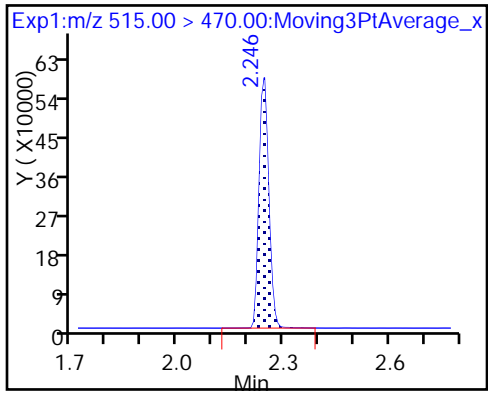
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_003.d  
 Lims ID: MB 320-206187/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 02-Feb-2018 22:36:37 ALS Bottle#: 1 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-206187/1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.47	94.72
\$ 10 13C2 PFDA	10.0	9.67	96.73

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-206188/1-A  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_031.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:51  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/06/2018 11:38  
 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.: 207174 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	95		70-130
STL00996	13C2 PFDA	104		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_031.d  
 Lims ID: MB 320-206188/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 06-Feb-2018 11:38:24 ALS Bottle#: 23 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-206188/1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:42:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.495	1.517	-0.022	1.000	1290092	9.51	6772	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.828	-0.015		1232387	10.0	4928	
* 7 13C4 PFOS	503.00 > 80.00	2.064	2.071	-0.007		2990970	28.7	6305	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.246	0.0	1.000	980637	10.4	6472	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_031.d

Injection Date: 06-Feb-2018 11:38:24

Instrument ID: A8\_N

Lims ID: MB 320-206188/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

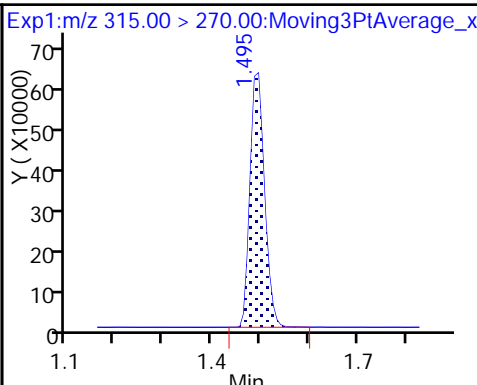
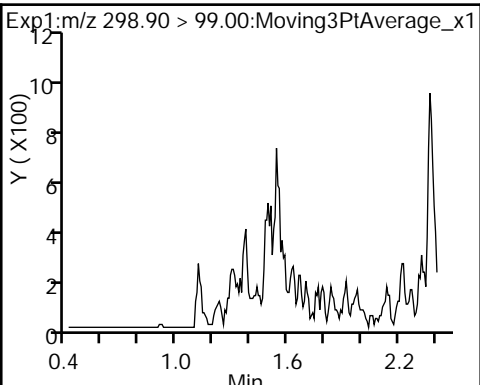
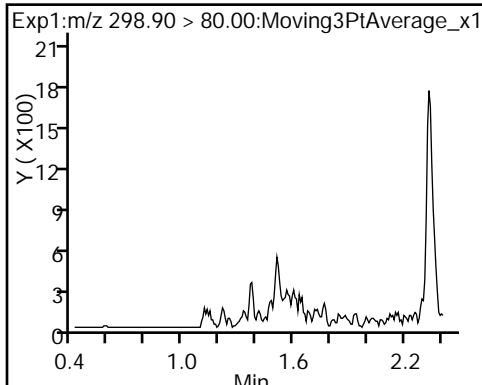
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

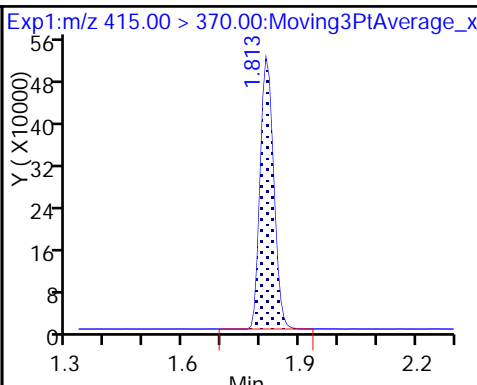
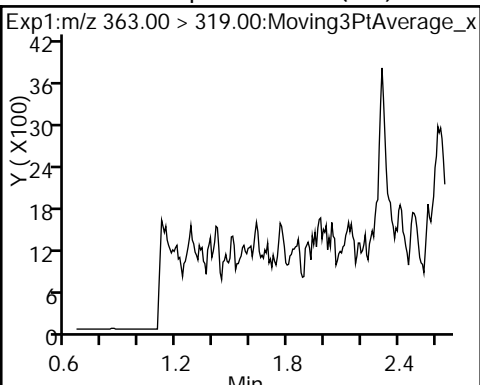
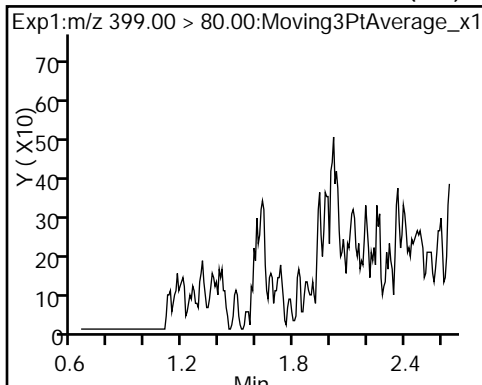
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

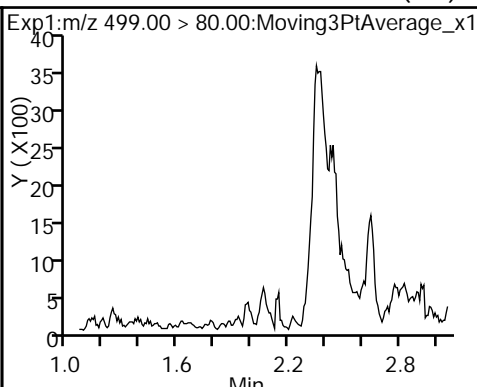
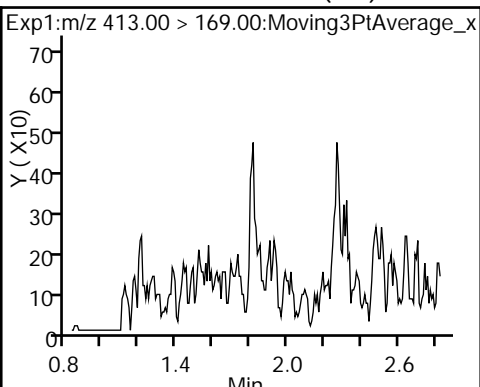
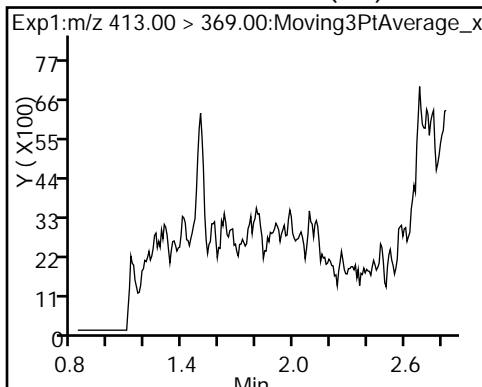
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

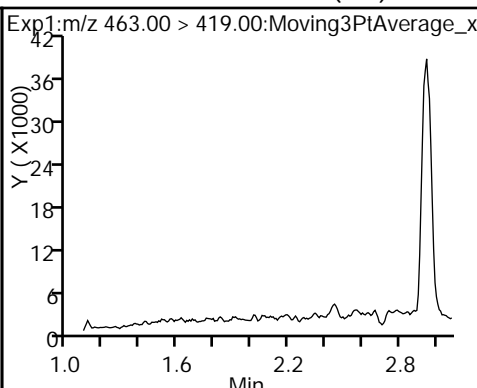
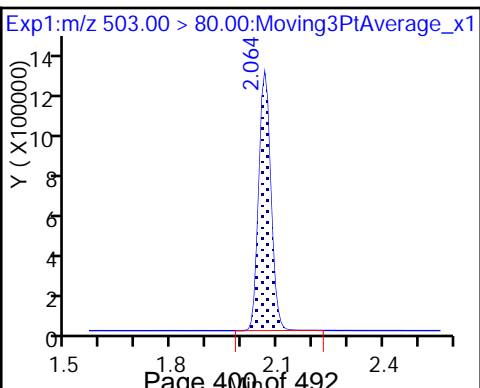
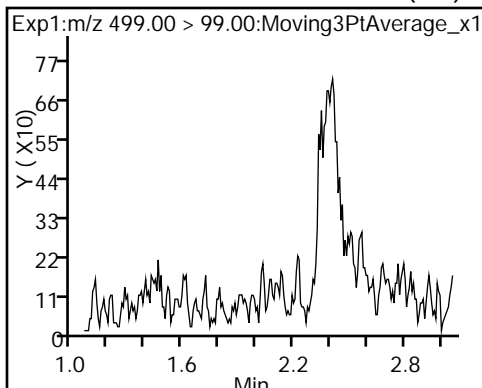
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

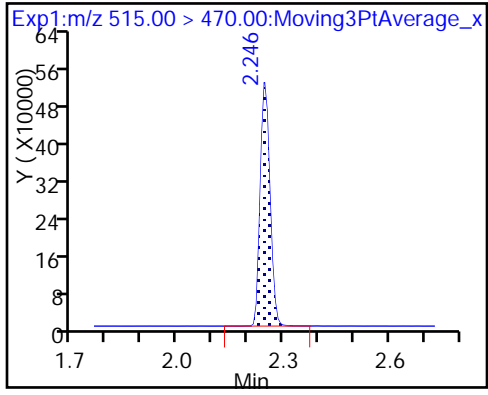


8 Perfluorooctane sulfonic acid (ND) \* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_031.d  
 Lims ID: MB 320-206188/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 06-Feb-2018 11:38:24 ALS Bottle#: 23 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-206188/1-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:42:43

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.51	95.14
\$ 10 13C2 PFDA	10.0	10.4	103.99

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-206187/2-A  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_004.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/02/2018 22:41  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	132	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	72.5		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	68.3		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	113		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	39.1		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	302		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_004.d  
 Lims ID: LCS 320-206187/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 02-Feb-2018 22:41:17 ALS Bottle#: 2 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-206187/2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: roycea Date: 05-Feb-2018 16:10:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	8331046	75.5		13327	
298.90 > 99.00	1.366	1.373	-0.007	1.000	6295242		1.32(0.00-0.00)	8955	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1427790	9.18		7102	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	5189303	28.3		9192	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	1295282	9.78		480	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1413534	10.0		6396	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	2371866	18.1		532	
413.00 > 169.00	1.806	1.813	-0.007	1.000	1262770		1.88(0.00-0.00)	3730	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	3385990	32.9		1971	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	730164		4.64(0.00-0.00)	1648	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3145452	28.7		8622	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.079	-0.015	1.000	1602954	17.1		258	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1105155	10.2		8168	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_004.d

Injection Date: 02-Feb-2018 22:41:17

Instrument ID: A8\_N

Lims ID: LCS 320-206187/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

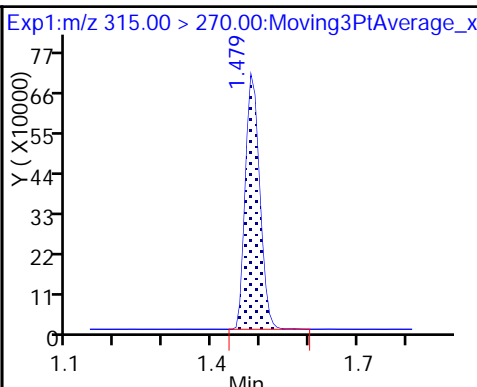
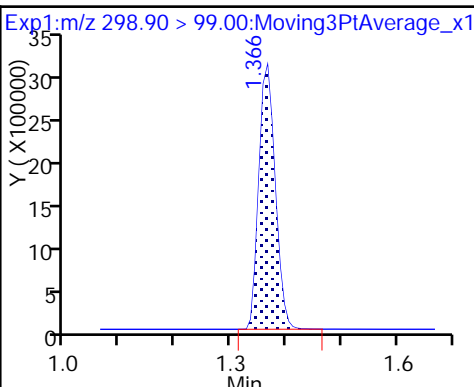
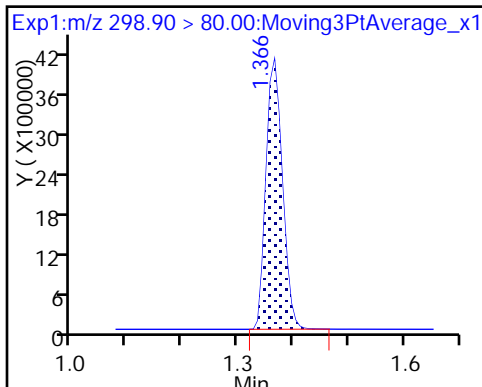
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

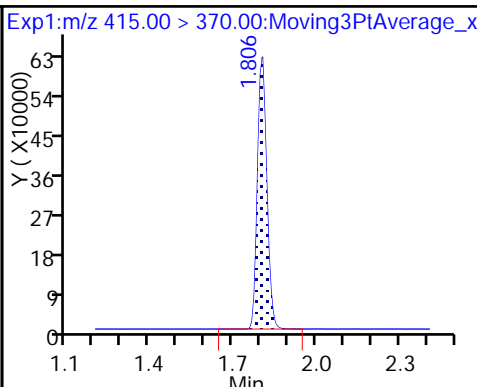
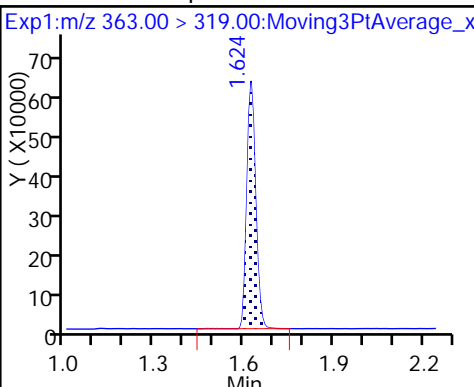
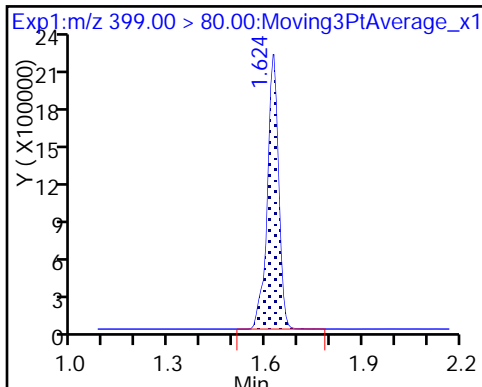
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

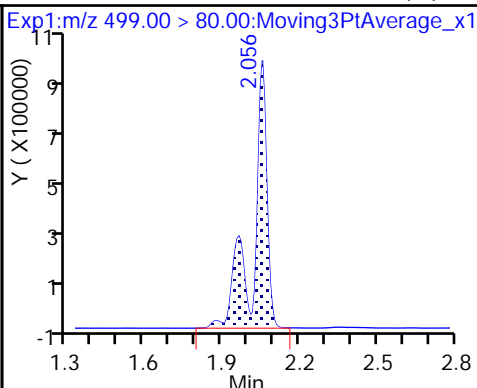
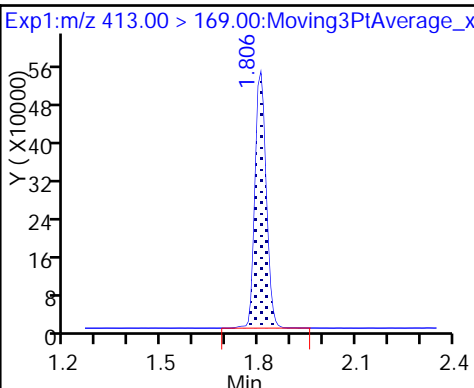
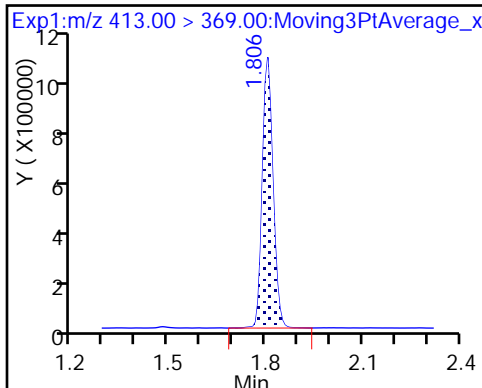
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

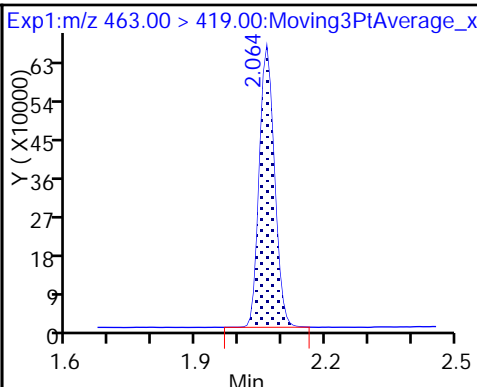
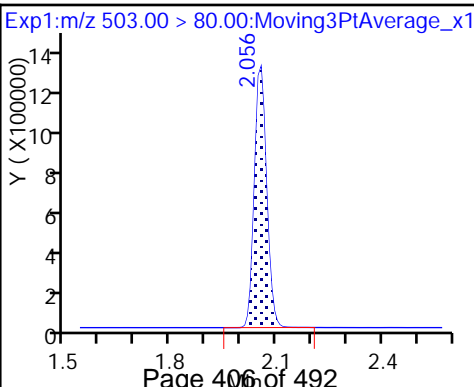
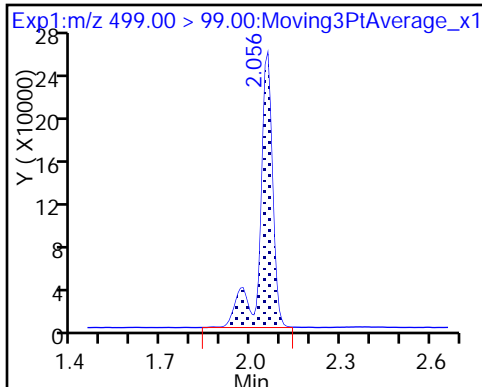
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

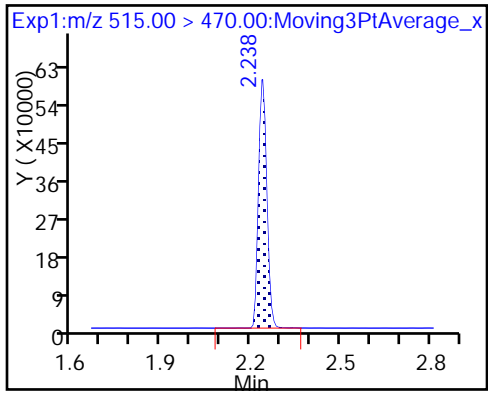
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_004.d  
 Lims ID: LCS 320-206187/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 02-Feb-2018 22:41:17 ALS Bottle#: 2 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-206187/2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:29 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK026

First Level Reviewer: roycea Date: 05-Feb-2018 16:10:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.18	91.80
\$ 10 13C2 PFDA	10.0	10.2	102.17

TestAmerica Sacramento

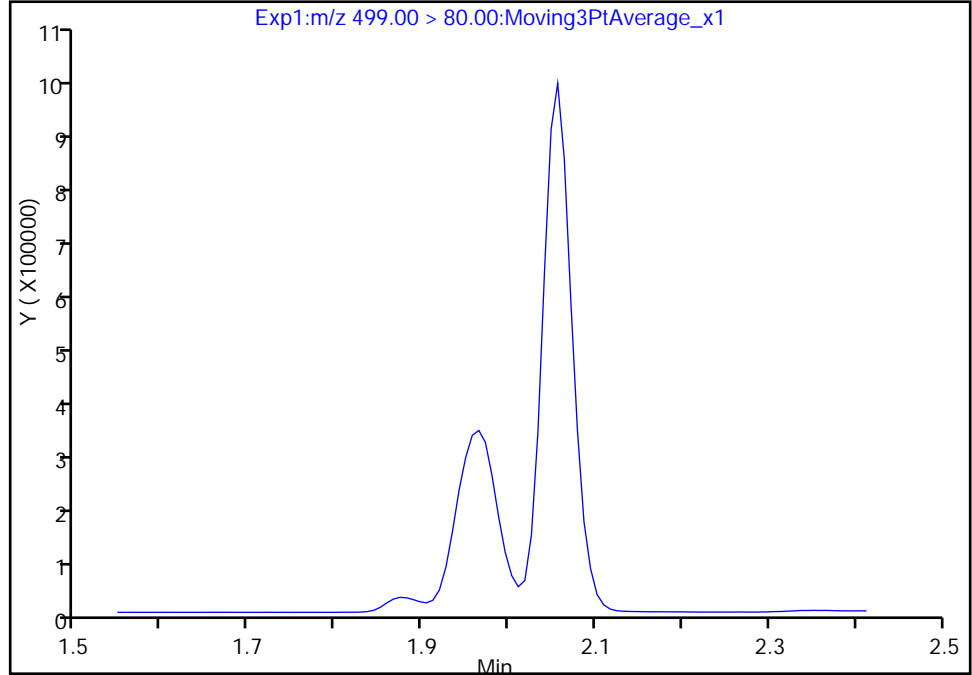
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_004.d  
Injection Date: 02-Feb-2018 22:41:17 Instrument ID: A8\_N  
Lims ID: LCS 320-206187/2-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

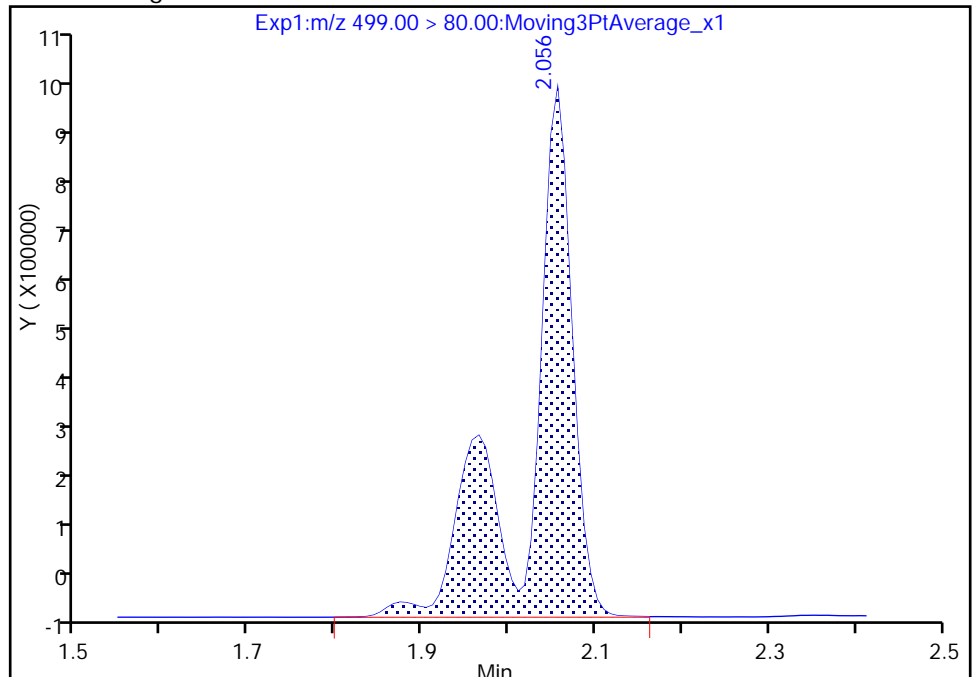
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 3385990  
Amount: 32.880612  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:07:45  
Audit Action: Manually Integrated

TestAmerica Sacramento

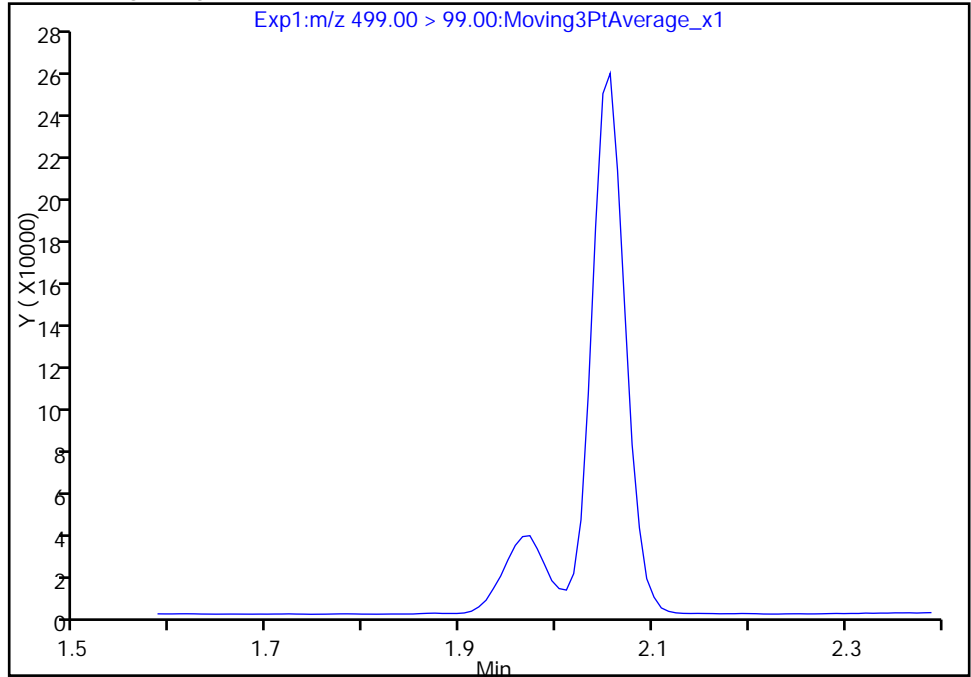
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_004.d  
Injection Date: 02-Feb-2018 22:41:17 Instrument ID: A8\_N  
Lims ID: LCS 320-206187/2-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

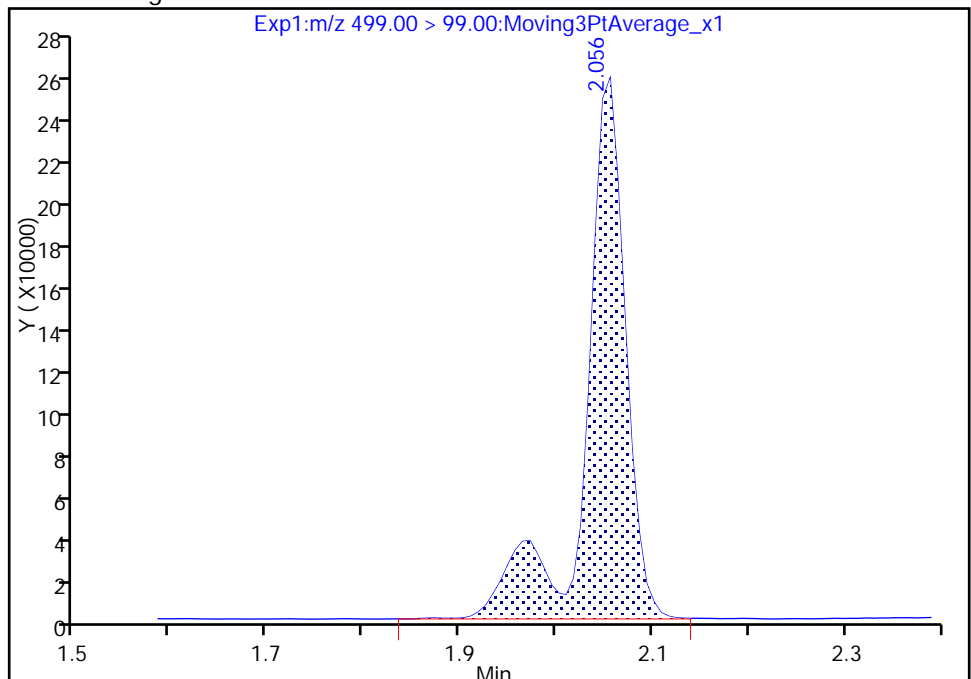
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 730164  
Amount: 32.880612  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:07:58

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-206188/2-A  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_032.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:51  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/06/2018 11:43  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 207174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	223	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	131		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	119		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	181		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	69.9		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	501		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_032.d  
 Lims ID: LCS 320-206188/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 06-Feb-2018 11:43:06 ALS Bottle#: 24 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-206188/2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:49:31

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.411	-0.045	1.000	12462837	125.3		16102	
298.90 > 99.00	1.366	1.411	-0.045	1.000	9372887		1.33(0.00-0.00)	14742	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.517	-0.030	1.000	1546981	11.0		8034	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.646	-0.022	1.000	8104587	45.3		12675	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.654	-0.030	1.000	2100185	17.5		714	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.828	-0.022		1282750	10.0		5118	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.828	-0.015	1.000	3878799	32.7		663	
413.00 > 169.00	1.806	1.828	-0.022	0.996	2165688		1.79(0.00-0.00)	6660	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	5592861	55.8		2548	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	1166757		4.79(0.00-0.00)	2276	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.071	-0.015		3062746	28.7		6393	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.086	-0.015	1.000	2535628	29.8		372	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1092166	11.1		7177	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_032.d

