



**Off-Base Drinking Water Sample Results,  
Level 2 Laboratory Report, Level 4 Laboratory Report,  
Electronic Data Deliverable, Data Validation Report,  
and the Sample Location Figure, SDG J24536-1**

*Naval Air Station Whidbey Island  
Oak Harbor, Washington*

June 2019

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
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TestAmerica Job ID: 320-24536-1  
Client Project/Site: Whidbey Island

For:  
CH2M Hill Constructors, Inc.  
1100 NE Circle Blvd  
Corvallis, Oregon 97330

Attn: Tiffany Hill



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Authorized for release by:  
12/29/2016 12:28:31 PM

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### LINKS

Review your project  
results through  
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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Qualifiers

### LCMS

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

# Case Narrative

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Job ID: 320-24536-1**

**Laboratory: TestAmerica Sacramento**

**Narrative**

## CASE NARRATIVE

**Client: CH2M Hill Constructors, Inc.**

**Project: Whidbey Island**

**Report Number: 320-24536-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Sacramento attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

TestAmerica utilizes USEPA approved methods and DOD QSM, where applicable, in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

All parameters for which TestAmerica Sacramento has certification were evaluated to the QSM specified reporting convention or to the client specified format if different from QSM. Parameters not certified under QSM, if any, were evaluated to the detection limit (DL) and include qualified results where applicable.

The sample(s) that contain constituents flagged with U are undetected. The result associated with this flag is the limit of detection (LOD).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

### RECEIPT

The samples were received on 12/20/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.4 C.

### PFOA/PFOS

Samples WI-CV-1RW38-1216 (320-24536-1), WI-CV-1FB38-1216 (320-24536-2), WI-CV-1RW39-1216 (320-24536-3), WI-CV-1FB39-1216 (320-24536-4), WI-CV-1RW40-1216 (320-24536-5), WI-CV-1RW40P-1216 (320-24536-6), WI-CV-1FB40-1216 (320-24536-7), WI-CV-1RW41-1216 (320-24536-8), WI-CV-1FB41-1216 (320-24536-9), WI-CV-1RW42-1216 (320-24536-10), WI-CV-1FB42-1216 (320-24536-11), WI-CV-1RW43-1216 (320-24536-12) and WI-CV-1FB43-1216 (320-24536-13) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/21/2016 and analyzed on 12/28/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch

# Case Narrative

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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## Job ID: 320-24536-1 (Continued)

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### Laboratory: TestAmerica Sacramento (Continued)

320-143388.

The following sample had black sediment on top of the column while loading the sample onto the column, and when eluting this sample had light brown color. Also, after concentrating it had a dark brown color.

WI-CV-1RW43-1216 (320-24536-12)

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

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# Detection Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1RW38-1216**

**Lab Sample ID: 320-24536-1**

No Detections.

**Client Sample ID: WI-CV-1FB38-1216**

**Lab Sample ID: 320-24536-2**

No Detections.

**Client Sample ID: WI-CV-1RW39-1216**

**Lab Sample ID: 320-24536-3**

No Detections.

**Client Sample ID: WI-CV-1FB39-1216**

**Lab Sample ID: 320-24536-4**

No Detections.

**Client Sample ID: WI-CV-1RW40-1216**

**Lab Sample ID: 320-24536-5**

No Detections.

**Client Sample ID: WI-CV-1RW40P-1216**

**Lab Sample ID: 320-24536-6**

No Detections.

**Client Sample ID: WI-CV-1FB40-1216**

**Lab Sample ID: 320-24536-7**

No Detections.

**Client Sample ID: WI-CV-1RW41-1216**

**Lab Sample ID: 320-24536-8**

No Detections.

**Client Sample ID: WI-CV-1FB41-1216**

**Lab Sample ID: 320-24536-9**

No Detections.

**Client Sample ID: WI-CV-1RW42-1216**

**Lab Sample ID: 320-24536-10**

No Detections.

**Client Sample ID: WI-CV-1FB42-1216**

**Lab Sample ID: 320-24536-11**

No Detections.

**Client Sample ID: WI-CV-1RW43-1216**

**Lab Sample ID: 320-24536-12**

No Detections.

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Client Sample ID: WI-CV-1RW38-1216

Date Collected: 12/16/16 09:13

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.015	ug/L		12/21/16 14:39	12/28/16 13:15	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 13:15	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 13:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	115		70 - 130				12/21/16 14:39	12/28/16 13:15	1
13C2 PFDA	109		70 - 130				12/21/16 14:39	12/28/16 13:15	1

## Client Sample ID: WI-CV-1FB38-1216

Date Collected: 12/16/16 09:14

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 13:45	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 13:45	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 13:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	112		70 - 130				12/21/16 14:39	12/28/16 13:45	1
13C2 PFDA	102		70 - 130				12/21/16 14:39	12/28/16 13:45	1

## Client Sample ID: WI-CV-1RW39-1216

Date Collected: 12/16/16 09:52

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.053	0.014	ug/L		12/21/16 14:39	12/28/16 14:14	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0084	ug/L		12/21/16 14:39	12/28/16 14:14	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L		12/21/16 14:39	12/28/16 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130				12/21/16 14:39	12/28/16 14:14	1
13C2 PFDA	109		70 - 130				12/21/16 14:39	12/28/16 14:14	1

## Client Sample ID: WI-CV-1FB39-1216

Date Collected: 12/16/16 09:53

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.044	U M	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 14:44	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0086	ug/L		12/21/16 14:39	12/28/16 14:44	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/21/16 14:39	12/28/16 14:44	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 14:44	1

TestAmerica Sacramento



# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1RW40-1216**

**Lab Sample ID: 320-24536-5**

Date Collected: 12/16/16 11:20

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L		12/21/16 14:39	12/28/16 16:30	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/21/16 14:39	12/28/16 16:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/21/16 14:39	12/28/16 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/21/16 14:39	12/28/16 16:30	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 16:30	1

**Client Sample ID: WI-CV-1RW40P-1216**

**Lab Sample ID: 320-24536-6**

Date Collected: 12/16/16 11:25

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.057	0.015	ug/L		12/21/16 14:39	12/28/16 17:00	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0090	ug/L		12/21/16 14:39	12/28/16 17:00	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 17:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	122		70 - 130				12/21/16 14:39	12/28/16 17:00	1
13C2 PFDA	113		70 - 130				12/21/16 14:39	12/28/16 17:00	1

**Client Sample ID: WI-CV-1FB40-1216**

**Lab Sample ID: 320-24536-7**

Date Collected: 12/16/16 11:26

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L		12/21/16 14:39	12/28/16 17:30	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/21/16 14:39	12/28/16 17:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/21/16 14:39	12/28/16 17:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	116		70 - 130				12/21/16 14:39	12/28/16 17:30	1
13C2 PFDA	113		70 - 130				12/21/16 14:39	12/28/16 17:30	1

**Client Sample ID: WI-CV-1RW41-1216**

**Lab Sample ID: 320-24536-8**

Date Collected: 12/16/16 11:55

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.015	ug/L		12/21/16 14:39	12/28/16 18:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 18:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 18:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	109		70 - 130				12/21/16 14:39	12/28/16 18:58	1
13C2 PFDA	100		70 - 130				12/21/16 14:39	12/28/16 18:58	1

TestAmerica Sacramento

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB41-1216**

**Lab Sample ID: 320-24536-9**

Date Collected: 12/16/16 11:56

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 19:28	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 19:28	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 19:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/21/16 14:39	12/28/16 19:28	1
13C2 PFDA	108		70 - 130				12/21/16 14:39	12/28/16 19:28	1

**Client Sample ID: WI-CV-1RW42-1216**

**Lab Sample ID: 320-24536-10**

Date Collected: 12/16/16 13:28

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.056	0.015	ug/L		12/21/16 14:39	12/28/16 19:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 19:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 19:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130				12/21/16 14:39	12/28/16 19:58	1
13C2 PFDA	100		70 - 130				12/21/16 14:39	12/28/16 19:58	1

**Client Sample ID: WI-CV-1FB42-1216**

**Lab Sample ID: 320-24536-11**

Date Collected: 12/16/16 13:29

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.014	ug/L		12/21/16 14:39	12/28/16 20:27	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0083	ug/L		12/21/16 14:39	12/28/16 20:27	1
Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.042	ug/L		12/21/16 14:39	12/28/16 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		70 - 130				12/21/16 14:39	12/28/16 20:27	1
13C2 PFDA	103		70 - 130				12/21/16 14:39	12/28/16 20:27	1

**Client Sample ID: WI-CV-1RW43-1216**

**Lab Sample ID: 320-24536-12**

Date Collected: 12/16/16 13:51

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L		12/21/16 14:39	12/28/16 20:57	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/21/16 14:39	12/28/16 20:57	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/21/16 14:39	12/28/16 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		70 - 130				12/21/16 14:39	12/28/16 20:57	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 20:57	1

TestAmerica Sacramento

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

**Date Collected: 12/16/16 13:52**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 21:26	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 21:26	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 21:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130	12/21/16 14:39	12/28/16 21:26	1
13C2 PFDA	104		70 - 130	12/21/16 14:39	12/28/16 21:26	1



# Surrogate Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	13C2 PFHx (70-130)	13C2 PFDA (70-130)
320-24536-1	WI-CV-1RW38-1216	115	109
320-24536-2	WI-CV-1FB38-1216	112	102
320-24536-3	WI-CV-1RW39-1216	104	109
320-24536-4	WI-CV-1FB39-1216	113	106
320-24536-5	WI-CV-1RW40-1216	108	106
320-24536-6	WI-CV-1RW40P-1216	122	113
320-24536-7	WI-CV-1FB40-1216	116	113
320-24536-8	WI-CV-1RW41-1216	109	100
320-24536-9	WI-CV-1FB41-1216	113	108
320-24536-10	WI-CV-1RW42-1216	106	100
320-24536-11	WI-CV-1FB42-1216	111	103
320-24536-12	WI-CV-1RW43-1216	111	106
320-24536-13	WI-CV-1FB43-1216	110	104
LLCS 320-143388/2-A	Lab Control Sample	111	104
LLCSD 320-143388/3-A	Lab Control Sample Dup	112	109
MB 320-143388/1-A	Method Blank	112	108

#### Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

# QC Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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

**Lab Sample ID: MB 320-143388/1-A**  
**Matrix: Water**  
**Analysis Batch: 144053**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.048	U M	0.060	0.016	ug/L	-	12/21/16 14:39	12/28/16 10:47	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L	-	12/21/16 14:39	12/28/16 10:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L	-	12/21/16 14:39	12/28/16 10:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	112		70 - 130	12/21/16 14:39	12/28/16 10:47	1
13C2 PFDA	108		70 - 130	12/21/16 14:39	12/28/16 10:47	1

**Lab Sample ID: LLCS 320-143388/2-A**  
**Matrix: Water**  
**Analysis Batch: 144053**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0331	J	ug/L	-	83	50 - 150
Perfluorooctanoic acid (PFOA)	0.0198	0.0186	J M	ug/L	-	94	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0846	J	ug/L	-	94	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	111		70 - 130
13C2 PFDA	104		70 - 130

**Lab Sample ID: LLCSD 320-143388/3-A**  
**Matrix: Water**  
**Analysis Batch: 144054**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0338	J	ug/L	-	84	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	0.0198	0.0185	J M	ug/L	-	93	50 - 150	0.4	50
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0715	J	ug/L	-	80	50 - 150	17	50

Surrogate	LLCSD %Recovery	LLCSD Qualifier	Limits
13C2 PFHxA	112		70 - 130
13C2 PFDA	109		70 - 130

# QC Association Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## LCMS

### Prep Batch: 143388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-1	WI-CV-1RW38-1216	Total/NA	Water	537	
320-24536-2	WI-CV-1FB38-1216	Total/NA	Water	537	
320-24536-3	WI-CV-1RW39-1216	Total/NA	Water	537	
320-24536-4	WI-CV-1FB39-1216	Total/NA	Water	537	
320-24536-5	WI-CV-1RW40-1216	Total/NA	Water	537	
320-24536-6	WI-CV-1RW40P-1216	Total/NA	Water	537	
320-24536-7	WI-CV-1FB40-1216	Total/NA	Water	537	
320-24536-8	WI-CV-1RW41-1216	Total/NA	Water	537	
320-24536-9	WI-CV-1FB41-1216	Total/NA	Water	537	
320-24536-10	WI-CV-1RW42-1216	Total/NA	Water	537	
320-24536-11	WI-CV-1FB42-1216	Total/NA	Water	537	
320-24536-12	WI-CV-1RW43-1216	Total/NA	Water	537	
320-24536-13	WI-CV-1FB43-1216	Total/NA	Water	537	
MB 320-143388/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-143388/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-143388/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 144053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-143388/1-A	Method Blank	Total/NA	Water	537	143388
LLCS 320-143388/2-A	Lab Control Sample	Total/NA	Water	537	143388

### Analysis Batch: 144054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-1	WI-CV-1RW38-1216	Total/NA	Water	537	143388
320-24536-2	WI-CV-1FB38-1216	Total/NA	Water	537	143388
320-24536-3	WI-CV-1RW39-1216	Total/NA	Water	537	143388
320-24536-4	WI-CV-1FB39-1216	Total/NA	Water	537	143388
320-24536-5	WI-CV-1RW40-1216	Total/NA	Water	537	143388
320-24536-6	WI-CV-1RW40P-1216	Total/NA	Water	537	143388
320-24536-7	WI-CV-1FB40-1216	Total/NA	Water	537	143388
LLCSD 320-143388/3-A	Lab Control Sample Dup	Total/NA	Water	537	143388

### Analysis Batch: 144055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-8	WI-CV-1RW41-1216	Total/NA	Water	537	143388
320-24536-9	WI-CV-1FB41-1216	Total/NA	Water	537	143388
320-24536-10	WI-CV-1RW42-1216	Total/NA	Water	537	143388
320-24536-11	WI-CV-1FB42-1216	Total/NA	Water	537	143388
320-24536-12	WI-CV-1RW43-1216	Total/NA	Water	537	143388
320-24536-13	WI-CV-1FB43-1216	Total/NA	Water	537	143388

# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Client Sample ID: WI-CV-1RW38-1216

Date Collected: 12/16/16 09:13

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			263.7 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 13:15	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB38-1216

Date Collected: 12/16/16 09:14

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			276.7 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 13:45	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW39-1216

Date Collected: 12/16/16 09:52

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			280.7 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 14:14	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB39-1216

Date Collected: 12/16/16 09:53

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			275.3 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 14:44	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW40-1216

Date Collected: 12/16/16 11:20

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			267.4 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 16:30	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW40P-1216

Date Collected: 12/16/16 11:25

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			262.3 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 17:00	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB40-1216**

**Lab Sample ID: 320-24536-7**

Date Collected: 12/16/16 11:26

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			268.8 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144054	12/28/16 17:30	JRB	TAL SAC

**Client Sample ID: WI-CV-1RW41-1216**

**Lab Sample ID: 320-24536-8**

Date Collected: 12/16/16 11:55

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			266.1 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 18:58	JRB	TAL SAC

**Client Sample ID: WI-CV-1FB41-1216**

**Lab Sample ID: 320-24536-9**

Date Collected: 12/16/16 11:56

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			277.1 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 19:28	JRB	TAL SAC

**Client Sample ID: WI-CV-1RW42-1216**

**Lab Sample ID: 320-24536-10**

Date Collected: 12/16/16 13:28

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			265.5 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 19:58	JRB	TAL SAC

**Client Sample ID: WI-CV-1FB42-1216**

**Lab Sample ID: 320-24536-11**

Date Collected: 12/16/16 13:29

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			283 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 20:27	JRB	TAL SAC

**Client Sample ID: WI-CV-1RW43-1216**

**Lab Sample ID: 320-24536-12**

Date Collected: 12/16/16 13:51

Matrix: Water

Date Received: 12/20/16 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			258.3 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 20:57	JRB	TAL SAC

TestAmerica Sacramento



# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

**Date Collected: 12/16/16 13:52**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			276.7 mL	1.0 mL	143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1			144055	12/28/16 21:26	JRB	TAL SAC

**Laboratory References:**

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Certification Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17

Analysis Method	Prep Method	Matrix	Analyte
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- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Method Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC

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**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: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24536-1	WI-CV-1RW38-1216	Water	12/16/16 09:13	12/20/16 10:25
320-24536-2	WI-CV-1FB38-1216	Water	12/16/16 09:14	12/20/16 10:25
320-24536-3	WI-CV-1RW39-1216	Water	12/16/16 09:52	12/20/16 10:25
320-24536-4	WI-CV-1FB39-1216	Water	12/16/16 09:53	12/20/16 10:25
320-24536-5	WI-CV-1RW40-1216	Water	12/16/16 11:20	12/20/16 10:25
320-24536-6	WI-CV-1RW40P-1216	Water	12/16/16 11:25	12/20/16 10:25
320-24536-7	WI-CV-1FB40-1216	Water	12/16/16 11:26	12/20/16 10:25
320-24536-8	WI-CV-1RW41-1216	Water	12/16/16 11:55	12/20/16 10:25
320-24536-9	WI-CV-1FB41-1216	Water	12/16/16 11:56	12/20/16 10:25
320-24536-10	WI-CV-1RW42-1216	Water	12/16/16 13:28	12/20/16 10:25
320-24536-11	WI-CV-1FB42-1216	Water	12/16/16 13:29	12/20/16 10:25
320-24536-12	WI-CV-1RW43-1216	Water	12/16/16 13:51	12/20/16 10:25
320-24536-13	WI-CV-1FB43-1216	Water	12/16/16 13:52	12/20/16 10:25

Tiffany Hill  
Project Chemist  
1100 NE Circle Blvd Ste 300 Corvallis, OR 97330  
(541) 768-3109  
(541) 908-3794  
Project Name: CTO-08  
Site: OLF Coupeville  
P O #: 100067106050 - 679580.09.F.I.F.S

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT, if different from Below: 7-Day \_\_\_\_\_  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	USEPA Method 537 (PFOA, PFOS, and PFBS)	Sample Specific Notes:	
WI-CV-1RW38-1216	12/16/16	0913	G	DW	2	N	X			
WI-CV-1FB38-1216	12/16/16	0914	G	DW	2	N	X			
WI-CV-1RW39-1216	12/16/16	0952	G	DW	2	N	X			
WI-CV-1FB39-1216	12/16/16	0953	G	DW	2	N	X			
WI-CV-1RW40-1216	12/16/16	1120	G	DW	2	N	X			
WI-CV-1RW40P-1216	12/16/16	1125	G	DW	2	N	X			
WI-CV-1FB40-1216	12/16/16	1126	G	DW	2	N	X			
WI-CV-1RW41-1216	12/16/16	1155	G	DW	2	N	X			
WI-CV-1FB41-1216	12/16/16	1156	G	DW	2	N	X			
WI-CV-1RW42-1216	12/16/16	1328	G	DW	2	N	X			
WI-CV-1FB42-1216	12/16/16	1329	G	DW	2	N	X			
WI-CV-1RW43-1216	12/16/16	1351	G	DW	2	N	X			



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other \_\_\_\_\_  
Possible Hazard Identification: \_\_\_\_\_  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.:	Cooler Temp. (°C):	Obs'd:	Corrd:	Therm ID No.:
Company: CH2M	Received by: <i>[Signature]</i>	Company: 77-5AC	Company: 77-5AC	Date/Time: 12/20/16 10:25
Company:	Received by:	Company:	Company:	Date/Time:
Company:	Received in Laboratory by:	Company:	Company:	Date/Time:



Regulatory Program:  BW  NPDES  RCRA  Other

Project Manager: Katie Tippin  
Tel/Fax: (757) 671-6258

Client Contact  
Tiffany Hill  
Project Chemist

Site Contact: Eric Epple  
Lab Contact: Laura Turpen

1100 NE Circle Blvd Ste 300 Corvallis, OR 97330  
(541) 768-3109  
(541) 908-3794  
Project Name: CTO-08  
Site: OLF Coupeville  
P O #: 100067106050 - 679580.09.F.I.F.S

Date: 12/19/2016  
Carrier: FedEx

COC No: 10  
3 of 2 COCs

Sampler:

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below: 7-Day \_\_\_\_\_  
 2 weeks  
 1 week  
 2 days  
 1 day

For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Performs MS/MSD (Y/N)   
USEPA Method 537 (PFOA, PFOS, and PFBS)   
Filtered Sample (Y/N)   
Matrix   
Sample Type (C=Comp, G=Grab)   
Sample Time   
Sample Date   
Matrix   
# of Cont.

Sample Specific Notes:

Sample Identification  
WI-CV-1FB43-1216

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Special Instructions/QC Requirements & Comments:

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.:

Company: CH2M  
Date/Time: 12-19-16 / 1600  
Company: *CP*  
Date/Time:   
Company:   
Date/Time:

Relinquished by:

Received by: *[Signature]*  
Company: TA-SAC  
Date/Time: 12/20/16 10:25

Relinquished by:

Received in Laboratory by:   
Company:   
Date/Time:

Relinquished by:

Received in Laboratory by:   
Company:   
Date/Time:



# Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-24536-1

**Login Number: 24536**

**List Source: TestAmerica Sacramento**

**List Number: 1**

**Creator: Turpen, Troy**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
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?	N/A	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Job Number: 320-24536-1

Job Description: Whidbey Island

For:

CH2M Hill Constructors, Inc.

1100 NE Circle Blvd

Corvallis, OR 97330

Attention: Tiffany Hill



Approved for release.  
Laura Turpen  
Project Manager I  
12/29/2016 12:29 PM

---

Laura Turpen, Project Manager I  
880 Riverside Parkway, West Sacramento, CA, 95605  
(916)374-4414  
laura.turpen@testamericainc.com  
12/29/2016



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# Definitions/Glossary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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## Qualifiers

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### LCMS

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

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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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

## CASE NARRATIVE

Client: CH2M Hill Constructors, Inc.

Project: Whidbey Island

Report Number: 320-24536-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Sacramento attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

TestAmerica utilizes USEPA approved methods and DOD QSM, where applicable, in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

All parameters for which TestAmerica Sacramento has certification were evaluated to the QSM specified reporting convention or to the client specified format if different from QSM. Parameters not certified under QSM, if any, were evaluated to the detection limit (DL) and include qualified results where applicable.

The sample(s) that contain constituents flagged with U are undetected. The result associated with this flag is the limit of detection (LOD).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

### **RECEIPT**

The samples were received on 12/20/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.4 C.

### **PFOA/PFOS**

Samples WI-CV-1RW38-1216 (320-24536-1), WI-CV-1FB38-1216 (320-24536-2), WI-CV-1RW39-1216 (320-24536-3), WI-CV-1FB39-1216 (320-24536-4), WI-CV-1RW40-1216 (320-24536-5), WI-CV-1RW40P-1216 (320-24536-6), WI-CV-1FB40-1216 (320-24536-7), WI-CV-1RW41-1216 (320-24536-8), WI-CV-1FB41-1216 (320-24536-9), WI-CV-1RW42-1216 (320-24536-10), WI-CV-1FB42-1216 (320-24536-11), WI-CV-1RW43-1216 (320-24536-12) and WI-CV-1FB43-1216 (320-24536-13) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/21/2016 and analyzed on 12/28/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-143388.

The following sample had black sediment on top of the column while loading the sample onto the column, and when eluting this sample had light brown color. Also, after concentrating it had a dark brown color.

WI-CV-1RW43-1216 (320-24536-12)

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

# Detection Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1RW38-1216**

**Lab Sample ID: 320-24536-1**

No Detections.

**Client Sample ID: WI-CV-1FB38-1216**

**Lab Sample ID: 320-24536-2**

No Detections.

**Client Sample ID: WI-CV-1RW39-1216**

**Lab Sample ID: 320-24536-3**

No Detections.

**Client Sample ID: WI-CV-1FB39-1216**

**Lab Sample ID: 320-24536-4**

No Detections.

**Client Sample ID: WI-CV-1RW40-1216**

**Lab Sample ID: 320-24536-5**

No Detections.

**Client Sample ID: WI-CV-1RW40P-1216**

**Lab Sample ID: 320-24536-6**

No Detections.

**Client Sample ID: WI-CV-1FB40-1216**

**Lab Sample ID: 320-24536-7**

No Detections.

**Client Sample ID: WI-CV-1RW41-1216**

**Lab Sample ID: 320-24536-8**

No Detections.

**Client Sample ID: WI-CV-1FB41-1216**

**Lab Sample ID: 320-24536-9**

No Detections.

**Client Sample ID: WI-CV-1RW42-1216**

**Lab Sample ID: 320-24536-10**

No Detections.

**Client Sample ID: WI-CV-1FB42-1216**

**Lab Sample ID: 320-24536-11**

No Detections.

**Client Sample ID: WI-CV-1RW43-1216**

**Lab Sample ID: 320-24536-12**

No Detections.

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Client Sample ID: WI-CV-1RW38-1216

Date Collected: 12/16/16 09:13

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.015	ug/L		12/21/16 14:39	12/28/16 13:15	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 13:15	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 13:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	115		70 - 130				12/21/16 14:39	12/28/16 13:15	1
13C2 PFDA	109		70 - 130				12/21/16 14:39	12/28/16 13:15	1

## Client Sample ID: WI-CV-1FB38-1216

Date Collected: 12/16/16 09:14

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 13:45	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 13:45	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 13:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	112		70 - 130				12/21/16 14:39	12/28/16 13:45	1
13C2 PFDA	102		70 - 130				12/21/16 14:39	12/28/16 13:45	1

## Client Sample ID: WI-CV-1RW39-1216

Date Collected: 12/16/16 09:52

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.053	0.014	ug/L		12/21/16 14:39	12/28/16 14:14	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0084	ug/L		12/21/16 14:39	12/28/16 14:14	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L		12/21/16 14:39	12/28/16 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130				12/21/16 14:39	12/28/16 14:14	1
13C2 PFDA	109		70 - 130				12/21/16 14:39	12/28/16 14:14	1

## Client Sample ID: WI-CV-1FB39-1216

Date Collected: 12/16/16 09:53

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.044	U M	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 14:44	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0086	ug/L		12/21/16 14:39	12/28/16 14:44	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/21/16 14:39	12/28/16 14:44	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 14:44	1

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1RW40-1216**

**Lab Sample ID: 320-24536-5**

Date Collected: 12/16/16 11:20

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L		12/21/16 14:39	12/28/16 16:30	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/21/16 14:39	12/28/16 16:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/21/16 14:39	12/28/16 16:30	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	108		70 - 130				12/21/16 14:39	12/28/16 16:30	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 16:30	1

**Client Sample ID: WI-CV-1RW40P-1216**

**Lab Sample ID: 320-24536-6**

Date Collected: 12/16/16 11:25

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.057	0.015	ug/L		12/21/16 14:39	12/28/16 17:00	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0090	ug/L		12/21/16 14:39	12/28/16 17:00	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 17:00	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	122		70 - 130				12/21/16 14:39	12/28/16 17:00	1
13C2 PFDA	113		70 - 130				12/21/16 14:39	12/28/16 17:00	1

**Client Sample ID: WI-CV-1FB40-1216**

**Lab Sample ID: 320-24536-7**

Date Collected: 12/16/16 11:26

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L		12/21/16 14:39	12/28/16 17:30	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/21/16 14:39	12/28/16 17:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/21/16 14:39	12/28/16 17:30	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	116		70 - 130				12/21/16 14:39	12/28/16 17:30	1
13C2 PFDA	113		70 - 130				12/21/16 14:39	12/28/16 17:30	1

**Client Sample ID: WI-CV-1RW41-1216**

**Lab Sample ID: 320-24536-8**

Date Collected: 12/16/16 11:55

Matrix: Water

Date Received: 12/20/16 10:25

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.015	ug/L		12/21/16 14:39	12/28/16 18:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 18:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 18:58	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	109		70 - 130				12/21/16 14:39	12/28/16 18:58	1
13C2 PFDA	100		70 - 130				12/21/16 14:39	12/28/16 18:58	1

# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB41-1216**

**Lab Sample ID: 320-24536-9**

**Date Collected: 12/16/16 11:56**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 19:28	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 19:28	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 19:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/21/16 14:39	12/28/16 19:28	1
13C2 PFDA	108		70 - 130				12/21/16 14:39	12/28/16 19:28	1

**Client Sample ID: WI-CV-1RW42-1216**

**Lab Sample ID: 320-24536-10**

**Date Collected: 12/16/16 13:28**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.056	0.015	ug/L		12/21/16 14:39	12/28/16 19:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/21/16 14:39	12/28/16 19:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/21/16 14:39	12/28/16 19:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130				12/21/16 14:39	12/28/16 19:58	1
13C2 PFDA	100		70 - 130				12/21/16 14:39	12/28/16 19:58	1

**Client Sample ID: WI-CV-1FB42-1216**

**Lab Sample ID: 320-24536-11**

**Date Collected: 12/16/16 13:29**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.014	ug/L		12/21/16 14:39	12/28/16 20:27	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0083	ug/L		12/21/16 14:39	12/28/16 20:27	1
Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.042	ug/L		12/21/16 14:39	12/28/16 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		70 - 130				12/21/16 14:39	12/28/16 20:27	1
13C2 PFDA	103		70 - 130				12/21/16 14:39	12/28/16 20:27	1

**Client Sample ID: WI-CV-1RW43-1216**

**Lab Sample ID: 320-24536-12**

**Date Collected: 12/16/16 13:51**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L		12/21/16 14:39	12/28/16 20:57	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/21/16 14:39	12/28/16 20:57	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/21/16 14:39	12/28/16 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		70 - 130				12/21/16 14:39	12/28/16 20:57	1
13C2 PFDA	106		70 - 130				12/21/16 14:39	12/28/16 20:57	1



# Client Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

**Date Collected: 12/16/16 13:52**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L		12/21/16 14:39	12/28/16 21:26	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.0085	ug/L		12/21/16 14:39	12/28/16 21:26	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L		12/21/16 14:39	12/28/16 21:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130				12/21/16 14:39	12/28/16 21:26	1
13C2 PFDA	104		70 - 130				12/21/16 14:39	12/28/16 21:26	1

# Default Detection Limits

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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

Prep: 537

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	0.14	0.048	ug/L	537
Perfluorooctanesulfonic acid (PFOS)	0.060	0.016	ug/L	537
Perfluorooctanoic acid (PFOA)	0.030	0.0094	ug/L	537

# Surrogate Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		3C2 PFHx (70-130)	3C2 PFDA (70-130)
320-24536-1	WI-CV-1RW38-1216	115	109
320-24536-2	WI-CV-1FB38-1216	112	102
320-24536-3	WI-CV-1RW39-1216	104	109
320-24536-4	WI-CV-1FB39-1216	113	106
320-24536-5	WI-CV-1RW40-1216	108	106
320-24536-6	WI-CV-1RW40P-1216	122	113
320-24536-7	WI-CV-1FB40-1216	116	113
320-24536-8	WI-CV-1RW41-1216	109	100
320-24536-9	WI-CV-1FB41-1216	113	108
320-24536-10	WI-CV-1RW42-1216	106	100
320-24536-11	WI-CV-1FB42-1216	111	103
320-24536-12	WI-CV-1RW43-1216	111	106
320-24536-13	WI-CV-1FB43-1216	110	104
LLCS 320-143388/2-A	Lab Control Sample	111	104
LLCSD 320-143388/3-A	Lab Control Sample Dup	112	109
MB 320-143388/1-A	Method Blank	112	108

### Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

# QC Sample Results

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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

**Lab Sample ID: MB 320-143388/1-A**  
**Matrix: Water**  
**Analysis Batch: 144053**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid (PFOS)	0.048	U M	0.060	0.016	ug/L		12/21/16 14:39	12/28/16 10:47	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/21/16 14:39	12/28/16 10:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/21/16 14:39	12/28/16 10:47	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	112		70 - 130	12/21/16 14:39	12/28/16 10:47	1
13C2 PFDA	108		70 - 130	12/21/16 14:39	12/28/16 10:47	1

**Lab Sample ID: LLCS 320-143388/2-A**  
**Matrix: Water**  
**Analysis Batch: 144053**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	Spike Added	LLCS	LLCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0331	J	ug/L		83	50 - 150
Perfluorooctanoic acid (PFOA)	0.0198	0.0186	J M	ug/L		94	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0846	J	ug/L		94	50 - 150

Surrogate	LLCS	LLCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	111		70 - 130
13C2 PFDA	104		70 - 130

**Lab Sample ID: LLCSD 320-143388/3-A**  
**Matrix: Water**  
**Analysis Batch: 144054**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 143388**

Analyte	Spike Added	LLCSD	LLCSD	Unit	D	%Rec	Limits	RPD	RPD Limit
		Result	Qualifier						
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0338	J	ug/L		84	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	0.0198	0.0185	J M	ug/L		93	50 - 150	0.4	50
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0715	J	ug/L		80	50 - 150	17	50

Surrogate	LLCSD	LLCSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	112		70 - 130
13C2 PFDA	109		70 - 130

# QC Association Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## LCMS

### Prep Batch: 143388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-1	WI-CV-1RW38-1216	Total/NA	Water	537	
320-24536-2	WI-CV-1FB38-1216	Total/NA	Water	537	
320-24536-3	WI-CV-1RW39-1216	Total/NA	Water	537	
320-24536-4	WI-CV-1FB39-1216	Total/NA	Water	537	
320-24536-5	WI-CV-1RW40-1216	Total/NA	Water	537	
320-24536-6	WI-CV-1RW40P-1216	Total/NA	Water	537	
320-24536-7	WI-CV-1FB40-1216	Total/NA	Water	537	
320-24536-8	WI-CV-1RW41-1216	Total/NA	Water	537	
320-24536-9	WI-CV-1FB41-1216	Total/NA	Water	537	
320-24536-10	WI-CV-1RW42-1216	Total/NA	Water	537	
320-24536-11	WI-CV-1FB42-1216	Total/NA	Water	537	
320-24536-12	WI-CV-1RW43-1216	Total/NA	Water	537	
320-24536-13	WI-CV-1FB43-1216	Total/NA	Water	537	
MB 320-143388/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-143388/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-143388/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 144053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-143388/1-A	Method Blank	Total/NA	Water	537	143388
LLCS 320-143388/2-A	Lab Control Sample	Total/NA	Water	537	143388

### Analysis Batch: 144054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-1	WI-CV-1RW38-1216	Total/NA	Water	537	143388
320-24536-2	WI-CV-1FB38-1216	Total/NA	Water	537	143388
320-24536-3	WI-CV-1RW39-1216	Total/NA	Water	537	143388
320-24536-4	WI-CV-1FB39-1216	Total/NA	Water	537	143388
320-24536-5	WI-CV-1RW40-1216	Total/NA	Water	537	143388
320-24536-6	WI-CV-1RW40P-1216	Total/NA	Water	537	143388
320-24536-7	WI-CV-1FB40-1216	Total/NA	Water	537	143388
LLCSD 320-143388/3-A	Lab Control Sample Dup	Total/NA	Water	537	143388

### Analysis Batch: 144055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24536-8	WI-CV-1RW41-1216	Total/NA	Water	537	143388
320-24536-9	WI-CV-1FB41-1216	Total/NA	Water	537	143388
320-24536-10	WI-CV-1RW42-1216	Total/NA	Water	537	143388
320-24536-11	WI-CV-1FB42-1216	Total/NA	Water	537	143388
320-24536-12	WI-CV-1RW43-1216	Total/NA	Water	537	143388
320-24536-13	WI-CV-1FB43-1216	Total/NA	Water	537	143388

# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Client Sample ID: WI-CV-1RW38-1216

Date Collected: 12/16/16 09:13

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 13:15	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB38-1216

Date Collected: 12/16/16 09:14

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 13:45	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW39-1216

Date Collected: 12/16/16 09:52

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 14:14	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB39-1216

Date Collected: 12/16/16 09:53

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 14:44	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW40-1216

Date Collected: 12/16/16 11:20

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 16:30	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW40P-1216

Date Collected: 12/16/16 11:25

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 17:00	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Client Sample ID: WI-CV-1FB40-1216

Date Collected: 12/16/16 11:26

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144054	12/28/16 17:30	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW41-1216

Date Collected: 12/16/16 11:55

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 18:58	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB41-1216

Date Collected: 12/16/16 11:56

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 19:28	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW42-1216

Date Collected: 12/16/16 13:28

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 19:58	JRB	TAL SAC

## Client Sample ID: WI-CV-1FB42-1216

Date Collected: 12/16/16 13:29

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 20:27	JRB	TAL SAC

## Client Sample ID: WI-CV-1RW43-1216

Date Collected: 12/16/16 13:51

Date Received: 12/20/16 10:25

## Lab Sample ID: 320-24536-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 20:57	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

**Client Sample ID: WI-CV-1FB43-1216**

**Lab Sample ID: 320-24536-13**

**Date Collected: 12/16/16 13:52**

**Matrix: Water**

**Date Received: 12/20/16 10:25**

<b>Prep Type</b>	<b>Batch Type</b>	<b>Batch Method</b>	<b>Run</b>	<b>Dilution Factor</b>	<b>Batch Number</b>	<b>Prepared or Analyzed</b>	<b>Analyst</b>	<b>Lab</b>
Total/NA	Prep	537			143388	12/21/16 14:39	VPM	TAL SAC
Total/NA	Analysis	537		1	144055	12/28/16 21:26	JRB	TAL SAC

**Laboratory References:**

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



# Certification Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

## Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17

Analysis Method	Prep Method	Matrix	Analyte
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# Method Summary

Client: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

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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: CH2M Hill Constructors, Inc.  
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24536-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24536-1	WI-CV-1RW38-1216	Water	12/16/16 09:13	12/20/16 10:25
320-24536-2	WI-CV-1FB38-1216	Water	12/16/16 09:14	12/20/16 10:25
320-24536-3	WI-CV-1RW39-1216	Water	12/16/16 09:52	12/20/16 10:25
320-24536-4	WI-CV-1FB39-1216	Water	12/16/16 09:53	12/20/16 10:25
320-24536-5	WI-CV-1RW40-1216	Water	12/16/16 11:20	12/20/16 10:25
320-24536-6	WI-CV-1RW40P-1216	Water	12/16/16 11:25	12/20/16 10:25
320-24536-7	WI-CV-1FB40-1216	Water	12/16/16 11:26	12/20/16 10:25
320-24536-8	WI-CV-1RW41-1216	Water	12/16/16 11:55	12/20/16 10:25
320-24536-9	WI-CV-1FB41-1216	Water	12/16/16 11:56	12/20/16 10:25
320-24536-10	WI-CV-1RW42-1216	Water	12/16/16 13:28	12/20/16 10:25
320-24536-11	WI-CV-1FB42-1216	Water	12/16/16 13:29	12/20/16 10:25
320-24536-12	WI-CV-1RW43-1216	Water	12/16/16 13:51	12/20/16 10:25
320-24536-13	WI-CV-1FB43-1216	Water	12/16/16 13:52	12/20/16 10:25

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 143828

Lab Sample ID: STD 320-143828/4 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 04:26 Lab File ID: 24DEC2016A6A\_004.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.34	Baseline	phomsopha t	12/24/16 11:57
Perfluorooctanoic acid (PFOA)	20.00	Baseline	phomsopha t	12/24/16 11:57

Lab Sample ID: STD 320-143828/5 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 04:55 Lab File ID: 24DEC2016A6A\_005.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.00	Baseline	phomsopha t	12/24/16 11:59

Lab Sample ID: STD 320-143828/6 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 05:25 Lab File ID: 24DEC2016A6A\_006.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.34	Baseline	phomsopha t	12/24/16 12:04
Perfluorooctanoic acid (PFOA)	20.00	Baseline	phomsopha t	12/24/16 12:09

Lab Sample ID: STD 320-143828/7 ICISAV Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 05:54 Lab File ID: 24DEC2016A6A\_007.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.36	Baseline	phomsopha t	12/24/16 12:07

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 143828

Lab Sample ID: STD 320-143828/8 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 06:24 Lab File ID: 24DEC2016A6A\_008.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.36	Baseline	phomsopha t	12/24/16 12:10

Lab Sample ID: STD 320-143828/9 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 06:54 Lab File ID: 24DEC2016A6A\_009.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.36	Baseline	phomsopha t	12/24/16 12:11

Lab Sample ID: CCV 320-143828/11 CCVL Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 07:53 Lab File ID: 24DEC2016A6A\_011.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.36	Baseline	phomsopha t	12/24/16 12:19
Perfluorooctanoic acid (PFOA)	20.01	Baseline	phomsopha t	12/24/16 12:19

Lab Sample ID: ICV 320-143828/13 Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/24/16 08:52 Lab File ID: 24DEC2016A6A\_013.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.36	Baseline	phomsopha t	12/24/16 12:21

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 144053

Lab Sample ID: CCV 320-144053/27 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 05:51 Lab File ID: 27DEC2016A6A\_027.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.33	Split Peak	barnettj	12/28/16 13:57

Lab Sample ID: MB 320-143388/1-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 10:47 Lab File ID: 27DEC2016A6A\_037.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.00	Missed Peak	barnettj	12/28/16 14:16
Perfluorooctanesulfonic acid (PFOS)	20.61	Missed Peak	barnettj	12/28/16 14:16

Lab Sample ID: LLCS 320-143388/2-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 11:17 Lab File ID: 27DEC2016A6A\_038.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.00	Split Peak	barnettj	12/28/16 14:19

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 144054

Lab Sample ID: LLCSD 320-143388/3-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 12:45 Lab File ID: 27DEC2016A6A\_041.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.00	Split Peak	barnettj	12/28/16 14:52

Lab Sample ID: 320-24536-2 Client Sample ID: WI-CV-1FB38-1216

Date Analyzed: 12/28/16 13:45 Lab File ID: 27DEC2016A6A\_043.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.62	Missed Peak	barnettj	12/29/16 10:21

Lab Sample ID: 320-24536-3 Client Sample ID: WI-CV-1RW39-1216

Date Analyzed: 12/28/16 14:14 Lab File ID: 27DEC2016A6A\_044.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.62	Missed Peak	barnettj	12/29/16 10:22

Lab Sample ID: 320-24536-4 Client Sample ID: WI-CV-1FB39-1216

Date Analyzed: 12/28/16 14:44 Lab File ID: 27DEC2016A6A\_045.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.61	Missed Peak	barnettj	12/29/16 10:22

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 144054

Lab Sample ID: 320-24536-6 Client Sample ID: WI-CV-1RW40P-1216

Date Analyzed: 12/28/16 17:00 Lab File ID: 27DEC2016A6A\_049.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.00	Split Peak	barnettj	12/29/16 10:24
Perfluorooctanesulfonic acid (PFOS)	20.61	Missed Peak	barnettj	12/29/16 10:24

Lab Sample ID: CCV 320-144054/51 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 17:59 Lab File ID: 27DEC2016A6A\_051.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.34	Split Peak	barnettj	12/29/16 10:16



LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Analysis Batch Number: 144055

Lab Sample ID: CCV 320-144055/51 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/28/16 17:59 Lab File ID: 27DEC2016A6A\_051.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.34	Split Peak	barnettj	12/29/16 10:16

Lab Sample ID: 320-24536-10 Client Sample ID: WI-CV-1RW42-1216

Date Analyzed: 12/28/16 19:58 Lab File ID: 27DEC2016A6A\_055.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.62	Missed Peak	barnettj	12/29/16 10:56

Lab Sample ID: 320-24536-13 Client Sample ID: WI-CV-1FB43-1216

Date Analyzed: 12/28/16 21:26 Lab File ID: 27DEC2016A6A\_058.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	19.99	Split Peak	barnettj	12/29/16 11:00

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>LC537-ICV_00019</b>	03/01/17	12/20/16	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00028	200 uL	13C2-PFOA	10 ng/mL
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	28.68 ng/mL
..LCM2PFOA_00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			LCMPFOS_00018	300 uL	13C4 PFOS	0.5 ug/mL
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C2-PFOA	1.434 ug/mL
<b>LC537-ICV_00019</b>	03/01/17	12/20/16	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00027	500 uL	13C2-PFOA	50 ug/mL
.LC537-SU_00027	06/19/17	12/19/16	Methanol, Lot 104453	20000 uL	LC537ICIM_00014	25 uL	13C2 PFDA	47.8 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LC537-SU_00027	500 uL	13C2 PFDA	10 ng/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			LC537ICIM_00014	25 uL	13C2 PFHxA	10 ng/mL
.LC537ICIM_00014	03/01/17	12/20/16	Methanol, Lot 090285	25 mL	LCMPFHxA_00009	80 uL	Perfluorobutanesulfonic acid (PFBS)	114.77 ng/mL
..LC537-PFBS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537-PFOA2_00008	0.142 mL	Perfluorooctanoic acid (PFOA)	25.0232 ng/mL
...LC537_PFBS2_00001	08/09/17	Santa Cruz Biotechnology, Lot H0112			LC537-PFOS2_00005	0.22 mL	Perfluorooctanesulfonic acid (PFOS)	27.2389 ng/mL
..LC537-PFOA2_00008	07/25/17	12/20/16	Methanol, Lot 090285	10 mL	LC537-PFBS2_00005	0.5 mL	13C2 PFDA	0.2 ug/mL
...LC537_PFOA2_00001	07/25/17	Afla Aesar, Lot D24Y026			LC537-PFOS2_00005	0.22 mL	13C2 PFHxA	0.2 ug/mL
..LC537-PFOS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537-PFBS2_00001	0.023 g	13C2 PFDA	50 ug/mL
...LC537_PFOS2_00001	07/26/17	Sigma, Lot BCBF5116V			LC537-PFBS2_00001	0.023 g	13C2 PFHxA	50 ug/mL
<b>LC537-IS_00027</b>	03/19/17	12/14/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	Perfluorobutanesulfonic acid (PFBS)	45.908 ug/mL
.LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LC537-PFOA2_00001	0.0178 g	Perfluorooctanoic acid (PFOA)	10.0093 ug/mL
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			LC537-PFOA2_00001	0.0178 g	Perfluorooctanoic acid (PFOA)	10.8956 ug/mL
<b>LC537-L1_00017</b>	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00028	100 uL	Perfluorooctanesulfonic acid (PFOS)	10.8956 ug/mL
.LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LC537-MSP_00017	25 uL	Perfluorobutanesulfonic acid (PFBS)	2295.4 ug/mL
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			LC537-MSP_00017	25 uL	Perfluorooctanoic acid (PFOA)	0.998 g/g
..LC537-PFBS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537-MSP_00017	25 uL	Perfluoroheptanoic acid	0.99 ng/mL
...LC537_PFBS2_00001	07/26/17	Sigma, Lot BCBF5116V			LC537-MSP_00017	25 uL	Perfluorohexanesulfonic acid	3.02582 ng/mL
<b>LC537-L1_00017</b>	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-SU_00026	250 uL	Perfluorononanoic acid	2.07415 ng/mL
.LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LC537-SU_00026	250 uL	Perfluorooctanoic acid (PFOA)	1.95189 ng/mL
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			LC537-SU_00026	250 uL	Perfluorooctanesulfonic acid (PFOS)	4.00664 ng/mL
..LC537-PFBS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537-SU_00026	250 uL	13C2 PFDA	10 ng/mL
...LC537_PFBS2_00001	07/26/17	Sigma, Lot BCBF5116V			LC537-SU_00026	250 uL	13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA 00005	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS 00018	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA 00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-MSP_00017	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	200 uL	Perfluorobutanesulfonic acid (PFBS)	1795.2 ng/mL
							Perfluoroheptanoic acid	198 ng/mL
							Perfluorohexanesulfonic acid	605.164 ng/mL
							Perfluorononanoic acid	414.831 ng/mL
							Perfluorooctanoic acid (PFOA)	390.378 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	801.328 ng/mL
..LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA 00013	100 uL	Perfluoroheptanoic acid	9.9 ug/mL
					LC537-PFHxS 00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA 00011	200 uL	Perfluorononanoic acid	20.7415 ug/mL
					LC537-PFOA 00011	100 uL	Perfluorooctanoic acid (PFOA)	19.5189 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA 00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537 PFHpA 00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL
....LC537 PFHpA 00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
...LC537-PFHxS 00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS 00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537 PFHxS 00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFNA 00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL
....LC537 PFNA 00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFOA 00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL
....LC537 PFOA 00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL
							13C2 PFHxA	0.2 ug/mL
..LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA 00008	80 uL	13C2 PFDA	0.4 ug/mL
					LCMPFHxA 00009	80 uL	13C2 PFHxA	0.4 ug/mL
...LCMPFDA 00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L2_00016</b>	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00014	34 uL	Perfluorobutanesulfonic acid (PFBS)	22.8888 ng/mL
							Perfluoroheptanoic acid	2.5245 ng/mL
							Perfluorohexanesulfonic acid	7.71585 ng/mL
							Perfluorononanoic acid	5.28909 ng/mL
							Perfluorooctanoic acid (PFOA)	4.97733 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	10.2169 ng/mL
					LC537-IS_00028	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00026	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00014	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	371.25 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	777.808 ng/mL
							Perfluorooctanoic acid (PFOA)	731.96 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
.LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00013	100 uL	Perfluoroheptanoic acid	9.9 ug/mL
					LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00011	200 uL	Perfluorononanoic acid	20.7415 ug/mL
					LC537-PFOA_00011	100 uL	Perfluorooctanoic acid (PFOA)	19.5189 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
.LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
.LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
.LC537-PFHpA_00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537_PFHpA_00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL
.LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
.LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537_PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
.LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
.LC537-PFNA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537_PFNA_00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL
.LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
.LC537-PFOA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537_PFOA_00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL
.LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
.LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
.LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL
.LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCMPFOS_00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL
							13C2 PFHxA	0.2 ug/mL
.LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA_00008	80 uL	13C2 PFDA	0.4 ug/mL
					LCMPFHxA_00009	80 uL	13C2 PFHxA	0.4 ug/mL
.LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
LC537-L3_00018	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00014	67 uL	Perfluorobutanesulfonic acid (PFBS)	45.1044 ng/mL		
							Perfluoroheptanoic acid	4.97475 ng/mL		
							Perfluorohexanesulfonic acid	15.2048 ng/mL		
							Perfluorononanoic acid	10.4226 ng/mL		
							Perfluorooctanoic acid (PFOA)	9.80826 ng/mL		
					Perfluorooctanesulfonic acid (PFOS)	20.1334 ng/mL				
					LC537-IS_00028	100 uL	13C2-PFOA	10 ng/mL		
							13C4 PFOS	28.68 ng/mL		
					LC537-SU_00026	250 uL	13C2 PFDA	10 ng/mL		
							13C2 PFHxA	10 ng/mL		
.LC537-HSP_00014	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL		
							Perfluoroheptanoic acid	371.25 ng/mL		
							Perfluorohexanesulfonic acid	1134.68 ng/mL		
							Perfluorononanoic acid	777.808 ng/mL		
							Perfluorooctanoic acid (PFOA)	731.96 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL		
..LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL		
							LC537-PFHpA_00013	100 uL	Perfluoroheptanoic acid	9.9 ug/mL
							LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
							LC537-PFNA_00011	200 uL	Perfluorononanoic acid	20.7415 ug/mL
							LC537-PFOA_00011	100 uL	Perfluorooctanoic acid (PFOA)	19.5189 ug/mL
							LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537 PFHpA_00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL		
...LC537 PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g		
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL		
...LC537 PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g		
...LC537-PFNA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFNA_00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL		
...LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g		
...LC537-PFOA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFOA_00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL		
...LC537 PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL		
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g		
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL		
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL		
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA 00008	80 uL	13C2 PFHxA	0.2 ug/mL
					LCMPFHxA 00009	80 uL	13C2 PFDA	0.4 ug/mL
...LCMPFDA 00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
...LCMPFHxA 00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L4_00017</b>	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00014	135 uL	Perfluorobutanesulfonic acid (PFBS)	90.882 ng/mL
							Perfluoroheptanoic acid	10.0238 ng/mL
							Perfluorohexanesulfonic acid	30.6364 ng/mL
							Perfluorononanoic acid	21.0008 ng/mL
							Perfluorooctanoic acid (PFOA)	19.7629 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.5672 ng/mL
					LC537-IS_00028	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00026	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00014	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	371.25 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	777.808 ng/mL
							Perfluorooctanoic acid (PFOA)	731.96 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA 00013	100 uL	Perfluoroheptanoic acid	9.9 ug/mL
					LC537-PFHxS 00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA 00011	200 uL	Perfluorononanoic acid	20.7415 ug/mL
					LC537-PFOA 00011	100 uL	Perfluorooctanoic acid (PFOA)	19.5189 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA 00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537 PFHpA 00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL
...LC537 PFHpA 00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
...LC537-PFHxS 00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS 00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
...LC537 PFHxS 00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFNA 00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL
...LC537 PFNA 00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFOA 00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL
...LC537 PFOA 00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration				
					Reagent ID	Volume Added						
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL				
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL				
..LCM2PFOA_00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)		13C2-PFOA	50 ug/mL				
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL				
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL				
							13C2 PFHxA	0.2 ug/mL				
..LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA_00008	80 uL	13C2 PFDA	0.4 ug/mL				
					LCMPFHxA_00009	80 uL	13C2 PFHxA	0.4 ug/mL				
...LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL				
...LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL				
LC537-L5_00019	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00014	200 uL	Perfluorobutanesulfonic acid (PFBS)	134.64 ng/mL				
							Perfluoroheptanoic acid	14.85 ng/mL				
							Perfluorohexanesulfonic acid	45.3873 ng/mL				
							Perfluorononanoic acid	31.1123 ng/mL				
											Perfluorooctanoic acid (PFOA)	29.2784 ng/mL
											Perfluorooctanesulfonic acid (PFOS)	60.0996 ng/mL
					LC537-IS_00028	100 uL	13C2-PFOA	10 ng/mL				
					LC537-SU_00026	250 uL	13C4 PFOS	28.68 ng/mL				
							13C2 PFDA	10 ng/mL				
							13C2 PFHxA	10 ng/mL				
.LC537-HSP_00014	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL				
							Perfluoroheptanoic acid	371.25 ng/mL				
							Perfluorohexanesulfonic acid	1134.68 ng/mL				
							Perfluorononanoic acid	777.808 ng/mL				
							Perfluorooctanoic acid (PFOA)	731.96 ng/mL				
						Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL					
..LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL				
							Perfluoroheptanoic acid	9.9 ug/mL				
							Perfluorohexanesulfonic acid	30.2582 ug/mL				
							Perfluorononanoic acid	20.7415 ug/mL				
							Perfluorooctanoic acid (PFOA)	19.5189 ug/mL				
							Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL				
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFB_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL				
....LC537_PFB_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g				
...LC537-PFHpA_00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537 PFHpA_00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL				
....LC537 PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g				
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL				
....LC537 PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g				
...LC537-PFNA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFNA_00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL				
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g				

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFOA_00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537_PFOA_00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL
....LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL
..LCMPFOS_00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C4 PFOS	47.8 ug/mL
..LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		LCMPFDA_00008	80 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		LCMPFHxA_00009	80 uL	13C2 PFDA	0.4 ug/mL
					(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L6_00016</b>	06/14/17	12/23/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00014	265 uL	Perfluorobutanesulfonic acid (PFBS)	178.398 ng/mL
							Perfluoroheptanoic acid	19.6763 ng/mL
							Perfluorohexanesulfonic acid	60.1382 ng/mL
							Perfluorononanoic acid	41.2238 ng/mL
							Perfluorooctanoic acid (PFOA)	38.7939 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	79.632 ng/mL
					LC537-IS_00028	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00026	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00014	06/22/17	12/22/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00018	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	371.25 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	777.808 ng/mL
							Perfluorooctanoic acid (PFOA)	731.96 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00018	06/22/17	12/22/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00013	100 uL	Perfluoroheptanoic acid	9.9 ug/mL
					LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00011	200 uL	Perfluorononanoic acid	20.7415 ug/mL
					LC537-PFOA_00011	100 uL	Perfluorooctanoic acid (PFOA)	19.5189 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00013	06/22/17	12/22/16	Methanol, Lot 090285	56.8 mL	LC537_PFHpA_00002	0.0568 g	Perfluoroheptanoic acid	990 ug/mL



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537 PFHpA 00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
...LC537-PFHxS 00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS 00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
...LC537 PFHxS 00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFNA 00002	0.007 g	Perfluorononanoic acid	1037.08 ug/mL
...LC537 PFNA 00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA 00011	11/21/17	11/21/16	Methanol, Lot 090285	6.5 mL	LC537 PFOA 00002	0.0127 g	Perfluorooctanoic acid (PFOA)	1951.89 ug/mL
...LC537 PFOA 00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
...LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00028	06/19/17	12/19/16	Methanol, Lot 090285	10000 uL	LCM2PFOA 00005	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C4 PFOS	1.434 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00026	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C4 PFOS	47.8 ug/mL
..LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA 00008	80 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA 00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFHxA	0.2 ug/mL
..LCMPFHxA 00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFDA	0.4 ug/mL
..LCMPFHxA 00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFHxA	0.4 ug/mL
<b>LC537-LSP_00016</b>	05/04/17	11/04/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00015	50 uL	Perfluorobutane Sulfonate	448.8 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	448.8 ng/mL
							Perfluoroheptanoic acid	53.7429 ng/mL
							Perfluorohexanesulfonic acid	151.291 ng/mL
							Perfluorononanoic acid	101.553 ng/mL
							Perfluorooctanoic acid (PFOA)	99.234 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	200.332 ng/mL
.LC537SPIM_00015	05/04/17	11/04/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutane Sulfonate	89.76 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA 00011	100 uL	Perfluoroheptanoic acid	10.7486 ug/mL
					LC537-PFHxS 00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA 00009	200 uL	Perfluorononanoic acid	20.3105 ug/mL
					LC537-PFOA 00010	100 uL	Perfluorooctanoic acid (PFOA)	19.8468 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
..LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutane Sulfonate	2040 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
					(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA 00011	11/04/17	11/04/16	Methanol, Lot 090285	7 mL	LC537 PFHpA 00002	0.0076 g	Perfluoroheptanoic acid	1074.86 ug/mL
..LC537 PFHpA 00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
..LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537_PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24536-1

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	0.9094 g/g
..LC537-PFNA 00009	11/04/17	11/04/16	Methanol, Lot 090285	5.5 mL	LC537 PFNA 00002	0.0058 g	Perfluorononanoic acid	1015.53 ug/mL
...LC537 PFNA 00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA 00010	11/04/17	11/04/16	Methanol, Lot 090285	7.5 mL	LC537 PFOA 00002	0.0149 g	Perfluorooctanoic acid (PFOA)	1984.68 ug/mL
...LC537 PFOA 00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
...LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
<b>LC537-SU_00026</b>	06/14/17	12/16/16	Methanol, Lot 104453	20000 uL	LC537-SU_00025	10000 uL	13C2 PFDA	0.2 ug/mL
							13C2 PFHxA	0.2 ug/mL
.LC537-SU_00025	06/14/17	12/14/16	Methanol, Lot 104453	10000 uL	LCMPFDA 00008	80 uL	13C2 PFDA	0.4 ug/mL
					LCMPFHxA 00009	80 uL	13C2 PFHxA	0.4 ug/mL
..LCMPFDA 00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

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**LC537\_PFB\_00002**

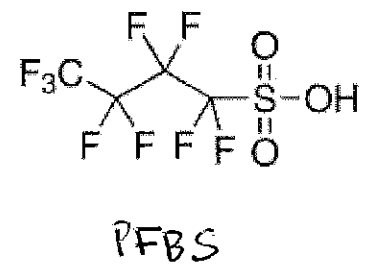
7: 4/1/15 SPV

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

### Certificate of Analysis

Product Name:  
Nonafluorobutane-1-sulfonic acid - 97%

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



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

*Jamie Gleason*

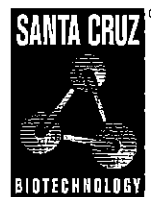
Jamie Gleason, Manager  
Quality Control  
Milwaukee, Wisconsin US

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

Reagent

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**LC537\_PFB2\_00001**



*The Power to Question*

# CERTIFICATE OF ANALYSIS

Catalog Number: sc-236187  
Product Name: Nonafluorobutane-1-sulfonic acid  
CAS Number: 375-73-5  
Molecular Formula:  $C_4HF_9O_3S$   
Molecular Weight: 300.10  
Lot Number: H0112

Test		Result
Refractive Index	1.3200 to 1.3290	1.3219
Purity (Titration)	min. 98.0%	99.8%

Test Conditions: Refractive Index: n<sub>20/D</sub>

Reagent

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**LC537\_PFHpA\_00002**

R: 4/1/15 4V

**Certificate of Analysis**

**Product Name:** PERFLUOROHEPTANOIC ACID  
**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\_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

$$MW_{corr} = \frac{(k_{form}) - (k) + (H)}{438.20 (k_{form})} = \frac{(438.20 - 39.10 + 1.01)}{438.20 (k_{form})} = 0.91307 \text{ (anion form)}$$

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

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\_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\_PFOA\_00002**

3/21/15

# SIGMA-ALDRICH

## CERTIFICATE OF ANALYSIS

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

Seelze, 13.11.2013/505378/13/24029
Order-No.:
Customer-No.:
Order-Code:
Quantity:
Production Date: 04.Nov.2013
Expiry Date: 04.Nov.2018

Article/Product: 33824	Batch : SZBD308XV	PFOA
Pentadecafluorooctanoic acid OEKANAL®		

### Reference Material (RM)

#### 1. General Information

Formula: C<sub>8</sub>HF<sub>15</sub>O<sub>2</sub>  
CAS-No.: [335-67-1]  
Usage : PFOA

Molar mass: 414.07 g/Mole  
Recomm. storage temp.: roomtemp.

