



**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 320-23971**

*Ault Field*

*Naval Air Station Whidbey Island*

*Oak Harbor, Washington*

February 2019

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Sacramento  
880 Riverside Parkway  
West Sacramento, CA 95605  
Tel: (916)373-5600

TestAmerica Job ID: 320-23971-1  
Client Project/Site: Whidbey Island

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

Attn: Tiffany Hill



Authorized for release by:  
12/13/2016 6:04:47 PM

Laura Turpen, Project Manager I  
(916)374-4414  
[laura.turpen@testamericainc.com](mailto:laura.turpen@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[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.*

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



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Detection Summary . . . . .	6
Client Sample Results . . . . .	7
Surrogate Summary . . . . .	10
QC Sample Results . . . . .	11
QC Association Summary . . . . .	12
Lab Chronicle . . . . .	13
Certification Summary . . . . .	15
Method Summary . . . . .	16
Sample Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	19

# Definitions/Glossary

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

TestAmerica Job ID: 320-23971-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, 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: 320-23971-1

**Job ID: 320-23971-1**

**Laboratory: TestAmerica Sacramento**

**Narrative**

## CASE NARRATIVE

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

**Project: Whidbey Island**

**Report Number: 320-23971-1**

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 12/02/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.4 C.

### **Receipt Exceptions**

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): WI-AF-3FB12-1116 (320-23971-10). The container labels list WI-AF-3FB12-1116, while the COC lists WI-AF-3FB11-1116. Based on the label ID, the sample time, and the location of the sample on the COC, it appears that the sample is supposed to be the field blank for sample WI-AF-3RW12-1116. This indicates that the sample label is correct and the COC contained a typo; therefore the sample was logged in according to the label ID. The client confirmed that the sample label was correct for this sample, not the COC.

# Case Narrative

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

TestAmerica Job ID: 320-23971-1

---

## Job ID: 320-23971-1 (Continued)

---

### Laboratory: TestAmerica Sacramento (Continued)

#### PFOA/PFOS

Samples WI-AF-2RW07-1116 (320-23971-1), WI-AF-2FB07-1116 (320-23971-2), WI-AF-2RW08-1116 (320-23971-3), WI-AF-2FB08-1116 (320-23971-4), WI-AF-3RW10-1116 (320-23971-5), WI-AF-3FB10-1116 (320-23971-6), WI-AF-3RW11-1116 (320-23971-7), WI-AF-3FB11-1116 (320-23971-8), WI-AF-3RW12-1116 (320-23971-9) and WI-AF-3FB12-1116 (320-23971-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/05/2016 and analyzed on 12/11/2016.

These samples have a pH 9:

WI-AF-2FB07-1116 (320-23971-2), WI-AF-2RW08-1116 (320-23971-3), WI-AF-2FB08-1116 (320-23971-4), WI-AF-3RW10-1116 (320-23971-5), WI-AF-3FB10-1116 (320-23971-6), WI-AF-3RW11-1116 (320-23971-7), WI-AF-3FB11-1116 (320-23971-8) and WI-AF-3FB12-1116 (320-23971-10)

Due to the excessive amount of sediment in the sample bottles, the aqueous portion of these samples was decanted to new bottles prior to spiking and the extraction.

WI-AF-3RW12-1116 (320-23971-9)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140632.

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: 320-23971-1

**Client Sample ID: WI-AF-2RW07-1116**

**Lab Sample ID: 320-23971-1**

No Detections.

**Client Sample ID: WI-AF-2FB07-1116**

**Lab Sample ID: 320-23971-2**

No Detections.

**Client Sample ID: WI-AF-2RW08-1116**

**Lab Sample ID: 320-23971-3**

No Detections.

**Client Sample ID: WI-AF-2FB08-1116**

**Lab Sample ID: 320-23971-4**

No Detections.

**Client Sample ID: WI-AF-3RW10-1116**

**Lab Sample ID: 320-23971-5**

No Detections.

**Client Sample ID: WI-AF-3FB10-1116**

**Lab Sample ID: 320-23971-6**

No Detections.

**Client Sample ID: WI-AF-3RW11-1116**

**Lab Sample ID: 320-23971-7**

No Detections.

**Client Sample ID: WI-AF-3FB11-1116**

**Lab Sample ID: 320-23971-8**

No Detections.

**Client Sample ID: WI-AF-3RW12-1116**

**Lab Sample ID: 320-23971-9**

No Detections.

**Client Sample ID: WI-AF-3FB12-1116**

**Lab Sample ID: 320-23971-10**

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: 320-23971-1

**Client Sample ID: WI-AF-2RW07-1116**

**Lab Sample ID: 320-23971-1**

Date Collected: 11/30/16 09:10

Matrix: Water

Date Received: 12/02/16 09:40

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.058	0.015	ug/L		12/05/16 11:42	12/11/16 15:00	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/05/16 11:42	12/11/16 15:00	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/05/16 11:42	12/11/16 15:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130				12/05/16 11:42	12/11/16 15:00	1
13C2 PFDA	118		70 - 130				12/05/16 11:42	12/11/16 15:00	1

**Client Sample ID: WI-AF-2FB07-1116**

**Lab Sample ID: 320-23971-2**

Date Collected: 11/30/16 09:12

Matrix: Water

Date Received: 12/02/16 09:40

**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		12/05/16 11:42	12/11/16 15:30	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 15:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 15:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	112		70 - 130				12/05/16 11:42	12/11/16 15:30	1
13C2 PFDA	112		70 - 130				12/05/16 11:42	12/11/16 15:30	1

**Client Sample ID: WI-AF-2RW08-1116**

**Lab Sample ID: 320-23971-3**

Date Collected: 11/30/16 09:30

Matrix: Water

Date Received: 12/02/16 09:40

**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	0.014	ug/L		12/05/16 11:42	12/11/16 15:59	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 15:59	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 15:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130				12/05/16 11:42	12/11/16 15:59	1
13C2 PFDA	108		70 - 130				12/05/16 11:42	12/11/16 15:59	1

**Client Sample ID: WI-AF-2FB08-1116**

**Lab Sample ID: 320-23971-4**

Date Collected: 11/30/16 09:32

Matrix: Water

Date Received: 12/02/16 09:40

**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		12/05/16 11:42	12/11/16 16:29	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 16:29	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/05/16 11:42	12/11/16 16:29	1
13C2 PFDA	105		70 - 130				12/05/16 11:42	12/11/16 16:29	1

TestAmerica Sacramento



# Client Sample Results

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

TestAmerica Job ID: 320-23971-1

**Client Sample ID: WI-AF-3RW10-1116**

**Lab Sample ID: 320-23971-5**

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 16:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 16:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 16:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130				12/05/16 11:42	12/11/16 16:58	1
13C2 PFDA	111		70 - 130				12/05/16 11:42	12/11/16 16:58	1

**Client Sample ID: WI-AF-3FB10-1116**

**Lab Sample ID: 320-23971-6**

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

**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	0.056	0.014	ug/L		12/05/16 11:42	12/11/16 17:28	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0087	ug/L		12/05/16 11:42	12/11/16 17:28	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	117		70 - 130				12/05/16 11:42	12/11/16 17:28	1
13C2 PFDA	106		70 - 130				12/05/16 11:42	12/11/16 17:28	1

**Client Sample ID: WI-AF-3RW11-1116**

**Lab Sample ID: 320-23971-7**

Date Collected: 11/30/16 10:30

Matrix: Water

Date Received: 12/02/16 09:40

**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		12/05/16 11:42	12/11/16 17:58	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 17:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 17:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130				12/05/16 11:42	12/11/16 17:58	1
13C2 PFDA	109		70 - 130				12/05/16 11:42	12/11/16 17:58	1

**Client Sample ID: WI-AF-3FB11-1116**

**Lab Sample ID: 320-23971-8**

Date Collected: 11/30/16 10:31

Matrix: Water

Date Received: 12/02/16 09:40

**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	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 19:56	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 19:56	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 19:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/05/16 11:42	12/11/16 19:56	1
13C2 PFDA	108		70 - 130				12/05/16 11:42	12/11/16 19:56	1

TestAmerica Sacramento

# Client Sample Results

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

TestAmerica Job ID: 320-23971-1

**Client Sample ID: WI-AF-3RW12-1116**

**Lab Sample ID: 320-23971-9**

**Date Collected: 11/30/16 17:00**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.059	0.015	ug/L		12/05/16 11:42	12/11/16 20:26	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L		12/05/16 11:42	12/11/16 20:26	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/05/16 11:42	12/11/16 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		70 - 130				12/05/16 11:42	12/11/16 20:26	1
13C2 PFDA	130		70 - 130				12/05/16 11:42	12/11/16 20:26	1

**Client Sample ID: WI-AF-3FB12-1116**

**Lab Sample ID: 320-23971-10**

**Date Collected: 11/30/16 17:01**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 20:55	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 20:55	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 20:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130				12/05/16 11:42	12/11/16 20:55	1
13C2 PFDA	105		70 - 130				12/05/16 11:42	12/11/16 20:55	1

# Surrogate Summary

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

TestAmerica Job ID: 320-23971-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		3C2 PFHx (70-130)	3C2 PFDA (70-130)
320-23971-1	WI-AF-2RW07-1116	103	118
320-23971-2	WI-AF-2FB07-1116	112	112
320-23971-3	WI-AF-2RW08-1116	96	108
320-23971-4	WI-AF-2FB08-1116	108	105
320-23971-5	WI-AF-3RW10-1116	110	111
320-23971-6	WI-AF-3FB10-1116	117	106
320-23971-7	WI-AF-3RW11-1116	110	109
320-23971-8	WI-AF-3FB11-1116	108	108
320-23971-9	WI-AF-3RW12-1116	119	130
320-23971-10	WI-AF-3FB12-1116	99	105
LCS 320-140632/2-A	Lab Control Sample	113	110
LCSD 320-140632/3-A	Lab Control Sample Dup	117	111
MB 320-140632/1-A	Method Blank	106	104

### 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: 320-23971-1

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

**Lab Sample ID: MB 320-140632/1-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

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		12/05/16 11:42	12/11/16 13:31	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/05/16 11:42	12/11/16 13:31	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/05/16 11:42	12/11/16 13:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130	12/05/16 11:42	12/11/16 13:31	1
13C2 PFDA	104		70 - 130	12/05/16 11:42	12/11/16 13:31	1

**Lab Sample ID: LCS 320-140632/2-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.160	0.124		ug/L		77	70 - 130
Perfluorooctanoic acid (PFOA)	0.0811	0.0619		ug/L		76	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.359	0.275		ug/L		77	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	113		70 - 130
13C2 PFDA	110		70 - 130

**Lab Sample ID: LCSD 320-140632/3-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	0.160	0.129		ug/L		80	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	0.0811	0.0627		ug/L		77	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	0.359	0.294		ug/L		82	70 - 130	7	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	117		70 - 130
13C2 PFDA	111		70 - 130