Injection Date: 06-Feb-2018 11:43:06

Instrument ID: A8\_N

Lims ID: LCS 320-206188/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

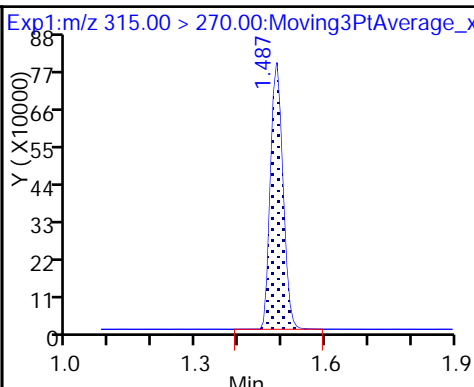
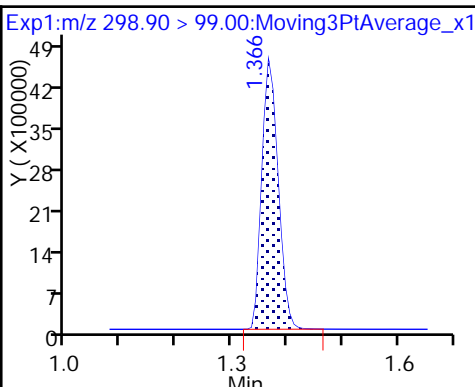
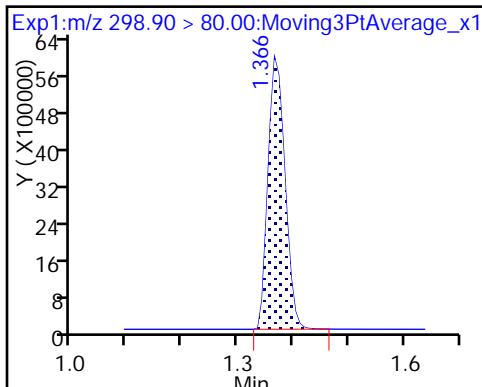
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

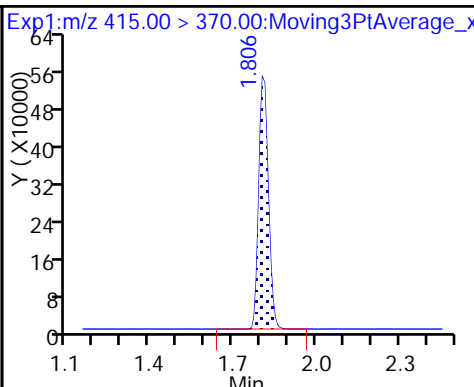
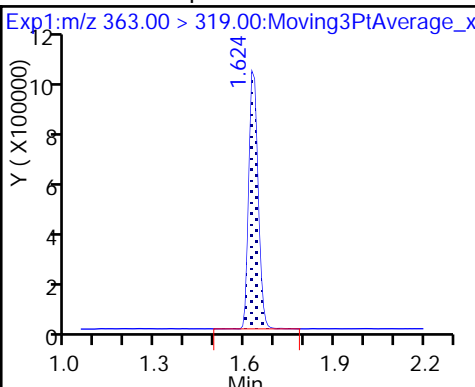
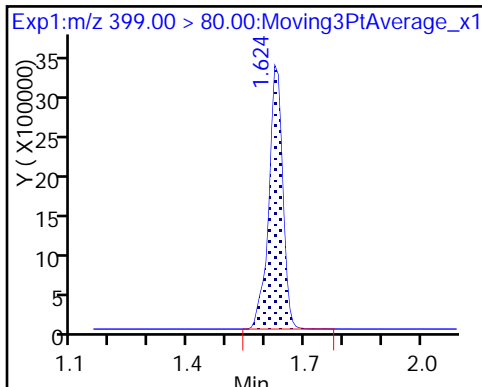
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

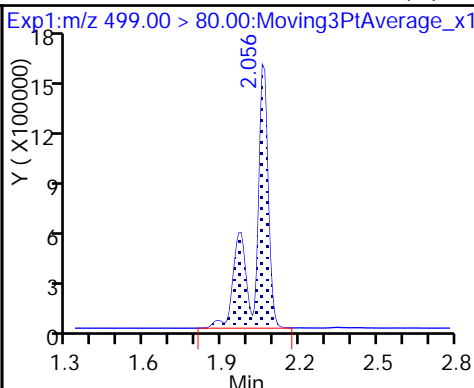
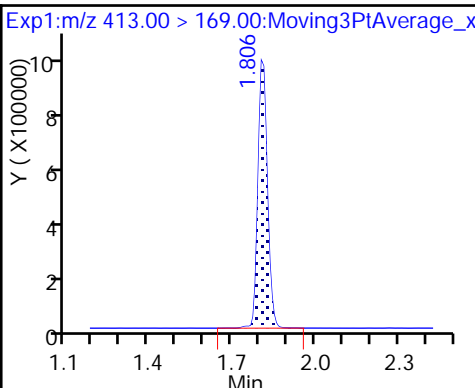
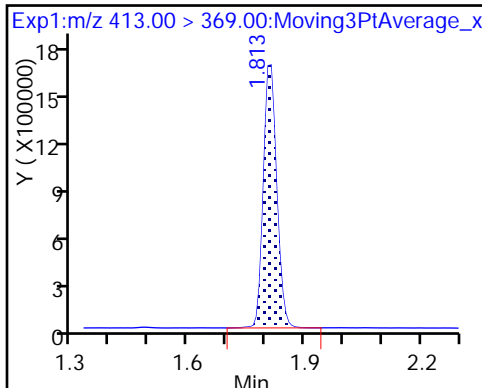
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

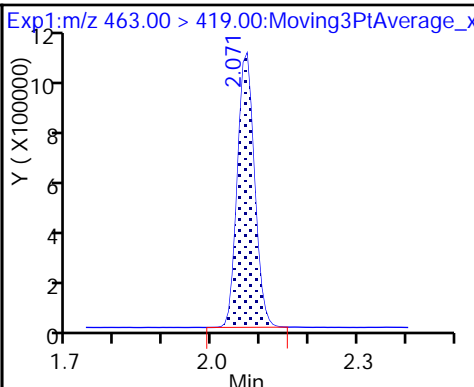
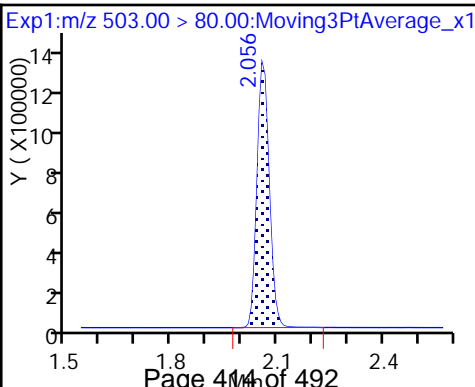
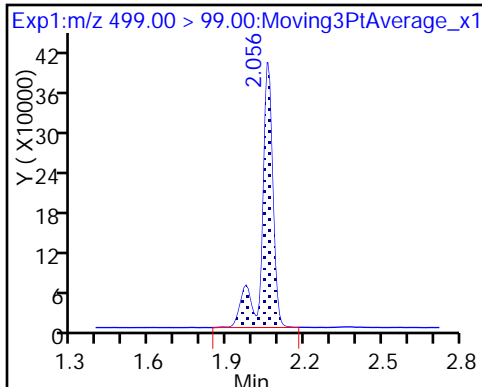
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

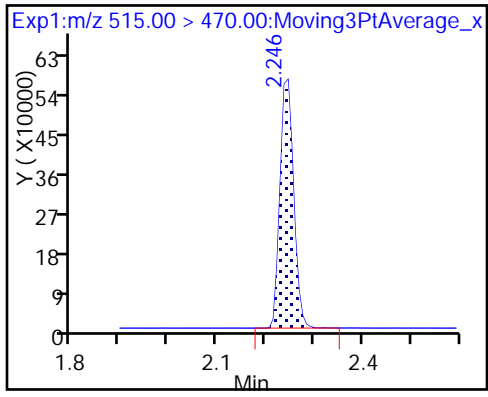
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_032.d  
 Lims ID: LCS 320-206188/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 06-Feb-2018 11:43:06 ALS Bottle#: 24 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-206188/2-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:49:31

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	109.61
\$ 10 13C2 PFDA	10.0	11.1	111.27

TestAmerica Sacramento

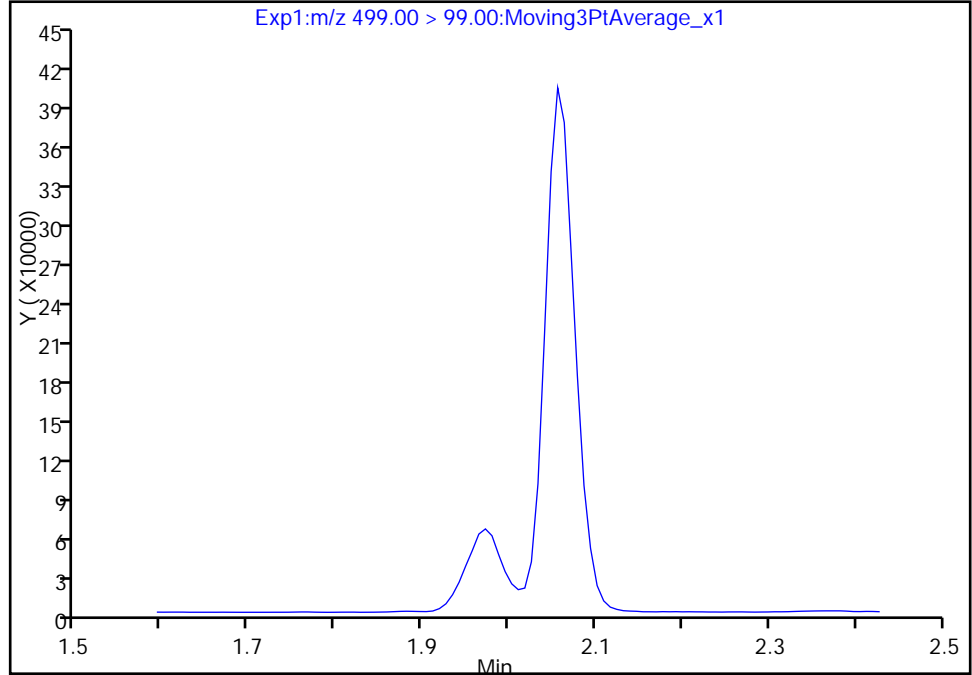
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_032.d  
Injection Date: 06-Feb-2018 11:43:06 Instrument ID: A8\_N  
Lims ID: LCS 320-206188/2-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

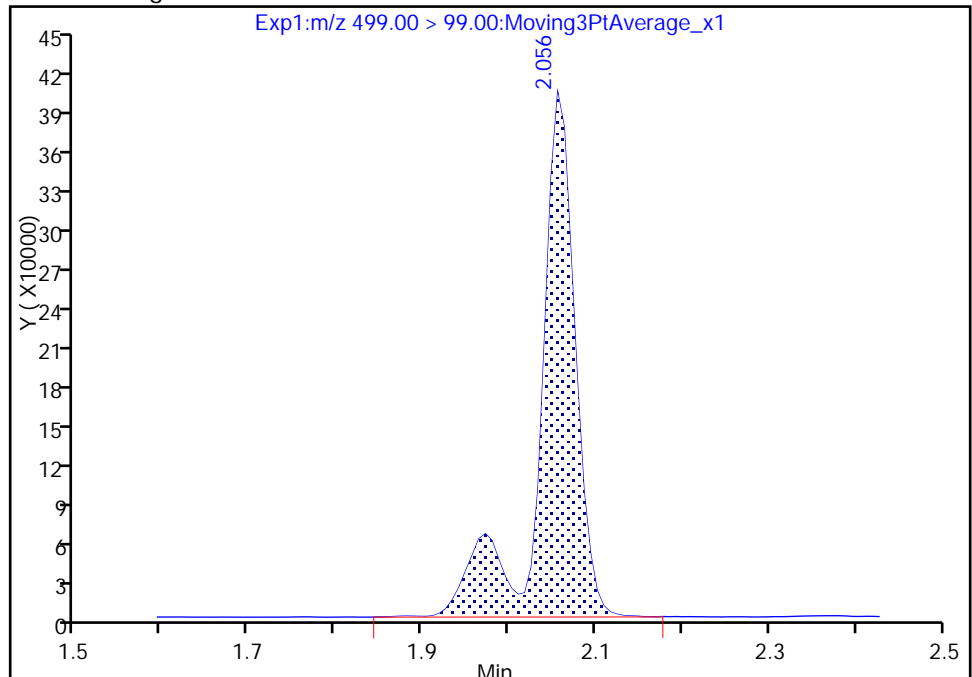
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 1166757  
Amount: 55.777665  
Amount Units: ng/ml



TestAmerica Sacramento

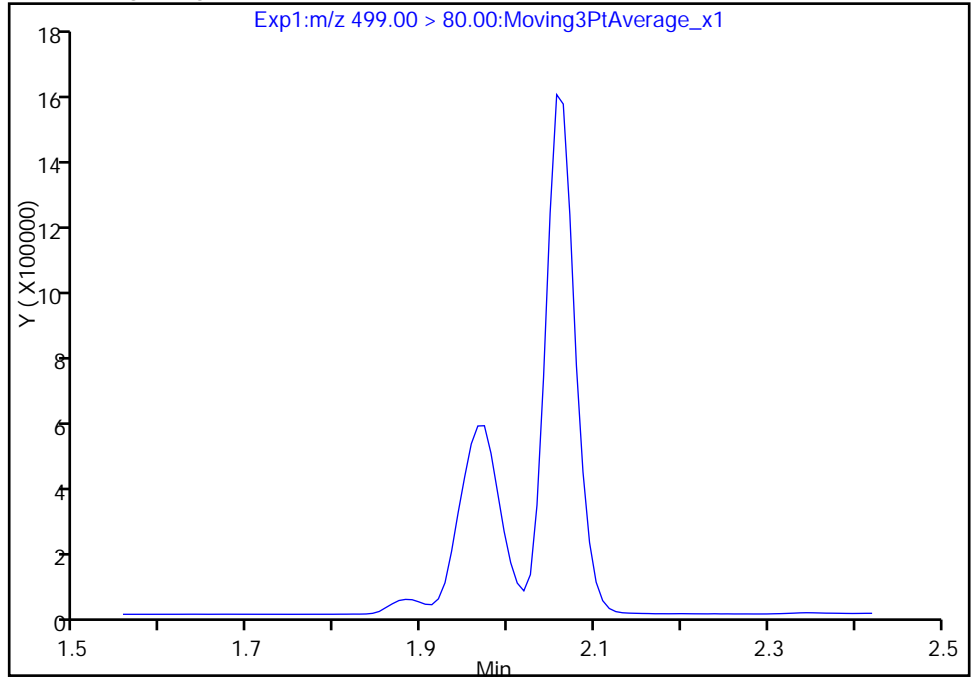
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_032.d  
Injection Date: 06-Feb-2018 11:43:06 Instrument ID: A8\_N  
Lims ID: LCS 320-206188/2-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

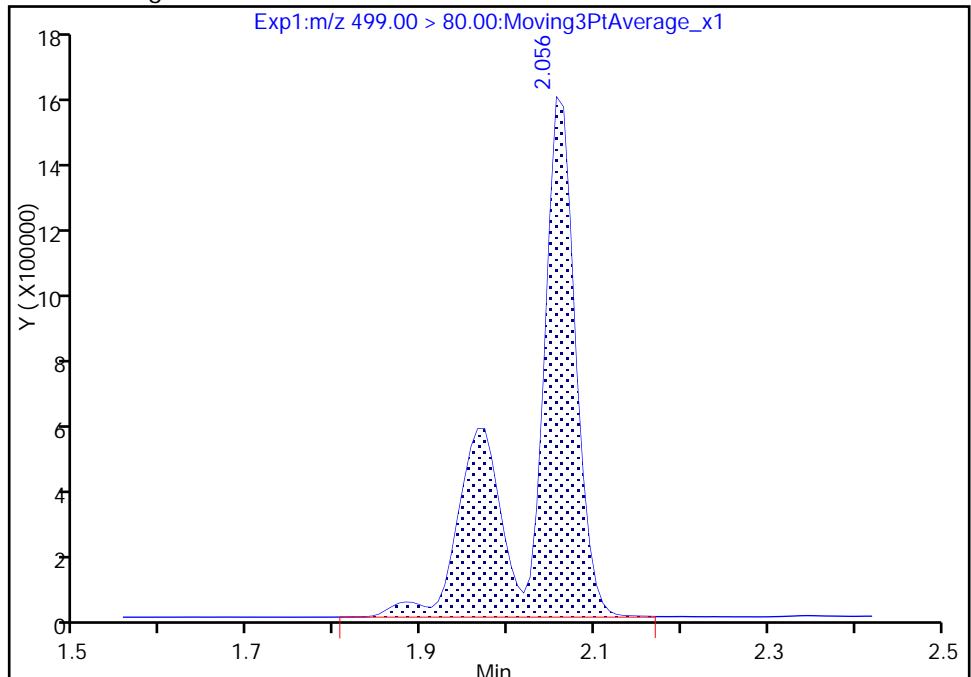
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 5592861  
Amount: 55.777665  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCSD 320-206188/3-A  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_033.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:51  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/06/2018 11:47  
 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.: 207174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	238	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	130		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	121		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	187		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	70.1		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	479		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_033.d  
 Lims ID: LCSD 320-206188/3-A  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 06-Feb-2018 11:47:46 ALS Bottle#: 25 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcsd 320-206188/3-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:50:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.411	-0.045	1.000	12103620	119.8		16215	
298.90 > 99.00	1.366	1.411	-0.045	1.000	9294670		1.30(0.00-0.00)	13995	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.517	-0.030	1.000	1503910	10.4		7859	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.646	-0.015	1.000	8421238	46.8		13681	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.654	-0.023	1.000	2164537	17.5		735	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.828	-0.022		1317479	10.0		5679	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.828	-0.015	1.000	3973672	32.6		656	
413.00 > 169.00	1.806	1.828	-0.022	0.996	2190100		1.81(0.00-0.00)	6349	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.056	0.008	1.000	6007059	59.5		2235	Ma
499.00 > 99.00	2.056	2.056	0.0	0.996	1223606		4.91(0.00-0.00)	1898	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.071	-0.015		3082289	28.7		6753	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.086	-0.015	1.000	2638315	30.2		369	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1080713	10.7		7095	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_033.d

Injection Date: 06-Feb-2018 11:47:46

Instrument ID: A8\_N

Lims ID: LCSD 320-206188/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

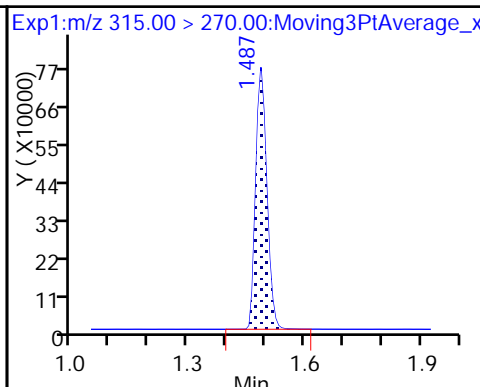
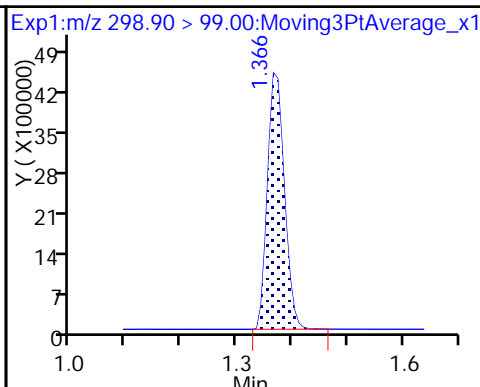
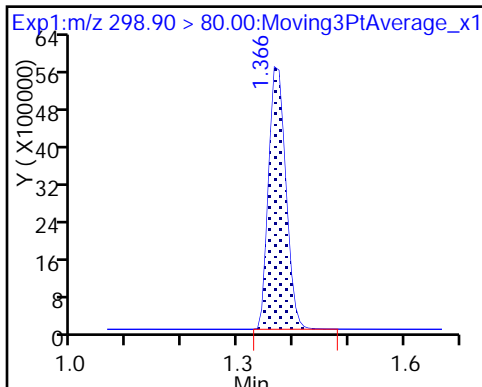
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

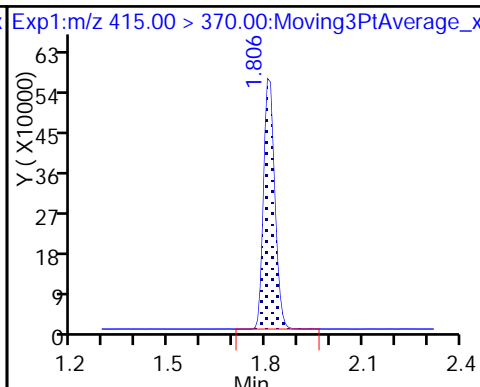
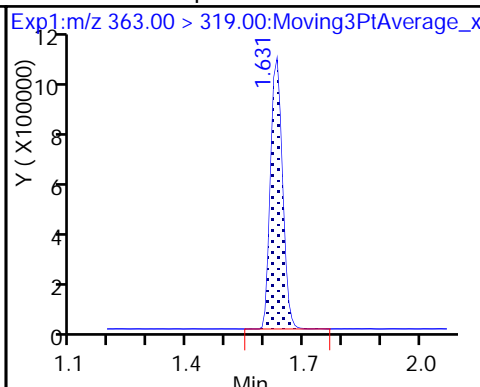
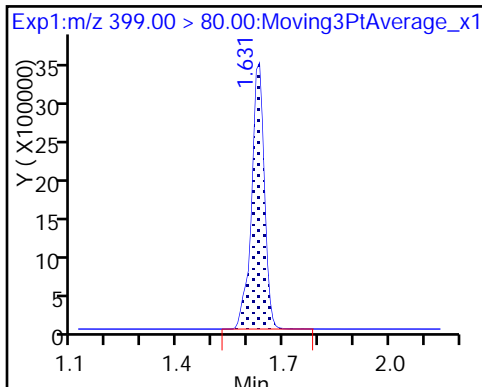
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

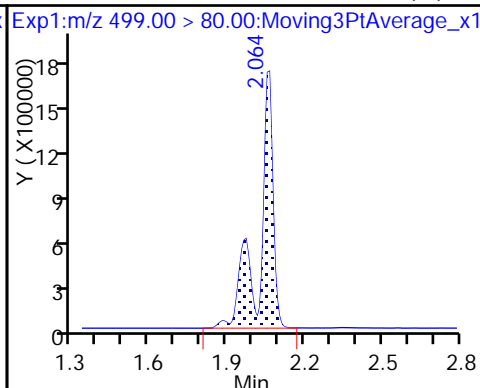
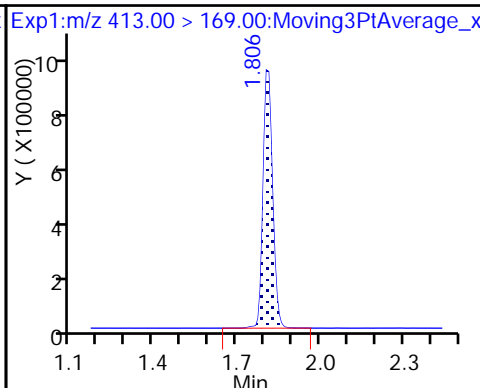
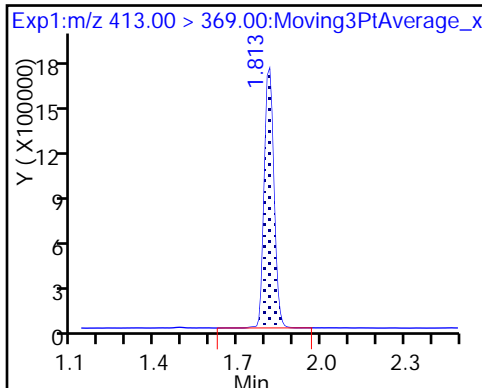
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

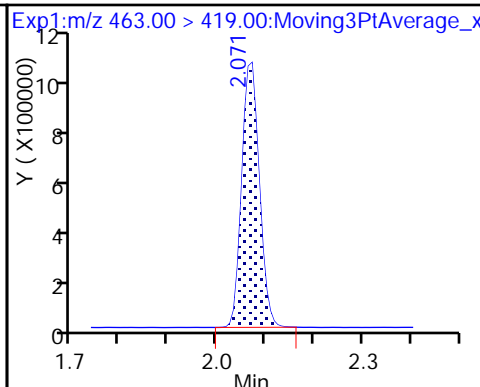
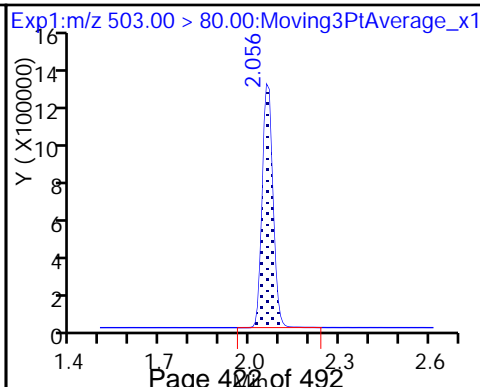
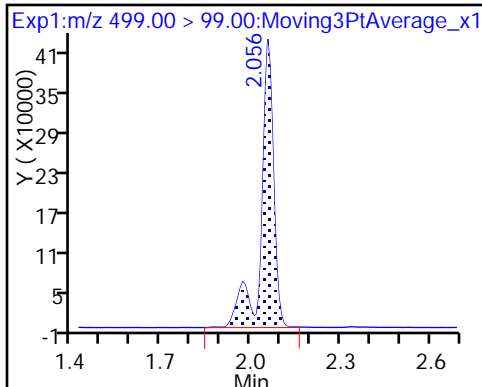
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)

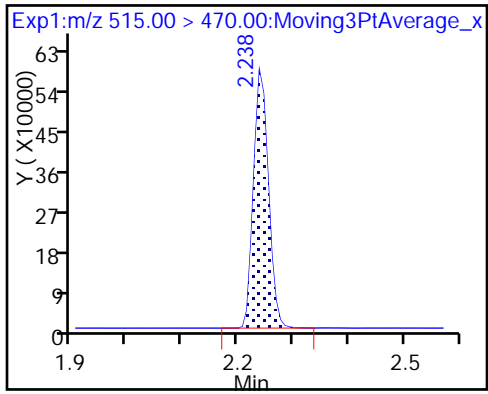
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_033.d  
 Lims ID: LCSD 320-206188/3-A  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 06-Feb-2018 11:47:46 ALS Bottle#: 25 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcsd 320-206188/3-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 13:55:33 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 13:50:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	103.75
\$ 10 13C2 PFDA	10.0	10.7	107.20

TestAmerica Sacramento

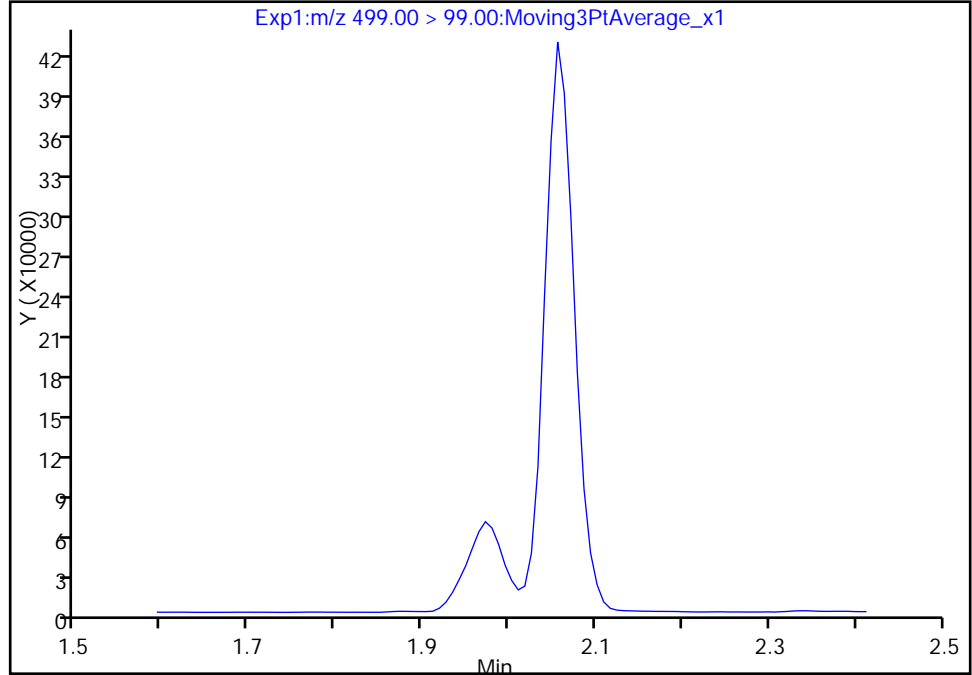
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_033.d  
Injection Date: 06-Feb-2018 11:47:46 Instrument ID: A8\_N  
Lims ID: LCSD 320-206188/3-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