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

#### 2. Batch Analysis

identity (GC-MS)  
Assay (GCMS)  
Date of Analysis

complying  
99.4 %  
13.Nov.2013

#### 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

This document was produced electronically and is valid without a signature

**GC/MS-Method**

**Analytical Department**

**Article:** Pentadecafluorooctanoic acid OEKANAL

**Article-No.:** 33824

**Batch:** SZBD308XV

**Column:** XTI-5 (Restek); 30 m; fs cap.; I.D.:0.25 mm; 1 µm df

**Injector:** Split mode

**Injection:** approx. 1 µl of reaction mixture with MSTFA (approx. 10 mg + 200 µl MSTFA)

**Inj.-temp.:** 280°C

**Oven-temp.:** 40°C (for 2 min) to 320°C (6°C/min) hold for 2 min

**Split:** 1:100

**Flow:** 1 ml He/min (Constant flow mode)

**Detector:** MSD

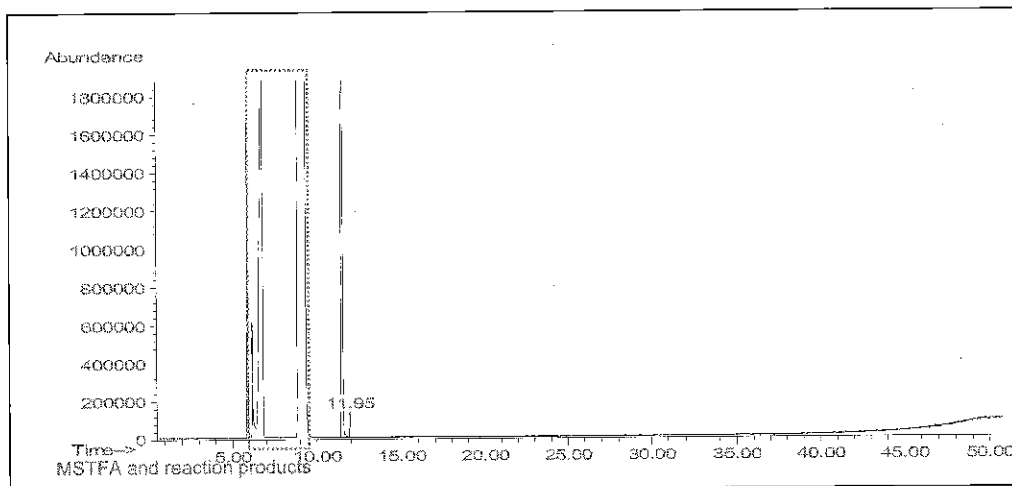
**Mass range:** 10-600 amu (Scan mode)

**Evaluation:** Purity: Total Ion Chromatogram  
(MSTFA and reaction products blinded out in report)

Identity: Mass spectrum complies

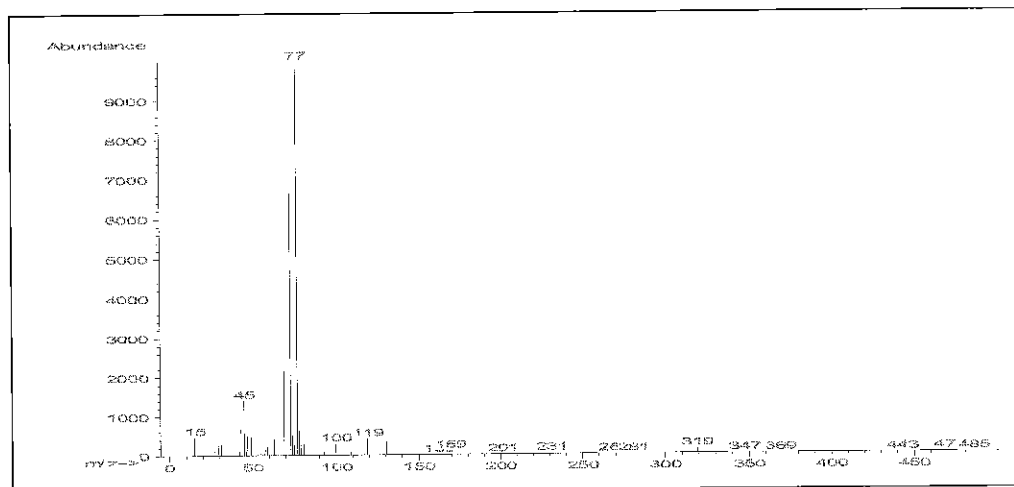
**Operator:** Ahrens / 2013-11-13

**Total Ion Chromatogram:**



Ret. time	Area	Area-%	Com
11.54	565.1670	99.4	Pentadecafluorooctanoic acid (as TMS-ester)
11.95	3.6792	0.64	

**Mass spectrum (rt = 11.54 min):**



Reagent

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**LC537\_PFOA2\_00001**



# Certificate of Analysis

**Alfa Aesar**  
A Johnson Matthey Company

Product No.: L08862  
Product: Perfluorooctanoic acid, 95%  
Lot No.: D24Y026

PFOA

Appearance White solid  
Melting point 58 - 60°C  
Assay 99 %  
Identity Matches reference

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

[www.alfa.com](http://www.alfa.com)

**NORTH AMERICA**  
Tel: +1-800-343-0660 or  
+1-978-521-6300  
Fax: +1-800-322-4757  
Email: [info@alfa.com](mailto:info@alfa.com)

**GERMANY**  
Tel: 00800 4566 4566 or  
+49 721 84007 280  
Fax: 00800 4577 4577 or  
+49 721 84007 300  
Email: [Eurosales@alfa.com](mailto:Eurosales@alfa.com)

**UNITED KINGDOM**  
Tel: 0800-801812 or  
+44 (0)1524-850506  
Fax: +44 (0)1524-850608  
Email: [UKsales@alfa.com](mailto:UKsales@alfa.com)

**FRANCE**  
Tel: 0800 03 51 47 or  
+33 (0)3 8862 2690  
Fax: 0800 10 20 67 or  
+33 (0)3 8862 6864  
Email: [frventes@alfa.com](mailto:frventes@alfa.com)

**INDIA**  
Tel: +91 8008 812424 or  
+91 8008 812525 or  
+91 8008 812626  
Fax: +91 8418 260060  
Email: [India@alfa.com](mailto:India@alfa.com)

**CHINA**  
Tel: +86 (010) 8567-8600  
Fax: +86 (010) 8567-8601  
Email: [saleschina@alfa-asia.com](mailto:saleschina@alfa-asia.com)

**KOREA**  
Tel: +82-2-3140-6000  
Fax: +82-2-3140-6002  
Email: [saleskorea@alfa-asia.com](mailto:saleskorea@alfa-asia.com)

Reagent

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**LC537\_PFOs\_00002**

F: 4/115 SV

# SIGMA-ALDRICH®

## CERTIFICATE OF ANALYSIS

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

Seelze, 13.08.2012/419060/12/17583
Order-No.:
Customer-No.:
Order-Code:
Quantity:
Production Date: 09.Aug.2012
Expiry Date: 09.Aug.2017 - <i>err date</i>

Article/Product: 33829	Batch : SZBC222XV
Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®	
	PFOS-K <sup>+</sup>

### Reference Material (RM)

#### 1. General Information

Formula: C8F17KO3S  
CAS-No.: [2795-39-3]  
Usage : PFOS

Molar mass: 538.22 g/Mole  
Recomm. storage temp.: roomtemp.

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

#### 2. Batch Analysis

Identity	complying
Assay (LC-MS)	98.00 %
Date of Analysis	10.Aug.2012

*FW-correction:*

$$\frac{538.22 - 39.10 + 1.01}{538.22} = \frac{500.13}{538.22} = 0.92923$$

*Purity = 91.06%*

#### 3. Advice and Remarks

- The minimum shelf life 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\_PFO2\_00001**

Certificate of Analysis

Inw 820  
12LCMS 0579

Product Name: HEPTADEC AFLUORO OCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT  
98 %  
Product Number: 365289  
Product Brand: Aldrich  
Molecular Formula: C<sub>16</sub>H<sub>20</sub>F<sub>17</sub>NO<sub>3</sub>S  
Molecular Mass: 629.37  
CAS Number: 56773-42-3

TEST	SPECIFICATION	LOT BCBF5116V RESULTS
APPEARANCE (COLOR)	OFF-WHITE TO WHITE	WHITE
APPEARANCE (FORM)	POWDER, LUMPS OR CHUNKS	POWDER WITH LUMPS
CARBON CONTENT	29.77 % - 31.29 %	30.52
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

QC RELEASE DATE 13/APR/11

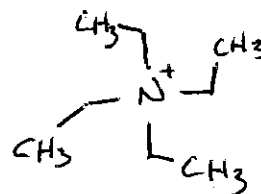
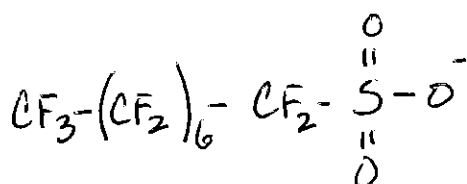
$$\text{Mw correction} = \frac{500.125}{629.37} = 0.7946$$

~~79.46%~~ Oct 7-26-12

*E. Schwarzler*

Purity + Mw Correction = 77.87%

Edeltraud Schwarzler, Manager  
Quality Control  
Buchs, Switzerland



	<u>C<sub>8</sub>F<sub>17</sub>SO<sub>3</sub>H</u>	<u>C<sub>8</sub>H<sub>20</sub>N</u>
C = 12.011	96.088	96.088
F = 18.998	322.966	-
S = 32.066	32.066	-
O = 15.999	47.997	-
H = 1.008	1.008	20.160
N = 14.007	-	14.007
	<u>500.125</u>	<u>130.255</u> →

Sigma-Aldrich warrants, that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice for additional terms and conditions of sale. The values given on the 'Certificate of Analysis' are the results determined at the time of analysis.

**Certificate of Origin**

**Product Name:** Heptadecafluorooctanesulfonic acid tetraethylammonium salt  
 98 %  
**Product Number:** 365289  
**Product Brand:** Aldrich  
**Lot:** BCBF5116V  
**Molecular Formula:** C<sub>16</sub>H<sub>20</sub>F<sub>17</sub>NO<sub>3</sub>S  
**Molecular Mass:** 629.37  
**CAS Number:** 56773-42-3  
**Date of Issue:** 30-MAR-11

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**Country of Origin** China

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<b>product is of synthetic origin</b>	yes
<b>only synthetic materials used in the manufacturing process</b>	yes
<b>compounds of animal origin used</b>	no
<b>genetically modified organisms used</b>	no
<b>allergenic materials used</b>	no
<b>procedures in place to avoid cross contamination with residue of animal, human, GMO or allergenes in manufacturing process</b>	yes

Sigma-Aldrich has quality systems and procedures in place for monitoring the production process, traceability and batch consistency.

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This information is considered accurate and reliable as of the date appearing on the document and is presented in good faith.

Sigma-Aldrich shall not be held liable for any damage resulting from handling or from processing the above product(s). This document does not make any warranty, express or implied, of fitness for any particular use of the product(s). Purchaser must determine the suitability of the product(s) for its use under the applicable law and regulations.

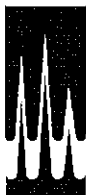
For further questions please contact your local Sigma-Aldrich representative.

*We are committed to the success of our Customers, Employees and Shareholders through leadership in Life Science, High Technology and Service.*

Reagent

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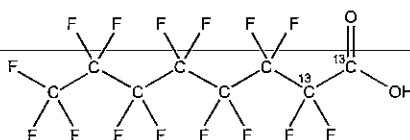
**LCM2PFOA\_00003**



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** M2PFOA **LOT NUMBER:** M2PFOA0312  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]octanoic acid  
**STRUCTURE:** **CAS #:** Not available



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>6</sub>HF<sub>15</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 416.05  
**CONCENTRATION:** 50 ± 2.5 µg/ml **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) 03/19/2012  
**EXPIRY DATE:** (mm/dd/yyyy) 03/19/2017  
**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: 01/09/2013  
(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. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

#### **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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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:

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

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 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 17025:2005 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 for the period of time specified by the 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.

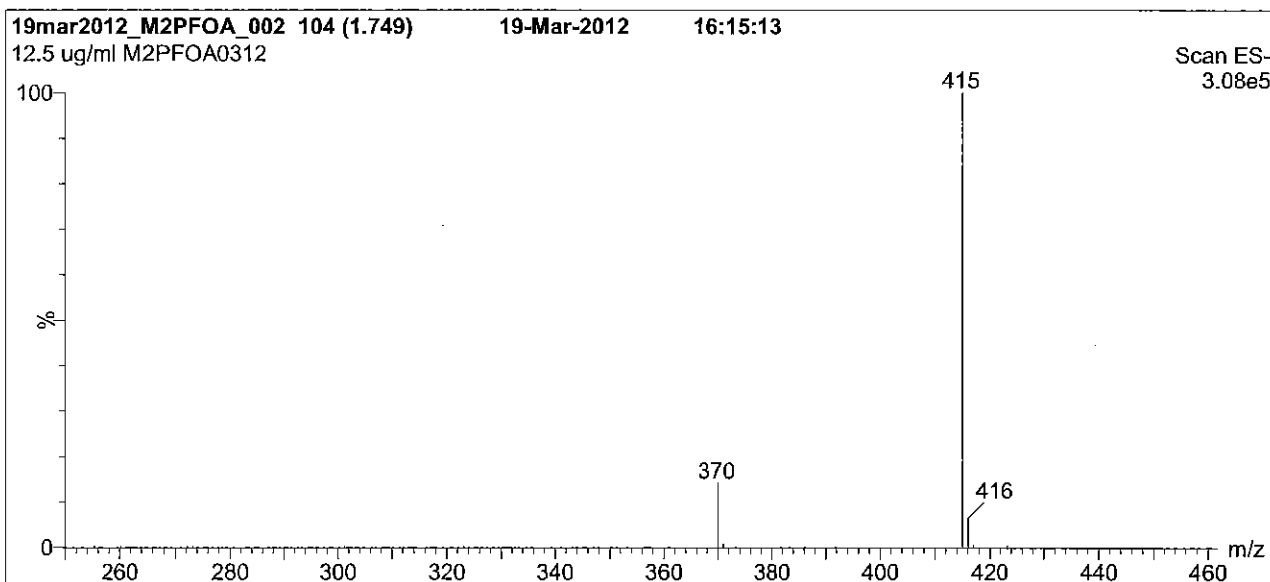
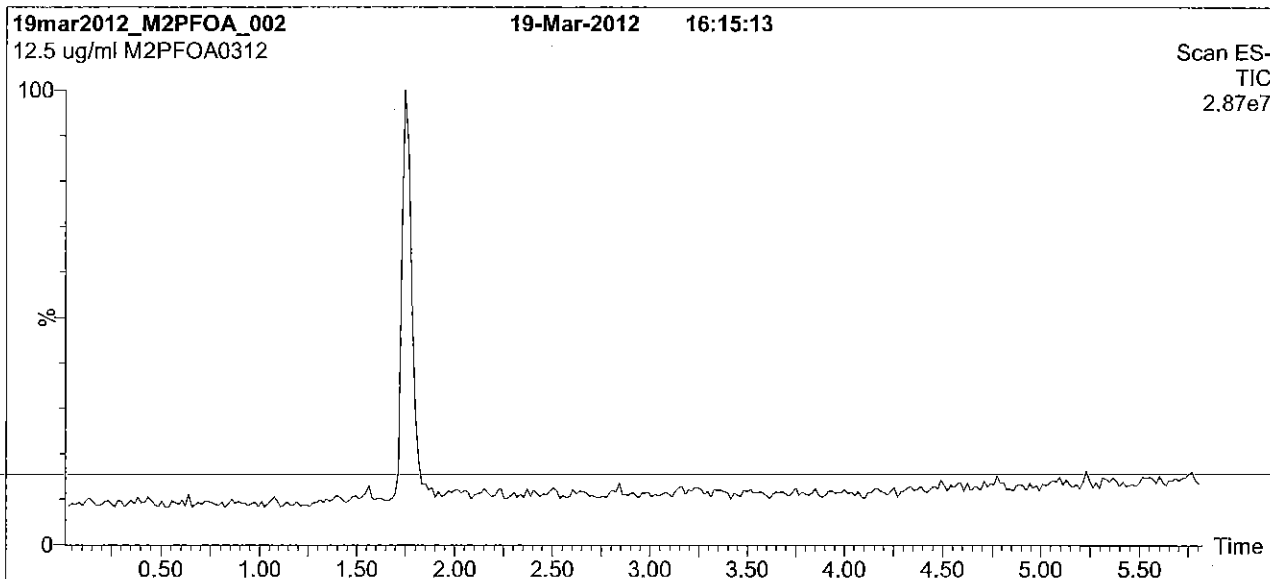
#### **QUALITY MANAGEMENT:**

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number 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: 60% (80:20 MeOH:ACN) / 40% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc buffer)  
 Ramp to 90% organic over 6.5 min and hold for 2 min  
 before returning to initial conditions in 0.5 min.  
 Time: 10 min

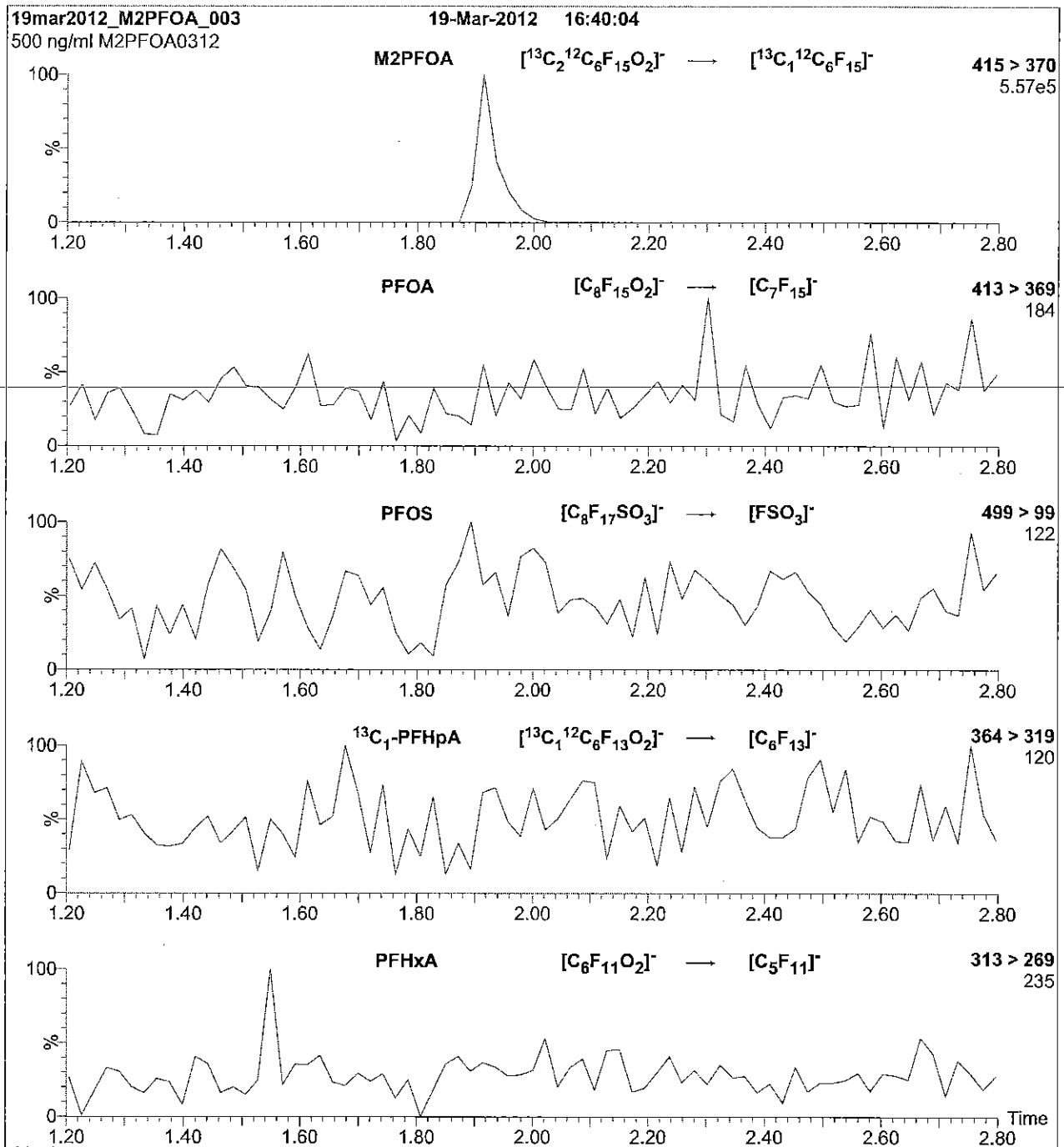
**Flow:** 300  $\mu$ l/min

**MS Parameters**

**Experiment:** Full Scan (250 - 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: 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 70% (80:20 MeOH:ACN) / 30%  $\text{H}_2\text{O}$   
(both with 10 mM  $\text{NH}_4\text{OAc}$  buffer)

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

**MS Parameters**

Collision Gas (mbar) =  $3.35\text{e-}3$   
Collision Energy (eV) = 11

Reagent

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**LCM2PFOA\_00005**

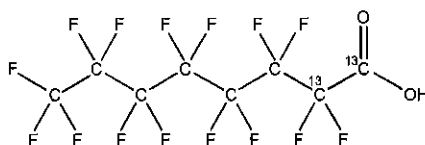


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** M2PFOA **LOT NUMBER:** M2PFOA0613  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]octanoic acid

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



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>6</sub>HF<sub>15</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 416.05  
**CONCENTRATION:** 50 ± 2.5 µg/ml **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) 06/19/2013  
**EXPIRY DATE:** (mm/dd/yyyy) 06/19/2018  
**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: 07/16/2013  
(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. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

**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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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 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 17025:2005 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 for the period of time specified by the 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.

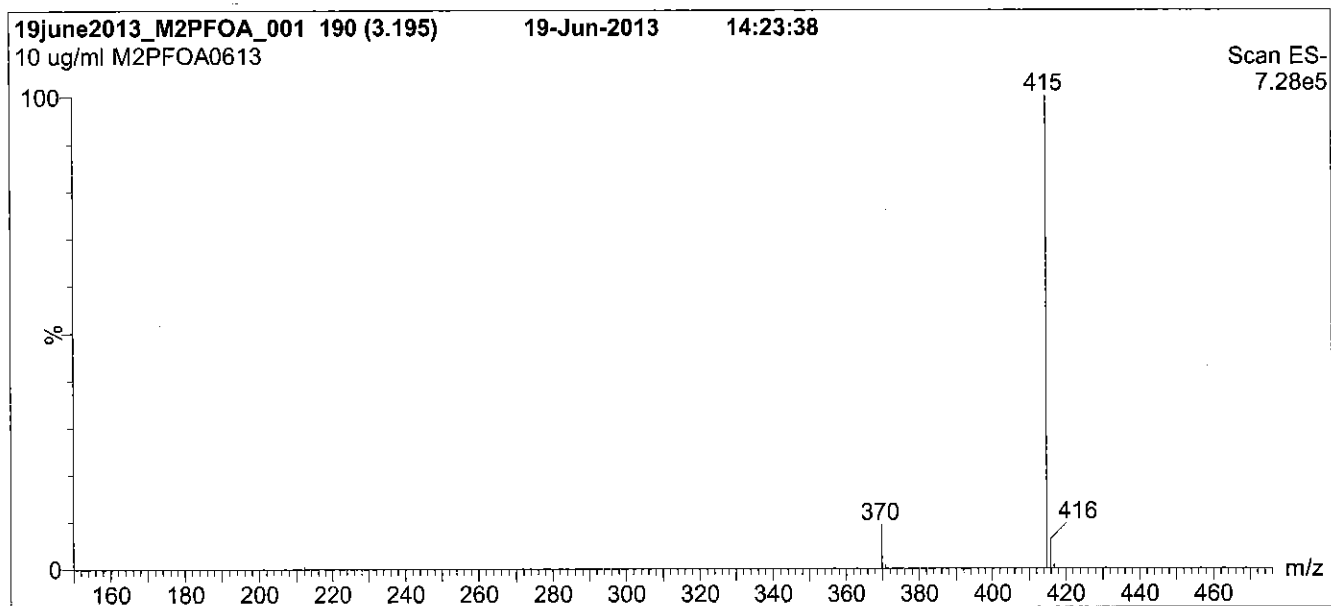
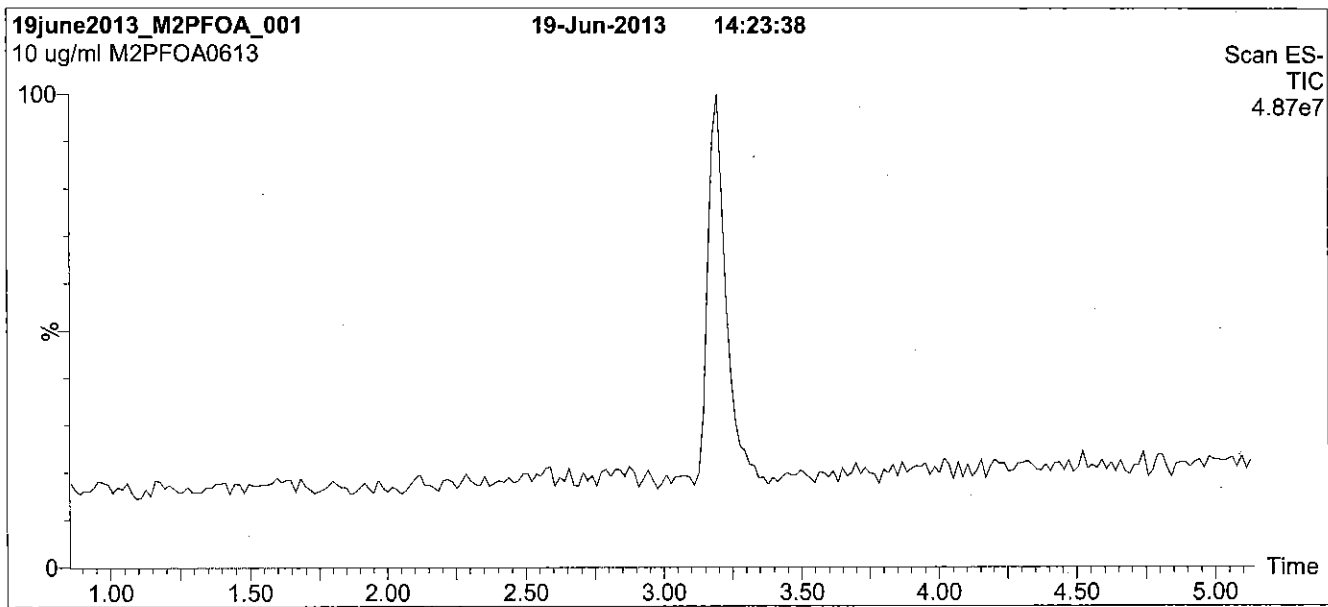
**QUALITY MANAGEMENT:**

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number 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 min and hold for 1.5 min  
 before returning to initial conditions in 0.5 min.  
 Time: 10 min

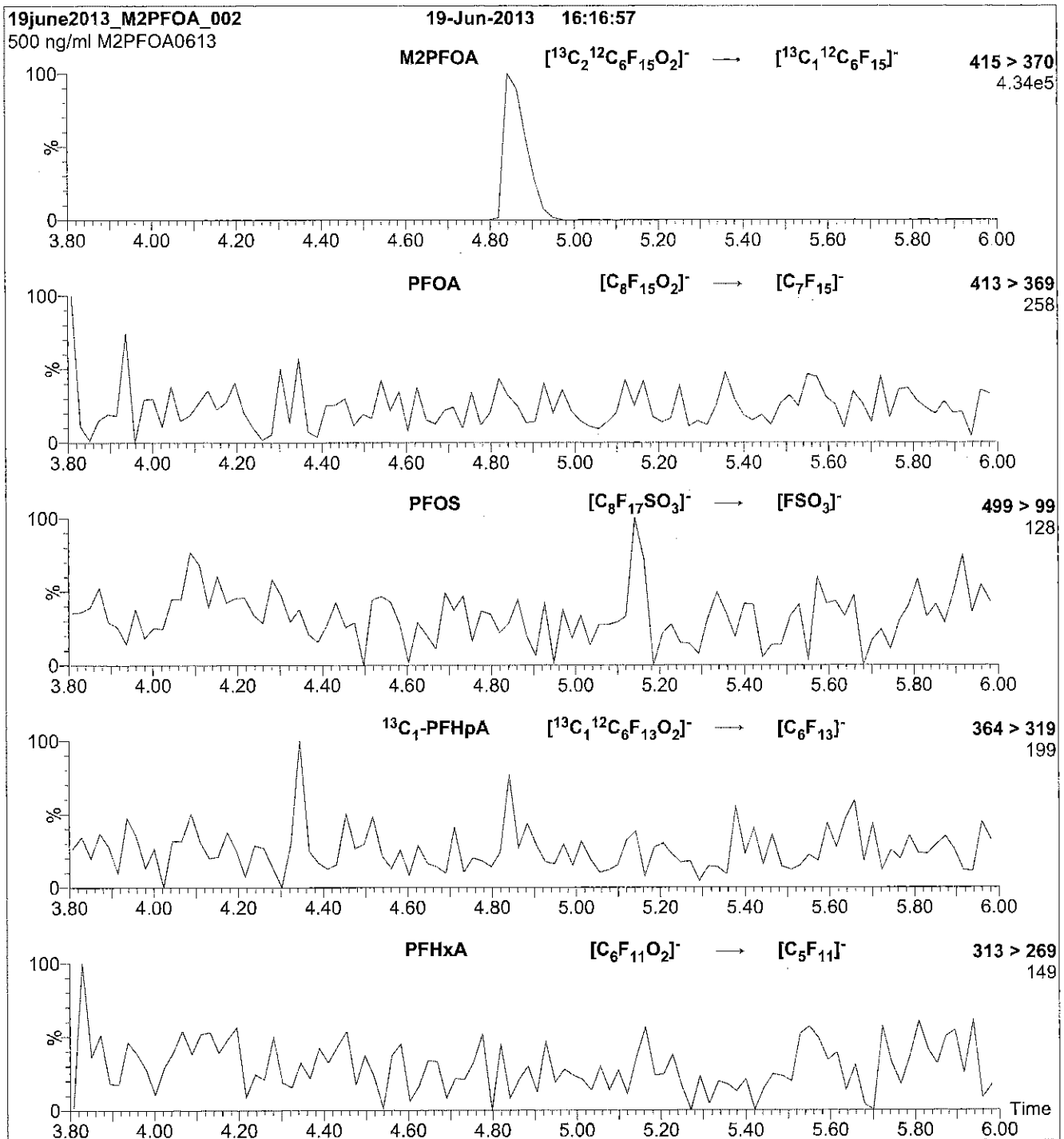
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)  
 Capillary Voltage (kV) = 2.00  
 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% (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) = 3.66e-3  
Collision Energy (eV) = 11



Reagent

---

**LCMPFDA\_00008**



605243

ID: LCMPFDA\_00008

Exp: 08/19/20 Pptd: CBW

13C2-Perfluorodecanoic acid

Rec. 3/29/16 JEB ✓



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:**

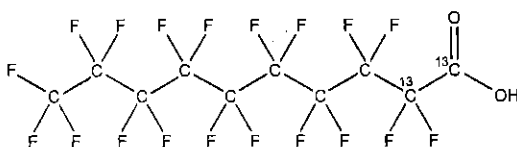
MPFDA

**LOT NUMBER:**

MPFDA0815

**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>**MOLECULAR WEIGHT:**

516.07

**CONCENTRATION:**

50 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol

Water (&lt;1%)

**CHEMICAL PURITY:**

&gt;98%

**ISOTOPIC PURITY:**≥99% <sup>13</sup>C**LAST TESTED:** (mm/dd/yyyy)

08/19/2015

(1,2-<sup>13</sup>C<sub>2</sub>)**EXPIRY DATE:** (mm/dd/yyyy)

08/19/2020

**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. Chittim

Date:

08/21/2015

(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:**

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### **HOMOGENEITY:**

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

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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.

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

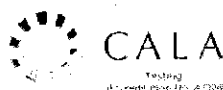
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

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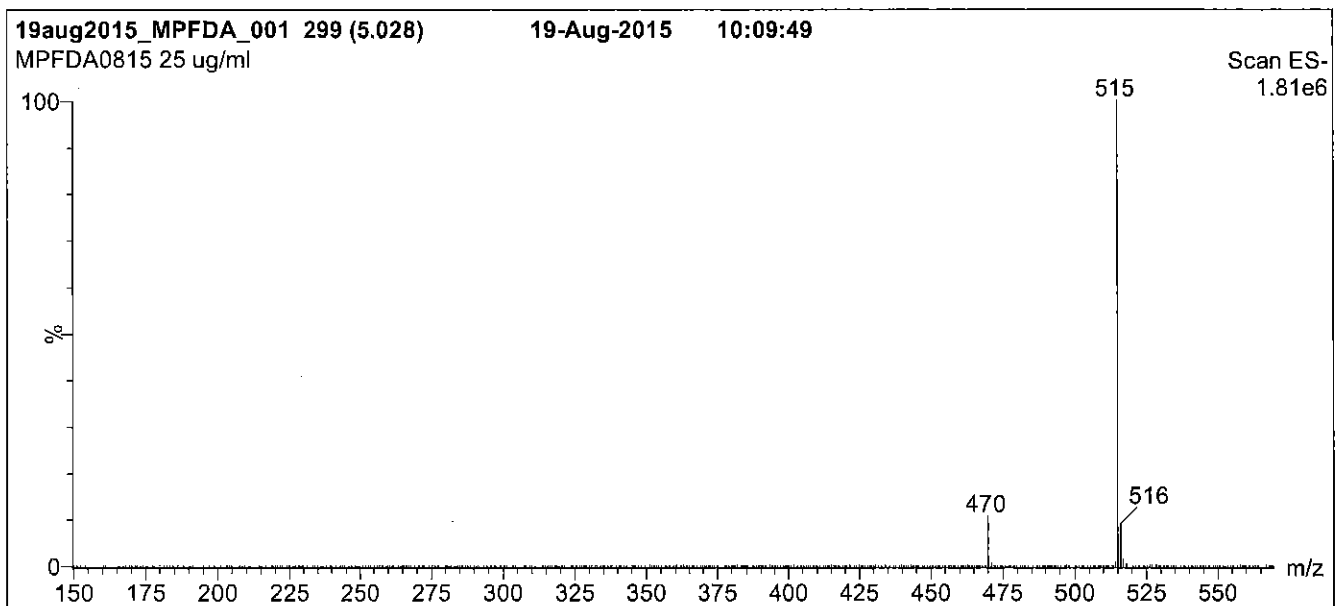
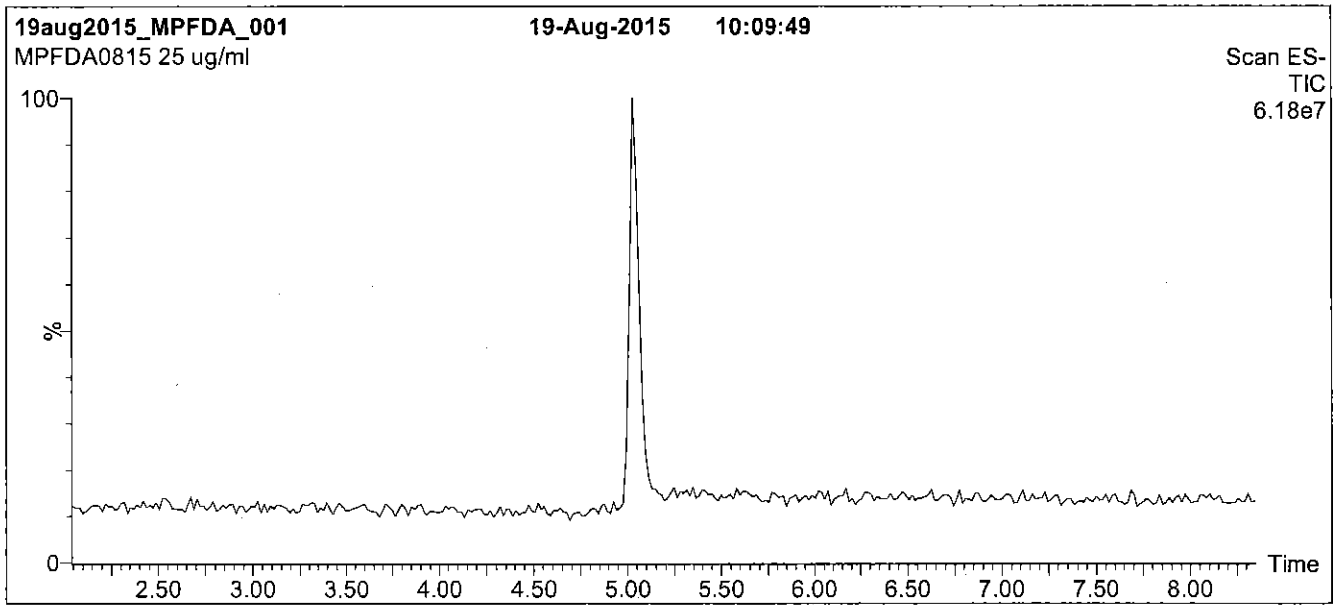
### **QUALITY MANAGEMENT:**

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: 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 2 min  
before returning to initial conditions in 0.5 min.  
Time: 10 min

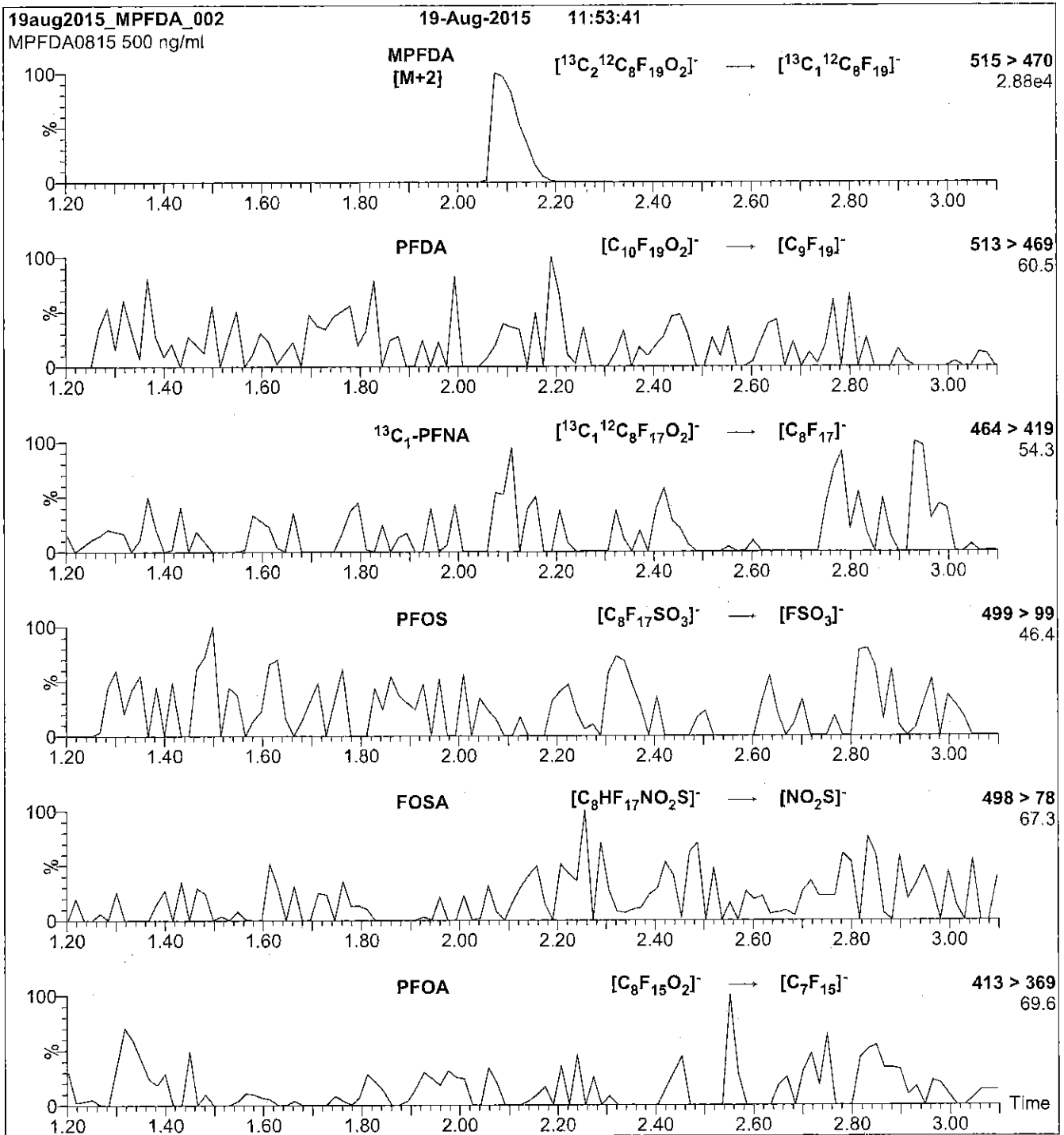
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 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) = 3.35e-3  
 Collision Energy (eV) = 13

Reagent

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**LCMPFHxA\_00009**



605244  
 ID: LCMPFHxA\_00009  
 Exp: 04/09/20 Prep: CBW  
<sup>13</sup>C<sub>2</sub>-Perfluorohexanoic ac

Rec. 3/29/16 JRB ✓



# WELLINGTON LABORATORIES

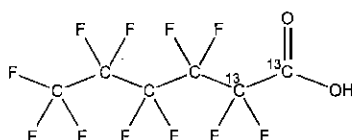
## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

**LOT NUMBER:** MPFHxA0415

**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) 04/09/2015

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

**EXPIRY DATE:** (mm/dd/yyyy) 04/09/2020

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

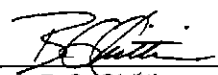
**DOCUMENTATION/ DATA ATTACHED:**

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: 04/14/2015  
 (mm/dd/yyyy)

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

### **INTENDED USE:**

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### **HAZARDS:**

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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:**

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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:

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

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

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

### **QUALITY MANAGEMENT:**

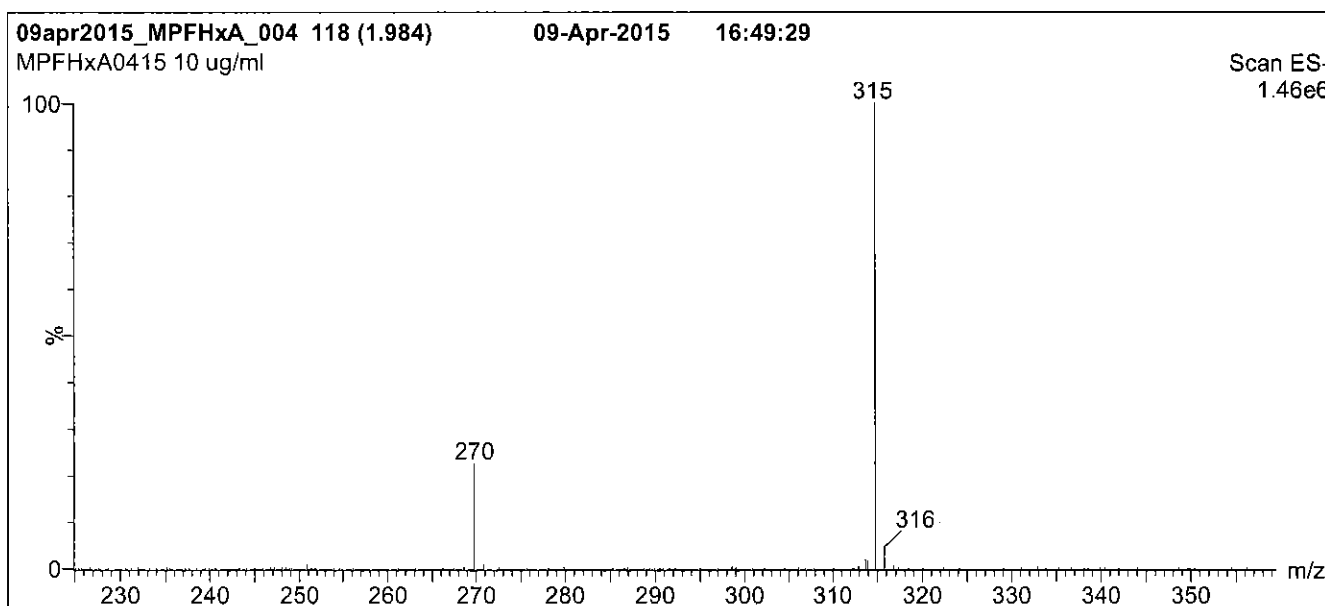
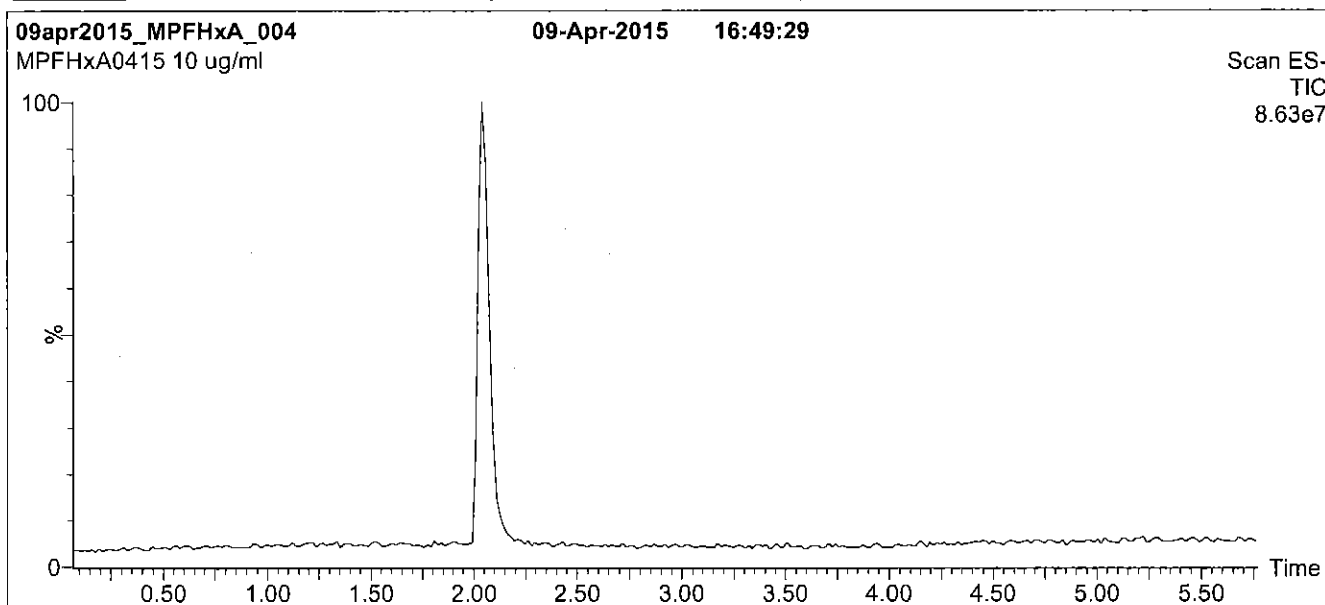
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 2 min  
before returning to initial conditions over 0.5 min.  
Time: 10 min

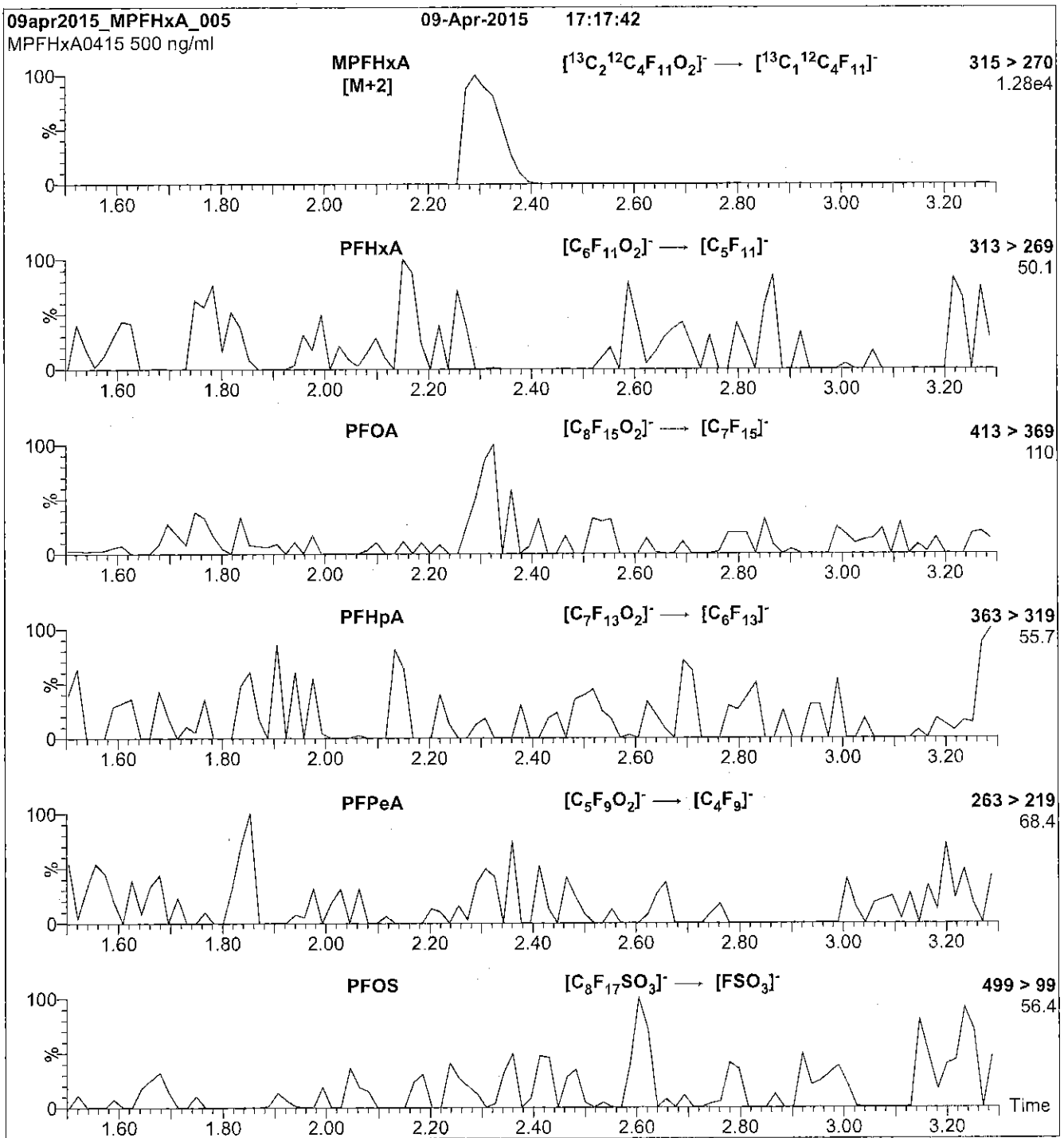
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (225 - 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) = 3.20e-3  
Collision Energy (eV) = 10

Reagent

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**LCMPFOS\_00018**

R: SBC 9/22/16



738686  
ID: LCMFOS\_00018  
Exp: 08/03/21 Prod: SBC  
13C4-Perfluorooctanesulfo

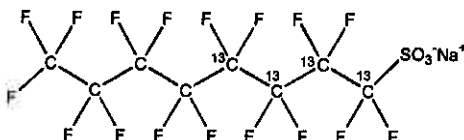


# WELLINGTON LABORATORIES

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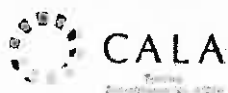
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At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

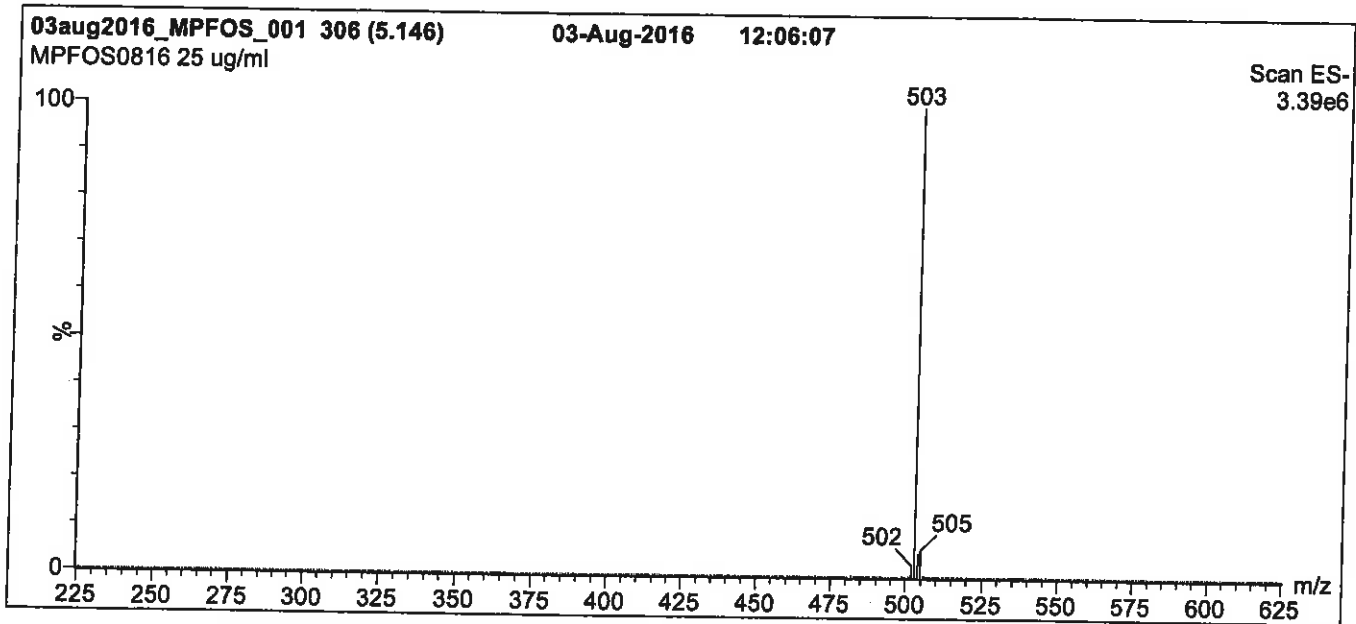
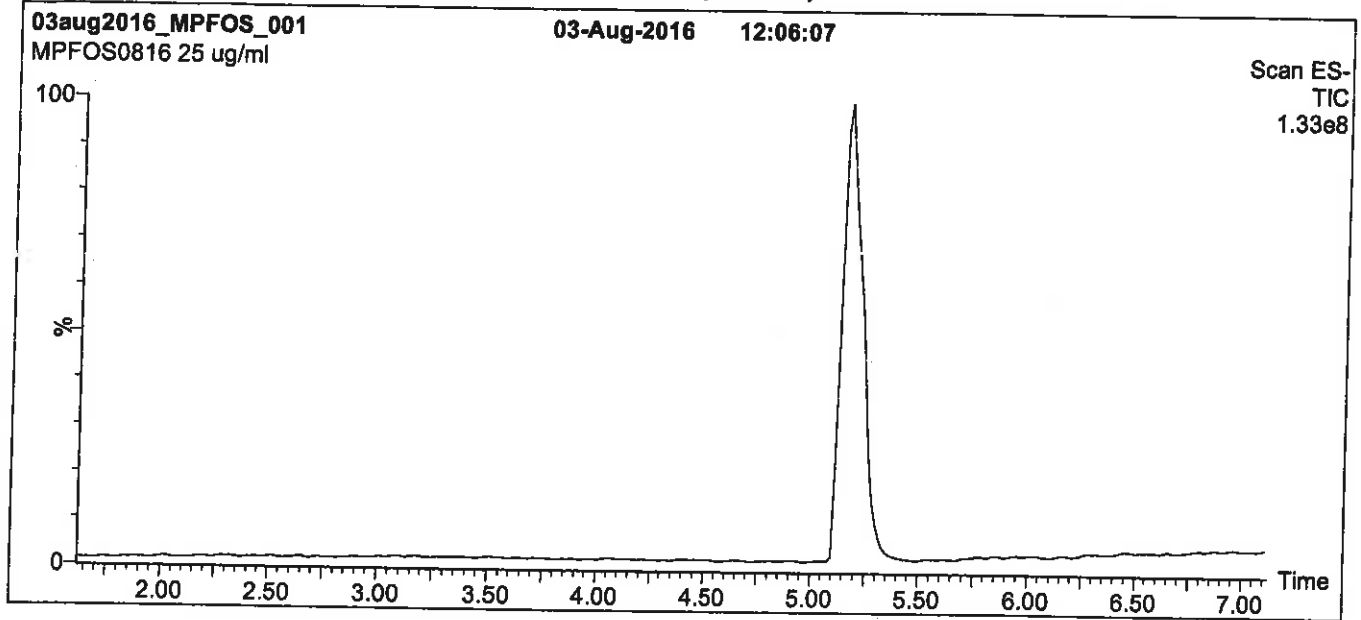
### **QUALITY MANAGEMENT:**

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: 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

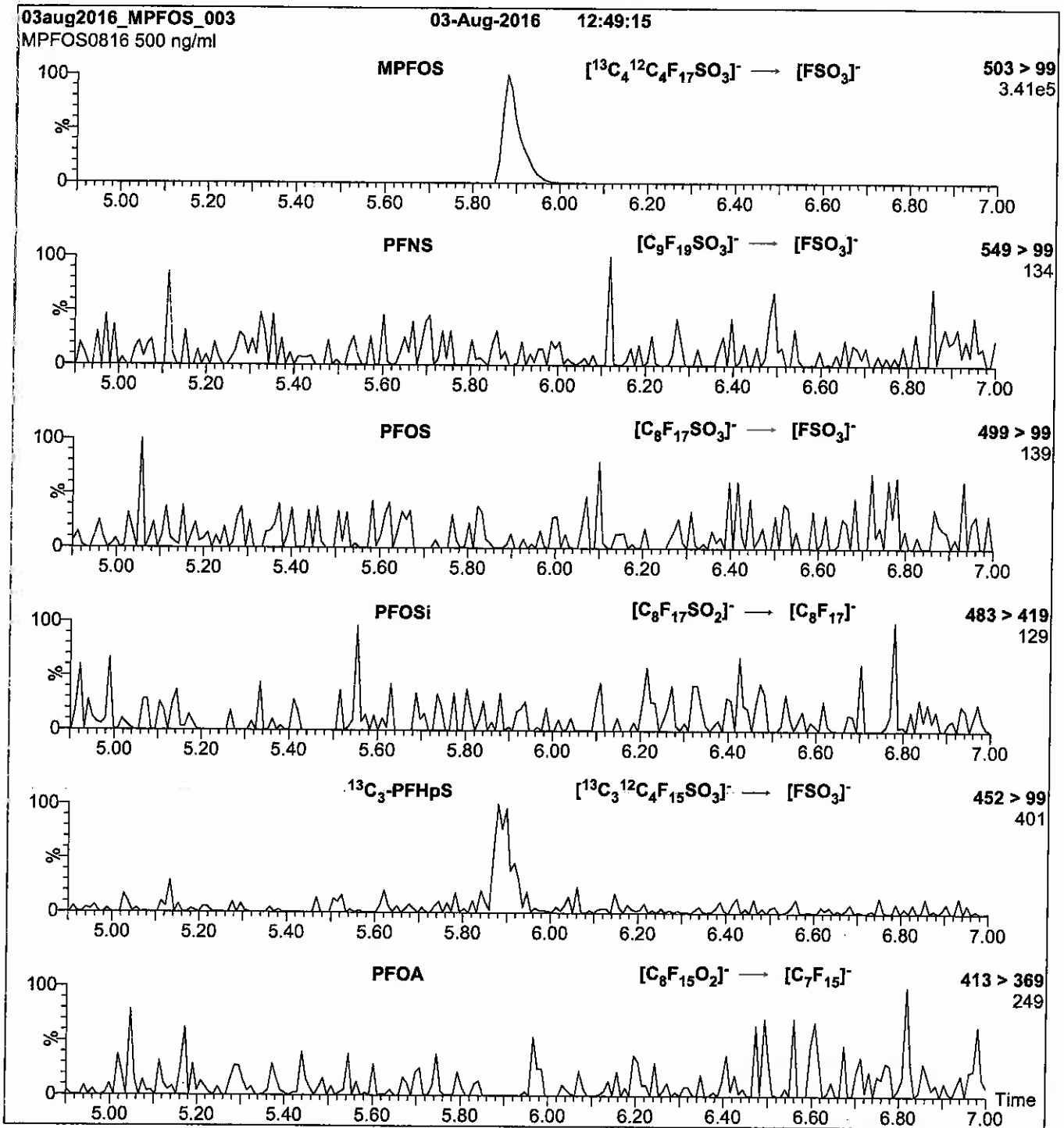
**Flow:** 300  $\mu$ l/min

**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

# 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.: 320-24536-1

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

Matrix: Water

Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WI-CV-1RW38-1216	320-24536-1	115	109
WI-CV-1FB38-1216	320-24536-2	112	102
WI-CV-1RW39-1216	320-24536-3	104	109
WI-CV-1FB39-1216	320-24536-4	113	106
WI-CV-1RW40-1216	320-24536-5	108	106
WI-CV-1RW40P-1216	320-24536-6	122	113
WI-CV-1FB40-1216	320-24536-7	116	113
WI-CV-1RW41-1216	320-24536-8	109	100
WI-CV-1FB41-1216	320-24536-9	113	108
WI-CV-1RW42-1216	320-24536-10	106	100
WI-CV-1FB42-1216	320-24536-11	111	103
WI-CV-1RW43-1216	320-24536-12	111	106
WI-CV-1FB43-1216	320-24536-13	110	104
	MB 320-143388/1-A	112	108
	LLCS 320-143388/2-A	111	104
	LLCSD 320-143388/3-A	112	109

PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA

QC LIMITS  
70-130  
70-130

# Column to be used to flag recovery values

FORM III  
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Matrix: Water Level: Low Lab File ID: 27DEC2016A6A\_038.d

Lab ID: LLCS 320-143388/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LLCS CONCENTRATION (ug/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0331 J	83	50-150	
Perfluorooctanoic acid (PFOA)	0.0198	0.0186 J	94	50-150	M
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0846 J	94	50-150	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Matrix: Water Level: Low Lab File ID: 27DEC2016A6A\_041.d

Lab ID: LLCSD 320-143388/3-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LLCSD CONCENTRATION (ug/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0338 J	84	2	50	50-150	
Perfluorooctanoic acid (PFOA)	0.0198	0.0185 J	93	0.4	50	50-150	M
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0715 J	80	17	50	50-150	

# Column to be used to flag recovery and RPD values

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 27DEC2016A6A\_037.d Lab Sample ID: MB 320-143388/1-A  
 Matrix: Water Date Extracted: 12/21/2016 14:39  
 Instrument ID: A6 Date Analyzed: 12/28/2016 10:47  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-143388/2-A	27DEC2016A6 A 038.d	12/28/2016 11:17
	LLCSD 320-143388/3-A	27DEC2016A6 A 041.d	12/28/2016 12:45
WI-CV-1RW38-1216	320-24536-1	27DEC2016A6 A 042.d	12/28/2016 13:15
WI-CV-1FB38-1216	320-24536-2	27DEC2016A6 A 043.d	12/28/2016 13:45
WI-CV-1RW39-1216	320-24536-3	27DEC2016A6 A 044.d	12/28/2016 14:14
WI-CV-1FB39-1216	320-24536-4	27DEC2016A6 A 045.d	12/28/2016 14:44
WI-CV-1RW40-1216	320-24536-5	27DEC2016A6 A 048.d	12/28/2016 16:30
WI-CV-1RW40P-1216	320-24536-6	27DEC2016A6 A 049.d	12/28/2016 17:00
WI-CV-1FB40-1216	320-24536-7	27DEC2016A6 A 050.d	12/28/2016 17:30
WI-CV-1RW41-1216	320-24536-8	27DEC2016A6 A 053.d	12/28/2016 18:58
WI-CV-1FB41-1216	320-24536-9	27DEC2016A6 A 054.d	12/28/2016 19:28
WI-CV-1RW42-1216	320-24536-10	27DEC2016A6 A 055.d	12/28/2016 19:58
WI-CV-1FB42-1216	320-24536-11	27DEC2016A6 A 056.d	12/28/2016 20:27
WI-CV-1RW43-1216	320-24536-12	27DEC2016A6 A 057.d	12/28/2016 20:57
WI-CV-1FB43-1216	320-24536-13	27DEC2016A6 A 058.d	12/28/2016 21:26

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A6 Calibration Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.1(mm) Calibration End Date: 12/24/2016 06:54  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	587721	20.01	1475089	20.62		
UPPER LIMIT	881582	20.51	2212634	21.12		
LOWER LIMIT	293861	19.51	737545	20.12		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCV 320-143828/11 CCVL	652887	20.01	1599599	20.62		
ICV 320-143828/13	590506	20.01	1587807	20.62		
CCV 320-144053/27 CCVIS	650671	19.99	1655589	20.61		
MB 320-143388/1-A	657130	20.00	1959405	20.61		
LLCS 320-143388/2-A	649963	20.00	1864303	20.61		
CCV 320-144053/39 CCVIS	653376	20.00	1507527	20.61		
CCV 320-144054/39 CCVIS	653376	20.00	1507527	20.61		
LLCSD 320-143388/3-A	625732	19.99	1895963	20.61		
320-24536-1	WI-CV-1RW38-1216	559890	20.00	1855899	20.61	
320-24536-2	WI-CV-1FB38-1216	620767	20.00	1845321	20.61	
320-24536-3	WI-CV-1RW39-1216	615516	20.00	2011644	20.62	
320-24536-4	WI-CV-1FB39-1216	651518	20.00	1958999	20.61	
320-24536-5	WI-CV-1RW40-1216	654188	20.00	2062426	20.61	
320-24536-6	WI-CV-1RW40P-1216	532364	20.00	1749145	20.61	
320-24536-7	WI-CV-1FB40-1216	647523	20.00	1991610	20.62	
CCV 320-144054/51 CCVIS	703428	20.00	1770020	20.61		
CCV 320-144055/51 CCVIS	703428	20.00	1770020	20.61		
320-24536-8	WI-CV-1RW41-1216	642230	20.00	1920632	20.61	
320-24536-9	WI-CV-1FB41-1216	704130	20.00	2030763	20.61	
320-24536-10	WI-CV-1RW42-1216	623161	20.00	1967962	20.61	
320-24536-11	WI-CV-1FB42-1216	676779	20.00	1949053	20.62	
320-24536-12	WI-CV-1RW43-1216	613063	19.99	1878569	20.61	
320-24536-13	WI-CV-1FB43-1216	696292	20.00	2105804	20.61	
CCV 320-144055/62 CCVIS	663824	20.00	1557586	20.61		

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.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144053/27 Date Analyzed: 12/28/2016 05:51  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_027.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	650671	19.99	1655589	20.61		
UPPER LIMIT	910939	20.49	2317825	21.11		
LOWER LIMIT	455470	19.49	1158912	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-143388/1-A	657130	20.00	1959405	20.61		
LLCS 320-143388/2-A	649963	20.00	1864303	20.61		

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

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

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144053/39 Date Analyzed: 12/28/2016 11:46  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_039.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	653376	20.00	1507527	20.61		
UPPER LIMIT	914726	20.50	2110538	21.11		
LOWER LIMIT	457363	19.50	1055269	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-143388/1-A	657130	20.00	1959405	20.61		
LLCS 320-143388/2-A	649963	20.00	1864303	20.61		