# QC Association Summary

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

TestAmerica Job ID: 320-23971-1

## LCMS

### Prep Batch: 140632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-1	WI-AF-2RW07-1116	Total/NA	Water	537	
320-23971-2	WI-AF-2FB07-1116	Total/NA	Water	537	
320-23971-3	WI-AF-2RW08-1116	Total/NA	Water	537	
320-23971-4	WI-AF-2FB08-1116	Total/NA	Water	537	
320-23971-5	WI-AF-3RW10-1116	Total/NA	Water	537	
320-23971-6	WI-AF-3FB10-1116	Total/NA	Water	537	
320-23971-7	WI-AF-3RW11-1116	Total/NA	Water	537	
320-23971-8	WI-AF-3FB11-1116	Total/NA	Water	537	
320-23971-9	WI-AF-3RW12-1116	Total/NA	Water	537	
320-23971-10	WI-AF-3FB12-1116	Total/NA	Water	537	
MB 320-140632/1-A	Method Blank	Total/NA	Water	537	
LCS 320-140632/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-140632/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 141573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-1	WI-AF-2RW07-1116	Total/NA	Water	537	140632
320-23971-2	WI-AF-2FB07-1116	Total/NA	Water	537	140632
320-23971-3	WI-AF-2RW08-1116	Total/NA	Water	537	140632
320-23971-4	WI-AF-2FB08-1116	Total/NA	Water	537	140632
320-23971-5	WI-AF-3RW10-1116	Total/NA	Water	537	140632
320-23971-6	WI-AF-3FB10-1116	Total/NA	Water	537	140632
320-23971-7	WI-AF-3RW11-1116	Total/NA	Water	537	140632
MB 320-140632/1-A	Method Blank	Total/NA	Water	537	140632
LCS 320-140632/2-A	Lab Control Sample	Total/NA	Water	537	140632
LCSD 320-140632/3-A	Lab Control Sample Dup	Total/NA	Water	537	140632

### Analysis Batch: 141574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-8	WI-AF-3FB11-1116	Total/NA	Water	537	140632
320-23971-9	WI-AF-3RW12-1116	Total/NA	Water	537	140632
320-23971-10	WI-AF-3FB12-1116	Total/NA	Water	537	140632

# Lab Chronicle

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

TestAmerica Job ID: 320-23971-1

## Client Sample ID: WI-AF-2RW07-1116

## Lab Sample ID: 320-23971-1

Date Collected: 11/30/16 09:10

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			257.9 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 15:00	JRB	TAL SAC

## Client Sample ID: WI-AF-2FB07-1116

## Lab Sample ID: 320-23971-2

Date Collected: 11/30/16 09:12

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			266.2 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 15:30	JRB	TAL SAC

## Client Sample ID: WI-AF-2RW08-1116

## Lab Sample ID: 320-23971-3

Date Collected: 11/30/16 09:30

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			269 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 15:59	JRB	TAL SAC

## Client Sample ID: WI-AF-2FB08-1116

## Lab Sample ID: 320-23971-4

Date Collected: 11/30/16 09:32

Matrix: Water

Date Received: 12/02/16 09:40

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	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 16:29	JRB	TAL SAC

## Client Sample ID: WI-AF-3RW10-1116

## Lab Sample ID: 320-23971-5

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			264 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 16:58	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB10-1116

## Lab Sample ID: 320-23971-6

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			270.1 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 17:28	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-23971-1

**Client Sample ID: WI-AF-3RW11-1116**

**Lab Sample ID: 320-23971-7**

**Date Collected: 11/30/16 10:30**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			268.9 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141573	12/11/16 17:58	JRB	TAL SAC

**Client Sample ID: WI-AF-3FB11-1116**

**Lab Sample ID: 320-23971-8**

**Date Collected: 11/30/16 10:31**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			265.1 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141574	12/11/16 19:56	JRB	TAL SAC

**Client Sample ID: WI-AF-3RW12-1116**

**Lab Sample ID: 320-23971-9**

**Date Collected: 11/30/16 17:00**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			256.4 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141574	12/11/16 20:26	JRB	TAL SAC

**Client Sample ID: WI-AF-3FB12-1116**

**Lab Sample ID: 320-23971-10**

**Date Collected: 11/30/16 17:01**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			265.2 mL	1.0 mL	140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1			141574	12/11/16 20:55	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: 320-23971-1

## 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
-----------------	-------------	--------	---------

- 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: 320-23971-1

---

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

---

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

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



# Sample Summary

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

TestAmerica Job ID: 320-23971-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23971-1	WI-AF-2RW07-1116	Water	11/30/16 09:10	12/02/16 09:40
320-23971-2	WI-AF-2FB07-1116	Water	11/30/16 09:12	12/02/16 09:40
320-23971-3	WI-AF-2RW08-1116	Water	11/30/16 09:30	12/02/16 09:40
320-23971-4	WI-AF-2FB08-1116	Water	11/30/16 09:32	12/02/16 09:40
320-23971-5	WI-AF-3RW10-1116	Water	11/30/16 10:00	12/02/16 09:40
320-23971-6	WI-AF-3FB10-1116	Water	11/30/16 10:00	12/02/16 09:40
320-23971-7	WI-AF-3RW11-1116	Water	11/30/16 10:30	12/02/16 09:40
320-23971-8	WI-AF-3FB11-1116	Water	11/30/16 10:31	12/02/16 09:40
320-23971-9	WI-AF-3RW12-1116	Water	11/30/16 17:00	12/02/16 09:40
320-23971-10	WI-AF-3FB12-1116	Water	11/30/16 17:01	12/02/16 09:40

1

2

3

4

5

6

7

8

9

10

11

12

13

14

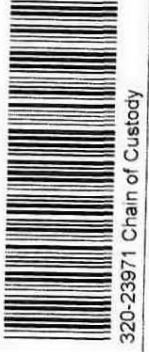
15

West Sacramento, CA 95605  
phone 916.373.5600 fax

TestAmerica Laboratories, Inc.  
COC No. 3 of 1 COCs

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_  
 Project Manager: Katie Tippin Site Contact: Eric Epple  
 Tel/Fax: (757) 671-6258 Lab Contact: Laura Turpen  
 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.	Titrated Sample (Y/N)		Sample Specific Notes:
						Perform MS / MSD (Y/N)	USEPA Method 537 (PFOA, PFOS, and PFBS)	
WI-AF-2RW07-1116	11/30/16	0910	G	DW	2	N	X	
WI-AF-2FB07-1116	11/30/16	0912	G	DW	1	N	X	
WI-AF-2RW08-1116	11/30/16	0930	G	DW	2	N	X	
WI-AF-2FB08-1116	11/30/16	0932	G	DW	2	N	X	
WI-AF-3RW10-1116	11/30/16	1000	G	DW	2	N	X	
WI-AF-3FB10-1116	11/30/16	1000	G	DW	2	N	X	
WI-AF-3RW11-1116	11/30/16	1030	G	DW	2	N	X	
WI-AF-3FB11-1116	11/30/16	1031	G	DW	2	N	X	
WI-AF-3RW12-1116	11/30/16	1700	G	DW	2	N	X	
WI-AF-3FB11-1116	11/30/16	1701	G	DW	2	N	X	
						6		



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

Special Instructions/QC Requirements & Comments:  
 Relinquished by: Eric Epple Custody Seal No.: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Company: CH2M  
 Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_  
 Date/Time: 12-1-16/1600  
 Date/Time: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Cooler Temp. (°C): Obs'd: -3 Corrd: 0.9 Therm ID No.: 12  
 Company: FAWS  
 Date/Time: 12/2/16 0940  
 Company: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Company: \_\_\_\_\_

\* label ID: WI-AF-3FB12-1116 OML 12/3/16  
 Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013



## Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-23971-1

**Login Number: 23971**

**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.	True	Seals
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.	False	Refer to Job Narrative for details.
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: 320-23971-1  
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  
12/13/2016 6:05 PM

---

Laura Turpen, Project Manager I  
880 Riverside Parkway, West Sacramento, CA, 95605  
(916)374-4414  
laura.turpen@testamericainc.com  
12/13/2016

# Table of Contents

Cover Title Page . . . . .	1
Data Summaries . . . . .	4
Definitions . . . . .	4
Case Narrative . . . . .	5
Detection Summary . . . . .	7
Client Sample Results . . . . .	8
Default Detection Limits . . . . .	11
Surrogate Summary . . . . .	12
QC Sample Results . . . . .	13
QC Association . . . . .	14
Chronicle . . . . .	15
Certification Summary . . . . .	17
Method Summary . . . . .	18
Sample Summary . . . . .	19
Manual Integration Summary . . . . .	20
Reagent Traceability . . . . .	24
COAs . . . . .	32
Organic Sample Data . . . . .	82
LCMS . . . . .	82
Method 537 DOD . . . . .	82
Method 537 DOD QC Summary . . . . .	83
Method 537 DOD Sample Data . . . . .	92
Standards Data . . . . .	138
Method 537 DOD ICAL Data . . . . .	138
Method 537 DOD CCAL Data . . . . .	161
Raw QC Data . . . . .	185

# Table of Contents

Method 537 DOD Blank Data .....	185
Method 537 DOD LCS/LCSD Data .....	191
Method 537 DOD Run Logs .....	199
Method 537 DOD Prep Data .....	202
Shipping and Receiving Documents .....	214
Client Chain of Custody .....	215
Sample Receipt Checklist .....	216

# Definitions/Glossary

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

TestAmerica Job ID: 320-23971-1

---

## Qualifiers

---

### LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

---

## Glossary

---

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, 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: 320-23971-1**

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 12/02/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.4 C.

### **Receipt Exceptions**

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): WI-AF-3FB12-1116 (320-23971-10). The container labels list WI-AF-3FB12-1116, while the COC lists WI-AF-3FB11-1116. Based on the label ID, the sample time, and the location of the sample on the COC, it appears that the sample is supposed to be the field blank for sample WI-AF-3RW12-1116. This indicates that the sample label is correct and the COC contained a typo; therefore the sample was logged in according to the label ID. The client confirmed that the sample label was correct for this sample, not the COC.

### **PFOA/PFOS**

Samples WI-AF-2RW07-1116 (320-23971-1), WI-AF-2FB07-1116 (320-23971-2), WI-AF-2RW08-1116 (320-23971-3), WI-AF-2FB08-1116 (320-23971-4), WI-AF-3RW10-1116 (320-23971-5), WI-AF-3FB10-1116 (320-23971-6), WI-AF-3RW11-1116 (320-23971-7), WI-AF-3FB11-1116 (320-23971-8), WI-AF-3RW12-1116 (320-23971-9) and WI-AF-3FB12-1116 (320-23971-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/05/2016 and analyzed on 12/11/2016.

These samples have a pH 9:

WI-AF-2FB07-1116 (320-23971-2), WI-AF-2RW08-1116 (320-23971-3), WI-AF-2FB08-1116 (320-23971-4), WI-AF-3RW10-1116 (320-23971-5), WI-AF-3FB10-1116 (320-23971-6), WI-AF-3RW11-1116 (320-23971-7), WI-AF-3FB11-1116 (320-23971-8) and WI-AF-3FB12-1116 (320-23971-10)

Due to the excessive amount of sediment in the sample bottles, the aqueous portion of these samples was decanted to new bottles prior to spiking and the extraction.

WI-AF-3RW12-1116 (320-23971-9)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140632.

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: 320-23971-1

**Client Sample ID: WI-AF-2RW07-1116**

**Lab Sample ID: 320-23971-1**

No Detections.

**Client Sample ID: WI-AF-2FB07-1116**

**Lab Sample ID: 320-23971-2**

No Detections.

**Client Sample ID: WI-AF-2RW08-1116**

**Lab Sample ID: 320-23971-3**

No Detections.

**Client Sample ID: WI-AF-2FB08-1116**

**Lab Sample ID: 320-23971-4**

No Detections.

**Client Sample ID: WI-AF-3RW10-1116**

**Lab Sample ID: 320-23971-5**

No Detections.