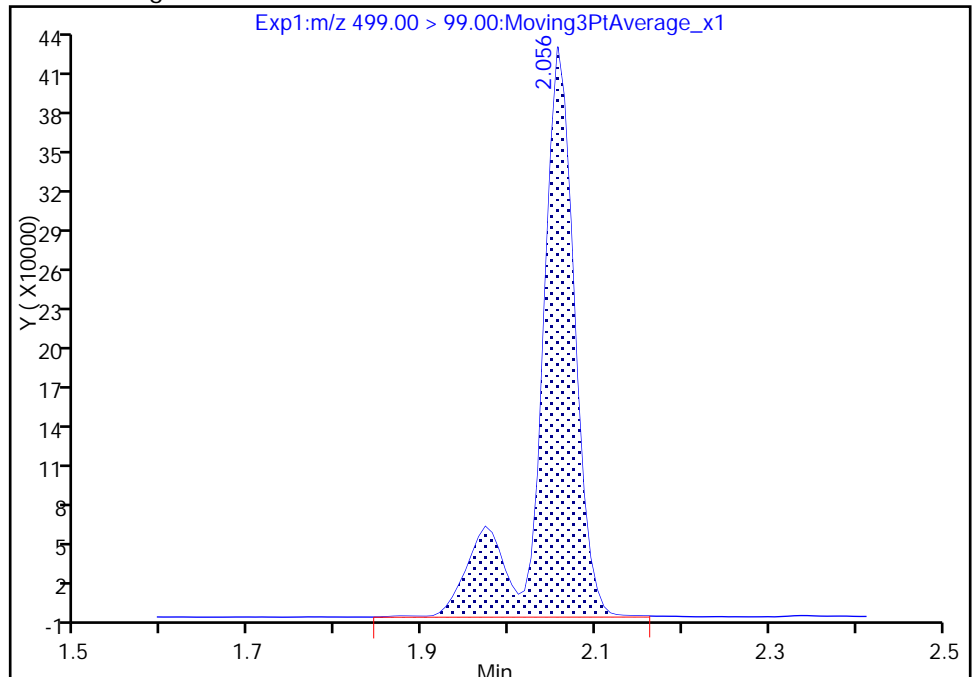
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 1223606  
Amount: 59.528622  
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 13:50:01  
Audit Action: Manually Integrated

TestAmerica Sacramento

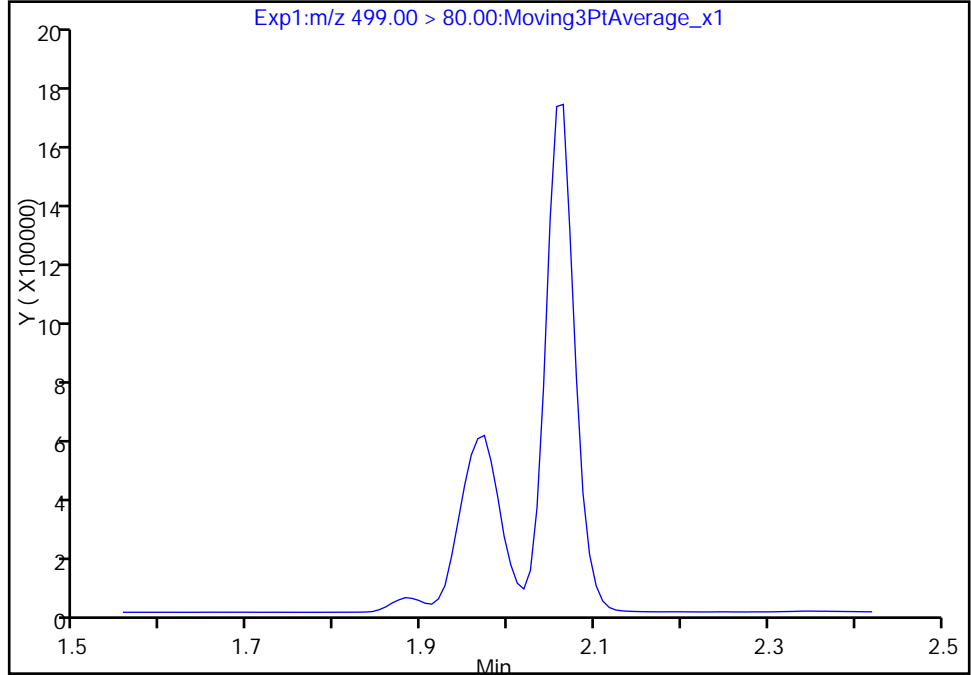
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b\2018.02.06\_537B\_033.d  
Injection Date: 06-Feb-2018 11:47:46 Instrument ID: A8\_N  
Lims ID: LCSD 320-206188/3-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

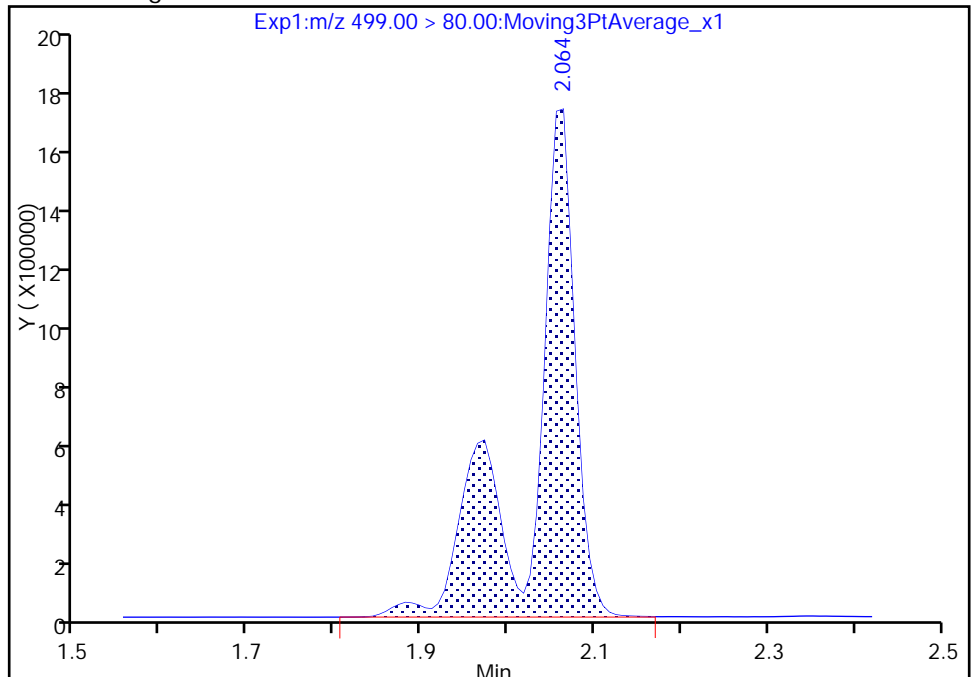
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 6007059  
Amount: 59.528622  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0515 MS Lab Sample ID: 320-35148-20 MS  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_029.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.5 (mL) Date Analyzed: 02/03/2018 00:38  
 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.: 206874 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	158	M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	102		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	66.3		24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	131		30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	42.6		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	308		91	36	16

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_029.d  
 Lims ID: 320-35148-A-20-B MS  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: MS  
 Inject. Date: 03-Feb-2018 00:38:13 ALS Bottle#: 23 Worklist Smp#: 29  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-b ms  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:23:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	8692840	76.3		10125	
298.90 > 99.00	1.366	1.366	0.0	1.000	6546660		1.33(0.00-0.00)	9488	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1601467	9.64		7714	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	6150067	32.4		5027	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1493873	10.6		363	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1510528	10.0		6427	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	3521758	25.2		640	
413.00 > 169.00	1.806	1.806	0.0	1.000	2038839		1.73(0.00-0.00)	5488	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	4159976	39.1		1814	Ma
499.00 > 99.00	2.048	2.056	-0.008	1.000	855214		4.86(0.00-0.00)	1388	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3251232	28.7		5119	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1646718	16.4		261	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1093083	9.46		7865	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_029.d

Injection Date: 03-Feb-2018 00:38:13

Instrument ID: A8\_N

Lims ID: 320-35148-A-20-B MS

Client ID: WGNA-011618-RW-0515

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

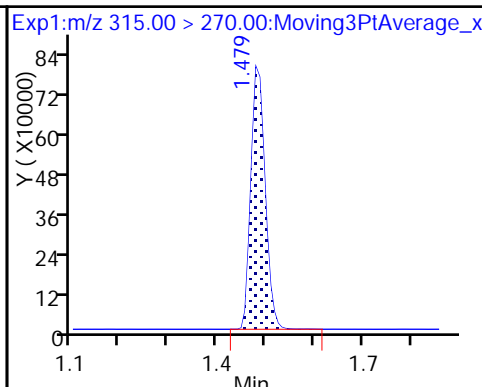
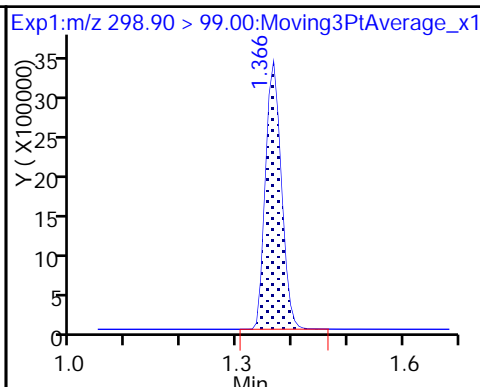
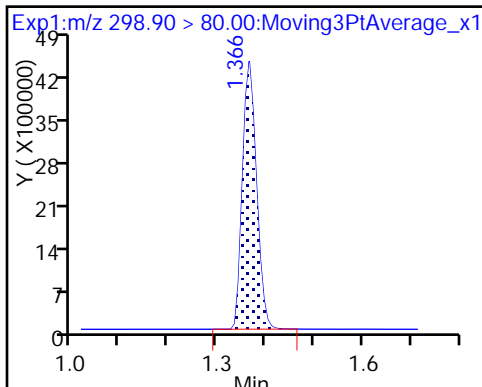
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

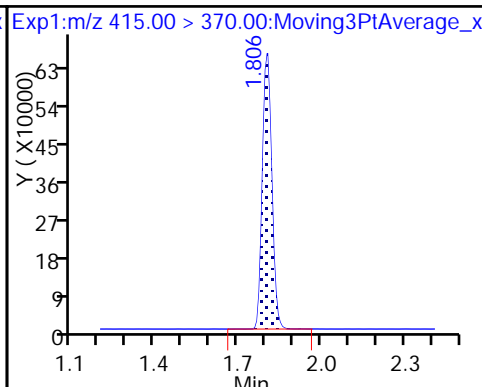
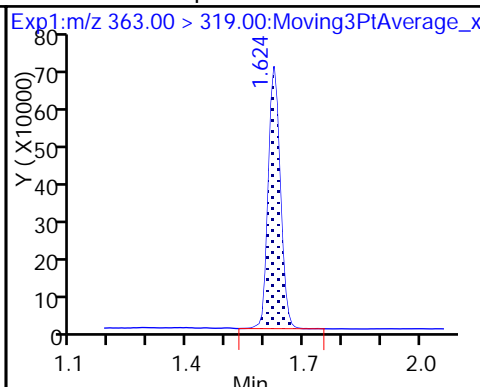
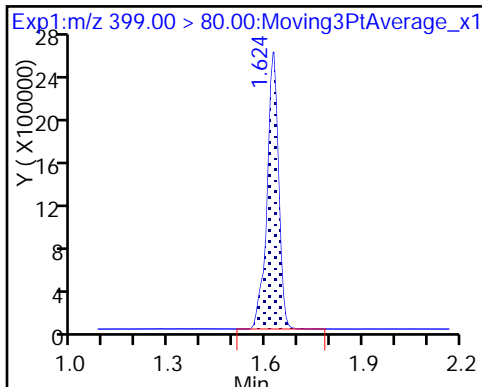
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

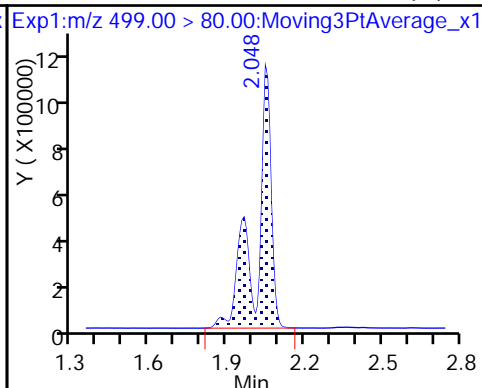
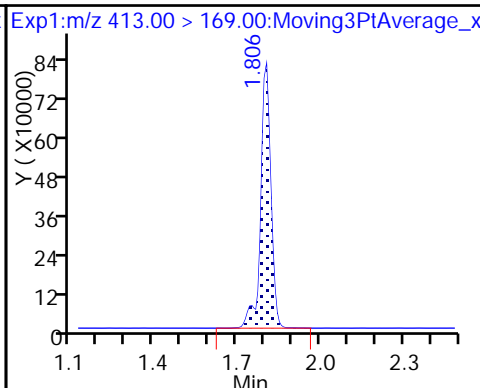
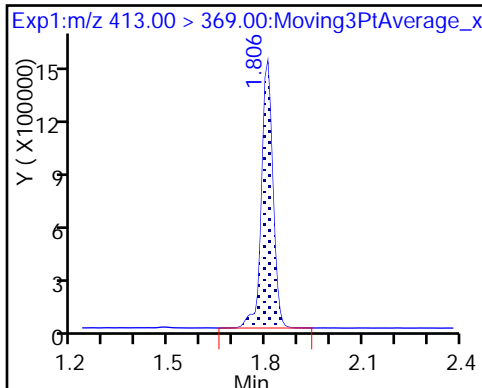
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

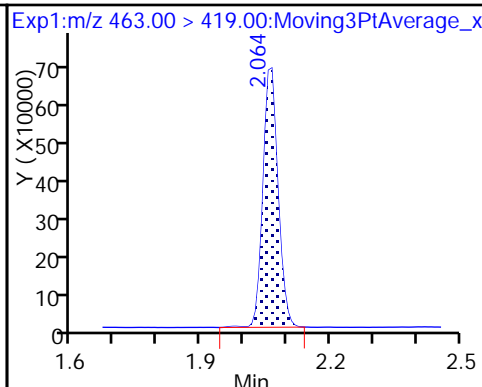
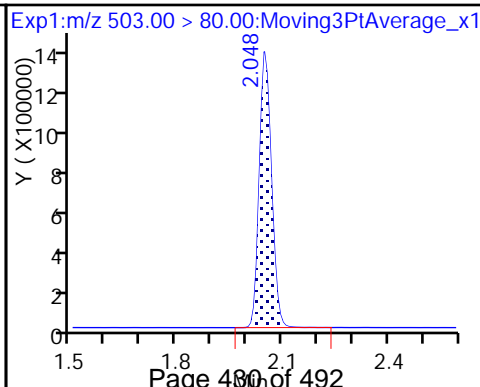
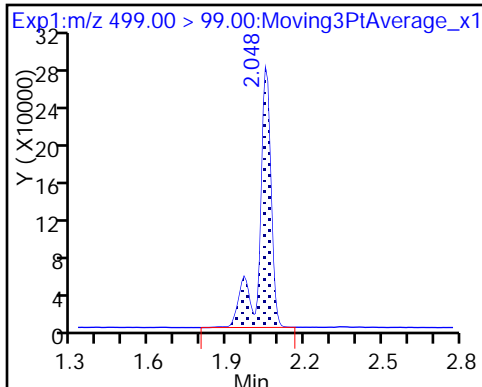
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid

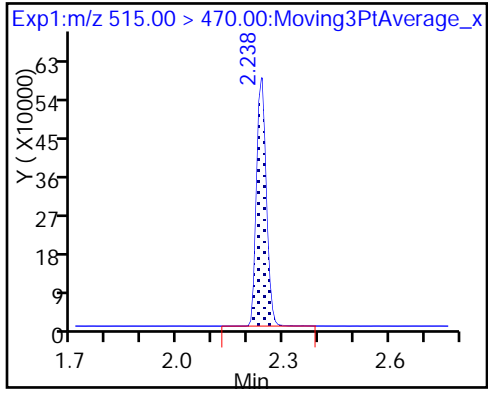
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_029.d  
 Lims ID: 320-35148-A-20-B MS  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: MS  
 Inject. Date: 03-Feb-2018 00:38:13 ALS Bottle#: 23 Worklist Smp#: 29  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-b ms  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:23:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.64	96.36
\$ 10 13C2 PFDA	10.0	9.46	94.57

TestAmerica Sacramento

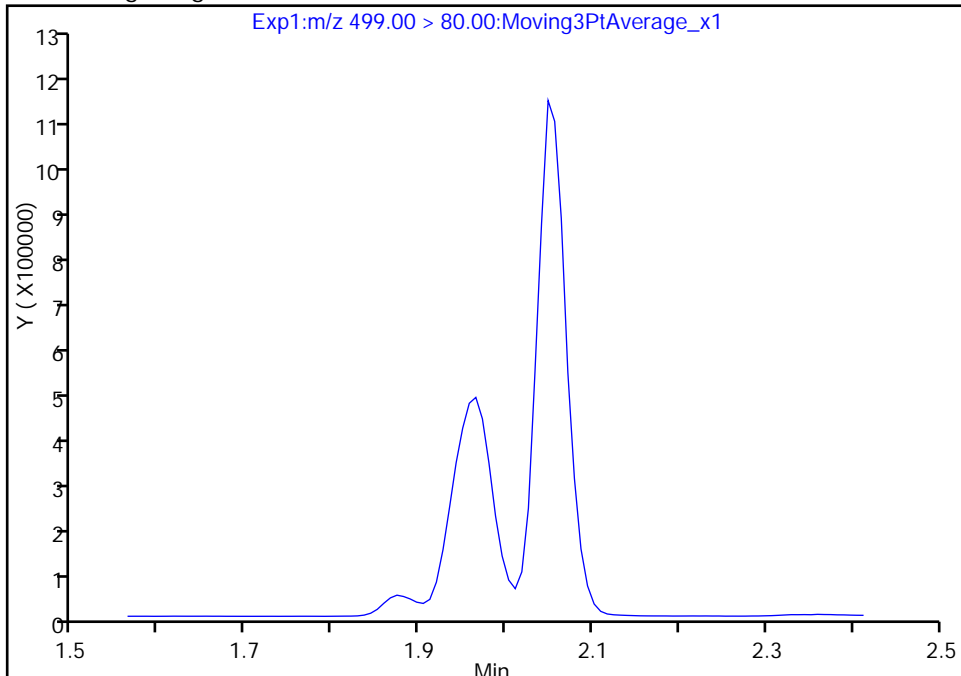
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_029.d  
Injection Date: 03-Feb-2018 00:38:13 Instrument ID: A8\_N  
Lims ID: 320-35148-A-20-B MS  
Client ID: WGNA-011618-RW-0515  
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 29  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

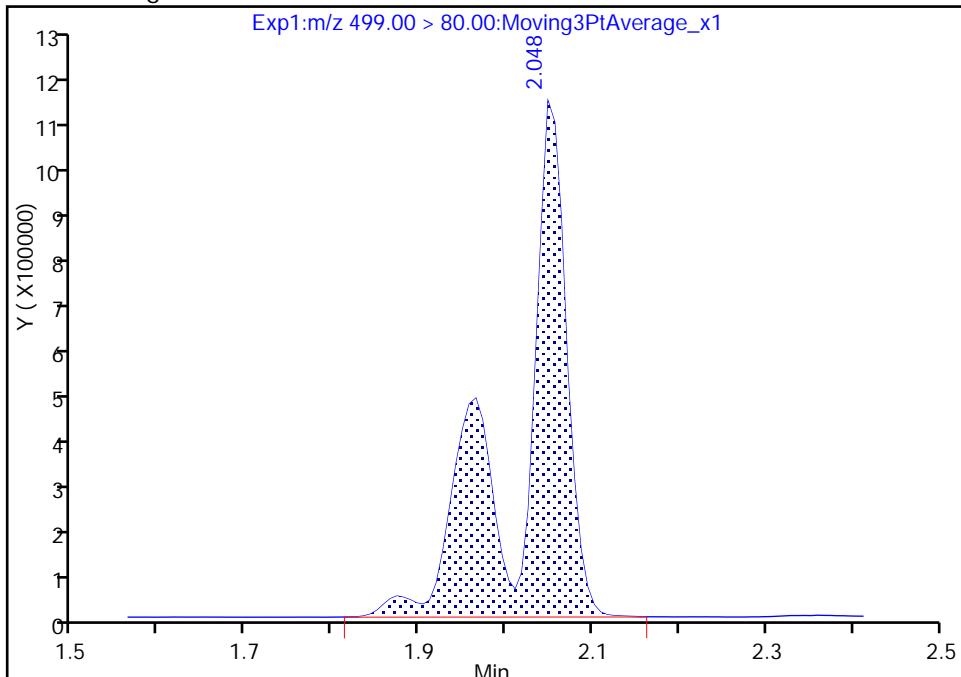
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.05  
Area: 4159976  
Amount: 39.082303  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:23:11  
Audit Action: Manually Integrated

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0515 MSD Lab Sample ID: 320-35148-20 MSD  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_030.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 249.2 (mL) Date Analyzed: 02/03/2018 00:42  
 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.: 206874 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	162	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	104		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	68.2		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	132		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	42.9		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	324		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_030.d  
 Lims ID: 320-35148-A-20-C MSD  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: MSD  
 Inject. Date: 03-Feb-2018 00:42:54 ALS Bottle#: 24 Worklist Smp#: 30  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-c msd  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:06:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	9344095	80.8		9071	
298.90 > 99.00	1.366	1.366	0.0	1.000	7062306		1.32(0.00-0.00)	9540	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1633713	9.70		7640	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	6358827	32.8		5107	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1534231	10.7		362	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1531476	10.0		5807	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	3688490	26.0		698	
413.00 > 169.00	1.806	1.806	0.0	1.000	2011567		1.83(0.00-0.00)	5177	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	4380826	40.3		1657	Ma
499.00 > 99.00	2.056	2.056	0.0	1.000	898510		4.88(0.00-0.00)	1421	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3322560	28.7		4907	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1728756	17.0		273	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1122811	9.58		8448	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_030.d

Injection Date: 03-Feb-2018 00:42:54

Instrument ID: A8\_N

Lims ID: 320-35148-A-20-C MSD

Client ID: WGNA-011618-RW-0515

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 30

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

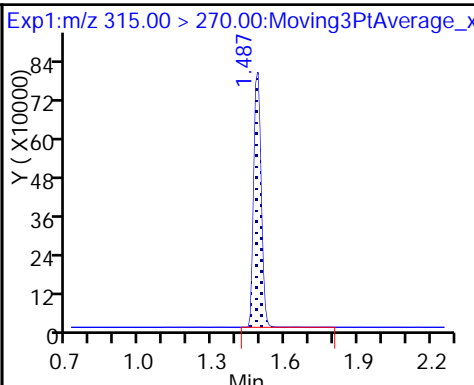
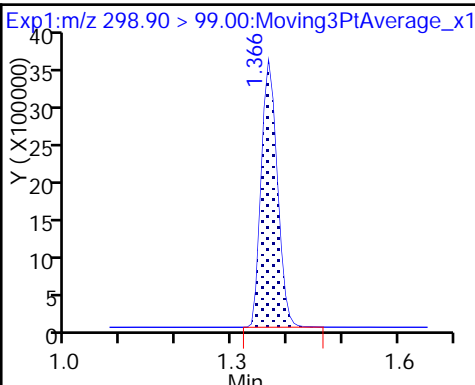
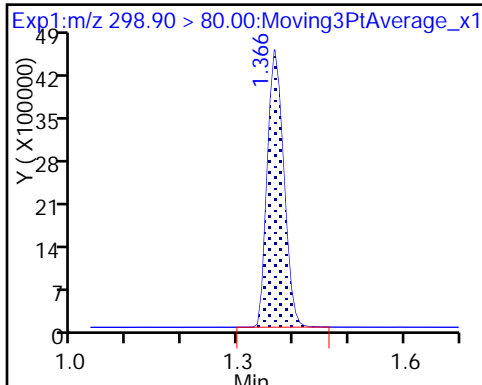
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

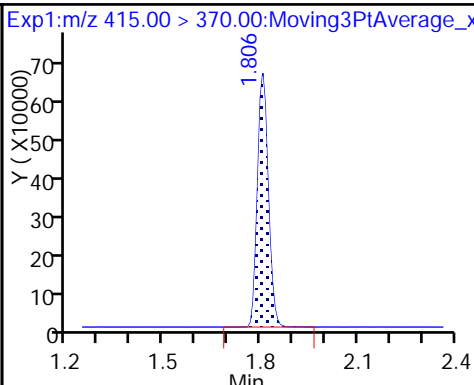
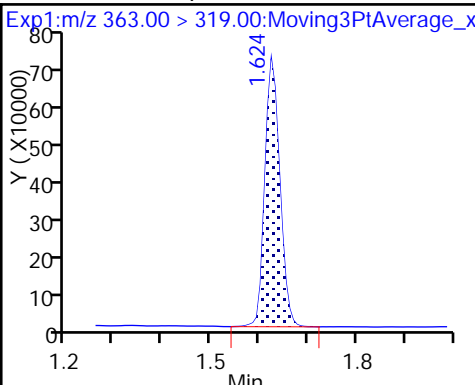
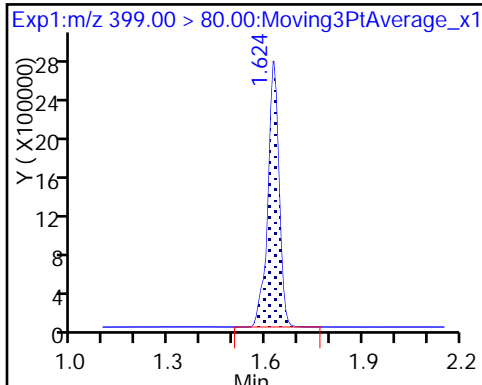
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

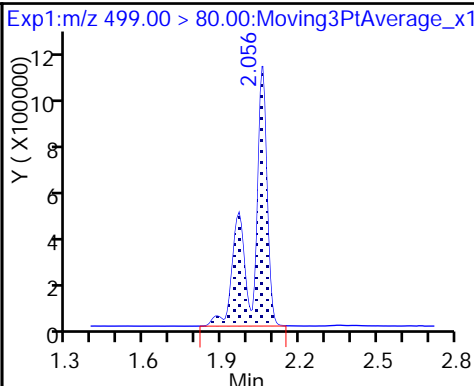
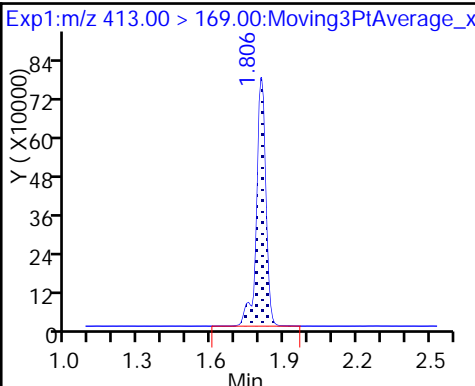
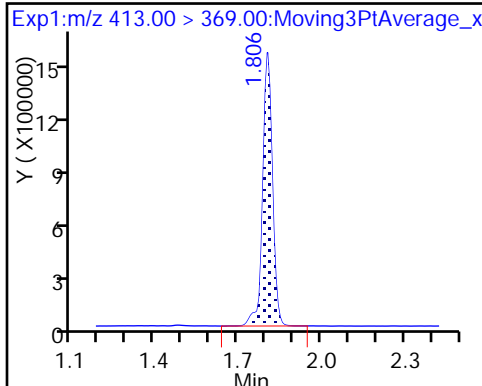
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

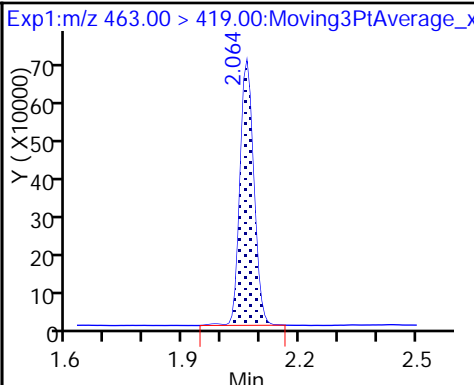
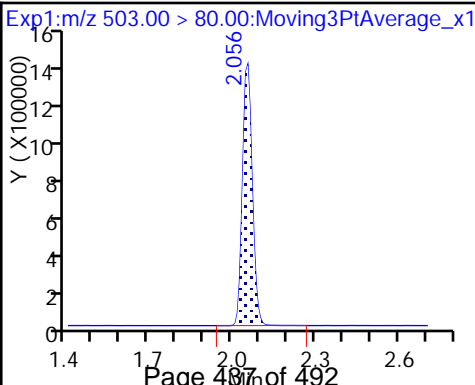
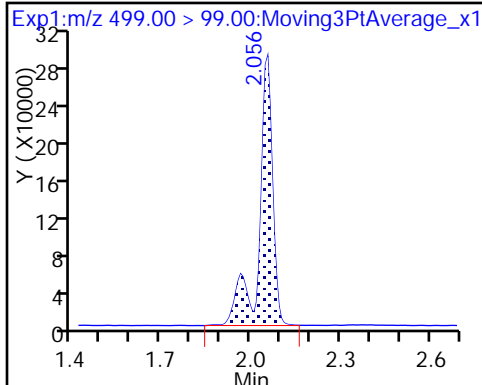
8 Perfluorooctane sulfonic acid (M)