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

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

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144054/39 Date Analyzed: 12/28/2016 11:46  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_039.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	653376	20.00	1507527	20.61		
UPPER LIMIT	914726	20.50	2110538	21.11		
LOWER LIMIT	457363	19.50	1055269	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCSD 320-143388/3-A		625732	19.99	1895963	20.61	
320-24536-1	WI-CV-1RW38-1216	559890	20.00	1855899	20.61	
320-24536-2	WI-CV-1FB38-1216	620767	20.00	1845321	20.61	
320-24536-3	WI-CV-1RW39-1216	615516	20.00	2011644	20.62	
320-24536-4	WI-CV-1FB39-1216	651518	20.00	1958999	20.61	
320-24536-5	WI-CV-1RW40-1216	654188	20.00	2062426	20.61	
320-24536-6	WI-CV-1RW40P-1216	532364	20.00	1749145	20.61	
320-24536-7	WI-CV-1FB40-1216	647523	20.00	1991610	20.62	

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

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

# Column used to flag values outside QC limits



FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144054/51 Date Analyzed: 12/28/2016 17:59  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_051.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	703428	20.00	1770020	20.61		
UPPER LIMIT	984799	20.50	2478028	21.11		
LOWER LIMIT	492400	19.50	1239014	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCSD 320-143388/3-A		625732	19.99	1895963	20.61	
320-24536-1	WI-CV-1RW38-1216	559890	20.00	1855899	20.61	
320-24536-2	WI-CV-1FB38-1216	620767	20.00	1845321	20.61	
320-24536-3	WI-CV-1RW39-1216	615516	20.00	2011644	20.62	
320-24536-4	WI-CV-1FB39-1216	651518	20.00	1958999	20.61	
320-24536-5	WI-CV-1RW40-1216	654188	20.00	2062426	20.61	
320-24536-6	WI-CV-1RW40P-1216	532364	20.00	1749145	20.61	
320-24536-7	WI-CV-1FB40-1216	647523	20.00	1991610	20.62	

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

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

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144055/51 Date Analyzed: 12/28/2016 17:59  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_051.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	703428	20.00	1770020	20.61		
UPPER LIMIT	984799	20.50	2478028	21.11		
LOWER LIMIT	492400	19.50	1239014	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24536-8	WI-CV-1RW41-1216	642230	20.00	1920632	20.61	
320-24536-9	WI-CV-1FB41-1216	704130	20.00	2030763	20.61	
320-24536-10	WI-CV-1RW42-1216	623161	20.00	1967962	20.61	
320-24536-11	WI-CV-1FB42-1216	676779	20.00	1949053	20.62	
320-24536-12	WI-CV-1RW43-1216	613063	19.99	1878569	20.61	
320-24536-13	WI-CV-1FB43-1216	696292	20.00	2105804	20.61	

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

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

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-144055/62 Date Analyzed: 12/28/2016 23:25  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 27DEC2016A6A\_062.d Heated Purge: (Y/N) N  
 Calibration ID: 27291

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	663824	20.00	1557586	20.61		
UPPER LIMIT	929354	20.50	2180620	21.11		
LOWER LIMIT	464677	19.50	1090310	20.11		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24536-8	WI-CV-1RW41-1216	642230	20.00	1920632	20.61	
320-24536-9	WI-CV-1FB41-1216	704130	20.00	2030763	20.61	
320-24536-10	WI-CV-1RW42-1216	623161	20.00	1967962	20.61	
320-24536-11	WI-CV-1FB42-1216	676779	20.00	1949053	20.62	
320-24536-12	WI-CV-1RW43-1216	613063	19.99	1878569	20.61	
320-24536-13	WI-CV-1FB43-1216	696292	20.00	2105804	20.61	

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

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

# Column used to flag values outside QC limits

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW38-1216 Lab Sample ID: 320-24536-1  
 Matrix: Water Lab File ID: 27DEC2016A6A\_042.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:13  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 263.7(mL) Date Analyzed: 12/28/2016 13:15  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	115		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_042.d  
 Lims ID: 320-24536-A-1-A  
 Client ID: WI-CV-1RW38-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 13:15:33 ALS Bottle#: 43 Worklist Smp#: 42  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 16:48:48 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:51:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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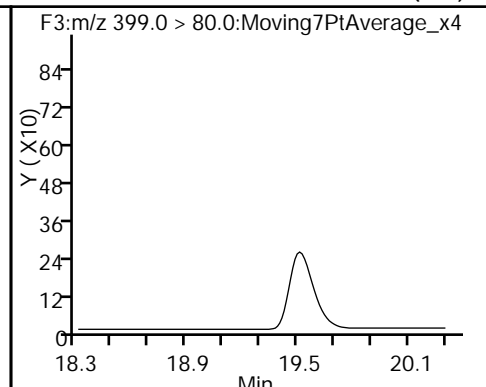
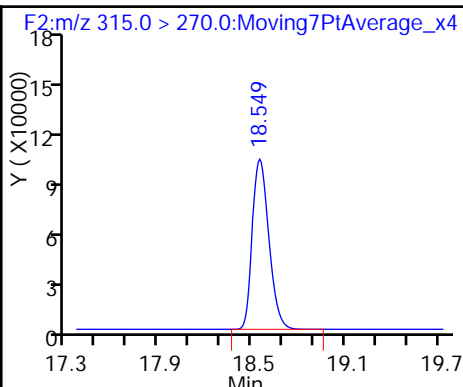
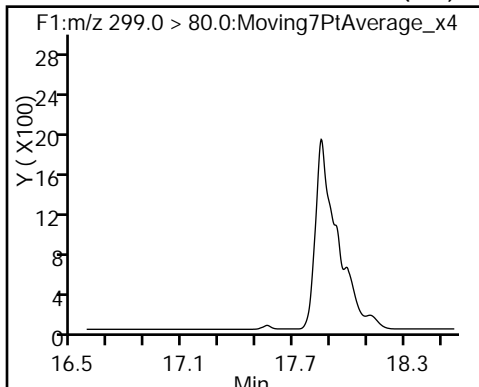
\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.548	0.001	1.000	765710	11.5	25557
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		559890	10.0	14355
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1855899	28.7	48206
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	617149	10.9	19445

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_042.d  
Injection Date: 28-Dec-2016 13:15:33 Instrument ID: A6  
Lims ID: 320-24536-A-1-A Lab Sample ID: 320-24536-1  
Client ID: WI-CV-1RW38-1216  
Operator ID: CBW ALS Bottle#: 43 Worklist Smp#: 42  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

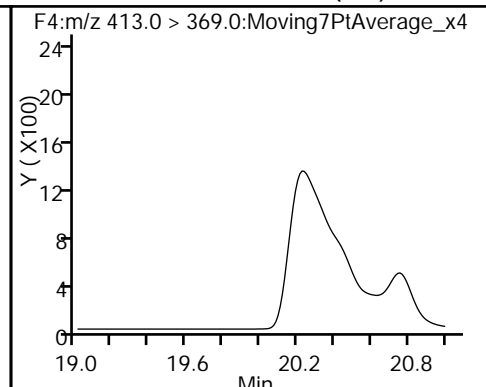
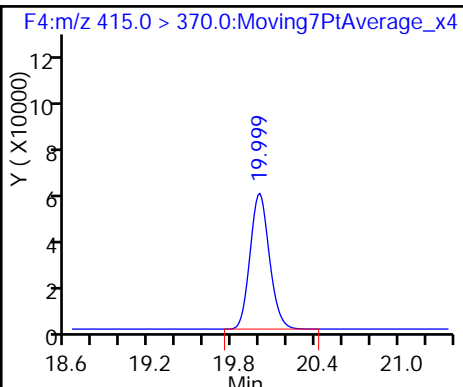
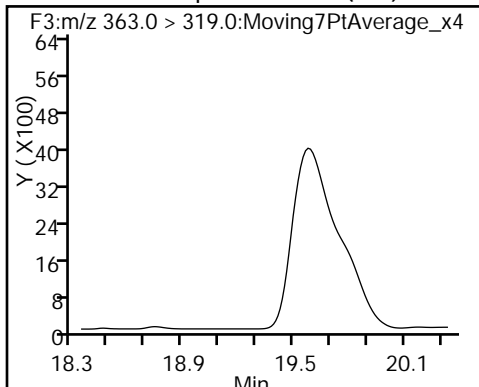
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

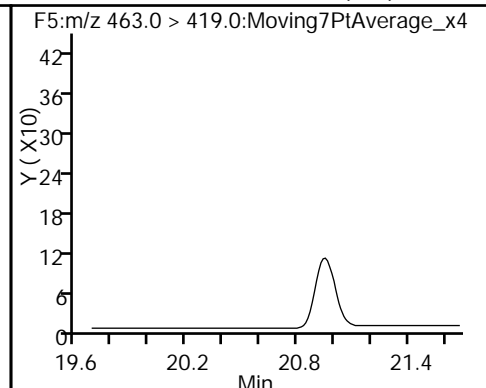
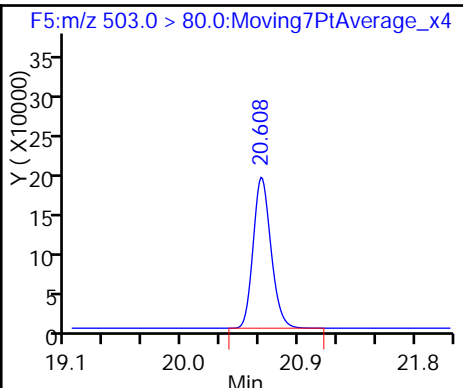
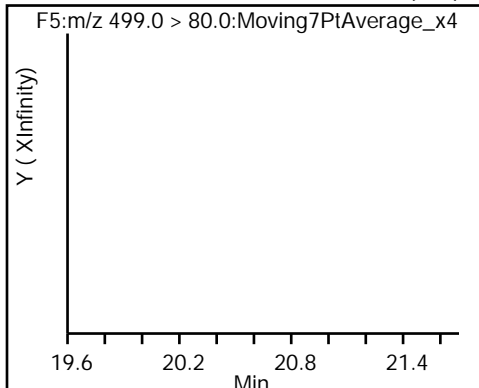
6 Perfluorooctanoic acid (ND)



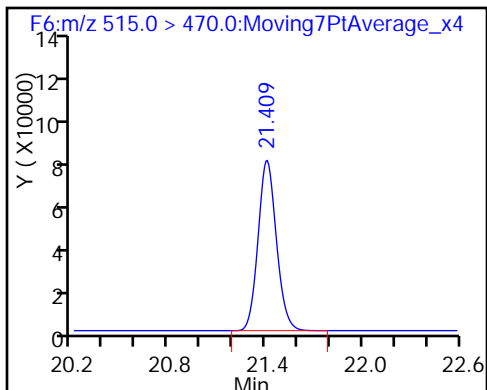
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_042.d  
 Lims ID: 320-24536-A-1-A  
 Client ID: WI-CV-1RW38-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 13:15:33 ALS Bottle#: 43 Worklist Smp#: 42  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 16:48:48 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:51:16

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.5	114.62
\$ 10 13C2 PFDA	10.0	10.9	109.32

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB38-1216 Lab Sample ID: 320-24536-2  
 Matrix: Water Lab File ID: 27DEC2016A6A\_043.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:14  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 276.7(mL) Date Analyzed: 12/28/2016 13:45  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	102		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_043.d  
 Lims ID: 320-24536-A-2-A  
 Client ID: WI-CV-1FB38-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 13:45:09 ALS Bottle#: 44 Worklist Smp#: 43  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:21:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.548	0.001	1.000	827537	11.2	27244
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		620767	10.0	15922
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1845321	28.7	48106
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.620	20.608	0.012	1.000	70979	1.00	1649 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	636356	10.2	20020

QC Flag Legend

Review Flags

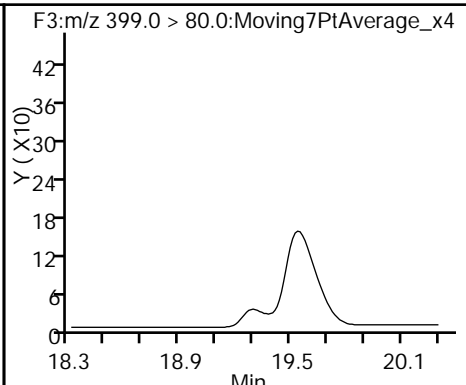
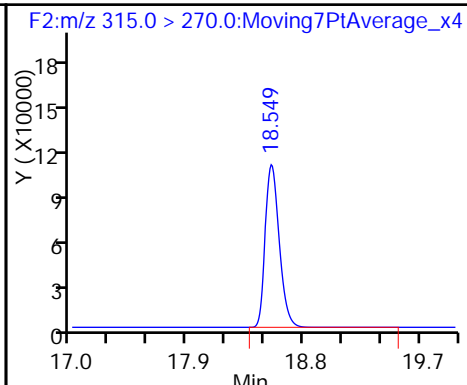
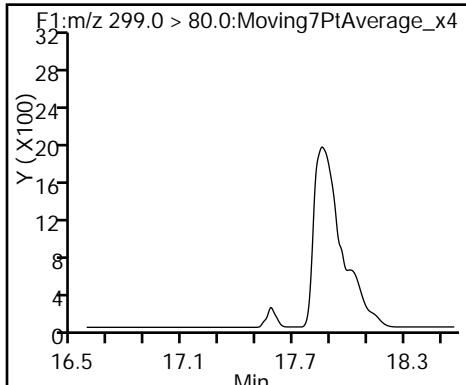
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_043.d  
Injection Date: 28-Dec-2016 13:45:09 Instrument ID: A6  
Lims ID: 320-24536-A-2-A Lab Sample ID: 320-24536-2  
Client ID: WI-CV-1FB38-1216  
Operator ID: CBW ALS Bottle#: 44 Worklist Smp#: 43  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

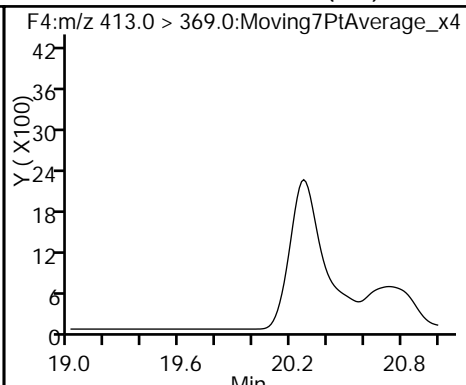
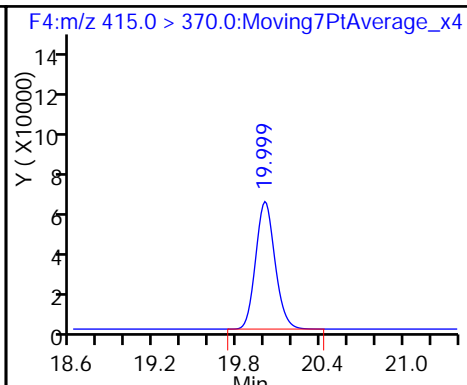
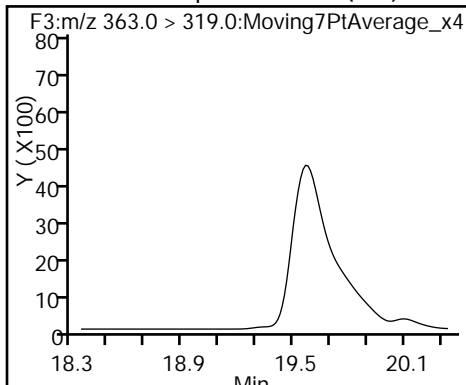
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

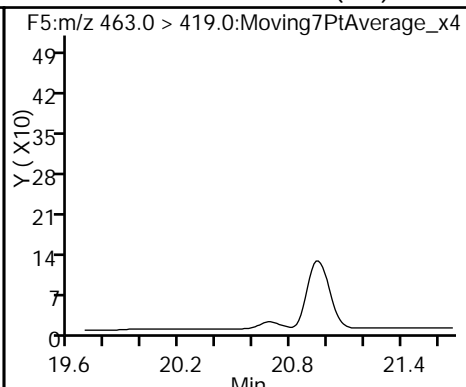
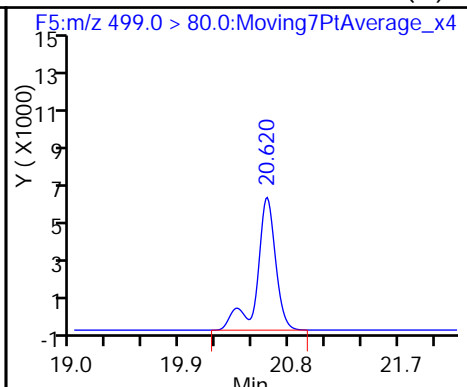
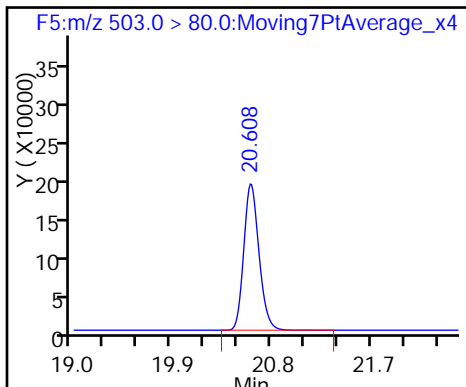
6 Perfluorooctanoic acid (ND)



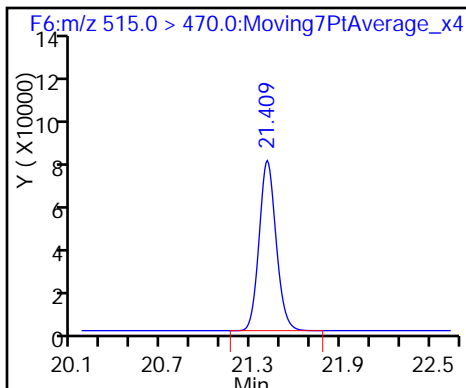
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_043.d  
 Lims ID: 320-24536-A-2-A  
 Client ID: WI-CV-1FB38-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 13:45:09 ALS Bottle#: 44 Worklist Smp#: 43  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:21:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	111.73
\$ 10 13C2 PFDA	10.0	10.2	101.67

TestAmerica Sacramento

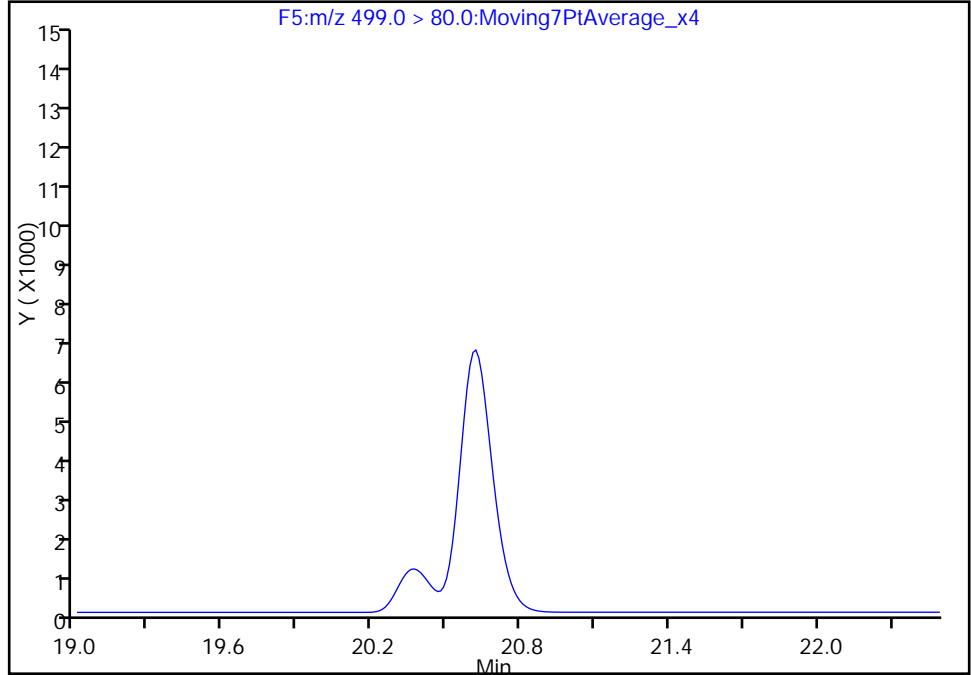
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_043.d  
Injection Date: 28-Dec-2016 13:45:09 Instrument ID: A6  
Lims ID: 320-24536-A-2-A Lab Sample ID: 320-24536-2  
Client ID: WI-CV-1FB38-1216  
Operator ID: CBW ALS Bottle#: 44 Worklist Smp#: 43  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

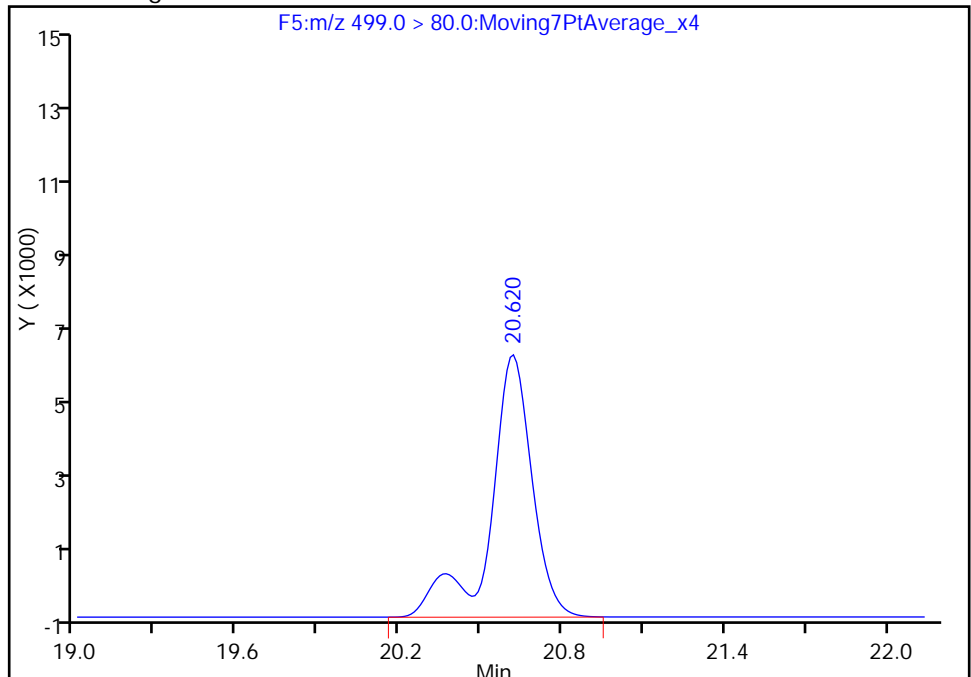
Not Detected  
Expected RT: 20.61

Processing Integration Results



RT: 20.62  
Area: 70979  
Amount: 1.003232  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 29-Dec-2016 10:21:26  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW39-1216 Lab Sample ID: 320-24536-3  
 Matrix: Water Lab File ID: 27DEC2016A6A\_044.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:52  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 280.7(mL) Date Analyzed: 12/28/2016 14:14  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U M	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_044.d  
 Lims ID: 320-24536-A-3-A  
 Client ID: WI-CV-1RW39-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 14:14:45 ALS Bottle#: 45 Worklist Smp#: 44  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:22:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.599	17.576	0.023	1.000	3105	0.0584	3.6	
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.548	0.010	1.000	766400	10.4	25258	
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		615516	10.0	15826	
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.608	0.011		2011644	28.7	26207	
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.608	0.011	1.000	8245	0.1069	228	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	677884	10.9	21405	

QC Flag Legend

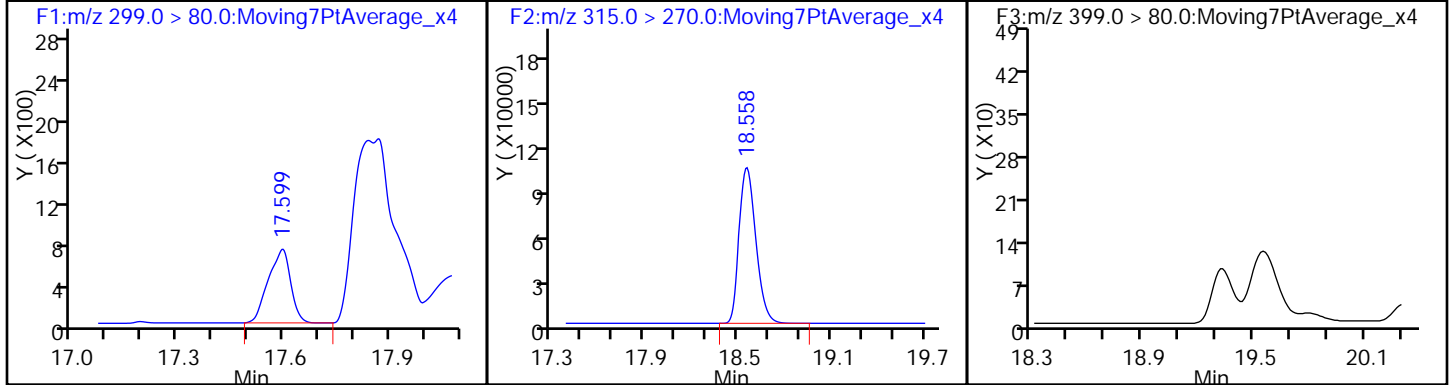
Review Flags

M - Manually Integrated

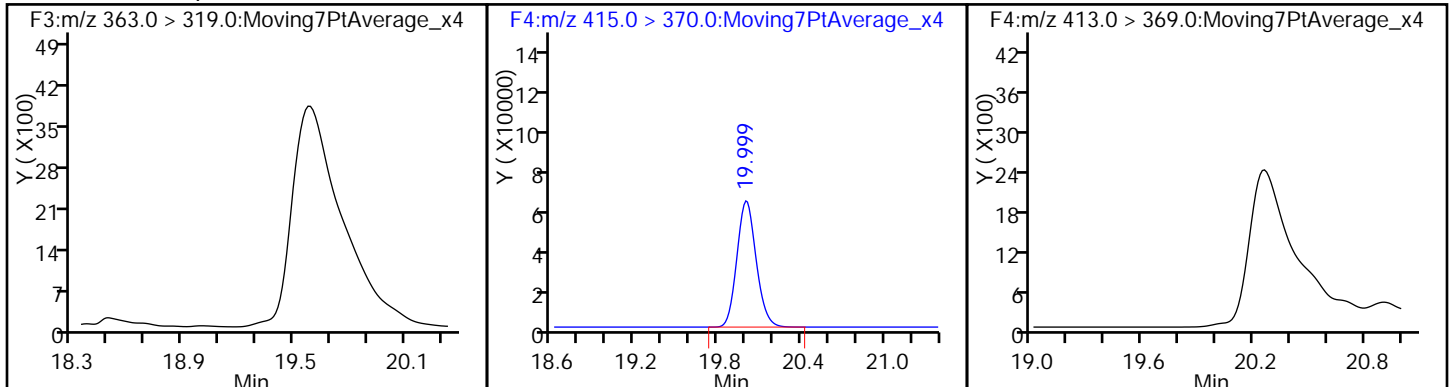
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_044.d  
Injection Date: 28-Dec-2016 14:14:45 Instrument ID: A6  
Lims ID: 320-24536-A-3-A Lab Sample ID: 320-24536-3  
Client ID: WI-CV-1RW39-1216  
Operator ID: CBW ALS Bottle#: 45 Worklist Smp#: 44  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

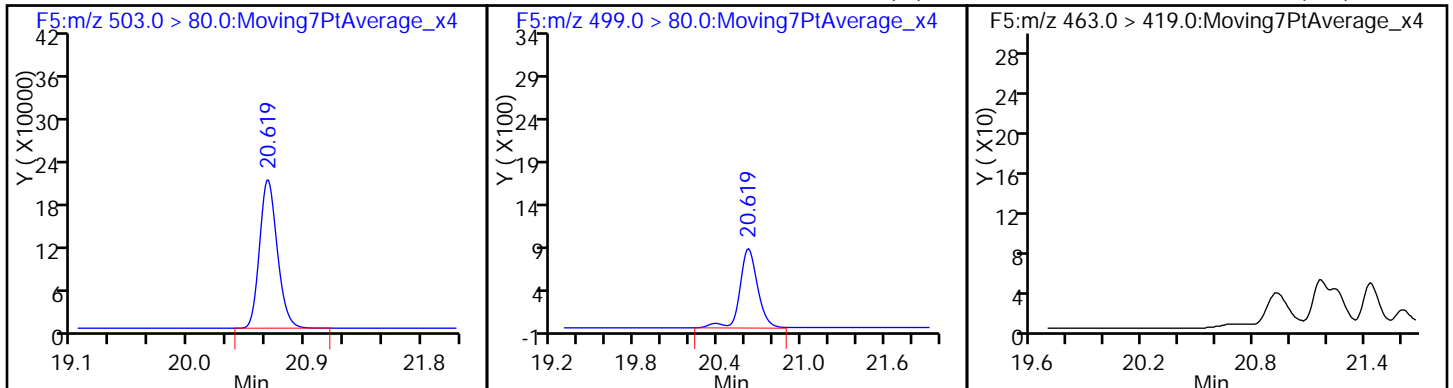
1 Perfluorobutanesulfonic acid \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



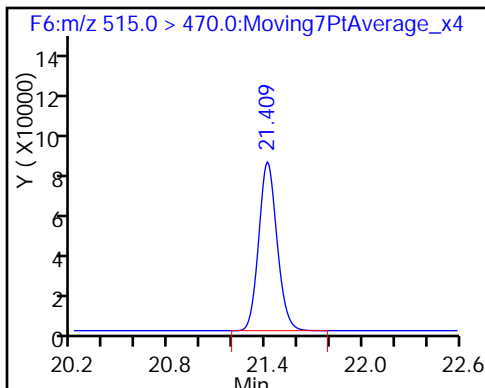
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_044.d  
 Lims ID: 320-24536-A-3-A  
 Client ID: WI-CV-1RW39-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 14:14:45 ALS Bottle#: 45 Worklist Smp#: 44  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:22:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	104.36
\$ 10 13C2 PFDA	10.0	10.9	109.23



TestAmerica Sacramento

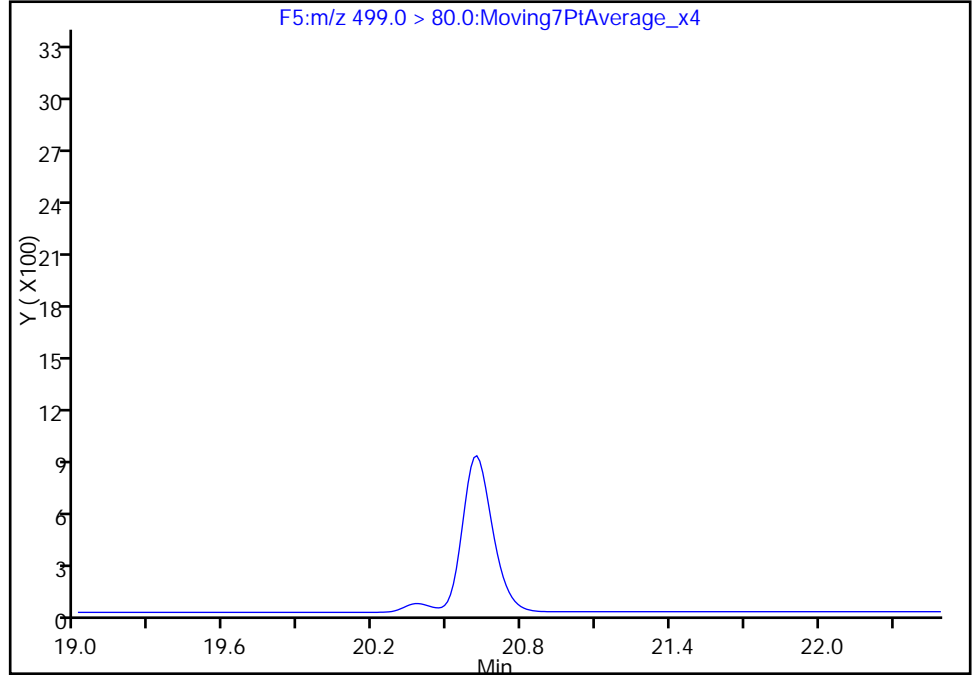
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_044.d  
Injection Date: 28-Dec-2016 14:14:45 Instrument ID: A6  
Lims ID: 320-24536-A-3-A Lab Sample ID: 320-24536-3  
Client ID: WI-CV-1RW39-1216  
Operator ID: CBW ALS Bottle#: 45 Worklist Smp#: 44  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

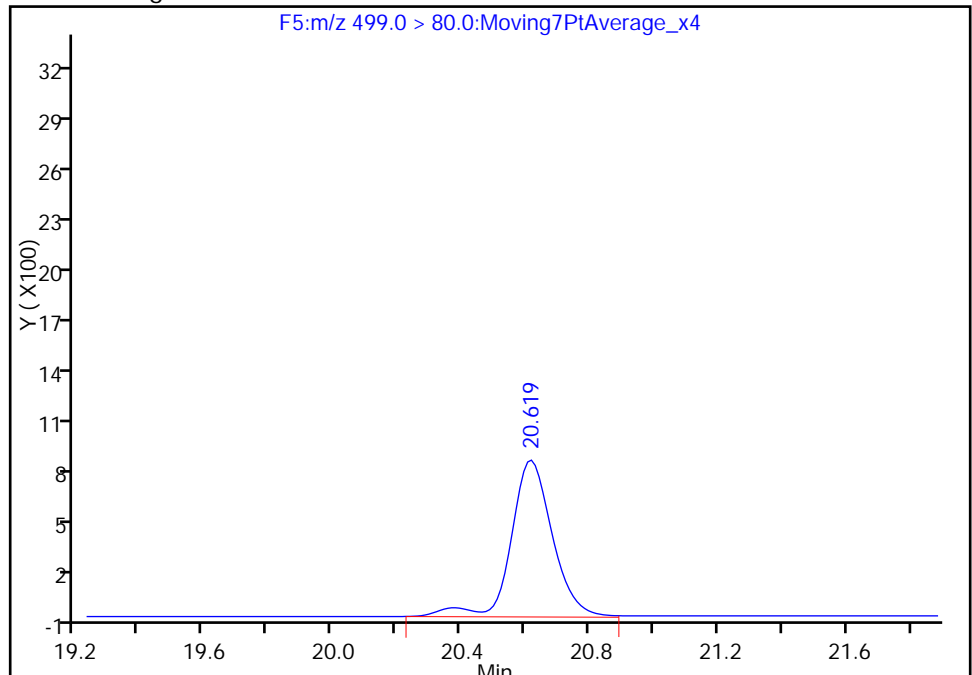
Not Detected  
Expected RT: 20.61

Processing Integration Results



Manual Integration Results

RT: 20.62  
Area: 8245  
Amount: 0.106901  
Amount Units: ng/ml



Reviewer: barnettj, 29-Dec-2016 10:22:02  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB39-1216 Lab Sample ID: 320-24536-4  
 Matrix: Water Lab File ID: 27DEC2016A6A\_045.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:53  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 275.3(mL) Date Analyzed: 12/28/2016 14:44  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U M	0.054	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0086
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_045.d  
 Lims ID: 320-24536-A-4-A  
 Client ID: WI-CV-1FB39-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 14:44:22 ALS Bottle#: 46 Worklist Smp#: 45  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:22:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.539	18.548	-0.009	1.000	876115	11.3	28717
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		651518	10.0	16573
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1958999	28.7	34203
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	46737	0.6223	1057 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	699454	10.6	22071

QC Flag Legend

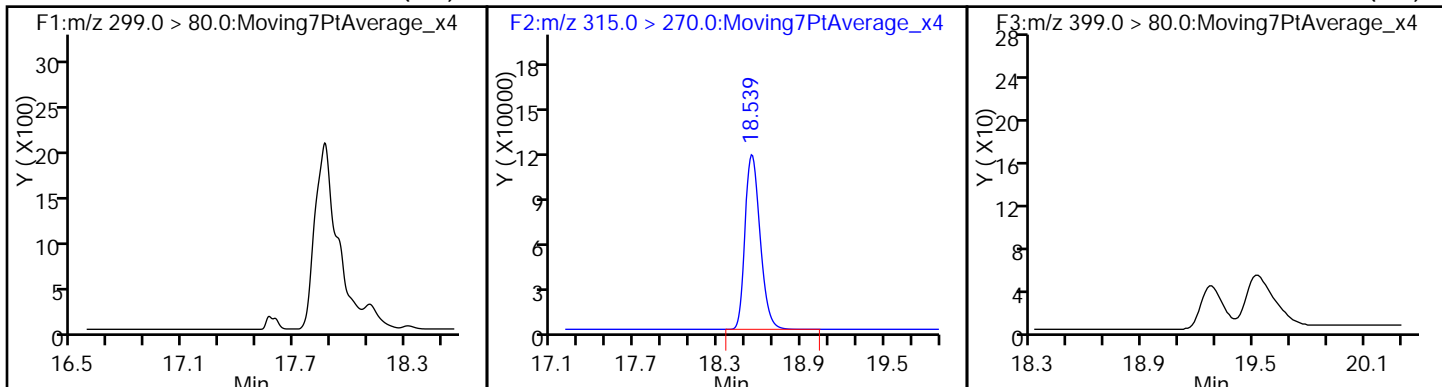
Review Flags

M - Manually Integrated

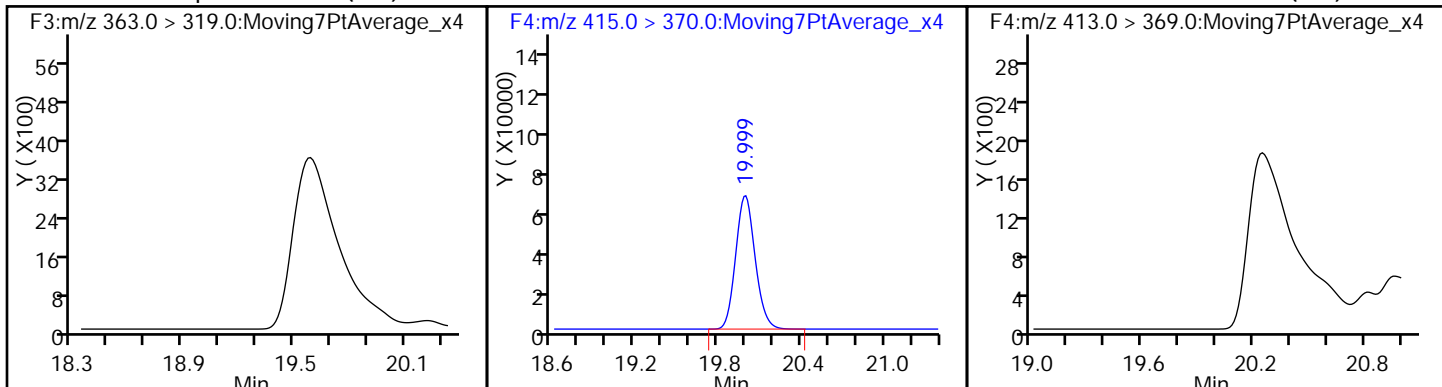
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_045.d  
Injection Date: 28-Dec-2016 14:44:22 Instrument ID: A6  
Lims ID: 320-24536-A-4-A Lab Sample ID: 320-24536-4  
Client ID: WI-CV-1FB39-1216  
Operator ID: CBW ALS Bottle#: 46 Worklist Smp#: 45  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

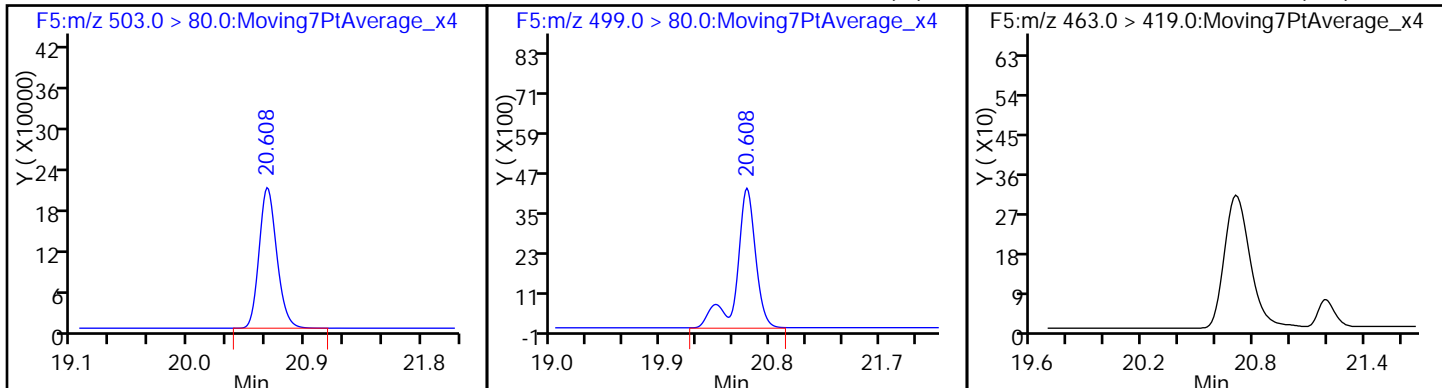
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



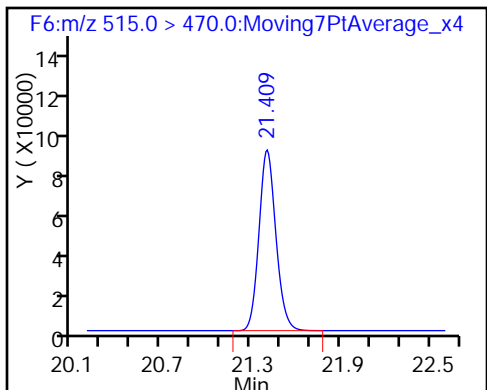
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_045.d  
 Lims ID: 320-24536-A-4-A  
 Client ID: WI-CV-1FB39-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 14:44:22 ALS Bottle#: 46 Worklist Smp#: 45  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:22:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	112.71
\$ 10 13C2 PFDA	10.0	10.6	106.48

TestAmerica Sacramento

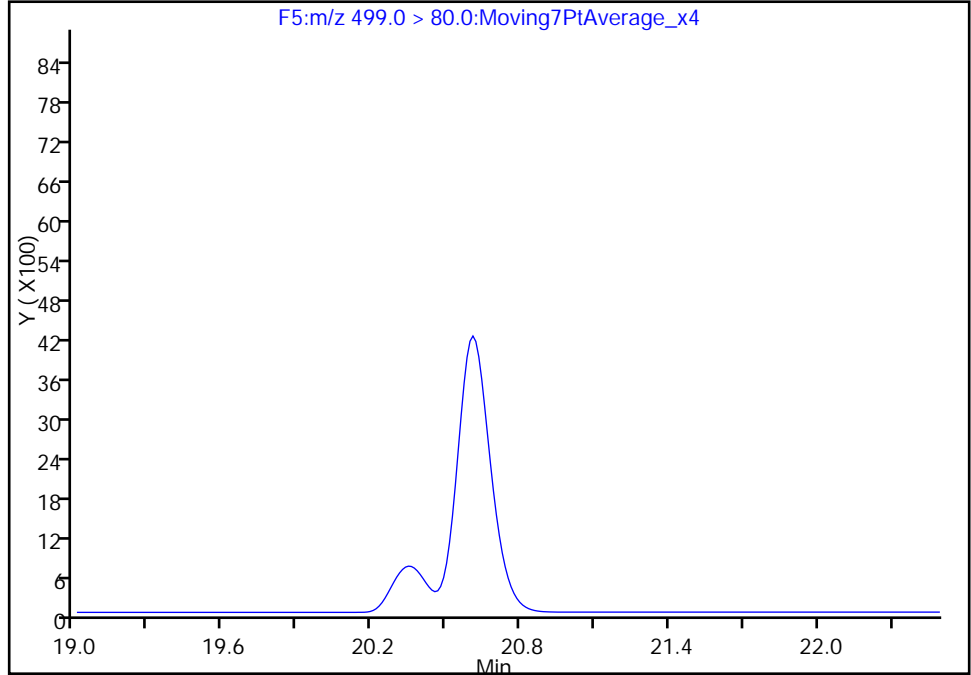
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_045.d  
Injection Date: 28-Dec-2016 14:44:22 Instrument ID: A6  
Lims ID: 320-24536-A-4-A Lab Sample ID: 320-24536-4  
Client ID: WI-CV-1FB39-1216  
Operator ID: CBW ALS Bottle#: 46 Worklist Smp#: 45  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

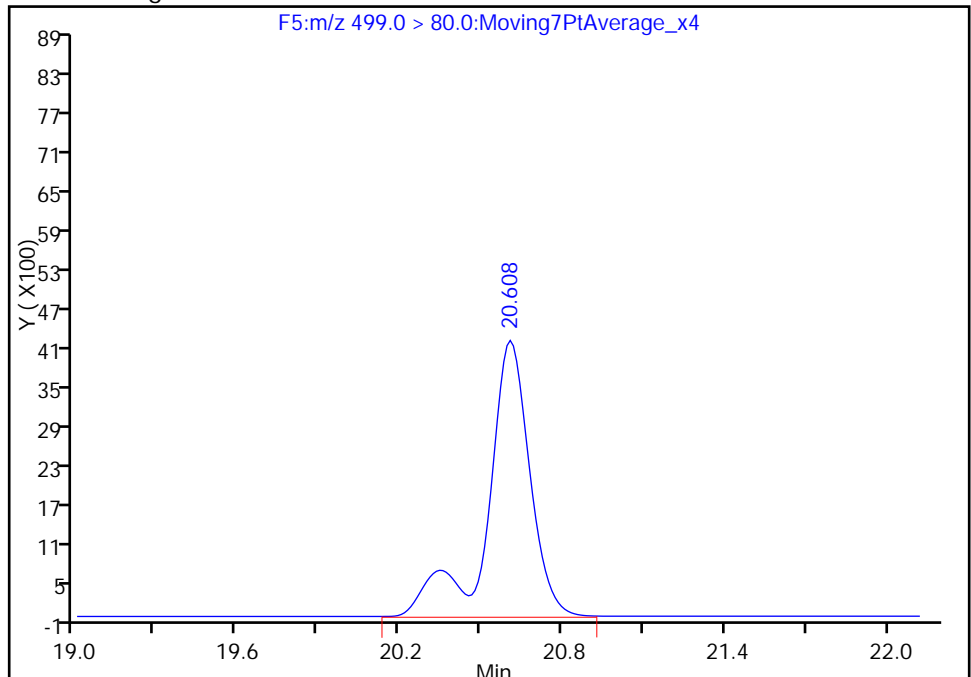
Not Detected  
Expected RT: 20.61

Processing Integration Results



Manual Integration Results

RT: 20.61  
Area: 46737  
Amount: 0.622257  
Amount Units: ng/ml



Reviewer: barnettj, 29-Dec-2016 10:22:40  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW40-1216 Lab Sample ID: 320-24536-5  
 Matrix: Water Lab File ID: 27DEC2016A6A\_048.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:20  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 267.4 (mL) Date Analyzed: 12/28/2016 16:30  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_048.d  
 Lims ID: 320-24536-A-5-A  
 Client ID: WI-CV-1RW40-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 16:30:55 ALS Bottle#: 47 Worklist Smp#: 48  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:23:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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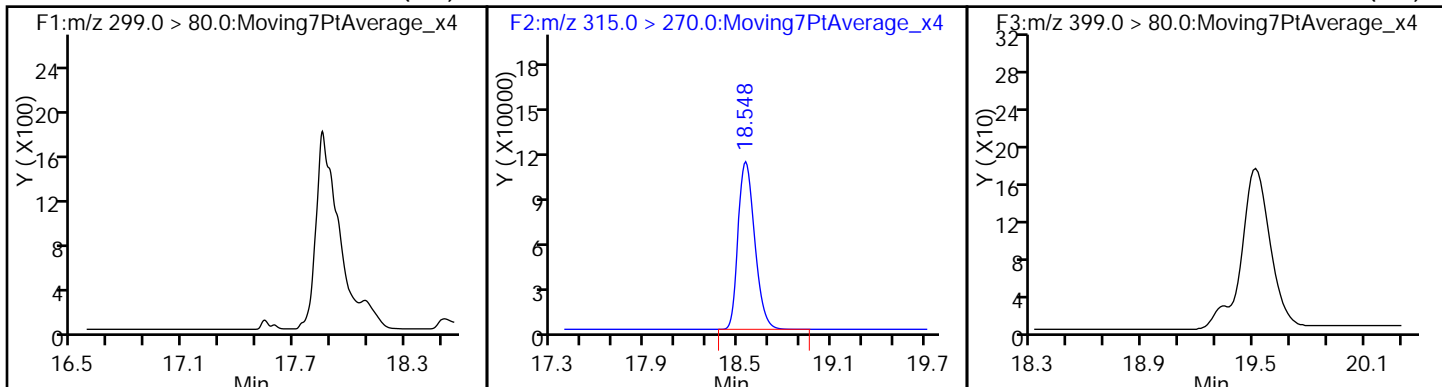
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	839388	10.8	28001
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		654188	10.0	16721
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		2062426	28.7	53854
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	701061	10.6	22063



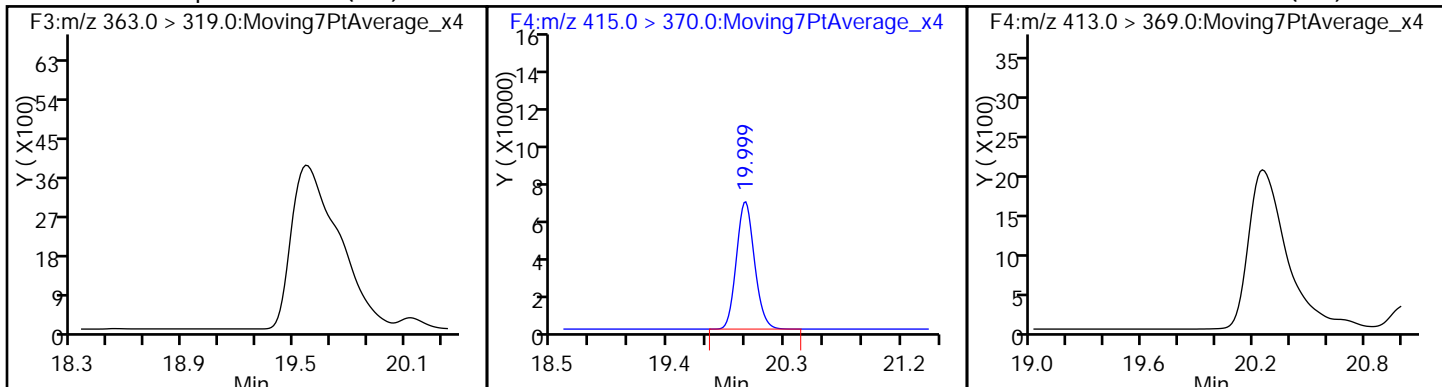
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_048.d  
Injection Date: 28-Dec-2016 16:30:55 Instrument ID: A6  
Lims ID: 320-24536-A-5-A Lab Sample ID: 320-24536-5  
Client ID: WI-CV-1RW40-1216  
Operator ID: CBW ALS Bottle#: 47 Worklist Smp#: 48  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

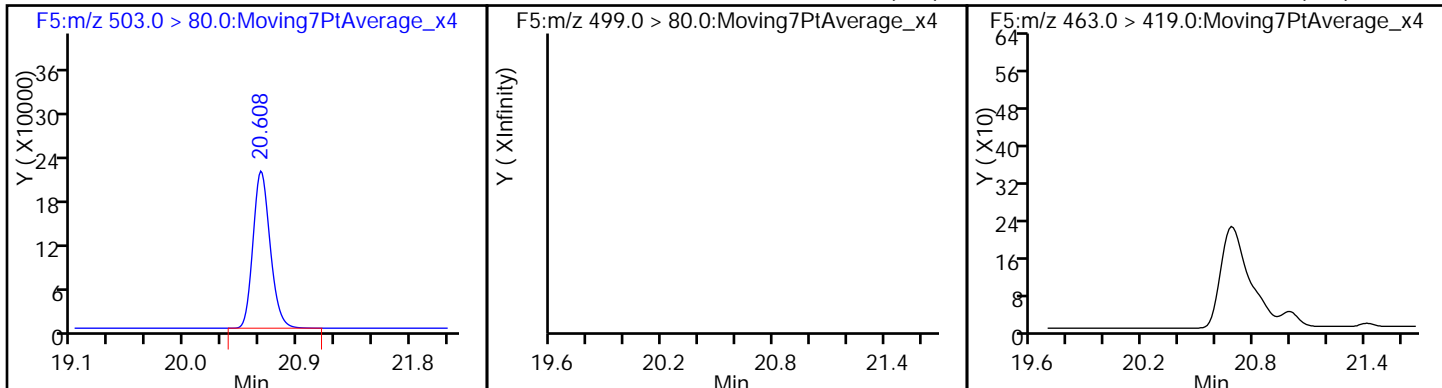
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



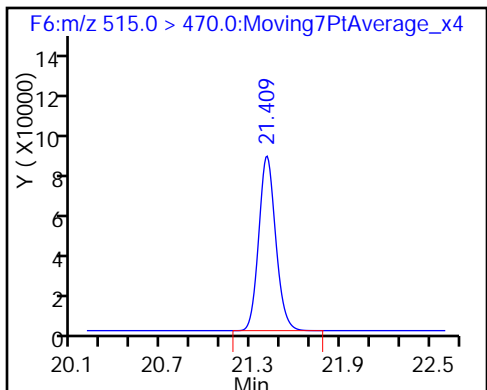
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_048.d  
 Lims ID: 320-24536-A-5-A  
 Client ID: WI-CV-1RW40-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 16:30:55 ALS Bottle#: 47 Worklist Smp#: 48  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:23:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.8	107.54
\$ 10 13C2 PFDA	10.0	10.6	106.28

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW40P-1216 Lab Sample ID: 320-24536-6  
 Matrix: Water Lab File ID: 27DEC2016A6A\_049.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:25  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 262.3(mL) Date Analyzed: 12/28/2016 17:00  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.023	0.0090
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	122		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_049.d  
 Lims ID: 320-24536-A-6-A  
 Client ID: WI-CV-1RW40P-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 17:00:32 ALS Bottle#: 48 Worklist Smp#: 49  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.548	0.001	1.000	773034	12.2	25369
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		532364	10.0	13430
6 Perfluorooctanoic acid								M
413.0 > 369.0	19.999	19.999	0.0	1.000	374	0.006985	0.2	M
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1749145	28.7	30343
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.608	20.608	0.0	1.000	9020	0.1345	192	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	607097	11.3	15200

QC Flag Legend

Review Flags

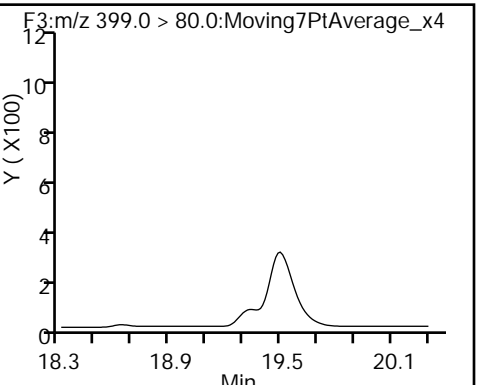
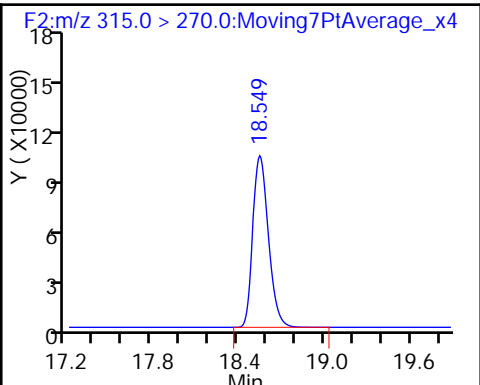
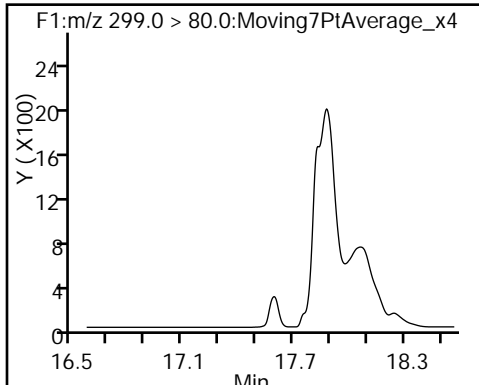
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_049.d  
Injection Date: 28-Dec-2016 17:00:32 Instrument ID: A6  
Lims ID: 320-24536-A-6-A Lab Sample ID: 320-24536-6  
Client ID: WI-CV-1RW40P-1216  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 49  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

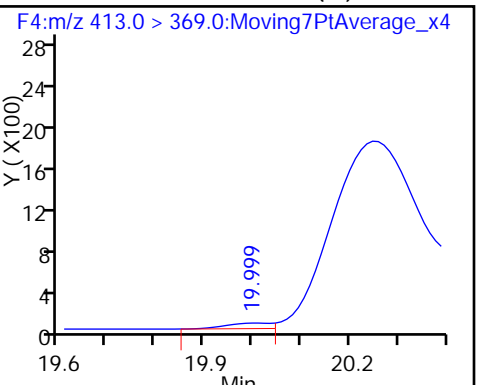
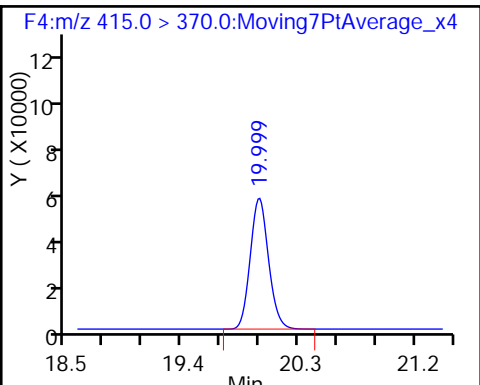
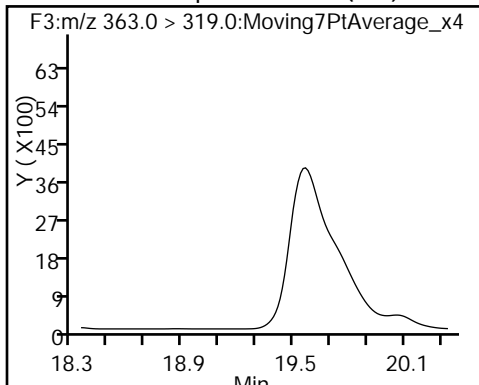
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

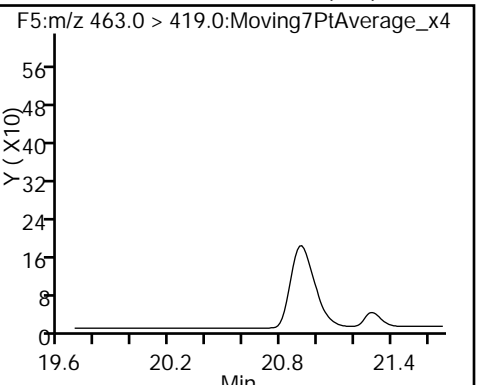
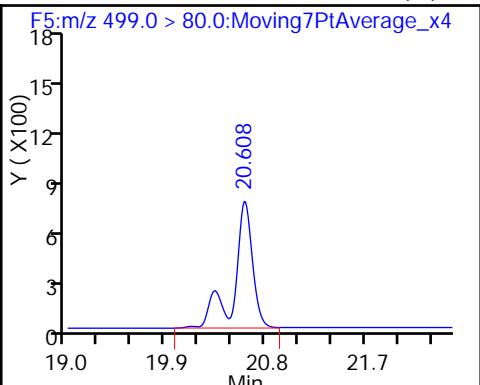
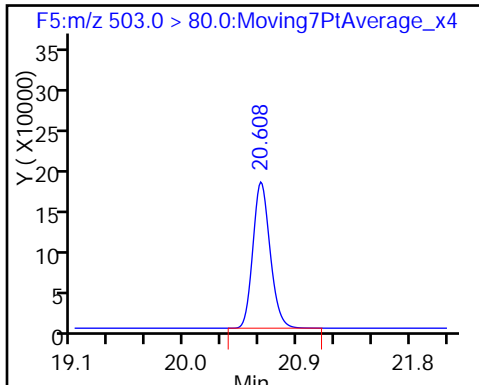
6 Perfluorooctanoic acid (M)



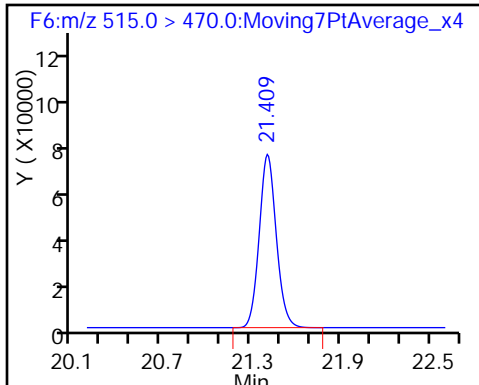
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_049.d  
 Lims ID: 320-24536-A-6-A  
 Client ID: WI-CV-1RW40P-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 17:00:32 ALS Bottle#: 48 Worklist Smp#: 49  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	12.2	121.70
\$ 10 13C2 PFDA	10.0	11.3	113.10

TestAmerica Sacramento

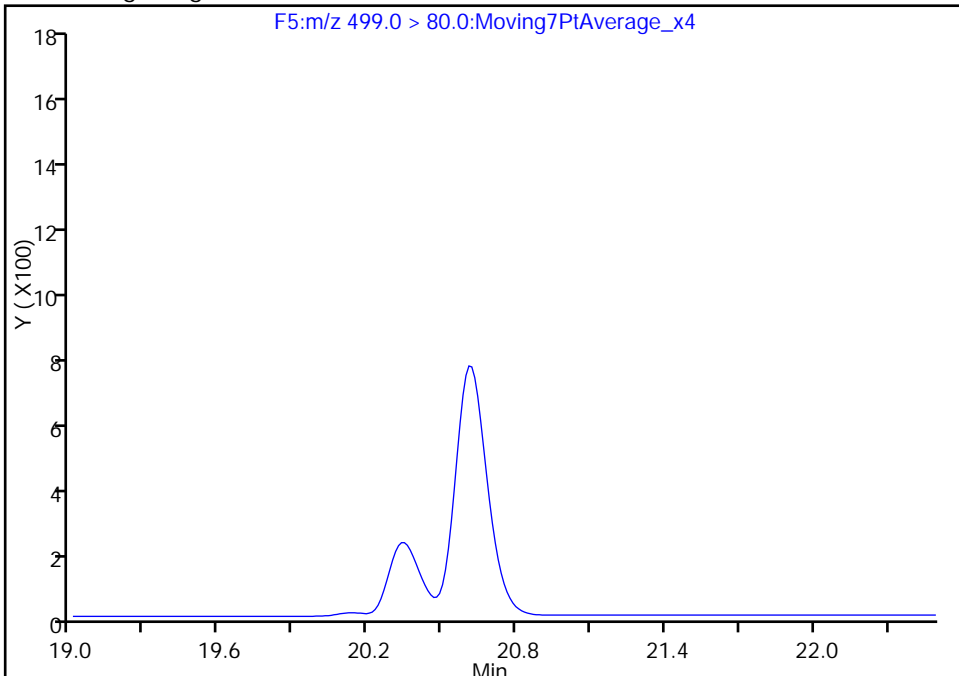
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_049.d  
Injection Date: 28-Dec-2016 17:00:32 Instrument ID: A6  
Lims ID: 320-24536-A-6-A Lab Sample ID: 320-24536-6  
Client ID: WI-CV-1RW40P-1216  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 49  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

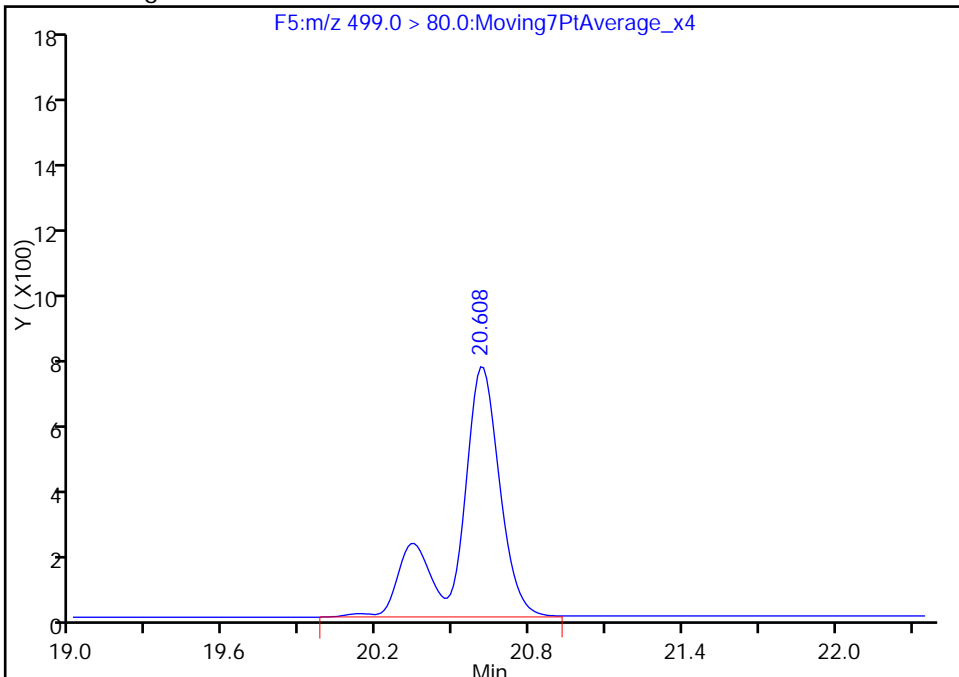
Not Detected  
Expected RT: 20.61

Processing Integration Results



Manual Integration Results

RT: 20.61  
Area: 9020  
Amount: 0.134501  
Amount Units: ng/ml



Reviewer: barnettj, 29-Dec-2016 10:24:07  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