**Client Sample ID: WI-AF-3FB10-1116**

**Lab Sample ID: 320-23971-6**

No Detections.

**Client Sample ID: WI-AF-3RW11-1116**

**Lab Sample ID: 320-23971-7**

No Detections.

**Client Sample ID: WI-AF-3FB11-1116**

**Lab Sample ID: 320-23971-8**

No Detections.

**Client Sample ID: WI-AF-3RW12-1116**

**Lab Sample ID: 320-23971-9**

No Detections.

**Client Sample ID: WI-AF-3FB12-1116**

**Lab Sample ID: 320-23971-10**

No Detections.

This Detection Summary does not include radiochemical test results.

# Client Sample Results

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

TestAmerica Job ID: 320-23971-1

## Client Sample ID: WI-AF-2RW07-1116

Date Collected: 11/30/16 09:10

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.058	0.015	ug/L		12/05/16 11:42	12/11/16 15:00	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/05/16 11:42	12/11/16 15:00	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/05/16 11:42	12/11/16 15:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130				12/05/16 11:42	12/11/16 15:00	1
13C2 PFDA	118		70 - 130				12/05/16 11:42	12/11/16 15:00	1

## Client Sample ID: WI-AF-2FB07-1116

Date Collected: 11/30/16 09:12

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.056	0.015	ug/L		12/05/16 11:42	12/11/16 15:30	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 15:30	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 15:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	112		70 - 130				12/05/16 11:42	12/11/16 15:30	1
13C2 PFDA	112		70 - 130				12/05/16 11:42	12/11/16 15:30	1

## Client Sample ID: WI-AF-2RW08-1116

Date Collected: 11/30/16 09:30

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.056	0.014	ug/L		12/05/16 11:42	12/11/16 15:59	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 15:59	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 15:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130				12/05/16 11:42	12/11/16 15:59	1
13C2 PFDA	108		70 - 130				12/05/16 11:42	12/11/16 15:59	1

## Client Sample ID: WI-AF-2FB08-1116

Date Collected: 11/30/16 09:32

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 16:29	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 16:29	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/05/16 11:42	12/11/16 16:29	1
13C2 PFDA	105		70 - 130				12/05/16 11:42	12/11/16 16:29	1

# Client Sample Results

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

TestAmerica Job ID: 320-23971-1

**Client Sample ID: WI-AF-3RW10-1116**

**Lab Sample ID: 320-23971-5**

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 16:58	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 16:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 16:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130				12/05/16 11:42	12/11/16 16:58	1
13C2 PFDA	111		70 - 130				12/05/16 11:42	12/11/16 16:58	1

**Client Sample ID: WI-AF-3FB10-1116**

**Lab Sample ID: 320-23971-6**

Date Collected: 11/30/16 10:00

Matrix: Water

Date Received: 12/02/16 09:40

**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	0.056	0.014	ug/L		12/05/16 11:42	12/11/16 17:28	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0087	ug/L		12/05/16 11:42	12/11/16 17:28	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	117		70 - 130				12/05/16 11:42	12/11/16 17:28	1
13C2 PFDA	106		70 - 130				12/05/16 11:42	12/11/16 17:28	1

**Client Sample ID: WI-AF-3RW11-1116**

**Lab Sample ID: 320-23971-7**

Date Collected: 11/30/16 10:30

Matrix: Water

Date Received: 12/02/16 09:40

**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		12/05/16 11:42	12/11/16 17:58	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/05/16 11:42	12/11/16 17:58	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/05/16 11:42	12/11/16 17:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130				12/05/16 11:42	12/11/16 17:58	1
13C2 PFDA	109		70 - 130				12/05/16 11:42	12/11/16 17:58	1

**Client Sample ID: WI-AF-3FB11-1116**

**Lab Sample ID: 320-23971-8**

Date Collected: 11/30/16 10:31

Matrix: Water

Date Received: 12/02/16 09:40

**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	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 19:56	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 19:56	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 19:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/05/16 11:42	12/11/16 19:56	1
13C2 PFDA	108		70 - 130				12/05/16 11:42	12/11/16 19:56	1

# Client Sample Results

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

TestAmerica Job ID: 320-23971-1

**Client Sample ID: WI-AF-3RW12-1116**

**Lab Sample ID: 320-23971-9**

**Date Collected: 11/30/16 17:00**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.059	0.015	ug/L		12/05/16 11:42	12/11/16 20:26	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L		12/05/16 11:42	12/11/16 20:26	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/05/16 11:42	12/11/16 20:26	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	119		70 - 130				12/05/16 11:42	12/11/16 20:26	1
13C2 PFDA	130		70 - 130				12/05/16 11:42	12/11/16 20:26	1

**Client Sample ID: WI-AF-3FB12-1116**

**Lab Sample ID: 320-23971-10**

**Date Collected: 11/30/16 17:01**

**Matrix: Water**

**Date Received: 12/02/16 09:40**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/05/16 11:42	12/11/16 20:55	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/05/16 11:42	12/11/16 20:55	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/05/16 11:42	12/11/16 20:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	99		70 - 130				12/05/16 11:42	12/11/16 20:55	1
13C2 PFDA	105		70 - 130				12/05/16 11:42	12/11/16 20:55	1

# Default Detection Limits

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

TestAmerica Job ID: 320-23971-1

## 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: 320-23971-1

## 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 PFD <sub>A</sub> (70-130)
320-23971-1	WI-AF-2RW07-1116	103	118
320-23971-2	WI-AF-2FB07-1116	112	112
320-23971-3	WI-AF-2RW08-1116	96	108
320-23971-4	WI-AF-2FB08-1116	108	105
320-23971-5	WI-AF-3RW10-1116	110	111
320-23971-6	WI-AF-3FB10-1116	117	106
320-23971-7	WI-AF-3RW11-1116	110	109
320-23971-8	WI-AF-3FB11-1116	108	108
320-23971-9	WI-AF-3RW12-1116	119	130
320-23971-10	WI-AF-3FB12-1116	99	105
LCS 320-140632/2-A	Lab Control Sample	113	110
LCSD 320-140632/3-A	Lab Control Sample Dup	117	111
MB 320-140632/1-A	Method Blank	106	104

**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: 320-23971-1

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

**Lab Sample ID: MB 320-140632/1-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

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		12/05/16 11:42	12/11/16 13:31	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/05/16 11:42	12/11/16 13:31	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/05/16 11:42	12/11/16 13:31	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	106		70 - 130	12/05/16 11:42	12/11/16 13:31	1
13C2 PFDA	104		70 - 130	12/05/16 11:42	12/11/16 13:31	1

**Lab Sample ID: LCS 320-140632/2-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	0.0811	0.0619		ug/L		76	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.359	0.275		ug/L		77	70 - 130

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	113		70 - 130
13C2 PFDA	110		70 - 130

**Lab Sample ID: LCSD 320-140632/3-A**  
**Matrix: Water**  
**Analysis Batch: 141573**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 140632**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	0.0811	0.0627		ug/L		77	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	0.359	0.294		ug/L		82	70 - 130	7	30

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	117		70 - 130
13C2 PFDA	111		70 - 130

# QC Association Summary

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

TestAmerica Job ID: 320-23971-1

## LCMS

### Prep Batch: 140632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-1	WI-AF-2RW07-1116	Total/NA	Water	537	
320-23971-2	WI-AF-2FB07-1116	Total/NA	Water	537	
320-23971-3	WI-AF-2RW08-1116	Total/NA	Water	537	
320-23971-4	WI-AF-2FB08-1116	Total/NA	Water	537	
320-23971-5	WI-AF-3RW10-1116	Total/NA	Water	537	
320-23971-6	WI-AF-3FB10-1116	Total/NA	Water	537	
320-23971-7	WI-AF-3RW11-1116	Total/NA	Water	537	
320-23971-8	WI-AF-3FB11-1116	Total/NA	Water	537	
320-23971-9	WI-AF-3RW12-1116	Total/NA	Water	537	
320-23971-10	WI-AF-3FB12-1116	Total/NA	Water	537	
MB 320-140632/1-A	Method Blank	Total/NA	Water	537	
LCS 320-140632/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-140632/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 141573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-1	WI-AF-2RW07-1116	Total/NA	Water	537	140632
320-23971-2	WI-AF-2FB07-1116	Total/NA	Water	537	140632
320-23971-3	WI-AF-2RW08-1116	Total/NA	Water	537	140632
320-23971-4	WI-AF-2FB08-1116	Total/NA	Water	537	140632
320-23971-5	WI-AF-3RW10-1116	Total/NA	Water	537	140632
320-23971-6	WI-AF-3FB10-1116	Total/NA	Water	537	140632
320-23971-7	WI-AF-3RW11-1116	Total/NA	Water	537	140632
MB 320-140632/1-A	Method Blank	Total/NA	Water	537	140632
LCS 320-140632/2-A	Lab Control Sample	Total/NA	Water	537	140632
LCSD 320-140632/3-A	Lab Control Sample Dup	Total/NA	Water	537	140632

### Analysis Batch: 141574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23971-8	WI-AF-3FB11-1116	Total/NA	Water	537	140632
320-23971-9	WI-AF-3RW12-1116	Total/NA	Water	537	140632
320-23971-10	WI-AF-3FB12-1116	Total/NA	Water	537	140632

# Lab Chronicle

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

TestAmerica Job ID: 320-23971-1

## Client Sample ID: WI-AF-2RW07-1116

Date Collected: 11/30/16 09:10

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 15:00	JRB	TAL SAC

## Client Sample ID: WI-AF-2FB07-1116

Date Collected: 11/30/16 09:12

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 15:30	JRB	TAL SAC

## Client Sample ID: WI-AF-2RW08-1116

Date Collected: 11/30/16 09:30

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 15:59	JRB	TAL SAC

## Client Sample ID: WI-AF-2FB08-1116

Date Collected: 11/30/16 09:32

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 16:29	JRB	TAL SAC

## Client Sample ID: WI-AF-3RW10-1116

Date Collected: 11/30/16 10:00

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 16:58	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB10-1116

Date Collected: 11/30/16 10:00

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 17:28	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-23971-1

## Client Sample ID: WI-AF-3RW11-1116

Date Collected: 11/30/16 10:30

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141573	12/11/16 17:58	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB11-1116

Date Collected: 11/30/16 10:31

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141574	12/11/16 19:56	JRB	TAL SAC

## Client Sample ID: WI-AF-3RW12-1116

Date Collected: 11/30/16 17:00

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141574	12/11/16 20:26	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB12-1116

Date Collected: 11/30/16 17:01

Date Received: 12/02/16 09:40

## Lab Sample ID: 320-23971-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140632	12/05/16 11:42	NS1	TAL SAC
Total/NA	Analysis	537		1	141574	12/11/16 20:55	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: 320-23971-1

## Laboratory: TestAmerica Sacramento

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

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

<u>Analysis Method</u>	<u>Prep Method</u>	<u>Matrix</u>	<u>Analyte</u>
------------------------	--------------------	---------------	----------------