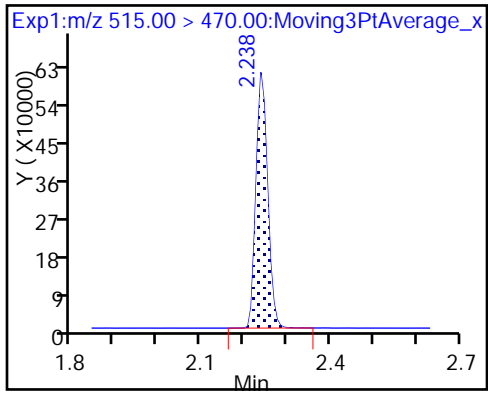
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_030.d  
 Lims ID: 320-35148-A-20-C MSD  
 Client ID: WGNA-011618-RW-0515  
 Sample Type: MSD  
 Inject. Date: 03-Feb-2018 00:42:54 ALS Bottle#: 24 Worklist Smp#: 30  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35148-a-20-c msd  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Feb-2018 11:26:49 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: XAWRK026

First Level Reviewer: barnettj Date: 06-Feb-2018 11:06:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.70	96.95
\$ 10 13C2 PFDA	10.0	9.58	95.81

TestAmerica Sacramento

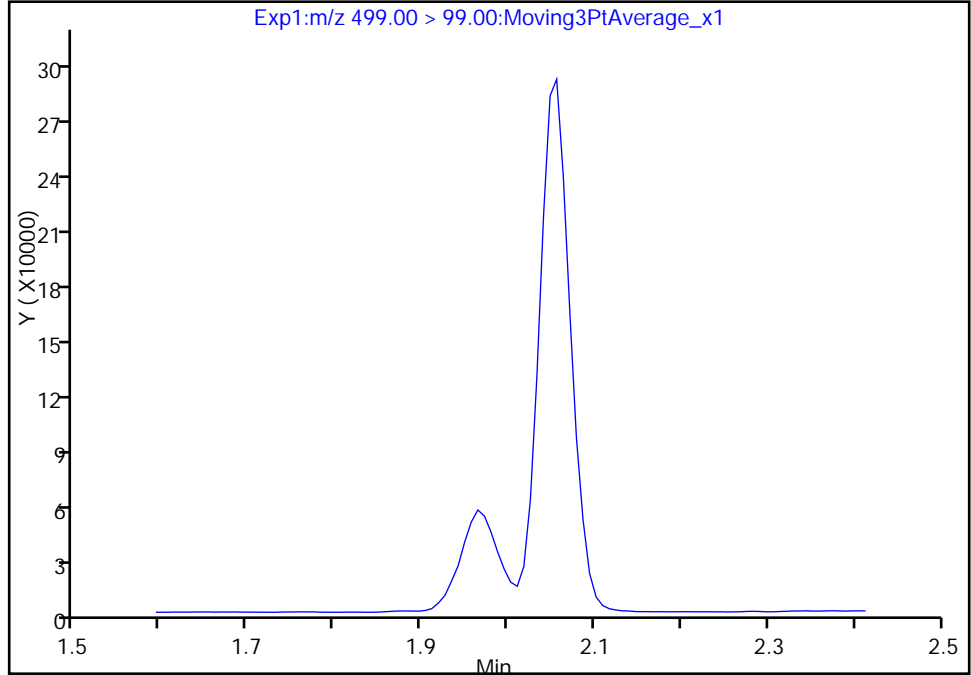
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_030.d  
Injection Date: 03-Feb-2018 00:42:54 Instrument ID: A8\_N  
Lims ID: 320-35148-A-20-C MSD  
Client ID: WGNA-011618-RW-0515  
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 30  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

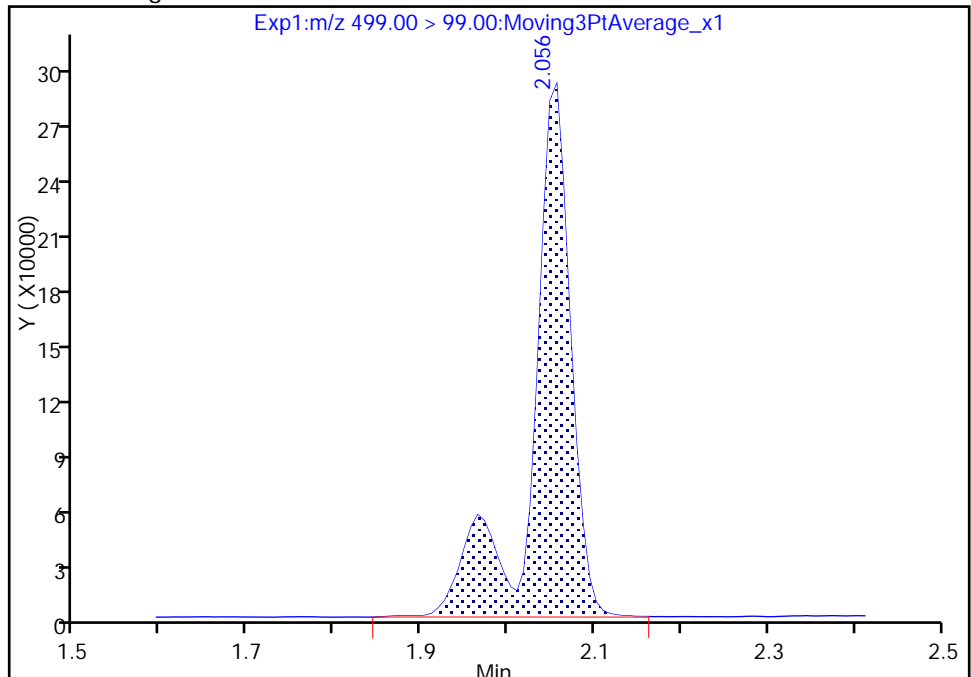
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 898510  
Amount: 40.273600  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 11:06:32  
Audit Action: Manually Integrated

TestAmerica Sacramento

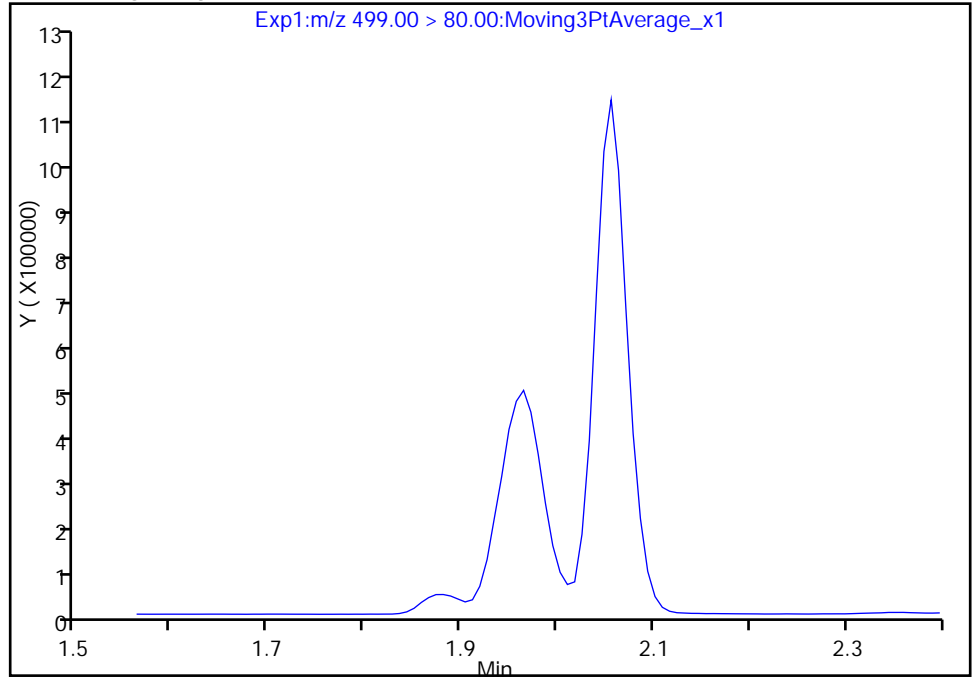
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b\2018.02.02\_537B\_030.d  
Injection Date: 03-Feb-2018 00:42:54 Instrument ID: A8\_N  
Lims ID: 320-35148-A-20-C MSD  
Client ID: WGNA-011618-RW-0515  
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 30  
Injection Vol: 2.0 ul 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

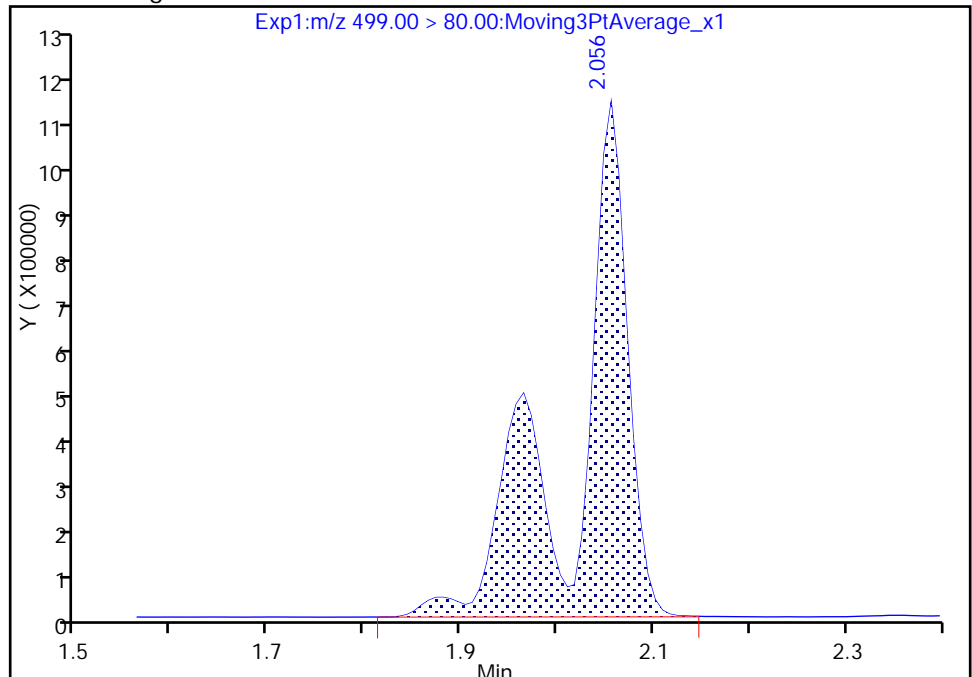
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 4380826  
Amount: 40.273600  
Amount Units: ng/ml

Manual Integration Results



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 14:10

Analysis Batch Number: 206761 End Date: 02/02/2018 15:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-206761/1		02/02/2018 14:10	1	2018.02.02_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-206761/2 CCVIS		02/02/2018 14:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:38	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 15:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 15:06	1		GeminiC18 3x100 3(mm)
CCV 320-206761/14 CCVIS		02/02/2018 15:10	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 22:27

Analysis Batch Number: 206870 End Date: 02/02/2018 23:23

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206870/1 CCVIS		02/02/2018 22:27	1	2018.02.02_537B 001.d	GeminiC18 3x100 3(mm)
MB 320-206187/1-A		02/02/2018 22:36	1	2018.02.02_537B 003.d	GeminiC18 3x100 3(mm)
LCS 320-206187/2-A		02/02/2018 22:41	1	2018.02.02_537B 004.d	GeminiC18 3x100 3(mm)
320-35148-1		02/02/2018 22:45	1	2018.02.02_537B 005.d	GeminiC18 3x100 3(mm)
320-35148-2		02/02/2018 22:50	1	2018.02.02_537B 006.d	GeminiC18 3x100 3(mm)
320-35148-3		02/02/2018 22:55	1	2018.02.02_537B 007.d	GeminiC18 3x100 3(mm)
320-35148-4		02/02/2018 23:00	1	2018.02.02_537B 008.d	GeminiC18 3x100 3(mm)
320-35148-5		02/02/2018 23:04	1	2018.02.02_537B 009.d	GeminiC18 3x100 3(mm)
320-35148-6		02/02/2018 23:09	1	2018.02.02_537B 010.d	GeminiC18 3x100 3(mm)
320-35148-7		02/02/2018 23:14	1	2018.02.02_537B 011.d	GeminiC18 3x100 3(mm)
320-35148-8		02/02/2018 23:18	1	2018.02.02_537B 012.d	GeminiC18 3x100 3(mm)
CCV 320-206870/13 CCVIS		02/02/2018 23:23	1	2018.02.02_537B 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 23:23

Analysis Batch Number: 206872 End Date: 02/03/2018 00:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206872/13 CCVIS		02/02/2018 23:23	1	2018.02.02_537B 013.d	GeminiC18 3x100 3(mm)
320-35148-9		02/02/2018 23:32	1	2018.02.02_537B 015.d	GeminiC18 3x100 3(mm)
320-35148-10		02/02/2018 23:37	1	2018.02.02_537B 016.d	GeminiC18 3x100 3(mm)
320-35148-11		02/02/2018 23:42	1	2018.02.02_537B 017.d	GeminiC18 3x100 3(mm)
320-35148-12		02/02/2018 23:46	1	2018.02.02_537B 018.d	GeminiC18 3x100 3(mm)
320-35148-13		02/02/2018 23:51	1	2018.02.02_537B 019.d	GeminiC18 3x100 3(mm)
320-35148-14		02/02/2018 23:56	1	2018.02.02_537B 020.d	GeminiC18 3x100 3(mm)
320-35148-15		02/03/2018 00:00	1	2018.02.02_537B 021.d	GeminiC18 3x100 3(mm)
320-35148-16		02/03/2018 00:05	1	2018.02.02_537B 022.d	GeminiC18 3x100 3(mm)
320-35148-17		02/03/2018 00:10	1	2018.02.02_537B 023.d	GeminiC18 3x100 3(mm)
320-35148-18		02/03/2018 00:14	1	2018.02.02_537B 024.d	GeminiC18 3x100 3(mm)
CCV 320-206872/25 CCVIS		02/03/2018 00:19	1	2018.02.02_537B 025.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/03/2018 00:19

Analysis Batch Number: 206874 End Date: 02/03/2018 00:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206874/25 CCVIS		02/03/2018 00:19	1	2018.02.02_537B 025.d	GeminiC18 3x100 3(mm)
320-35148-19		02/03/2018 00:28	1	2018.02.02_537B 027.d	GeminiC18 3x100 3(mm)
320-35148-20		02/03/2018 00:33	1	2018.02.02_537B 028.d	GeminiC18 3x100 3(mm)
320-35148-20 MS		02/03/2018 00:38	1	2018.02.02_537B 029.d	GeminiC18 3x100 3(mm)
320-35148-20 MSD		02/03/2018 00:42	1	2018.02.02_537B 030.d	GeminiC18 3x100 3(mm)
CCV 320-206874/31 CCVIS		02/03/2018 00:47	1	2018.02.02_537B 031.d	GeminiC18 3x100 3(mm)



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/06/2018 08:30

Analysis Batch Number: 207097 End Date: 02/06/2018 09:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207097/1		02/06/2018 08:30	1	2018.02.06_537A 003.d	GeminiC18 3x100 3(mm)
CCV 320-207097/2 CCVIS		02/06/2018 08:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:03	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:17	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:26	1		GeminiC18 3x100 3(mm)
CCV 320-207097/14 CCVIS		02/06/2018 09:31	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/06/2018 11:29

Analysis Batch Number: 207174 End Date: 02/06/2018 12:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207174/1 CCVIS		02/06/2018 11:29	1	2018.02.06_537B 029.d	GeminiC18 3x100 3(mm)
MB 320-206188/1-A		02/06/2018 11:38	1	2018.02.06_537B 031.d	GeminiC18 3x100 3(mm)
LCS 320-206188/2-A		02/06/2018 11:43	1	2018.02.06_537B 032.d	GeminiC18 3x100 3(mm)
LCSD 320-206188/3-A		02/06/2018 11:47	1	2018.02.06_537B 033.d	GeminiC18 3x100 3(mm)
320-35148-21		02/06/2018 12:15	1	2018.02.06_537B 039.d	GeminiC18 3x100 3(mm)
CCV 320-207174/12 CCVIS		02/06/2018 12:20	1	2018.02.06_537B 040.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
MB 320-206187/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-206187/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35148-A-1	NAWC-011618-RW-334	537, 537	T	281.11 g	27.90 g	253.2 mL	1.0 mL	7 SU	100 uL
320-35148-A-2	NAWC-011618-FRB-334	537, 537	T	273.51 g	26.83 g	246.7 mL	1.0 mL	7 SU	100 uL
320-35148-A-3	NAWC-011618-RW-280	537, 537	T	274.18 g	28.34 g	245.8 mL	1.0 mL	7 SU	100 uL
320-35148-A-4	NAWC-011618-FRB-280	537, 537	T	274.23 g	26.83 g	247.4 mL	1.0 mL	7 SU	100 uL
320-35148-A-5	NAWC-011618-RW-262	537, 537	T	271.42 g	28.17 g	243.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-6	NAWC-011618-FRB-262	537, 537	T	275.95 g	27.09 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-7	WGNA-011618-RW-3295	537, 537	T	270.30 g	28.36 g	241.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-8	WGNA-011618-FRB-3295	537, 537	T	277.31 g	26.72 g	250.6 mL	1.0 mL	7 SU	100 uL
320-35148-A-9	NAWC-011618-RW-272	537, 537	T	274.47 g	28.05 g	246.4 mL	1.0 mL	7 SU	100 uL
320-35148-A-10	NAWC-011618-FRB-272	537, 537	T	273.72 g	26.72 g	247 mL	1.0 mL	7 SU	100 uL
320-35148-A-11	NAWC-011618-RW-258	537, 537	T	274.89 g	27.61 g	247.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-12	NAWC-011618-FRB-258	537, 537	T	278.87 g	27.07 g	251.8 mL	1.0 mL	7 SU	100 uL
320-35148-A-13	NAWC-011618-RW-234	537, 537	T	278.49 g	28.19 g	250.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-14	NAWC-011618-FRB-234	537, 537	T	277.52 g	27.25 g	250.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-15	WGNA-011618-DUP20	537, 537	T	273.26 g	28.24 g	245 mL	1.0 mL	7 SU	100 uL
320-35148-A-16	NAWC-011618-RW-264	537, 537	T	277.32 g	28.39 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-17	NAWC-011618-FRB-264	537, 537	T	274.29 g	26.64 g	247.7 mL	1.0 mL	7 SU	100 uL
320-35148-A-18	WGNA-011618-RW-0560	537, 537	T	274.33 g	28.12 g	246.2 mL	1.0 mL	7 SU	100 uL
320-35148-A-19	WGNA-011618-FRB-0560	537, 537	T	277.34 g	26.79 g	250.6 mL	1.0 mL	7 SU	100 uL
320-35148-A-20	WGNA-011618-RW-0515	537, 537	T	274.39 g	27.84 g	246.6 mL	1.0 mL	7 SU	100 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
320-35148-A-20 MS	WGNA-011618-RW-0 515	537, 537	T	275.90 g	28.44 g	247.5 mL	1.0 mL	7 SU	100 uL
320-35148-A-20 MSD	WGNA-011618-RW-0 515	537, 537	T	277.82 g	28.66 g	249.2 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00053	AnalysisComment			
MB 320-206187/1		537, 537			100 uL	C1 ND			
LCS 320-206187/2		537, 537		100 uL	100 uL	C1 ND			
320-35148-A-1	NAWC-011618-RW-3 34	537, 537	T		100 uL	C1 ND			
320-35148-A-2	NAWC-011618-FRB- 334	537, 537	T		100 uL	C1 ND			
320-35148-A-3	NAWC-011618-RW-2 80	537, 537	T		100 uL	C1 ND			
320-35148-A-4	NAWC-011618-FRB- 280	537, 537	T		100 uL	C1 ND			
320-35148-A-5	NAWC-011618-RW-2 62	537, 537	T		100 uL	C1 ND			
320-35148-A-6	NAWC-011618-FRB- 262	537, 537	T		100 uL	C1 ND			
320-35148-A-7	WGNA-011618-RW-3 295	537, 537	T		100 uL	C1 ND			
320-35148-A-8	WGNA-011618-FRB- 3295	537, 537	T		100 uL	C1 ND			
320-35148-A-9	NAWC-011618-RW-2 72	537, 537	T		100 uL	C1 ND			
320-35148-A-10	NAWC-011618-FRB- 272	537, 537	T		100 uL	C1 ND			
320-35148-A-11	NAWC-011618-RW-2 58	537, 537	T		100 uL	C1 ND			
320-35148-A-12	NAWC-011618-FRB- 258	537, 537	T		100 uL	C1 ND			
320-35148-A-13	NAWC-011618-RW-2 34	537, 537	T		100 uL	C1 ND			
320-35148-A-14	NAWC-011618-FRB- 234	537, 537	T		100 uL	C1 ND			
320-35148-A-15	WGNA-011618-DUP2 0	537, 537	T		100 uL	C1 ND			
320-35148-A-16	NAWC-011618-RW-2 64	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.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00053	AnalysisComment			
320-35148-A-17	NAWC-011618-FRB-264	537, 537	T		100 uL	C1 ND			
320-35148-A-18	WGNA-011618-RW-0560	537, 537	T		100 uL	C1 ND			
320-35148-A-19	WGNA-011618-FRB-0560	537, 537	T		100 uL	C1 ND			
320-35148-A-20	WGNA-011618-RW-0515	537, 537	T		100 uL	C1 ND			
320-35148-A-20 MS	WGNA-011618-RW-0515	537, 537	T	100 uL	100 uL	C1 ND			
320-35148-A-20 MSD	WGNA-011618-RW-0515	537, 537	T	100 uL	100 uL	C1 ND			

Batch Notes	
Analyst ID - Aliquot Step	JER
Batch Comment	Label ID's checked: KMK 1-30-18
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	JER
Internal Standard ID#	1099355
Manifold ID	3, 10
Methanol ID	1127839
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-25-18

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.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206188 Batch Start Date: 01/30/18 12:51 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/02/18 19:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-206188/1		537, 537				250.0 mL	1.0 mL	7 SU	
LCS 320-206188/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206188/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35148-A-21	WGNA-011618-FRB-0515	537, 537	T	277.39 g	27.35 g	250 mL	1.0 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00057	LC537-SU 00053	AnalysisComment			
MB 320-206188/1		537, 537		100 uL	100 uL	C1 ND			
LCS 320-206188/2		537, 537		100 uL	100 uL	C1 ND			
LCSD 320-206188/3		537, 537		100 uL	100 uL	C1 ND			
320-35148-A-21	WGNA-011618-FRB-0515	537, 537	T	100 uL	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.: 320-35148-1

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

Batch Number: 206188 Batch Start Date: 01/30/18 12:51 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/02/18 19:48

Batch Notes	
Analyst ID - Aliquot Step	TWL
Batch Comment	Label ID's checked: KMK 1-30-18
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	TWL
Internal Standard ID#	1145836
Manifold ID	4
Methanol ID	1127839
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6357081-11
Trizma ID	SLBR4303V
Reagent Water ID	1-25-18

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.



Job No: 35148 Instrument ID & Date: A8 2-2-18 ICAL Batch: 192908  
 Extraction Batch: 206187 Worklist #: 53667 TALS Batch: 206870, 206872, 206874

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 2-6-18 2<sup>nd</sup> Level Reviewer / Date: MW 2/6/2018

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 ≤ 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 11-6-17

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

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 02FEB2018\_537C

Worklist Number: 53667

Instrument Name: A8\_N

Chrom Method: 537\_A8\_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 206870
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-206187/1-A	# 3 MB 320-206187/1-A
# 4 LCS 320-206187/2-A	# 4 LCS 320-206187/2-A
# 5 320-35148-A-1-A	# 5 320-35148-A-1-A
# 6 320-35148-A-2-A	# 6 320-35148-A-2-A
# 7 320-35148-A-3-A	# 7 320-35148-A-3-A
# 8 320-35148-A-4-A	# 8 320-35148-A-4-A
# 9 320-35148-A-5-A	# 9 320-35148-A-5-A
#10 320-35148-A-6-A	#10 320-35148-A-6-A
#11 320-35148-A-7-A	#11 320-35148-A-7-A
#12 320-35148-A-8-A	#12 320-35148-A-8-A
#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 206872
#13 CCV L5	#13 CCV L5
#14 RB	#14 RB
#15 320-35148-A-9-A	#15 320-35148-A-9-A
#16 320-35148-A-10-A	#16 320-35148-A-10-A
#17 320-35148-A-11-A	#17 320-35148-A-11-A
#18 320-35148-A-12-A	#18 320-35148-A-12-A
#19 320-35148-A-13-A	#19 320-35148-A-13-A
#20 320-35148-A-14-A	#20 320-35148-A-14-A
#21 320-35148-A-15-A	#21 320-35148-A-15-A
#22 320-35148-A-16-A	#22 320-35148-A-16-A
#23 320-35148-A-17-A	#23 320-35148-A-17-A
#24 320-35148-A-18-A	#24 320-35148-A-18-A
#25 CCV L3	#25 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 206874
#25 CCV L3	#25 CCV L3
#26 RB	#26 RB
#27 320-35148-A-19-A	#27 320-35148-A-19-A
#28 320-35148-A-20-A	#28 320-35148-A-20-A
#29 320-35148-A-20-B MS	#29 320-35148-A-20-B MS
#30 320-35148-A-20-C MSD	#30 320-35148-A-20-C MSD
#31 CCV L5	#31 CCV L5
#32 RB	#32 RB

CCV in AB 206761

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 02FEB2018\_537C

Worklist Num: 53667

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180205-53667.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L3	320-0053667-001	CCVIS	02-Feb-2018 22:27:15	2018.02.02_537B_001.d	3	1.0		sv
RB	320-0053667-002	RB	02-Feb-2018 22:31:55	2018.02.02_537B_002.d	8	1.0		sv
MB 320-206187/1-A	320-0053667-003	MB	02-Feb-2018 22:36:37	2018.02.02_537B_003.d	1	1.0		sv
LCS 320-206187/2-A	320-0053667-004	LCS	02-Feb-2018 22:41:17	2018.02.02_537B_004.d	2	1.0		sv
320-35148-A-1-A	320-0053667-005	Client	02-Feb-2018 22:45:58	2018.02.02_537B_005.d	3	1.0	NAWC-011618-RW-334	sv
320-35148-A-2-A	320-0053667-006	Client	02-Feb-2018 22:50:39	2018.02.02_537B_006.d	4	1.0	NAWC-011618-FRB-334	sv
320-35148-A-3-A	320-0053667-007	Client	02-Feb-2018 22:55:20	2018.02.02_537B_007.d	5	1.0	NAWC-011618-RW-280	sv
320-35148-A-4-A	320-0053667-008	Client	02-Feb-2018 23:00:00	2018.02.02_537B_008.d	6	1.0	NAWC-011618-FRB-280	sv
320-35148-A-5-A	320-0053667-009	Client	02-Feb-2018 23:04:40	2018.02.02_537B_009.d	7	1.0	NAWC-011618-RW-262	sv
320-35148-A-6-A	320-0053667-010	Client	02-Feb-2018 23:09:22	2018.02.02_537B_010.d	8	1.0	NAWC-011618-FRB-262	sv
320-35148-A-7-A	320-0053667-011	Client	02-Feb-2018 23:14:02	2018.02.02_537B_011.d	9	1.0	WGNA-011618-RW-3295	sv
320-35148-A-8-A	320-0053667-012	Client	02-Feb-2018 23:18:42	2018.02.02_537B_012.d	10	1.0	WGNA-011618-FRB-3295	sv
CCV L5	320-0053667-013	CCVIS	02-Feb-2018 23:23:23	2018.02.02_537B_013.d	5	1.0		sv
RB	320-0053667-014	RB	02-Feb-2018 23:28:05	2018.02.02_537B_014.d	8	1.0		sv
320-35148-A-9-A	320-0053667-015	Client	02-Feb-2018 23:32:45	2018.02.02_537B_015.d	11	1.0	NAWC-011618-RW-272	sv
320-35148-A-10-A	320-0053667-016	Client	02-Feb-2018 23:37:24	2018.02.02_537B_016.d	12	1.0	NAWC-011618-FRB-272	sv
320-35148-A-11-A	320-0053667-017	Client	02-Feb-2018 23:42:05	2018.02.02_537B_017.d	13	1.0	NAWC-011618-RW-258	sv
320-35148-A-12-A	320-0053667-018	Client	02-Feb-2018 23:46:46	2018.02.02_537B_018.d	14	1.0	NAWC-011618-FRB-258	sv
320-35148-A-13-A	320-0053667-019	Client	02-Feb-2018 23:51:27	2018.02.02_537B_019.d	15	1.0	NAWC-011618-RW-234	sv
320-35148-A-14-A	320-0053667-020	Client	02-Feb-2018 23:56:07	2018.02.02_537B_020.d	16	1.0	NAWC-011618-FRB-234	sv
320-35148-A-15-A	320-0053667-021	Client	03-Feb-2018 00:00:48	2018.02.02_537B_021.d	17	1.0	WGNA-011618-DUP20	sv
320-35148-A-16-A	320-0053667-022	Client	03-Feb-2018 00:05:28	2018.02.02_537B_022.d	18	1.0	NAWC-011618-RW-264	sv
320-35148-A-17-A	320-0053667-023	Client	03-Feb-2018 00:10:08	2018.02.02_537B_023.d	19	1.0	NAWC-011618-FRB-264	sv
320-35148-A-18-A	320-0053667-024	Client	03-Feb-2018 00:14:50	2018.02.02_537B_024.d	20	1.0	WGNA-011618-RW-0560	sv
CCV L3	320-0053667-025	CCVIS	03-Feb-2018 00:19:32	2018.02.02_537B_025.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053667-026	RB	03-Feb-2018 00:24:12	2018.02.02_537B_026.d	8	1.0		sv
320-35148-A-19-A	320-0053667-027	Client	03-Feb-2018 00:28:52	2018.02.02_537B_027.d	21	1.0	WGNA-011618-FRB-0560	sv
320-35148-A-20-A	320-0053667-028	Client	03-Feb-2018 00:33:33	2018.02.02_537B_028.d	22	1.0	WGNA-011618-RW-0515	sv
320-35148-A-20-B MS	320-0053667-029	MS	03-Feb-2018 00:38:13	2018.02.02_537B_029.d	23	1.0	WGNA-011618-RW-0515	sv
320-35148-A-20-C MSD	320-0053667-030	MSD	03-Feb-2018 00:42:54	2018.02.02_537B_030.d	24	1.0	WGNA-011618-RW-0515	sv
CCV L5	320-0053667-031	CCVIS	03-Feb-2018 00:47:35	2018.02.02_537B_031.d	5	1.0		sv
RB	320-0053667-032	RB	03-Feb-2018 00:52:15	2018.02.02_537B_032.d	8	1.0		sv