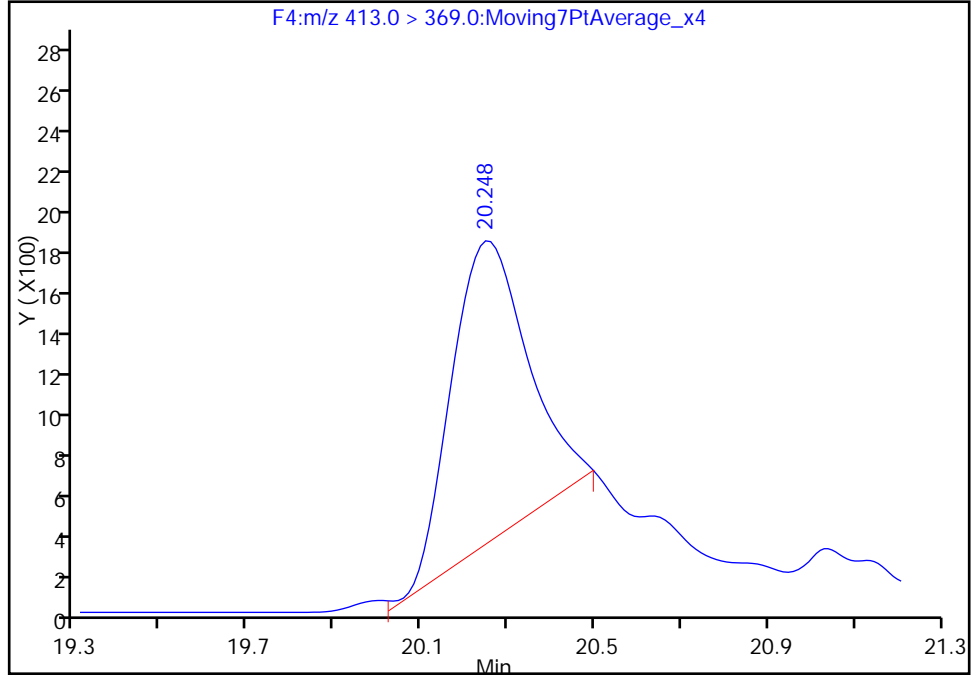
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_049.d  
Injection Date: 28-Dec-2016 17:00:32 Instrument ID: A6  
Lims ID: 320-24536-A-6-A Lab Sample ID: 320-24536-6  
Client ID: WI-CV-1RW40P-1216  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 49  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

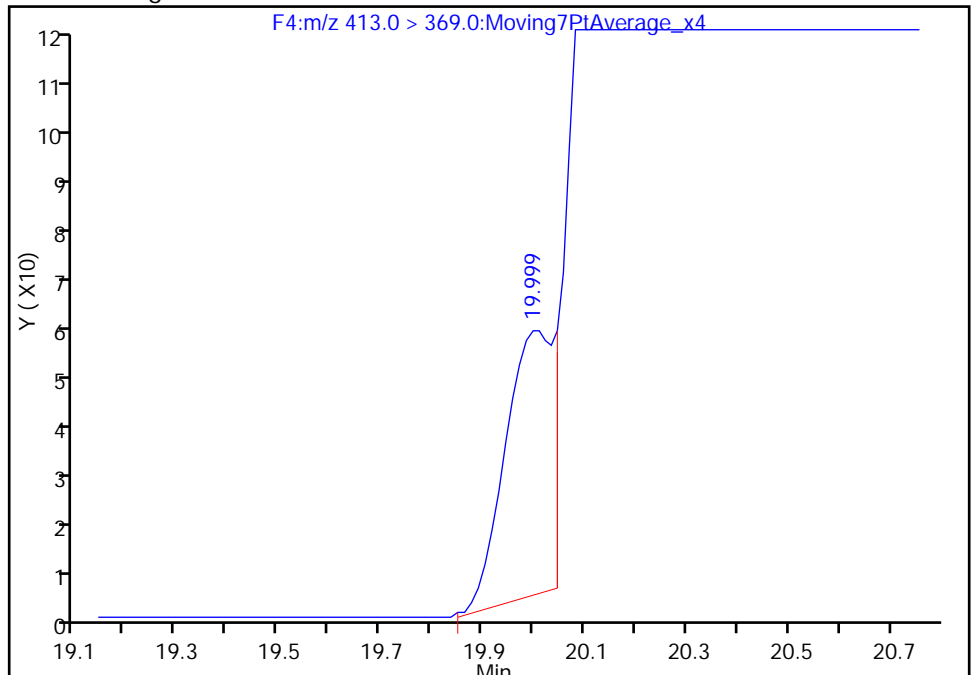
RT: 20.25  
Area: 18400  
Amount: 0.343628  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 374  
Amount: 0.006985  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 29-Dec-2016 10:24:07  
Audit Action: Manually Integrated

Audit Reason: Split Peak



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB40-1216 Lab Sample ID: 320-24536-7  
 Matrix: Water Lab File ID: 27DEC2016A6A\_050.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:26  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 268.8(mL) Date Analyzed: 12/28/2016 17:30  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	116		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_050.d  
 Lims ID: 320-24536-A-7-A  
 Client ID: WI-CV-1FB40-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 17:30:10 ALS Bottle#: 1 Worklist Smp#: 50  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:28

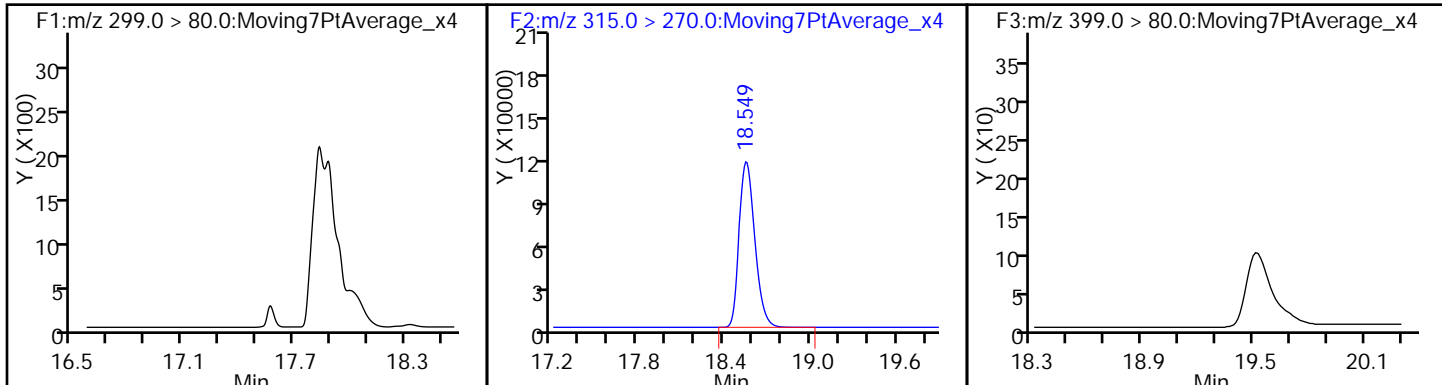
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.548	0.001	1.000	896402	11.6	29261
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		647523	10.0	16452
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.608	0.011		1991610	28.7	29629
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	734995	11.3	23231

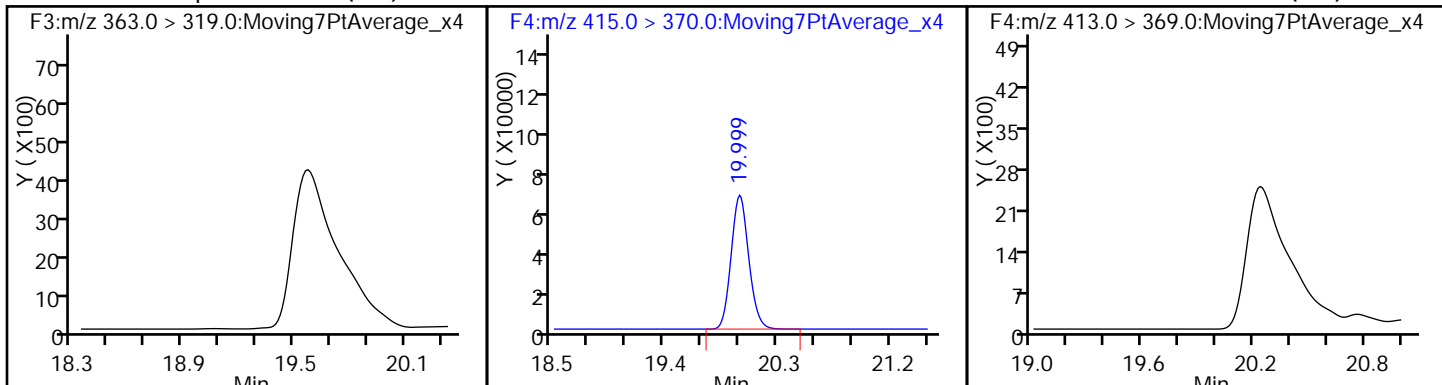
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_050.d  
Injection Date: 28-Dec-2016 17:30:10 Instrument ID: A6  
Lims ID: 320-24536-A-7-A Lab Sample ID: 320-24536-7  
Client ID: WI-CV-1FB40-1216  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 50  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

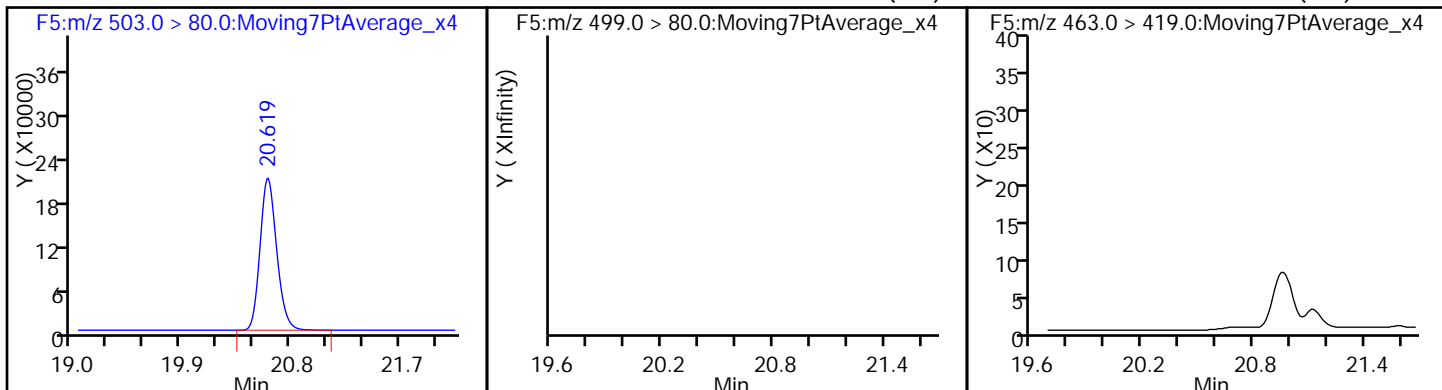
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



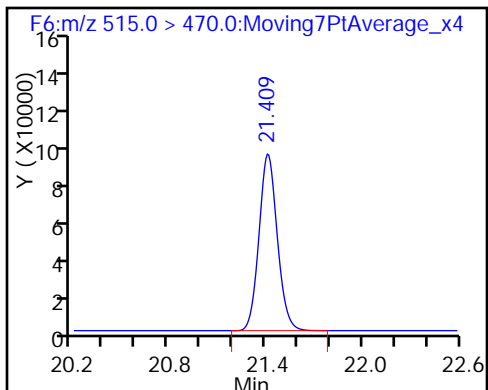
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_050.d  
 Lims ID: 320-24536-A-7-A  
 Client ID: WI-CV-1FB40-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 17:30:10 ALS Bottle#: 1 Worklist Smp#: 50  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:24:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:28

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.6	116.03
\$ 10 13C2 PFDA	10.0	11.3	112.58

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW41-1216 Lab Sample ID: 320-24536-8  
 Matrix: Water Lab File ID: 27DEC2016A6A\_053.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:55  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 266.1(mL) Date Analyzed: 12/28/2016 18:58  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_053.d  
 Lims ID: 320-24536-A-8-A  
 Client ID: WI-CV-1RW41-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 18:58:58 ALS Bottle#: 2 Worklist Smp#: 53  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:46

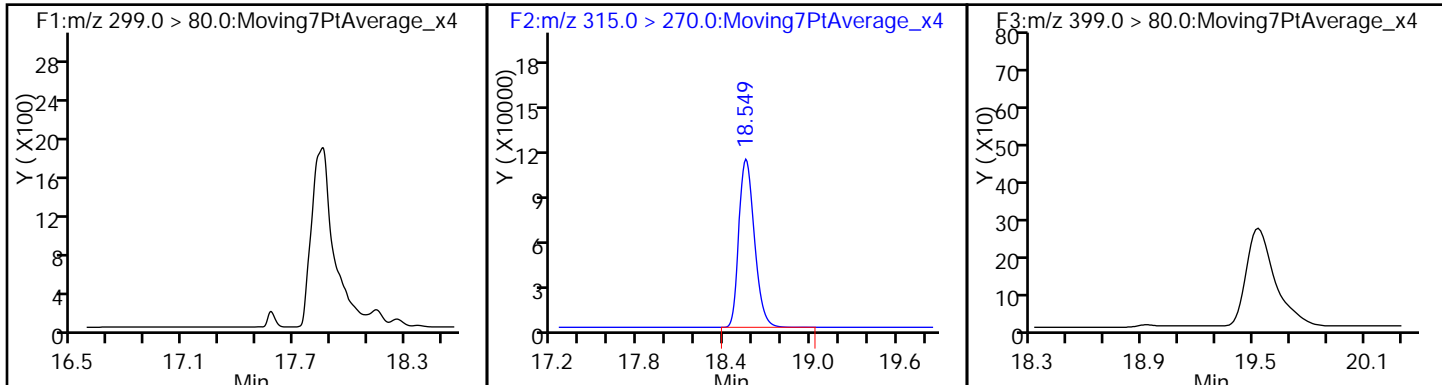
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.548	0.001	1.000	837965	10.9	27665
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		642230	10.0	13076
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1920632	28.7	33221
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.347	20.608	-0.261	1.000	65620	0.8911	129
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	647376	10.0	20492

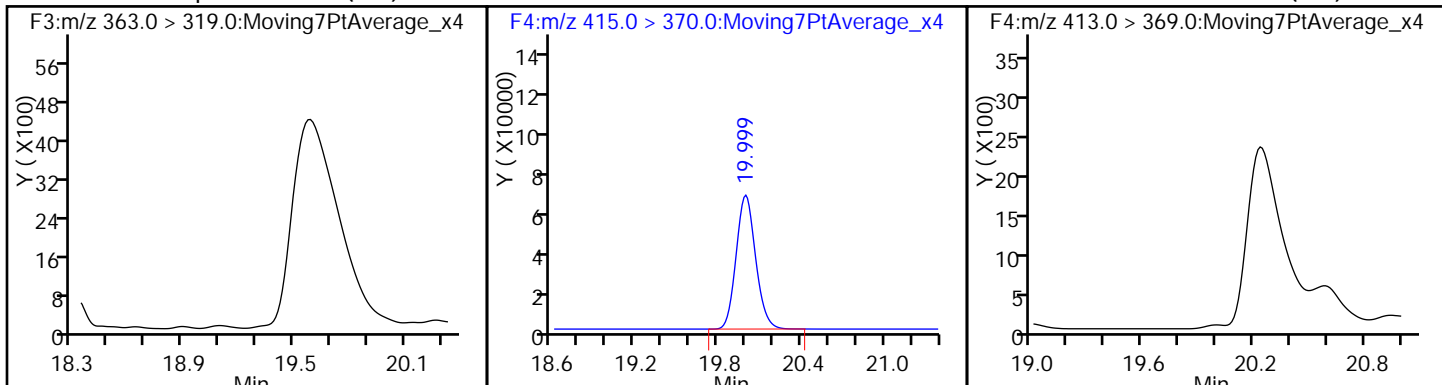
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_053.d  
Injection Date: 28-Dec-2016 18:58:58 Instrument ID: A6  
Lims ID: 320-24536-A-8-A Lab Sample ID: 320-24536-8  
Client ID: WI-CV-1RW41-1216  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 53  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

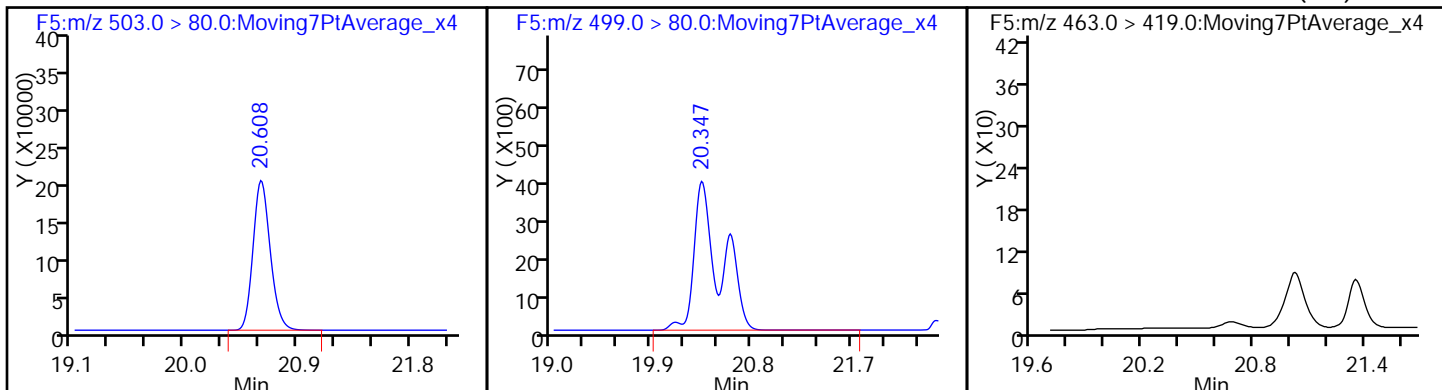
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



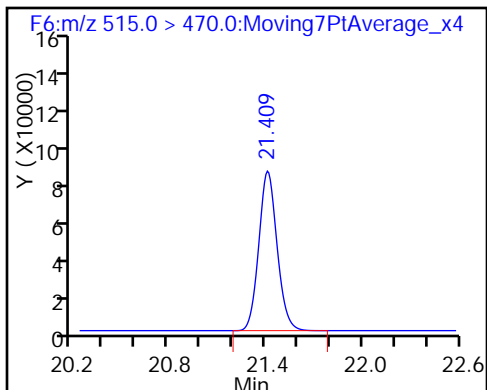
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_053.d  
 Lims ID: 320-24536-A-8-A  
 Client ID: WI-CV-1RW41-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 18:58:58 ALS Bottle#: 2 Worklist Smp#: 53  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:24:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.9	109.36
\$ 10 13C2 PFDA	10.0	10.0	99.97



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB41-1216 Lab Sample ID: 320-24536-9  
 Matrix: Water Lab File ID: 27DEC2016A6A\_054.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:56  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 277.1(mL) Date Analyzed: 12/28/2016 19:28  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_054.d  
 Lims ID: 320-24536-A-9-A  
 Client ID: WI-CV-1FB41-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 19:28:34 ALS Bottle#: 3 Worklist Smp#: 54  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:04

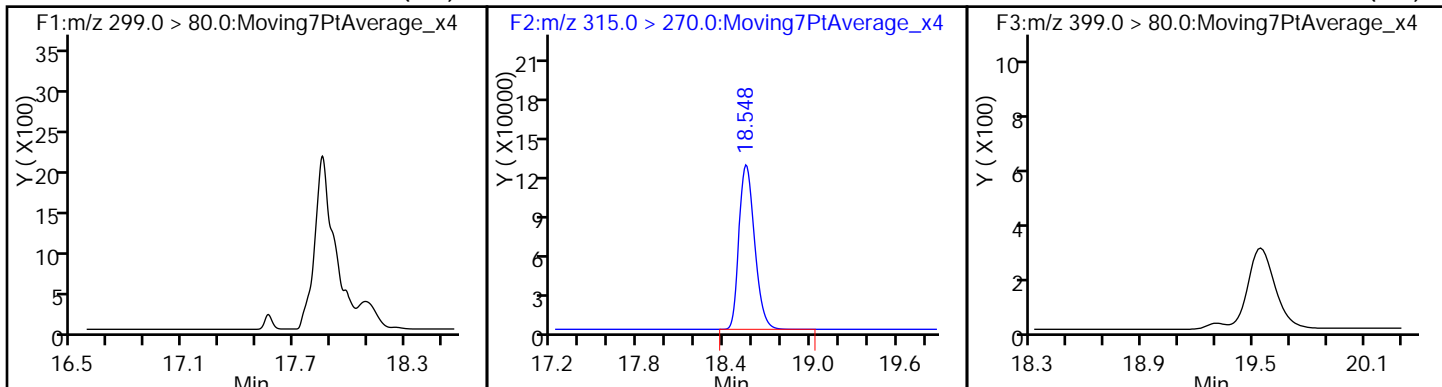
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	--------	--------	--------	----------	--------------	-----	-------

\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	951041	11.3	31276
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		704130	10.0	17900
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		2030763	28.7	42081
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	764868	10.8	24245

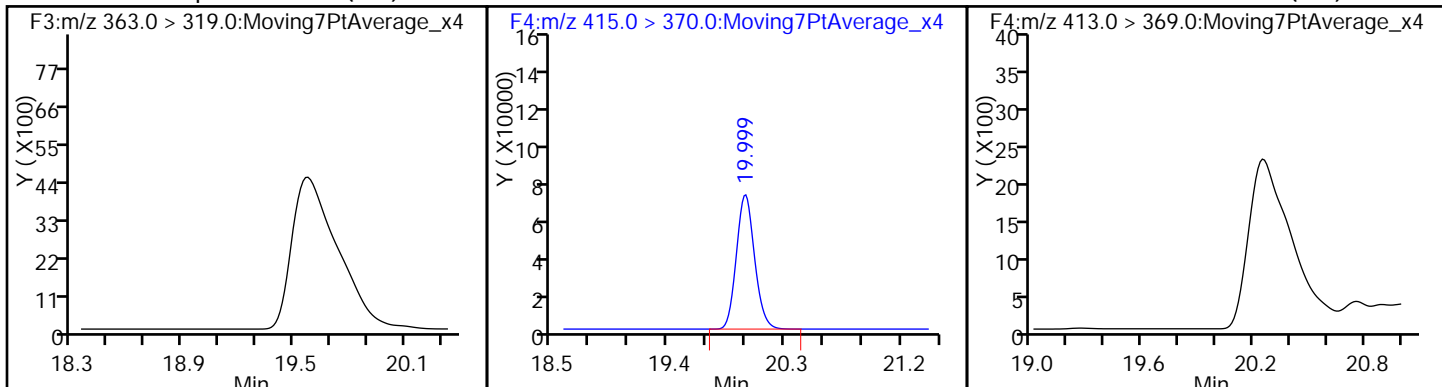
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_054.d  
Injection Date: 28-Dec-2016 19:28:34 Instrument ID: A6  
Lims ID: 320-24536-A-9-A Lab Sample ID: 320-24536-9  
Client ID: WI-CV-1FB41-1216  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 54  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

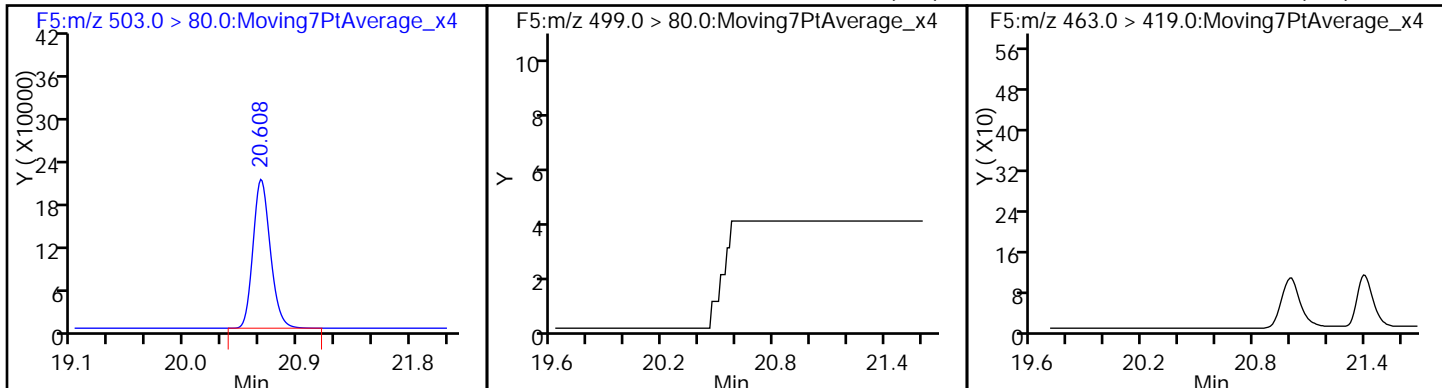
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



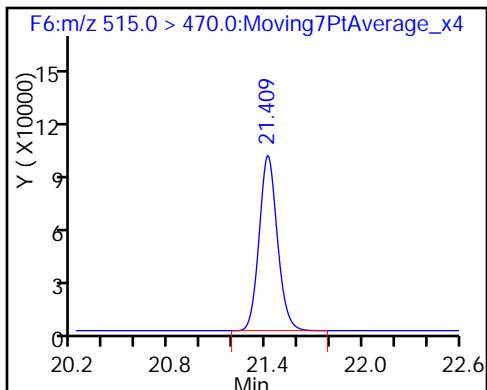
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_054.d  
 Lims ID: 320-24536-A-9-A  
 Client ID: WI-CV-1FB41-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 19:28:34 ALS Bottle#: 3 Worklist Smp#: 54  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	113.20
\$ 10 13C2 PFDA	10.0	10.8	107.73

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW42-1216 Lab Sample ID: 320-24536-10  
 Matrix: Water Lab File ID: 27DEC2016A6A\_055.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:28  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 265.5 (mL) Date Analyzed: 12/28/2016 19:58  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.056	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_055.d  
 Lims ID: 320-24536-B-10-A  
 Client ID: WI-CV-1RW42-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 19:58:11 ALS Bottle#: 4 Worklist Smp#: 55  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	785570	10.6	26223
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		623161	10.0	15948
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1967962	28.7	25674
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.608	0.011	1.000	9736	0.1290	186 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	630269	10.0	20004

QC Flag Legend

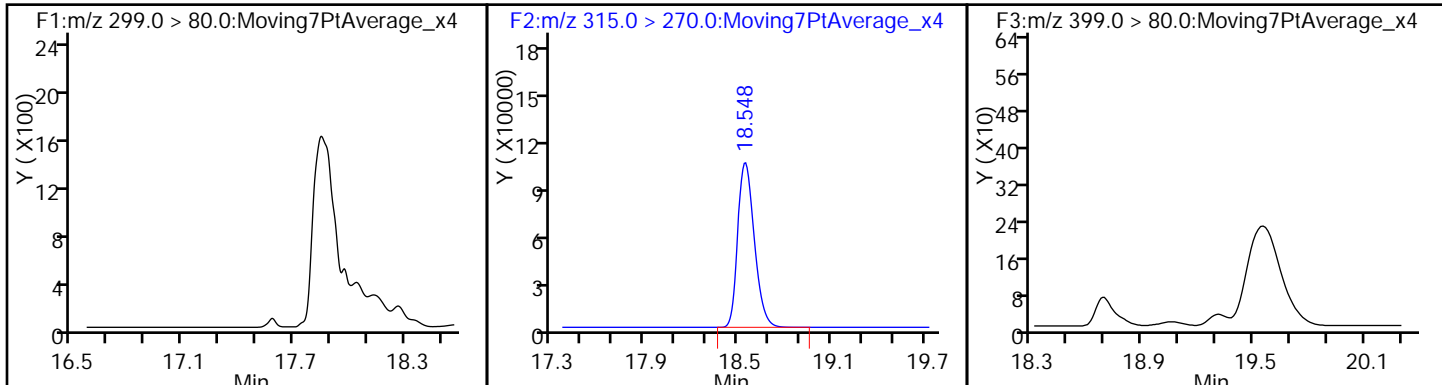
Review Flags

M - Manually Integrated

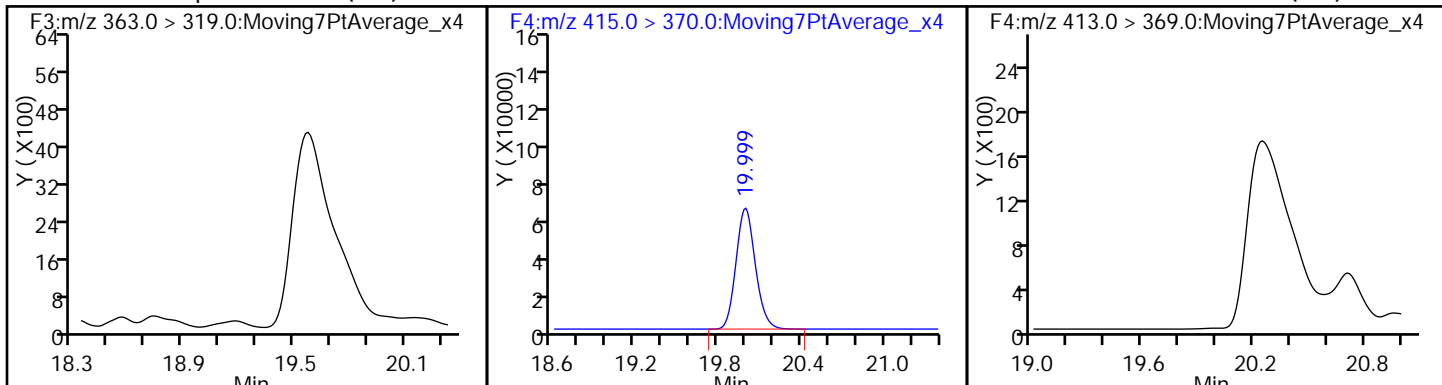
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_055.d  
Injection Date: 28-Dec-2016 19:58:11 Instrument ID: A6  
Lims ID: 320-24536-B-10-A Lab Sample ID: 320-24536-10  
Client ID: WI-CV-1RW42-1216  
Operator ID: CBW ALS Bottle#: 4 Worklist Smp#: 55  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

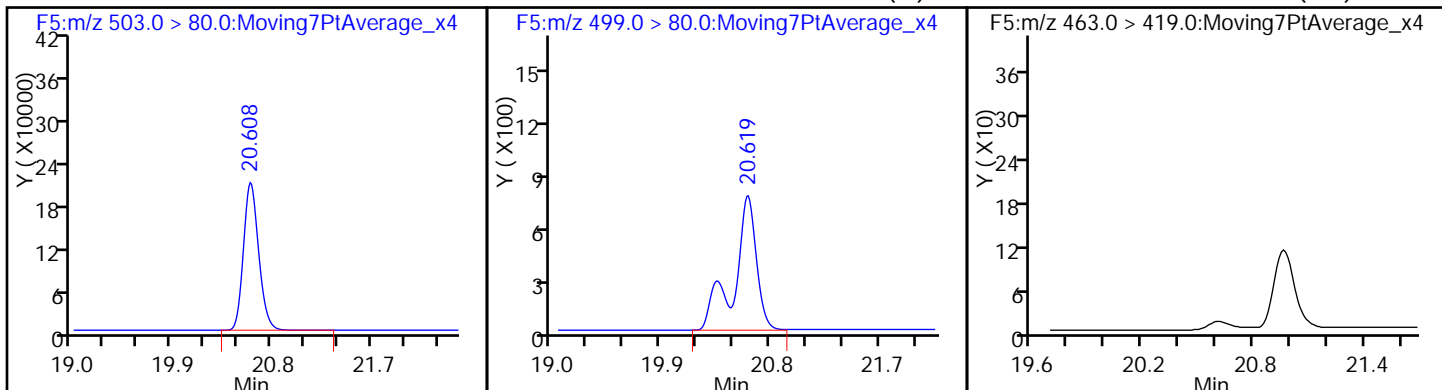
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



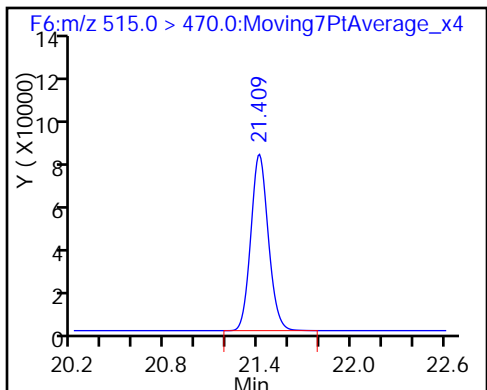
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_055.d  
 Lims ID: 320-24536-B-10-A  
 Client ID: WI-CV-1RW42-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 19:58:11 ALS Bottle#: 4 Worklist Smp#: 55  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	105.66
\$ 10 13C2 PFDA	10.0	10.0	100.31



TestAmerica Sacramento

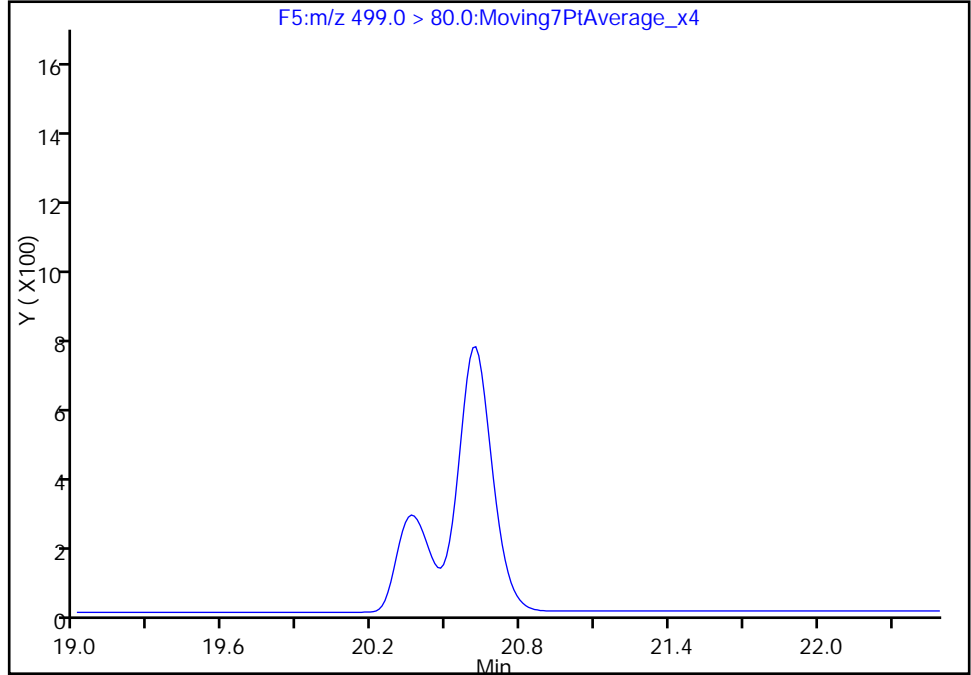
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_055.d  
Injection Date: 28-Dec-2016 19:58:11 Instrument ID: A6  
Lims ID: 320-24536-B-10-A Lab Sample ID: 320-24536-10  
Client ID: WI-CV-1RW42-1216  
Operator ID: CBW ALS Bottle#: 4 Worklist Smp#: 55  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

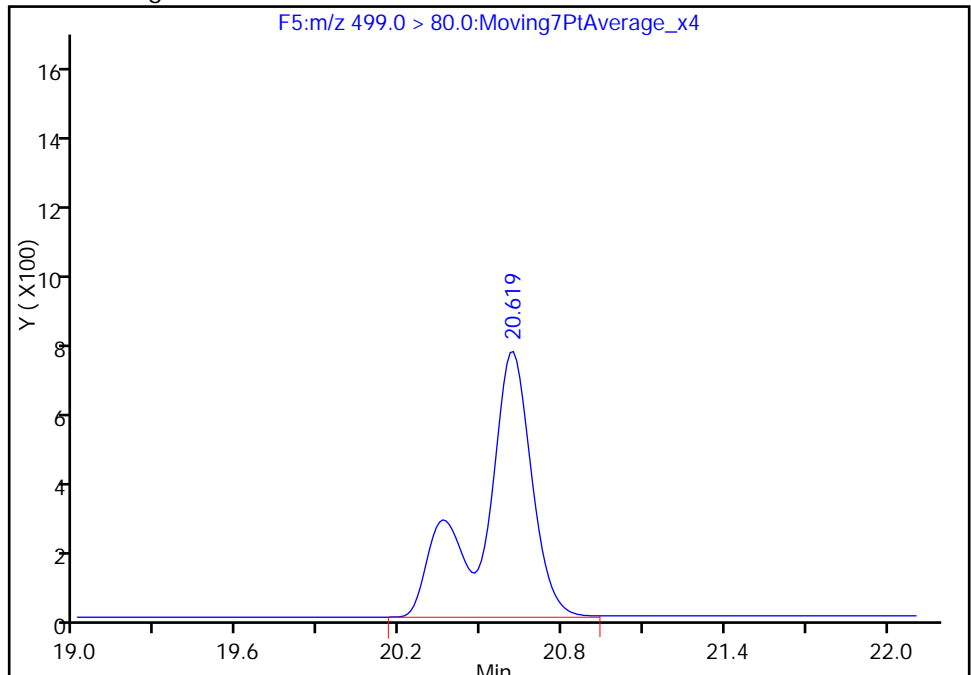
Not Detected  
Expected RT: 20.61

Processing Integration Results



Manual Integration Results

RT: 20.62  
Area: 9736  
Amount: 0.129035  
Amount Units: ng/ml



Reviewer: barnettj, 29-Dec-2016 10:56:37  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB42-1216 Lab Sample ID: 320-24536-11  
 Matrix: Water Lab File ID: 27DEC2016A6A\_056.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:29  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 283(mL) Date Analyzed: 12/28/2016 20:27  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0083
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.097	0.042

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_056.d  
 Lims ID: 320-24536-A-11-A  
 Client ID: WI-CV-1FB42-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 20:27:46 ALS Bottle#: 5 Worklist Smp#: 56  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-11-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	898216	11.1	29076
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		676779	10.0	17284
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.608	0.011		1949053	28.7	28933
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	704921	10.3	22084

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_056.d

Injection Date: 28-Dec-2016 20:27:46

Instrument ID: A6

Lims ID: 320-24536-A-11-A

Lab Sample ID: 320-24536-11

Client ID: WI-CV-1FB42-1216

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 56

Injection Vol: 10.0 ul

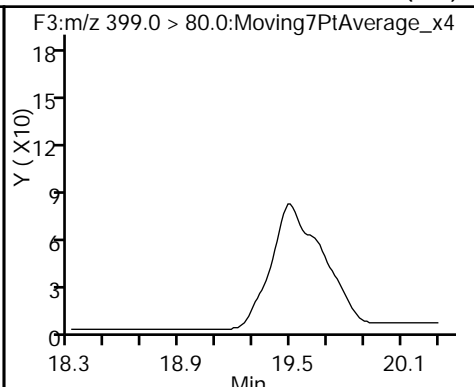
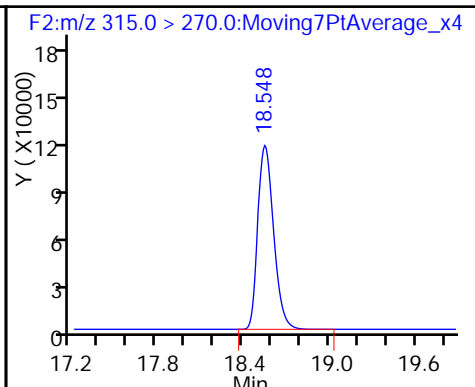
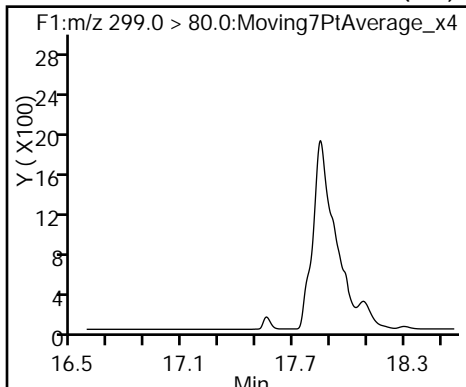
Dil. Factor: 1.0000

Method: 537\_A6

Limit Group: LC 537 ICAL

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

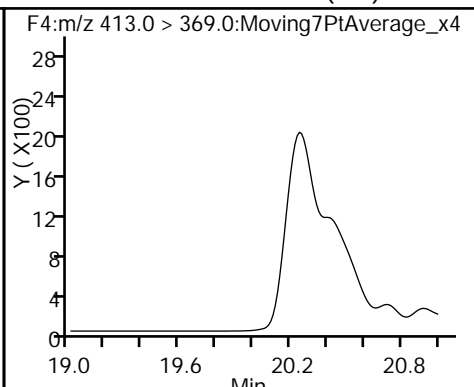
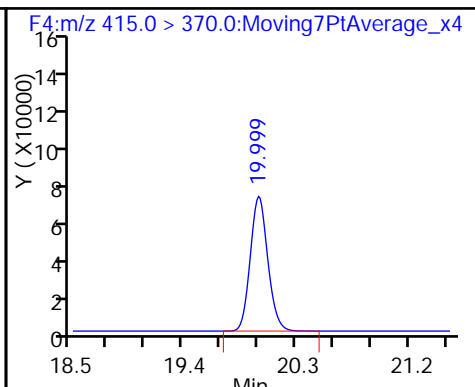
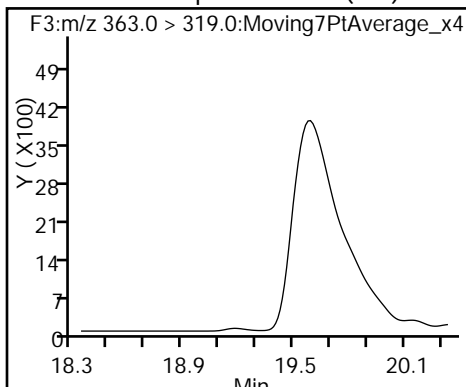
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

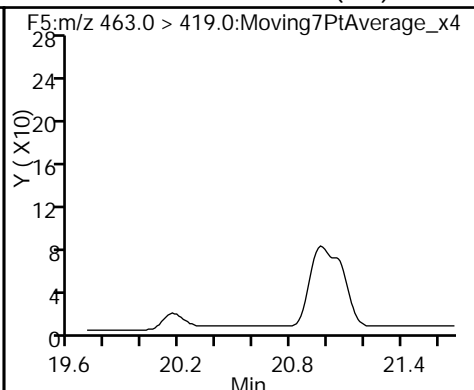
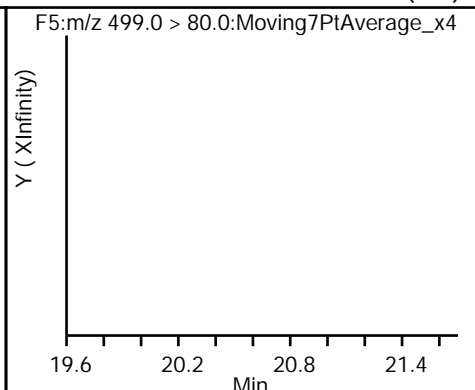
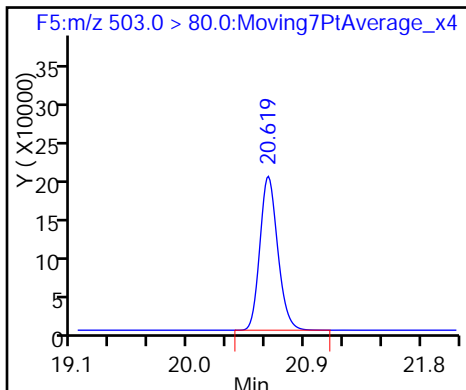
6 Perfluorooctanoic acid (ND)



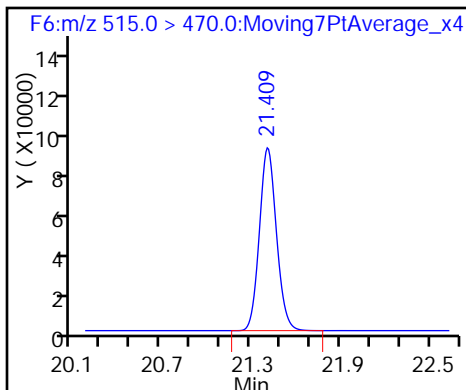
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_056.d  
 Lims ID: 320-24536-A-11-A  
 Client ID: WI-CV-1FB42-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 20:27:46 ALS Bottle#: 5 Worklist Smp#: 56  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-a-11-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:01:53 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:56:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.1	111.24
\$ 10 13C2 PFDA	10.0	10.3	103.30

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW43-1216 Lab Sample ID: 320-24536-12  
 Matrix: Water Lab File ID: 27DEC2016A6A\_057.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:51  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 258.3(mL) Date Analyzed: 12/28/2016 20:57  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	111		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_057.d  
 Lims ID: 320-24536-B-12-A  
 Client ID: WI-CV-1RW43-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 20:57:23 ALS Bottle#: 6 Worklist Smp#: 57  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-12-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:02:33 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:58:09

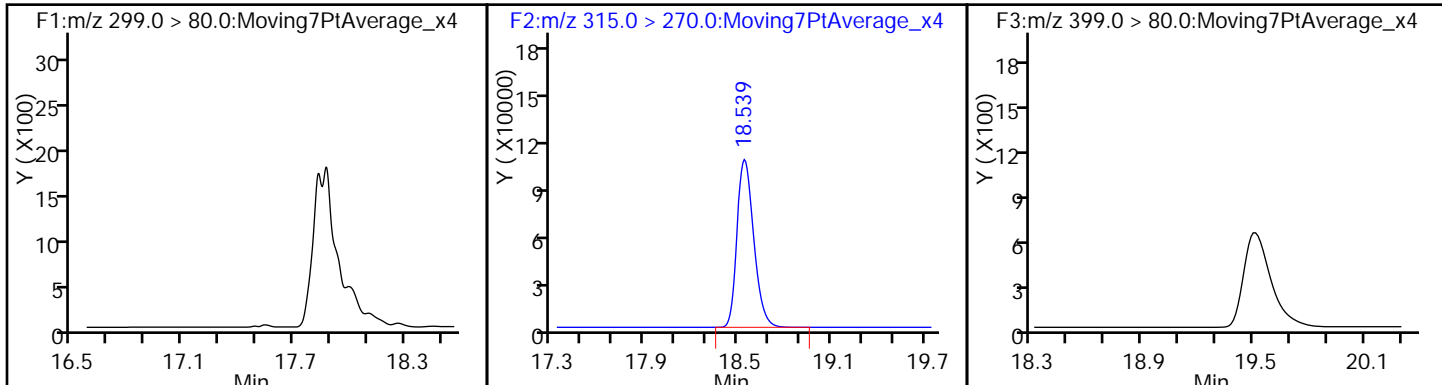
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.539	18.539	0.0	1.000	810552	11.1	26859
* 5 13C2-PFOA	415.0 > 370.0	19.986	19.986	0.0		613063	10.0	15516
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1878569	28.7	49065
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	657083	10.6	20786

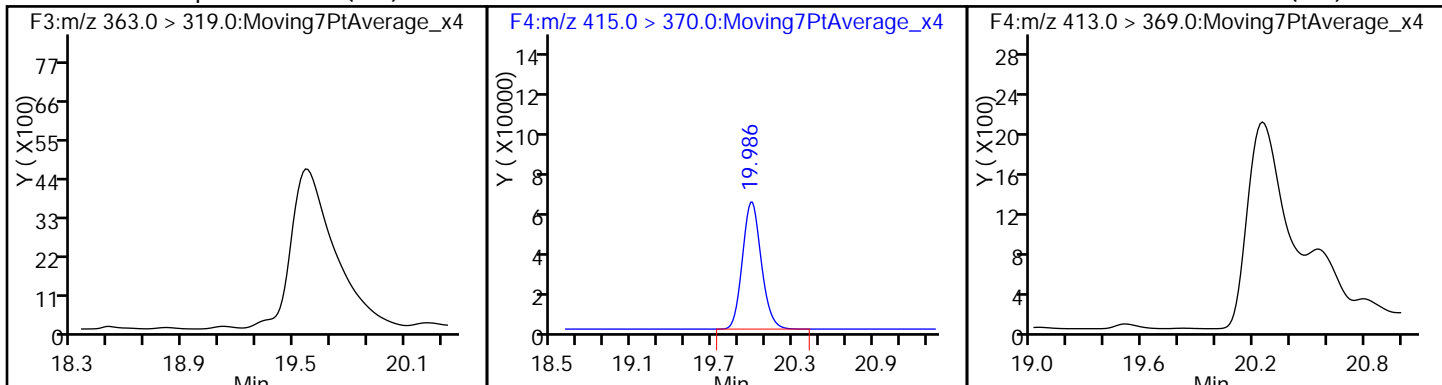
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_057.d  
Injection Date: 28-Dec-2016 20:57:23 Instrument ID: A6  
Lims ID: 320-24536-B-12-A Lab Sample ID: 320-24536-12  
Client ID: WI-CV-1RW43-1216  
Operator ID: CBW ALS Bottle#: 6 Worklist Smp#: 57  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

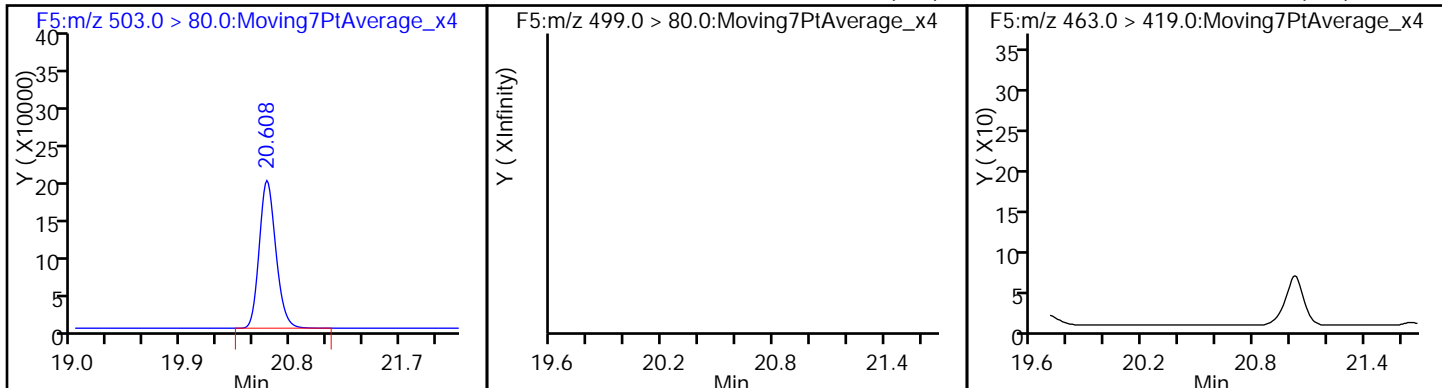
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



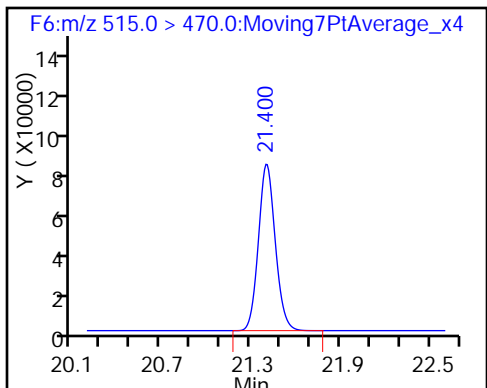
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_057.d  
 Lims ID: 320-24536-B-12-A  
 Client ID: WI-CV-1RW43-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 20:57:23 ALS Bottle#: 6 Worklist Smp#: 57  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-12-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:02:33 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:58:09

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.1	110.81
\$ 10 13C2 PFDA	10.0	10.6	106.30

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB43-1216 Lab Sample ID: 320-24536-13  
 Matrix: Water Lab File ID: 27DEC2016A6A\_058.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:52  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 276.7(mL) Date Analyzed: 12/28/2016 21:26  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_058.d  
 Lims ID: 320-24536-B-13-A  
 Client ID: WI-CV-1FB43-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 21:26:59 ALS Bottle#: 7 Worklist Smp#: 58  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-13-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:02:33 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:58:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.539	18.539	0.0	1.000	910436	11.0	17158
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.986	0.013		696292	10.0	17614
6 Perfluorooctanoic acid								M
413.0 > 369.0	19.986	19.999	-0.013	1.000	295	0.004212	0.1	M
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		2105804	28.7	55066
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	732433	10.4	23158

QC Flag Legend

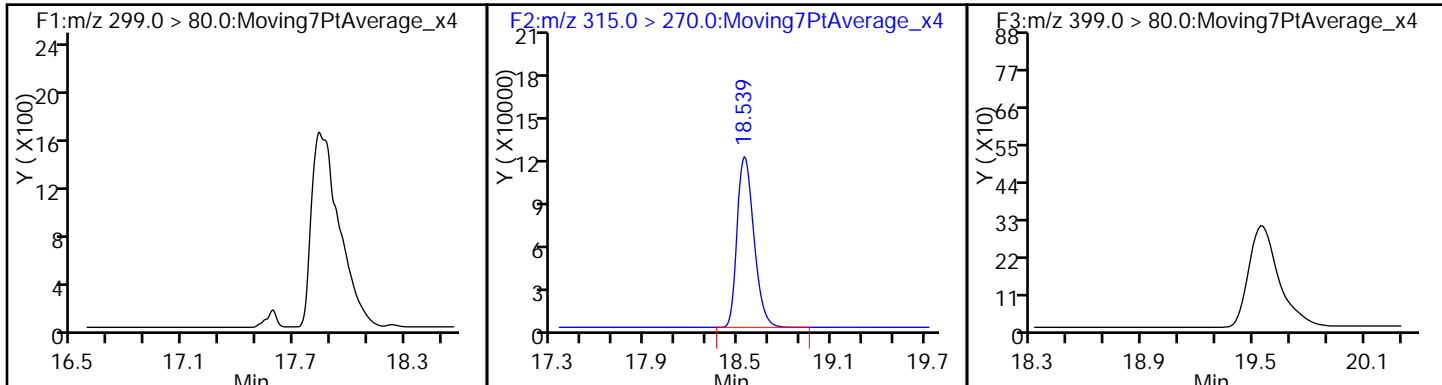
Review Flags

M - Manually Integrated

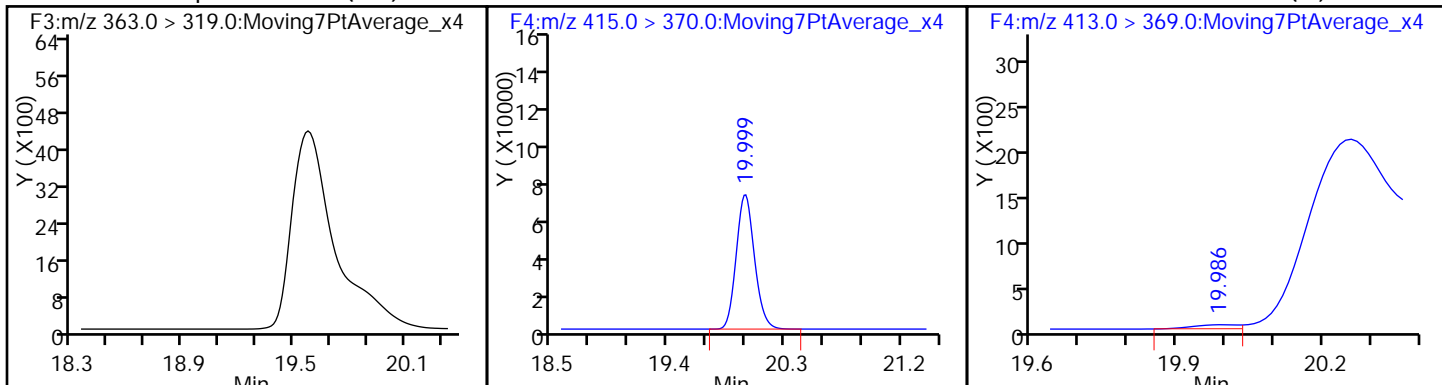
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_058.d  
Injection Date: 28-Dec-2016 21:26:59 Instrument ID: A6  
Lims ID: 320-24536-B-13-A Lab Sample ID: 320-24536-13  
Client ID: WI-CV-1FB43-1216  
Operator ID: CBW ALS Bottle#: 7 Worklist Smp#: 58  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

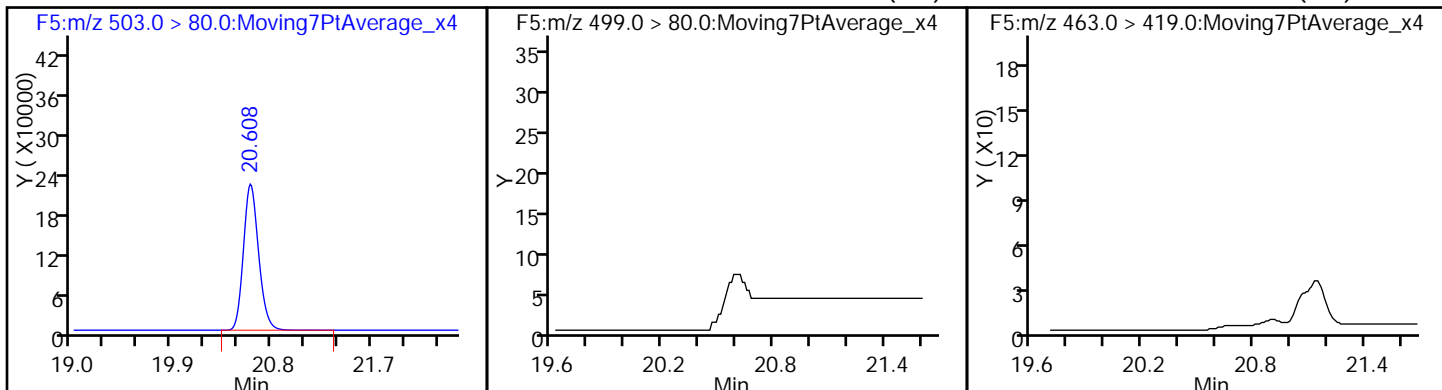
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



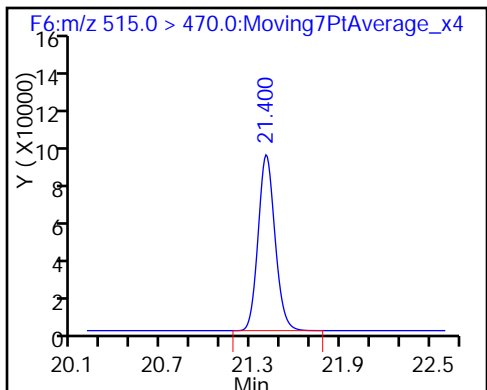
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (M)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_058.d  
 Lims ID: 320-24536-B-13-A  
 Client ID: WI-CV-1FB43-1216  
 Sample Type: Client  
 Inject. Date: 28-Dec-2016 21:26:59 ALS Bottle#: 7 Worklist Smp#: 58  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-24536-b-13-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:02:33 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:58:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	109.59
\$ 10 13C2 PFDA	10.0	10.4	104.33

TestAmerica Sacramento

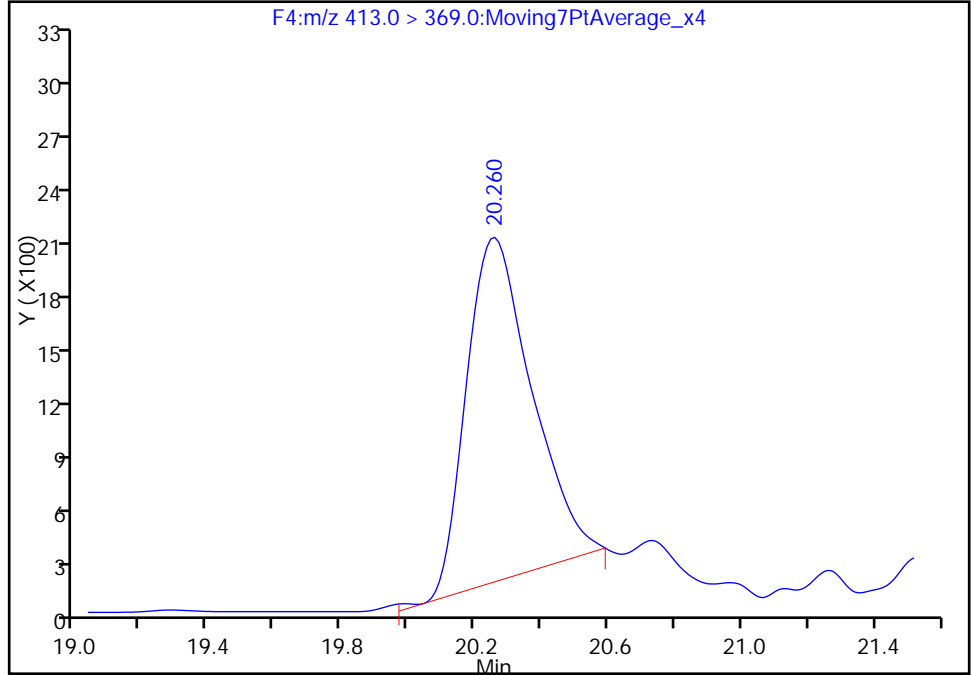
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_058.d  
Injection Date: 28-Dec-2016 21:26:59 Instrument ID: A6  
Lims ID: 320-24536-B-13-A Lab Sample ID: 320-24536-13  
Client ID: WI-CV-1FB43-1216  
Operator ID: CBW ALS Bottle#: 7 Worklist Smp#: 58  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

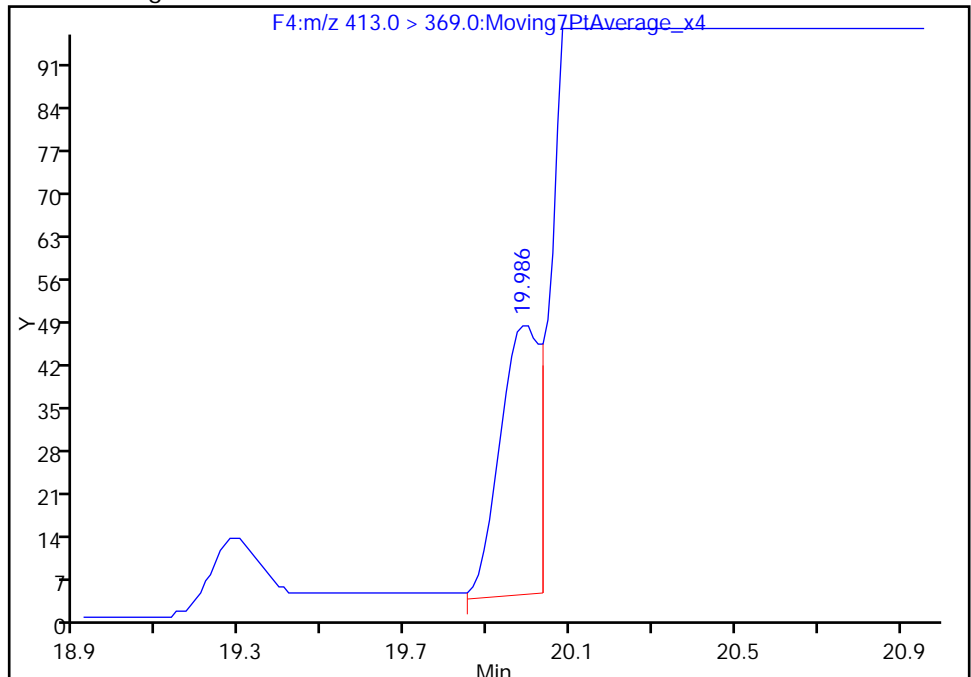
RT: 20.26  
Area: 26177  
Amount: 0.373773  
Amount Units: ng/ml