# Method Summary

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

TestAmerica Job ID: 320-23971-1

---

---

<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: 320-23971-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23971-1	WI-AF-2RW07-1116	Water	11/30/16 09:10	12/02/16 09:40
320-23971-2	WI-AF-2FB07-1116	Water	11/30/16 09:12	12/02/16 09:40
320-23971-3	WI-AF-2RW08-1116	Water	11/30/16 09:30	12/02/16 09:40
320-23971-4	WI-AF-2FB08-1116	Water	11/30/16 09:32	12/02/16 09:40
320-23971-5	WI-AF-3RW10-1116	Water	11/30/16 10:00	12/02/16 09:40
320-23971-6	WI-AF-3FB10-1116	Water	11/30/16 10:00	12/02/16 09:40
320-23971-7	WI-AF-3RW11-1116	Water	11/30/16 10:30	12/02/16 09:40
320-23971-8	WI-AF-3FB11-1116	Water	11/30/16 10:31	12/02/16 09:40
320-23971-9	WI-AF-3RW12-1116	Water	11/30/16 17:00	12/02/16 09:40
320-23971-10	WI-AF-3FB12-1116	Water	11/30/16 17:01	12/02/16 09:40

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Analysis Batch Number: 140688

Lab Sample ID: STD 320-140688/2 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/05/16 17:26 Lab File ID: 05DEC2016A6A\_004.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.37	Split Peak	barnettj	12/06/16 10:00
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:00

Lab Sample ID: STD 320-140688/3 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/05/16 17:55 Lab File ID: 05DEC2016A6A\_005.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.38	Split Peak	barnettj	12/06/16 10:03
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:03

Lab Sample ID: CCV 320-140688/9 CCVL Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/05/16 20:53 Lab File ID: 05DEC2016A6A\_011.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.38	Split Peak	barnettj	12/06/16 10:08
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:08



LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Analysis Batch Number: 141573

Lab Sample ID: MB 320-140632/1-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/11/16 13:31 Lab File ID: 11DEC2016A6A\_006.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/12/16 15:00
Perfluorooctanesulfonic acid (PFOS)	20.66	Missed Peak	barnettj	12/12/16 15:00

Lab Sample ID: 320-23971-1 Client Sample ID: WI-AF-2RW07-1116

Date Analyzed: 12/11/16 15:00 Lab File ID: 11DEC2016A6A\_009.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.68	Missed Peak	barnettj	12/12/16 15:22

Lab Sample ID: 320-23971-2 Client Sample ID: WI-AF-2FB07-1116

Date Analyzed: 12/11/16 15:30 Lab File ID: 11DEC2016A6A\_010.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.70	Missed Peak	barnettj	12/12/16 15:23

Lab Sample ID: 320-23971-3 Client Sample ID: WI-AF-2RW08-1116

Date Analyzed: 12/11/16 15:59 Lab File ID: 11DEC2016A6A\_011.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.07	Split Peak	barnettj	12/12/16 15:24
Perfluorooctanesulfonic acid (PFOS)	20.68	Missed Peak	barnettj	12/12/16 15:24

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Analysis Batch Number: 141573

Lab Sample ID: 320-23971-6 Client Sample ID: WI-AF-3FB10-1116

Date Analyzed: 12/11/16 17:28 Lab File ID: 11DEC2016A6A\_014.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.67	Missed Peak	barnettj	12/12/16 15:38

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Analysis Batch Number: 141574

Lab Sample ID: 320-23971-8 Client Sample ID: WI-AF-3FB11-1116

Date Analyzed: 12/11/16 19:56 Lab File ID: 11DEC2016A6A\_019.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	20.68	Missed Peak	barnettj	12/12/16 15:41

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>LC537-ICV_00017</b>	01/13/17	08/09/16	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00018	200 uL	13C2-PFOA	10 ng/mL
.LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA_00004	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
..LCMPFOS_00013	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C2-PFOA	50 ug/mL
<b>LC537-ICV_00017</b>	01/13/17	08/09/16	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00017	500 uL	13C2 PFDA	10 ng/mL
					LC537ICIM_00013	25 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	114.77 ng/mL
							Perfluorooctanoic acid (PFOA)	25.0965 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	27.2389 ng/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LC537ICIM_00013	02/05/17	08/09/16	Methanol, Lot 090285	25 mL	LC537-PFBS2_00005	0.5 mL	Perfluorobutanesulfonic acid (PFBS)	45.908 ug/mL
					LC537-PFOA2_00007	0.13 mL	Perfluorooctanoic acid (PFOA)	10.0386 ug/mL
					LC537-PFOS2_00005	0.22 mL	Perfluorooctanesulfonic acid (PFOS)	10.8956 ug/mL
..LC537-PFBS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537_PFBS2_00001	0.023 g	Perfluorobutanesulfonic acid (PFBS)	2295.4 ug/mL
...LC537_PFBS2_00001	08/09/17	Santa Cruz Biotechnology, Lot H0112			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFOA2_00007	07/25/17	08/05/16	Methanol, Lot 090285	10 mL	LC537_PFOA2_00001	0.0195 g	Perfluorooctanoic acid (PFOA)	1930.5 ug/mL
...LC537_PFOA2_00001	07/25/17	Afla Aesar, Lot D24Y026			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
..LC537-PFOS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537_PFOS2_00001	0.0159 g	Perfluorooctanesulfonic acid (PFOS)	1238.13 ug/mL
...LC537_PFOS2_00001	07/26/17	Sigma, Lot BCBF5116V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
<b>LC537-IS_00025</b>	03/19/17	11/21/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	13C2-PFOA	0.5 ug/mL
.LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			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
<b>LC537-L1_00015</b>	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
					LC537-MSP_00012	24.4 uL	13C4 PFOS	28.68 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	8.76058 ng/mL
							Perfluoroheptanoic acid	0.993847 ng/mL
							Perfluorohexanesulfonic acid	2.9532 ng/mL
							Perfluorononanoic acid	1.91737 ng/mL
							Perfluorooctanoic acid (PFOA)	1.9793 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	3.91048 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2 PFHxA	10 ng/mL
..LCM2PFOA_00004	03/19/17	Wellington Laboratories, Lot M2PFOA0312			(Purchased Reagent)		13C2-PFOA	0.5 ug/mL
..LCMPFOS_00013	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	1.434 ug/mL
.LC537-MSP_00012	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	200 uL	13C2-PFOA	50 ug/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537SPIM_00012	200 uL	13C4 PFOS	47.8 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	1795.2 ng/mL
....LC537_PFB_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluoroheptanoic acid	203.657 ng/mL
...LC537-PFHxA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537-PFHxA_00010	0.1 mL	Perfluorohexanesulfonic acid	605.164 ng/mL
...LC537-PFHxA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluorononanoic acid	392.904 ng/mL
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537-PFHxS_00008	0.3 mL	Perfluorooctanoic acid (PFOA)	405.594 ng/mL
...LC537-PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	801.328 ng/mL
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFNA_00008	0.2 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
...LC537-PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluoroheptanoic acid	10.1829 ug/mL
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537-PFOA_00009	0.098 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
...LC537-PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorononanoic acid	19.6452 ug/mL
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537-PFOS_00006	0.4 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		Perfluoroheptanoic acid	1018.29 ug/mL
LC537-L2_00014	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-L2_00014	34 uL	Perfluoroheptanoic acid	0.99 g/g
							Perfluorohexanesulfonic acid	1008.61 ug/mL
							Perfluorononanoic acid	0.9094 g/g
							Perfluorooctanoic acid (PFOA)	982.26 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.963 g/g
							Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.999 g/g
							Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
							Perfluorooctanesulfonic acid (PFOS)	0.2 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.2 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	50 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	50 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	22.8888 ng/mL
							Perfluoroheptanoic acid	2.59663 ng/mL
							Perfluorohexanesulfonic acid	7.71585 ng/mL
							Perfluorononanoic acid	5.00953 ng/mL
							Perfluorooctanoic acid (PFOA)	5.17132 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	10.2169 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00004	03/19/17		Wellington Laboratories, Lot M2PFOA0312		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00013	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 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-L3_00016</b>	01/28/17	11/07/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	67 uL	Perfluorobutanesulfonic acid (PFBS)	45.1044 ng/mL
							Perfluoroheptanoic acid	5.11689 ng/mL
							Perfluorohexanesulfonic acid	15.2048 ng/mL
							Perfluorononanoic acid	9.87171 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanoic acid (PFOA)	10.1905 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1334 ng/mL
					LC537-IS_00024	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00020	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00024	03/19/17	11/03/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00003	03/19/17		Wellington Laboratories, Lot M2PFOA0312		(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_00020	04/07/17	10/07/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 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_00015</b>	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	135 uL	Perfluorobutanesulfonic acid (PFBS)	90.882 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluoroheptanoic acid	10.3101 ng/mL
							Perfluorohexanesulfonic acid	30.6364 ng/mL
							Perfluorononanoic acid	19.8908 ng/mL
							Perfluorooctanoic acid (PFOA)	20.5332 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.5672 ng/mL
					LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00004	03/19/17		Wellington Laboratories, Lot M2PFOA0312		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00013	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL		
LC537-L5_00017	01/28/17	11/07/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	200 uL	Perfluorobutanesulfonic acid (PFBS)	134.64 ng/mL		
							Perfluoroheptanoic acid	15.2743 ng/mL		
							Perfluorohexanesulfonic acid	45.3873 ng/mL		
							Perfluorononanoic acid	29.4678 ng/mL		
							Perfluorooctanoic acid (PFOA)	30.4196 ng/mL		
					Perfluorooctanesulfonic acid (PFOS)	60.0996 ng/mL				
					LC537-IS_00024	100 uL	13C2-PFOA	10 ng/mL		
							13C4 PFOS	28.68 ng/mL		
					LC537-SU_00020	250 uL	13C2 PFDA	10 ng/mL		
							13C2 PFHxA	10 ng/mL		
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL		
							Perfluoroheptanoic acid	381.857 ng/mL		
							Perfluorohexanesulfonic acid	1134.68 ng/mL		
							Perfluorononanoic acid	736.695 ng/mL		
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL		
Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL									
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL		
							LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
							LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
							LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
							LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
LC537-PFOS_00006	0.4 mL	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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL		
...LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g		
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00024	03/19/17	11/03/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	13C2-PFOA	0.5 ug/mL		
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL		
..LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-SU_00020	04/07/17	10/07/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 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-L6_00014</b>	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	265 uL	Perfluorobutanesulfonic acid (PFBS)	178.398 ng/mL
							Perfluoroheptanoic acid	20.2384 ng/mL
							Perfluorohexanesulfonic acid	60.1382 ng/mL
							Perfluorononanoic acid	39.0448 ng/mL
							Perfluorooctanoic acid (PFOA)	40.3059 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	79.632 ng/mL
					LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23971-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFOA_00004	03/19/17		Wellington Laboratories, Lot M2PFOA0312		LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
..LCMPFOS_00013	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(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-MSP_00014</b>	03/14/17	09/14/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00013	200 uL	Perfluorobutane Sulfonate	1795.2 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1795.2 ng/mL
							Perfluoroheptanoic acid	203.657 ng/mL
							Perfluorohexanesulfonic acid	605.164 ng/mL
							Perfluorononanoic acid	392.904 ng/mL
							Perfluorooctanoic acid (PFOA)	405.594 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	801.328 ng/mL
.LC537SPIM_00013	03/14/17	09/14/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutane Sulfonate	89760 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	89760 ng/mL
					LC537-PFHpA_00010	100 uL	Perfluoroheptanoic acid	10182.9 ng/mL
					LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30258.2 ng/mL
					LC537-PFNA_00008	200 uL	Perfluorononanoic acid	19645.2 ng/mL
					LC537-PFOA_00009	98 uL	Perfluorooctanoic acid (PFOA)	20279.7 ng/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40066.4 ng/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
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 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_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
...LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 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_00022</b>	05/21/17	11/21/16	Methanol, Lot 104453	20000 uL	LCMPFDA_00008	80 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		LCMPFHxA_00009	80 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

---

**LC537\_PFB\_S\_00002**

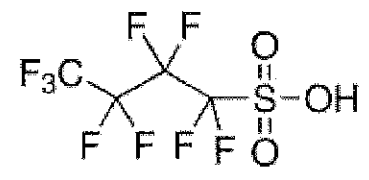
7: 4/1/15 SPV

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

### Certificate of Analysis

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

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



PFBS

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

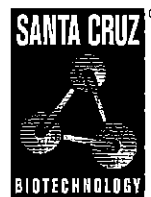
Jamie Gleason, Manager  
Quality Control  
Milwaukee, Wisconsin US

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

Reagent

---

**LC537\_PFB2\_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

---

**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

---

**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

---

**LC537\_PENA\_00002**

R: 4/1/15 SKV



### Certificate of Analysis

Apr 2, 2015 (JST)

TOKYO CHEMICAL INDUSTRY CO.,LTD.  
4-10-1 Nihonbashi-Honcho, Chuo-ku, Tokyo 103-0023 Japan

Chemical Name: Heptadecafluorononanoic Acid		
Product Number: H0843 CAS: 375-95-1	Lot: QN44F	

Tests	Results	Specifications
Purity(GC)	96.3 %	min. 95.0 %
Purity(Neutralization titration)	98.1 %	min. 95.0 %
Melting point	63.3 deg-C	62.0 to 67.0 deg-C

TCI Lot numbers are 4-5 characters in length.  
Characters listed after the first 4-5 characters are control numbers for internal purpose only.