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 02FEB2018\_537A

Worklist Num: 53640

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180202-53640.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
CCVL	320-0053640-001	CCVL	02-Feb-2018 14:10:10	2018.02.02_537A_004.d	2	1.0		sv
CCV L5	320-0053640-002	CCVIS	02-Feb-2018 14:14:49	2018.02.02_537A_005.d	5	1.0		sv
RB	320-0053640-003	RB	02-Feb-2018 14:19:29	2018.02.02_537A_006.d	8	1.0		sv
QC 537 CART 6369499-05 MB	320-0053640-004	QC	02-Feb-2018 14:24:09	2018.02.02_537A_007.d	1	1.0		sv
QC 537 CART 6369499-05 LCS	320-0053640-005	QC	02-Feb-2018 14:28:49	2018.02.02_537A_008.d	2	1.0		sv
MB 320-205981/1-A	320-0053640-006	MB	02-Feb-2018 14:33:31	2018.02.02_537A_009.d	3	1.0		sv
LLCS 320-205981/2-A	320-0053640-007	LLCS	02-Feb-2018 14:38:11	2018.02.02_537A_010.d	4	1.0		sv
LLCSD 320-205981/3-A	320-0053640-008	LLCSD	02-Feb-2018 14:42:52	2018.02.02_537A_011.d	5	1.0		sv
320-35090-A-1-A	320-0053640-009	Client	02-Feb-2018 14:47:32	2018.02.02_537A_012.d	6	1.0	NAWC-011518-RW-21	sv
320-35090-A-2-A	320-0053640-010	Client	02-Feb-2018 14:52:12	2018.02.02_537A_013.d	7	1.0	NAWC-011518-FRB-21	sv
320-35090-A-3-A	320-0053640-011	Client	02-Feb-2018 14:56:52	2018.02.02_537A_014.d	8	1.0	NAWC-011518-RW-233	sv
320-35090-A-4-A	320-0053640-012	Client	02-Feb-2018 15:01:33	2018.02.02_537A_015.d	9	1.0	NAWC-011518-FRB-233	sv
320-35090-A-5-A	320-0053640-013	Client	02-Feb-2018 15:06:12	2018.02.02_537A_016.d	10	1.0	NAWC-011518-RW-241	sv
CCV L3	320-0053640-014	CCVIS	02-Feb-2018 15:10:54	2018.02.02_537A_017.d	3	1.0		sv
RB	320-0053640-015	RB	02-Feb-2018 15:15:33	2018.02.02_537A_018.d	8	1.0		sv
320-35090-A-6-A	320-0053640-016	Client	02-Feb-2018 15:20:13	2018.02.02_537A_019.d	11	1.0	NAWC-011518-FRB-241	sv
320-35090-A-7-A	320-0053640-017	Client	02-Feb-2018 15:24:55	2018.02.02_537A_020.d	12	1.0	WGNA-011518-RW-3385	sv
320-35090-A-8-A	320-0053640-018	Client	02-Feb-2018 15:29:36	2018.02.02_537A_021.d	13	1.0	WGNA-011518-FRB-3385	sv
320-35090-A-9-A	320-0053640-019	Client	02-Feb-2018 15:34:18	2018.02.02_537A_022.d	14	1.0	WGNA-011518-DUP19	sv
320-35090-A-10-A	320-0053640-020	Client	02-Feb-2018 15:38:59	2018.02.02_537A_023.d	15	1.0	NAWC-011518-RW-213	sv
320-35090-A-11-A	320-0053640-021	Client	02-Feb-2018 15:43:40	2018.02.02_537A_024.d	16	1.0	NAWC-011518-FRB-213	sv
320-35090-A-12-A	320-0053640-022	Client	02-Feb-2018 15:48:20	2018.02.02_537A_025.d	17	1.0	NAWC-011518-RW-215	sv
320-35090-A-13-A	320-0053640-023	Client	02-Feb-2018 15:53:00	2018.02.02_537A_026.d	18	1.0	NAWC-011518-FRB-215	sv
320-35090-A-14-A	320-0053640-024	Client	02-Feb-2018 15:57:41	2018.02.02_537A_027.d	19	1.0	NAWC-011518-RW-48	sv
320-35090-A-15-A	320-0053640-025	Client	02-Feb-2018 16:02:22	2018.02.02_537A_028.d	20	1.0	NAWC-011518-FRB-48	sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0053640-026	CCVIS	02-Feb-2018 16:07:03	2018.02.02_537A_029.d	5	1.0		sv
RB	320-0053640-027	RB	02-Feb-2018 16:11:42	2018.02.02_537A_030.d	8	1.0		sv

66

# Aqueous Extraction Analysis Sheet

AS 2/2/18

(To Accompany Samples to Instruments)

Batch Number: 320-206187  
Method Code: 320-537\_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM  
Batch End: 2/1/2018 10:20:00PM

## Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID		
1 MB-320-206187/1 N/A	N/A		250.0 mL	7			N/A	N/A	CI ND		
			1.0 mL								
2 LCS-320-206187/2 N/A	N/A		250.0 mL	7			N/A	N/A	CI ND		
			1.0 mL								
3 320-35148-A-1 (537_DOD5)	N/A (320-35148-1)	281.11 g	253.2 mL	7			1/22/18	16_Days	4	CI ND	
		27.90 g	1.0 mL								
320-35148-A-2 (537_DOD5)	N/A (320-35148-1)	273.51 g	246.7 mL	7			1/22/18	16_Days	4	CI ND	
		26.83 g	1.0 mL								
320-35148-A-3 (537_DOD5)	N/A (320-35148-1)	274.18 g	245.8 mL	7			1/22/18	16_Days	4	CI ND	
		28.34 g	1.0 mL								
6 320-35148-A-4 (537_DOD5)	N/A (320-35148-1)	274.23 g	247.4 mL	7			1/22/18	16_Days	4	CI ND	
		26.83 g	1.0 mL								
7 320-35148-A-5 (537_DOD5)	N/A (320-35148-1)	271.42 g	243.3 mL	7			1/22/18	16_Days	4	CI ND	
		28.17 g	1.0 mL								
8 320-35148-A-6 (537_DOD5)	N/A (320-35148-1)	275.95 g	248.9 mL	7			1/22/18	16_Days	4	CI ND	
		27.09 g	1.0 mL								
9 320-35148-A-7 (537_DOD5)	N/A (320-35148-1)	270.30 g	241.9 mL	7			1/22/18	16_Days	4	CI ND	
		28.36 g	1.0 mL								
10 320-35148-A-8 (537_DOD5)	N/A (320-35148-1)	277.31 g	250.6 mL	7			1/22/18	16_Days	4	CI ND	
		26.72 g	1.0 mL								

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/1/2018 10:20:00PM

11	320-35148-A-9 (537_DOD5)	N/A (320-35148-1)	274.47 g 28.05 g	246.4 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
12	320-35148-A-10 (537_DOD5)	N/A (320-35148-1)	273.72 g 26.72 g	247 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
13	320-35148-A-11 (537_DOD5)	N/A (320-35148-1)	274.89 g 27.61 g	247.3 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
14	320-35148-A-12 (537_DOD5)	N/A (320-35148-1)	278.87 g 27.07 g	251.8 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
15	320-35148-A-13 (537_DOD5)	N/A (320-35148-1)	278.49 g 28.19 g	250.3 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
16	320-35148-A-14 (537_DOD5)	N/A (320-35148-1)	277.52 g 27.25 g	250.3 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
17	320-35148-A-15 (537_DOD5)	N/A (320-35148-1)	273.26 g 28.24 g	245 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
18	320-35148-A-16 (537_DOD5)	N/A (320-35148-1)	277.32 g 28.39 g	248.9 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
19	320-35148-A-17 (537_DOD5)	N/A (320-35148-1)	274.29 g 26.64 g	247.7 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
20	320-35148-A-18 (537_DOD5)	N/A (320-35148-1)	274.33 g 28.12 g	246.2 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
21	320-35148-A-19 (537_DOD5)	N/A (320-35148-1)	277.34 g 26.79 g	250.6 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	
22	320-35148-A-20 (537_DOD5)	N/A (320-35148-1)	274.39 g 27.84 g	246.6 mL 1.0 mL	7		1/22/18	16_Days	4	CI ND	

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)



Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/1/2018 10:20:00PM

23	320-35148-A-20-MS (537_DOD5)	N/A (320-35148-1)	275.90 g	247.5 mL	7		1/22/18	16_Days	4	CI ND	
			28.44 g	1.0 mL							
24	320-35148-A-20-MSD (537_DOD5)	N/A (320-35148-1)	277.82 g	249.2 mL	7		1/22/18	16_Days	4	CI ND	
			28.66 g	1.0 mL							

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/1/2018 10:20:00PM

## Batch Notes

Manifold ID 3, 10

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-04

Methanol ID 1127839

Reagent Water ID 1-25-18

Internal Standard ID# 1099355

Pipette ID H14930F

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop KMK  
Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop KMK  
Witness

Analyst ID - IS Reagent Drop VPM

Analyst ID - IS Reagent Drop TWL  
Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step JER

Analyst ID - Final Volume Step JER

Batch Comment Label ID's checked: KMK 1-30-18

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End:

## Batch Notes

Manifold ID

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-04

Methanol ID 1127839

Reagent Water ID 1-25-18

Internal Standard ID# 1099355

Pipette ID ~~H14930F~~ H14930F

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop Witness KMK

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop Witness KMK

Analyst ID - IS Reagent Drop VPM

Analyst ID - IS Reagent Drop Witness TWL

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step JER

Analyst ID - Final Volume Step JER

Batch Comment Label ID's checked: ~~3~~ KMK 1-30-18

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/1/2018 10:20:00PM

**Comments**

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness	
MB 320-206187/1	LC537-SU_00053	100 uL	1.0 mL	Cez 1-30-18	KMK 1-30-18	
LCS 320-206187/2	LC537-MSP_00027	100 uL	1.0 mL			
LCS 320-206187/2	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-1	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-2	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-3	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-4	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-5	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-6	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-7	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-8	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-9	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-10	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-11	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-12	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-13	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-14	LC537-SU_00053	100 uL	1.0 mL			
320-35148-A-15	LC537-SU_00053	100 uL	1.0 mL			

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206187

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:46:00PM

Method Code: 320-537\_Prep-320

Batch End:

320-35148-A-16	LC537-SU_00053	100 uL	1.0 mL	CS 1-30-18 ↓	KMK -30-18
320-35148-A-17	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-18	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-19	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-20	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-20 MS	LC537-MSP_00027	100 uL	1.0 mL		
320-35148-A-20 MS	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-20 MSD	LC537-MSP_00027	100 <del>uL</del> <sup>uL</sup>	1.0 mL		
320-35148-A-20 MSD	LC537-SU_00053	100 uL <sup>mm</sup>	1.0 mL		

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**Other Reagents:**

Reagent	Amount/Units	Lot#:

Preparation Batch Number(s) 206187 Test 537-Prep

Earliest Holding Time 1/30/18

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	NA	NA
MS/MSD or MS/DU NCM filed	NA	NA
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	NA	NA
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1 <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: 

Date: 2/01/18

2<sup>nd</sup> Level Reviewer: 

Date: 2/2/18

Comments: \_\_\_\_\_



A8

Job No: 35280, 35148 Instrument ID & Date: 2-6-18 ICAL Batch: 192908, 192909  
 Extraction Batch: 206188 Worklist #: 53752, 53755 TALS Batch: 207174, 207175, 207192

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? <u>4</u> Dilutions due to non-targets? <u>0</u>	✓			✓
5. All target compounds in MB < 1/3 RL ? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	NCM	✓		✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 2-6-18

2nd Level Reviewer / Date: NEWAY 2/6/18

NCM # and Comments: 155555

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 ≤ 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 11-6-17

2<sup>nd</sup> Level Reviewer / Date: Murphy 11/6/2017

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 06FEB2018\_537B                      Worklist Number: 53752  
 Instrument Name: A8\_N                                  Chrom Method: 537\_A8\_N  
 Data Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b  
 QC Batching: Enabled                                  Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 207174	LC 537 CS ICAL Raw Batch: 207175
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-206188/1-A	# 3 MB 320-206188/1-A	# 3 MB 320-206188/1-A
# 4 LCS 320-206188/2-A	# 4 LCS 320-206188/2-A	# 4 LCS 320-206188/2-A
# 5 LCSD 320-206188/3-A	# 5 LCSD 320-206188/3-A	# 5 LCSD 320-206188/3-A
# 6 320-35280-A-1-A		# 6 320-35280-A-1-A
# 7 320-35280-A-1-B MS		# 7 320-35280-A-1-B MS
# 8 320-35280-A-1-C MSD		# 8 320-35280-A-1-C MSD
# 9 320-35280-A-2-A		# 9 320-35280-A-2-A
# 10 320-35280-A-3-A		# 10 320-35280-A-3-A
# 11 320-35148-A-21-A	# 11 320-35148-A-21-A	
# 12 CCV L3	# 12 CCV L3	# 12 CCV L3
# 13 RB	# 13 RB	# 13 RB

CCVL in AB 207097

CCVL in AB 207096

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 06FEB2018\_537B

Worklist Num: 53752

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53752.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0053752-001	CCVIS	06-Feb-2018 11:29:04	2018.02.06_537B_029.d	5	1.0		sv
RB	320-0053752-002	RB	06-Feb-2018 11:33:44	2018.02.06_537B_030.d	8	1.0		sv
MB 320-206188/1-A	320-0053752-003	MB	06-Feb-2018 11:38:24	2018.02.06_537B_031.d	23	1.0		sv
LCS 320-206188/2-A	320-0053752-004	LCS	06-Feb-2018 11:43:06	2018.02.06_537B_032.d	24	1.0		sv
LCSD 320-206188/3-A	320-0053752-005	LCSD	06-Feb-2018 11:47:46	2018.02.06_537B_033.d	25	1.0		sv
320-35280-A-1-A	320-0053752-006	Client	06-Feb-2018 11:52:26	2018.02.06_537B_034.d	26	1.0	BW012218-BWASH-LHWA-	sv
320-35280-A-1-B MS	320-0053752-007	MS	06-Feb-2018 11:57:06	2018.02.06_537B_035.d	27	1.0	BW012218-BWASH-LHWA-	sv
320-35280-A-1-C MSD	320-0053752-008	MSD	06-Feb-2018 12:01:47	2018.02.06_537B_036.d	28	1.0	BW012218-BWASH-LHWA-	sv
320-35280-A-2-A	320-0053752-009	Client	06-Feb-2018 12:06:28	2018.02.06_537B_037.d	29	1.0	BW012218-BWASH-LHWA-	sv
320-35280-A-3-A	320-0053752-010	Client	06-Feb-2018 12:11:08	2018.02.06_537B_038.d	30	1.0	FRB-LHBW-012218	sv
320-35148-A-21-A	320-0053752-011	Client	06-Feb-2018 12:15:48	2018.02.06_537B_039.d	22	1.0	WGNA-011618-FRB-0515	sv
CCV L3	320-0053752-012	CCVIS	06-Feb-2018 12:20:29	2018.02.06_537B_040.d	3	1.0		sv
RB	320-0053752-013	RB	06-Feb-2018 12:25:09	2018.02.06_537B_041.d	8	1.0		sv

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 06FEB2018\_537A

Worklist Num: 53732

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53732.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0053732-001	CCVL	06-Feb-2018 08:30:44	2018.02.06_537A_003.d	2	1.0		sv
CCV L3	320-0053732-002	CCVIS	06-Feb-2018 08:35:25	2018.02.06_537A_004.d	3	1.0		sv
RB	320-0053732-003	RB	06-Feb-2018 08:40:06	2018.02.06_537A_005.d	8	1.0		sv
MB 320-206460/1-A	320-0053732-004	MB	06-Feb-2018 08:44:45	2018.02.06_537A_006.d	28	1.0		sv
LCS 320-206460/2-A	320-0053732-005	LCS	06-Feb-2018 08:49:26	2018.02.06_537A_007.d	29	1.0		sv
320-35504-A-1-A	320-0053732-006	Client	06-Feb-2018 08:54:08	2018.02.06_537A_008.d	30	1.0	WS-098	sv
320-35504-A-1-B MS	320-0053732-007	MS	06-Feb-2018 08:58:50	2018.02.06_537A_009.d	31	1.0	WS-098	sv
320-35504-A-1-C MSD	320-0053732-008	MSD	06-Feb-2018 09:03:30	2018.02.06_537A_010.d	32	1.0	WS-098	sv
320-35504-A-2-A	320-0053732-009	Client	06-Feb-2018 09:08:12	2018.02.06_537A_011.d	33	1.0	WS-099	sv
320-35504-A-3-A	320-0053732-010	Client	06-Feb-2018 09:12:52	2018.02.06_537A_012.d	34	1.0	DUP-019	sv
320-35504-A-4-A	320-0053732-011	Client	06-Feb-2018 09:17:32	2018.02.06_537A_013.d	35	1.0	Field Blank-01-27-18	sv
320-35504-A-5-A	320-0053732-012	Client	06-Feb-2018 09:22:12	2018.02.06_537A_014.d	36	1.0	WS-082B	sv
320-35504-A-6-A	320-0053732-013	Client	06-Feb-2018 09:26:51	2018.02.06_537A_015.d	37	1.0	WS-082C	sv
CCV L5	320-0053732-014	CCVIS	06-Feb-2018 09:31:33	2018.02.06_537A_016.d	5	1.0		sv
RB	320-0053732-015	RB	06-Feb-2018 09:36:13	2018.02.06_537A_017.d	8	1.0		sv
320-35504-A-7-A	320-0053732-016	Client	06-Feb-2018 09:40:53	2018.02.06_537A_018.d	38	1.0	WS-082D	sv
CCV L3	320-0053732-017	CCVIS	06-Feb-2018 09:45:33	2018.02.06_537A_019.d	3	1.0		sv
RB	320-0053732-018	RB	06-Feb-2018 09:50:13	2018.02.06_537A_020.d	8	1.0		sv
320-35504-A-4-A	320-0053732-020	Client	06-Feb-2018 10:08:04	2018.02.06_537AA_013.d	35	1.0	Field Blank-01-27-18	sv
320-35504-A-7-A	320-0053732-019	Client	06-Feb-2018 10:12:44	2018.02.06_537AA_018.d	39	20.0	WS-082D	sv
CCV L3	320-0053732-021	CCVIS	06-Feb-2018 10:17:24	2018.02.06_537AA_019.d	3	1.0		sv
RB	320-0053732-022	RB	06-Feb-2018 10:22:05	2018.02.06_537AA_020.d	8	1.0		sv

TestAmerica Laboratories  
 Worklist QC Batch Report

Worklist Name: 06FEB2018\_537C                      Worklist Number: 53755  
 Instrument Name: A8\_N                                  Chrom Method: 537\_A8\_N  
 Data Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53755.b  
 QC Batching: Enabled                                  Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 207192
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 320-35280-A-1-A	# 3 320-35280-A-1-A
# 4 320-35280-A-1-B MS	# 4 320-35280-A-1-B MS
# 5 320-35280-A-1-C MSD	# 5 320-35280-A-1-C MSD
# 6 320-35280-A-2-A	# 6 320-35280-A-2-A
# 7 CCV L5	# 7 CCV L5
# 8 RB	# 8 RB

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 06FEB2018\_537C

Worklist Num: 53755

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180206-53755.b

Analysis Type: SemiVOA

Creator: Barnett, John

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	320-0053755-001	CCVIS	06-Feb-2018 13:53:58	2018.02.06_537D_001.d	3	1.0		sv
RB	320-0053755-002	RB	06-Feb-2018 13:58:39	2018.02.06_537D_002.d	8	1.0		sv
320-35280-A-1-A	320-0053755-003	Client	06-Feb-2018 14:03:18	2018.02.06_537D_003.d	1	10.0	BW012218-BWASH-LHWA-	sv
320-35280-A-1-B MS	320-0053755-004	MS	06-Feb-2018 14:07:59	2018.02.06_537D_004.d	2	10.0	BW012218-BWASH-LHWA-	sv
320-35280-A-1-C MSD	320-0053755-005	MSD	06-Feb-2018 14:12:41	2018.02.06_537D_005.d	3	10.0	BW012218-BWASH-LHWA-	sv
320-35280-A-2-A	320-0053755-006	Client	06-Feb-2018 14:17:22	2018.02.06_537D_006.d	4	10.0	BW012218-BWASH-LHWA-	sv
CCV L5	320-0053755-007	CCVIS	06-Feb-2018 14:22:03	2018.02.06_537D_007.d	5	1.0		sv
RB	320-0053755-008	RB	06-Feb-2018 14:26:43	2018.02.06_537D_008.d	8	1.0		sv

\*Shares QC w/  
Batch 206271

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

70 MS 2/15/18  
MS 2/16/18

Batch Number: 320-206188

Batch Open: 1/30/2018 12:51:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

## Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-206188/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
2 LCS-320-206188/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
3 LCSD-320-206188/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
4 320-35280-A-1 (537_DuPont)	N/A (320-35280-1)	283.82 g	256.5 mL	7			1/29/18	8_Days	4	CI ND 10X	
		27.35 g	1.0 mL								
5 320-35280-A-1-MS (537_DuPont)	N/A (320-35280-1)	285.02 g	257.2 mL	7			1/29/18	8_Days	4	CI ND 10X	
		27.87 g	1.0 mL								
6 320-35280-A-1-MSD (537_DuPont)	N/A (320-35280-1)	287.69 g	259.9 mL	7			1/29/18	8_Days	4	CI ND 10X	
		27.81 g	1.0 mL								
7 320-35280-A-2 (537_DuPont)	N/A (320-35280-1)	285.22 g	257.7 mL	7			1/29/18	8_Days	4	CI ND 10X	
		27.50 g	1.0 mL								
8 320-35280-A-3 (537_DuPont)	N/A (320-35280-1)	280.23 g	252 mL	7			1/29/18	8_Days	4	CI ND	
		28.20 g	1.0 mL								
9 320-35148-A-21 (537_DOD5)	N/A (320-35148-1)	277.39 g	250 mL	7			1/22/18	16_Days	4	CI ND	
		27.35 g	1.0 mL								

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206188

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:51:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

## Batch Notes

Manifold ID 4

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1127839

Reagent Water ID 1-25-18

Internal Standard ID# 1145836

Pipette ID H14930F

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop Witness KMK

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop Witness KMK

Analyst ID - IS Reagent Drop VPM

Analyst ID - IS Reagent Drop Witness TWL

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Label ID's checked: KMK 1-30-18

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206188

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:51:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

## Comments

320-35280-A-1	Method Comments: DuPont QAS_LCSD req
320-35280-A-1~MS	Method Comments: DuPont QAS_LCSD req
320-35280-A-1~MSD	Method Comments: DuPont QAS_LCSD req
320-35280-A-2	Method Comments: DuPont QAS_LCSD req
320-35280-A-3	Method Comments: DuPont QAS_LCSD req

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206188

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:51:00PM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206188/1	LC537-SU_00053	100 uL	1.0 mL	<i>Col 1-30-18</i> ↓	
LCS 320-206188/2	LC537-HSP_00023	100 uL	1.0 mL		
LCS 320-206188/2	LC537-SU_00053	100 uL	1.0 mL		
LCSD 320-206188/3	LC537-HSP_00023	100 uL	1.0 mL		
LCSD 320-206188/3	LC537-SU_00053	100 uL	1.0 mL		
320-35280-A-1	LC537-SU_00053	100 uL	1.0 mL		
320-35280-A-1 MS	LC537-HSP_00023	100 uL	1.0 mL		
320-35280-A-1 MS	LC537-SU_00053	100 uL	1.0 mL		
320-35280-A-1 MSD	LC537-HSP_00023	100 uL	1.0 mL		
320-35280-A-1 MSD	LC537-SU_00053	100 uL	1.0 mL		
320-35280-A-2	LC537-SU_00053	100 uL	1.0 mL		
320-35280-A-3	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-21	LC537-SU_00053	100 uL	1.0 mL		

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206188

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 12:51:00PM

Method Code: 320-537\_Prep-320

Batch End:

Other Reagents:		
Reagent	Amount/Units	Lot#:

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Preparation Batch Number(s) 206188 Test 537-Prep

Earliest Holding Time 1-30-18 / 2-5-18

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	NA	NA
MS/MSD or MS/DU NCM filed	NA	NA
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	NA	NA
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1 <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 Cl 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: [Signature]

Date: 2/2/18

2<sup>nd</sup> Level Reviewer: VPM

Date: 2/3/18

Comments: \_\_\_\_\_

Method ID S37

Lot # See below

Analyst (Print Name) Amani Rayce

Analyst Initials ARR

Date 2/6/18

Job #	Sample #	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor
320-35280	1	1,000	30	300	10X
↓	1MS	↓	↓	↓	↓
	1MSD				
	2				
ARR 2/6/18					

**Comments:**

LC537-10\_00010 used for dilution.