Processing Integration Results



RT: 19.99  
Area: 295  
Amount: 0.004212  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 29-Dec-2016 11:00:59  
Audit Action: Manually Integrated

Audit Reason: Split Peak

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

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1 Analy Batch No.: 143828

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

Instrument ID: A6 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/24/2016 04:26 Calibration End Date: 12/24/2016 06:54 Calibration ID: 27291

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-143828/4	24DEC2016A6A_004.d
Level 2	STD 320-143828/5	24DEC2016A6A_005.d
Level 3	STD 320-143828/6	24DEC2016A6A_006.d
Level 4	STD 320-143828/7	24DEC2016A6A_007.d
Level 5	STD 320-143828/8	24DEC2016A6A_008.d
Level 6	STD 320-143828/9	24DEC2016A6A_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)	0.7489 0.7091	0.7895	0.8086	0.7461	0.7483	Ave		0.7584			4.7		30.0				
Perfluorohexanesulfonic acid	0.7980 0.9951	0.9269	0.9870	0.9674	0.9683	Ave		0.9405			7.8		30.0				
Perfluoroheptanoic acid	1.0776 1.1996	1.3095	1.3597	1.2735	1.1115	Ave		1.2219			9.2		30.0				
Perfluorooctanoic acid (PFOA)	0.8779 1.1195	0.9865	1.0039	1.0531	0.9939	Ave		1.0058			8.0		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.9077 1.1731	1.0347	1.1414	1.1293	1.2114	Ave		1.0996			10.1		30.0				
Perfluorononanoic acid	1.1003 1.2343	1.1975	1.1855	1.1319	1.0424	Ave		1.1487			6.2		30.0				
13C2 PFHxA	1.1206 1.3938	1.0547	1.1626	1.2662	1.1609	Ave		1.1931			10.1		30.0				
13C2 PFDA	0.9167 1.1683	0.9437	0.9678	1.0543	0.9989	Ave		1.0083			9.1		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.: 320-24536-1 Analy Batch No.: 143828

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

Instrument ID: A6 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/24/2016 04:26 Calibration End Date: 12/24/2016 06:54 Calibration ID: 27291

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-143828/4	24DEC2016A6A_004.d
Level 2	STD 320-143828/5	24DEC2016A6A_005.d
Level 3	STD 320-143828/6	24DEC2016A6A_006.d
Level 4	STD 320-143828/7	24DEC2016A6A_007.d
Level 5	STD 320-143828/8	24DEC2016A6A_008.d
Level 6	STD 320-143828/9	24DEC2016A6A_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	Ave	384512 5939448	999960	1880513	3444375	4710266	8.98 178	22.9	45.1	90.9	135
Perfluorohexanesulfonic acid	PFOS	Ave	138107 2809913	395737	773860	1505450	2054618	3.03 60.1	7.72	15.2	30.6	45.4
Perfluoroheptanoic acid	13PF OA	Ave	65406 1230238	205998	407699	733295	976632	0.990 19.7	2.52	4.97	10.0	14.9
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	105059 2263615	305974	593502	1195609	1721874	1.95 38.8	4.98	9.81	19.8	29.3
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	208018 4386351	584936	1184968	2327023	3403779	4.01 79.6	10.2	20.1	40.6	60.1
Perfluorononanoic acid	13PF OA	Ave	139923 2652055	394672	744764	1365537	1918933	2.07 41.2	5.29	10.4	21.0	31.1
13C2 PFHxA	13PF OA	Ave	687019 726485	657231	700737	727339	686886	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	561986 608935	588071	583365	605628	591036	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD



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

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1 Analy Batch No.: 143828

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

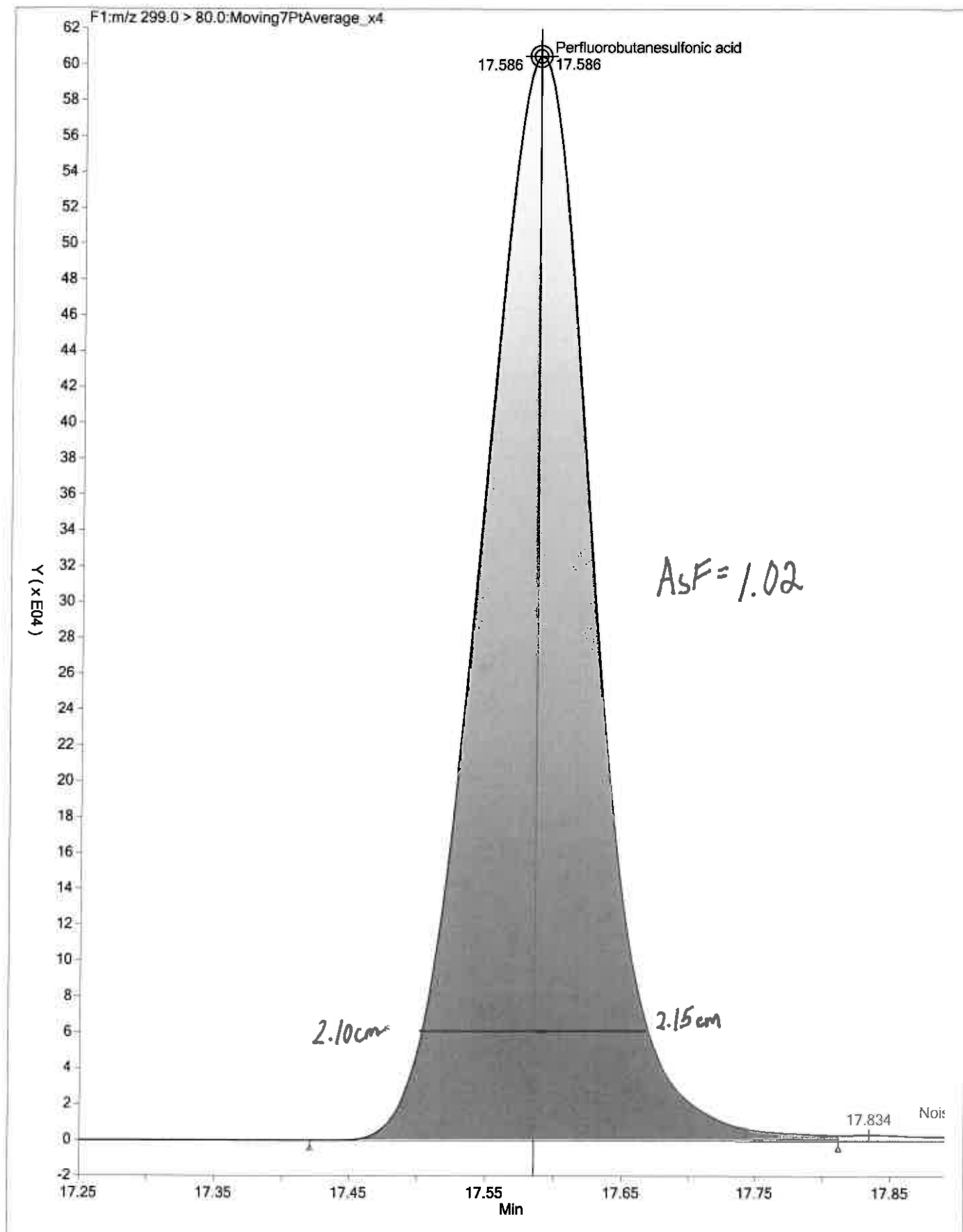
Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

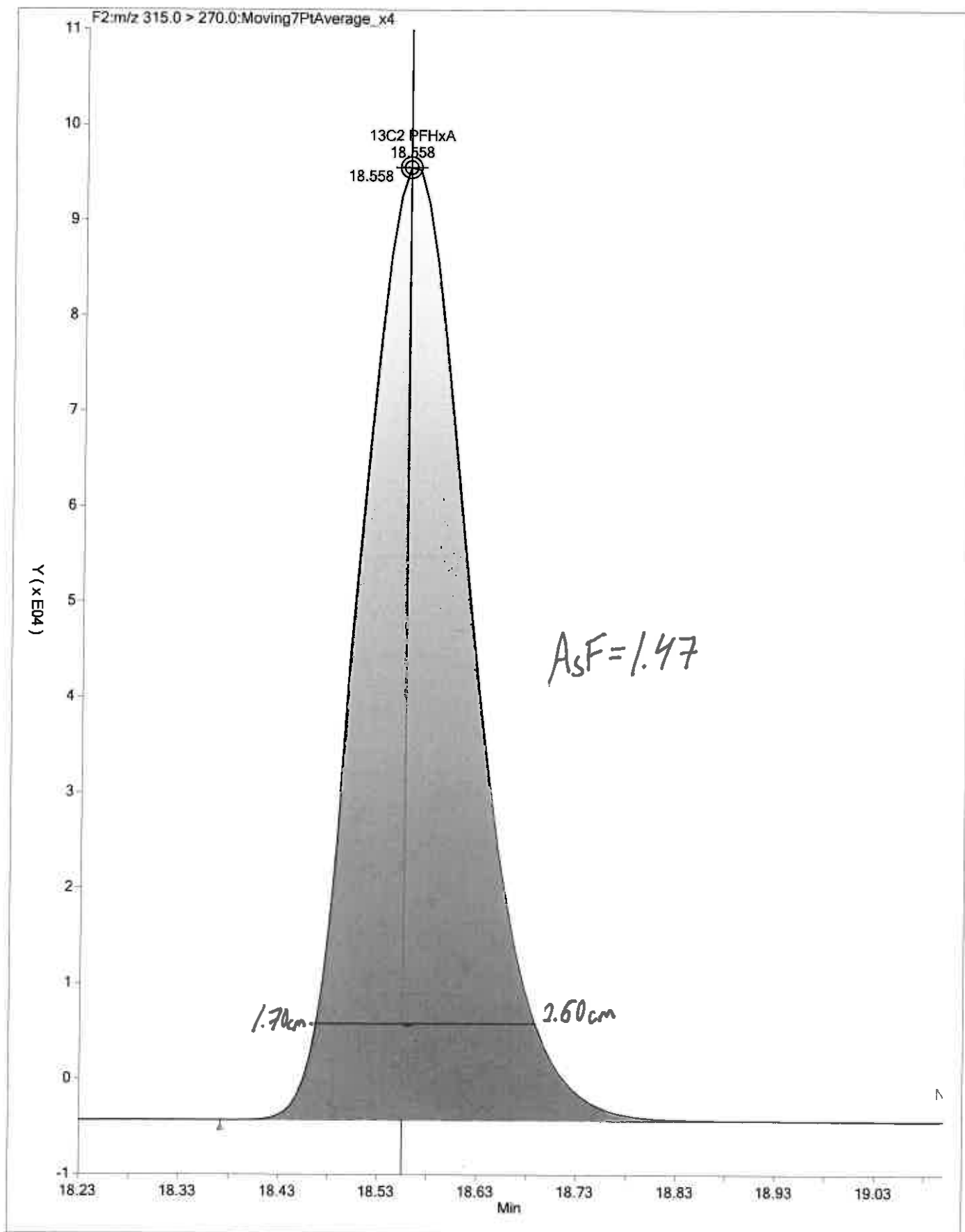
Calibration Start Date: 12/24/2016 04:26 Calibration End Date: 12/24/2016 06:54 Calibration ID: 27291

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-143828/4	24DEC2016A6A_004.d
Level 2	STD 320-143828/5	24DEC2016A6A_005.d
Level 3	STD 320-143828/6	24DEC2016A6A_006.d
Level 4	STD 320-143828/7	24DEC2016A6A_007.d
Level 5	STD 320-143828/8	24DEC2016A6A_008.d
Level 6	STD 320-143828/9	24DEC2016A6A_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)	-1.3	4.1	6.6	-1.6	-1.3	-6.5	50	50	50	50	50	50
Perfluorohexanesulfonic acid	-15.2	-1.4	5.0	2.9	3.0	5.8	50	50	50	50	50	50
Perfluoroheptanoic acid	-11.8	7.2	11.3	4.2	-9.0	-1.8	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-12.7	-1.9	-0.2	4.7	-1.2	11.3	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-17.5	-5.9	3.8	2.7	10.2	6.7	50	50	50	50	50	50
Perfluorononanoic acid	-4.2	4.3	3.2	-1.5	-9.3	7.5	50	50	50	50	50	50
13C2 PFHxA	-6.1	-11.6	-2.6	6.1	-2.7	16.8	30	30	30	30	30	30
13C2 PFDA	-9.1	-6.4	-4.0	4.6	-0.9	15.9	30	30	30	30	30	30





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_004.d  
 Lims ID: STD L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 24-Dec-2016 04:26:10 ALS Bottle#: 1 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L1 L1  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:54:51 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 11:54:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.589	17.586	0.003	1.000	384512	8.86	135
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	687019	9.39	22481
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	138107	2.57	2684
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.350	-0.006	1.000	65406	0.8731	6.0 M
* 5 13C2-PFOA	415.0 > 370.0	19.999	20.005	-0.006		613085	10.0	15656
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	20.004	-0.005	1.000	105059	1.70	29.0 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.620	20.619	0.001	1.000	208018	3.31	3500
* 8 13C4 PFOS	503.0 > 80.0	20.620	20.619	0.001		1640498	28.7	42687
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.697	-0.006	1.000	139923	1.99	3701
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	561986	9.09	17453

### QC Flag Legend

Review Flags

M - Manually Integrated

### Reagents:

LC537-L1\_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_004.d

Injection Date: 24-Dec-2016 04:26:10

Instrument ID: A6

Lims ID: STD L1

Client ID:

Operator ID: CBW

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

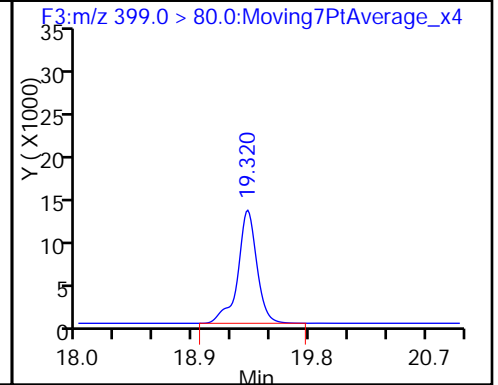
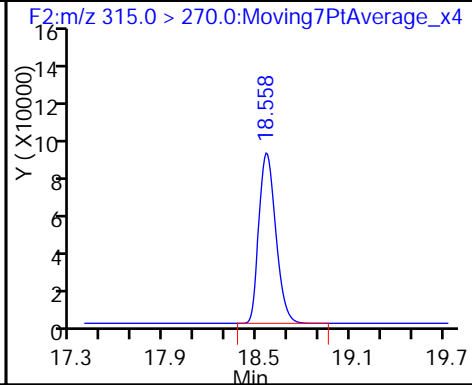
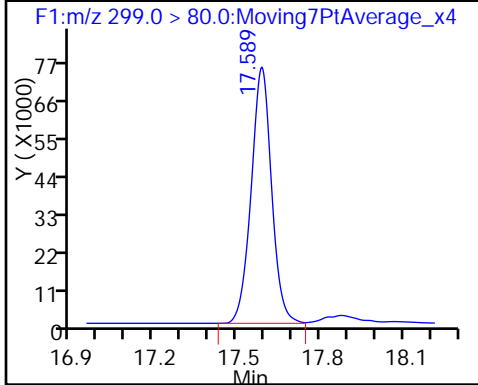
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

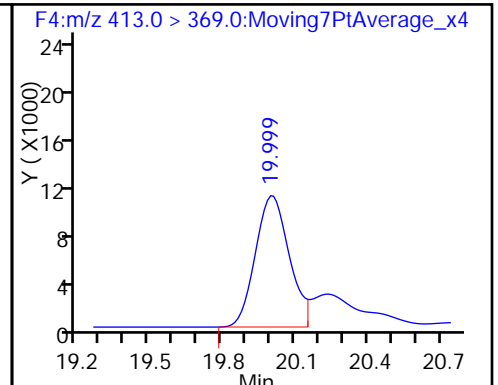
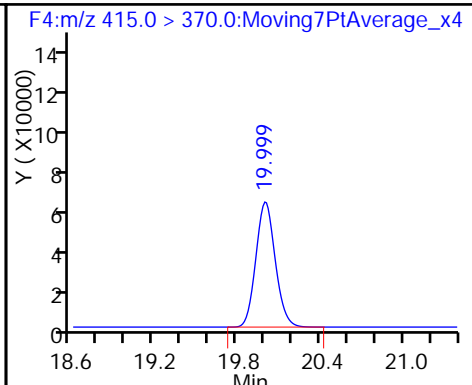
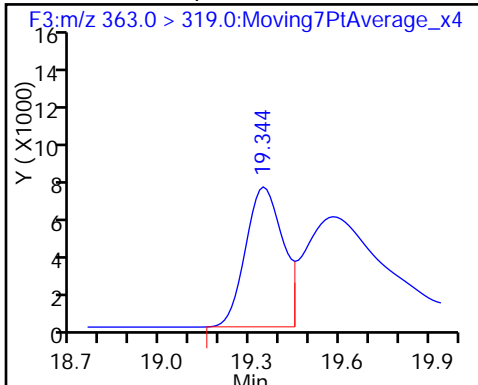
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

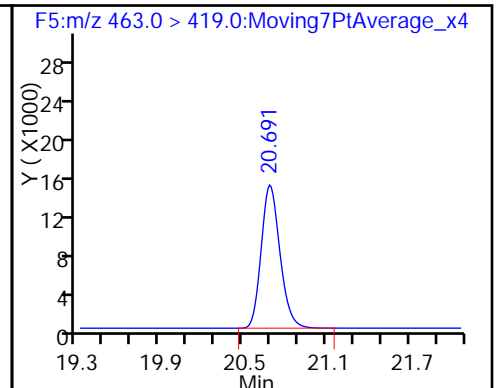
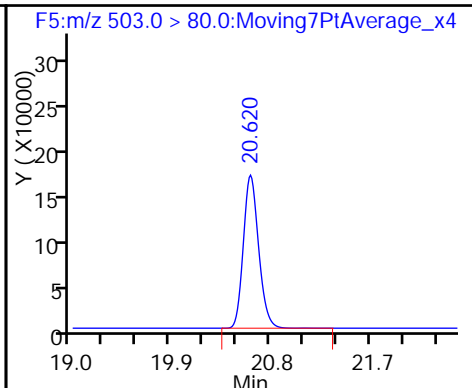
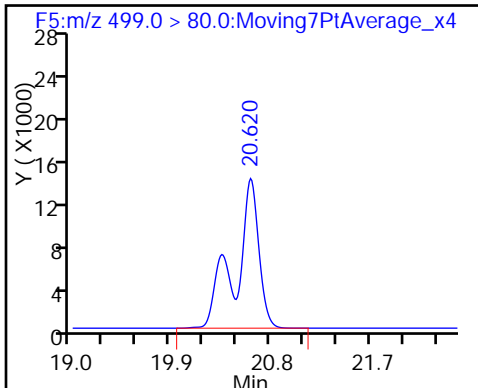
6 Perfluorooctanoic acid (M)



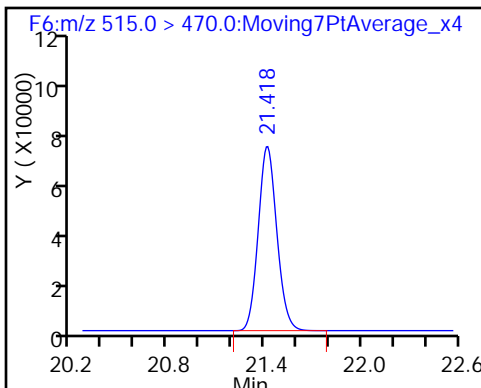
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

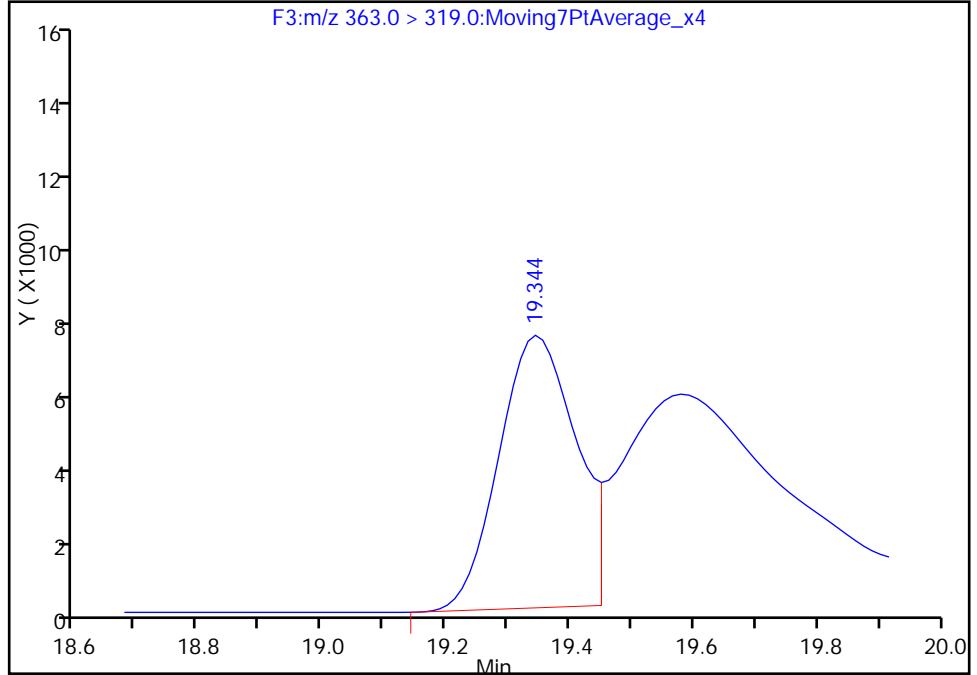
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Injection Date: 24-Dec-2016 04:26:10 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

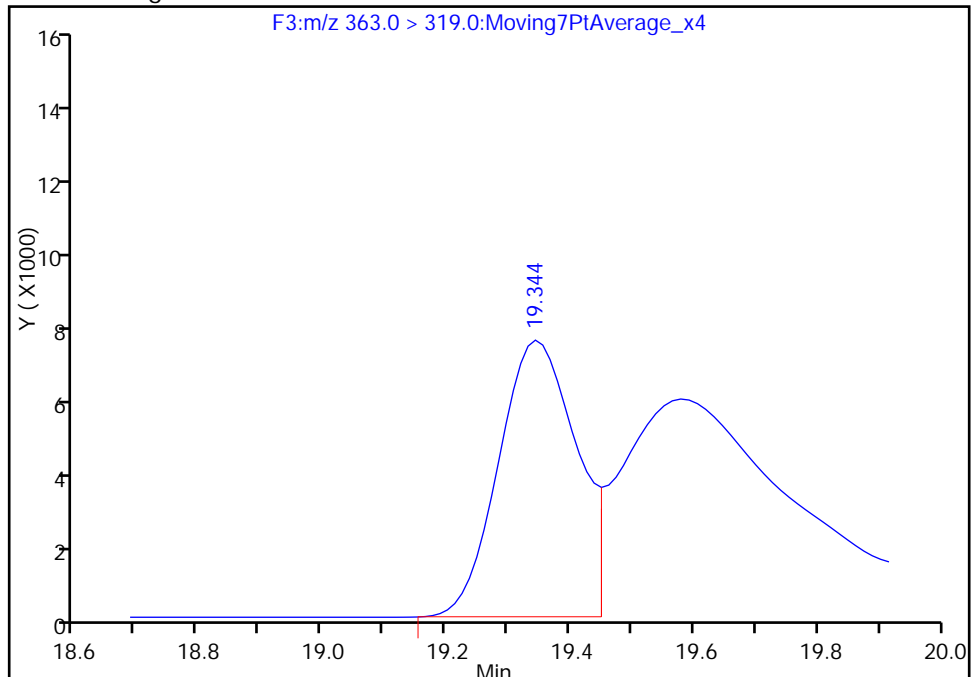
RT: 19.34  
Area: 63912  
Amount: 0.784751  
Amount Units: ng/ml

Processing Integration Results



RT: 19.34  
Area: 65406  
Amount: 0.873101  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 11:57:48  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

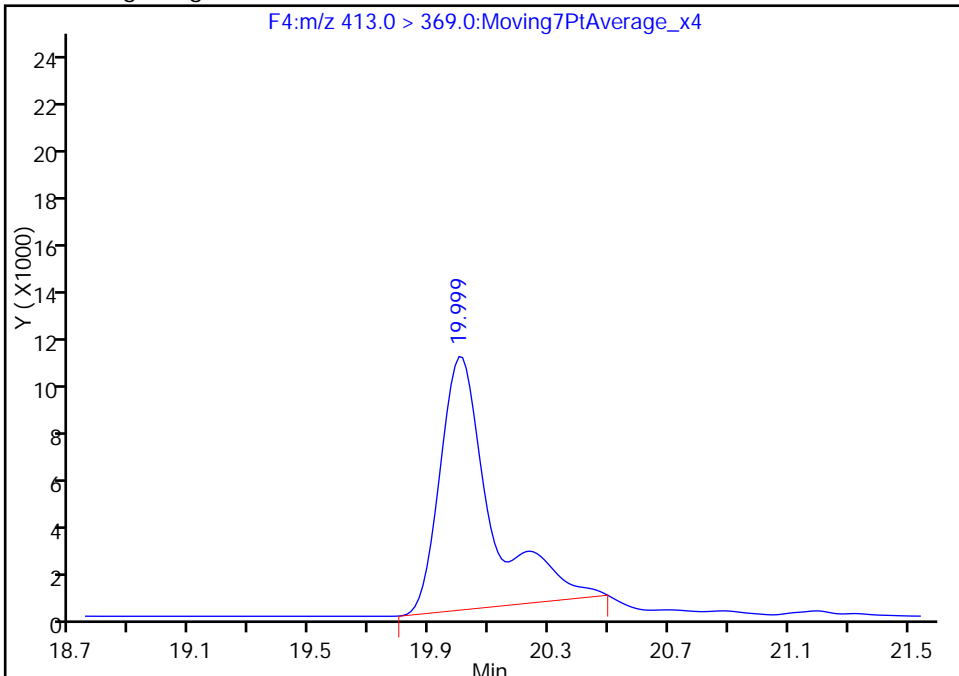
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_004.d  
Injection Date: 24-Dec-2016 04:26:10 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

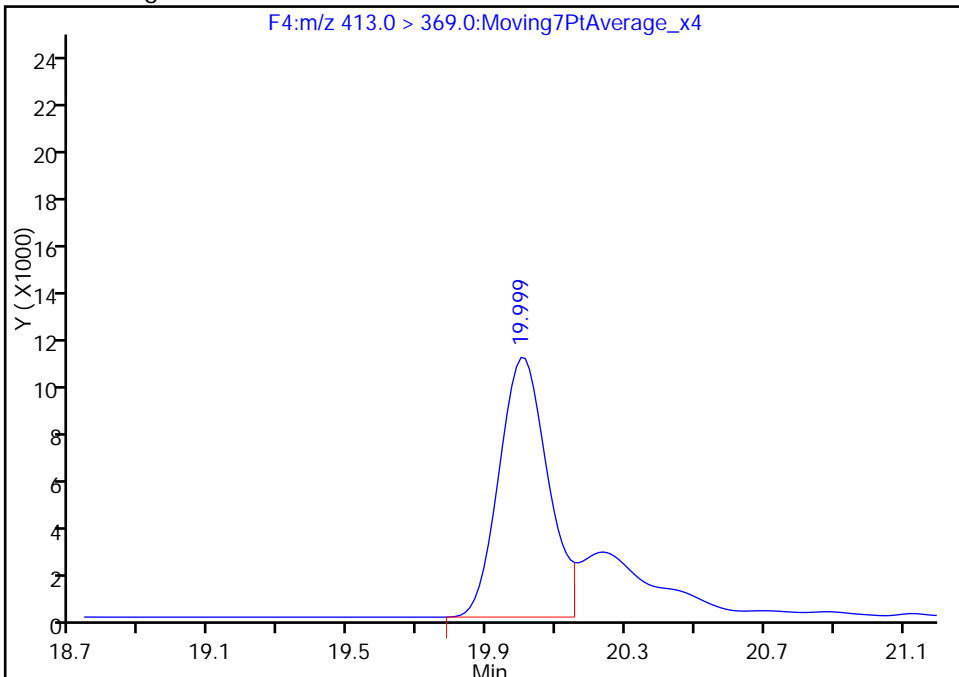
RT: 20.00  
Area: 124416  
Amount: 1.917532  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 105059  
Amount: 1.703696  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 11:57:48  
Audit Action: Manually Integrated



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_005.d  
 Lims ID: STD L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 24-Dec-2016 04:55:44 ALS Bottle#: 2 Worklist Smp#: 5  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L2 L2  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:54:56 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 11:59:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.586	0.0	1.000	999960	23.8	332
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	657231	8.84	21447
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.309	19.318	-0.009	1.000	395737	7.60	9507
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.350	-0.006	1.000	205998	2.71	17.1
* 5 13C2-PFOA	415.0 > 370.0	19.999	20.005	-0.006		623136	10.0	15732
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	20.005	-0.006	1.000	305974	4.88	76.0 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.620	20.619	0.001	1.000	584936	9.61	9904
* 8 13C4 PFOS	503.0 > 80.0	20.620	20.619	0.001		1586953	28.7	41115
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.697	-0.006	1.000	394672	5.51	8417
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.416	-0.007	1.000	588071	9.36	18601

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L2\_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_005.d

Injection Date: 24-Dec-2016 04:55:44

Instrument ID: A6

Lims ID: STD L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

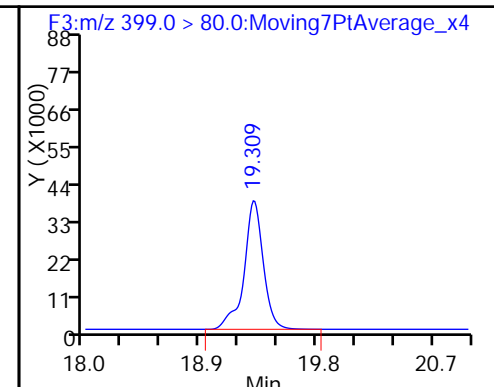
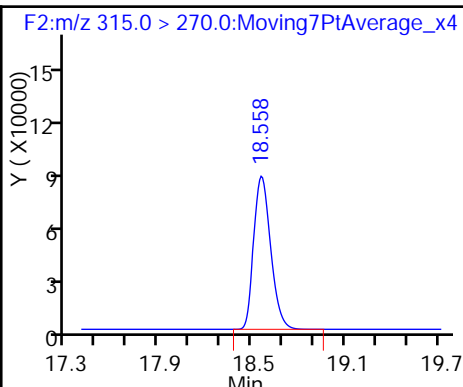
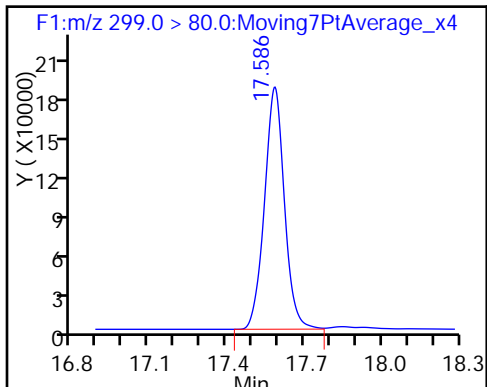
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

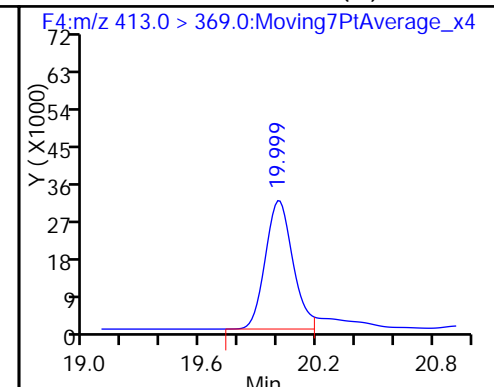
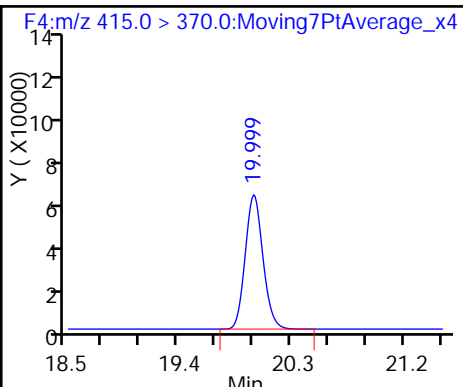
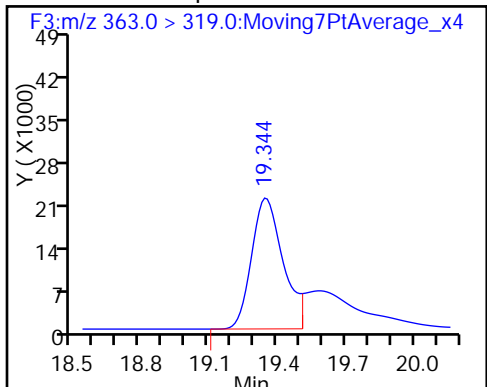
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

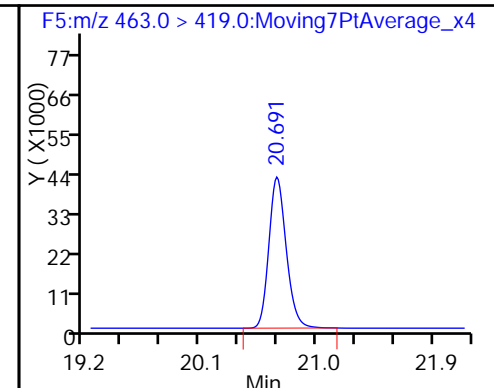
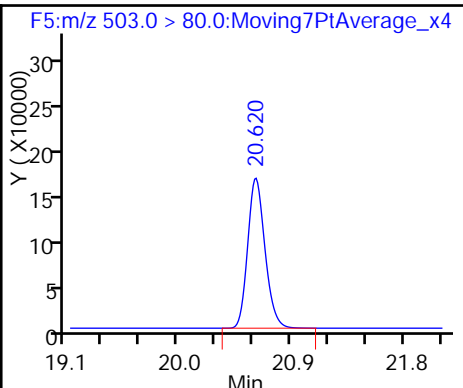
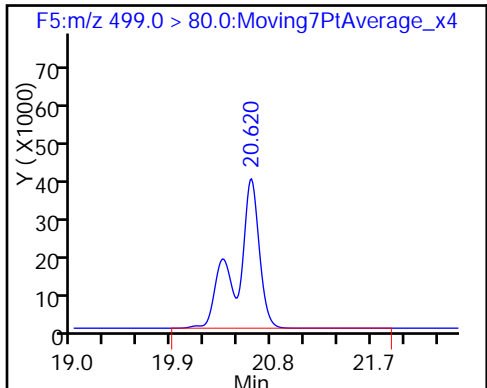
6 Perfluorooctanoic acid (M)



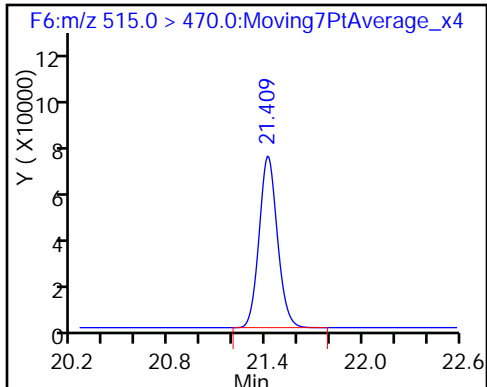
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

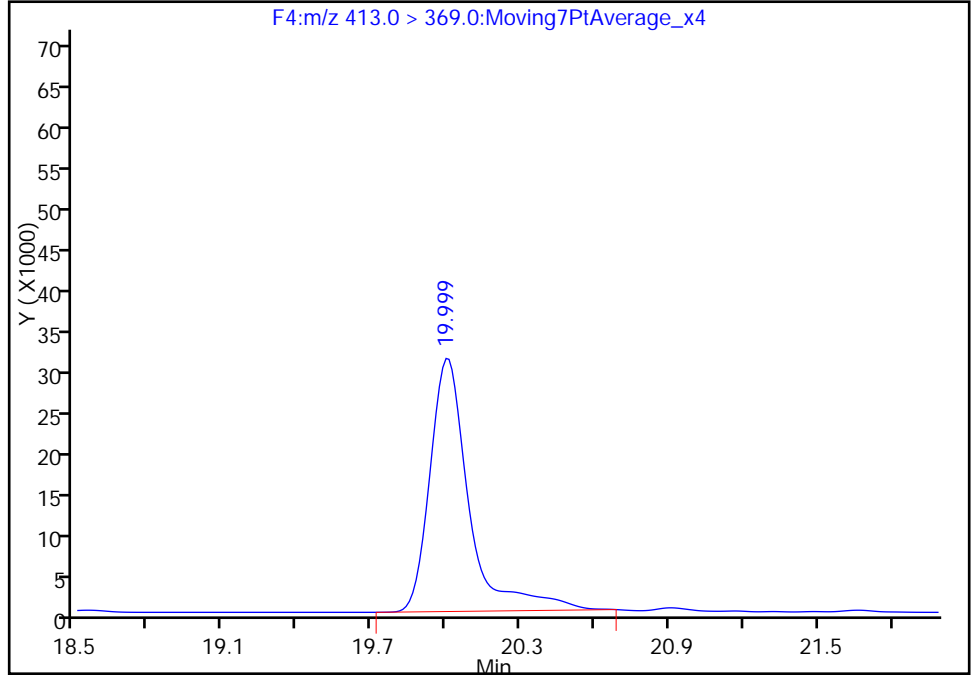
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Injection Date: 24-Dec-2016 04:55:44 Instrument ID: A6  
Lims ID: STD L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

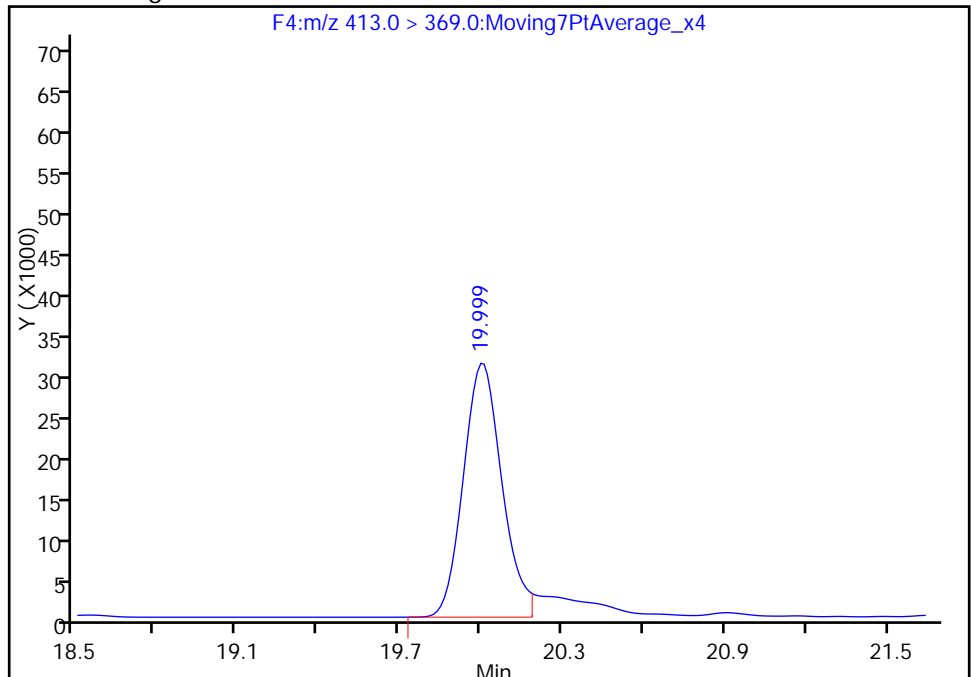
RT: 20.00  
Area: 340214  
Amount: 5.293744  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 305974  
Amount: 4.881813  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 11:59:47  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_006.d  
 Lims ID: STD L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 24-Dec-2016 05:25:20 ALS Bottle#: 3 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L3 L3  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:55:03 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 12:04:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.586	0.0	1.000	1880513	48.1	564
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	700737	9.74	22761
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	773860	16.0	18225
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.350	-0.006	1.000	407699	5.54	39.5 M
* 5 13C2-PFOA	415.0 > 370.0	19.999	20.005	-0.006		602755	10.0	15228
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	20.005	-0.006	1.000	593502	9.79	208 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1184968	20.9	19371
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.619	0.0		1478857	28.7	38359
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.697	-0.006	1.000	744764	10.8	19653
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	583365	9.60	18358

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L3\_00018

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_006.d

Injection Date: 24-Dec-2016 05:25:20

Instrument ID: A6

Lims ID: STD L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

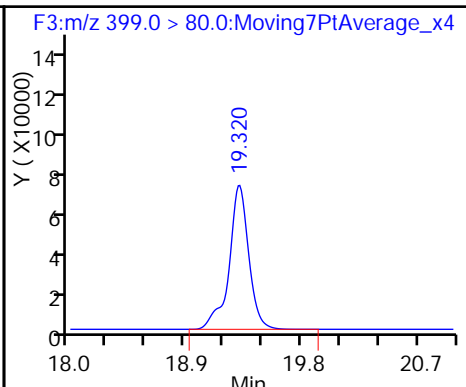
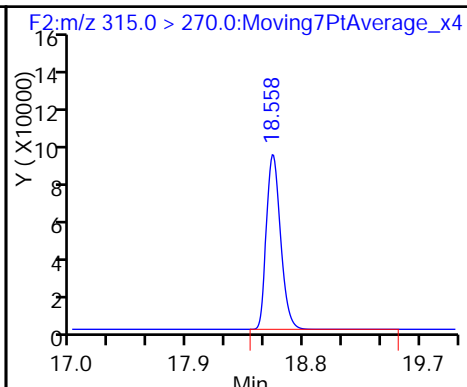
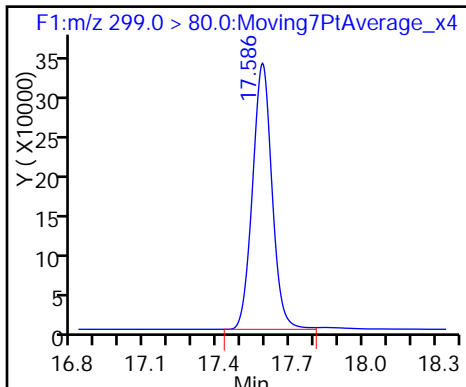
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

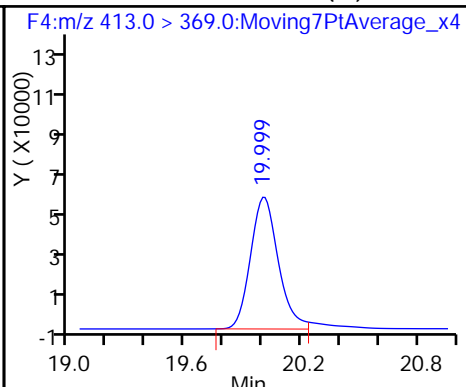
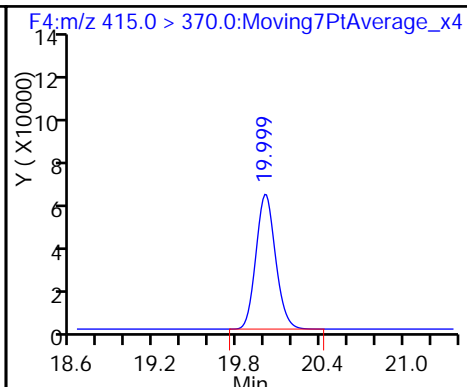
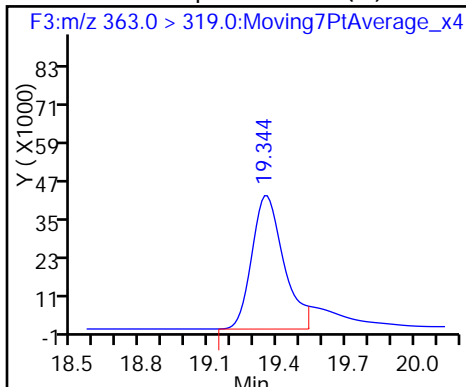
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

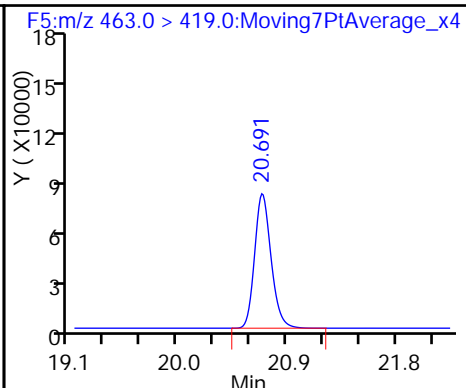
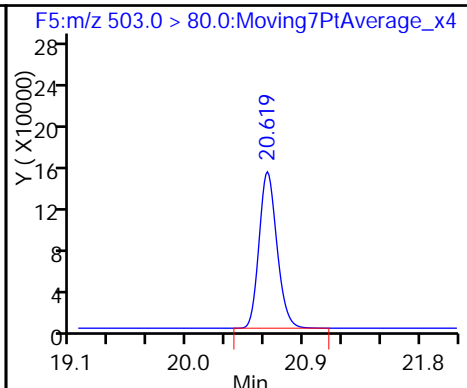
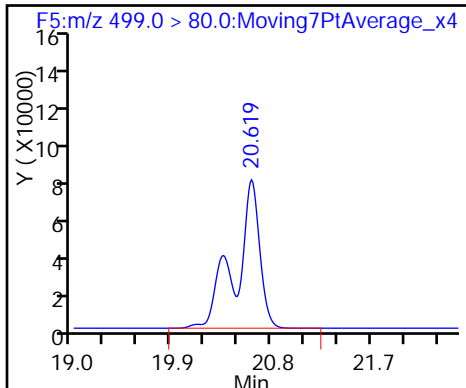
6 Perfluorooctanoic acid (M)



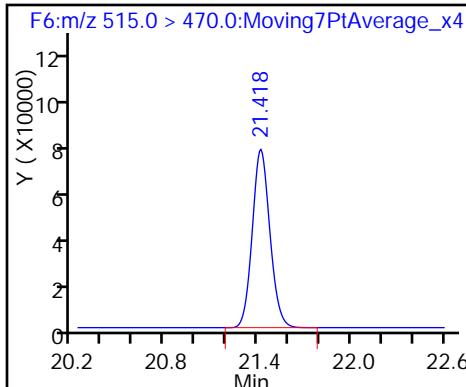
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

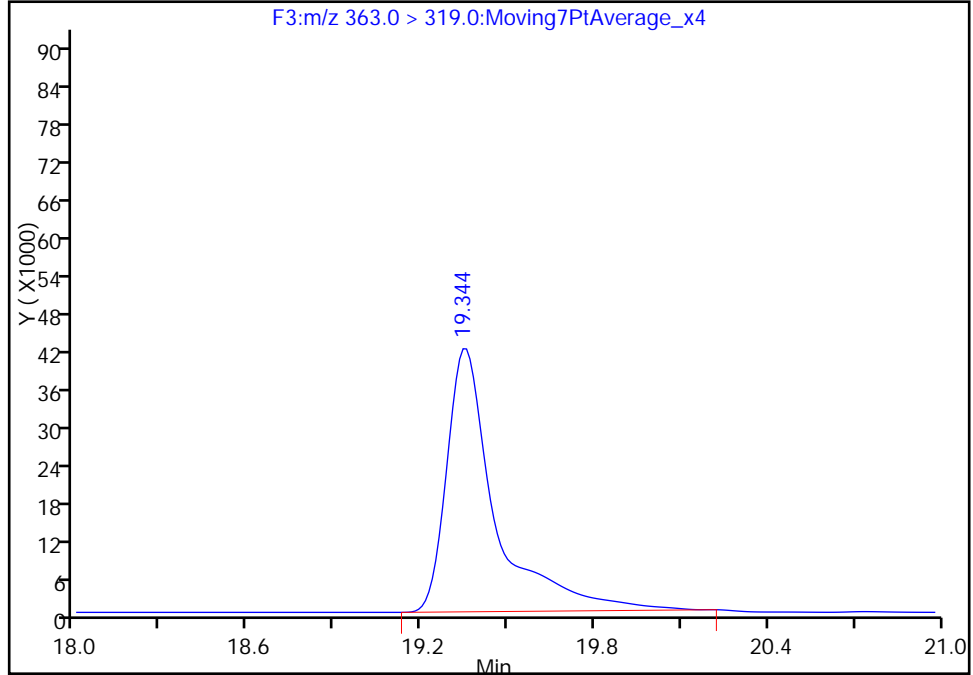
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Injection Date: 24-Dec-2016 05:25:20 Instrument ID: A6  
Lims ID: STD L3  
Client ID:  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 6  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

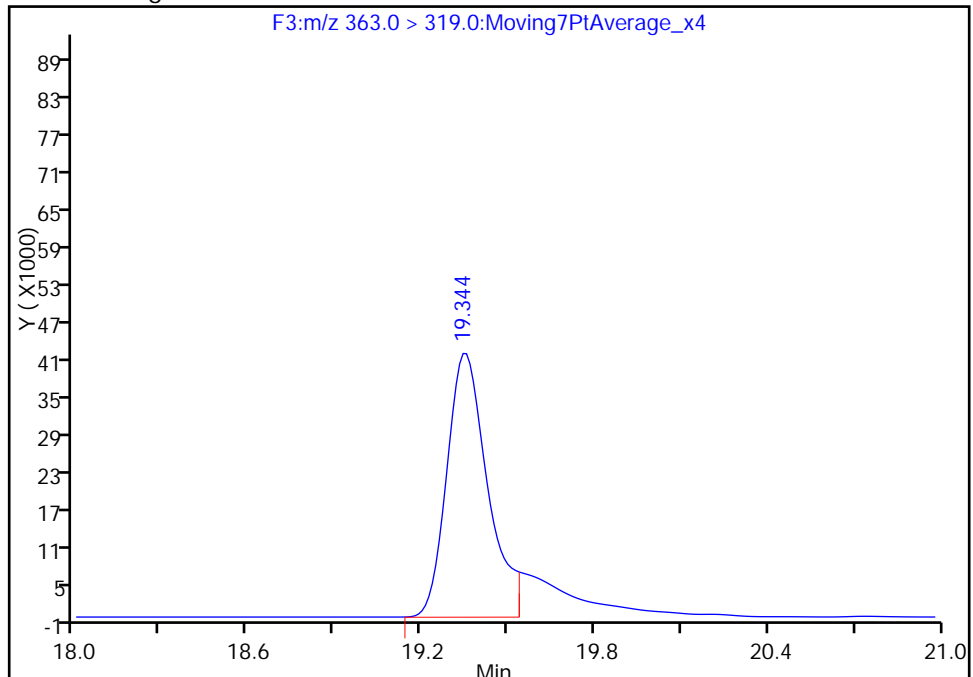
RT: 19.34  
Area: 491634  
Amount: 6.121135  
Amount Units: ng/ml

Processing Integration Results



RT: 19.34  
Area: 407699  
Amount: 5.535622  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:04:18

Audit Action: Manually Integrated

Audit Reason: Baseline



TestAmerica Sacramento

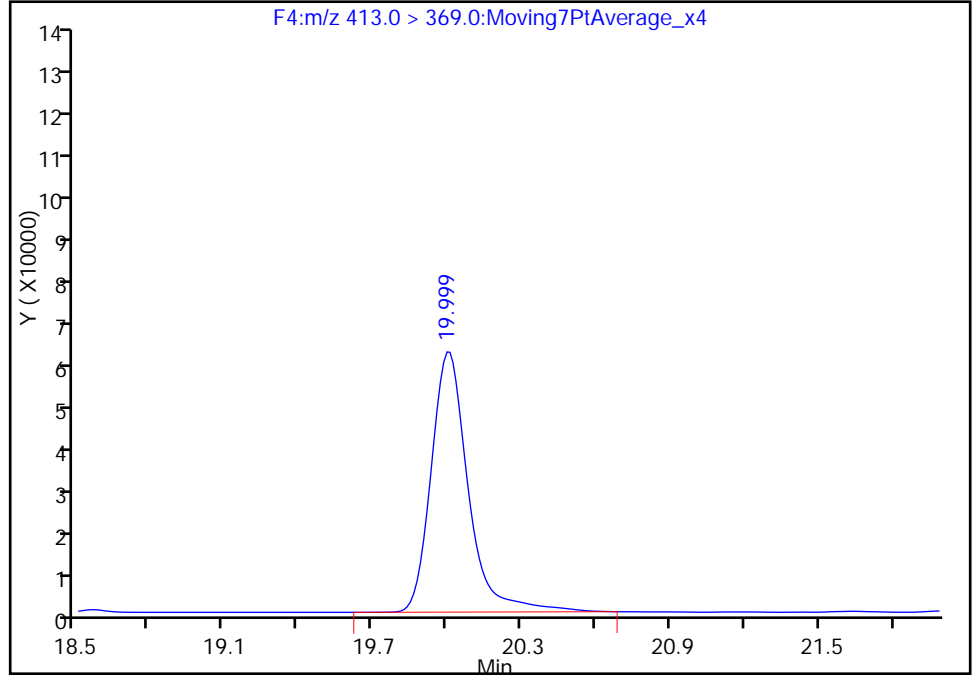
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_006.d  
Injection Date: 24-Dec-2016 05:25:20 Instrument ID: A6  
Lims ID: STD L3  
Client ID:  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 6  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

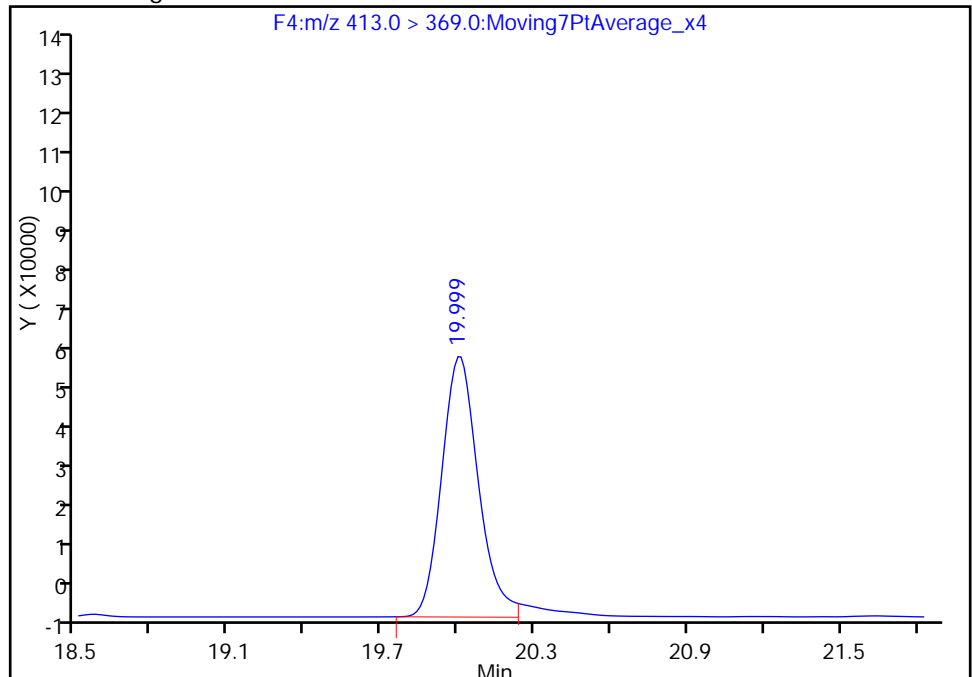
RT: 20.00  
Area: 618796  
Amount: 10.134867  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 593502  
Amount: 9.789506  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:09:12  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_007.d  
 Lims ID: STD L4  
 Client ID:  
 Sample Type: ICISAV Calib Level: 4  
 Inject. Date: 24-Dec-2016 05:54:58 ALS Bottle#: 4 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L4 L4  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:55:08 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 11:52:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.586	0.0	1.000	3444375	89.4	760
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	727339	10.6	23818
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	1505450	31.5	34932
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.350	0.006	1.000	733295	10.4	79.4 M
* 5 13C2-PFOA	415.0 > 370.0	20.011	20.005	0.006		574449	10.0	14462
6 Perfluorooctanoic acid	413.0 > 369.0	20.011	20.005	0.006	1.000	1195609	20.7	546
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	2327023	41.7	37125
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.619	0.0		1456779	28.7	37378
9 Perfluorononanoic acid	463.0 > 419.0	20.702	20.697	0.005	1.000	1365537	20.7	20501
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	605628	10.5	19163

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L4\_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_007.d

Injection Date: 24-Dec-2016 05:54:58

Instrument ID: A6

Lims ID: STD L4

Client ID:

Operator ID: CBW

ALS Bottle#: 4

Worklist Smp#: 7

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

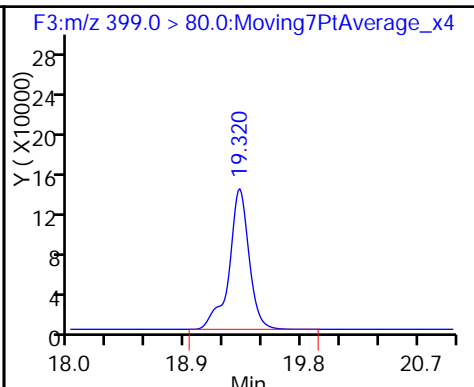
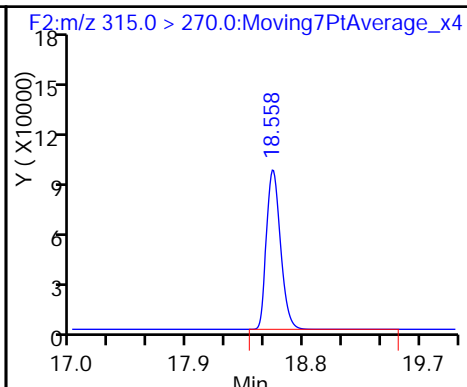
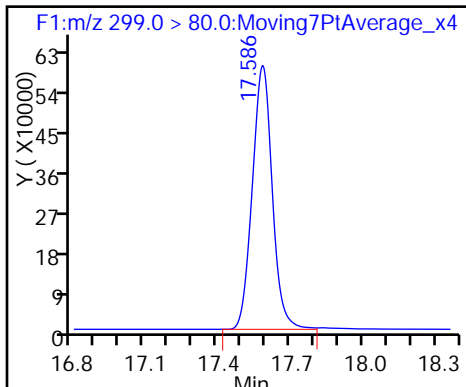
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

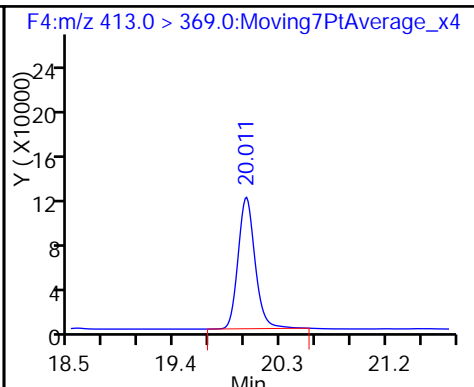
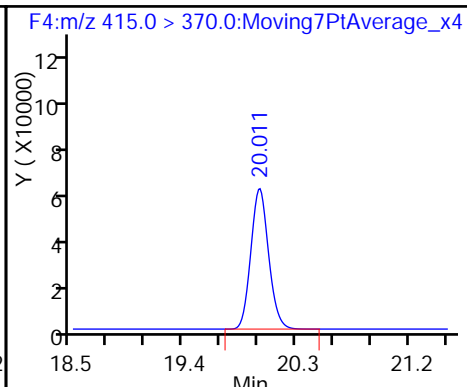
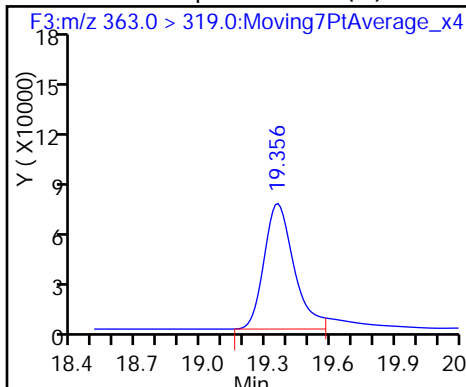
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

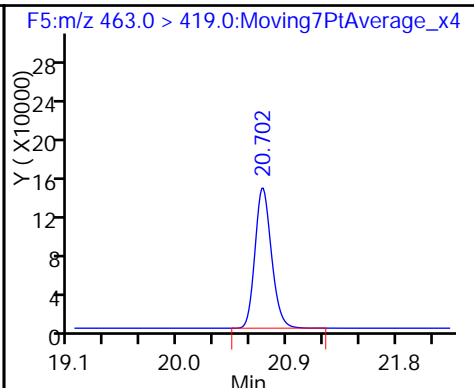
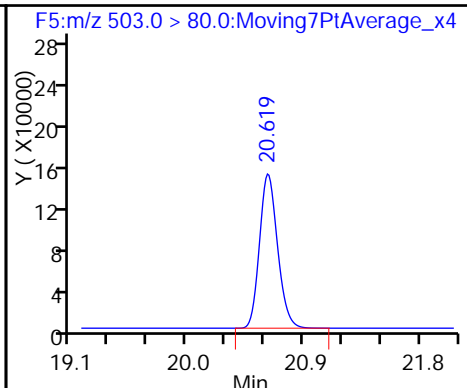
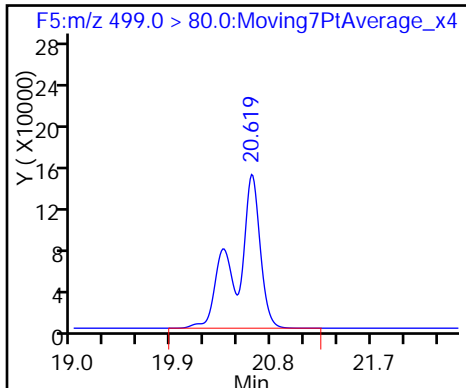
6 Perfluorooctanoic acid



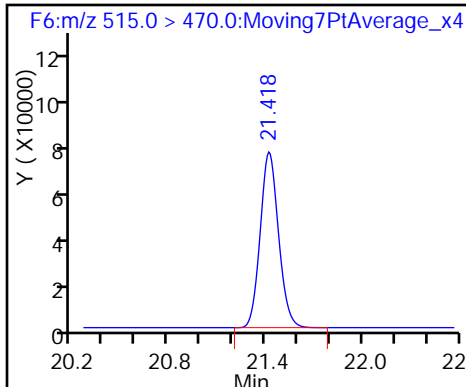
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

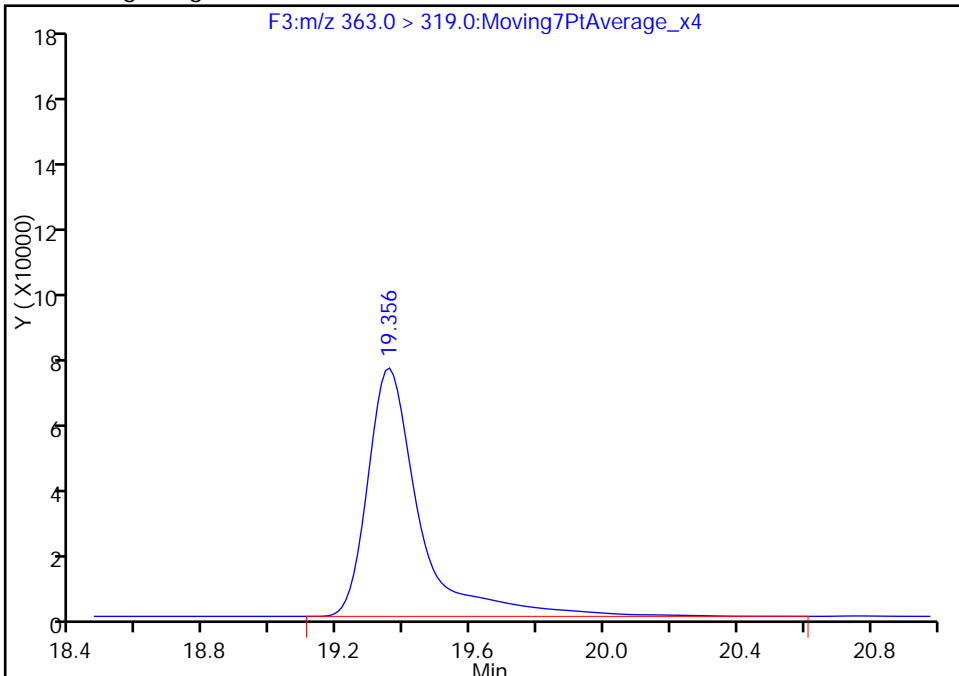
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_007.d  
Injection Date: 24-Dec-2016 05:54:58 Instrument ID: A6  
Lims ID: STD L4  
Client ID:  
Operator ID: CBW ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