**Customer service:**

TCI AMERICA  
Tel: +1-800-423-8616 / +1-503-283-1681  
Fax: +1-888-520-1075 / +1-503-283-1987  
E-mail: Sales-US@TCIchemicals.com

PFNA

Reagent

---

**LC537\_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

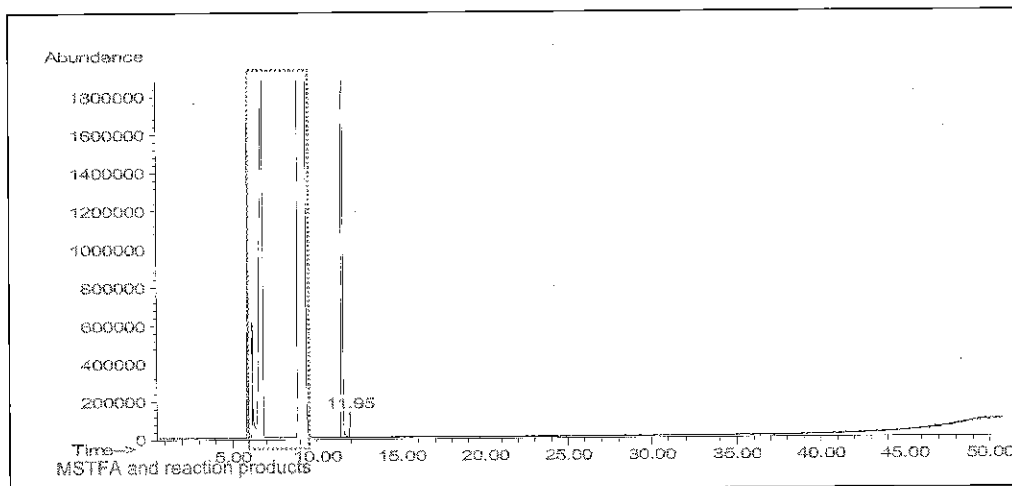
**Mass range:** 10-600 amu (Scan mode)

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

Identity: Mass spectrum complies

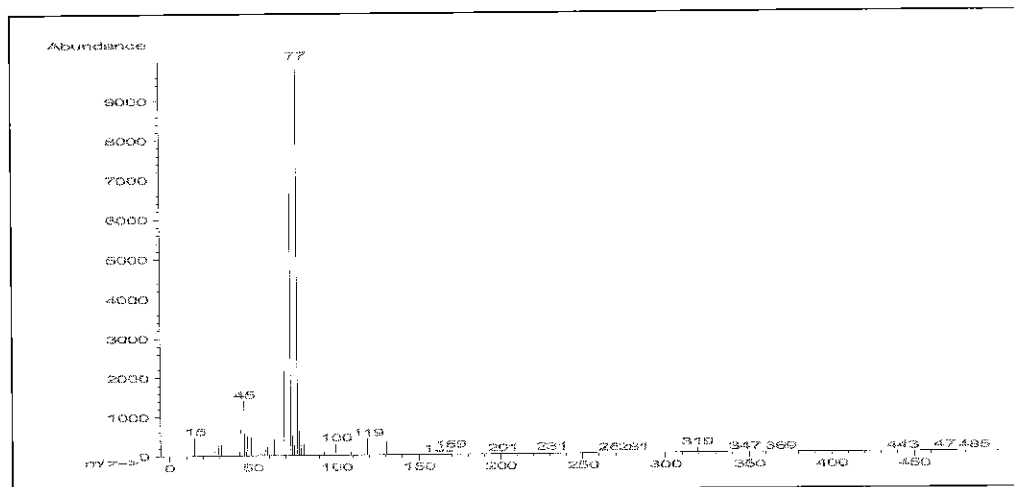
**Operator:** Ahrens / 2013-11-13

### 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

---

**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

---

**LC537\_PFOs\_00002**

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

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

**2. Batch Analysis**

Identity	complying
Assay (LC-MS)	98.00 %
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

---

**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

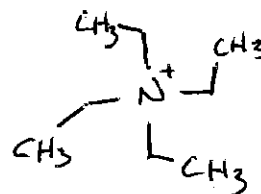
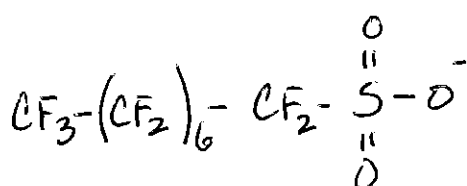
$$\text{Mw correction} = \frac{500.125}{629.37} = 0.7946$$

~~79.46%~~ det 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:**  $C_{16}H_{20}F_{17}NO_3S$   
**Molecular Mass:** 629.37  
**CAS Number:** 56773-42-3  
**Date of Issue:** 30-MAR-11

---

**Country of Origin** China

---

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

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

Document issued by Sigma-Aldrich Corporation "Sigma-Aldrich". This document is valid without signature and has been produced digitally.

This information is to be used for the purpose of determining animal or other biological origin only and not to be confused with "Country of Origin" for import/export purposes. Data provided on this document are property of Sigma-Aldrich.

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.

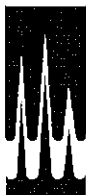
*We are committed to the success of our Customers, Employees and Shareholders through leadership in Life Science, High Technology and Service.*

Reagent

---

**LCM2PFOA\_00003**

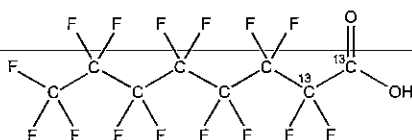




# WELLINGTON LABORATORIES

## 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:

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

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.

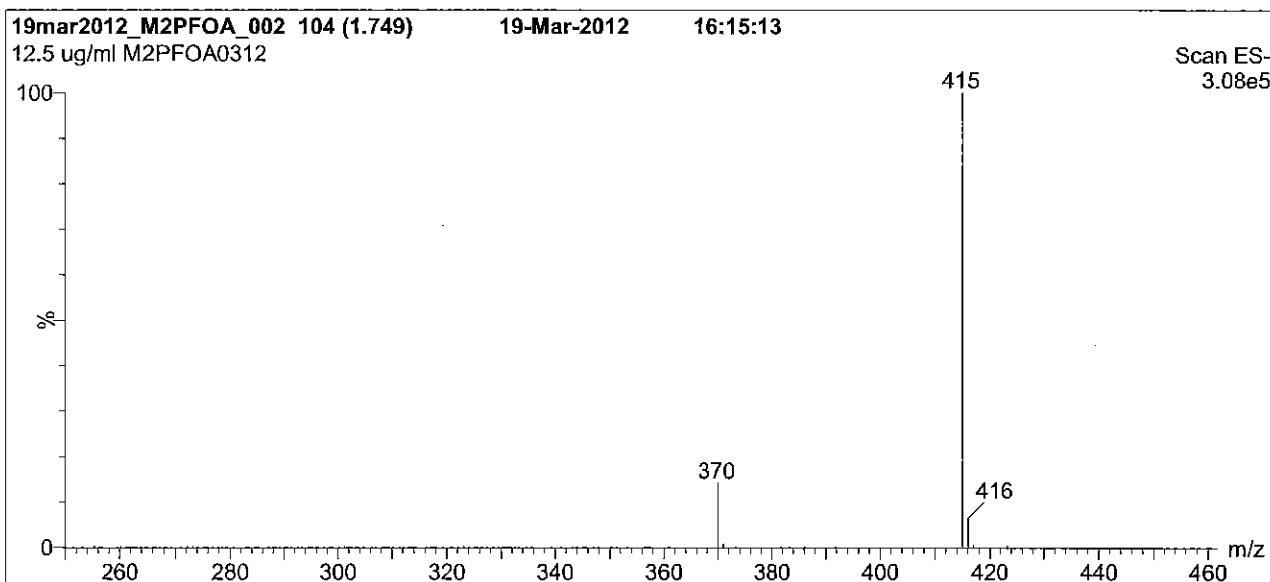
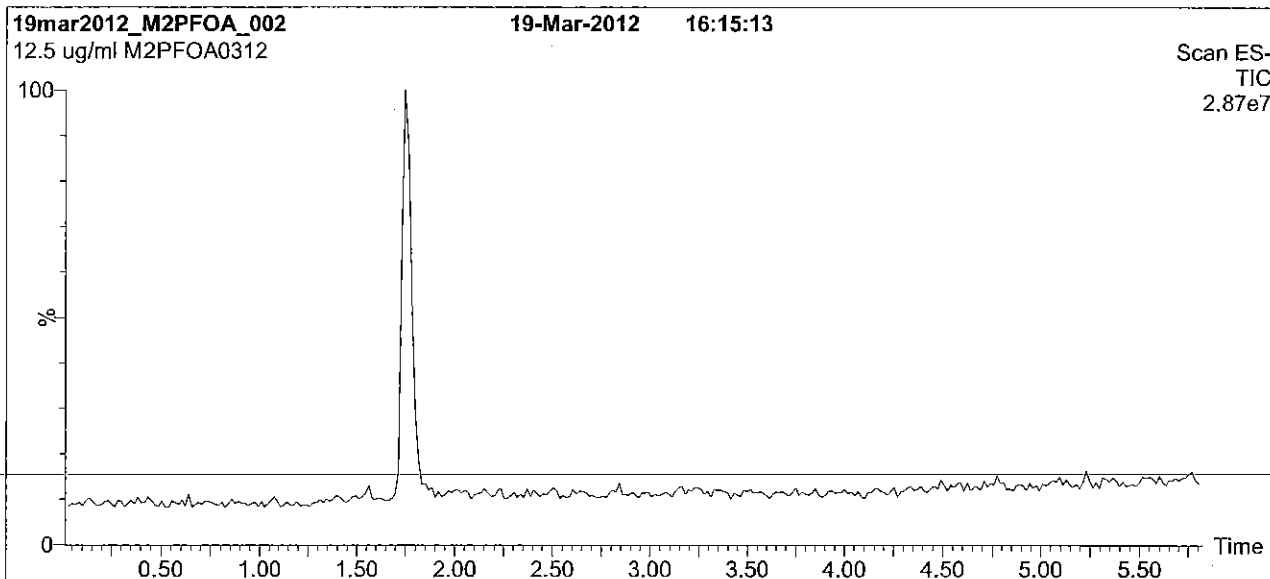
#### **QUALITY MANAGEMENT:**