# Aqueous Extraction Analysis Sheet

70 A8 2/5/18

(To Accompany Samples to Instruments)

Batch Number: 320-206271

Analyst: Kolstad, Kate M





Batch Open: 1/30/2018 7:44:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

## Extraction of Perfluorinated Alkyl Acids

DU: 2/8

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-320-206271/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND; shares QC's with batch 206188.	
			1.0 mL								
2 LCS-320-206271/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
3 LCSD-320-206271/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
320-35148-A-21 (537_DOD5)	N/A (320-35148-1)	277.39 g	250 mL	7			1/22/18	16_Days	4	CI ND	
		27.35 g	1.0 mL								

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\* Shares QC w/ Batch 206188

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206271

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 7:44:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

## Batch Notes

Manifold ID 4

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1127839

Reagent Water ID 1-25-18

Internal Standard ID# 1145836

Pipette ID H14930F

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop KMK

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop KMK

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop VPM

Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Label ID's checked: KMK 1-30-18

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206271

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 7:44:00PM

Method Code: 320-537\_Prep-320

Batch End: 2/2/2018 7:48:00PM

**Comments**

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206271

Analyst: Kolstad, Kate M

Batch Open: 1/30/2018 7:44:00PM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

*see batch # 206188*

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206271/1	LC537-SU_00053	100 uL	1.0 mL		
LCS 320-206271/2	LC537-HSP_00023	100 uL	1.0 mL		
LCS 320-206271/2	LC537-SU_00053	100 uL	1.0 mL		
LCSD 320-206271/3	LC537-HSP_00023	100 uL	1.0 mL		
LCSD 320-206271/3	LC537-SU_00053	100 uL	1.0 mL		
320-35148-A-21	LC537-SU_00053	100 uL	1.0 mL		

### Other Reagents:

Reagent

Amount/Units

Lot#:


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Preparation Batch Number(s) 206271 Test 537 - prep

Earliest Holding Time 2-5-18

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	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1 <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: [Signature]

Date: 2/3/18

2<sup>nd</sup> Level Reviewer: VPM

Date: 2/3/18

Comments: \_\_\_\_\_

# Shipping and Receiving Documents



# Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35148-1

**Login Number: 35148**  
**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-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "53", "ng/L", "M", "6.7", "DL", "", "TRG", "", "", "39", "LOQ", "YES", "-99", "", "253.2", "1.0", "16", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "22", "ng/L", "", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "253.2", "1.0", "7.9", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "42", "ng/L", "", "5.4", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "253.2", "1.0", "12", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "89", "LOQ", "YES", "-99", "", "253.2", "1.0", "36", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "8.7", "ng/L", "J", "1.9", "DL", "", "TRG", "", "", "9.9", "LOQ", "YES", "-99", "", "253.2", "1.0", "3.9", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "20", "ng/L", "U M", "7.9", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "253.2", "1.0", "20", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "STL00993", "13C2 PFHxA", "37", "ng/L", "", "-99", "DL", "", "SURR", "94", "", "-99", "LOQ", "YES", "39.5", "", "253.2", "1.0", "0", ""

"NAWC-011618-RW-334", "537", "RES", "320-35148-1", "TALSAC", "STL00996", "13C2 PFDA", "39", "ng/L", "", "-99", "DL", "", "SURR", "99", "", "-99", "LOQ", "YES", "39.5", "", "253.2", "1.0", "0", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "16", "ng/L", "U", "6.9", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "247", "1.0", "16", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "8.1", "ng/L", "U", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "247", "1.0", "8.1", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "12", "ng/L", "U", "5.6", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "247", "1.0", "12", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "247", "1.0", "36", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "4.0", "ng/L", "U", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "247", "1.0", "4.0", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "20", "ng/L", "U", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "247", "1.0", "20", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "STL00993", "13C2 PFHxA", "41", "ng/L", "", "-99", "DL", "", "SURR", "101", "", "-99", "LOQ", "YES", "40.5", "", "247", "1.0", "0", ""

"NAWC-011618-FRB-272", "537", "RES", "320-35148-10", "TALSAC", "STL00996", "13C2 PFDA", "42", "ng/L", "", "-99", "DL", "", "SURR", "104", "", "-99", "LOQ", "YES", "40.5", "", "247", "1.0", "0", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "20", "ng/L", "J M", "6.9", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "247.3", "1.0", "16", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "24", "ng/L", "", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "247.3", "1.0", "8.1", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "12", "ng/L", "U M", "5.6", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "247.3", "1.0", "12", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "247.3", "1.0", "36", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "9.1", "ng/L", "J", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "247.3", "1.0", "4.0", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "13", "ng/L", "J", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "247.3", "1.0", "20", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "STL00993", "13C2 PFHxA", "34", "ng/L", "", "-99", "DL", "", "SURR", "85", "", "-99", "LOQ", "YES", "40.4", "", "247.3", "1.0", "0", ""

"NAWC-011618-RW-258", "537", "RES", "320-35148-11", "TALSAC", "STL00996", "13C2 PFDA", "36", "ng/L", "", "-99", "DL", "", "SURR", "89", "", "-99", "LOQ", "YES", "40.4", "", "247.3", "1.0", "0", ""

"NAWC-011618-FRB-258", "537", "RES", "320-35148-12", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "16", "ng/L", "U", "6.8", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "251.8", "1.0", "16", ""

"NAWC-011618-FRB-258", "537", "RES", "320-35148-12", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "7.9", "ng/L", "U", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "251.8", "1.0", "7.9", ""

"NAWC-011618-FRB-258", "537", "RES", "320-35148-12", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid

(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99","","251.8","1.0","12",""  
"NAWC-011618-FRB-258","537","RES","320-35148-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES",-99","","251.8","1.0","36",""  
"NAWC-011618-FRB-258","537","RES","320-35148-12","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES",-99","","251.8","1.0","4.0",""  
"NAWC-011618-FRB-258","537","RES","320-35148-12","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES",-99","","251.8","1.0","20",""  
"NAWC-011618-FRB-258","537","RES","320-35148-12","TALSAC","STL00993","13C2  
PFHxA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","39.7","","251.8","1.0","0",""  
"NAWC-011618-FRB-258","537","RES","320-35148-12","TALSAC","STL00996","13C2  
PFDA","38","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","39.7","","251.8","1.0","0",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","16","ng/L","U M","6.8","DL","","TRG","","","40","LOQ","YES",-99","","250.3","1.0","16",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","5.0","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES",-99","","250.3","1.0","8.0",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","12","ng/L","U M","5.5","DL","","TRG","","","30","LOQ","YES",-99","","250.3","1.0","12",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","36","ng/L","U M","16","DL","","TRG","","","90","LOQ","YES",-99","","250.3","1.0","36",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.0","ng/L","U M","1.9","DL","","TRG","","","10","LOQ","YES",-99","","250.3","1.0","4.0",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99","","250.3","1.0","20",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","STL00993","13C2  
PFHxA","37","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.0","","250.3","1.0","0",""  
"NAWC-011618-RW-234","537","RES","320-35148-13","TALSAC","STL00996","13C2  
PFDA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.0","","250.3","1.0","0",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES",-99","","250.3","1.0","16",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","250.3","1.0","8.0",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99","","250.3","1.0","12",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99","","250.3","1.0","36",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99","","250.3","1.0","4.0",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99","","250.3","1.0","20",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.0","","250.3","1.0","0",""  
"NAWC-011618-FRB-234","537","RES","320-35148-14","TALSAC","STL00996","13C2  
PFDA","36","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.0","","250.3","1.0","0",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","16","ng/L","U M","6.9","DL","","TRG","","","41","LOQ","YES",-99","","245","1.0","16",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","5.2","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES",-99","","245","1.0","8.2",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","12","ng/L","U M","5.6","DL","","TRG","","","31","LOQ","YES",-99","","245","1.0","12",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES",-99","","245","1.0","37",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.1","ng/L","U M","1.9","DL","","TRG","","","10","LOQ","YES",-99","","245","1.0","4.1",""  
"WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","375-95-1","Perfluorononanoic acid



(PFNA),"20","ng/L","U","8.2","DL","","TRG","","","24","LOQ","YES",-99","","245","1.0","20","","WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.8","","245","1.0","0","","WGNA-011618-DUP20","537","RES","320-35148-15","TALSAC","STL00996","13C2  
PFDA","39","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.8","","245","1.0","0","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U M","6.8","DL","","TRG","","","40","LOQ","YES",-99","","248.9","1.0","16","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","6.1","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES",-99","","248.9","1.0","8.0","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U M","5.5","DL","","TRG","","","30","LOQ","YES",-99","","248.9","1.0","12","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99","","248.9","1.0","36","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","2.1","ng/L","J M","1.9","DL","","TRG","","","10","LOQ","YES",-99","","248.9","1.0","4.0","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99","","248.9","1.0","20","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","STL00993","13C2  
PFHxA","37","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.2","","248.9","1.0","0","","NAWC-011618-RW-264","537","RES","320-35148-16","TALSAC","STL00996","13C2  
PFDA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.2","","248.9","1.0","0","","NAWC-011618-FRB-264","537","RES","320-35148-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES",-99","","247.7","1.0","16","","NAWC-011618-FRB-264","537","RES","320-35148-17","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","247.7","1.0","8.1","","NAWC-011618-FRB-264","537","RES","320-35148-17","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-011618-FRB-264","537","RES","320-35148-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99","","247.7","1.0","36","","NAWC-011618-FRB-264","537","RES","320-35148-17","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99","","247.7","1.0","4.0","","NAWC-011618-FRB-264","537","RES","320-35148-17","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-011618-FRB-264","537","RES","320-35148-17","TALSAC","STL00993","13C2  
PFHxA","35","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","40.4","","247.7","1.0","0","","NAWC-011618-FRB-264","537","RES","320-35148-17","TALSAC","STL00996","13C2  
PFDA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.4","","247.7","1.0","0","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","30","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES",-99","","246.2","1.0","16","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","35","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES",-99","","246.2","1.0","8.1","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","23","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES",-99","","246.2","1.0","12","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99","","246.2","1.0","37","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","7.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99","","246.2","1.0","4.1","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99","","246.2","1.0","20","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","STL00993","13C2  
PFHxA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.6","","246.2","1.0","0","","WGNA-011618-RW-0560","537","RES","320-35148-18","TALSAC","STL00996","13C2  
PFDA","43","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","40.6","","246.2","1.0","0","","WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.6","1.0","16",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.6","1.0","8.0",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.6","1.0","12",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.6","1.0","36",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.6","1.0","4.0",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.6","1.0","20",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","39.9","","250.6","1.0","0",""  
"WGNA-011618-FRB-0560","537","RES","320-35148-19","TALSAC","STL00996","13C2  
PFDA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","39.9","","250.6","1.0","0",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.7","1.0","16",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.7","1.0","8.1",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.7","1.0","12",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.7","1.0","36",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.7","1.0","4.1",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.7","1.0","20",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","STL00993","13C2  
PFHxA","39","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.5","","246.7","1.0","0",""  
"NAWC-011618-FRB-334","537","RES","320-35148-2","TALSAC","STL00996","13C2  
PFDA","40","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","40.5","","246.7","1.0","0",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"34","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.6","1.0","16",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"38","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.6","1.0","8.1",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"27","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.6","1.0","12",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.6","1.0","36",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"8.4","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.6","1.0","4.1",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U M","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.6","1.0","20",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","STL00993","13C2  
PFHxA","40","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","40.6","","246.6","1.0","0",""  
"WGNA-011618-RW-0515","537","RES","320-35148-20","TALSAC","STL00996","13C2  
PFDA","41","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.6","","246.6","1.0","0",""  
"WGNA-011618-RW-0515MS","537","RES","320-35148-20MS","TALSAC","1763-23-1","Perfluorooctanesulfonic  
acid (PFOS),"158","ng/L","M","6.9","DL","","SPK","92","","40","LOQ","YES","135","WGNA-011618-RW-  
0515","247.5","1.0","16",""  
"WGNA-011618-RW-0515MS","537","RES","320-35148-20MS","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"102","ng/L","","2.8","DL","","SPK","95","","20","LOQ","YES","67.4","WGNA-011618-RW-  
0515","247.5","1.0","8.1",""  
"WGNA-011618-RW-0515MS","537","RES","320-35148-20MS","TALSAC","355-46-4","Perfluorohexanesulfonic

acid (PFHxS)", "131", "ng/L", "", "5.6", "DL", "", "SPK", "103", "", "30", "LOQ", "YES", "101", "WGNA-011618-RW-0515", "247.5", "1.0", "12", ""

"WGNA-011618-RW-0515MS", "537", "RES", "320-35148-20MS", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "308", "ng/L", "", "16", "DL", "", "SPK", "102", "", "91", "LOQ", "YES", "303", "WGNA-011618-RW-0515", "247.5", "1.0", "36", ""

"WGNA-011618-RW-0515MS", "537", "RES", "320-35148-20MS", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "42.6", "ng/L", "", "1.9", "DL", "", "SPK", "102", "", "10", "LOQ", "YES", "33.7", "WGNA-011618-RW-0515", "247.5", "1.0", "4.0", ""

"WGNA-011618-RW-0515MS", "537", "RES", "320-35148-20MS", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "66.3", "ng/L", "", "8.1", "DL", "", "SPK", "98", "", "24", "LOQ", "YES", "67.4", "WGNA-011618-RW-0515", "247.5", "1.0", "20", ""

"WGNA-011618-RW-0515MS", "537", "RES", "320-35148-20MS", "TALSAC", "STL00993", "13C2 PFHxA", "38.9", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "40.4", "WGNA-011618-RW-0515", "247.5", "1.0", "0", ""

"WGNA-011618-RW-0515MS", "537", "RES", "320-35148-20MS", "TALSAC", "STL00996", "13C2 PFDA", "38.2", "ng/L", "", "-99", "DL", "", "SURR", "95", "", "-99", "LOQ", "YES", "40.4", "WGNA-011618-RW-0515", "247.5", "1.0", "0", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "162", "ng/L", "M", "6.8", "DL", "", "SPK", "96", "2", "40", "LOQ", "YES", "134", "WGNA-011618-RW-0515", "249.2", "1.0", "16", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "104", "ng/L", "", "2.8", "DL", "", "SPK", "100", "3", "20", "LOQ", "YES", "66.9", "WGNA-011618-RW-0515", "249.2", "1.0", "8.0", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "132", "ng/L", "", "5.5", "DL", "", "SPK", "105", "0", "30", "LOQ", "YES", "100", "WGNA-011618-RW-0515", "249.2", "1.0", "12", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "324", "ng/L", "", "16", "DL", "", "SPK", "108", "5", "90", "LOQ", "YES", "301", "WGNA-011618-RW-0515", "249.2", "1.0", "36", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "42.9", "ng/L", "", "1.9", "DL", "", "SPK", "103", "1", "10", "LOQ", "YES", "33.5", "WGNA-011618-RW-0515", "249.2", "1.0", "4.0", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "68.2", "ng/L", "", "8.0", "DL", "", "SPK", "102", "3", "24", "LOQ", "YES", "66.9", "WGNA-011618-RW-0515", "249.2", "1.0", "20", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "STL00993", "13C2 PFHxA", "38.9", "ng/L", "", "-99", "DL", "", "SURR", "97", "", "-99", "LOQ", "YES", "40.1", "WGNA-011618-RW-0515", "249.2", "1.0", "0", ""

"WGNA-011618-RW-0515MSD", "537", "RES", "320-35148-20MSD", "TALSAC", "STL00996", "13C2 PFDA", "38.4", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "40.1", "WGNA-011618-RW-0515", "249.2", "1.0", "0", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "16", "ng/L", "U", "6.8", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "250", "1.0", "16", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "8.0", "ng/L", "U", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "250", "1.0", "8.0", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "12", "ng/L", "U", "5.5", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "250", "1.0", "12", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "90", "LOQ", "YES", "-99", "", "250", "1.0", "36", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "4.0", "ng/L", "U", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "250", "1.0", "4.0", ""

"WGNA-011618-FRB-0515", "537", "RES", "320-35148-21", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "20", "ng/L", "U", "8.0", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "250", "1.0", "20", ""

"WGNA-011618-FRB-0515","537","RES","320-35148-21","TALSAC","STL00993","13C2  
PFHxA","42","ng/L","",-99,"DL","",,"SURR","104","",-99,"LOQ","YES","40.0","",,"250","1.0","0",""  
"WGNA-011618-FRB-0515","537","RES","320-35148-21","TALSAC","STL00996","13C2  
PFDA","41","ng/L","",-99,"DL","",,"SURR","102","",-99,"LOQ","YES","40.0","",,"250","1.0","0",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","17","ng/L","J M","6.9","DL","",,"TRG","",,"",,"41","LOQ","YES","-99","",,"245.8","1.0","16",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","12","ng/L","J","2.8","DL","",,"TRG","",,"",,"20","LOQ","YES","-99","",,"245.8","1.0","8.1",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","6.9","ng/L","J","5.6","DL","",,"TRG","",,"",,"31","LOQ","YES","-99","",,"245.8","1.0","12",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","37","ng/L","U","16","DL","",,"TRG","",,"",,"92","LOQ","YES","-99","",,"245.8","1.0","37",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.2","ng/L","J","1.9","DL","",,"TRG","",,"",,"10","LOQ","YES","-99","",,"245.8","1.0","4.1",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","20","ng/L","U M","8.1","DL","",,"TRG","",,"",,"24","LOQ","YES","-99","",,"245.8","1.0","20",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","",-99,"DL","",,"SURR","92","",-99,"LOQ","YES","40.7","",,"245.8","1.0","0",""  
"NAWC-011618-RW-280","537","RES","320-35148-3","TALSAC","STL00996","13C2  
PFDA","38","ng/L","",-99,"DL","",,"SURR","92","",-99,"LOQ","YES","40.7","",,"245.8","1.0","0",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","16","ng/L","U","6.9","DL","",,"TRG","",,"",,"40","LOQ","YES","-99","",,"247.4","1.0","16",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","8.1","ng/L","U","2.8","DL","",,"TRG","",,"",,"20","LOQ","YES","-99","",,"247.4","1.0","8.1",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","12","ng/L","U","5.6","DL","",,"TRG","",,"",,"30","LOQ","YES","-99","",,"247.4","1.0","12",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","36","ng/L","U","16","DL","",,"TRG","",,"",,"91","LOQ","YES","-99","",,"247.4","1.0","36",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.0","ng/L","U","1.9","DL","",,"TRG","",,"",,"10","LOQ","YES","-99","",,"247.4","1.0","4.0",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","20","ng/L","U","8.1","DL","",,"TRG","",,"",,"24","LOQ","YES","-99","",,"247.4","1.0","20",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","STL00993","13C2  
PFHxA","39","ng/L","",-99,"DL","",,"SURR","97","",-99,"LOQ","YES","40.4","",,"247.4","1.0","0",""  
"NAWC-011618-FRB-280","537","RES","320-35148-4","TALSAC","STL00996","13C2  
PFDA","44","ng/L","",-99,"DL","",,"SURR","110","",-99,"LOQ","YES","40.4","",,"247.4","1.0","0",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","13","ng/L","J M","7.0","DL","",,"TRG","",,"",,"41","LOQ","YES","-99","",,"243.3","1.0","16",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA)","15","ng/L","J","2.9","DL","",,"TRG","",,"",,"21","LOQ","YES","-99","",,"243.3","1.0","8.2",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS)","6.4","ng/L","J","5.7","DL","",,"TRG","",,"",,"31","LOQ","YES","-99","",,"243.3","1.0","12",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS)","37","ng/L","U","17","DL","",,"TRG","",,"",,"92","LOQ","YES","-99","",,"243.3","1.0","37",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA)","4.6","ng/L","J","2.0","DL","",,"TRG","",,"",,"10","LOQ","YES","-99","",,"243.3","1.0","4.1",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA)","21","ng/L","U","8.2","DL","",,"TRG","",,"",,"25","LOQ","YES","-99","",,"243.3","1.0","21",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","STL00993","13C2  
PFHxA","36","ng/L","",-99,"DL","",,"SURR","89","",-99,"LOQ","YES","41.1","",,"243.3","1.0","0",""  
"NAWC-011618-RW-262","537","RES","320-35148-5","TALSAC","STL00996","13C2  
PFDA","39","ng/L","",-99,"DL","",,"SURR","96","",-99,"LOQ","YES","41.1","",,"243.3","1.0","0",""  
"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS)","16","ng/L","U","6.8","DL","",,"TRG","",,"",,"40","LOQ","YES","-99","",,"248.9","1.0","16",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","248.9","1.0","8.0",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99","","248.9","1.0","12",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99","","248.9","1.0","36",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99","","248.9","1.0","4.0",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99","","248.9","1.0","20",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","STL00993","13C2 PFHxA","37","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.2","","248.9","1.0","0",""

"NAWC-011618-FRB-262","537","RES","320-35148-6","TALSAC","STL00996","13C2 PFDA","37","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.2","","248.9","1.0","0",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","8.3","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES",-99","","241.9","1.0","17",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","12","ng/L","J","2.9","DL","","TRG","","","21","LOQ","YES",-99","","241.9","1.0","8.3",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES",-99","","241.9","1.0","12",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES",-99","","241.9","1.0","37",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","5.0","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES",-99","","241.9","1.0","4.1",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES",-99","","241.9","1.0","21",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","STL00993","13C2 PFHxA","36","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","41.3","","241.9","1.0","0",""

"WGNA-011618-RW-3295","537","RES","320-35148-7","TALSAC","STL00996","13C2 PFDA","35","ng/L","","-99","DL","","SURR","85","","-99","LOQ","YES","41.3","","241.9","1.0","0",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES",-99","","250.6","1.0","16",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","250.6","1.0","8.0",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99","","250.6","1.0","12",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99","","250.6","1.0","36",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99","","250.6","1.0","4.0",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99","","250.6","1.0","20",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","STL00993","13C2 PFHxA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","39.9","","250.6","1.0","0",""

"WGNA-011618-FRB-3295","537","RES","320-35148-8","TALSAC","STL00996","13C2 PFDA","42","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","39.9","","250.6","1.0","0",""

"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","21","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES",-99","","246.4","1.0","16",""

"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","22","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES",-99","","246.4","1.0","8.1",""

"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","6.0","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES",-99","","246.4","1.0","12",""

"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99","","246.4","1.0","37",""

"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","8.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.4","1.0","4.1",""  
"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.4","1.0","20",""  
"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","STL00993","13C2  
PFHxA","37","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.6","","246.4","1.0","0",""  
"NAWC-011618-RW-272","537","RES","320-35148-9","TALSAC","STL00996","13C2  
PFDA","40","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","40.6","","246.4","1.0","0",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","132","ng/L","M","6.8","DL","","SPK","99","","40","LOQ","YES","133","","250.0","1.0","16",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","72.5","ng/L","","2.8","DL","","SPK","109","","20","LOQ","YES","66.7","","250.0","1.0","8.0",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","113","ng/L","","5.5","DL","","SPK","113","","30","LOQ","YES","100","","250.0","1.0","12",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","302","ng/L","","16","DL","","SPK","101","","90","LOQ","YES","300","","250.0","1.0","36",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","39.1","ng/L","","1.9","DL","","SPK","117","","10","LOQ","YES","33.3","","250.0","1.0","4.0",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","68.3","ng/L","","8.0","DL","","SPK","102","","24","LOQ","YES","66.7","","250.0","1.0","20",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","STL00993","13C2  
PFHxA","36.7","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.0","","250.0","1.0","0",""  
"LCS 320-206187/2-A","537","RES","LCS 320-206187/2-A","TALSAC","STL00996","13C2  
PFDA","40.9","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.0","","250.0","1.0","0",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","223","ng/L","M","6.8","DL","","SPK","100","","40","LOQ","YES","222","","250.0","1.0","16",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","131","ng/L","","2.8","DL","","SPK","117","","20","LOQ","YES","111","","250.0","1.0","8.0",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","181","ng/L","","5.5","DL","","SPK","109","","30","LOQ","YES","167","","250.0","1.0","12",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","501","ng/L","","16","DL","","SPK","100","","90","LOQ","YES","500","","250.0","1.0","36",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","69.9","ng/L","","1.9","DL","","SPK","126","","10","LOQ","YES","55.6","","250.0","1.0","4.0",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","119","ng/L","","8.0","DL","","SPK","107","","24","LOQ","YES","111","","250.0","1.0","20",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","STL00993","13C2  
PFHxA","43.8","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.0","","250.0","1.0","0",""  
"LCS 320-206188/2-A","537","RES","LCS 320-206188/2-A","TALSAC","STL00996","13C2  
PFDA","44.5","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","40.0","","250.0","1.0","0",""  
"LCSD 320-206188/3-A","537","RES","LCSD 320-206188/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","238","ng/L","M","6.8","DL","","SPK","107","7","40","LOQ","YES","222","LCS 320-206188/2-A","250.0","1.0","16",""  
"LCSD 320-206188/3-A","537","RES","LCSD 320-206188/3-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","130","ng/L","","2.8","DL","","SPK","117","0","20","LOQ","YES","111","LCS 320-206188/2-A","250.0","1.0","8.0",""  
"LCSD 320-206188/3-A","537","RES","LCSD 320-206188/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","187","ng/L","","5.5","DL","","SPK","112","3","30","LOQ","YES","167","LCS 320-206188/2-A","250.0","1.0","12",""  
"LCSD 320-206188/3-A","537","RES","LCSD 320-206188/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","479","ng/L","","16","DL","","SPK","96","4","90","LOQ","YES","500","LCS 320-206188/2-A","250.0","1.0","36",""  
"LCSD 320-206188/3-A","537","RES","LCSD 320-206188/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","70.1","ng/L","","1.9","DL","","SPK","126","0","10","LOQ","YES","55.6","LCS 320-206188/2-

A", "250.0", "1.0", "4.0", ""  
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"MB 320-206187/1-A", "537", "RES", "MB 320-206187/1-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "12", "ng/L", "U", "5.5", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "250.0", "1.0", "12", ""  
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23:09", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206870", "320-35148-1", "01/18/2018 10:20", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "WGNA-011618-RW-3295", "01/16/2018 10:10", "AQ", "320-35148-7", "NM", "", "4.5", "537", "METHOD", "RES", "01/30/2018 12:48", "02/02/2018  
23:14", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206870", "320-35148-1", "01/18/2018 10:20", "02/06/2018 15:57", ""  
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23:18", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206870", "320-35148-1", "01/18/2018 10:20", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "NAWC-011618-RW-272", "01/16/2018 11:10", "AQ", "320-35148-9", "NM", "", "4.5", "537", "METHOD", "RES", "01/30/2018 12:48", "02/02/2018  
23:32", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206872", "320-35148-1", "01/18/2018 10:20", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "LCS 320-206187/2-A", "", "AQ", "LCS 320-206187/2-A", "LCS", "", "-99", "537", "METHOD", "RES", "01/30/2018 12:48", "02/02/2018  
22:41", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206870", "320-35148-1", "01/30/2018 12:48", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "LCS 320-206188/2-A", "", "AQ", "LCS 320-206188/2-A", "LCS", "", "-99", "537", "METHOD", "RES", "01/30/2018 12:51", "02/06/2018  
11:43", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206188", "320-206188", "NA", "320-207174", "320-35148-1", "01/30/2018 12:51", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "LCS 320-206188/3-A", "", "AQ", "LCS 320-206188/3-A", "LCS", "", "-99", "537", "METHOD", "RES", "01/30/2018 12:51", "02/06/2018  
11:47", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206188", "320-206188", "NA", "320-207174", "320-35148-1", "01/30/2018 12:51", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "MB 320-206187/1-A", "", "AQ", "MB 320-206187/1-A", "MB", "", "-99", "537", "METHOD", "RES", "01/30/2018 12:48", "02/02/2018  
22:36", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206187", "320-206187", "NA", "320-206870", "320-35148-1", "01/30/2018 12:48", "02/06/2018 15:57", ""  
"Unknown", "Unknown", "MB 320-206188/1-A", "", "AQ", "MB 320-206188/1-A", "MB", "", "-99", "537", "METHOD", "RES", "01/30/2018 12:51", "02/06/2018  
11:38", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-206188", "320-206188", "NA", "320-207174", "320-35148-1", "01/30/2018 12:51", "02/06/2018 15:57", ""



TO: A. FREBOWITZ  
SDG: 320-35148-1

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**Notes**

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

<b><u>Sample</u></b>	<b><u>Associated FRB</u></b>
NAWC-011618-RW-334	NAWC-011618-FRB-334
NAWC-011618-RW-280	NAWC-011618-FRB-280
NAWC-011618-RW-262	NAWC-011618-FRB-262
WGNA-011618-RW-3295	WGNA-011618-FRB-3295
NAWC-011618-RW-272	NAWC-011618-FRB-272
NAWC-011618-RW-258	NAWC-011618-FRB-258
NAWC-011618-RW-234	NAWC-011618-FRB-234
WGNA-011618-DUP20	NAWC-011618-FRB-334
NAWC-011618-RW-264	NAWC-011618-FRB-264
WGNA-011618-RW-0560	WGNA-011618-FRB-0560
WGNA-011618-RW-0515	WGNA-011618-FRB-0515

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: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-011618-FRB-234			NAWC-011618-FRB-258			NAWC-011618-FRB-262			NAWC-011618-FRB-264		
	LAB_ID	320-35148-14			320-35148-12			320-35148-6			320-35148-17		
	SAMP_DATE	1/16/2018			1/16/2018			1/16/2018			1/16/2018		
	QC_TYPE	FB			FD			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	8	U		7.9	U		8	U		8.1	U		
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		36	U		36	U		
PERFLUOROHEPTANOIC ACID	4	U		4	U		4	U		4	U		
PERFLUOROHEXANESULFONIC 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: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-011618-FRB-272			NAWC-011618-FRB-280			NAWC-011618-FRB-334			NAWC-011618-RW-234		
	LAB_ID	320-35148-10			320-35148-4			320-35148-2			320-35148-13		
	SAMP_DATE	1/16/2018			1/16/2018			1/16/2018			1/16/2018		
	QC_TYPE	FB			FB			FB			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	8.1	U		8.1	U		8.1	U		5	J	P	
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		36	U		36	U		
PERFLUOROHEPTANOIC ACID	4	U		4	U		4.1	U		4	U		
PERFLUOROHXANESULFONIC ACID	12	U		12	U		12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		16	U		16	U		



<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-011618-RW-258			NAWC-011618-RW-262			NAWC-011618-RW-264			NAWC-011618-RW-272		
	LAB_ID	320-35148-11			320-35148-5			320-35148-16			320-35148-9		
	SAMP_DATE	1/16/2018			1/16/2018			1/16/2018			1/16/2018		
	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	24			15 J	P		6.1 J	P		22			
PERFLUOROBUTANESULFONIC ACID	36 U			37 U			36 U			37 U			
PERFLUOROHEPTANOIC ACID	9.1 J	P		4.6 J	P		2.1 J	P		8.1 J	P		
PERFLUOROHXANESULFONIC ACID	12 U			6.4 J	P		12 U			6 J	P		
PERFLUORONONANOIC ACID	13 J	P		21 U			20 U			20 U			
PERFLUOROOCTANE SULFONIC ACID	20 J	P		13 J	P		16 U			21 J	P		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-011618-RW-280			NAWC-011618-RW-334			WGNA-011618-DUP20			WGNA-011618-FRB-0515		
	LAB_ID	320-35148-3			320-35148-1			320-35148-15			320-35148-21		
	SAMP_DATE	1/16/2018			1/16/2018			1/16/2018			1/16/2018		
	QC_TYPE	NM			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-011618-RW-234					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	12	J	P	22			5.2	J	P	8	U		
PERFLUOROBUTANESULFONIC ACID	37	U		36	U		37	U		36	U		
PERFLUOROHEPTANOIC ACID	4.2	J	P	8.7	J	P	4.1	U		4	U		
PERFLUOROHEXANESULFONIC ACID	6.9	J	P	42			12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	17	J	P	53			16	U		16	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-011618-FRB-0560			WGNA-011618-FRB-3295			WGNA-011618-RW-0515			WGNA-011618-RW-0560		
	LAB_ID	320-35148-19			320-35148-8			320-35148-20			320-35148-18		
	SAMP_DATE	1/16/2018			1/16/2018			1/16/2018			1/16/2018		
	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	8	U		8	U		38			35			
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		36	U		37	U		
PERFLUOROHEPTANOIC ACID	4	U		4	U		8.4	J	P	7.9	J	P	
PERFLUOROHXANESULFONIC ACID	12	U		12	U		27	J	P	23	J	P	
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		34	J	P	30	J	P	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35148-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-011618-RW-3295		
	LAB_ID	320-35148-7		
	SAMP_DATE	1/16/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	12	J	P	
PERFLUOROBUTANESULFONIC ACID	37	U		
PERFLUOROHEPTANOIC ACID	5	J	P	
PERFLUOROHEXANESULFONIC ACID	12	U		
PERFLUORONONANOIC ACID	21	U		
PERFLUOROOCTANE SULFONIC ACID	8.3	J	P	