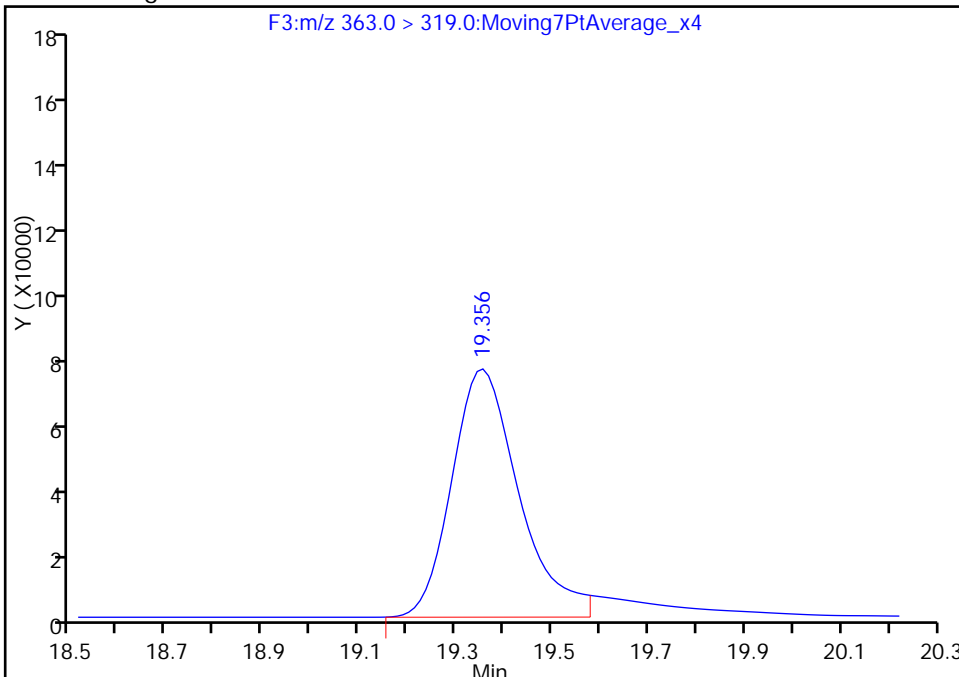
RT: 19.36  
Area: 824224  
Amount: 11.158414  
Amount Units: ng/ml

Processing Integration Results



RT: 19.36  
Area: 733295  
Amount: 10.447079  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:07:04  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_008.d  
 Lims ID: STD L5  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 24-Dec-2016 06:24:33 ALS Bottle#: 5 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L5 L5  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:55:14 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 12:10:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.586	-0.004	1.000	4710266	132.8	8284
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	686886	9.73	22056
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	2054618	46.7	46922
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.350	0.006	1.000	976632	13.5	82.2 M
* 5 13C2-PFOA	415.0 > 370.0	20.011	20.005	0.006		591689	10.0	15022
6 Perfluorooctanoic acid	413.0 > 369.0	20.011	20.005	0.006	1.000	1721874	28.9	1197
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	3403779	66.2	19341
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.619	0.0		1340813	28.7	22935
9 Perfluorononanoic acid	463.0 > 419.0	20.702	20.697	0.005	1.000	1918933	28.2	14288
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	591036	9.91	18532

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L5\_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_008.d

Injection Date: 24-Dec-2016 06:24:33

Instrument ID: A6

Lims ID: STD L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 8

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

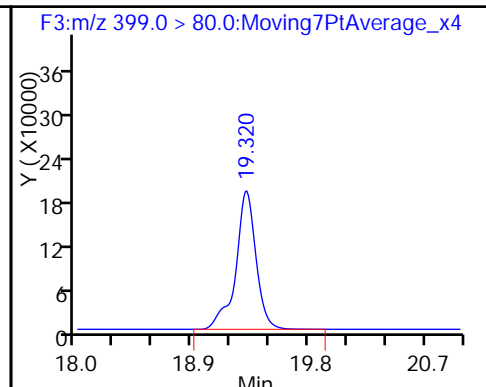
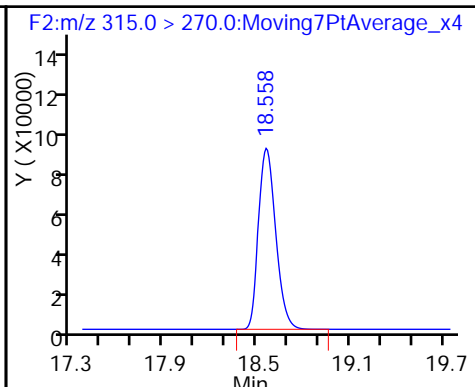
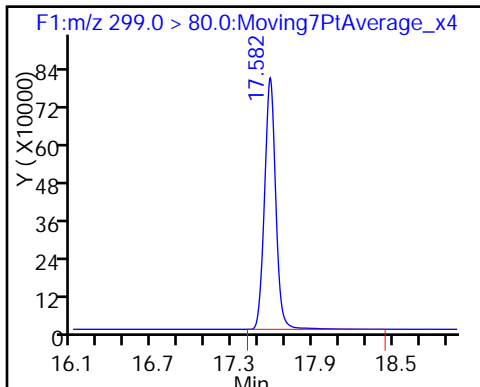
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

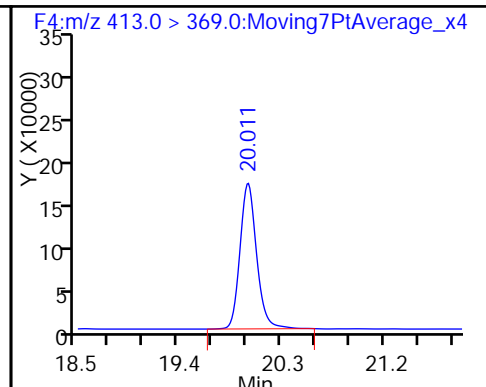
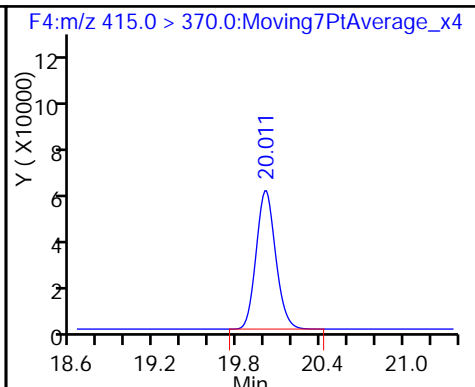
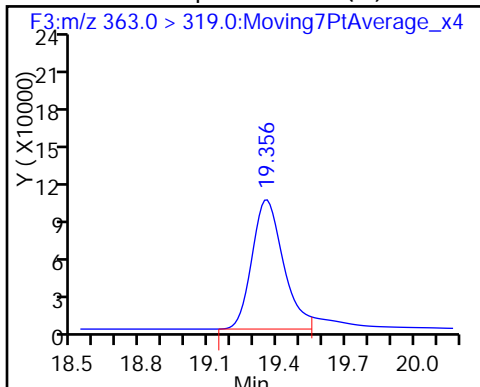
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

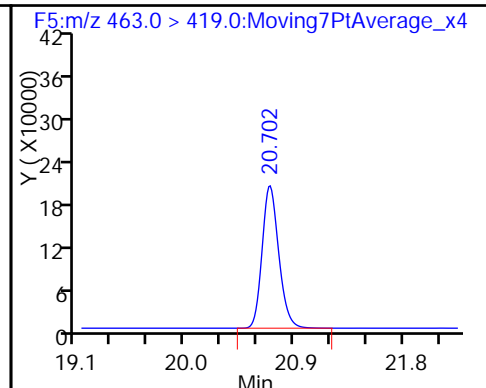
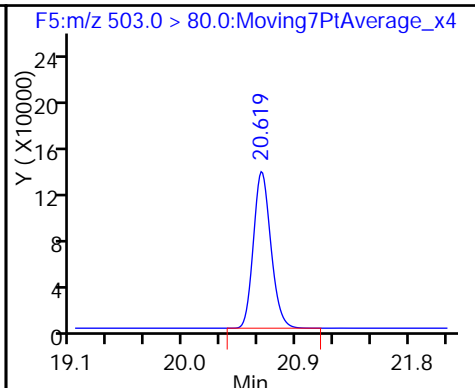
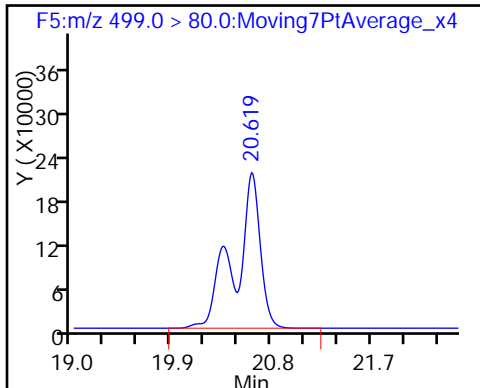
6 Perfluorooctanoic acid



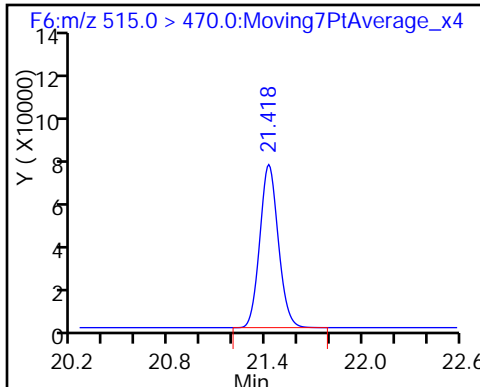
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

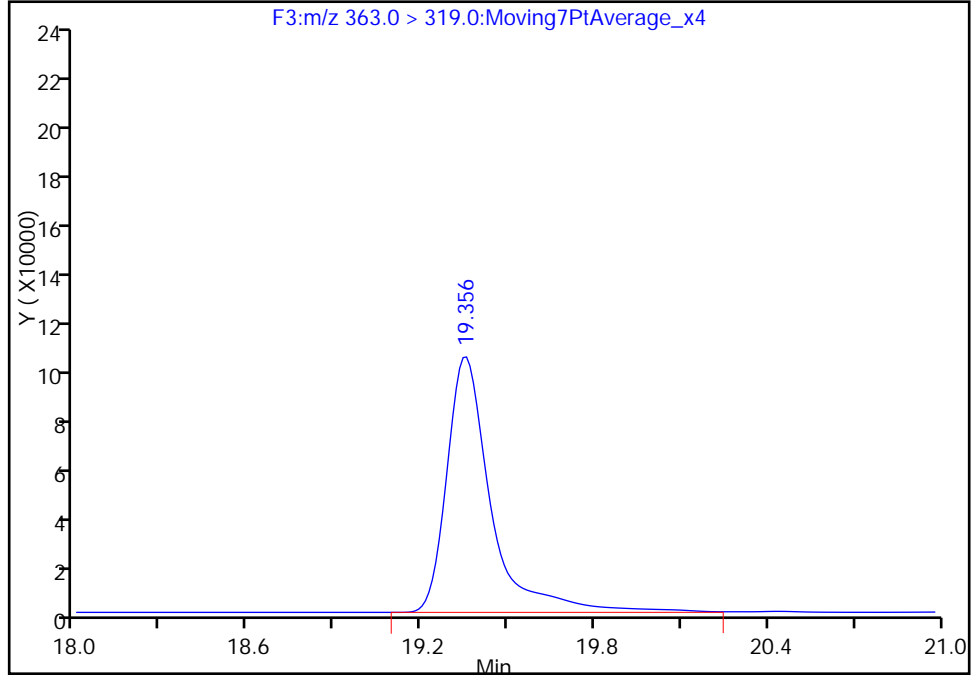
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_008.d  
Injection Date: 24-Dec-2016 06:24:33 Instrument ID: A6  
Lims ID: STD L5  
Client ID:  
Operator ID: CBW ALS Bottle#: 5 Worklist Smp#: 8  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

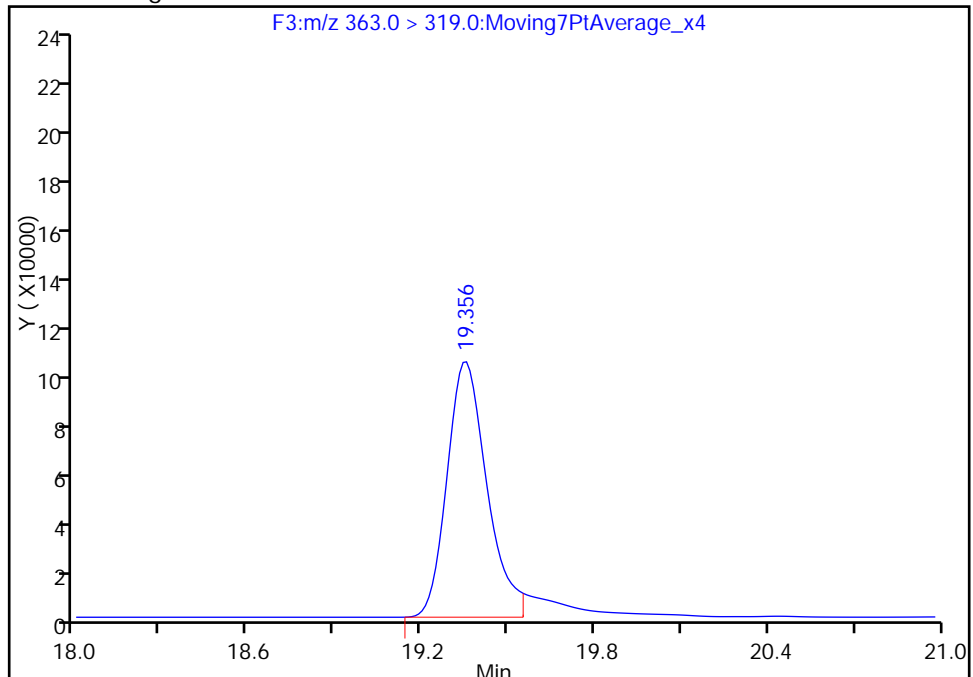
RT: 19.36  
Area: 1090608  
Amount: 14.634076  
Amount Units: ng/ml

Processing Integration Results



RT: 19.36  
Area: 976632  
Amount: 13.508437  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:10:47

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Lims ID: STD L6  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 24-Dec-2016 06:54:10 ALS Bottle#: 6 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: STD L6 L6  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:55:20 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 12:11:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.586	0.0	1.000	5939448	166.8	2454
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.558	0.009	1.000	726485	11.7	23627
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	2809913	63.6	63277
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.350	0.006	1.000	1230238	19.3	129 M
* 5 13C2-PFOA	415.0 > 370.0	20.011	20.005	0.006		521213	10.0	13076
6 Perfluorooctanoic acid	413.0 > 369.0	20.011	20.005	0.006	1.000	2263615	43.2	940
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4386351	85.0	67299
* 8 13C4 PFOS	503.0 > 80.0	20.619	20.619	0.0		1346636	28.7	34338
9 Perfluorononanoic acid	463.0 > 419.0	20.702	20.697	0.005	1.000	2652055	44.3	14613
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	608935	11.6	19393

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L6\_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d

Injection Date: 24-Dec-2016 06:54:10

Instrument ID: A6

Lims ID: STD L6

Client ID:

Operator ID: CBW

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

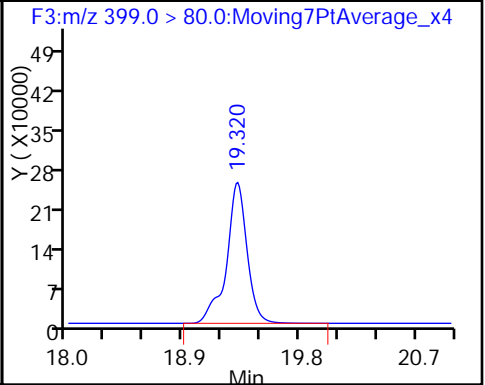
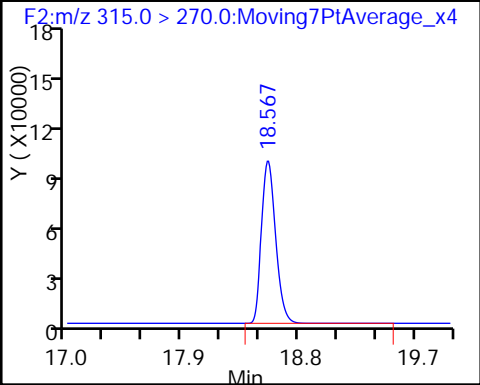
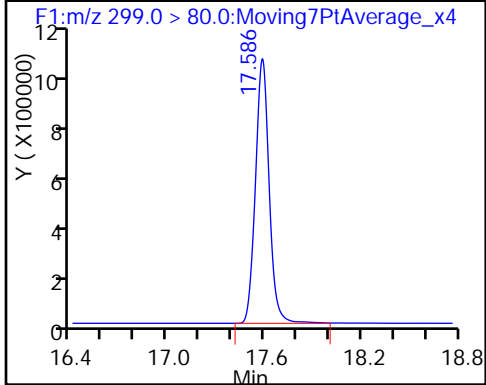
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

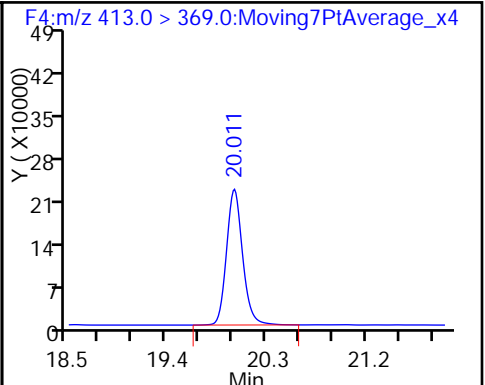
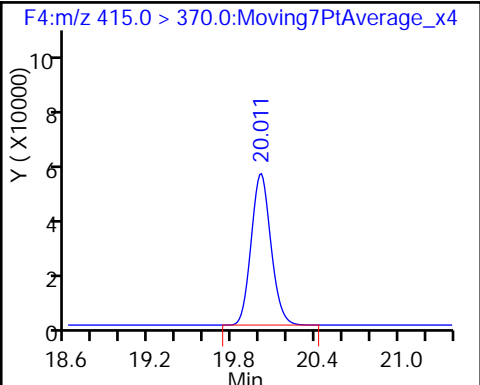
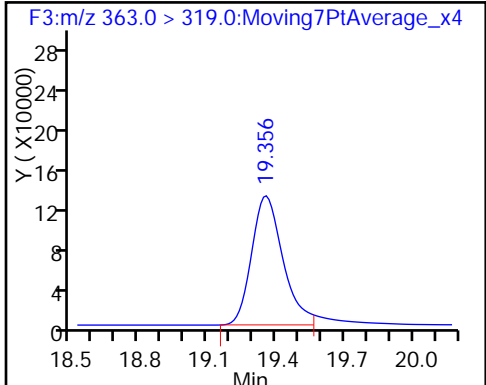
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

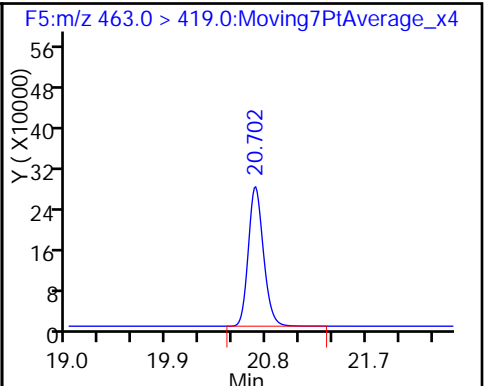
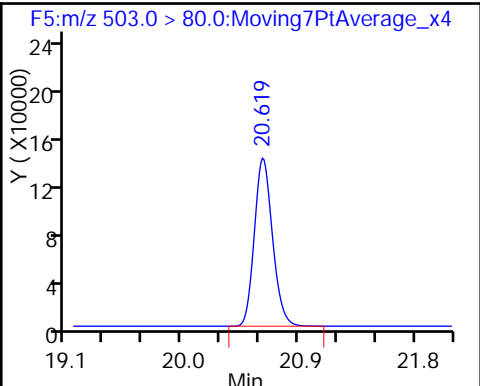
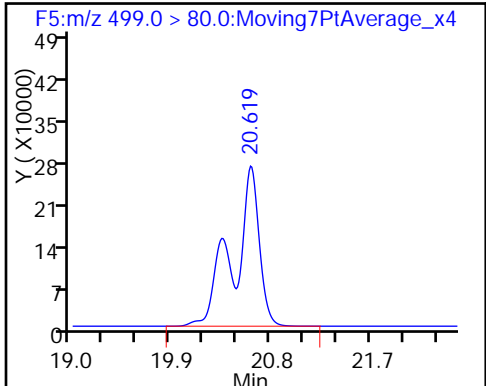
6 Perfluorooctanoic acid



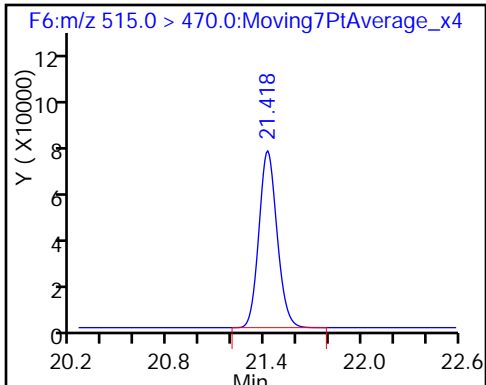
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

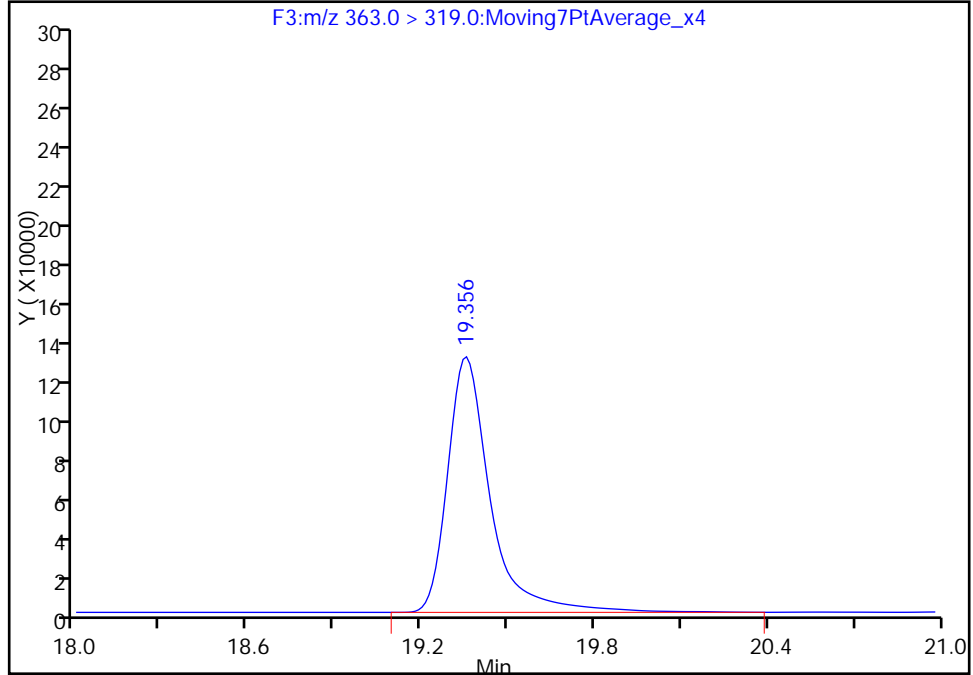
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
Injection Date: 24-Dec-2016 06:54:10 Instrument ID: A6  
Lims ID: STD L6  
Client ID:  
Operator ID: CBW ALS Bottle#: 6 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

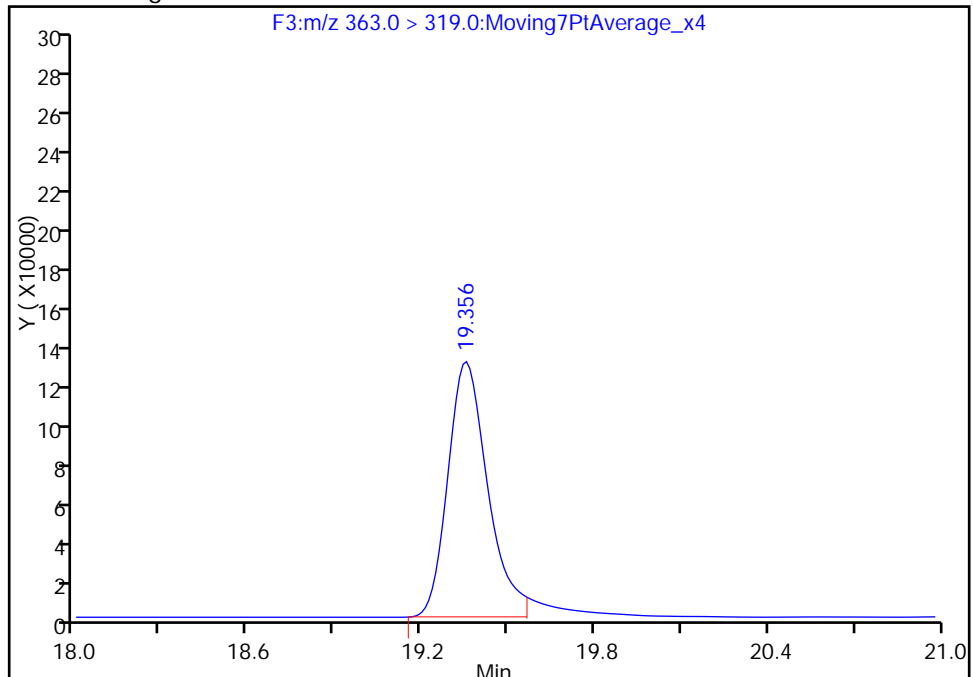
RT: 19.36  
Area: 1328838  
Amount: 20.595205  
Amount Units: ng/ml

Processing Integration Results



RT: 19.36  
Area: 1230238  
Amount: 19.317083  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:11:59

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-143828/11 Calibration Date: 12/24/2016 07:53  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 24DEC2016A6A\_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.8007		24.2	22.9	5.6	50.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.9098		7.46	7.72	-3.3	50.0
Perfluoroheptanoic acid	Ave	1.222	1.308		2.70	2.52	7.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.037		5.13	4.98	3.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.106		10.3	10.2	0.5	50.0
Perfluorononanoic acid	Ave	1.149	1.267		5.83	5.29	10.3	50.0
13C2 PFHxA	Ave	1.193	1.160		9.72	10.0	-2.8	30.0
13C2 PFDA	Ave	1.008	0.9498		9.42	10.0	-5.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_011.d  
 Lims ID: CCV L2  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 24-Dec-2016 07:53:20 ALS Bottle#: 2 Worklist Smp#: 11  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L2 CCV L2  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:56:28 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 12:19:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.586	0.0	1.000	1022169	24.2	348
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.559	-0.001	1.000	757155	9.72	24717
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	391515	7.46	9073
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.350	0.006	1.000	215552	2.70	18.7 M
* 5 13C2-PFOA	415.0 > 370.0	20.011	20.005	0.006		652887	10.0	16566
6 Perfluorooctanoic acid	413.0 > 369.0	20.011	20.005	0.006	1.000	336982	5.13	120 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.620	20.619	0.001	1.000	629983	10.3	10166
* 8 13C4 PFOS	503.0 > 80.0	20.620	20.619	0.001		1599599	28.7	41464
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.697	-0.006	1.000	437409	5.83	9269
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	620121	9.42	19537

### QC Flag Legend

Review Flags

M - Manually Integrated

### Reagents:

LC537-L2\_00016

Amount Added: 1.00

Units: mL



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_011.d

Injection Date: 24-Dec-2016 07:53:20

Instrument ID: A6

Lims ID: CCV L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 11

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

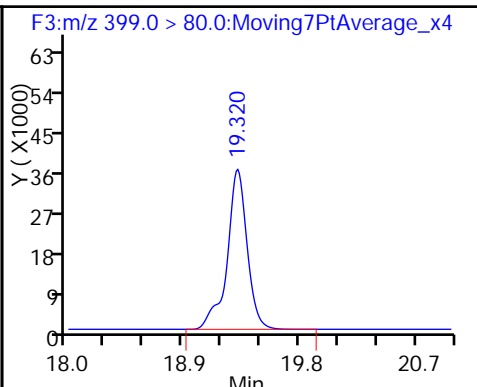
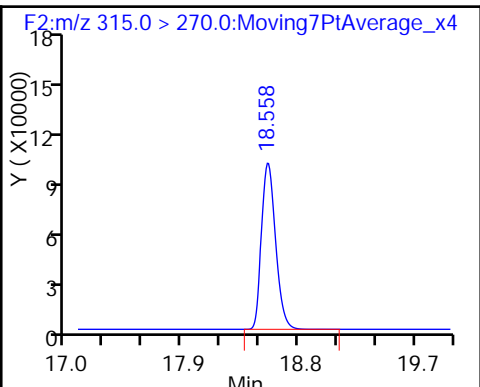
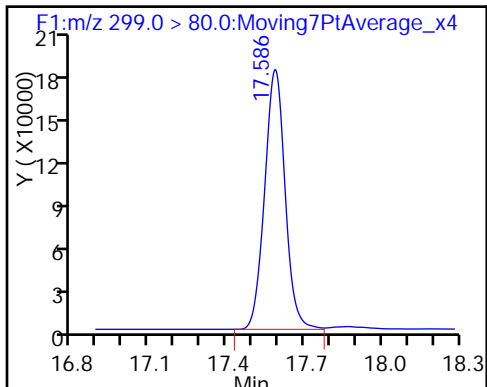
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

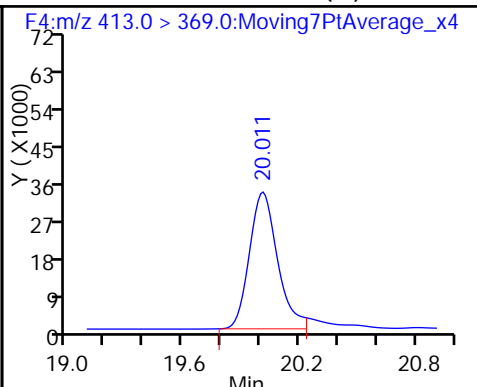
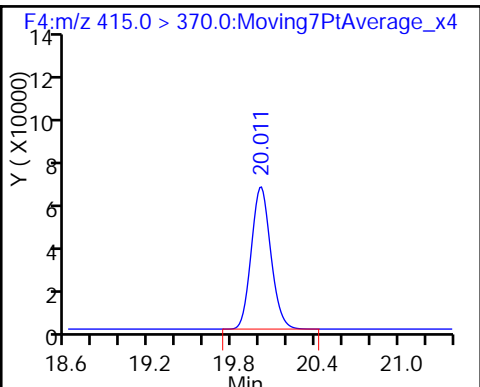
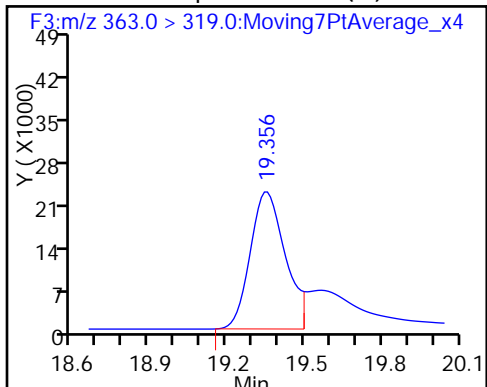
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

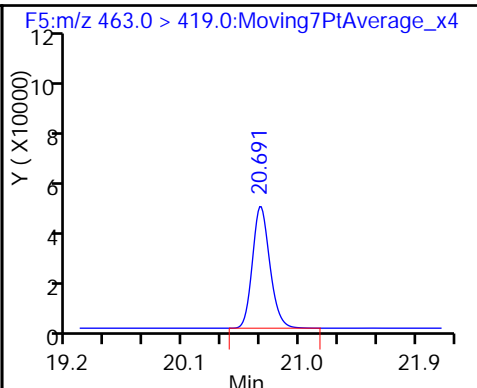
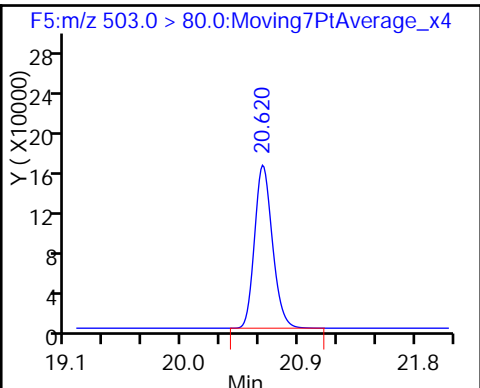
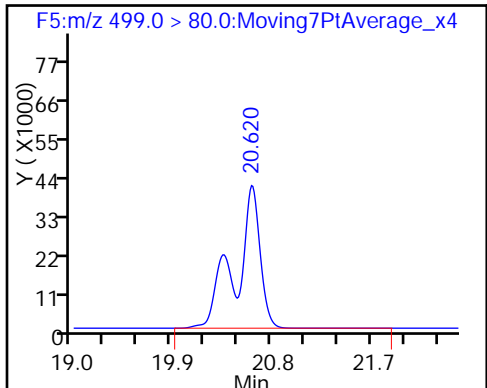
6 Perfluorooctanoic acid (M)



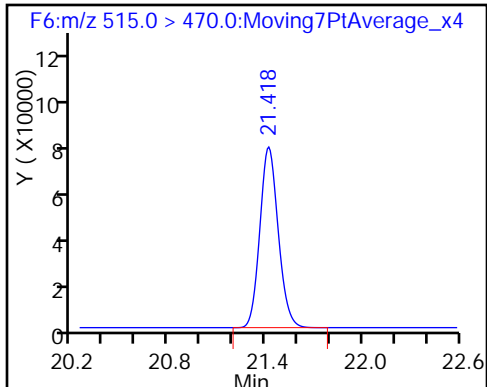
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

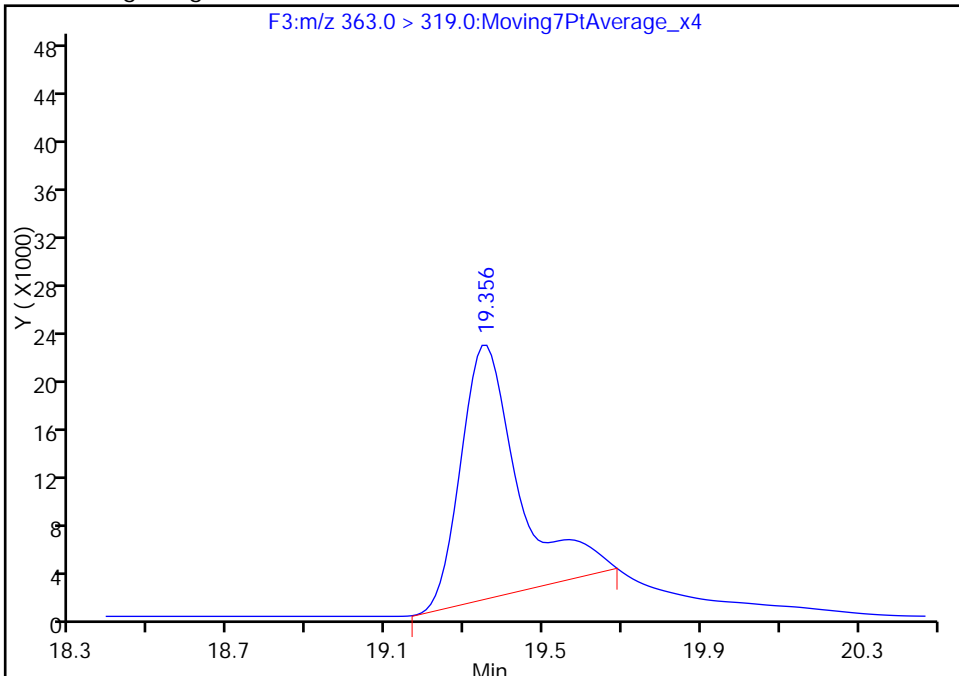
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_011.d  
Injection Date: 24-Dec-2016 07:53:20 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 11  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

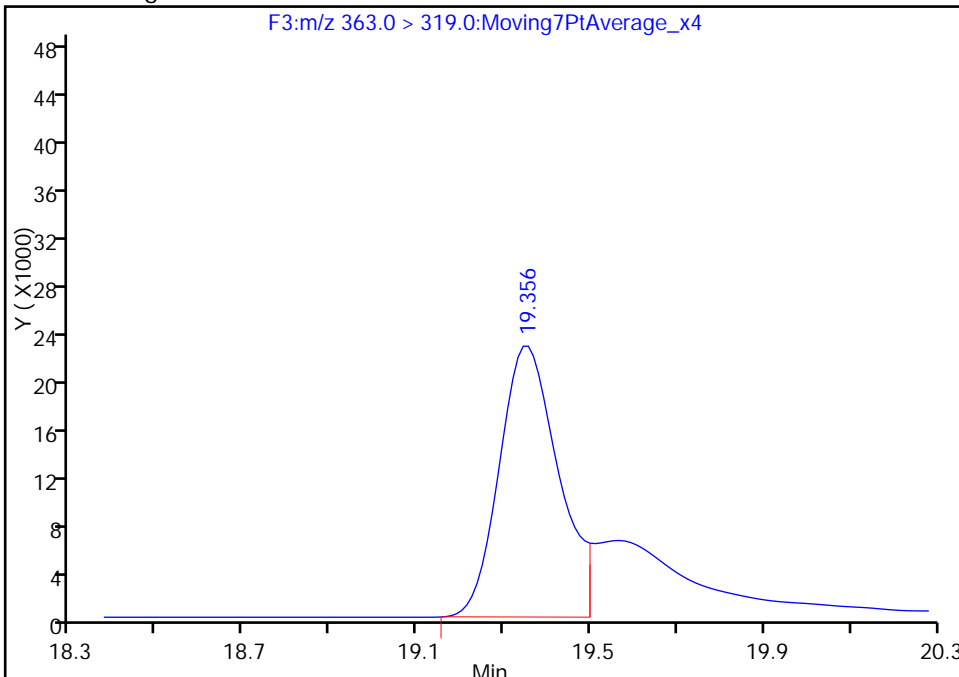
RT: 19.36  
Area: 218316  
Amount: 2.736624  
Amount Units: ng/ml

Processing Integration Results



RT: 19.36  
Area: 215552  
Amount: 2.701977  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:19:01  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

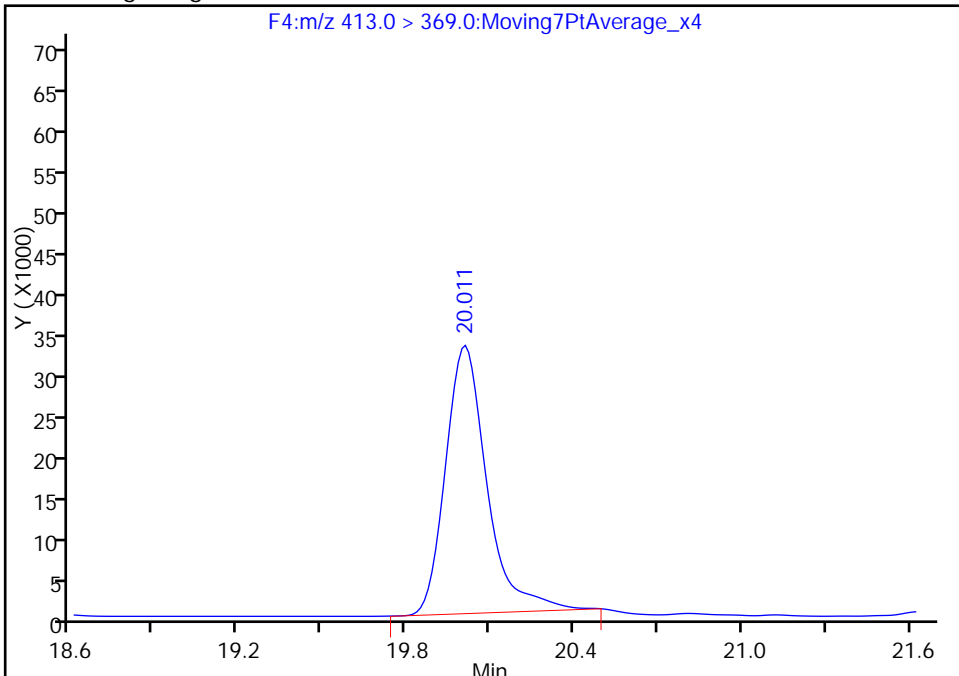
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_011.d  
Injection Date: 24-Dec-2016 07:53:20 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 11  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

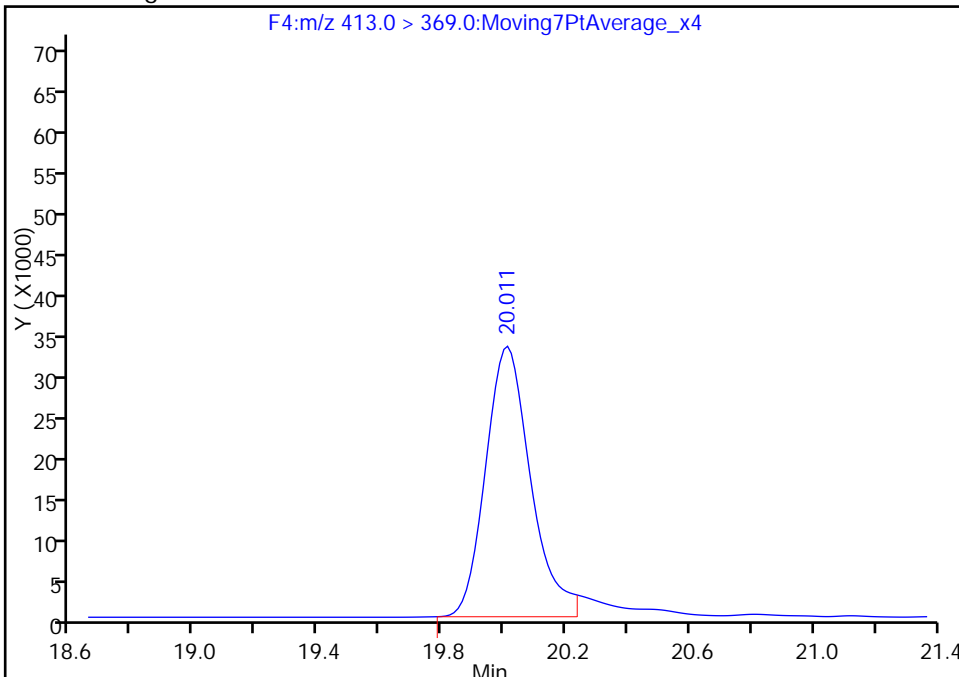
RT: 20.01  
Area: 341171  
Amount: 5.195334  
Amount Units: ng/ml

Processing Integration Results



RT: 20.01  
Area: 336982  
Amount: 5.131545  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:19:01  
Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-143828/13 Calibration Date: 12/24/2016 08:52  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 24DEC2016A6A\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.5696		86.2	115	-24.9	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.6887		19.4	26.5	-26.8	30.0
Perfluoroheptanoic acid	Ave	1.222	1.215		12.5	12.6	-0.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.023		25.5	25.0	1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	0.8190		20.3	27.2	-25.5	30.0
Perfluorononanoic acid	Ave	1.149	1.056		23.0	25.0	-8.1	30.0
13C2 PFHxA	Ave	1.193	1.179		9.88	10.0	-1.2	30.0
13C2 PFDA	Ave	1.008	0.9390		9.31	10.0	-6.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_013.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 24-Dec-2016 08:52:30 ALS Bottle#: 7 Worklist Smp#: 13  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: ICV ICV  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist:

Method: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 27-Dec-2016 10:56:38 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d

Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK031

First Level Reviewer: phomsophat Date: 24-Dec-2016 12:21:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.589	17.586	0.003	1.000	3619397	86.2	870
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.559	0.008	1.000	695964	9.88	22590
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.318	0.002	1.000	1009629	19.4	23583
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.350	0.006	1.000	904351	12.5	87.5 M
* 5 13C2-PFOA	415.0 > 370.0	20.011	20.005	0.006		590506	10.0	14954
6 Perfluorooctanoic acid	413.0 > 369.0	20.011	20.005	0.006	1.000	1511917	25.5	1505
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.631	20.619	0.012	1.000	1235004	20.3	19443
* 8 13C4 PFOS	503.0 > 80.0	20.620	20.619	0.001		1587807	28.7	41047
9 Perfluorononanoic acid	463.0 > 419.0	20.703	20.697	0.006	1.000	1559739	23.0	32800
\$ 10 13C2 PFDA	515.0 > 470.0	21.418	21.416	0.002	1.000	554498	9.31	17342

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-ICV\_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_013.d

Injection Date: 24-Dec-2016 08:52:30

Instrument ID: A6

Lims ID: ICV

Client ID:

Operator ID: CBW

ALS Bottle#: 7

Worklist Smp#: 13

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

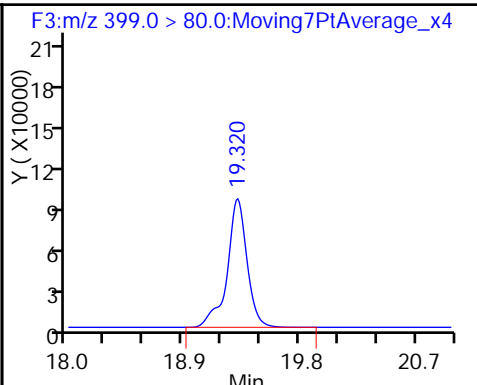
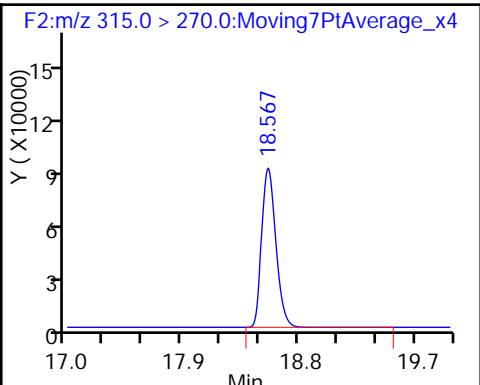
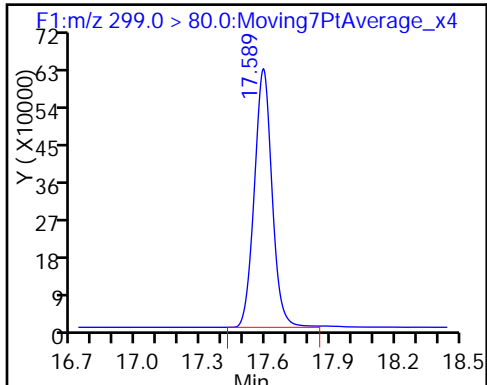
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

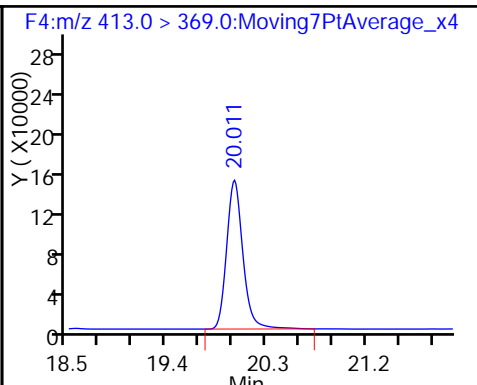
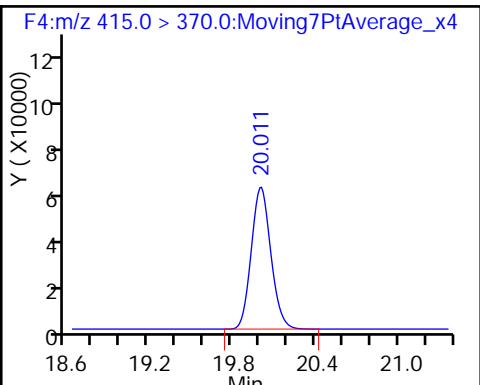
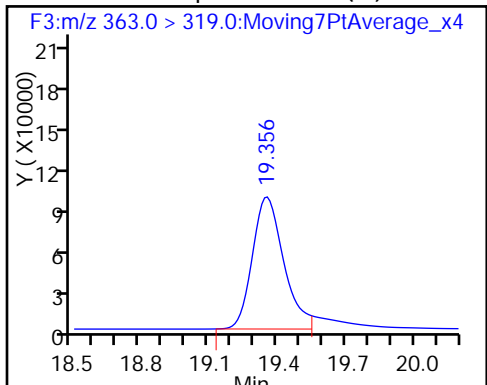
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

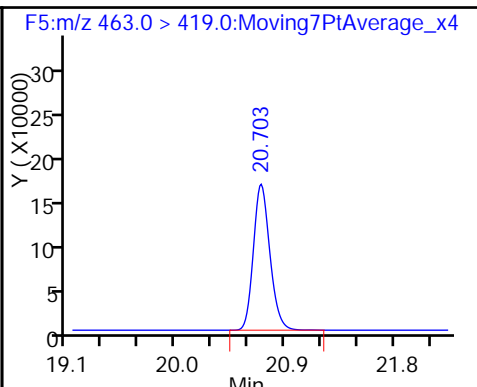
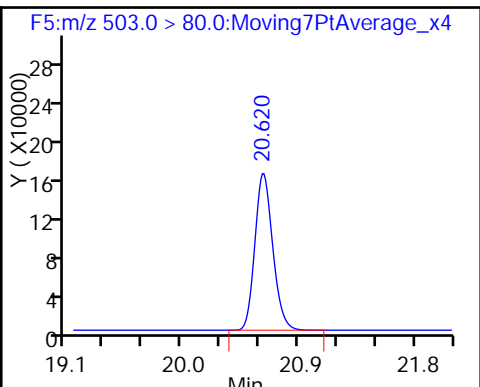
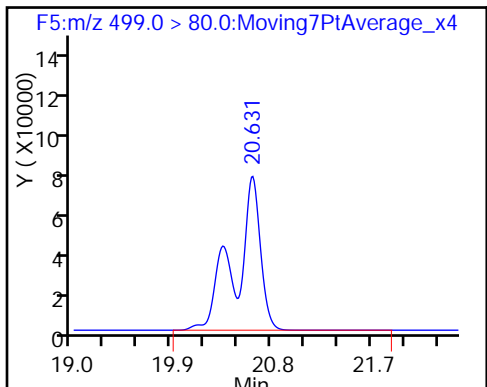
6 Perfluorooctanoic acid



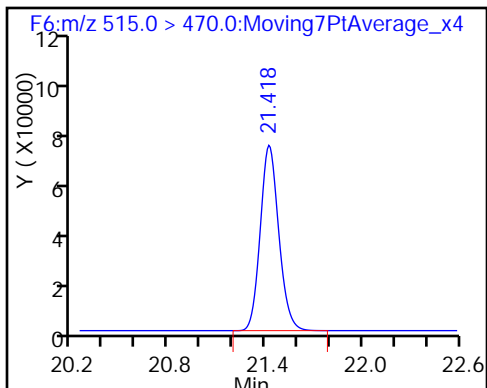
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

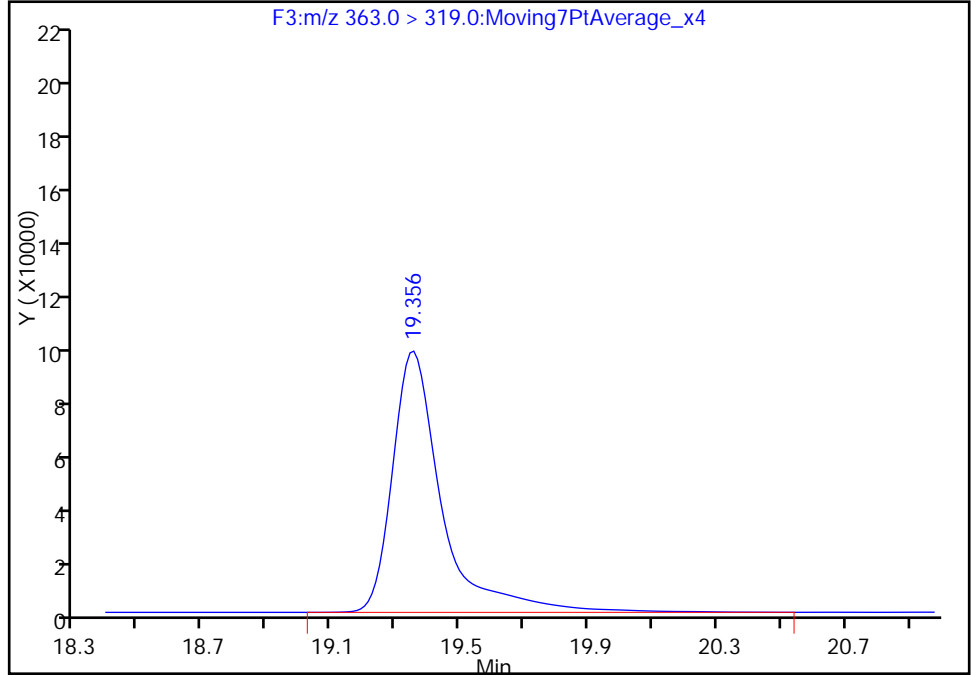
Data File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_013.d  
Injection Date: 24-Dec-2016 08:52:30 Instrument ID: A6  
Lims ID: ICV  
Client ID:  
Operator ID: CBW ALS Bottle#: 7 Worklist Smp#: 13  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

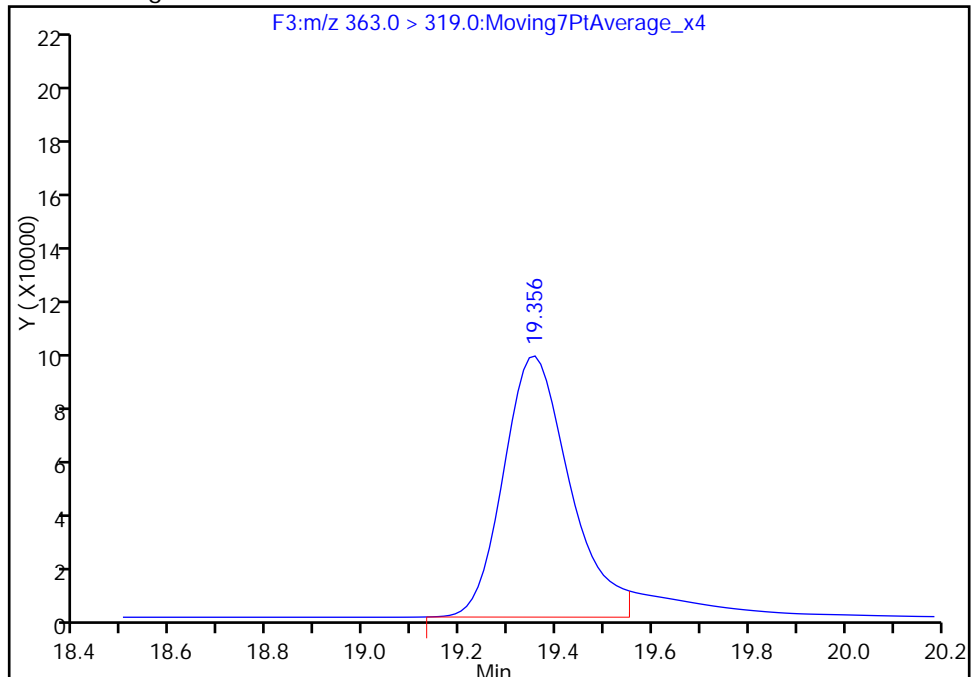
RT: 19.36  
Area: 1014586  
Amount: 14.061517  
Amount Units: ng/ml

Processing Integration Results



RT: 19.36  
Area: 904351  
Amount: 12.533730  
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 24-Dec-2016 12:21:33

Audit Action: Manually Integrated

Audit Reason: Baseline



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144053/27 Calibration Date: 12/28/2016 05:51  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.7718		45.9	45.1	1.8	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.9604		15.5	15.2	2.1	30.0
Perfluoroheptanoic acid	Ave	1.222	1.185		4.82	4.97	-3.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.063		10.4	9.81	5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.111		20.3	20.1	1.1	30.0
Perfluorononanoic acid	Ave	1.149	1.187		10.8	10.4	3.4	30.0
13C2 PFHxA	Ave	1.193	1.156		9.69	10.0	-3.1	30.0
13C2 PFDA	Ave	1.008	0.9797		9.72	10.0	-2.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_027.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 05:51:32 ALS Bottle#: 3 Worklist Smp#: 27  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:23:31 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 13:57:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.570	17.570	0.0	1.000	2009628	45.9	498
\$ 2 13C2 PFHxA	315.0 > 270.0	18.539	18.539	0.0	1.000	752384	9.69	24677
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.297	19.297	0.0	1.000	842967	15.5	19518
4 Perfluoroheptanoic acid	363.0 > 319.0	19.332	19.332	0.0	1.000	383421	4.82	65.1 M
* 5 13C2-PFOA	415.0 > 370.0	19.986	19.986	0.0		650671	10.0	16250
6 Perfluorooctanoic acid	413.0 > 369.0	19.986	19.986	0.0	1.000	678217	10.4	611
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	1291613	20.3	21415
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1655589	28.7	24582
9 Perfluorononanoic acid	463.0 > 419.0	20.679	20.679	0.0	1.000	805173	10.8	3153
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	637460	9.72	19916

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L3\_00018

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_027.d

Injection Date: 28-Dec-2016 05:51:32

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 27

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

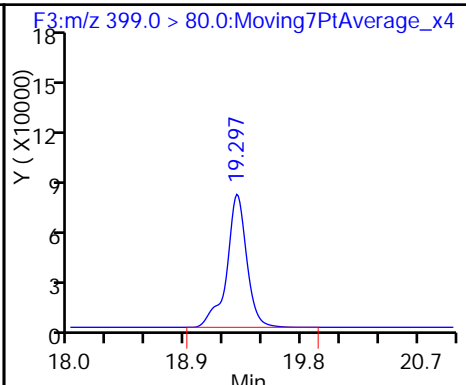
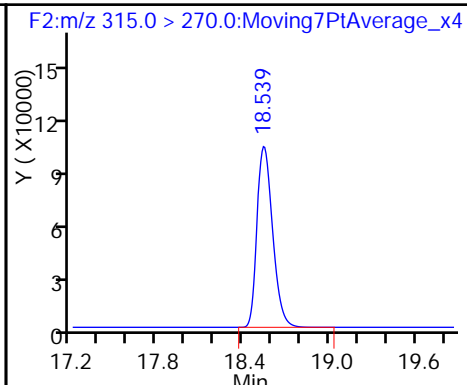
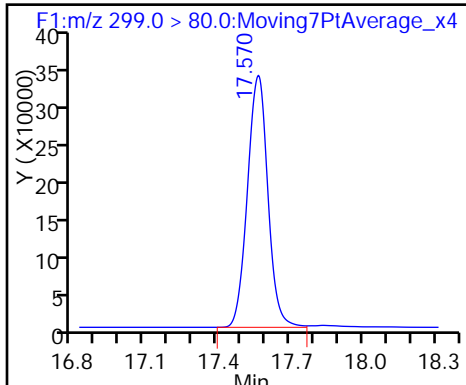
Method: 537\_\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

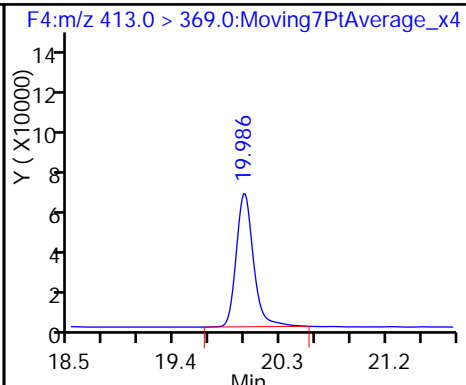
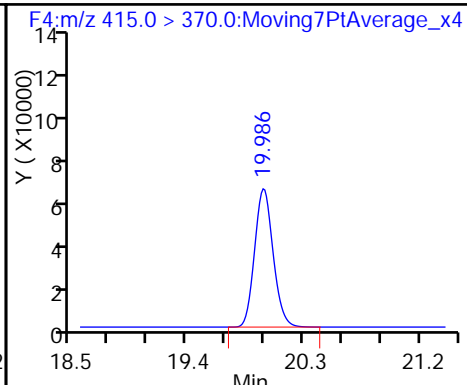
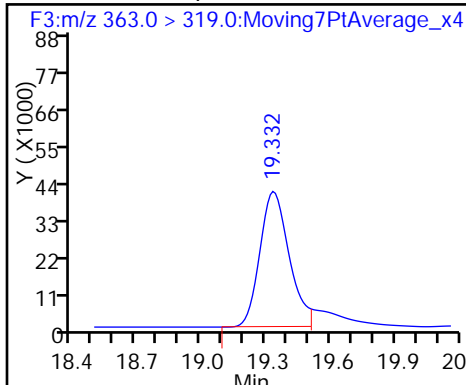
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

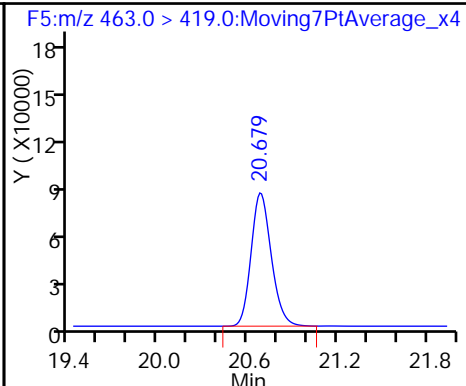
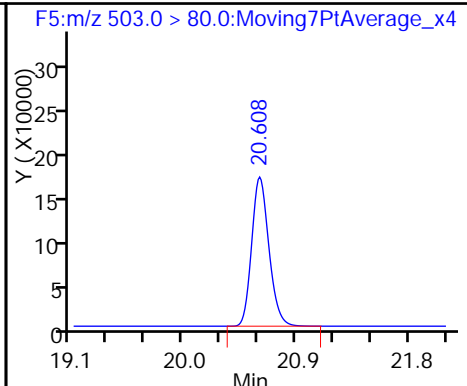
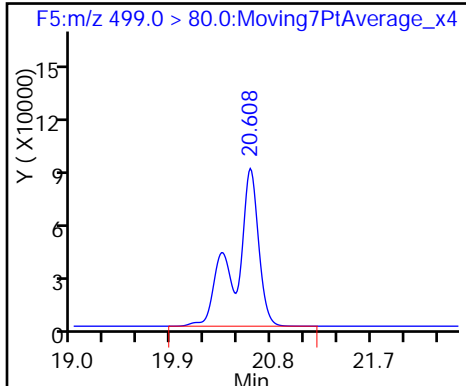
6 Perfluorooctanoic acid



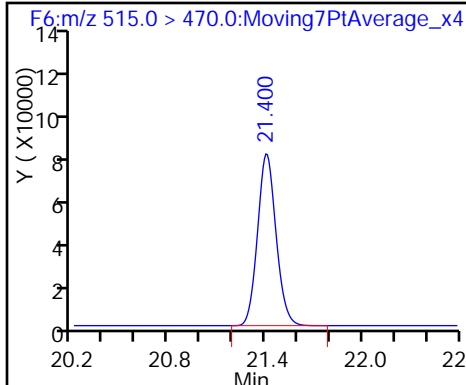
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