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: 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

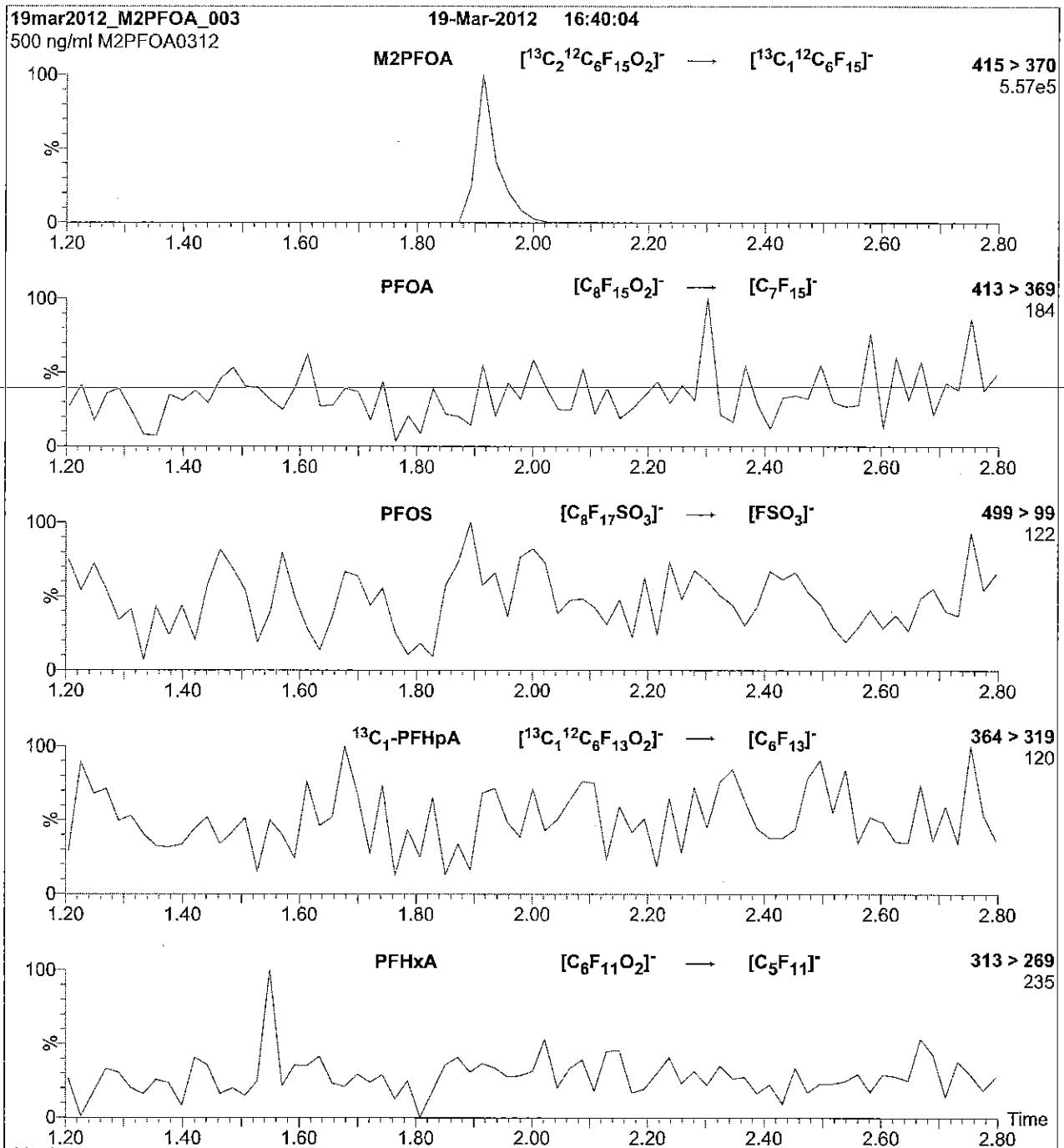
Flow: 300  $\mu$ l/min

**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  $\mu\text{l}/\text{min}$

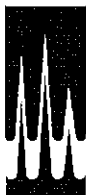
**MS Parameters**

Collision Gas (mbar) = 3.35e-3  
Collision Energy (eV) = 11

Reagent

---

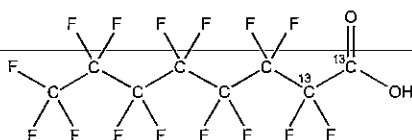
**LCM2PFOA\_00004**



# 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:

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

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.

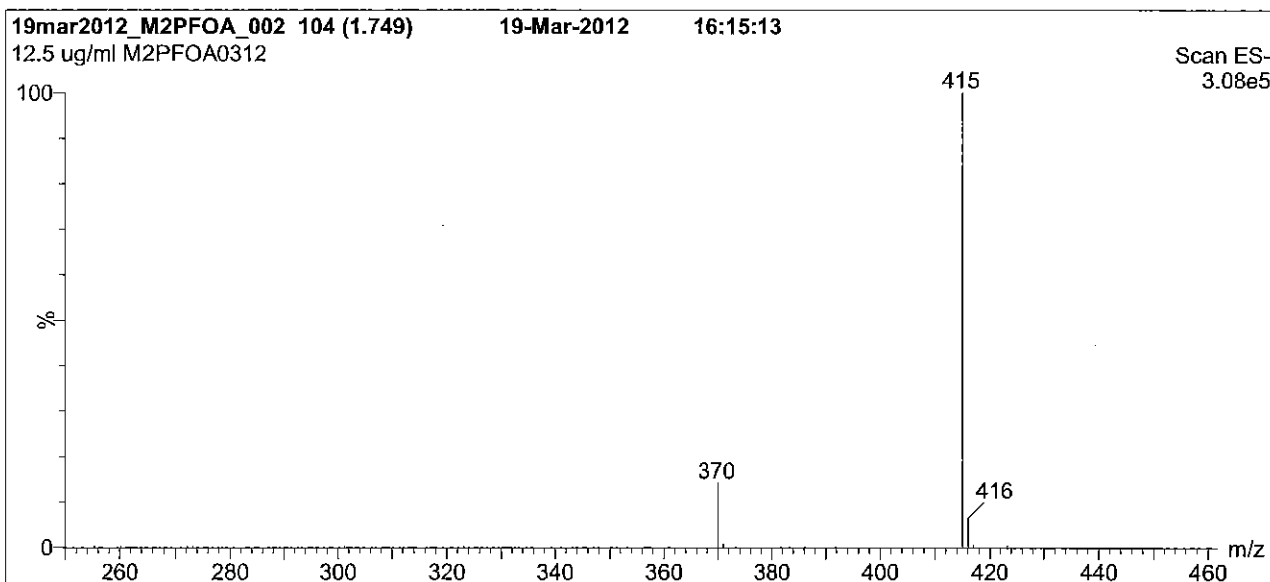
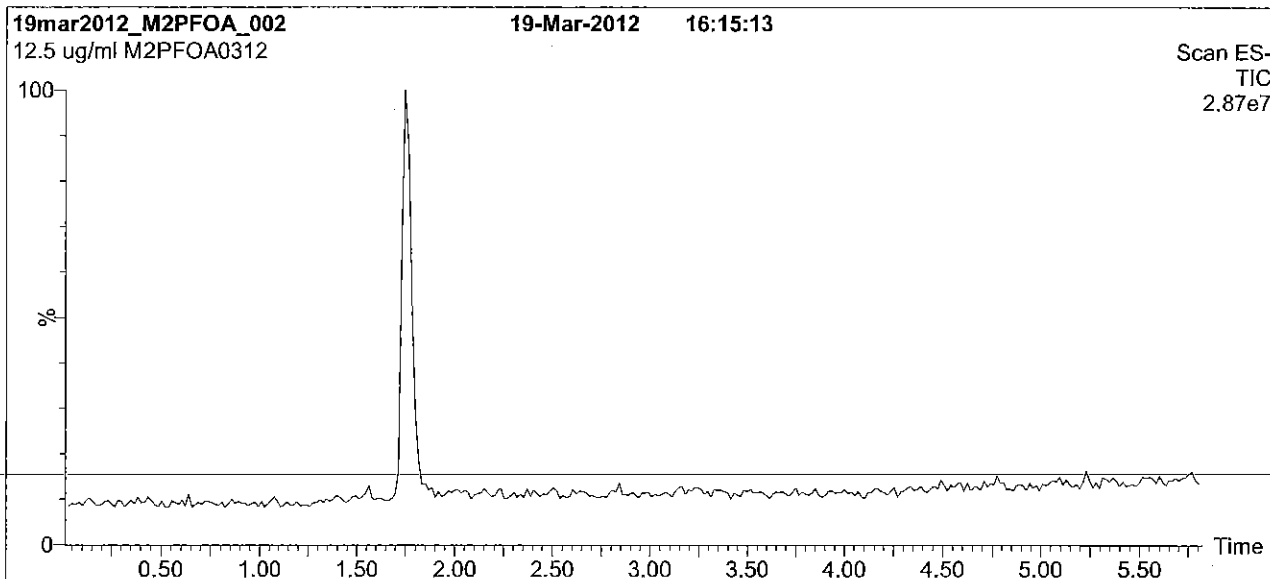
#### **QUALITY MANAGEMENT:**

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: 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