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-334 Lab Sample ID: 320-35148-1  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_005.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 253.2 (mL) Date Analyzed: 02/02/2018 22:45  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	53	<del>M</del>	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	<del>U M</del>	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	42		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.7	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

*Steve L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-334 Lab Sample ID: 320-35148-2  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_006.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.7(mL) Date Analyzed: 02/02/2018 22:50  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

*Wesley L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-280 Lab Sample ID: 320-35148-3  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_007.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245.8(mL) Date Analyzed: 02/02/2018 22:55  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J <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 <del>M</del>	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	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	92		70-130
STL00996	13C2 PFDA	92		70-130

*Steve J. Selmer*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-280 Lab Sample ID: 320-35148-4  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_008.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.4(mL) Date Analyzed: 02/02/2018 23:00  
 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.: 206870 Units: ng/L

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

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

*Amir L. Saleem*  
02/08/2018



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-262 Lab Sample ID: 320-35148-5  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_009.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 243.3(mL) Date Analyzed: 02/02/2018 23:04  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J <del>M</del>	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	96		70-130

*Amir L. Salameh*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-262 Lab Sample ID: 320-35148-6  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_010.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/02/2018 23:09  
 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.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130

*Amir L. Salameh*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-3295 Lab Sample ID: 320-35148-7  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_011.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 241.9(mL) Date Analyzed: 02/02/2018 23:14  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.3	J <del>M</del>	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	85		70-130

*Ami L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-3295 Lab Sample ID: 320-35148-8  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_012.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/02/2018 23:18  
 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.: 206870 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	97		70-130
STL00996	13C2 PFDA	105		70-130

*Steve L. Salmeron*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-272 Lab Sample ID: 320-35148-9  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_015.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.4 (mL) Date Analyzed: 02/02/2018 23:32  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J <del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22	<del>M</del>	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.1	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	91		70-130
STL00996	13C2 PFDA	98		70-130

*Steve L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-272 Lab Sample ID: 320-35148-10  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_016.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247(mL) Date Analyzed: 02/02/2018 23:37  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	104		70-130

*Amir L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-258 Lab Sample ID: 320-35148-11  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_017.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/02/2018 23:42  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J <del>M</del>	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	24		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	13	J	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U <del>M</del>	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	89		70-130

*Amir L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-258 Lab Sample ID: 320-35148-12  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_018.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 251.8(mL) Date Analyzed: 02/02/2018 23:46  
 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.: 206872 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	92		70-130
STL00996	13C2 PFDA	96		70-130

*Ali L. Salem*  
02/08/2018



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-234 Lab Sample ID: 320-35148-13  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_019.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:51  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U <del>M</del>	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	5.0	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U <del>M</del>	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U <del>M</del>	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U <del>M</del>	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	94		70-130

*Amir L. Salaman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-234 Lab Sample ID: 320-35148-14  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_020.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:56  
 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.: 206872 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	91		70-130

*Steve L. Salmeron*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-DUP20 Lab Sample ID: 320-35148-15  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_021.d  
 Analysis Method: 537 Date Collected: 01/16/2018 07:00  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245 (mL) Date Analyzed: 02/03/2018 00:00  
 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.: 206872 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)	5.2	J	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	92	37	16

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

*Steve L. Salmeron*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-264 Lab Sample ID: 320-35148-16  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_022.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/03/2018 00:05  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U <del>M</del>	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	6.1	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U <del>M</del>	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.1	J <del>M</del>	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	93		70-130
STL00996	13C2 PFDA	97		70-130

*Ami L. Selman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-264 Lab Sample ID: 320-35148-17  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_023.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/03/2018 00:10  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	100		70-130

*Wesley L. Salomon*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0560 Lab Sample ID: 320-35148-18  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_024.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.2 (mL) Date Analyzed: 02/03/2018 00:14  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30	J <del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	35		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.9	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	100		70-130
STL00996	13C2 PFDA	105		70-130

*Steve L. Salzman*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0560 Lab Sample ID: 320-35148-19  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_027.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/03/2018 00:28  
 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.: 206874 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	95		70-130
STL00996	13C2 PFDA	100		70-130

*Amir L. Salameh*  
02/08/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0515 Lab Sample ID: 320-35148-20  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_028.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.6(mL) Date Analyzed: 02/03/2018 00:33  
 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.: 206874 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J <del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	38		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U <del>M</del>	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	27	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.4	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	100		70-130

*Atqui L. Selman*  
02/08/2018



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0515 Lab Sample ID: 320-35148-21  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_039.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:52  
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 12:15  
 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.: 207174 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	104		70-130
STL00996	13C2 PFDA	102		70-130

*Steve L. Selman*  
02/08/2018

**Appendix B**

Results as Reported by the Laboratory

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-334 Lab Sample ID: 320-35148-1  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_005.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 253.2 (mL) Date Analyzed: 02/02/2018 22:45  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	53	M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	42		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.7	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-334 Lab Sample ID: 320-35148-2  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_006.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.7(mL) Date Analyzed: 02/02/2018 22:50  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-280 Lab Sample ID: 320-35148-3  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_007.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245.8(mL) Date Analyzed: 02/02/2018 22:55  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J 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 M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	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	92		70-130
STL00996	13C2 PFDA	92		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-280 Lab Sample ID: 320-35148-4  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_008.d  
 Analysis Method: 537 Date Collected: 01/16/2018 08:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.4 (mL) Date Analyzed: 02/02/2018 23:00  
 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.: 206870 Units: ng/L

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

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

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-262 Lab Sample ID: 320-35148-5  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_009.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 243.3(mL) Date Analyzed: 02/02/2018 23:04  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	96		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-262 Lab Sample ID: 320-35148-6  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_010.d  
 Analysis Method: 537 Date Collected: 01/16/2018 09:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/02/2018 23:09  
 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.: 206870 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-3295 Lab Sample ID: 320-35148-7  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_011.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 241.9(mL) Date Analyzed: 02/02/2018 23:14  
 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.: 206870 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.3	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	85		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-3295 Lab Sample ID: 320-35148-8  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_012.d  
 Analysis Method: 537 Date Collected: 01/16/2018 10:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/02/2018 23:18  
 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.: 206870 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	97		70-130
STL00996	13C2 PFDA	105		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-272 Lab Sample ID: 320-35148-9  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_015.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.4 (mL) Date Analyzed: 02/02/2018 23:32  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.1	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	91		70-130
STL00996	13C2 PFDA	98		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-272 Lab Sample ID: 320-35148-10  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_016.d  
 Analysis Method: 537 Date Collected: 01/16/2018 11:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247(mL) Date Analyzed: 02/02/2018 23:37  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	104		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-258 Lab Sample ID: 320-35148-11  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_017.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/02/2018 23:42  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	24		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	13	J	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	89		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-258 Lab Sample ID: 320-35148-12  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_018.d  
 Analysis Method: 537 Date Collected: 01/16/2018 12:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 251.8(mL) Date Analyzed: 02/02/2018 23:46  
 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.: 206872 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	92		70-130
STL00996	13C2 PFDA	96		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-234 Lab Sample ID: 320-35148-13  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_019.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:51  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	5.0	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U M	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U M	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	94		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-234 Lab Sample ID: 320-35148-14  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_020.d  
 Analysis Method: 537 Date Collected: 01/16/2018 13:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.3(mL) Date Analyzed: 02/02/2018 23:56  
 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.: 206872 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	91		70-130



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-DUP20 Lab Sample ID: 320-35148-15  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_021.d  
 Analysis Method: 537 Date Collected: 01/16/2018 07:00  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 245 (mL) Date Analyzed: 02/03/2018 00:00  
 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.: 206872 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)	5.2	J	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	92	37	16

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

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-RW-264 Lab Sample ID: 320-35148-16  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_022.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/03/2018 00:05  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	6.1	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.1	J M	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	93		70-130
STL00996	13C2 PFDA	97		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-011618-FRB-264 Lab Sample ID: 320-35148-17  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_023.d  
 Analysis Method: 537 Date Collected: 01/16/2018 15:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/03/2018 00:10  
 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.: 206872 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	100		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0560 Lab Sample ID: 320-35148-18  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_024.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:10  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.2 (mL) Date Analyzed: 02/03/2018 00:14  
 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.: 206872 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	35		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.9	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	100		70-130
STL00996	13C2 PFDA	105		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0560 Lab Sample ID: 320-35148-19  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_027.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:05  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.6(mL) Date Analyzed: 02/03/2018 00:28  
 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.: 206874 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	95		70-130
STL00996	13C2 PFDA	100		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-RW-0515 Lab Sample ID: 320-35148-20  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_028.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:40  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 246.6(mL) Date Analyzed: 02/03/2018 00:33  
 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.: 206874 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	38		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	27	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.4	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	100		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-011618-FRB-0515 Lab Sample ID: 320-35148-21  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_039.d  
 Analysis Method: 537 Date Collected: 01/16/2018 16:35  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:52  
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 12:15  
 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.: 207174 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	104		70-130
STL00996	13C2 PFDA	102		70-130

**Appendix C**

Support Documentation



<b>ANALYTE</b>	<b>ORIGINAL 011618-RW- 234</b>	<b>DUPLICATE 011618-DUP20</b>	<b>RL</b>	<b>RPD</b>	<b>RPD &gt; 30%</b>	<b>ORIGINAL SAMPLE CONC &gt;5xRL</b>	<b>DUPLICATE SAMPLE CONC &gt;5xRL</b>	<b>DIFFERENCE &gt;2XRL</b>
Perfluorooctanoic acid (PFOA)	5	5.2	20	3.92	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 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> 1/16/2018	<b>COC No.:</b>
TetraTech	<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 King of Prussia, PA 19406	<b>Analysis Turnaround Time</b>			<b>Sampler:</b> Mary Kay Bond
610-382-1174	<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			<b>For Lab Use Only:</b>
610-491-9688	TAT if different from Below 21			<b>Walk-in Client:</b>
<b>Project Name:</b> WE04	<input type="checkbox"/> 2 weeks			<b>Lab Sampling:</b>
<b>Site:</b> WE04	<input type="checkbox"/> 1 week			
<b>P O #</b> 1132358 (through EarthToxics)	<input type="checkbox"/> 2 days			<b>Job / SDG No.:</b>
	<input type="checkbox"/> 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Gran)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537 UCMRG	Sample Specific Notes:
NAWC-011618-RW-334	1/16/2018	08:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-334	1/16/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011618-RW-280	1/16/2018	08:40	G	DW	2	N	N	Y	
NAWC-011618-FRB-280	1/16/2018	08:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011618-RW-262	1/16/2018	09:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-262	1/16/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-011618-RW-3295	1/16/2018	10:10	G	DW	2	N	N	Y	
WGNA-011618-FRB-3295	1/16/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011618-RW-272	1/16/2018	11:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-272	1/16/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011618-RW-258	1/16/2018	12:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-258	1/16/2018	12:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011618-RW-234	1/16/2018	13:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-234	1/16/2018	13:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-011618-DUP20	1/16/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
NAWC-011618-RW-264	1/16/2018	15:10	G	DW	2	N	N	Y	
NAWC-011618-FRB-264	1/16/2018	15:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-011618-RW-0560	1/16/2018	16:10	G	DW	2	N	N	Y	
WGNA-011618-FRB-0560	1/16/2018	16:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-011618-RW-0515	1/16/2018	16:40	G	DW	6	N	Y	Y	MS/MSD
WGNA-011618-FRB-0515	1/16/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma

**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  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: 7712 3116 4662

Custody Seals Intact:  Yes  No

Custody Seal No.: \_\_\_\_\_ Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_ Therm ID No.: AK2

Received by: Mary Kay Bond Company: Tetra Tech Date/Time: 1/16/2018 18:00

Received by: [Signature] Company: TA Sae Date/Time: 1/16/18 1020

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_



**Job Narrative**  
**320-35148-1**

**Receipt**

The samples were received on 1/18/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 4.5° C.

**LCMS**

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

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

**Organic Prep**

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206271.

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

# Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-35148-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35148-1	NAWC-011618-RW-334	Water	01/16/18 08:10	01/18/18 10:20
320-35148-2	NAWC-011618-FRB-334	Water	01/16/18 08:05	01/18/18 10:20
320-35148-3	NAWC-011618-RW-280	Water	01/16/18 08:40	01/18/18 10:20
320-35148-4	NAWC-011618-FRB-280	Water	01/16/18 08:35	01/18/18 10:20
320-35148-5	NAWC-011618-RW-262	Water	01/16/18 09:10	01/18/18 10:20
320-35148-6	NAWC-011618-FRB-262	Water	01/16/18 09:05	01/18/18 10:20
320-35148-7	WGNA-011618-RW-3295	Water	01/16/18 10:10	01/18/18 10:20
320-35148-8	WGNA-011618-FRB-3295	Water	01/16/18 10:05	01/18/18 10:20
320-35148-9	NAWC-011618-RW-272	Water	01/16/18 11:10	01/18/18 10:20
320-35148-10	NAWC-011618-FRB-272	Water	01/16/18 11:05	01/18/18 10:20
320-35148-11	NAWC-011618-RW-258	Water	01/16/18 12:10	01/18/18 10:20
320-35148-12	NAWC-011618-FRB-258	Water	01/16/18 12:05	01/18/18 10:20
320-35148-13	NAWC-011618-RW-234	Water	01/16/18 13:10	01/18/18 10:20
320-35148-14	NAWC-011618-FRB-234	Water	01/16/18 13:05	01/18/18 10:20
320-35148-15	WGNA-011618-DUP20	Water	01/16/18 07:00	01/18/18 10:20
320-35148-16	NAWC-011618-RW-264	Water	01/16/18 15:10	01/18/18 10:20
320-35148-17	NAWC-011618-FRB-264	Water	01/16/18 15:05	01/18/18 10:20
320-35148-18	WGNA-011618-RW-0560	Water	01/16/18 16:10	01/18/18 10:20
320-35148-19	WGNA-011618-FRB-0560	Water	01/16/18 16:05	01/18/18 10:20
320-35148-20	WGNA-011618-RW-0515	Water	01/16/18 16:40	01/18/18 10:20
320-35148-21	WGNA-011618-FRB-0515	Water	01/16/18 16:35	01/18/18 10:20

# Method Summary

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

TestAmerica Job ID: 320-35148-1

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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.: 320-35148-1

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

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-011618-RW-334	320-35148-1	94	99
NAWC-011618-FRB-334	320-35148-2	96	98
NAWC-011618-RW-280	320-35148-3	92	92
NAWC-011618-FRB-280	320-35148-4	97	110
NAWC-011618-RW-262	320-35148-5	89	96
NAWC-011618-FRB-262	320-35148-6	91	93
WGNA-011618-RW-3295	320-35148-7	87	85
WGNA-011618-FRB-3295	320-35148-8	97	105
NAWC-011618-RW-272	320-35148-9	91	98
NAWC-011618-FRB-272	320-35148-10	101	104
NAWC-011618-RW-258	320-35148-11	85	89
NAWC-011618-FRB-258	320-35148-12	92	96
NAWC-011618-RW-234	320-35148-13	93	94
NAWC-011618-FRB-234	320-35148-14	94	91
WGNA-011618-DUP20	320-35148-15	94	96
NAWC-011618-RW-264	320-35148-16	93	97
NAWC-011618-FRB-264	320-35148-17	86	100
WGNA-011618-RW-0560	320-35148-18	100	105
WGNA-011618-FRB-0560	320-35148-19	95	100
WGNA-011618-RW-0515	320-35148-20	99	100
WGNA-011618-FRB-0515	320-35148-21	104	102
	MB 320-206187/1-A	95	97
	MB 320-206188/1-A	95	104
	LCS 320-206187/2-A	92	102
	LCS 320-206188/2-A	110	111
	LCSD 320-206188/3-A	104	107
WGNA-011618-RW-0515 MS	320-35148-20 MS	96	95

PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA

QC LIMITS  
70-130  
70-130

# Column to be used to flag recovery values

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-011618-RW-051 5 MSD	320-35148-20 MSD	97	96

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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_004.d  
 Lab ID: LCS 320-206187/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	132	99	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	72.5	109	70-130	
Perfluorononanoic acid (PFNA)	66.7	68.3	102	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	113	113	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	39.1	117	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	302	101	70-130	

# Column to be used to flag recovery and RPD values



FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.06\_537B\_032.d  
 Lab ID: LCS 320-206188/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	223	100	70-130	M
Perfluorooctanoic acid (PFOA)	111	131	117	70-130	
Perfluorononanoic acid (PFNA)	111	119	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	181	109	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	69.9	126	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	501	100	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Matrix: Water Level: Low Lab File ID: 2018.02.06\_537B\_033.d

Lab ID: LCSD 320-206188/3-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	222	238	107	7	30	70-130	M
Perfluorooctanoic acid (PFOA)	111	130	117	0	30	70-130	
Perfluorononanoic acid (PFNA)	111	121	109	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	187	112	3	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	70.1	126	0	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	479	96	4	30	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_029.d  
 Lab ID: 320-35148-20 MS Client ID: WGNA-011618-RW-0515 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	135	34 J	158	92	70-130	M
Perfluorooctanoic acid (PFOA)	67.4	38	102	95	70-130	
Perfluorononanoic acid (PFNA)	67.4	20 U	66.3	98	70-130	
Perfluorohexanesulfonic acid (PFHxS)	101	27 J	131	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.7	8.4 J	42.6	102	70-130	
Perfluorobutanesulfonic acid (PFBS)	303	36 U	308	102	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.: 320-35148-1

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

Matrix: Water Level: Low Lab File ID: 2018.02.02\_537B\_030.d

Lab ID: 320-35148-20 MSD Client ID: WGNA-011618-RW-0515 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	134	162	96	2	30	70-130	M
Perfluorooctanoic acid (PFOA)	66.9	104	100	3	30	70-130	
Perfluorononanoic acid (PFNA)	66.9	68.2	102	3	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	132	105	0	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.5	42.9	103	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	301	324	108	5	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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.02\_537B\_003.d Lab Sample ID: MB 320-206187/1-A  
 Matrix: Water Date Extracted: 01/30/2018 12:48  
 Instrument ID: A8\_N Date Analyzed: 02/02/2018 22:36  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206187/2-A	2018.02.02_537B 004.d	02/02/2018 22:41
NAWC-011618-RW-334	320-35148-1	2018.02.02_537B 005.d	02/02/2018 22:45
NAWC-011618-FRB-334	320-35148-2	2018.02.02_537B 006.d	02/02/2018 22:50
NAWC-011618-RW-280	320-35148-3	2018.02.02_537B 007.d	02/02/2018 22:55
NAWC-011618-FRB-280	320-35148-4	2018.02.02_537B 008.d	02/02/2018 23:00
NAWC-011618-RW-262	320-35148-5	2018.02.02_537B 009.d	02/02/2018 23:04
NAWC-011618-FRB-262	320-35148-6	2018.02.02_537B 010.d	02/02/2018 23:09
WGNA-011618-RW-3295	320-35148-7	2018.02.02_537B 011.d	02/02/2018 23:14
WGNA-011618-FRB-3295	320-35148-8	2018.02.02_537B 012.d	02/02/2018 23:18
NAWC-011618-RW-272	320-35148-9	2018.02.02_537B 015.d	02/02/2018 23:32
NAWC-011618-FRB-272	320-35148-10	2018.02.02_537B 016.d	02/02/2018 23:37
NAWC-011618-RW-258	320-35148-11	2018.02.02_537B 017.d	02/02/2018 23:42
NAWC-011618-FRB-258	320-35148-12	2018.02.02_537B 018.d	02/02/2018 23:46
NAWC-011618-RW-234	320-35148-13	2018.02.02_537B 019.d	02/02/2018 23:51
NAWC-011618-FRB-234	320-35148-14	2018.02.02_537B 020.d	02/02/2018 23:56
WGNA-011618-DUP20	320-35148-15	2018.02.02_537B 021.d	02/03/2018 00:00
NAWC-011618-RW-264	320-35148-16	2018.02.02_537B 022.d	02/03/2018 00:05
NAWC-011618-FRB-264	320-35148-17	2018.02.02_537B 023.d	02/03/2018 00:10
WGNA-011618-RW-0560	320-35148-18	2018.02.02_537B 024.d	02/03/2018 00:14
WGNA-011618-FRB-0560	320-35148-19	2018.02.02_537B 027.d	02/03/2018 00:28
WGNA-011618-RW-0515	320-35148-20	2018.02.02_537B 028.d	02/03/2018 00:33
WGNA-011618-RW-0515 MS	320-35148-20 MS	2018.02.02_537B 029.d	02/03/2018 00:38

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.02\_537B\_003.d Lab Sample ID: MB 320-206187/1-A  
 Matrix: Water Date Extracted: 01/30/2018 12:48  
 Instrument ID: A8\_N Date Analyzed: 02/02/2018 22:36  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-011618-RW-0515 MSD	320-35148-20 MSD	2018.02.02_537B_030.d	02/03/2018 00:42

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-206187/1-A  
 Matrix: Water Lab File ID: 2018.02.02\_537B\_003.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:48  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/02/2018 22:36  
 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.: 206870 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	95		70-130
STL00996	13C2 PFDA	97		70-130

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.06\_537B\_031.d Lab Sample ID: MB 320-206188/1-A  
 Matrix: Water Date Extracted: 01/30/2018 12:51  
 Instrument ID: A8\_N Date Analyzed: 02/06/2018 11:38  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206188/2-A	2018.02.06_537B_032.d	02/06/2018 11:43
	LCSD 320-206188/3-A	2018.02.06_537B_033.d	02/06/2018 11:47
WGNA-011618-FRB-0515	320-35148-21	2018.02.06_537B_039.d	02/06/2018 12:15



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-206188/1-A  
 Matrix: Water Lab File ID: 2018.02.06\_537B\_031.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 01/30/2018 12:51  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/06/2018 11:38  
 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.: 207174 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	95		70-130
STL00996	13C2 PFDA	104		70-130

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 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 320-206761/1	1655390	1.87	3269547	2.12		
CCV 320-206870/1 CCVIS	1487657	1.81	3177197	2.06		
MB 320-206187/1-A	1470153	1.81	3110781	2.06		
LCS 320-206187/2-A	1413534	1.81	3145452	2.06		
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	
CCV 320-206870/13 CCVIS	1404353	1.81	3064489	2.06		
CCV 320-206872/13 CCVIS	1404353	1.81	3064489	2.06		
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	
CCV 320-206872/25 CCVIS	1472845	1.81	3176583	2.06		
CCV 320-206874/25 CCVIS	1472845	1.81	3176583	2.06		

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

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A8\_N Calibration Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	1535518	1.91	3276559	2.15		
UPPER LIMIT	2303277	2.41	4914839	2.65		
LOWER LIMIT	767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	
CCV 320-206874/31 CCVIS		1416822	1.81	2991430	2.06	
CCVL 320-207097/1		1375995	1.81	3051061	2.05	
CCV 320-207174/1 CCVIS		1298792	1.83	2946157	2.07	
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	
CCV 320-207174/12 CCVIS		1284307	1.81	3001651	2.06	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206870/1 Date Analyzed: 02/02/2018 22:27  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_001 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1487657	1.81	3177197	2.06		
UPPER LIMIT	2082720	2.31	4448076	2.56		
LOWER LIMIT	1041360	1.31	2224038	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206187/1-A		1470153	1.81	3110781	2.06	
LCS 320-206187/2-A		1413534	1.81	3145452	2.06	
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206870/13 Date Analyzed: 02/02/2018 23:23  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_013 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1404353	1.81	3064489	2.06		
UPPER LIMIT	1966094	2.31	4290285	2.56		
LOWER LIMIT	983047	1.31	2145142	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206187/1-A		1470153	1.81	3110781	2.06	
LCS 320-206187/2-A		1413534	1.81	3145452	2.06	
320-35148-1	NAWC-011618-RW-334	1464547	1.81	3159562	2.06	
320-35148-2	NAWC-011618-FRB-334	1434872	1.81	3161835	2.06	
320-35148-3	NAWC-011618-RW-280	1503230	1.81	3163549	2.06	
320-35148-4	NAWC-011618-FRB-280	1408269	1.81	3191149	2.06	
320-35148-5	NAWC-011618-RW-262	1463855	1.81	3328426	2.06	
320-35148-6	NAWC-011618-FRB-262	1486846	1.81	3282894	2.06	
320-35148-7	WGNA-011618-RW-3295	1509613	1.81	3271948	2.06	
320-35148-8	WGNA-011618-FRB-3295	1446552	1.81	3176697	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206872/13 Date Analyzed: 02/02/2018 23:23  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_013 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1404353	1.81	3064489	2.06		
UPPER LIMIT	1966094	2.31	4290285	2.56		
LOWER LIMIT	983047	1.31	2145142	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206872/25 Date Analyzed: 02/03/2018 00:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_025 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1472845	1.81	3176583	2.06		
UPPER LIMIT	2061983	2.31	4447216	2.56		
LOWER LIMIT	1030992	1.31	2223608	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-9	NAWC-011618-RW-272	1511152	1.81	3272155	2.05	
320-35148-10	NAWC-011618-FRB-272	1465534	1.81	3141346	2.05	
320-35148-11	NAWC-011618-RW-258	1588703	1.80	3525590	2.05	
320-35148-12	NAWC-011618-FRB-258	1519083	1.81	3304388	2.05	
320-35148-13	NAWC-011618-RW-234	1481746	1.80	3215378	2.05	
320-35148-14	NAWC-011618-FRB-234	1499001	1.81	3251749	2.06	
320-35148-15	WGNA-011618-DUP20	1480801	1.80	3407407	2.05	
320-35148-16	NAWC-011618-RW-264	1537329	1.80	3400958	2.05	
320-35148-17	NAWC-011618-FRB-264	1530857	1.80	3310034	2.04	
320-35148-18	WGNA-011618-RW-0560	1479929	1.80	3346015	2.05	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206874/25 Date Analyzed: 02/03/2018 00:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_025 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1472845	1.81	3176583	2.06		
UPPER LIMIT	2061983	2.31	4447216	2.56		
LOWER LIMIT	1030992	1.31	2223608	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-206874/31 Date Analyzed: 02/03/2018 00:47  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.02\_537B\_031 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1416822	1.81	2991430	2.06		
UPPER LIMIT	1983551	2.31	4188002	2.56		
LOWER LIMIT	991775	1.31	2094001	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35148-19	WGNA-011618-FRB-0560	1447592	1.80	3079754	2.05	
320-35148-20	WGNA-011618-RW-0515	1524115	1.80	3224796	2.05	
320-35148-20 MS	WGNA-011618-RW-0515 MS	1510528	1.81	3251232	2.05	
320-35148-20 MSD	WGNA-011618-RW-0515 MSD	1531476	1.81	3322560	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-207174/1 Date Analyzed: 02/06/2018 11:29  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.06\_537B\_029 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1298792	1.83	2946157	2.07		
UPPER LIMIT	1818309	2.33	4124620	2.57		
LOWER LIMIT	909154	1.33	2062310	1.57		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-207174/12 Date Analyzed: 02/06/2018 12:20  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.06\_537B\_040 Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1284307	1.81	3001651	2.06		
UPPER LIMIT	1798030	2.31	4202311	2.56		
LOWER LIMIT	899015	1.31	2101156	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-206188/1-A		1232387	1.81	2990970	2.06	
LCS 320-206188/2-A		1282750	1.81	3062746	2.06	
LCSD 320-206188/3-A		1317479	1.81	3082289	2.06	
320-35148-21	WGNA-011618-FRB-0515	1344869	1.81	3152165	2.06	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 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.: 320-35148-1 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.: 320-35148-1 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.: 320-35148-1 Analy Batch No.: 192908