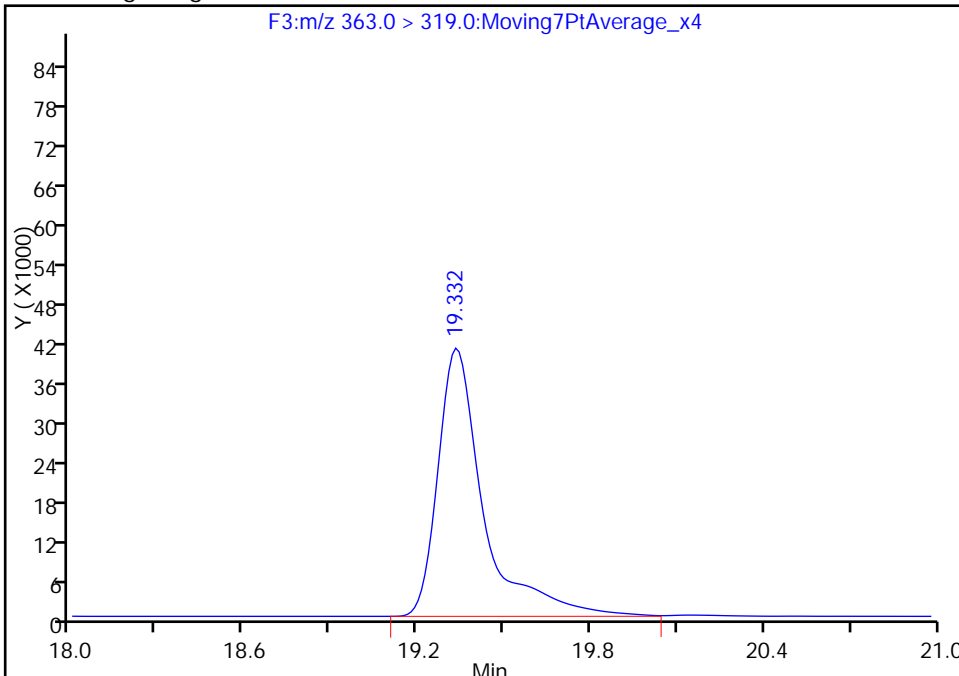
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_027.d  
Injection Date: 28-Dec-2016 05:51:32 Instrument ID: A6  
Lims ID: CCV L3  
Client ID:  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 27  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

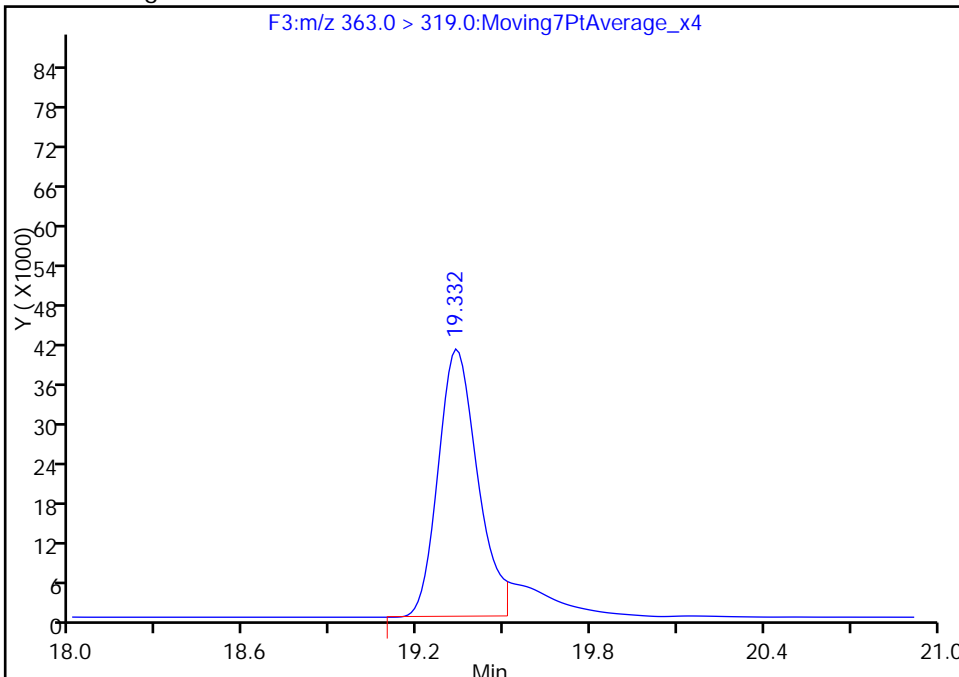
RT: 19.33  
Area: 448003  
Amount: 5.634912  
Amount Units: ng/ml

Processing Integration Results



RT: 19.33  
Area: 383421  
Amount: 4.822609  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 28-Dec-2016 13:57:23  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144053/39 Calibration Date: 12/28/2016 11:46  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_039.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.8034		143	135	5.9	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	1.048		50.6	45.4	11.4	30.0
Perfluoroheptanoic acid	Ave	1.222	1.242		15.1	14.9	1.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.062		30.9	29.3	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.251		68.3	60.1	13.7	30.0
Perfluorononanoic acid	Ave	1.149	1.182		32.0	31.1	2.9	30.0
13C2 PFHxA	Ave	1.193	1.271		10.7	10.0	6.6	30.0
13C2 PFDA	Ave	1.008	1.068		10.6	10.0	5.9	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144054/39 Calibration Date: 12/28/2016 11:46  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_039.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.8034		143	135	5.9	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	1.048		50.6	45.4	11.4	30.0
Perfluoroheptanoic acid	Ave	1.222	1.242		15.1	14.9	1.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.062		30.9	29.3	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.251		68.3	60.1	13.7	30.0
Perfluorononanoic acid	Ave	1.149	1.182		32.0	31.1	2.9	30.0
13C2 PFHxA	Ave	1.193	1.271		10.7	10.0	6.6	30.0
13C2 PFDA	Ave	1.008	1.068		10.6	10.0	5.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_039.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 11:46:46 ALS Bottle#: 5 Worklist Smp#: 39  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:39 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.576	0.0	1.000	5685759	142.6	815
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	830742	10.7	27290
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.308	0.0	1.000	2499629	50.6	56820
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.344	0.0	1.000	1204941	15.1	1178
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		653376	10.0	16388
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	2030874	30.9	937
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	3950560	68.3	24332
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1507527	28.7	38272
9 Perfluorononanoic acid	463.0 > 419.0	20.679	20.679	0.0	1.000	2402547	32.0	10915
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	697610	10.6	22025

Reagents:

LC537-L5\_00019 Amount Added: 1.00 Units: mL



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_039.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 11:46:46 ALS Bottle#: 5 Worklist Smp#: 39  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:39 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.576	0.0	1.000	5685759	142.6	815
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	830742	10.7	27290
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.308	0.0	1.000	2499629	50.6	56820
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.344	0.0	1.000	1204941	15.1	1178
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		653376	10.0	16388
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	2030874	30.9	937
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	3950560	68.3	24332
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1507527	28.7	38272
9 Perfluorononanoic acid	463.0 > 419.0	20.679	20.679	0.0	1.000	2402547	32.0	10915
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	697610	10.6	22025

Reagents:

LC537-L5\_00019 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_039.d

Injection Date: 28-Dec-2016 11:46:46

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 39

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

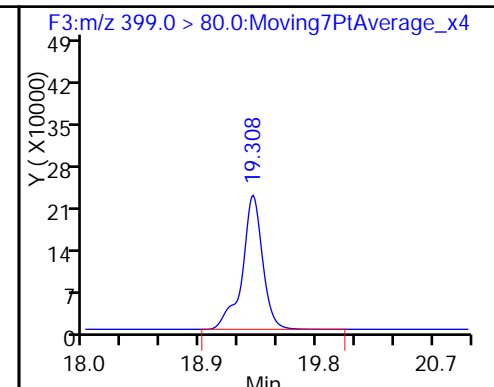
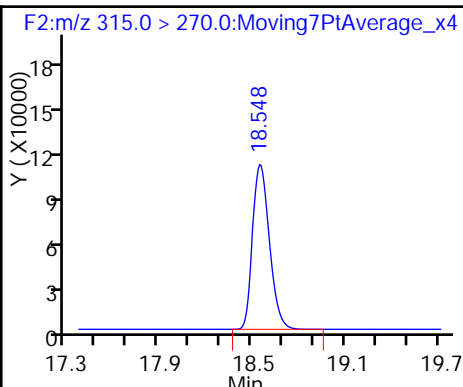
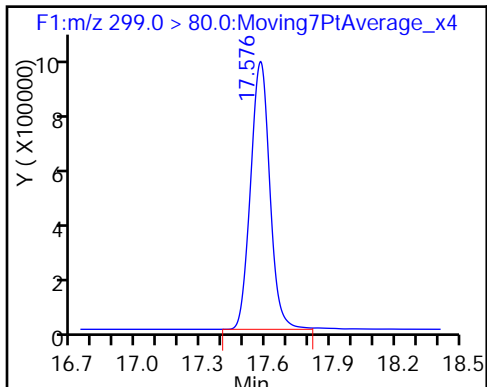
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

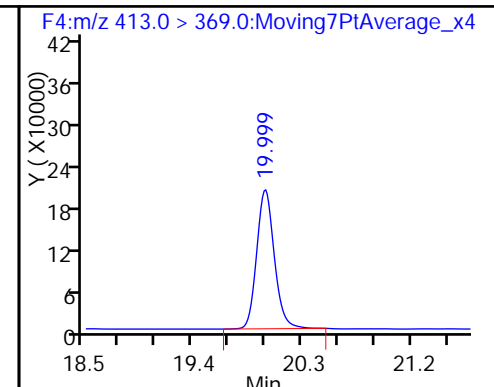
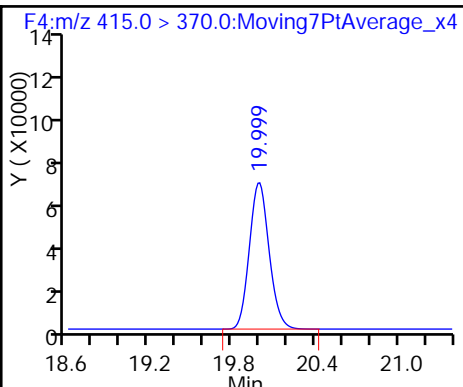
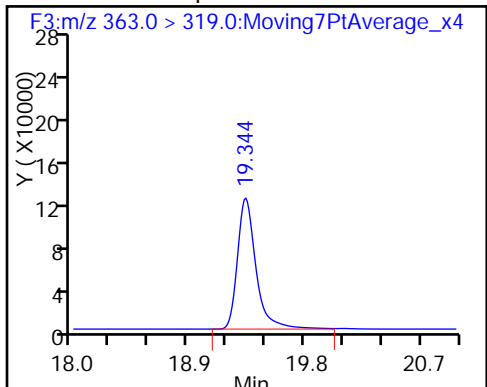
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

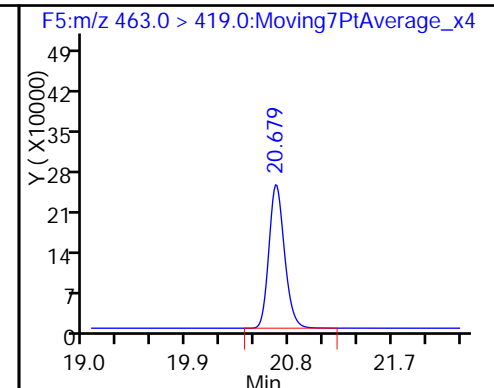
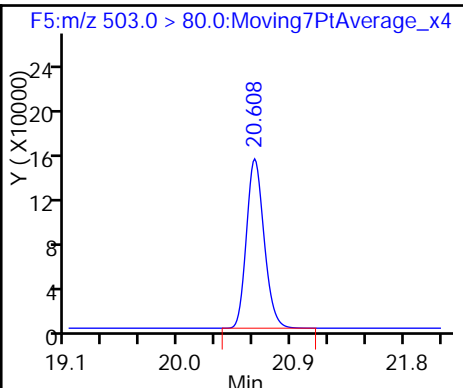
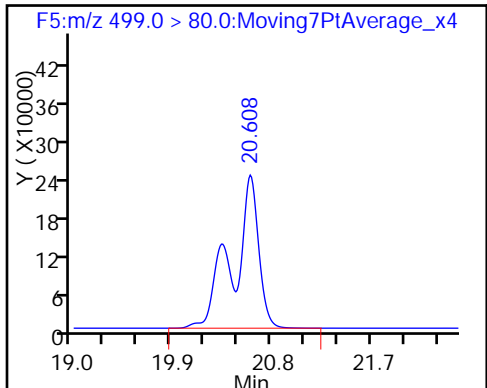
6 Perfluorooctanoic acid



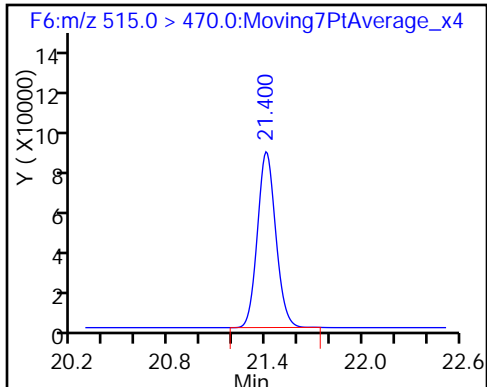
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_039.d

Injection Date: 28-Dec-2016 11:46:46

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 39

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

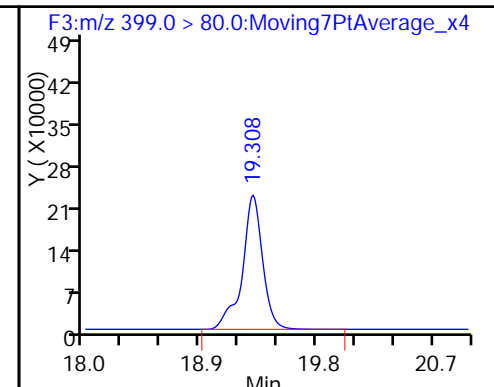
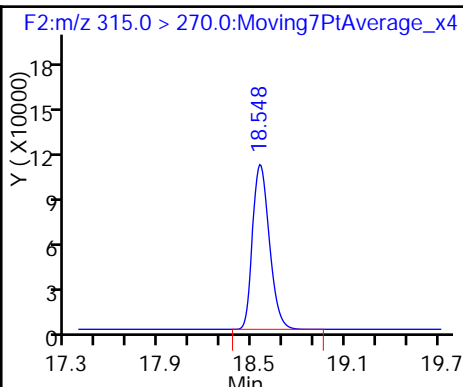
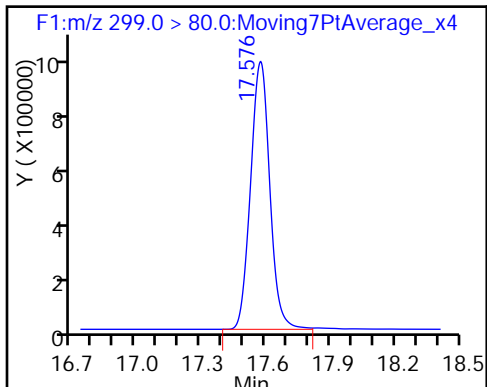
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

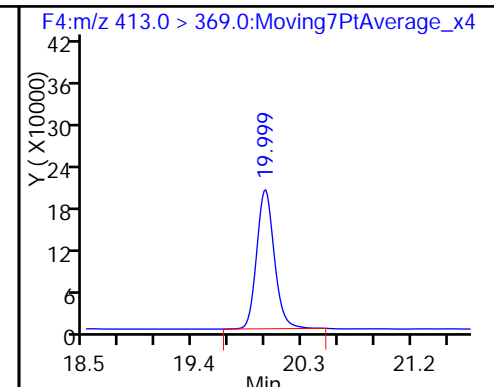
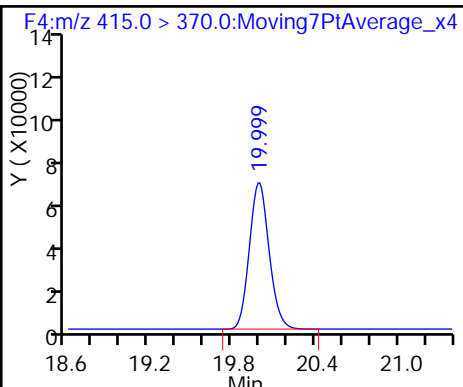
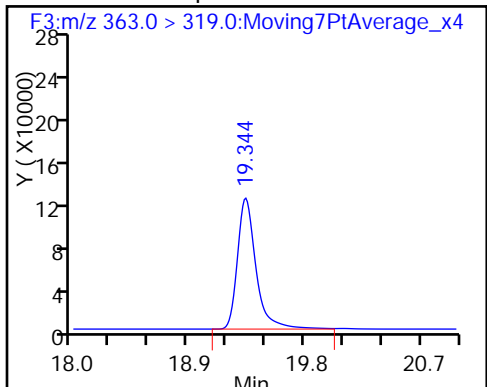
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

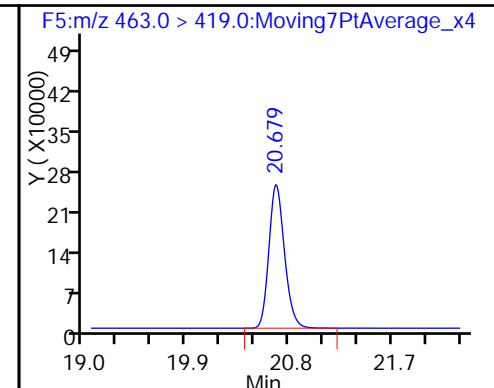
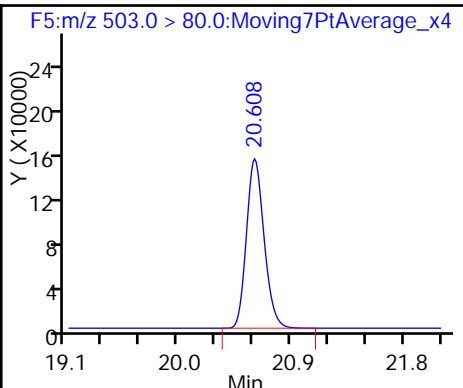
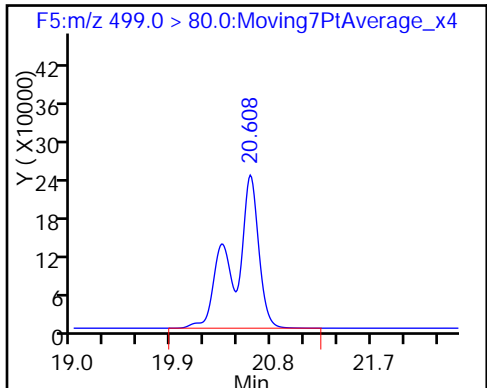
6 Perfluorooctanoic acid



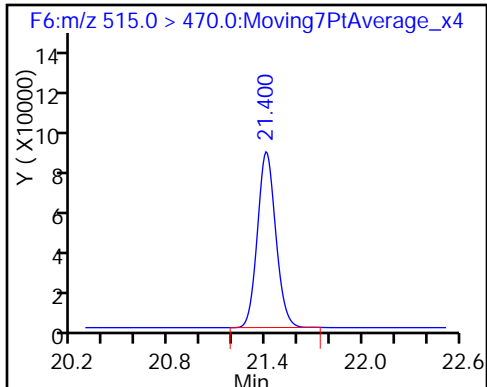
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144054/51 Calibration Date: 12/28/2016 17:59  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.8166		48.6	45.1	7.7	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.9845		15.9	15.2	4.7	30.0
Perfluoroheptanoic acid	Ave	1.222	1.290		5.25	4.97	5.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.084		10.6	9.81	7.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.137		20.8	20.1	3.4	30.0
Perfluorononanoic acid	Ave	1.149	1.191		10.8	10.4	3.7	30.0
13C2 PFHxA	Ave	1.193	1.218		10.2	10.0	2.1	30.0
13C2 PFDA	Ave	1.008	0.999		9.91	10.0	-0.9	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144055/51 Calibration Date: 12/28/2016 17:59  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.8166		48.6	45.1	7.7	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.9845		15.9	15.2	4.7	30.0
Perfluoroheptanoic acid	Ave	1.222	1.290		5.25	4.97	5.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.084		10.6	9.81	7.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.137		20.8	20.1	3.4	30.0
Perfluorononanoic acid	Ave	1.149	1.191		10.8	10.4	3.7	30.0
13C2 PFHxA	Ave	1.193	1.218		10.2	10.0	2.1	30.0
13C2 PFDA	Ave	1.008	0.999		9.91	10.0	-0.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_051.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 17:59:46 ALS Bottle#: 3 Worklist Smp#: 51  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:59:25 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:59:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.576	0.0	1.000	2272996	48.6	1181
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	856527	10.2	28063
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.308	0.0	1.000	923835	15.9	21627
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.344	0.0	1.000	451363	5.25	56.8 M
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		703428	10.0	17695
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	747795	10.6	455
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1770020	28.7	26071
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	1412386	20.8	22836
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.691	0.0	1.000	873188	10.8	18284
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	703069	9.91	21936

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L3\_00018

Amount Added: 1.00

Units: mL

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_051.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 17:59:46 ALS Bottle#: 3 Worklist Smp#: 51  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:59:25 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:59:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.576	0.0	1.000	2272996	48.6	1181
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	856527	10.2	28063
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.308	0.0	1.000	923835	15.9	21627
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.344	0.0	1.000	451363	5.25	56.8 M
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.999	0.0		703428	10.0	17695
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	747795	10.6	455
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1770020	28.7	26071
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	1412386	20.8	22836
9 Perfluorononanoic acid	463.0 > 419.0	20.691	20.691	0.0	1.000	873188	10.8	18284
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.409	0.0	1.000	703069	9.91	21936



**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L3\_00018

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_051.d

Injection Date: 28-Dec-2016 17:59:46

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 51

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

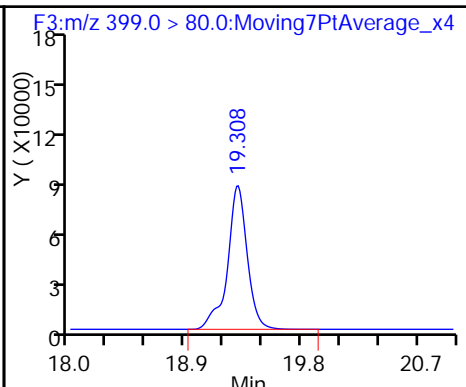
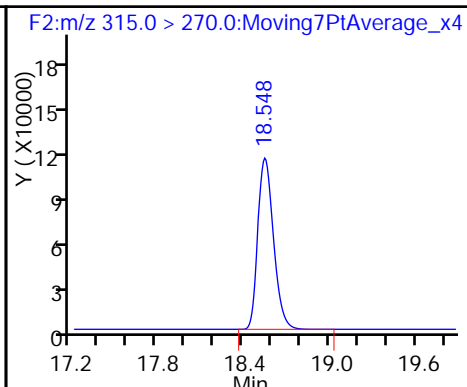
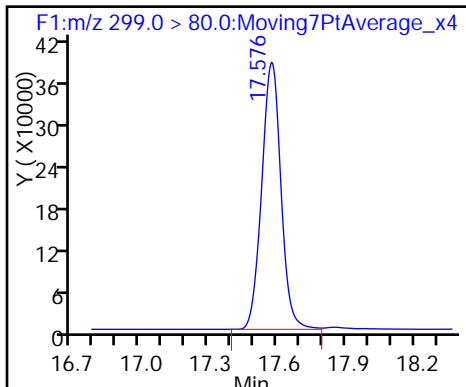
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

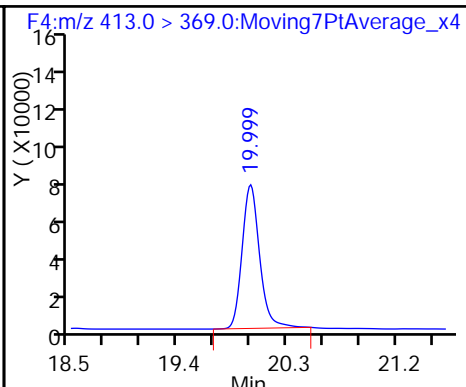
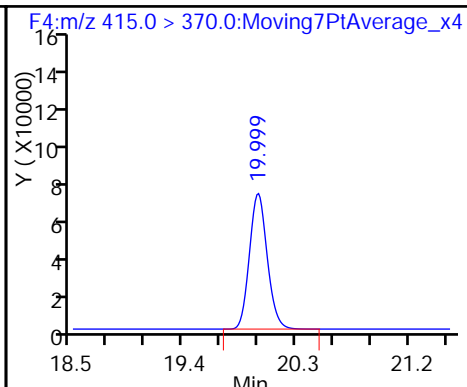
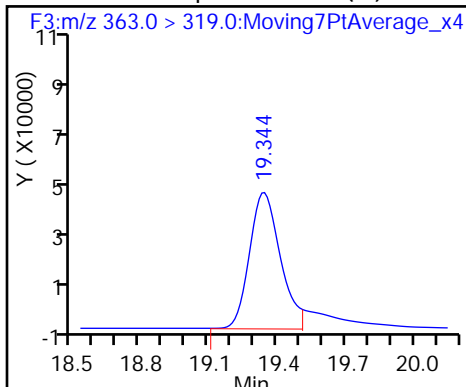
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

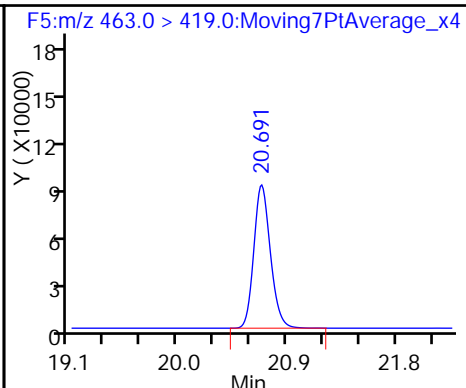
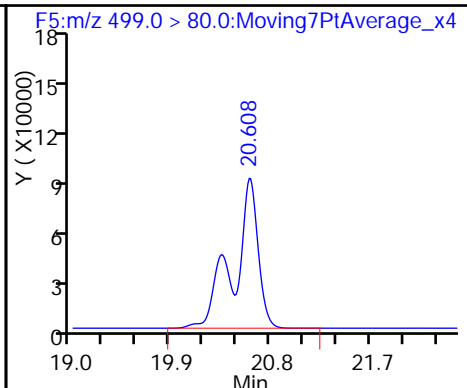
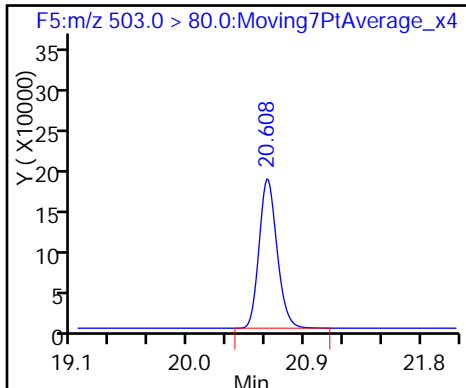
6 Perfluorooctanoic acid



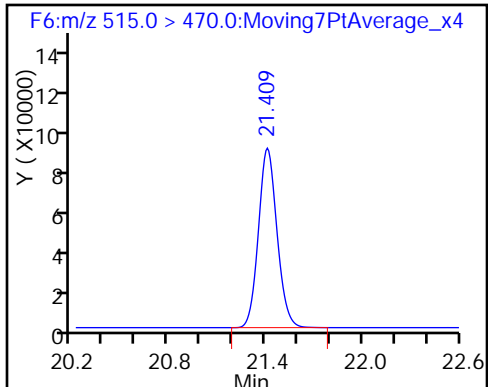
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_051.d

Injection Date: 28-Dec-2016 17:59:46

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 51

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

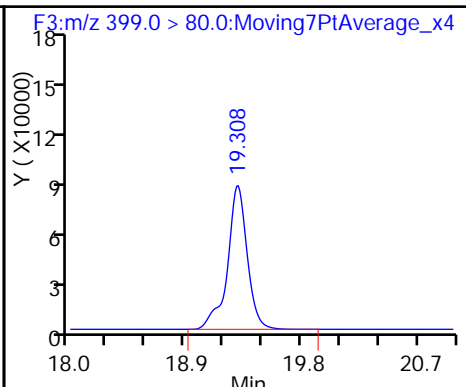
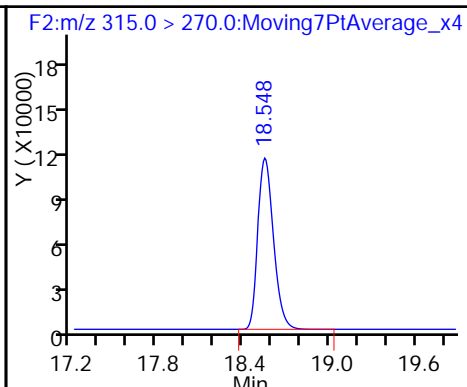
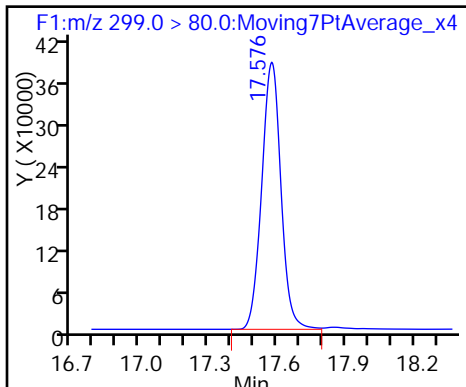
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

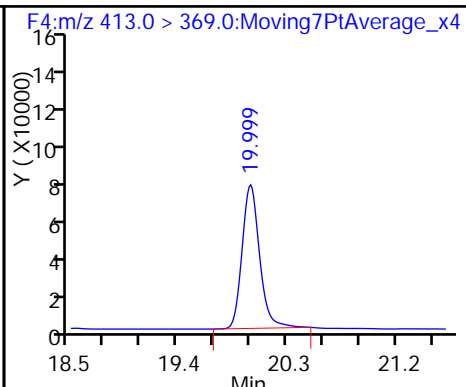
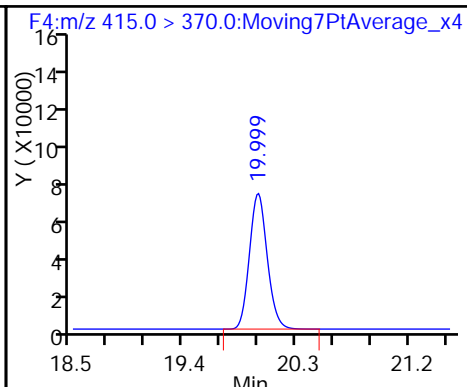
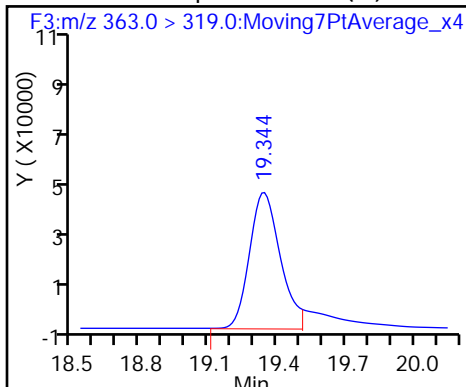
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

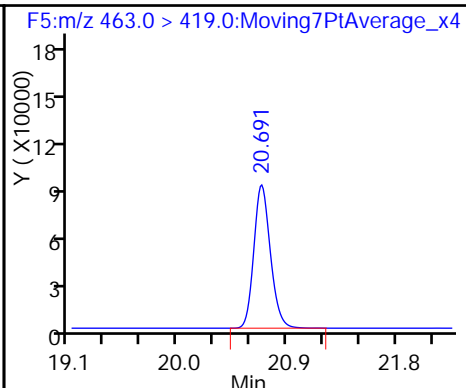
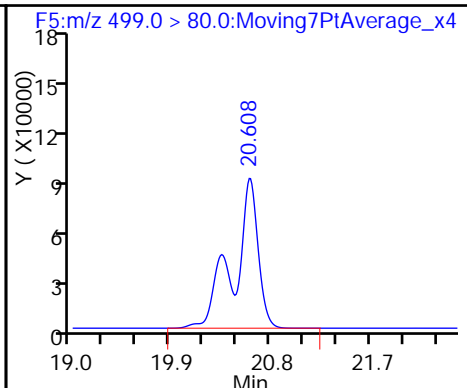
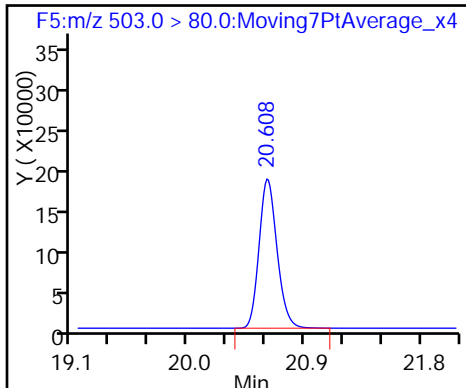
6 Perfluorooctanoic acid



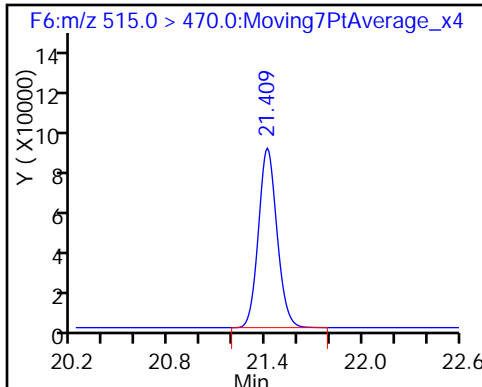
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

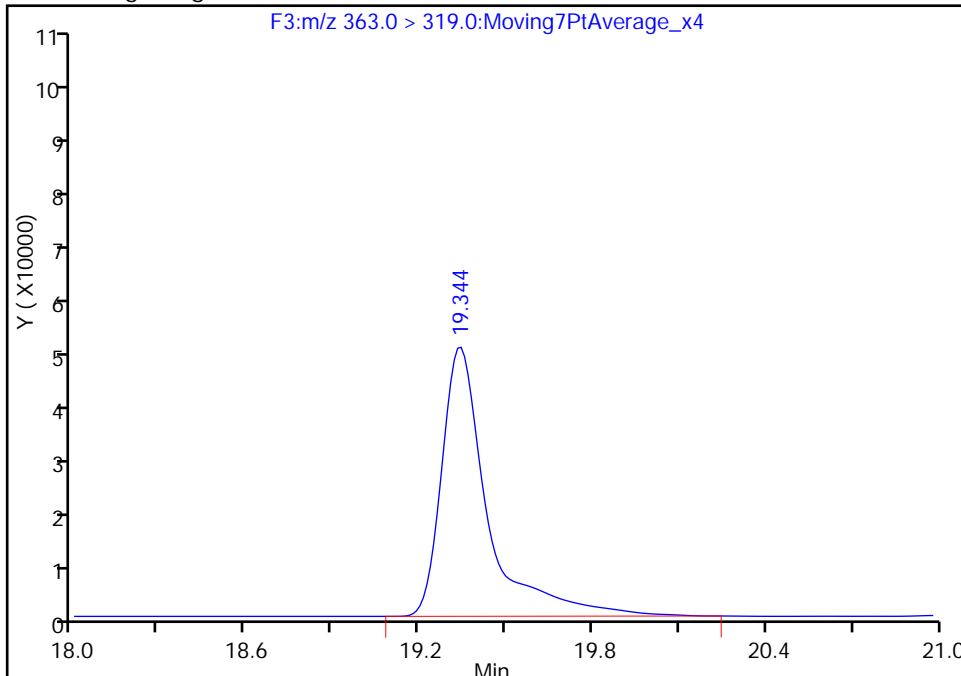
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Lims ID: CCV L3  
Client ID:  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 51  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

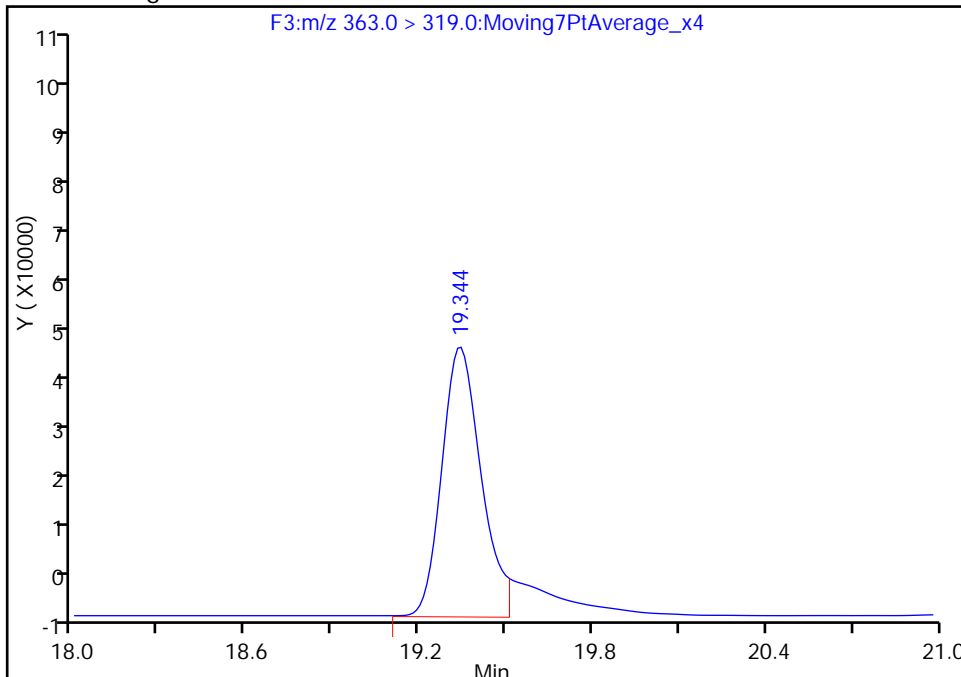
RT: 19.34  
Area: 526707  
Amount: 6.127976  
Amount Units: ng/ml

Processing Integration Results



RT: 19.34  
Area: 451363  
Amount: 5.251386  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 29-Dec-2016 10:16:02  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

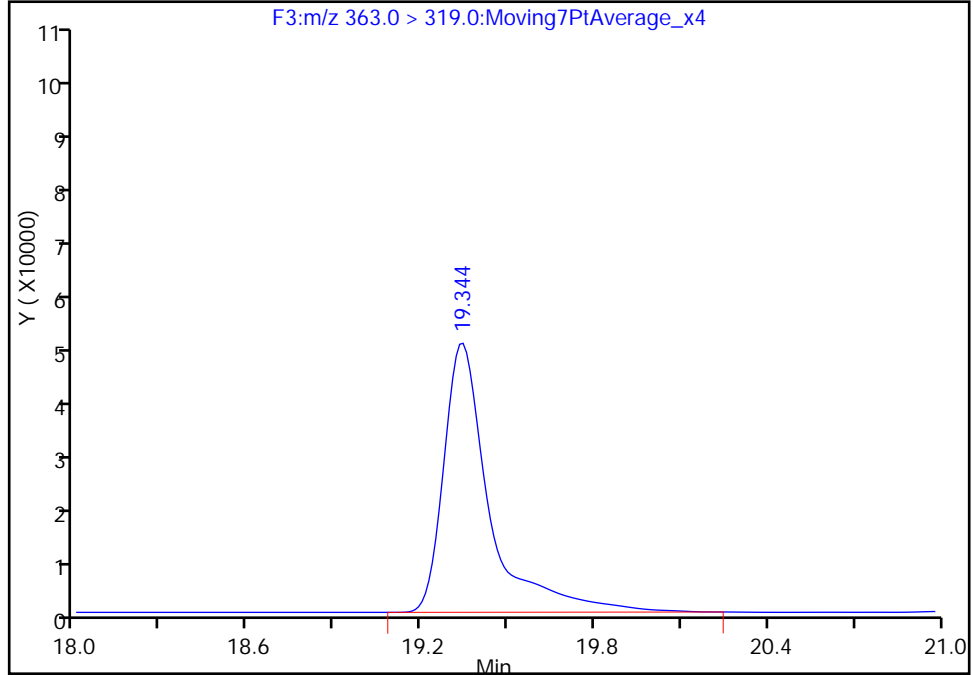
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_051.d  
Injection Date: 28-Dec-2016 17:59:46 Instrument ID: A6  
Lims ID: CCV L3  
Client ID:  
Operator ID: CBW ALS Bottle#: 3 Worklist Smp#: 51  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

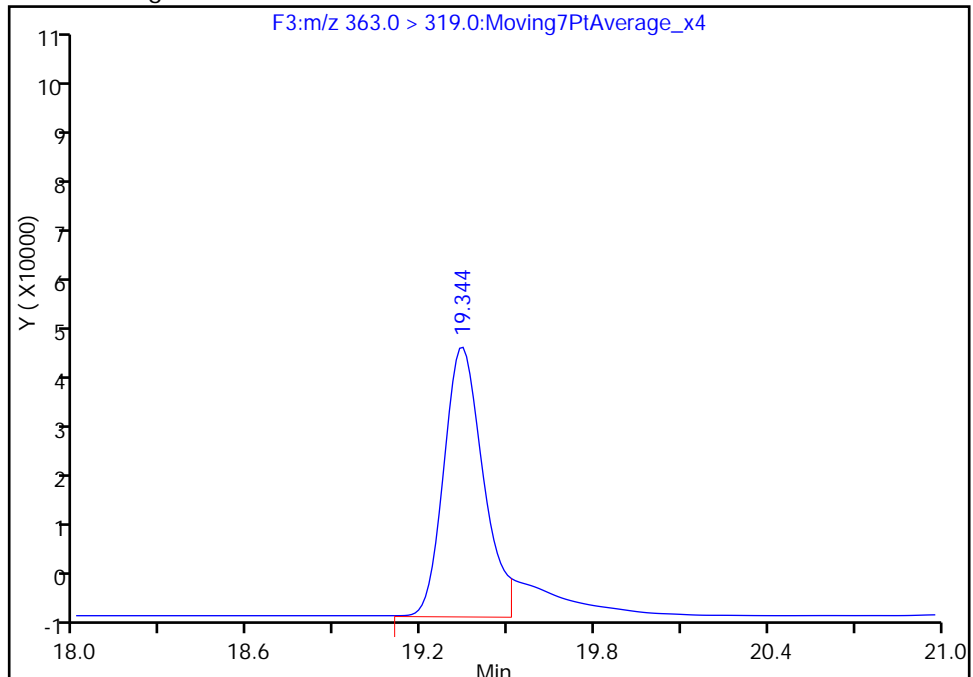
RT: 19.34  
Area: 526707  
Amount: 6.127976  
Amount Units: ng/ml

Processing Integration Results



RT: 19.34  
Area: 451363  
Amount: 5.251386  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 29-Dec-2016 10:16:02  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-144055/62 Calibration Date: 12/28/2016 23:25  
 Instrument ID: A6 Calib Start Date: 12/24/2016 04:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/24/2016 06:54  
 Lab File ID: 27DEC2016A6A\_062.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7584	0.7696		137	135	1.5	30.0
Perfluorohexanesulfonic acid	Ave	0.9405	0.998		48.2	45.4	6.1	30.0
Perfluoroheptanoic acid	Ave	1.222	1.214		14.8	14.9	-0.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.006	1.060		30.8	29.3	5.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.100	1.209		66.1	60.1	10.0	30.0
Perfluorononanoic acid	Ave	1.149	1.128		30.6	31.1	-1.8	30.0
13C2 PFHxA	Ave	1.193	1.302		10.9	10.0	9.1	30.0
13C2 PFDA	Ave	1.008	1.034		10.3	10.0	2.5	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_062.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-Dec-2016 23:25:28 ALS Bottle#: 5 Worklist Smp#: 62  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Sublist: chrom-537\_\_A6\*sub3  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 11:02:44 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:16:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.570	17.576	-0.006	1.000	5627662	136.6	1069
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.539	0.009	1.000	864182	10.9	28322
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.308	0.0	1.000	2460051	48.2	55180
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.344	0.0	1.000	1196590	14.8	870
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.986	0.013		663824	10.0	16795
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	2059472	30.8	850
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1557586	28.7	26644
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	3946783	66.1	13929
9 Perfluorononanoic acid	463.0 > 419.0	20.690	20.691	-0.001	1.000	2330379	30.6	6988
\$ 10 13C2 PFDA	515.0 > 470.0	21.409	21.400	0.009	1.000	686300	10.3	21534

Reagents:

LC537-L5\_00019 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_062.d

Injection Date: 28-Dec-2016 23:25:28

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 62

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

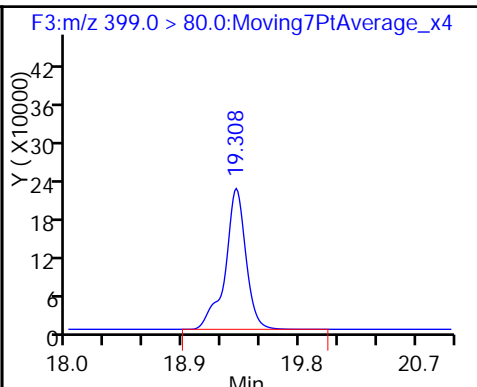
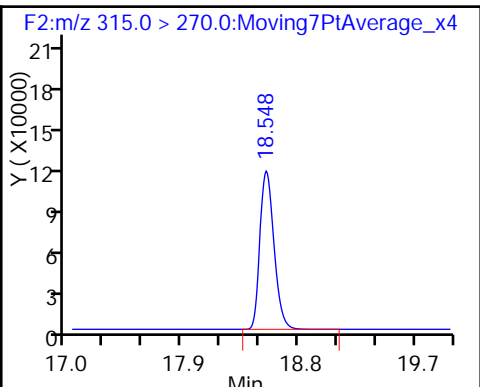
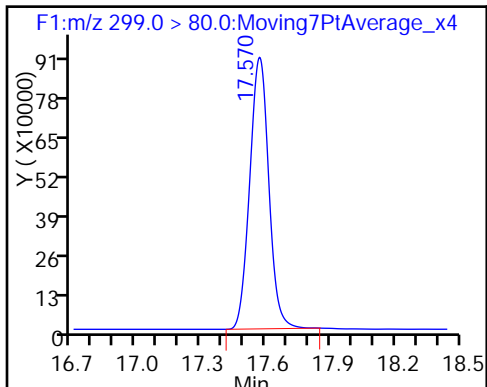
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

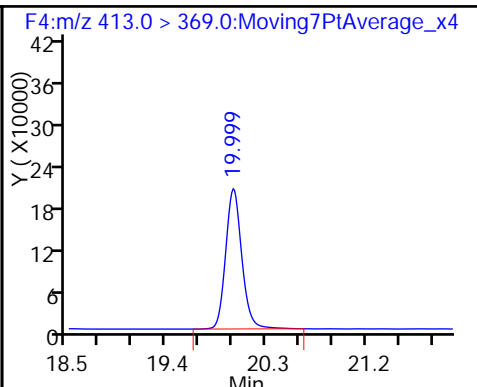
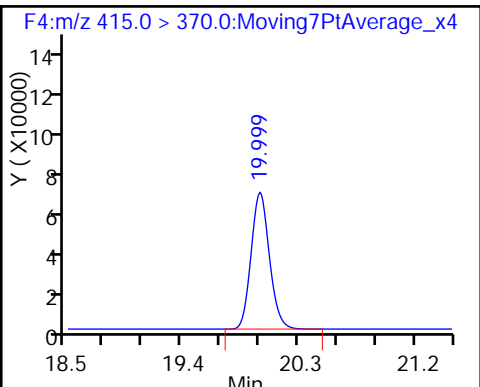
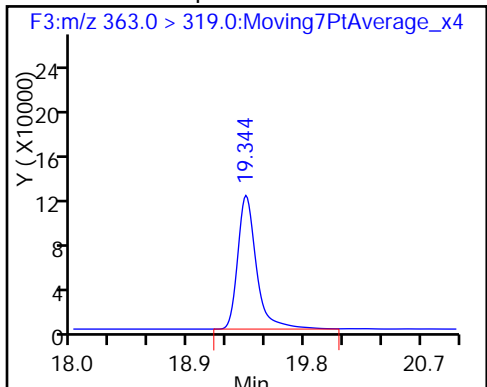
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

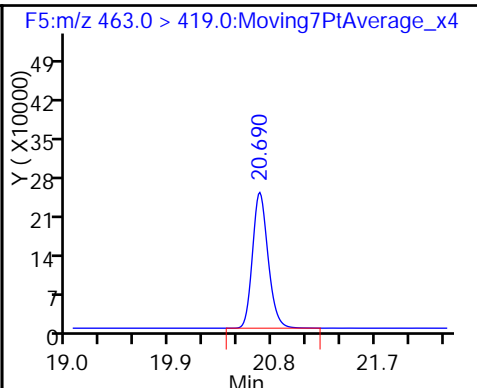
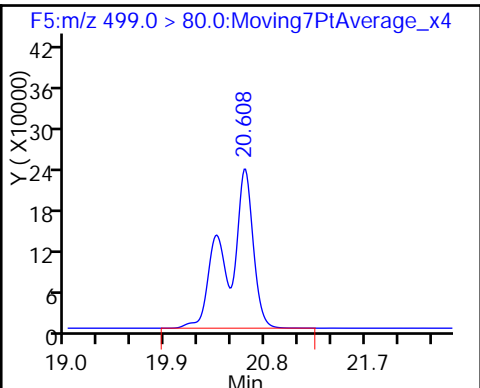
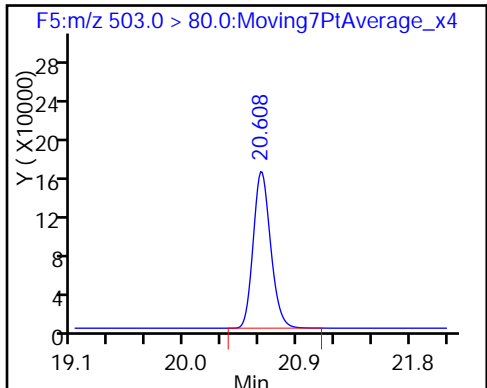
6 Perfluorooctanoic acid



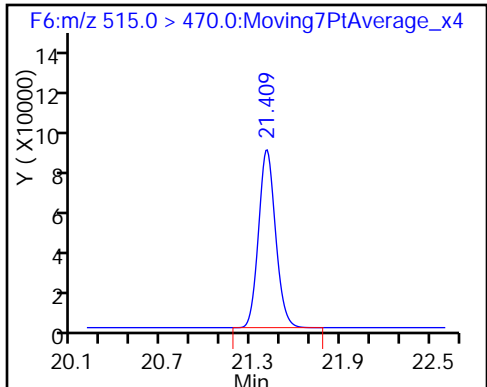
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-143388/1-A  
 Matrix: Water Lab File ID: 27DEC2016A6A\_037.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/28/2016 10:47  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144053 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.048	U M	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_037.d  
 Lims ID: MB 320-143388/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 28-Dec-2016 10:47:33 ALS Bottle#: 40 Worklist Smp#: 37  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-143388/1-a BOX 36  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:02 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:16:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.570	0.016	1.000	1273	0.0246	0.8
\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.539	0.010	1.000	877377	11.2	28989
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.986	0.013		657130	10.0	16648
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.986	0.013	1.000	461	0.006975	0.2 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	2394	0.0319	62.3 M
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1959405	28.7	41004
9 Perfluorononanoic acid	463.0 > 419.0	20.702	20.679	0.023	1.000	694	0.009194	6.0 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	715183	10.8	22502

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_037.d

Injection Date: 28-Dec-2016 10:47:33

Instrument ID: A6

Lims ID: MB 320-143388/1-A

Client ID:

Operator ID: CBW

ALS Bottle#: 40

Worklist Smp#: 37

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

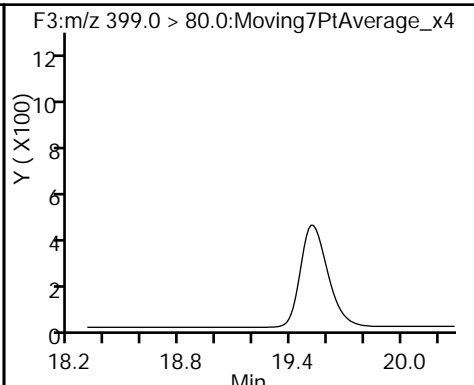
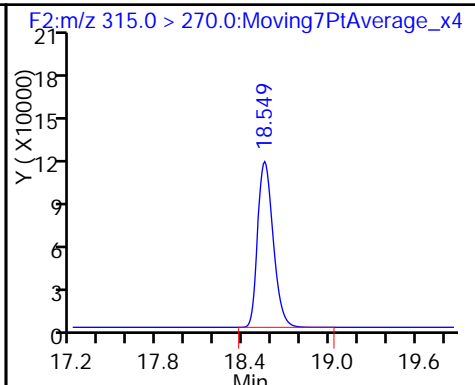
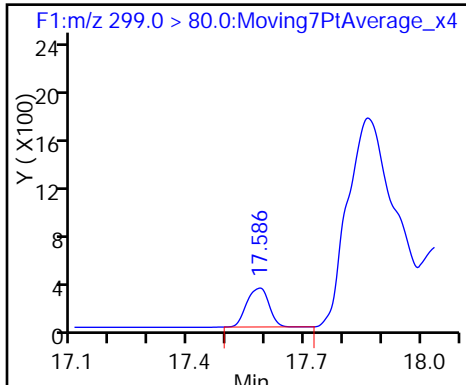
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

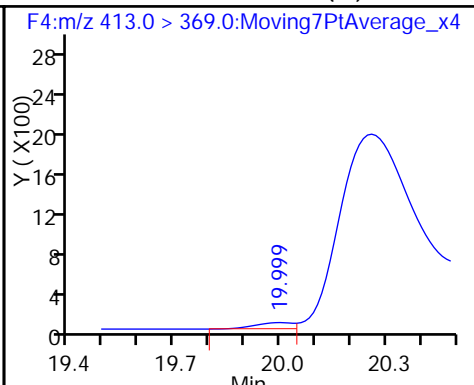
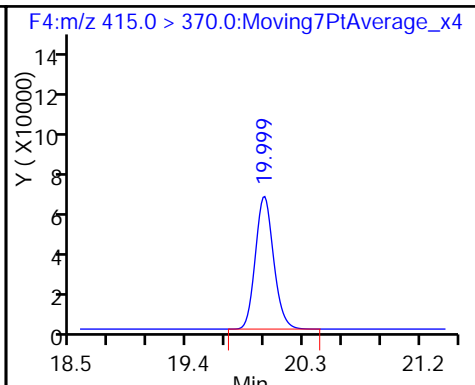
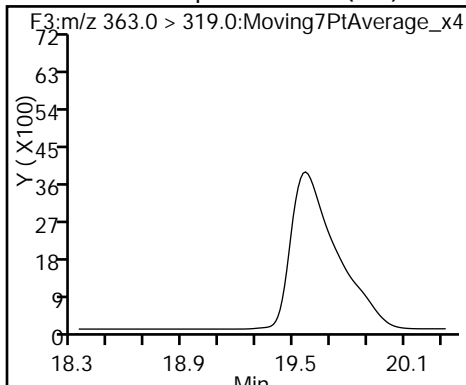
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

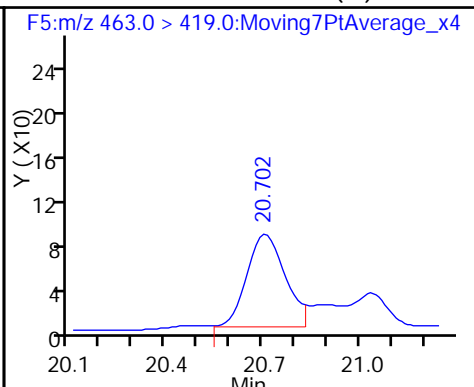
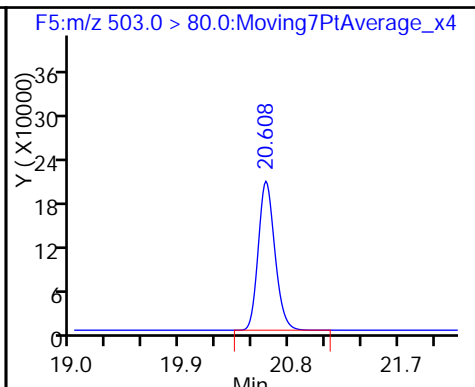
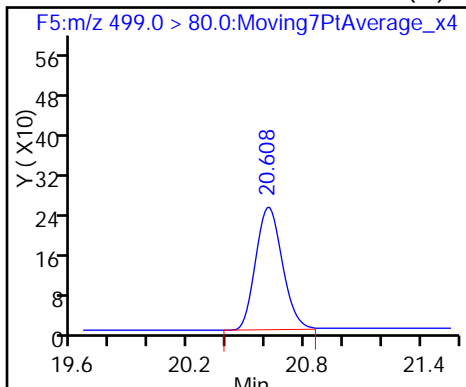
6 Perfluorooctanoic acid (M)



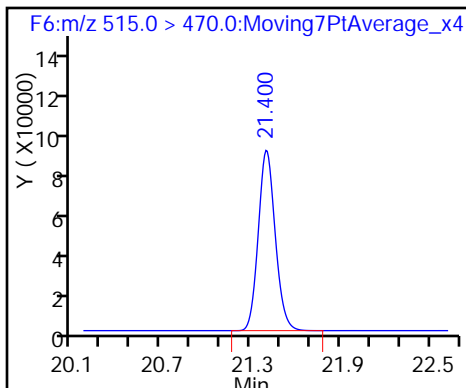
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_037.d  
 Lims ID: MB 320-143388/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 28-Dec-2016 10:47:33 ALS Bottle#: 40 Worklist Smp#: 37  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-143388/1-a BOX 36  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:02 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:16:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	111.91
\$ 10 13C2 PFDA	10.0	10.8	107.94

TestAmerica Sacramento

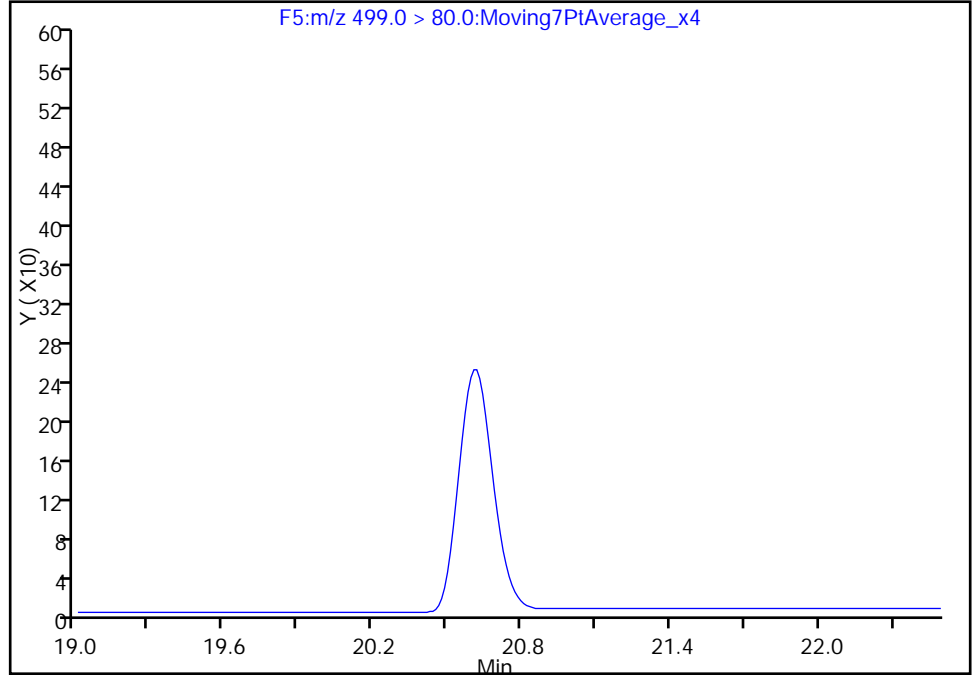
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_037.d  
Injection Date: 28-Dec-2016 10:47:33 Instrument ID: A6  
Lims ID: MB 320-143388/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 40 Worklist Smp#: 37  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

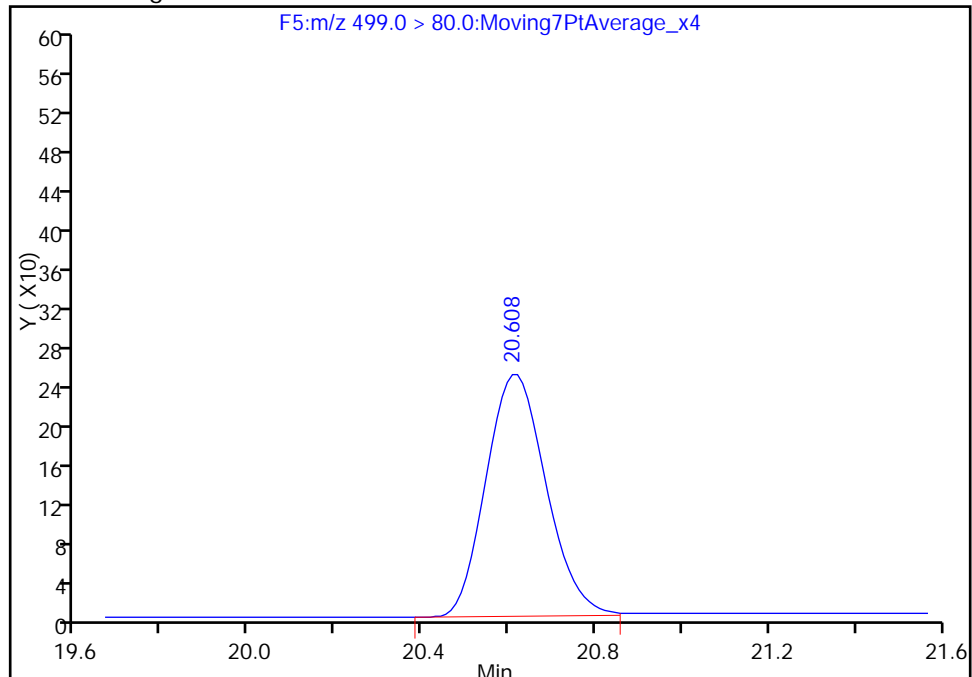
Not Detected  
Expected RT: 20.61

Processing Integration Results



RT: 20.61  
Area: 2394  
Amount: 0.031867  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 28-Dec-2016 14:16:37  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

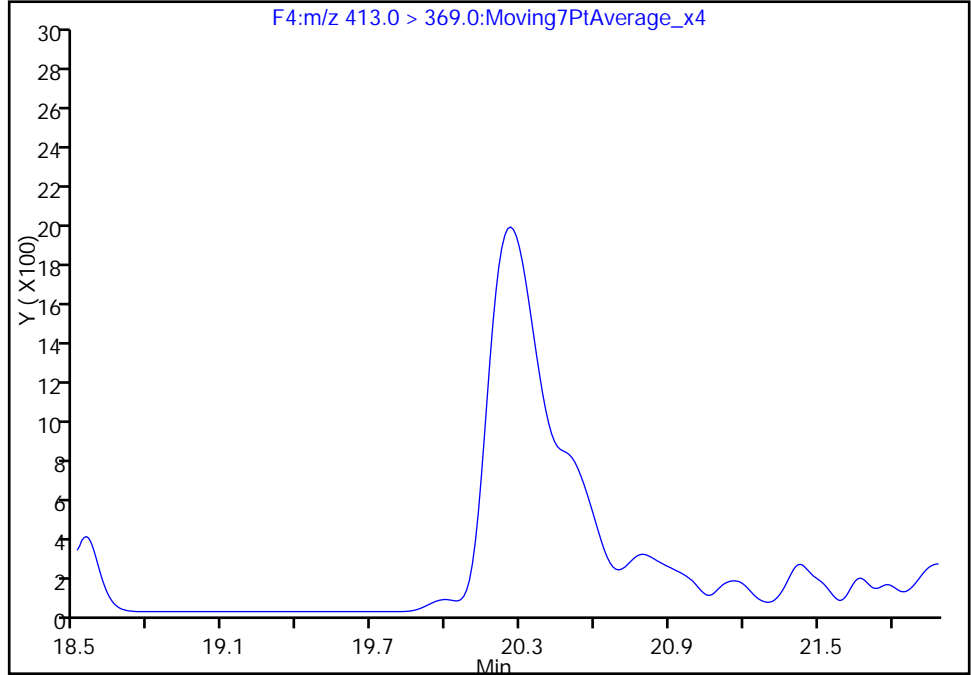
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_037.d  
Injection Date: 28-Dec-2016 10:47:33 Instrument ID: A6  
Lims ID: MB 320-143388/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 40 Worklist Smp#: 37  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