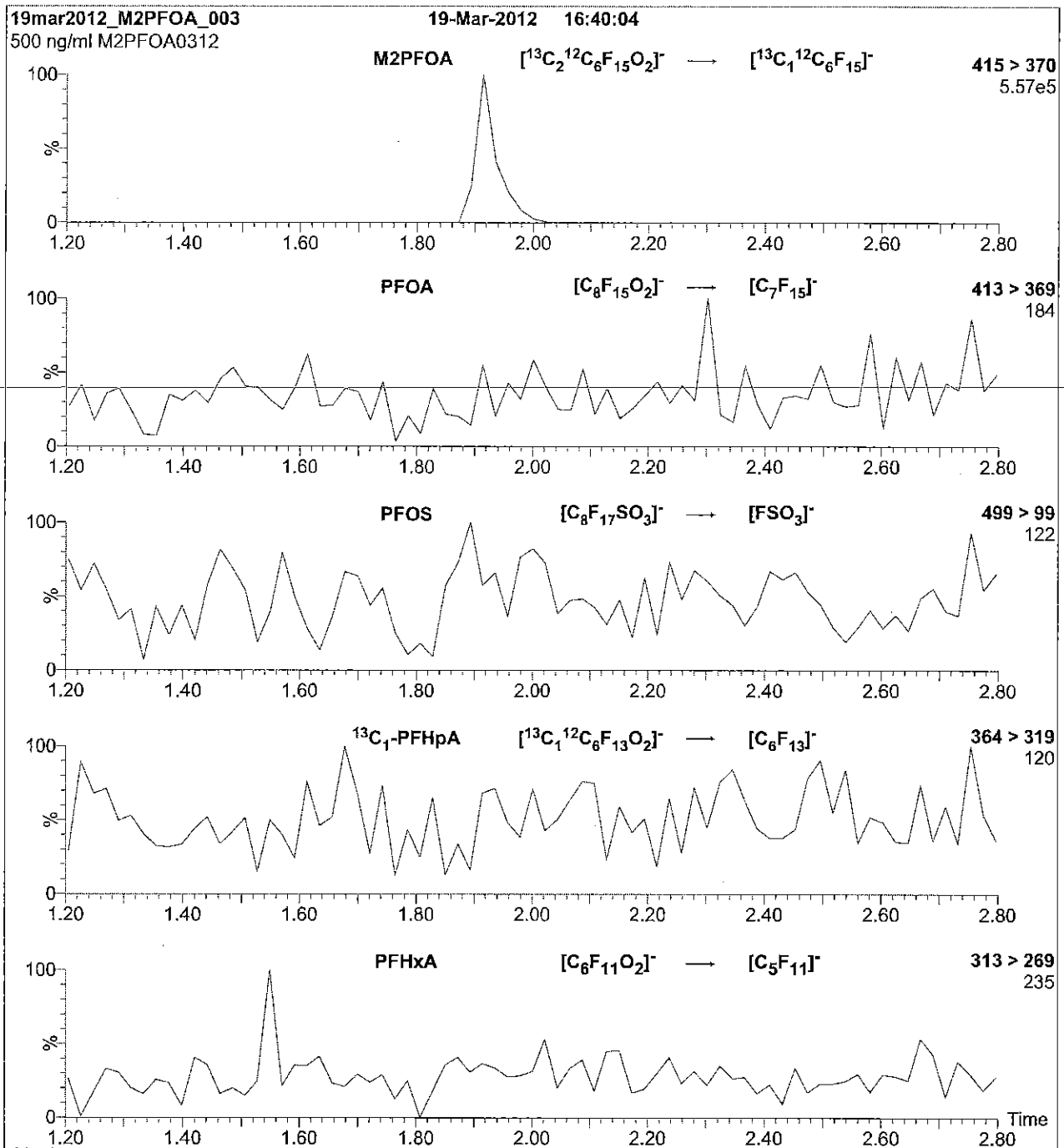
**MS Parameters**

**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

---

**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:**

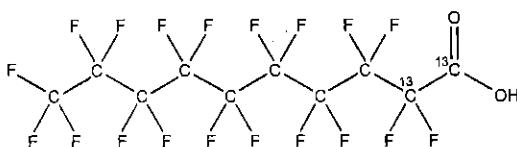
MPFDA

**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:**

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

### **HOMOGENEITY:**

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

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

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

### **LIMITED WARRANTY:**

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

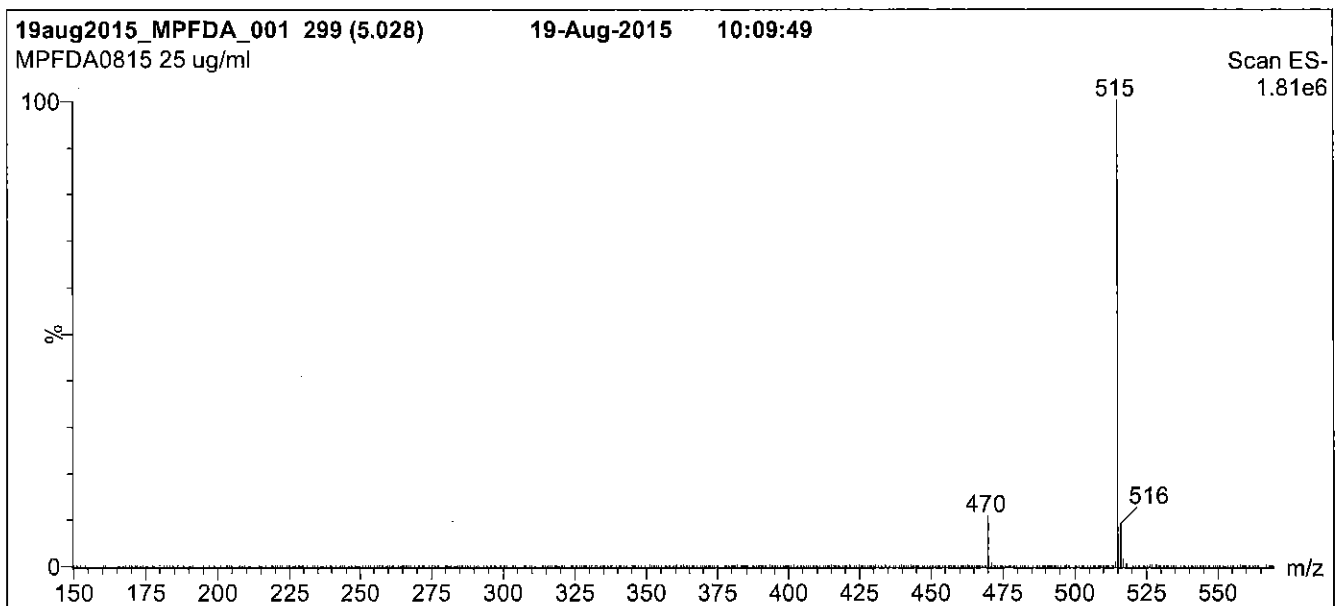
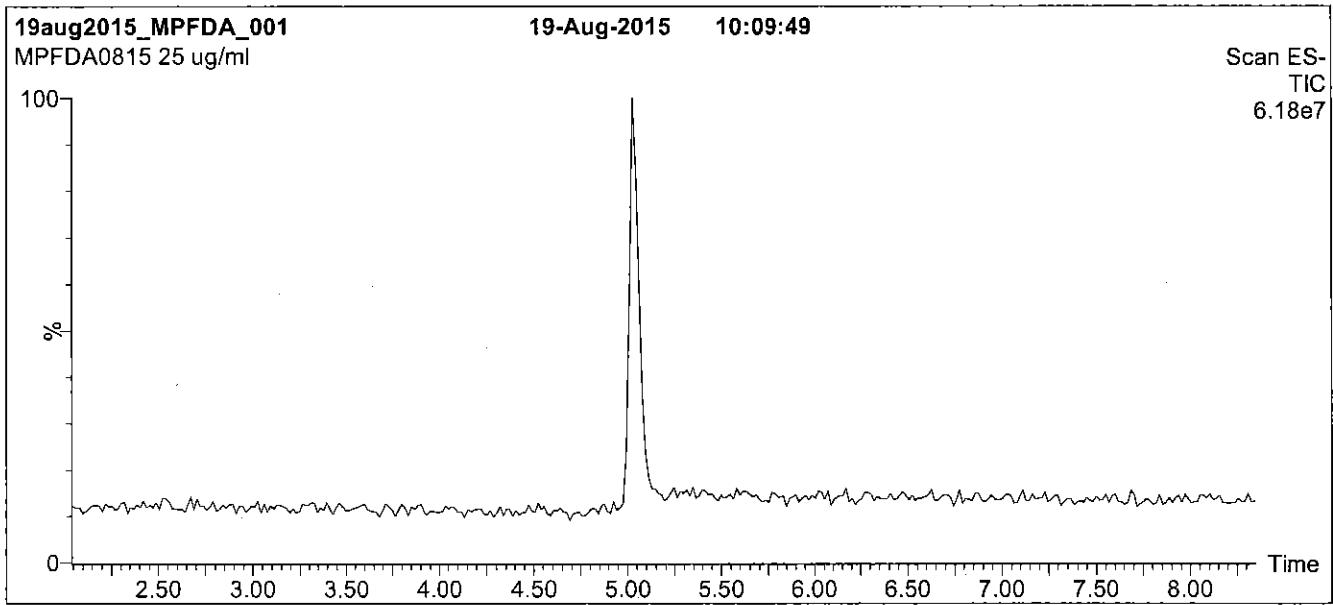
### **QUALITY MANAGEMENT:**

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



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

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

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

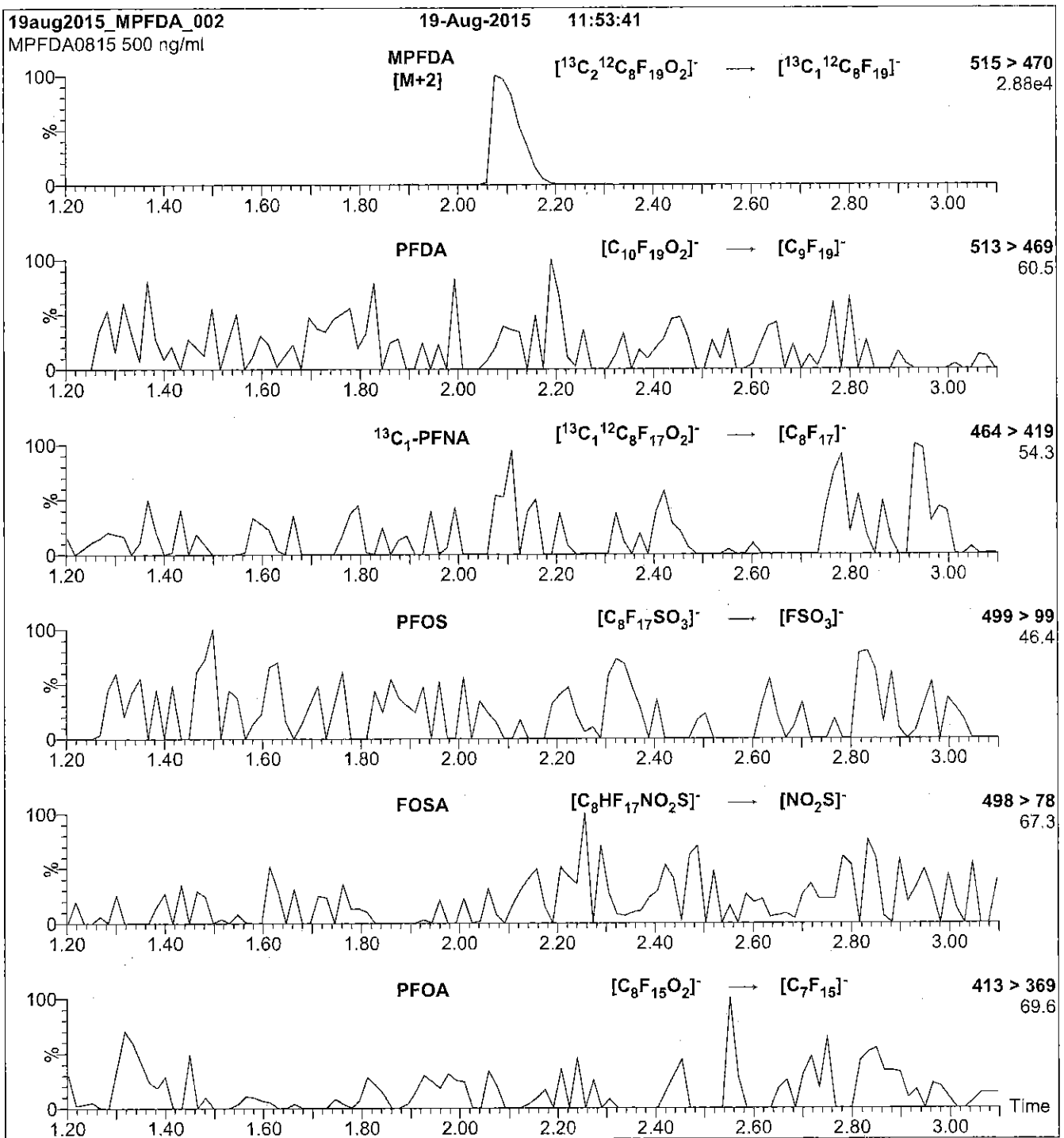
Flow: 300  $\mu$ l/min

**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

---

**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

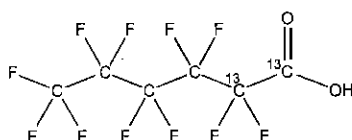
## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