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

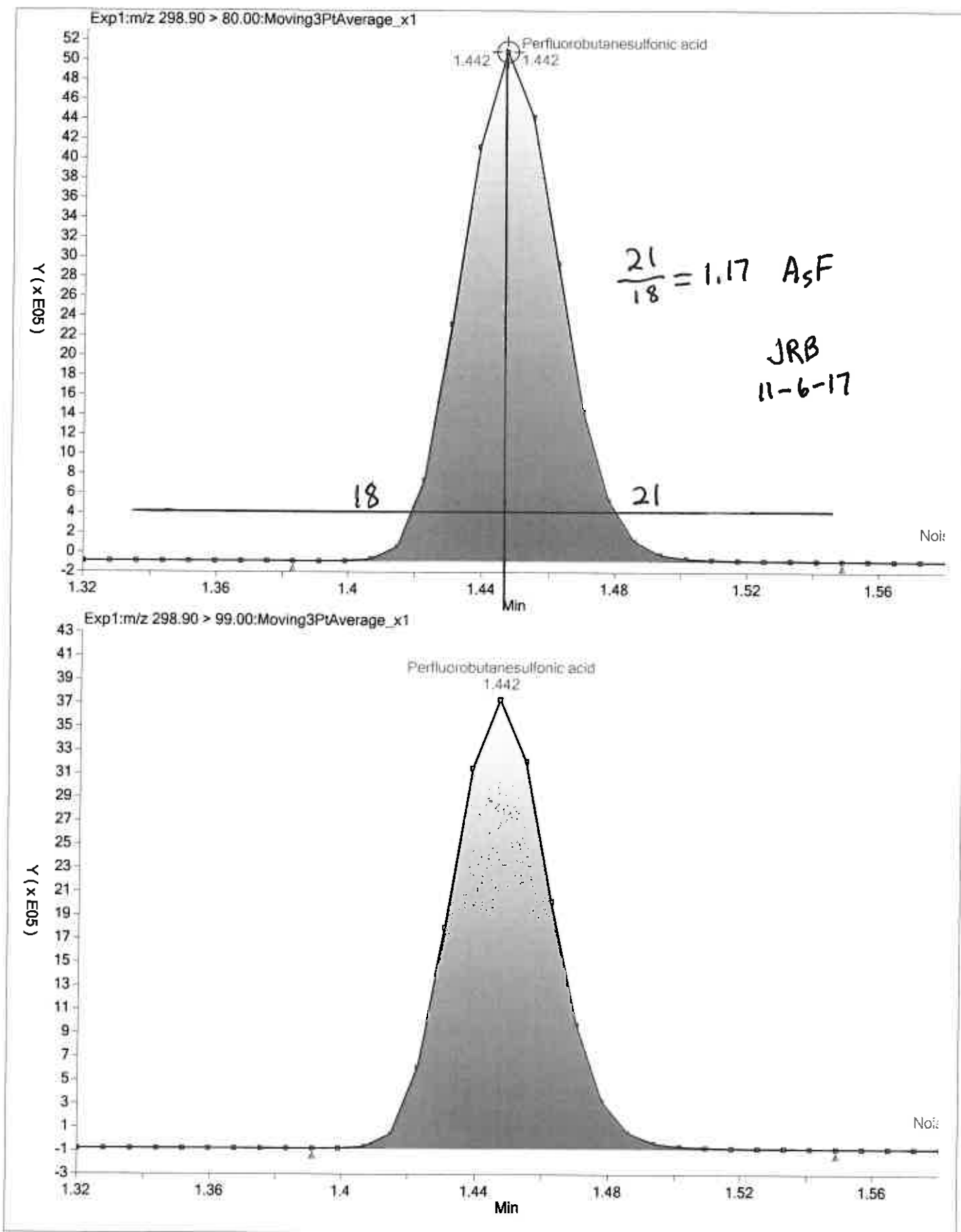
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

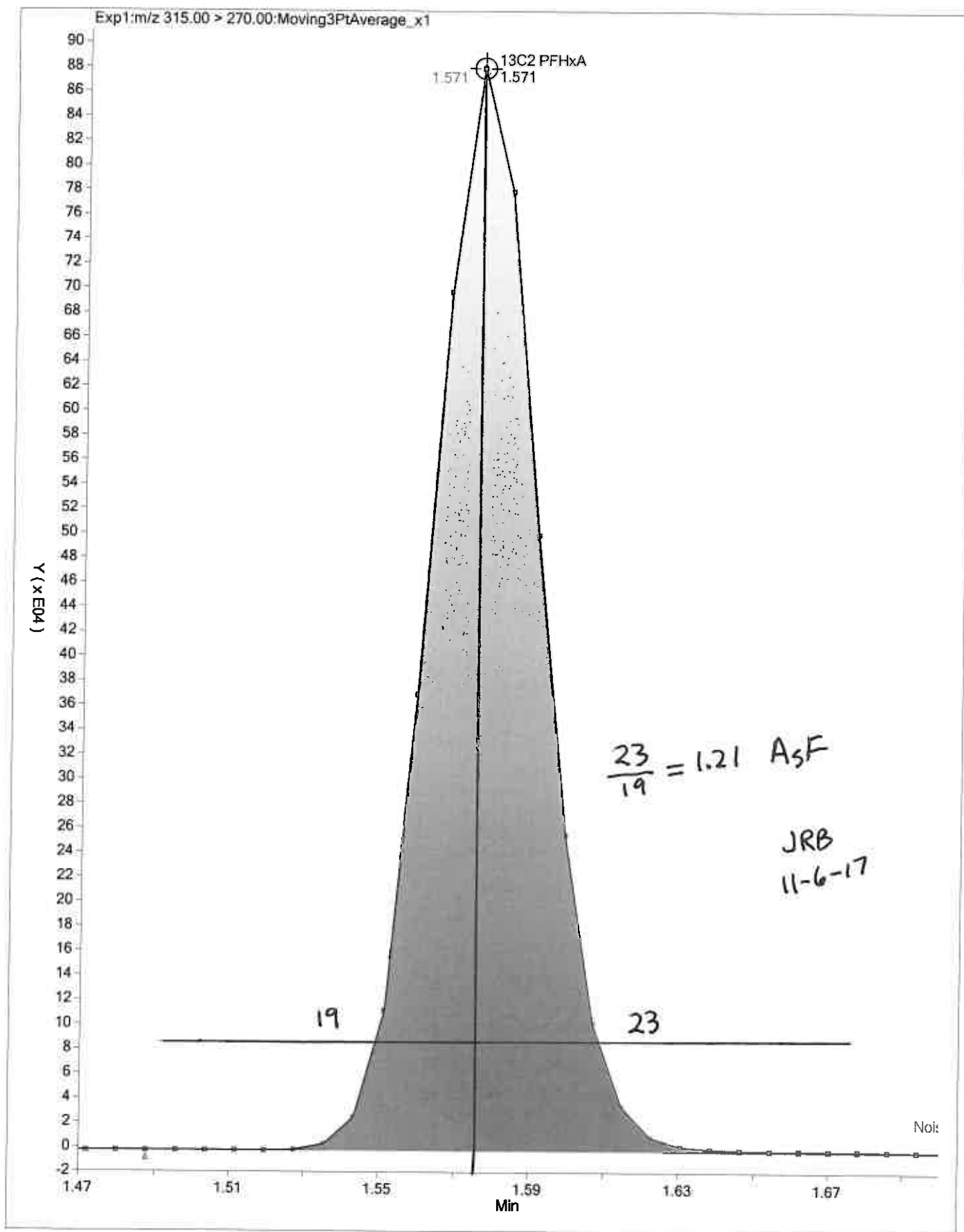
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 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.: 320-35148-1  
 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.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-206761/1 Calibration Date: 02/02/2018 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: 2018.02.02\_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		1.107		20.3	20.0	1.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8361		1.98	2.22	-10.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.674		6.67	6.67	-0.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9188		4.41	4.45	-0.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9385		8.89	8.89	-0.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.5870		3.93	4.45	-11.6	50.0
13C2 PFHxA	Ave	1.100	0.9771		8.88	10.0	-11.2	30.0
13C2 PFDA	Ave	0.7652	0.7354		9.61	10.0	-3.9	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206870/1 Calibration Date: 02/02/2018 22:27  
 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: 2018.02.02\_537B\_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.056		45.2	45.0	0.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9280		4.95	5.00	-1.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.705		15.3	15.0	1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9021		9.75	10.0	-2.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9160		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6204		9.34	10.0	-6.6	30.0
13C2 PFHxA	Ave	1.100	1.103		10.0	10.0	0.2	30.0
13C2 PFDA	Ave	0.7652	0.7258		9.49	10.0	-5.1	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206870/13 Calibration Date: 02/02/2018 23:23  
 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: 2018.02.02\_537B\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9760		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9520		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.748		47.0	45.0	4.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9211		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9665		61.8	60.0	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6537		29.5	30.0	-1.6	30.0
13C2 PFHxA	Ave	1.100	1.154		10.5	10.0	4.8	30.0
13C2 PFDA	Ave	0.7652	0.7851		10.3	10.0	2.6	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206872/13 Calibration Date: 02/02/2018 23:23  
 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: 2018.02.02\_537B\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9760		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9520		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.748		47.0	45.0	4.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9211		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9665		61.8	60.0	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6537		29.5	30.0	-1.6	30.0
13C2 PFHxA	Ave	1.100	1.154		10.5	10.0	4.8	30.0
13C2 PFDA	Ave	0.7652	0.7851		10.3	10.0	2.6	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206872/25 Calibration Date: 02/03/2018 00:19  
 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: 2018.02.02\_537B\_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.064		45.6	45.0	1.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9112		4.86	5.00	-2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.742		15.6	15.0	4.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8787		9.50	10.0	-5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8963		19.1	20.0	-4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6296		9.48	10.0	-5.2	30.0
13C2 PFHxA	Ave	1.100	1.127		10.2	10.0	2.5	30.0
13C2 PFDA	Ave	0.7652	0.7513		9.82	10.0	-1.8	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206874/25 Calibration Date: 02/03/2018 00:19  
 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: 2018.02.02\_537B\_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.064		45.6	45.0	1.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9112		4.86	5.00	-2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.742		15.6	15.0	4.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8787		9.50	10.0	-5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8963		19.1	20.0	-4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6296		9.48	10.0	-5.2	30.0
13C2 PFHxA	Ave	1.100	1.127		10.2	10.0	2.5	30.0
13C2 PFDA	Ave	0.7652	0.7513		9.82	10.0	-1.8	30.0



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-206874/31 Calibration Date: 02/03/2018 00:47  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.02\_537B\_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9436		140	135	3.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9526		15.3	15.0	1.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.720		46.2	45.0	2.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8943		29.0	30.0	-3.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9648		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6329		28.6	30.0	-4.7	30.0
13C2 PFHxA	Ave	1.100	1.115		10.1	10.0	1.4	30.0
13C2 PFDA	Ave	0.7652	0.7769		10.2	10.0	1.5	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-207097/1 Calibration Date: 02/06/2018 08:30  
 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: 2018.02.06\_537A\_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.081		19.8	20.0	-0.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.648		6.56	6.67	-1.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.009		2.39	2.22	7.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9155		4.42	4.47	-1.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9828		9.34	8.93	4.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6745		4.52	4.45	1.6	50.0
13C2 PFHxA	Ave	1.100	1.102		10.0	10.0	0.1	30.0
13C2 PFDA	Ave	0.7652	0.7044		9.21	10.0	-7.9	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-207174/1 Calibration Date: 02/06/2018 11:29  
 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: 2018.02.06\_537B\_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9315		138	135	2.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.657		44.5	45.0	-1.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.000		16.0	15.0	6.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9719		31.7	30.2	5.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9658		62.0	60.3	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6898		31.2	30.0	3.9	30.0
13C2 PFHxA	Ave	1.100	1.107		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.7652	0.7563		9.88	10.0	-1.2	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-207174/12 Calibration Date: 02/06/2018 12:20  
 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: 2018.02.06\_537B\_040.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.009		5.38	5.00	7.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.749		15.7	15.0	4.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.022		11.1	10.1	10.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9782		20.9	20.1	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7221		10.9	10.0	8.7	30.0
13C2 PFHxA	Ave	1.100	1.137		10.3	10.0	3.3	30.0
13C2 PFDA	Ave	0.7652	0.7637		9.98	10.0	-0.2	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 14:10

Analysis Batch Number: 206761 End Date: 02/02/2018 15:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-206761/1		02/02/2018 14:10	1	2018.02.02_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-206761/2 CCVIS		02/02/2018 14:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:38	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 14:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 15:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/02/2018 15:06	1		GeminiC18 3x100 3(mm)
CCV 320-206761/14 CCVIS		02/02/2018 15:10	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 22:27

Analysis Batch Number: 206870 End Date: 02/02/2018 23:23

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206870/1 CCVIS		02/02/2018 22:27	1	2018.02.02_537B 001.d	GeminiC18 3x100 3(mm)
MB 320-206187/1-A		02/02/2018 22:36	1	2018.02.02_537B 003.d	GeminiC18 3x100 3(mm)
LCS 320-206187/2-A		02/02/2018 22:41	1	2018.02.02_537B 004.d	GeminiC18 3x100 3(mm)
320-35148-1		02/02/2018 22:45	1	2018.02.02_537B 005.d	GeminiC18 3x100 3(mm)
320-35148-2		02/02/2018 22:50	1	2018.02.02_537B 006.d	GeminiC18 3x100 3(mm)
320-35148-3		02/02/2018 22:55	1	2018.02.02_537B 007.d	GeminiC18 3x100 3(mm)
320-35148-4		02/02/2018 23:00	1	2018.02.02_537B 008.d	GeminiC18 3x100 3(mm)
320-35148-5		02/02/2018 23:04	1	2018.02.02_537B 009.d	GeminiC18 3x100 3(mm)
320-35148-6		02/02/2018 23:09	1	2018.02.02_537B 010.d	GeminiC18 3x100 3(mm)
320-35148-7		02/02/2018 23:14	1	2018.02.02_537B 011.d	GeminiC18 3x100 3(mm)
320-35148-8		02/02/2018 23:18	1	2018.02.02_537B 012.d	GeminiC18 3x100 3(mm)
CCV 320-206870/13 CCVIS		02/02/2018 23:23	1	2018.02.02_537B 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/02/2018 23:23

Analysis Batch Number: 206872 End Date: 02/03/2018 00:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206872/13 CCVIS		02/02/2018 23:23	1	2018.02.02_537B 013.d	GeminiC18 3x100 3(mm)
320-35148-9		02/02/2018 23:32	1	2018.02.02_537B 015.d	GeminiC18 3x100 3(mm)
320-35148-10		02/02/2018 23:37	1	2018.02.02_537B 016.d	GeminiC18 3x100 3(mm)
320-35148-11		02/02/2018 23:42	1	2018.02.02_537B 017.d	GeminiC18 3x100 3(mm)
320-35148-12		02/02/2018 23:46	1	2018.02.02_537B 018.d	GeminiC18 3x100 3(mm)
320-35148-13		02/02/2018 23:51	1	2018.02.02_537B 019.d	GeminiC18 3x100 3(mm)
320-35148-14		02/02/2018 23:56	1	2018.02.02_537B 020.d	GeminiC18 3x100 3(mm)
320-35148-15		02/03/2018 00:00	1	2018.02.02_537B 021.d	GeminiC18 3x100 3(mm)
320-35148-16		02/03/2018 00:05	1	2018.02.02_537B 022.d	GeminiC18 3x100 3(mm)
320-35148-17		02/03/2018 00:10	1	2018.02.02_537B 023.d	GeminiC18 3x100 3(mm)
320-35148-18		02/03/2018 00:14	1	2018.02.02_537B 024.d	GeminiC18 3x100 3(mm)
CCV 320-206872/25 CCVIS		02/03/2018 00:19	1	2018.02.02_537B 025.d	GeminiC18 3x100 3(mm)



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/03/2018 00:19

Analysis Batch Number: 206874 End Date: 02/03/2018 00:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-206874/25 CCVIS		02/03/2018 00:19	1	2018.02.02_537B 025.d	GeminiC18 3x100 3(mm)
320-35148-19		02/03/2018 00:28	1	2018.02.02_537B 027.d	GeminiC18 3x100 3(mm)
320-35148-20		02/03/2018 00:33	1	2018.02.02_537B 028.d	GeminiC18 3x100 3(mm)
320-35148-20 MS		02/03/2018 00:38	1	2018.02.02_537B 029.d	GeminiC18 3x100 3(mm)
320-35148-20 MSD		02/03/2018 00:42	1	2018.02.02_537B 030.d	GeminiC18 3x100 3(mm)
CCV 320-206874/31 CCVIS		02/03/2018 00:47	1	2018.02.02_537B 031.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/06/2018 08:30

Analysis Batch Number: 207097 End Date: 02/06/2018 09:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207097/1		02/06/2018 08:30	1	2018.02.06_537A 003.d	GeminiC18 3x100 3(mm)
CCV 320-207097/2 CCVIS		02/06/2018 08:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:03	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:17	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/06/2018 09:26	1		GeminiC18 3x100 3(mm)
CCV 320-207097/14 CCVIS		02/06/2018 09:31	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Instrument ID: A8\_N Start Date: 02/06/2018 11:29

Analysis Batch Number: 207174 End Date: 02/06/2018 12:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207174/1 CCVIS		02/06/2018 11:29	1	2018.02.06_537B 029.d	GeminiC18 3x100 3(mm)
MB 320-206188/1-A		02/06/2018 11:38	1	2018.02.06_537B 031.d	GeminiC18 3x100 3(mm)
LCS 320-206188/2-A		02/06/2018 11:43	1	2018.02.06_537B 032.d	GeminiC18 3x100 3(mm)
LCSD 320-206188/3-A		02/06/2018 11:47	1	2018.02.06_537B 033.d	GeminiC18 3x100 3(mm)
320-35148-21		02/06/2018 12:15	1	2018.02.06_537B 039.d	GeminiC18 3x100 3(mm)
CCV 320-207174/12 CCVIS		02/06/2018 12:20	1	2018.02.06_537B 040.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
MB 320-206187/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-206187/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35148-A-1	NAWC-011618-RW-334	537, 537	T	281.11 g	27.90 g	253.2 mL	1.0 mL	7 SU	100 uL
320-35148-A-2	NAWC-011618-FRB-334	537, 537	T	273.51 g	26.83 g	246.7 mL	1.0 mL	7 SU	100 uL
320-35148-A-3	NAWC-011618-RW-280	537, 537	T	274.18 g	28.34 g	245.8 mL	1.0 mL	7 SU	100 uL
320-35148-A-4	NAWC-011618-FRB-280	537, 537	T	274.23 g	26.83 g	247.4 mL	1.0 mL	7 SU	100 uL
320-35148-A-5	NAWC-011618-RW-262	537, 537	T	271.42 g	28.17 g	243.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-6	NAWC-011618-FRB-262	537, 537	T	275.95 g	27.09 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-7	WGNA-011618-RW-3295	537, 537	T	270.30 g	28.36 g	241.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-8	WGNA-011618-FRB-3295	537, 537	T	277.31 g	26.72 g	250.6 mL	1.0 mL	7 SU	100 uL
320-35148-A-9	NAWC-011618-RW-272	537, 537	T	274.47 g	28.05 g	246.4 mL	1.0 mL	7 SU	100 uL
320-35148-A-10	NAWC-011618-FRB-272	537, 537	T	273.72 g	26.72 g	247 mL	1.0 mL	7 SU	100 uL
320-35148-A-11	NAWC-011618-RW-258	537, 537	T	274.89 g	27.61 g	247.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-12	NAWC-011618-FRB-258	537, 537	T	278.87 g	27.07 g	251.8 mL	1.0 mL	7 SU	100 uL
320-35148-A-13	NAWC-011618-RW-234	537, 537	T	278.49 g	28.19 g	250.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-14	NAWC-011618-FRB-234	537, 537	T	277.52 g	27.25 g	250.3 mL	1.0 mL	7 SU	100 uL
320-35148-A-15	WGNA-011618-DUP20	537, 537	T	273.26 g	28.24 g	245 mL	1.0 mL	7 SU	100 uL
320-35148-A-16	NAWC-011618-RW-264	537, 537	T	277.32 g	28.39 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35148-A-17	NAWC-011618-FRB-264	537, 537	T	274.29 g	26.64 g	247.7 mL	1.0 mL	7 SU	100 uL
320-35148-A-18	WGNA-011618-RW-0560	537, 537	T	274.33 g	28.12 g	246.2 mL	1.0 mL	7 SU	100 uL
320-35148-A-19	WGNA-011618-FRB-0560	537, 537	T	277.34 g	26.79 g	250.6 mL	1.0 mL	7 SU	100 uL
320-35148-A-20	WGNA-011618-RW-0515	537, 537	T	274.39 g	27.84 g	246.6 mL	1.0 mL	7 SU	100 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
320-35148-A-20 MS	WGNA-011618-RW-0 515	537, 537	T	275.90 g	28.44 g	247.5 mL	1.0 mL	7 SU	100 uL
320-35148-A-20 MSD	WGNA-011618-RW-0 515	537, 537	T	277.82 g	28.66 g	249.2 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00053	AnalysisComment			
MB 320-206187/1		537, 537			100 uL	C1 ND			
LCS 320-206187/2		537, 537		100 uL	100 uL	C1 ND			
320-35148-A-1	NAWC-011618-RW-3 34	537, 537	T		100 uL	C1 ND			
320-35148-A-2	NAWC-011618-FRB- 334	537, 537	T		100 uL	C1 ND			
320-35148-A-3	NAWC-011618-RW-2 80	537, 537	T		100 uL	C1 ND			
320-35148-A-4	NAWC-011618-FRB- 280	537, 537	T		100 uL	C1 ND			
320-35148-A-5	NAWC-011618-RW-2 62	537, 537	T		100 uL	C1 ND			
320-35148-A-6	NAWC-011618-FRB- 262	537, 537	T		100 uL	C1 ND			
320-35148-A-7	WGNA-011618-RW-3 295	537, 537	T		100 uL	C1 ND			
320-35148-A-8	WGNA-011618-FRB- 3295	537, 537	T		100 uL	C1 ND			
320-35148-A-9	NAWC-011618-RW-2 72	537, 537	T		100 uL	C1 ND			
320-35148-A-10	NAWC-011618-FRB- 272	537, 537	T		100 uL	C1 ND			
320-35148-A-11	NAWC-011618-RW-2 58	537, 537	T		100 uL	C1 ND			
320-35148-A-12	NAWC-011618-FRB- 258	537, 537	T		100 uL	C1 ND			
320-35148-A-13	NAWC-011618-RW-2 34	537, 537	T		100 uL	C1 ND			
320-35148-A-14	NAWC-011618-FRB- 234	537, 537	T		100 uL	C1 ND			
320-35148-A-15	WGNA-011618-DUP2 0	537, 537	T		100 uL	C1 ND			
320-35148-A-16	NAWC-011618-RW-2 64	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.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00053	AnalysisComment			
320-35148-A-17	NAWC-011618-FRB-264	537, 537	T		100 uL	C1 ND			
320-35148-A-18	WGNA-011618-RW-0560	537, 537	T		100 uL	C1 ND			
320-35148-A-19	WGNA-011618-FRB-0560	537, 537	T		100 uL	C1 ND			
320-35148-A-20	WGNA-011618-RW-0515	537, 537	T		100 uL	C1 ND			
320-35148-A-20 MS	WGNA-011618-RW-0515	537, 537	T	100 uL	100 uL	C1 ND			
320-35148-A-20 MSD	WGNA-011618-RW-0515	537, 537	T	100 uL	100 uL	C1 ND			

Batch Notes	
Analyst ID - Aliquot Step	JER
Batch Comment	Label ID's checked: KMK 1-30-18
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	JER
Internal Standard ID#	1099355
Manifold ID	3, 10
Methanol ID	1127839
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-25-18

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.: 320-35148-1

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

Batch Number: 206187 Batch Start Date: 01/30/18 12:46 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/01/18 22:20

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35148-1

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

Batch Number: 206188 Batch Start Date: 01/30/18 12:51 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/02/18 19:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-206188/1		537, 537				250.0 mL	1.0 mL	7 SU	
LCS 320-206188/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206188/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35148-A-21	WGNA-011618-FRB-0515	537, 537	T	277.39 g	27.35 g	250 mL	1.0 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00057	LC537-SU 00053	AnalysisComment			
MB 320-206188/1		537, 537		100 uL	100 uL	C1 ND			
LCS 320-206188/2		537, 537		100 uL	100 uL	C1 ND			
LCSD 320-206188/3		537, 537		100 uL	100 uL	C1 ND			
320-35148-A-21	WGNA-011618-FRB-0515	537, 537	T	100 uL	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.: 320-35148-1

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

Batch Number: 206188 Batch Start Date: 01/30/18 12:51 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/02/18 19:48

Batch Notes	
Analyst ID - Aliquot Step	TWL
Batch Comment	Label ID's checked: KMK 1-30-18
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	TWL
Internal Standard ID#	1145836
Manifold ID	4
Methanol ID	1127839
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6357081-11
Trizma ID	SLBR4303V
Reagent Water ID	1-25-18

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.

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 02/02/2018 @ 22:27

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
20	2030092	3177197	28.7	0.9169	-2.342829	0.916	-2.4

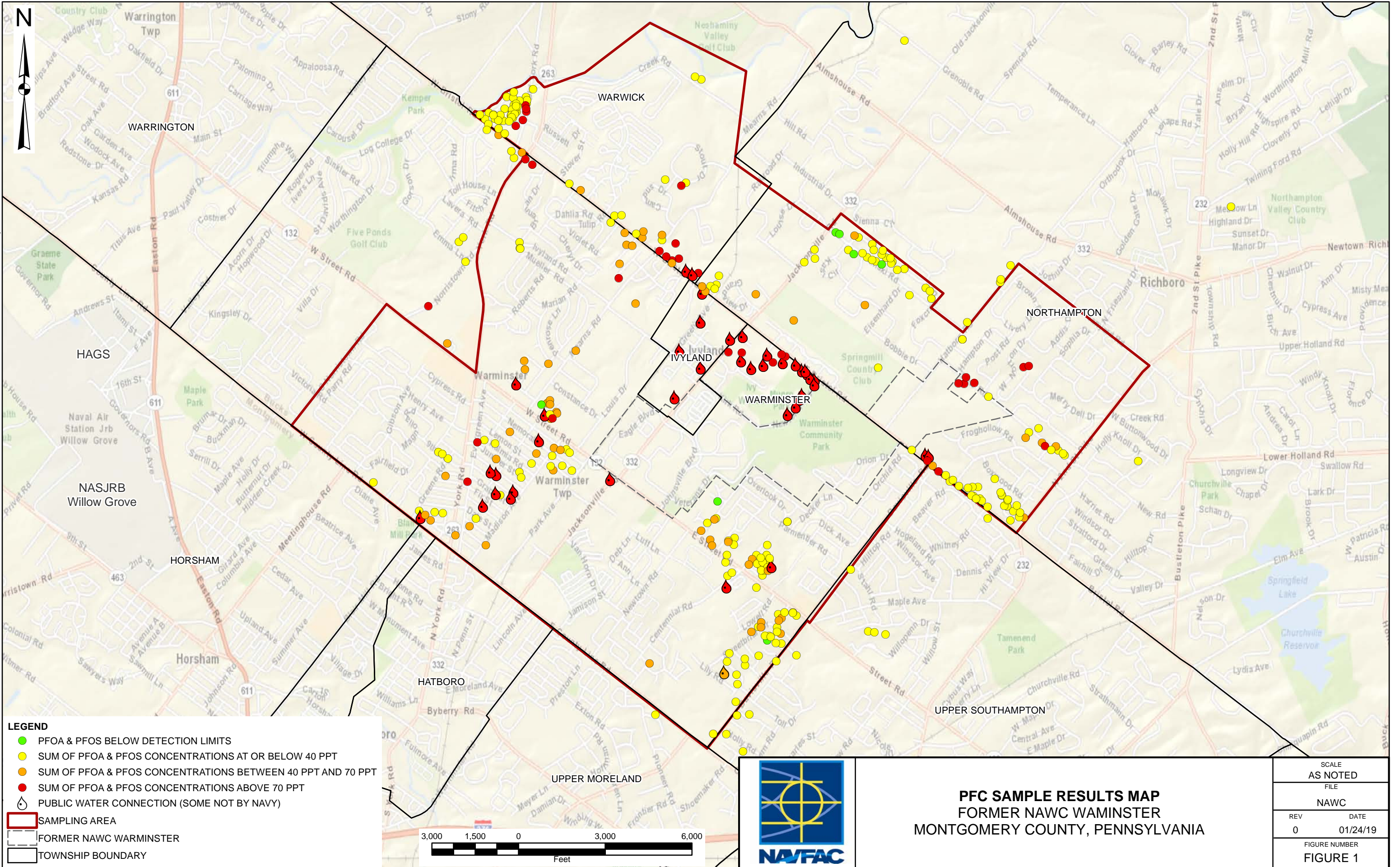
Willow Grove  
SDG 320-35148-1

Sample Identification NAWC-011618-RW-334

Compound Perfluorooctanesulfonic acid

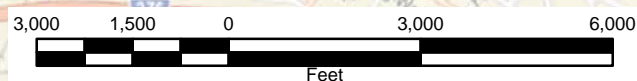
Compound Area	1375976
Internal Standard Amount (ng)	28.7
Dilution Factor	1
Internal Standard Area	3159562
Average RRF	0.9389
Sample Volume(L)	0.2532
Volume Extract (ml)	1
Injection Volume (µl)	1
Concentration	52.5754 ug/L

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**LEGEND**

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- 👉 PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARRINSTER
- TOWNSHIP BOUNDARY



**PFC SAMPLE RESULTS MAP**  
 FORMER NAWC WARRINSTER  
 MONTGOMERY COUNTY, PENNSYLVANIA

SCALE AS NOTED	
FILE	
NAWC	
REV 0	DATE 01/24/19
FIGURE NUMBER	
FIGURE 1	