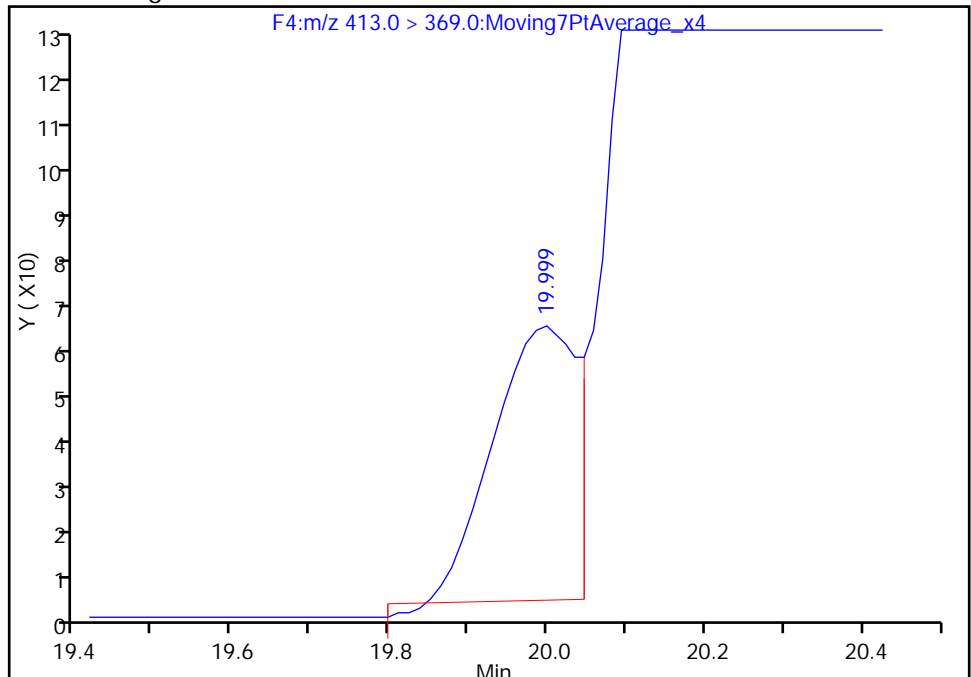
Not Detected  
Expected RT: 19.99

Processing Integration Results



Manual Integration Results

RT: 20.00  
Area: 461  
Amount: 0.006975  
Amount Units: ng/ml



Reviewer: barnettj, 28-Dec-2016 14:16:37  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LLCS 320-143388/2-A  
 Matrix: Water Lab File ID: 27DEC2016A6A\_038.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/28/2016 11:17  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144053 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.0331	J	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0186	J M	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.0846	J	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	111		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_038.d  
 Lims ID: LLCS 320-143388/2-A  
 Client ID:  
 Sample Type: LLCS  
 Inject. Date: 28-Dec-2016 11:17:10 ALS Bottle#: 41 Worklist Smp#: 38  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcs 320-143388/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:02 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:19:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.570	0.006	1.000	1042094	21.1	315
\$ 2 13C2 PFHxA	315.0 > 270.0	18.549	18.539	0.010	1.000	863771	11.1	28103
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.308	19.297	0.011	1.000	388248	6.35	8894
4 Perfluoroheptanoic acid	363.0 > 319.0	19.344	19.332	0.012	1.000	236954	2.98	35.5 M
* 5 13C2-PFOA	415.0 > 370.0	19.999	19.986	0.013		649963	10.0	16391
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.986	0.013	1.000	303767	4.65	84.9 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	590811	8.27	10092
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1864303	28.7	48205
9 Perfluorononanoic acid	463.0 > 419.0	20.679	20.679	0.0	1.000	356535	4.78	9509
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	682824	10.4	21391

QC Flag Legend

Review Flags

M - Manually Integrated



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_038.d

Injection Date: 28-Dec-2016 11:17:10

Instrument ID: A6

Lims ID: LLCS 320-143388/2-A

Client ID:

Operator ID: CBW

ALS Bottle#: 41

Worklist Smp#: 38

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

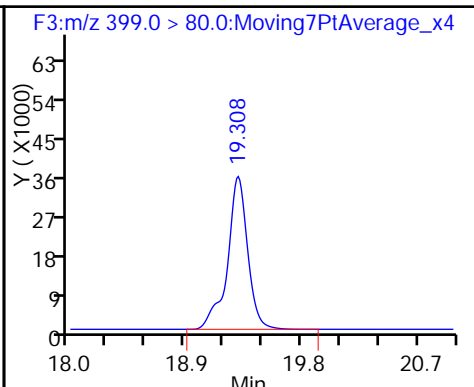
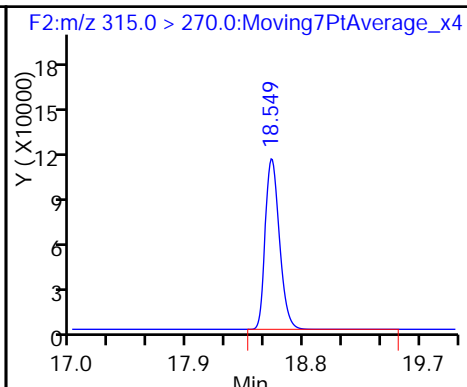
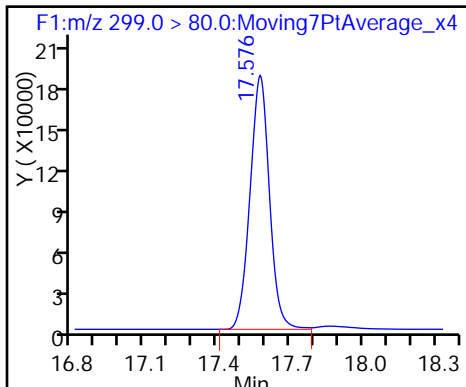
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

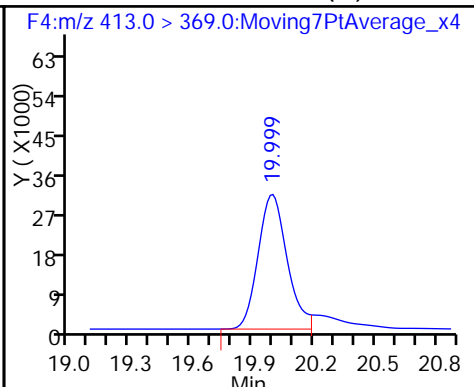
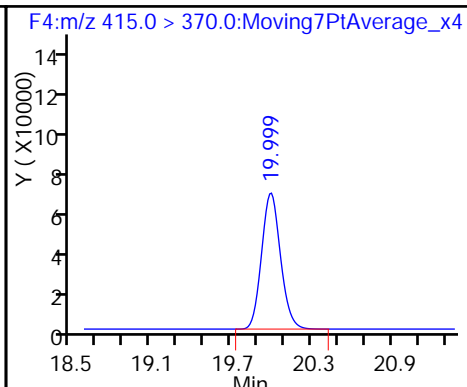
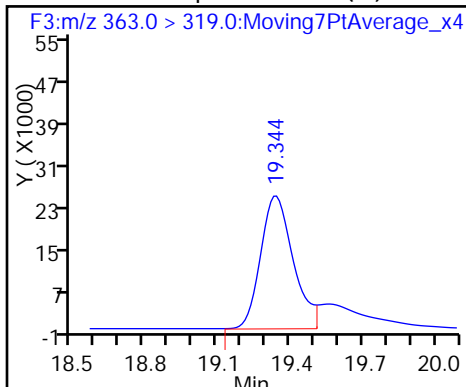
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

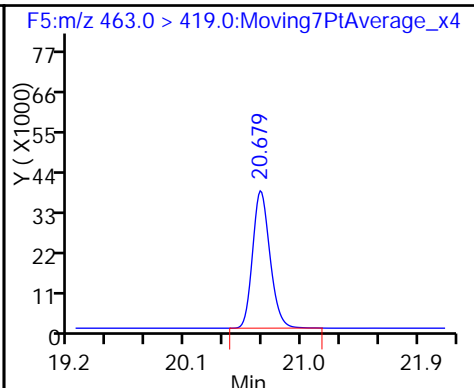
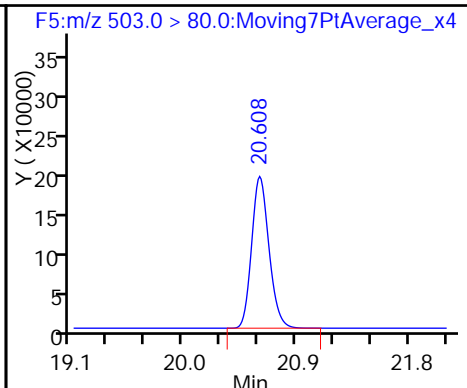
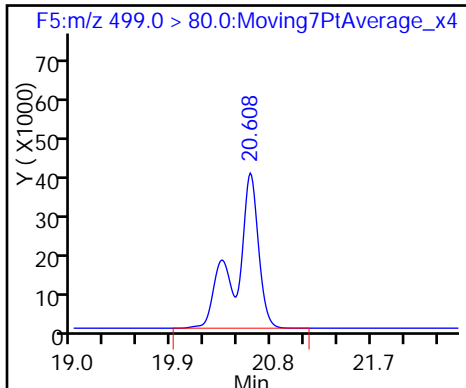
6 Perfluorooctanoic acid (M)



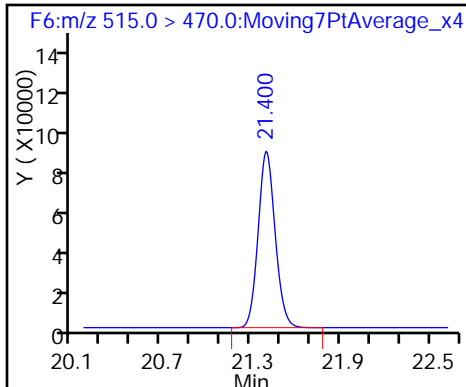
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_038.d  
 Lims ID: LLCS 320-143388/2-A  
 Client ID:  
 Sample Type: LLCS  
 Inject. Date: 28-Dec-2016 11:17:10 ALS Bottle#: 41 Worklist Smp#: 38  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcs 320-143388/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 28-Dec-2016 14:37:02 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK012

First Level Reviewer: barnettj Date: 28-Dec-2016 14:19:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.1	111.38
\$ 10 13C2 PFDA	10.0	10.4	104.19

TestAmerica Sacramento

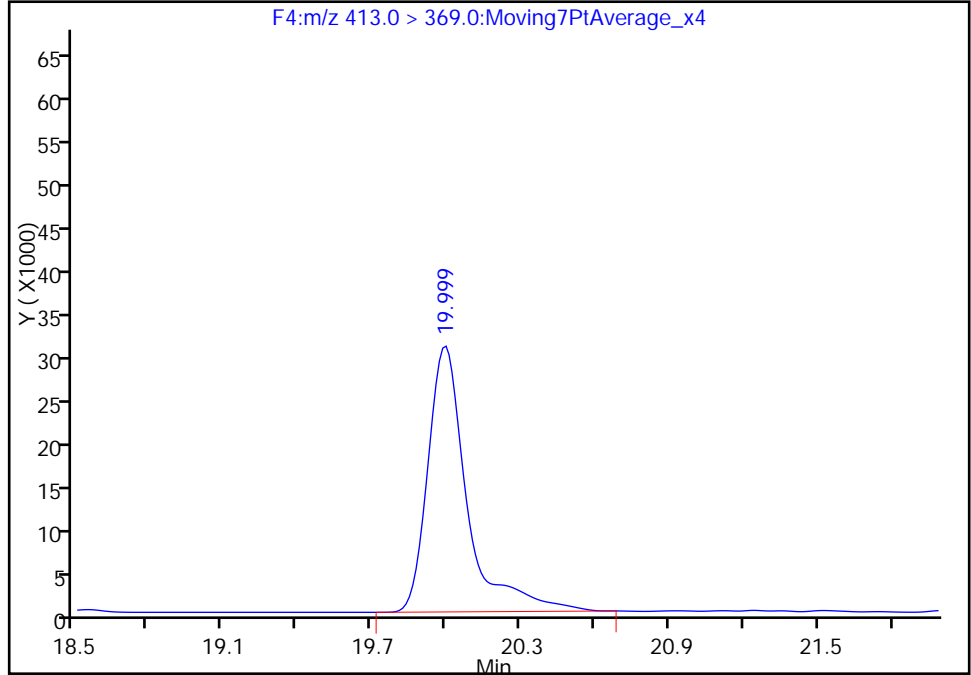
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_038.d  
Injection Date: 28-Dec-2016 11:17:10 Instrument ID: A6  
Lims ID: LLCS 320-143388/2-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 41 Worklist Smp#: 38  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

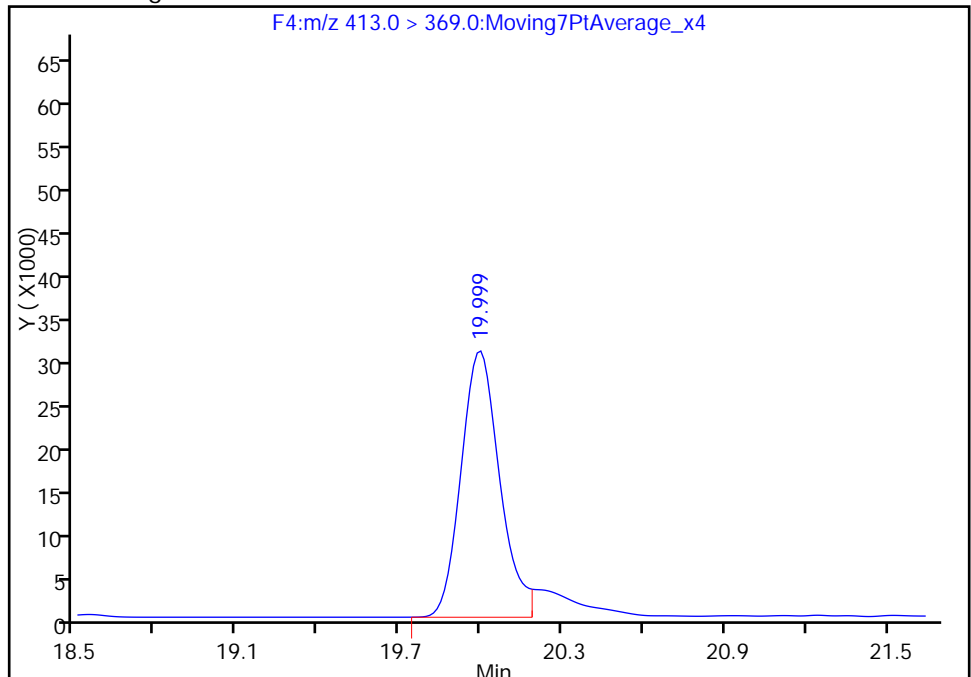
RT: 20.00  
Area: 338607  
Amount: 5.179487  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 303767  
Amount: 4.646558  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 28-Dec-2016 14:19:13  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LLCSD 320-143388/3-A  
 Matrix: Water Lab File ID: 27DEC2016A6A\_041.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/28/2016 12:45  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.0338	J	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0185	J M	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.0715	J	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_041.d  
 Lims ID: LLCSD 320-143388/3-A  
 Client ID:  
 Sample Type: LLCSD  
 Inject. Date: 28-Dec-2016 12:45:58 ALS Bottle#: 42 Worklist Smp#: 41  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcsd 320-143388/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:16:54 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:19:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.563	17.576	-0.013	1.000	896154	17.9	310
\$ 2 13C2 PFHxA	315.0 > 270.0	18.539	18.548	-0.009	1.000	837790	11.2	27846
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.297	19.308	-0.011	1.000	392864	6.32	9341
4 Perfluoroheptanoic acid	363.0 > 319.0	19.332	19.344	-0.012	1.000	211353	2.76	31.9
* 5 13C2-PFOA	415.0 > 370.0	19.986	19.999	-0.013		625732	10.0	15878
6 Perfluorooctanoic acid	413.0 > 369.0	19.999	19.999	0.0	1.000	291420	4.63	86.1 M
* 8 13C4 PFOS	503.0 > 80.0	20.608	20.608	0.0		1895963	28.7	49344
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.608	20.608	0.0	1.000	613819	8.44	10189
9 Perfluorononanoic acid	463.0 > 419.0	20.679	20.679	0.0	1.000	337411	4.69	9072
\$ 10 13C2 PFDA	515.0 > 470.0	21.400	21.400	0.0	1.000	686356	10.9	21888

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_041.d

Injection Date: 28-Dec-2016 12:45:58

Instrument ID: A6

Lims ID: LLCSD 320-143388/3-A

Client ID:

Operator ID: CBW

ALS Bottle#: 42

Worklist Smp#: 41

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

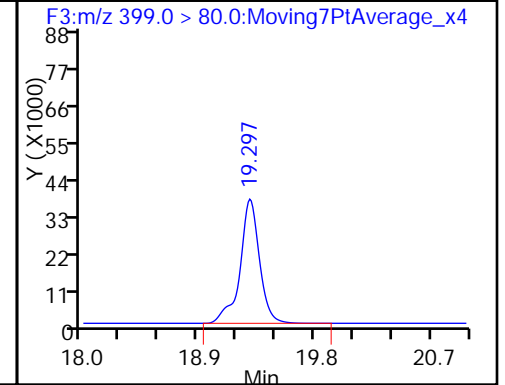
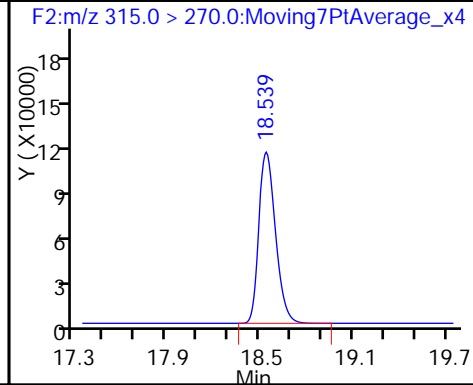
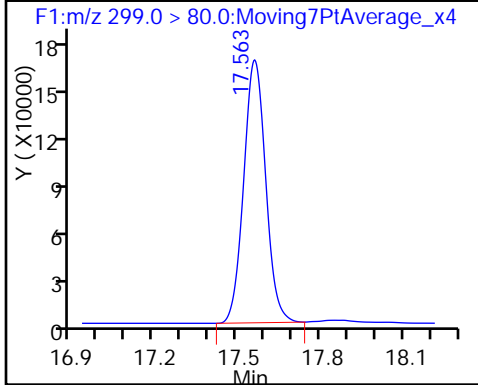
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

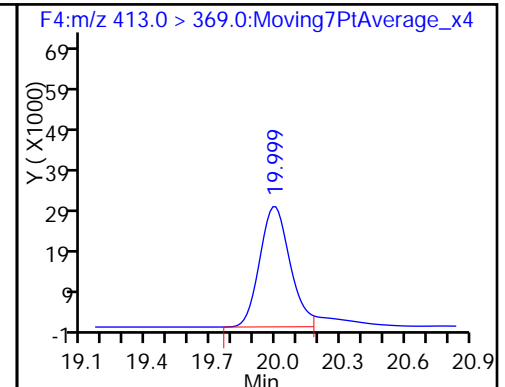
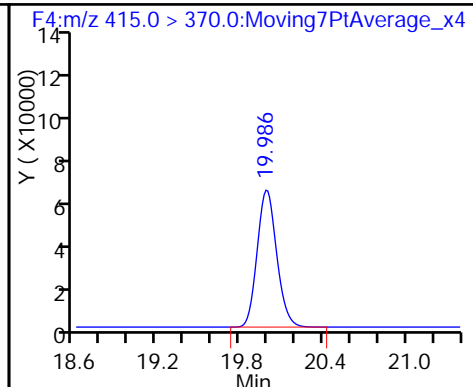
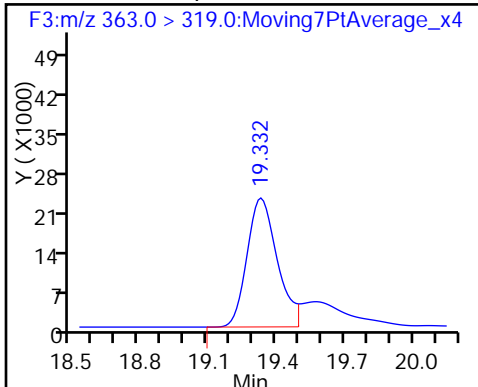
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

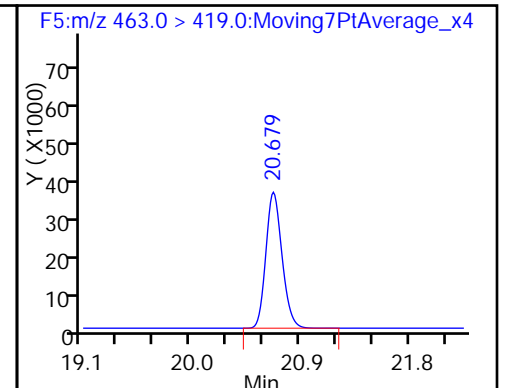
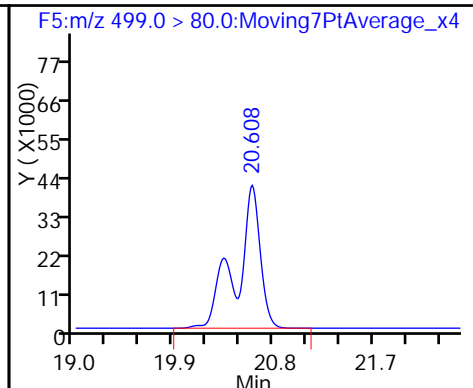
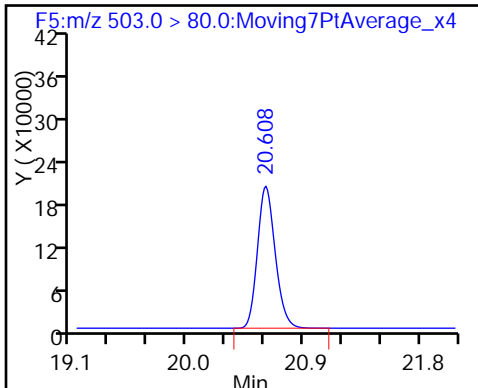
6 Perfluorooctanoic acid (M)



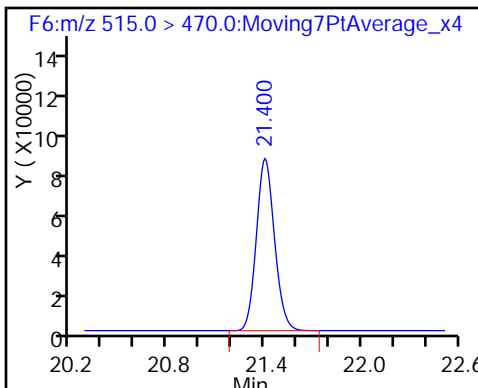
\* 8 13C4 PFOS

7 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_041.d  
 Lims ID: LLCSD 320-143388/3-A  
 Client ID:  
 Sample Type: LLCSD  
 Inject. Date: 28-Dec-2016 12:45:58 ALS Bottle#: 42 Worklist Smp#: 41  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcsd 320-143388/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 29-Dec-2016 10:16:54 Calib Date: 24-Dec-2016 06:54:10  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161224-38202.b\24DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK014

First Level Reviewer: barnettj Date: 29-Dec-2016 10:19:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	112.22
\$ 10 13C2 PFDA	10.0	10.9	108.79

TestAmerica Sacramento

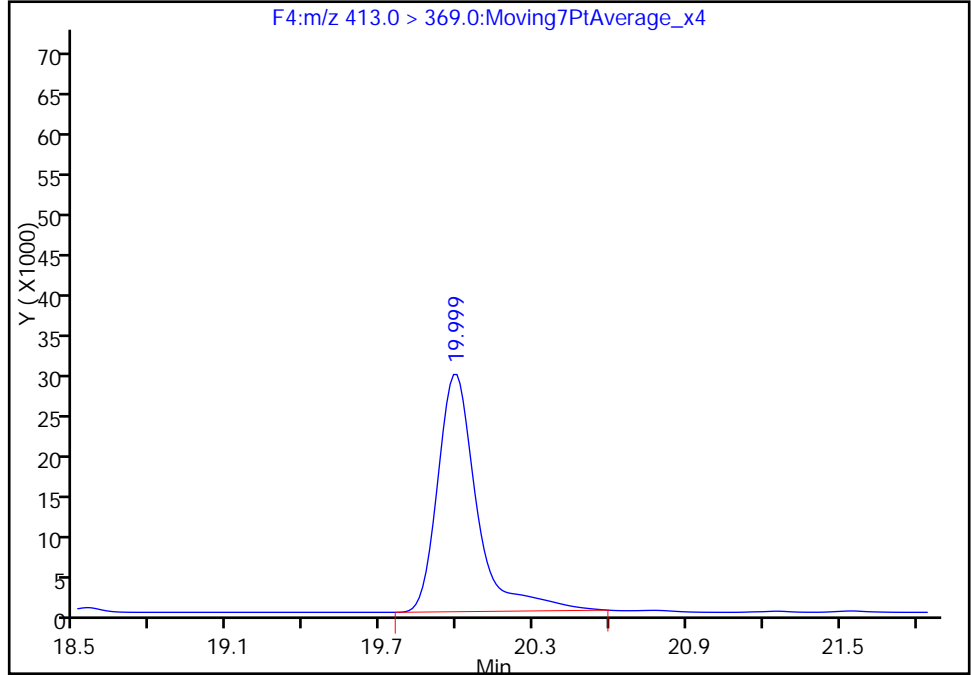
Data File: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b\27DEC2016A6A\_041.d  
Injection Date: 28-Dec-2016 12:45:58 Instrument ID: A6  
Lims ID: LLCSD 320-143388/3-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 42 Worklist Smp#: 41  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:M/RM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

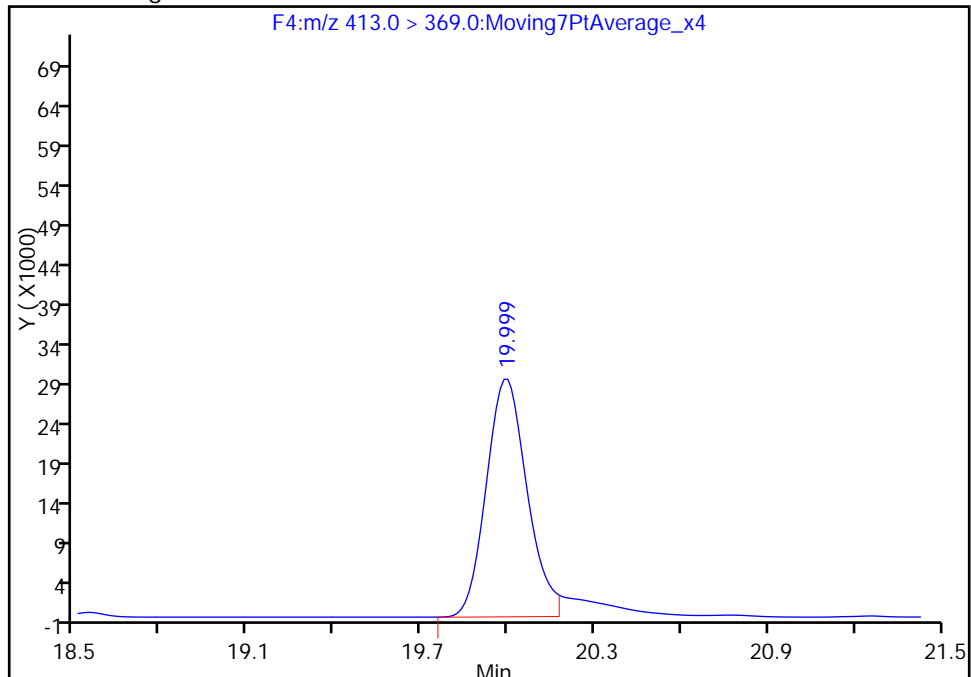
RT: 20.00  
Area: 317579  
Amount: 5.045949  
Amount Units: ng/ml

Processing Integration Results



RT: 20.00  
Area: 291420  
Amount: 4.630314  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 28-Dec-2016 14:52:22  
Audit Action: Manually Integrated

Audit Reason: Split Peak



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Start Date: 12/24/2016 03:26

Analysis Batch Number: 143828 End Date: 12/24/2016 15:56

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		12/24/2016 03:26	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 03:56	1		Acquity 2.1 (mm)
STD 320-143828/4 IC		12/24/2016 04:26	1	24DEC2016A6A_00 4.d	Acquity 2.1 (mm)
STD 320-143828/5 IC		12/24/2016 04:55	1	24DEC2016A6A_00 5.d	Acquity 2.1 (mm)
STD 320-143828/6 IC		12/24/2016 05:25	1	24DEC2016A6A_00 6.d	Acquity 2.1 (mm)
STD 320-143828/7 ICISAV		12/24/2016 05:54	1	24DEC2016A6A_00 7.d	Acquity 2.1 (mm)
STD 320-143828/8 IC		12/24/2016 06:24	1	24DEC2016A6A_00 8.d	Acquity 2.1 (mm)
STD 320-143828/9 IC		12/24/2016 06:54	1	24DEC2016A6A_00 9.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2016 07:23	1		Acquity 2.1 (mm)
CCV 320-143828/11 CCVL		12/24/2016 07:53	1	24DEC2016A6A_01 1.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2016 08:22	1		Acquity 2.1 (mm)
ICV 320-143828/13		12/24/2016 08:52	1	24DEC2016A6A_01 3.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2016 09:22	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 11:00	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 11:29	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 11:59	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 12:29	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 12:58	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 13:28	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 13:57	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 14:27	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 14:57	1		Acquity 2.1 (mm)
ZZZZZ		12/24/2016 15:26	1		Acquity 2.1 (mm)
CCV 320-143828/26 CCVIS		12/24/2016 15:56	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Start Date: 12/28/2016 05:51

Analysis Batch Number: 144053 End Date: 12/28/2016 11:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-144053/27 CCVIS		12/28/2016 05:51	1	27DEC2016A6A_02 7.d	Acquity 2.1(mm)
ZZZZZ		12/28/2016 06:21	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 06:50	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 07:20	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 07:49	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 08:19	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 08:49	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 09:18	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 09:48	1		Acquity 2.1(mm)
ZZZZZ		12/28/2016 10:17	1		Acquity 2.1(mm)
MB 320-143388/1-A		12/28/2016 10:47	1	27DEC2016A6A_03 7.d	Acquity 2.1(mm)
LLCS 320-143388/2-A		12/28/2016 11:17	1	27DEC2016A6A_03 8.d	Acquity 2.1(mm)
CCV 320-144053/39 CCVIS		12/28/2016 11:46	1	27DEC2016A6A_03 9.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Start Date: 12/28/2016 11:46

Analysis Batch Number: 144054 End Date: 12/28/2016 17:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-144054/39 CCVIS		12/28/2016 11:46	1	27DEC2016A6A_03 9.d	Acquity 2.1(mm)
ZZZZZ		12/28/2016 12:16	1		Acquity 2.1(mm)
LLCSD 320-143388/3-A		12/28/2016 12:45	1	27DEC2016A6A_04 1.d	Acquity 2.1(mm)
320-24536-1		12/28/2016 13:15	1	27DEC2016A6A_04 2.d	Acquity 2.1(mm)
320-24536-2		12/28/2016 13:45	1	27DEC2016A6A_04 3.d	Acquity 2.1(mm)
320-24536-3		12/28/2016 14:14	1	27DEC2016A6A_04 4.d	Acquity 2.1(mm)
320-24536-4		12/28/2016 14:44	1	27DEC2016A6A_04 5.d	Acquity 2.1(mm)
320-24536-5		12/28/2016 16:30	1	27DEC2016A6A_04 8.d	Acquity 2.1(mm)
320-24536-6		12/28/2016 17:00	1	27DEC2016A6A_04 9.d	Acquity 2.1(mm)
320-24536-7		12/28/2016 17:30	1	27DEC2016A6A_05 0.d	Acquity 2.1(mm)
CCV 320-144054/51 CCVIS		12/28/2016 17:59	1	27DEC2016A6A_05 1.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Instrument ID: A6 Start Date: 12/28/2016 17:59

Analysis Batch Number: 144055 End Date: 12/28/2016 23:25

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-144055/51 CCVIS		12/28/2016 17:59	1	27DEC2016A6A_05 1.d	Acquity 2.1(mm)
ZZZZZ		12/28/2016 18:29	1		Acquity 2.1(mm)
320-24536-8		12/28/2016 18:58	1	27DEC2016A6A_05 3.d	Acquity 2.1(mm)
320-24536-9		12/28/2016 19:28	1	27DEC2016A6A_05 4.d	Acquity 2.1(mm)
320-24536-10		12/28/2016 19:58	1	27DEC2016A6A_05 5.d	Acquity 2.1(mm)
320-24536-11		12/28/2016 20:27	1	27DEC2016A6A_05 6.d	Acquity 2.1(mm)
320-24536-12		12/28/2016 20:57	1	27DEC2016A6A_05 7.d	Acquity 2.1(mm)
320-24536-13		12/28/2016 21:26	1	27DEC2016A6A_05 8.d	Acquity 2.1(mm)
CCV 320-144055/62 CCVIS		12/28/2016 23:25	1	27DEC2016A6A_06 2.d	Acquity 2.1(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Batch Number: 143388 Batch Start Date: 12/21/16 14:39 Batch Analyst: Marchenko, Veronika P

Batch Method: 537 Batch End Date: 12/22/16 12:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00027
MB 320-143388/1		537, 537				250 mL	1.0 mL	7 SU	20 uL
LLCS 320-143388/2		537, 537				250 mL	1.0 mL	7 SU	20 uL
LLCSD 320-143388/3		537, 537				250 mL	1.0 mL	7 SU	20 uL
320-24536-A-1	WI-CV-1RW38-1216	537, 537	T	290.95 g	27.28 g	263.7 mL	1.0 mL	7 SU	20 uL
320-24536-A-2	WI-CV-1FB38-1216	537, 537	T	302.79 g	26.10 g	276.7 mL	1.0 mL	7 SU	20 uL
320-24536-A-3	WI-CV-1RW39-1216	537, 537	T	307.13 g	26.39 g	280.7 mL	1.0 mL	7 SU	20 uL
320-24536-A-4	WI-CV-1FB39-1216	537, 537	T	301.24 g	25.96 g	275.3 mL	1.0 mL	7 SU	20 uL
320-24536-A-5	WI-CV-1RW40-1216	537, 537	T	294.02 g	26.65 g	267.4 mL	1.0 mL	7 SU	20 uL
320-24536-A-6	WI-CV-1RW40P-1216	537, 537	T	288.60 g	26.26 g	262.3 mL	1.0 mL	7 SU	20 uL
320-24536-A-7	WI-CV-1FB40-1216	537, 537	T	294.79 g	26.00 g	268.8 mL	1.0 mL	7 SU	20 uL
320-24536-A-8	WI-CV-1RW41-1216	537, 537	T	293.96 g	27.86 g	266.1 mL	1.0 mL	7 SU	20 uL
320-24536-A-9	WI-CV-1FB41-1216	537, 537	T	303.57 g	26.46 g	277.1 mL	1.0 mL	7 SU	20 uL
320-24536-B-10	WI-CV-1RW42-1216	537, 537	T	292.98 g	27.51 g	265.5 mL	1.0 mL	7 SU	20 uL
320-24536-A-11	WI-CV-1FB42-1216	537, 537	T	309.57 g	26.59 g	283 mL	1.0 mL	7 SU	20 uL
320-24536-B-12	WI-CV-1RW43-1216	537, 537	T	285.40 g	27.07 g	258.3 mL	1.0 mL	7 SU	20 uL
320-24536-B-13	WI-CV-1FB43-1216	537, 537	T	303.41 g	26.72 g	276.7 mL	1.0 mL	7 SU	20 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00016	LC537-SU 00026	AnalysisComment			
MB 320-143388/1		537, 537			50 uL	Chlorine ND			
LLCS 320-143388/2		537, 537		50 uL	50 uL	Chlorine ND			
LLCSD 320-143388/3		537, 537		50 uL	50 uL	Chlorine ND			
320-24536-A-1	WI-CV-1RW38-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-2	WI-CV-1FB38-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-3	WI-CV-1RW39-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-4	WI-CV-1FB39-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-5	WI-CV-1RW40-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-6	WI-CV-1RW40P-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-7	WI-CV-1FB40-1216	537, 537	T		50 uL	Chlorine ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1

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

Batch Number: 143388 Batch Start Date: 12/21/16 14:39 Batch Analyst: Marchenko, Veronika P

Batch Method: 537 Batch End Date: 12/22/16 12:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00016	LC537-SU 00026	AnalysisComment			
320-24536-A-8	WI-CV-1RW41-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-9	WI-CV-1FB41-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-B-10	WI-CV-1RW42-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-A-11	WI-CV-1FB42-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-B-12	WI-CV-1RW43-1216	537, 537	T		50 uL	Chlorine ND			
320-24536-B-13	WI-CV-1FB43-1216	537, 537	T		50 uL	Chlorine ND			

Batch Notes	
Manifold ID	3,7
Methanol ID	798085
Pipette ID	EC15219
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	ERW
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	OM
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	OM
SPE Cartridge ID	6341059-01
Trizma ID	SLBR4303V
Reagent Water ID	12/20/16

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: 24536 Instrument ID & Date: A6 12-28-16 ICAL Batch: 143828  
 Extraction Batch: 143388 Worklist #: 38244 TALS Batch: 144053 144054, 144055

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 12-29-16 2<sup>nd</sup> Level Reviewer / Date: M. J. 12/29/2016

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Instrument ID & Date: AL6 12/24/16 Worklist#: 34202

ICAL Batch: 143828, 143829 Calibration ID number: 27291, 27292

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

1<sup>st</sup> Level Reviewer / Date: CBW 12/27/16

2<sup>nd</sup> Level Reviewer / Date: Murray 12/27/2016

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 27DEC2016A\_A6 537      Worklist Number: 38244  
 Instrument Name: A6      Chrom Method: 537\_A6  
 Data Directory: \\ChromNA\Sacramento\ChromData\A6\20161228-38244.b  
 QC Batching: Enabled      Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 144050	LC 537 CS ICAL Raw Batch: 144051
# 1 RB	# 1 RB	
# 2 CCV L2	# 2 CCV L2	# 2 CCV L2
# 3 CCV L3	# 3 CCV L3	
# 4 RB	# 4 RB	
# 5 MB 320-141791/1-A		# 5 MB 320-141791/1-A
# 6 LLCS 320-141791/2-A		# 6 LLCS 320-141791/2-A
# 7 280-91747-A-1-A		# 7 280-91747-A-1-A
# 8 280-91747-A-1-B DU		# 8 280-91747-A-1-B DU
# 9 280-91747-A-1-C MS		# 9 280-91747-A-1-C MS
#10 280-91747-A-2-A		#10 280-91747-A-2-A
#11 280-91747-A-3-A		#11 280-91747-A-3-A
#12 280-91747-A-4-A		#12 280-91747-A-4-A
#13 280-91747-A-5-A		#13 280-91747-A-5-A
#14 280-91747-A-6-A		#14 280-91747-A-6-A
#15 CCV L5	#15 CCV L5	#15 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 144052	LC 537 CS ICAL Raw Batch: 144173
#15 CCV L5	#15 CCV L5	#15 CCV L5
#16 RB	#16 RB	
#17 MB 320-142201/1-A	#17 MB 320-142201/1-A	
#18 LCS 320-142201/2-A	#18 LCS 320-142201/2-A	
#19 LCSD 320-142201/3-A	#19 LCSD 320-142201/3-A	
#20 320-24311-A-1-A	#20 320-24311-A-1-A	
#21 320-24311-A-2-A	#21 320-24311-A-2-A	
#22 320-24311-A-3-A	#22 320-24311-A-3-A	
#23 320-24311-A-4-A	#23 320-24311-A-4-A	
#24 320-24311-A-5-A	#24 320-24311-A-5-A	
#25 320-24311-A-6-A	#25 320-24311-A-6-A	
#26 320-24311-A-5-A	#26 320-24311-A-5-A	
#27 CCV L3	#27 CCV L3	

QC Batch: 3	LC 537 ICAL Raw Batch: 144053
#27 CCV L3	#27 CCV L3
#28 RB	#28 RB
#29 320-24315-A-1-A	#29 320-24315-A-1-A
#30 320-24315-A-2-A	#30 320-24315-A-2-A
#31 320-24315-A-3-A	#31 320-24315-A-3-A
#32 320-24315-A-4-A	#32 320-24315-A-4-A
#33 320-24315-A-5-A	#33 320-24315-A-5-A
#34 320-24315-A-6-A	#34 320-24315-A-6-A
#35 320-24315-A-7-A	#35 320-24315-A-7-A
#36 320-24315-A-8-A	#36 320-24315-A-8-A
#37 MB 320-143388/1-A	#37 MB 320-143388/1-A
#38 LLCS 320-143388/2-A	#38 LLCS 320-143388/2-A
#39 CCV L5	#39 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 144054	LC 537 CS ICAL Raw Batch: 144200
#39 CCV L5 #40 RB #41 LLCSD 320-143388/3-A #42 320-24536-A-1-A #43 320-24536-A-2-A #44 320-24536-A-3-A #45 320-24536-A-4-A #46 537 Cartridge QC MB 6341059-03 #47 537 Cartridge QC LCS 6341059-03 #48 320-24536-A-5-A #49 320-24536-A-6-A #50 320-24536-A-7-A #51 CCV L3	#39 CCV L5 #40 RB #41 LLCSD 320-143388/3-A #42 320-24536-A-1-A #43 320-24536-A-2-A #44 320-24536-A-3-A #45 320-24536-A-4-A #46 537 Cartridge QC MB 6341059-03 #47 537 Cartridge QC LCS 6341059-03 #48 320-24536-A-5-A #49 320-24536-A-6-A #50 320-24536-A-7-A #51 CCV L3	#51 CCV L3

QC Batch: 5	LC 537 ICAL Raw Batch: 144055	LC 537 CS ICAL Raw Batch: 144199
#51 CCV L3 #52 RB #53 320-24536-A-8-A #54 320-24536-A-9-A #55 320-24536-B-10-A #56 320-24536-A-11-A #57 320-24536-B-12-A #58 320-24536-B-13-A #59 280-91747-A-1-B DU #60 280-91747-A-1-C MS #61 280-91747-A-4-A #62 CCV L5 #63 RB	#51 CCV L3 #52 RB #53 320-24536-A-8-A #54 320-24536-A-9-A #55 320-24536-B-10-A #56 320-24536-A-11-A #57 320-24536-B-12-A #58 320-24536-B-13-A #62 CCV L5 #63 RB	#51 CCV L3 #52 RB #59 280-91747-A-1-B DU #60 280-91747-A-1-C MS #61 280-91747-A-4-A #62 CCV L5

30 Push

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-143388

Method Code: 320-537\_Prep-320

Analyst: Marchenko, Veronika P

Batch Open: 12/21/2016 2:39:00PM

Batch End: 12/22/16 12:25

Screen AY 12/23/16

Due 12/27

No dilutions needed

## Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHS		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1 Adj2					
1 MB-320-143388/1 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	MB 320-143388/1-A
2 LLCS-320-143388/2 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	LLCS 320-143388/2-A
3 LLCS-320-143388/3 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	LLCS 320-143388/3-A
4 320-24536-A-1 (537_DOD5)	N/A (320-24536-1)	290.95 g 27.28 g	263.7 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-1-A
5 320-24536-A-2 (537_DOD5)	N/A (320-24536-1)	302.79 g 26.10 g	276.7 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-2-A
6 320-24536-A-3 (537_DOD5)	N/A (320-24536-1)	307.13 g 26.39 g	280.7 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-3-A
7 320-24536-A-4 (537_DOD5)	N/A (320-24536-1)	301.24 g 25.96 g	275.3 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-4-A
8 320-24536-A-5 (537_DOD5)	N/A (320-24536-1)	294.02 g 26.65 g	267.4 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-5-A
9 320-24536-A-6 (537_DOD5)	N/A (320-24536-1)	288.60 g 26.26 g	262.3 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-6-A
10 320-24536-A-7 (537_DOD5)	N/A (320-24536-1)	294.79 g 26.00 g	268.8 mL 1.0 mL	7		12/24/16	5_Days	4	Chlorine ND	320-24536-A-7-A

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-143388

Analyst: Marchenko, Veronika P

Batch Open: 12/21/2016 2:39:00PM

Method Code: 320-537\_Prep-320

Batch End:

Line	Sample ID	Weight (g)	Volume (mL)	Days	Date	Chlorine ND	Barcode
11	320-24536-A-8 (537_DOD5)	293.96 g	266.1 mL	7	12/24/16	Chlorine ND	
		27.86 g	1.0 mL				
12	320-24536-A-9 (537_DOD5)	303.57 g	277.1 mL	7	12/24/16	Chlorine ND	
		26.46 g	1.0 mL				
13	320-24536-B-10 (537_DOD5)	292.98 g	265.5 mL	7	12/24/16	Chlorine ND	
		27.51 g	1.0 mL				
14	320-24536-A-11 (537_DOD5)	309.57 g	283 mL	7	12/24/16	Chlorine ND	
		26.59 g	1.0 mL				
15	320-24536-B-12 (537_DOD5)	285.40 g	258.3 mL	7	12/24/16	Chlorine ND	
		27.07 g	1.0 mL				
16	320-24536-B-13 (537_DOD5)	303.41 g	276.7 mL	7	12/24/16	Chlorine ND	
		26.72 g	1.0 mL				

*dark brown*

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-143388

Analyst: Marchenko, Veronika P

Batch Open: 12/21/2016 2:39:00PM

Method Code: 320-537\_Prep-320

Batch End:

Batch Notes	
Manifold ID	3,7
Trizma ID	SLBR4303V
SPE Cartridge ID	6341059-01
Methanol ID	798085
Reagent Water ID	12/20/16
Pipette ID	EC15219
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	OM
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	OM
Analyst ID - IS Reagent Drop	VPM (808145) IS (20uL) exp. 3/19/17
Analyst ID - IS Reagent Drop Witness	ERW 12/22/16
Batch Comment	

Comments

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Marchenko, Veronika P

Batch Number: 320-143388

Method Code: 320-537\_Prep-320

Batch Open: 12/21/2016 2:39:00PM

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-143388/1	LC537-SU_00026	50 uL	1.0 mL	VPM 12/21/16	ONL 12/21/16
LLCS 320-143388/2	LC537-LSP_00016	50 uL	1.0 mL	→	↙
LLCS 320-143388/2	LC537-SU_00026	50 uL	1.0 mL		
LLCSD 320-143388/3	LC537-LSP_00016	50 uL	1.0 mL		
LLCSD 320-143388/3	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-1	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-2	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-3	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-4	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-5	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-6	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-7	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-8	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-9	LC537-SU_00026	50 uL	1.0 mL		
320-24536-B-10	LC537-SU_00026	50 uL	1.0 mL		
320-24536-A-11	LC537-SU_00026	50 uL	1.0 mL		
320-24536-B-12	LC537-SU_00026	50 uL	1.0 mL		
320-24536-B-13	LC537-SU_00026	50 uL	1.0 mL		

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Marchenko, Veronika P

Batch Number: 320-143388

Method Code: 320-537\_Prep-320

Batch Open: 12/21/2016 2:39:00PM

Batch End:

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 143388 Test: 537200105 (Push)  
 Earliest Holding Time: 12/30/16

Sample List Tab		1 <sup>st</sup> Level Reviewer	2 <sup>nd</sup> Level Reviewer
Samples identified to the correct method		///	✓
All necessary NCMs filed (including holding time)		///	✓
Method/sample/login/QAS checked and correct		///	✓
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 correctly in TALS		NA	✓
All additional information transcribed into TALS is correct and raw data is attached		///	✓
Comments 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 entered into TALS		///	✓
All spike amounts correct and added to necessary samples and QC		///	✓
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		///	✓

✓  
12/22/16

1<sup>st</sup> Level Reviewer: VPM  
 2<sup>nd</sup> Level Reviewer: SKW  
 Comments: \_\_\_\_\_

Date: 12/22/16  
 Date: 12/22/16



# Shipping and Receiving Documents

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

**Client Contact**  
 Project Manager: **Katie Tippin**  DW  NPDES  RCRA  Other: \_\_\_\_\_  
 Tel/Fax: (757) 671-6258  
 Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
 TAT if different from Below: 7-Day  
 2 weeks  1 week  2 days  1 day

**Site Contact: Eric Epple**  
 Lab Contact: **Laura Turpen**  
 Date: **12/19/2016**  
 Carrier: **FedEx**  
 COC No: **10** of **2** COCs  
 Sampler: \_\_\_\_\_  
 For Lab Use Only:  
 Walk-in Client: \_\_\_\_\_  
 Lab Sampling: \_\_\_\_\_  
 Job / SDG No.: \_\_\_\_\_

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	USEPA Method 537 (PFOA, PFOS, and PFS)	Sample Specific Notes:
WI-CV-1RW38-1216	12/16/16	0913	G	DW	2	N	N	X	
WI-CV-1FB38-1216	12/16/16	0914	G	DW	2	N	N	X	
WI-CV-1RW39-1216	12/16/16	0952	G	DW	2	N	N	X	
WI-CV-1FB39-1216	12/16/16	0953	G	DW	2	N	N	X	
WI-CV-1RW40-1216	12/16/16	1120	G	DW	2	N	N	X	
WI-CV-1RW40P-1216	12/16/16	1125	G	DW	2	N	N	X	
WI-CV-1FB40-1216	12/16/16	1126	G	DW	2	N	N	X	
WI-CV-1RW41-1216	12/16/16	1155	G	DW	2	N	N	X	
WI-CV-1FB41-1216	12/16/16	1156	G	DW	2	N	N	X	
WI-CV-1RW42-1216	12/16/16	1328	G	DW	2	N	N	X	
WI-CV-1FB42-1216	12/16/16	1329	G	DW	2	N	N	X	
WI-CV-1RW43-1216	12/16/16	1351	G	DW	2	N	N	X	



**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_  
**Possible Hazard Identification:** Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

**Special Instructions/QC Requirements & Comments:**  
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months  
 Cooler Temp: \_\_\_\_\_ Obs'd: \_\_\_\_\_ Corr'd: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_  
 Received by: *Eric Epple* Date/Time: 12-19-16/1600 Company: CH2M  
 Received by: *JT-SAC* Date/Time: 12/20/16 10:25 Company: \_\_\_\_\_  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

TestAmerica Sacramento  
880 Riverside Parkway

West Sacramento, CA 95605  
phone 916.373.5600 fax

# Chain of Custody Record

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

Date: 12/19/2016  
Carrier: FedEx

COC No: 10  
2 of 2 COCs

Client Contact		Project Manager: Katie Tippin Tel/Fax: (757) 671-6258		Site Contact: Eric Epple	
Tiffany Hill		Analysis Turnaround Time		Lab Contact: Laura Turpen	
Project Chemist		<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			
1100 NE Circle Blvd Ste 300 Corvallis, OR 97330 (541) 768-3109		TAT if different from below _____ Day			
(541) 908-3794		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day			
Project Name: CTO-08					
Site: OLF Coupeville					
P.O #: 100067106050 - 679580.09.FI.FS					

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	USEPA Method 537 (PFOA, PFOS, and PFBS)	Sample Specific Notes:	
WI-CV-1FB43-1216	12/16/16	1352	G	DW	2	N	N	X		

**Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH; 6= Other**

**Possible Hazard Identification:**  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

**Special Instructions/QC Requirements & Comments:**

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	
Relinquished by: <i>Eric Epple</i>		Company: CH2M	Date/Time: 12-16-16
Relinquished by:		Company: <del>CH2M</del>	Date/Time: 12-16-16
Relinquished by:		Company:	Date/Time:

Cooler Temp. (°C): Obs'd: _____		Therm ID No.: _____	
Received by: <i>Eric Epple</i>		Company: TA-SMC	Date/Time: 12/20/16 10:25
Received by:		Company:	Date/Time:
Received in Laboratory by:		Company:	Date/Time:

# Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-24536-1

**Login Number: 24536**

**List Source: TestAmerica Sacramento**

**List Number: 1**

**Creator: Turpen, Troy**

<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.	N/A	
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?	N/A	
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	



**DATA VALIDATION SUMMARY REPORT  
WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon  
 SDG: 320-24536-1  
 Laboratory: Test America, Sacramento, California  
 Site: Whidbey Island, CTO-0008, Washington  
 Date: January 13, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW38-1216	320-24536-1	Water
2	WI-CV-1FB38-1216	320-24536-2	Water
3	WI-CV-1RW39-1216	320-24536-3	Water
4	WI-CV-1FB39-1216	320-24536-4	Water
5	WI-CV-1RW40-1216	320-24536-5	Water
6	WI-CV-1RW40P-1216	320-24536-6	Water
7	WI-CV-1FB40-1216	320-24536-7	Water
8	WI-CV-1RW41-1216	320-24536-8	Water
9	WI-CV-1FB41-1216	320-24536-9	Water
10	WI-CV-1RW42-1216	320-24536-10	Water
11	WI-CV-1FB42-1216	320-24536-11	Water
12	WI-CV-1RW43-1216	320-24536-12	Water
13	WI-CV-1FB43-1216	320-24536-13	Water

A full data validation was performed on the analytical data for seven water samples and six aqueous field blank samples collected on December 16, 2016 by CH2M HILL at the Whidbey Island site in Washington. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis  
PFCs

Method References  
USEPA Method 537 Rev 1.1 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), Version 5.0 (DoD 2013) and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review," August 2014;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

### ***Organics***

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Gas Chromatography/Mass Spectrometry (GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

### **Data Usability Assessment**

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

### **Perfluorinated Compounds (PFCs)**

#### **Data Completeness, Case Narrative & Custody Documentation**

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

#### **Holding Times**

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

#### **GC/MS Tuning**

- All criteria were met.

### **Initial Calibration**

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

### **Continuing Calibration**

- All percent difference (%D) and RRF criteria were met.

### **Method Blank**

- The method blanks were free of contamination.

### **Field QC Blank**

- The field blank samples were free of contamination.

### **Surrogate Spike Recoveries**

- All samples exhibited acceptable surrogate %R values.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries**

- A MS/MSD sample was not collected.

### **Laboratory Control Samples/Laboratory Control Sample Duplicates**

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

### **Internal Standard (IS) Area Performance**

- All internal standards met response and retention time (RT) criteria.

### **Target Compound Identification**

- All mass spectra and quantitation criteria were met.

### **Compound Quantitation**

- All criteria were met.

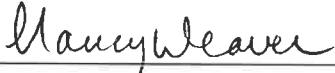


**Field Duplicate Sample Precision**

- Field duplicate results are summarized below.

Compound	WI-CV-1RW40-1216 ug/L	WI-CV-1RW40P-1216 ug/L	RPD	Qualifier
None	ND	ND	-	-

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:   
Nancy Weaver  
Senior Chemist

Dated: 11/7/17

<b>Data Qualifier</b>	<b>Definition</b>
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW38-1216 Lab Sample ID: 320-24536-1  
 Matrix: Water Lab File ID: 27DEC2016A6A\_042.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:13  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 263.7(mL) Date Analyzed: 12/28/2016 13:15  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	115		70-130
STL00996	13C2 PFDA	109		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB38-1216 Lab Sample ID: 320-24536-2  
 Matrix: Water Lab File ID: 27DEC2016A6A\_043.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:14  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 276.7(mL) Date Analyzed: 12/28/2016 13:45  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U <del>M</del>	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	102		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-24536-1</u>
SDG No.: _____	
Client Sample ID: <u>WI-CV-1RW39-1216</u>	Lab Sample ID: <u>320-24536-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>27DEC2016A6A_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>12/16/2016 09:52</u>
Extraction Method: <u>537</u>	Date Extracted: <u>12/21/2016 14:39</u>
Sample wt/vol: <u>280.7(mL)</u>	Date Analyzed: <u>12/28/2016 14:14</u>
Con. Extract Vol.: <u>1.0(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>10(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>144054</u>	Units: <u>ug/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U <del>M</del>	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	109		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB39-1216 Lab Sample ID: 320-24536-4  
 Matrix: Water Lab File ID: 27DEC2016A6A\_045.d  
 Analysis Method: 537 Date Collected: 12/16/2016 09:53  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 275.3(mL) Date Analyzed: 12/28/2016 14:44  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U <del>M</del>	0.054	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0086
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	106		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW40-1216 Lab Sample ID: 320-24536-5  
 Matrix: Water Lab File ID: 27DEC2016A6A\_048.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:20  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 267.4(mL) Date Analyzed: 12/28/2016 16:30  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	106		70-130



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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW40P-1216 Lab Sample ID: 320-24536-6  
 Matrix: Water Lab File ID: 27DEC2016A6A\_049.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:25  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 262.3(mL) Date Analyzed: 12/28/2016 17:00  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144054 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U <del>M</del>	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U <del>M</del>	0.029	0.023	0.0090
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	122		70-130
STL00996	13C2 PFDA	113		70-130

*william*

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7

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-24536-1</u>
SDG No.: _____	
Client Sample ID: <u>WI-CV-1FB40-1216</u>	Lab Sample ID: <u>320-24536-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>27DEC2016A6A_050.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>12/16/2016 11:26</u>
Extraction Method: <u>537</u>	Date Extracted: <u>12/21/2016 14:39</u>
Sample wt/vol: <u>268.8 (mL)</u>	Date Analyzed: <u>12/28/2016 17:30</u>
Con. Extract Vol.: <u>1.0 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>10 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>144054</u>	Units: <u>ug/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	116		70-130
STL00996	13C2 PFDA	113		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW41-1216 Lab Sample ID: 320-24536-8  
 Matrix: Water Lab File ID: 27DEC2016A6A\_053.d  
 Analysis Method: 537 Date Collected: 12/16/2016 11:55  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 266.1(mL) Date Analyzed: 12/28/2016 18:58  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	100		70-130

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Lab Name: TestAmerica Sacramento	Job No.: 320-24536-1
SDG No.:	
Client Sample ID: WI-CV-1FB41-1216	Lab Sample ID: 320-24536-9
Matrix: Water	Lab File ID: 27DEC2016A6A_054.d
Analysis Method: 537	Date Collected: 12/16/2016 11:56
Extraction Method: 537	Date Extracted: 12/21/2016 14:39
Sample wt/vol: 277.1(mL)	Date Analyzed: 12/28/2016 19:28
Con. Extract Vol.: 1.0(mL)	Dilution Factor: 1
Injection Volume: 10(uL)	GC Column: Acquity ID: 2.1(mm)
% Moisture:	GPC Cleanup: (Y/N) N
Analysis Batch No.: 144055	Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	108		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1RW42-1216 Lab Sample ID: 320-24536-10  
 Matrix: Water Lab File ID: 27DEC2016A6A\_055.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:28  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 265.5(mL) Date Analyzed: 12/28/2016 19:58  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U <del>M</del>	0.056	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	100		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB42-1216 Lab Sample ID: 320-24536-11  
 Matrix: Water Lab File ID: 27DEC2016A6A\_056.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:29  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 283(mL) Date Analyzed: 12/28/2016 20:27  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0083
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.097	0.042

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

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-24536-1</u>
SDG No.: _____	
Client Sample ID: <u>WI-CV-1RW43-1216</u>	Lab Sample ID: <u>320-24536-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>27DEC2016A6A_057.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>12/16/2016 13:51</u>
Extraction Method: <u>537</u>	Date Extracted: <u>12/21/2016 14:39</u>
Sample wt/vol: <u>258.3(mL)</u>	Date Analyzed: <u>12/28/2016 20:57</u>
Con. Extract Vol.: <u>1.0(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>10(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>144055</u>	Units: <u>ug/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	111		70-130
STL00996	13C2 PFDA	106		70-130

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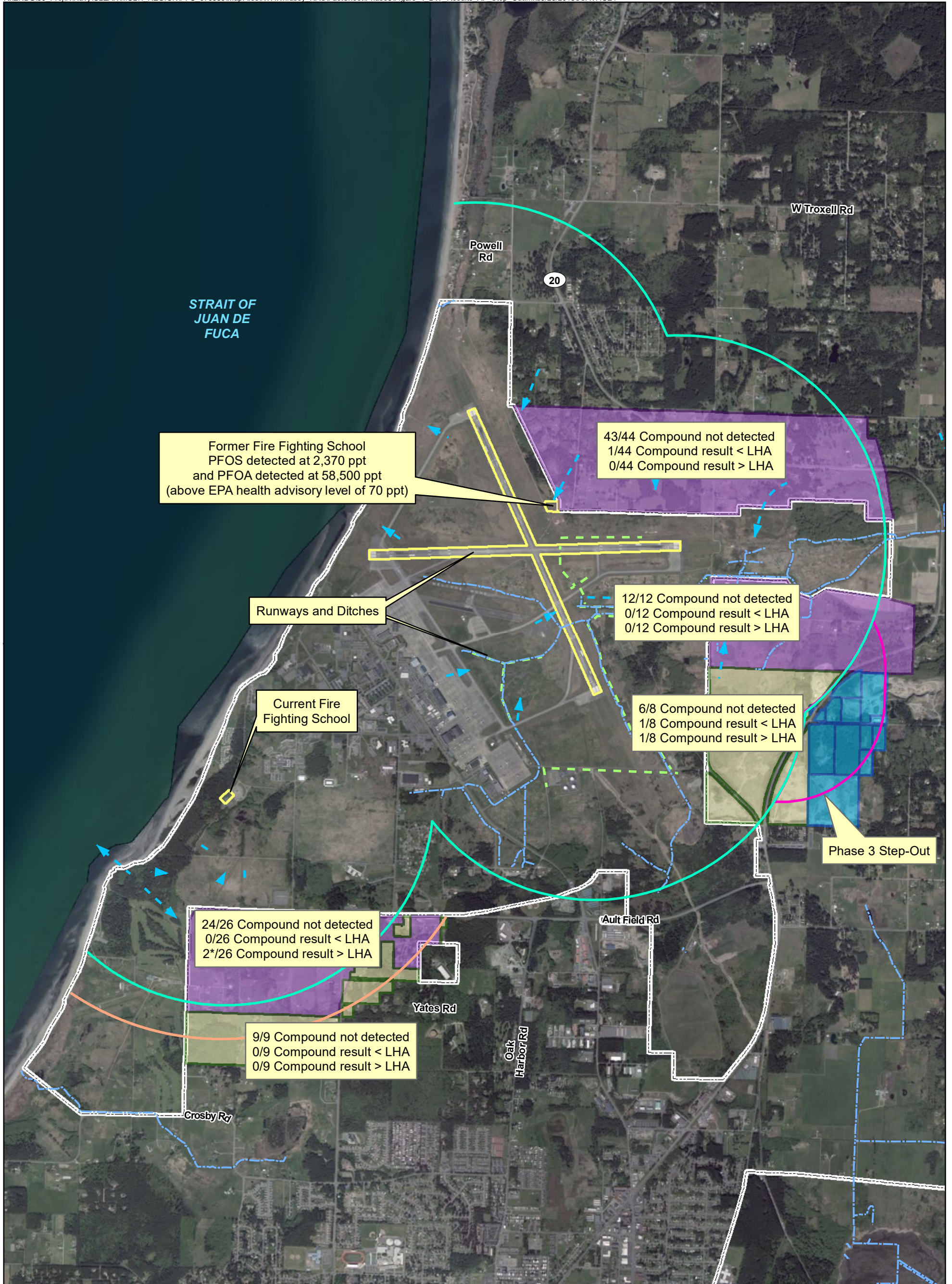
Lab Name: TestAmerica Sacramento Job No.: 320-24536-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-CV-1FB43-1216 Lab Sample ID: 320-24536-13  
 Matrix: Water Lab File ID: 27DEC2016A6A\_058.d  
 Analysis Method: 537 Date Collected: 12/16/2016 13:52  
 Extraction Method: 537 Date Extracted: 12/21/2016 14:39  
 Sample wt/vol: 276.7(mL) Date Analyzed: 12/28/2016 21:26  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 144055 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U <del>M</del>	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	104		70-130

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Former Fire Fighting School  
 PFOS detected at 2,370 ppt  
 and PFOA detected at 58,500 ppt  
 (above EPA health advisory level of 70 ppt)

43/44 Compound not detected  
 1/44 Compound result < LHA  
 0/44 Compound result > LHA

Runways and Ditches

12/12 Compound not detected  
 0/12 Compound result < LHA  
 0/12 Compound result > LHA

Current Fire Fighting School

6/8 Compound not detected  
 1/8 Compound result < LHA  
 1/8 Compound result > LHA

Phase 3 Step-Out

24/26 Compound not detected  
 0/26 Compound result < LHA  
 2\*/26 Compound result > LHA

9/9 Compound not detected  
 0/9 Compound result < LHA  
 0/9 Compound result > LHA

**Legend**

- 1 Mile Zone
- Half-mile Step-out Downgradient
- - - Surface Water
- - - Drainage Ditch
- Half-mile Step-out Downgradient
- Suspected Source Area
- Parcels in Phase 1 Sampling Area
- Parcels Identified in Phase 2 Sampling Area
- Parcels Identified in Phase 3 Sampling Area

- Base Boundary
- - - Inferred Groundwater Flow Direction

\* Second result above the EPA health advisory is from a duplicate sample collected from the well with the first exceedance near Ault Field.

Note:  
 PFOA and PFOS results reflected on figure,  
 PFBS results discussed in Table 2 and text.



0 0.225 0.45  
 Miles

1 inch = 0.45 mile  
 Imagery Source: Esri

Figure 2  
 Results for Drinking Water Well Sampling  
 Ault Field  
 Naval Air Station Whidbey Island  
 Oak Harbor, Washington