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

Certified By:   
 B.G. Chittim

Date: 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:**

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

### **HAZARDS:**

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

### **SYNTHESIS / CHARACTERIZATION:**

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

### **HOMOGENEITY:**

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

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

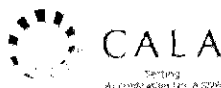
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

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

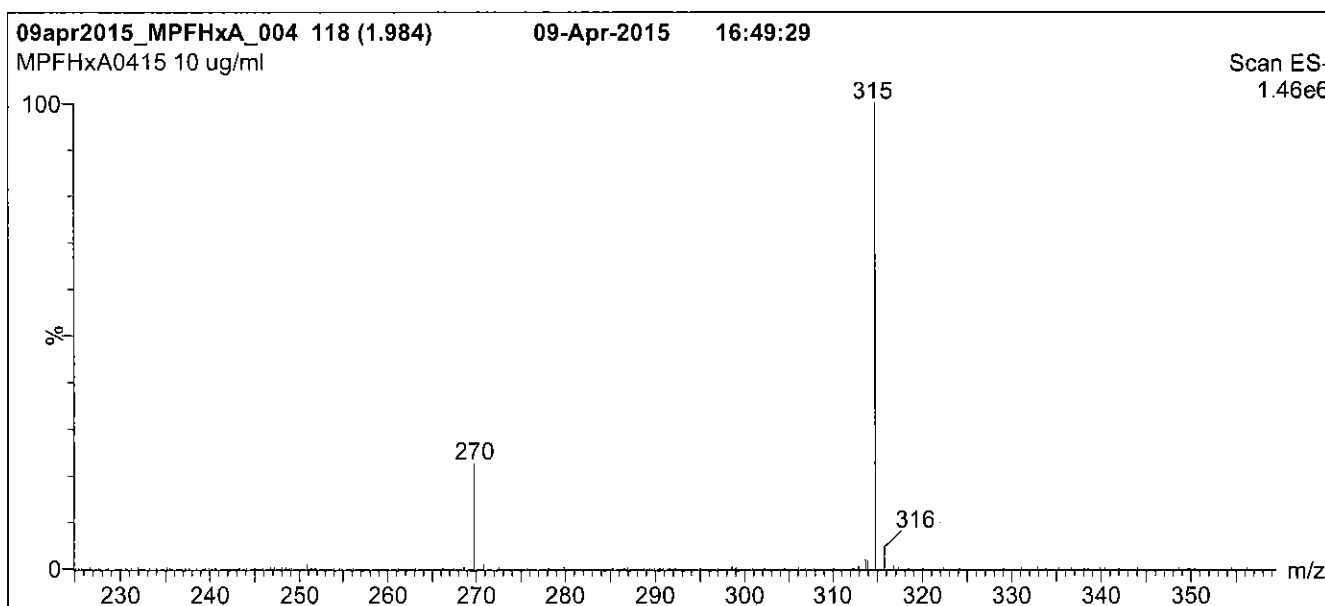
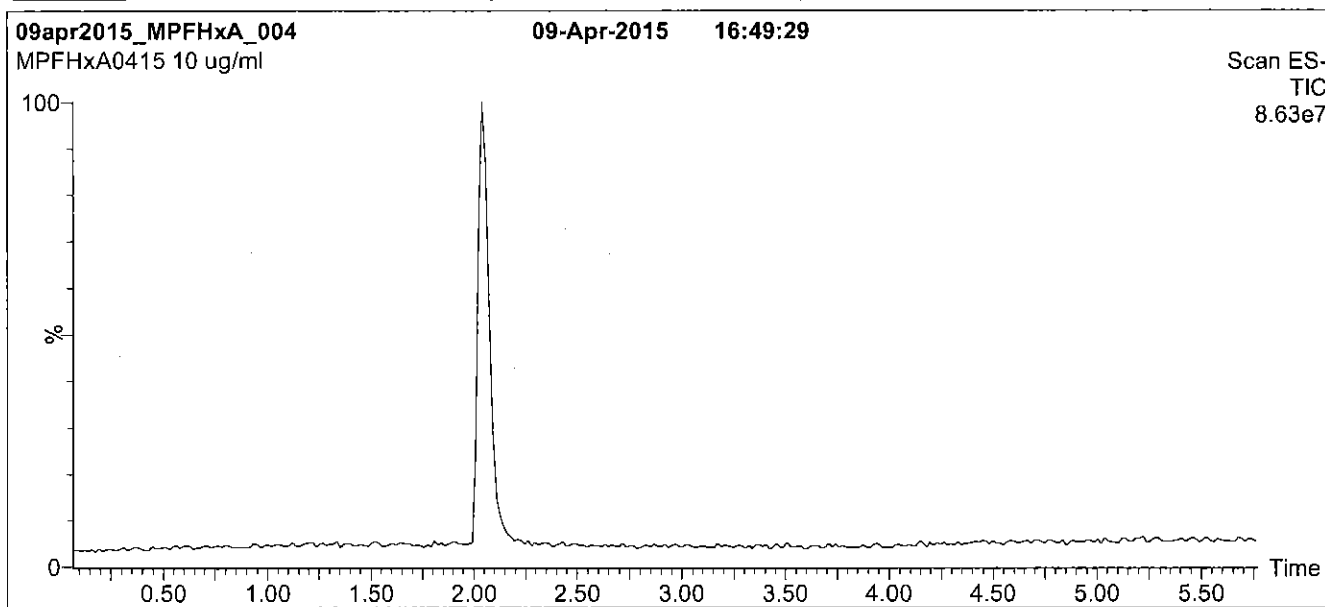
### **QUALITY MANAGEMENT:**

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



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

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

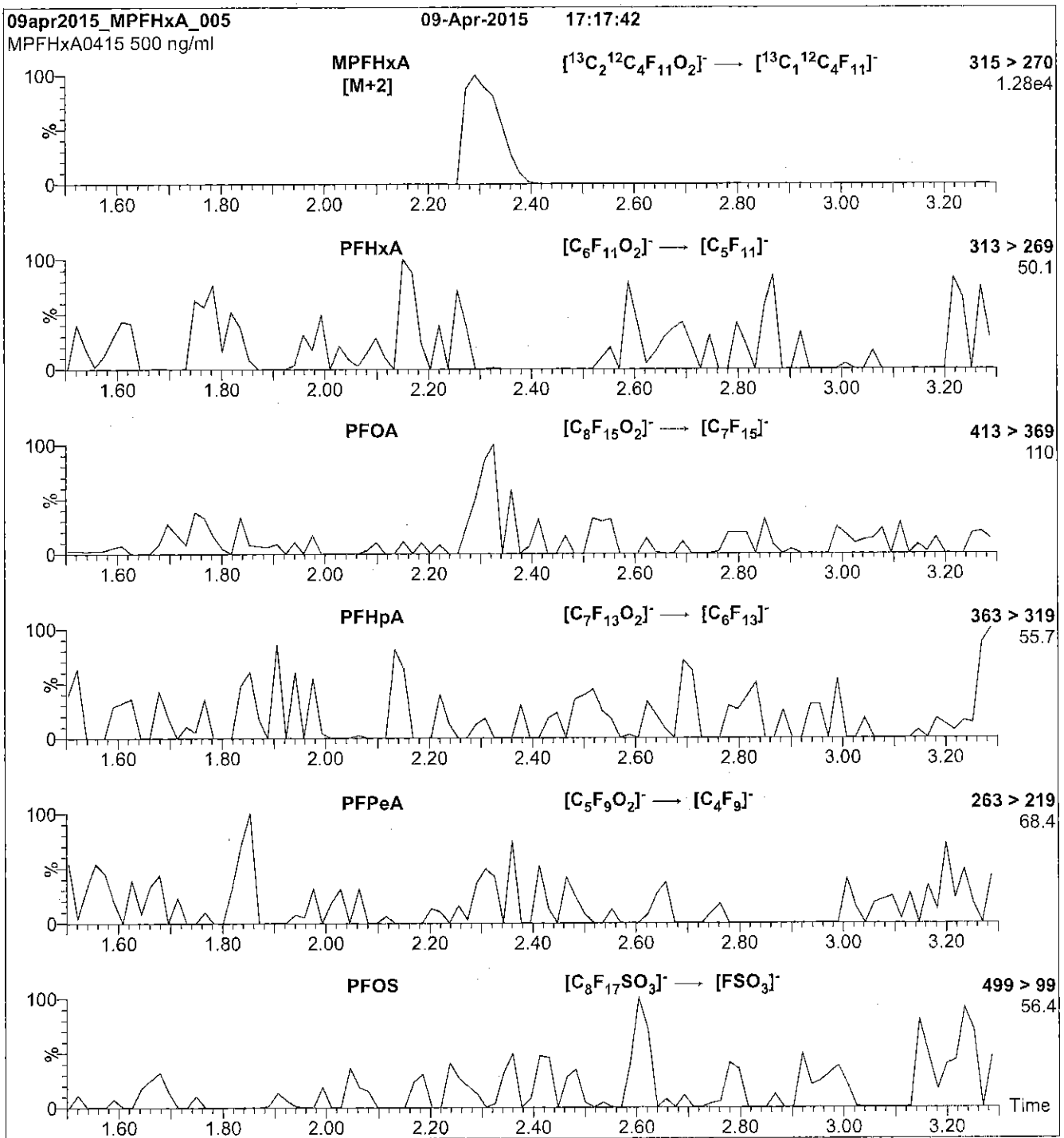
Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 2 min  
before returning to initial conditions over 0.5 min.  
Time: 10 min

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

---

**LCMPFOS\_00013**

605227  
ID: LCMFOS\_00012  
Exp: 01/22/21 Prpd: CBW  
13C4-Perfluorooctanesulfo

Rec 3/29/16 JRB ✓

606228  
ID: LCMFOS\_00013  
Exp: 01/22/21 Prpd: CBW  
13C4-Perfluorooctanesulfo

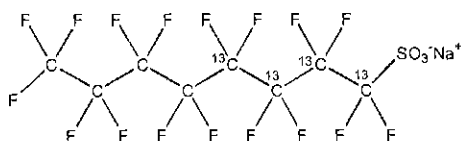


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFOS **LOT NUMBER:** MPFOS0116  
**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  
(1,2,3,4-<sup>13</sup>C<sub>4</sub>)  
**LAST TESTED:** (mm/dd/yyyy) 01/22/2016  
**EXPIRY DATE:** (mm/dd/yyyy) 01/22/2021  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

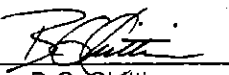
### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 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: 02/01/2016  
(mm/dd/yyyy)

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

### **INTENDED USE:**

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

### **HAZARDS:**

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

### **SYNTHESIS / CHARACTERIZATION:**

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

### **HOMOGENEITY:**

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

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

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

### **LIMITED WARRANTY:**

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

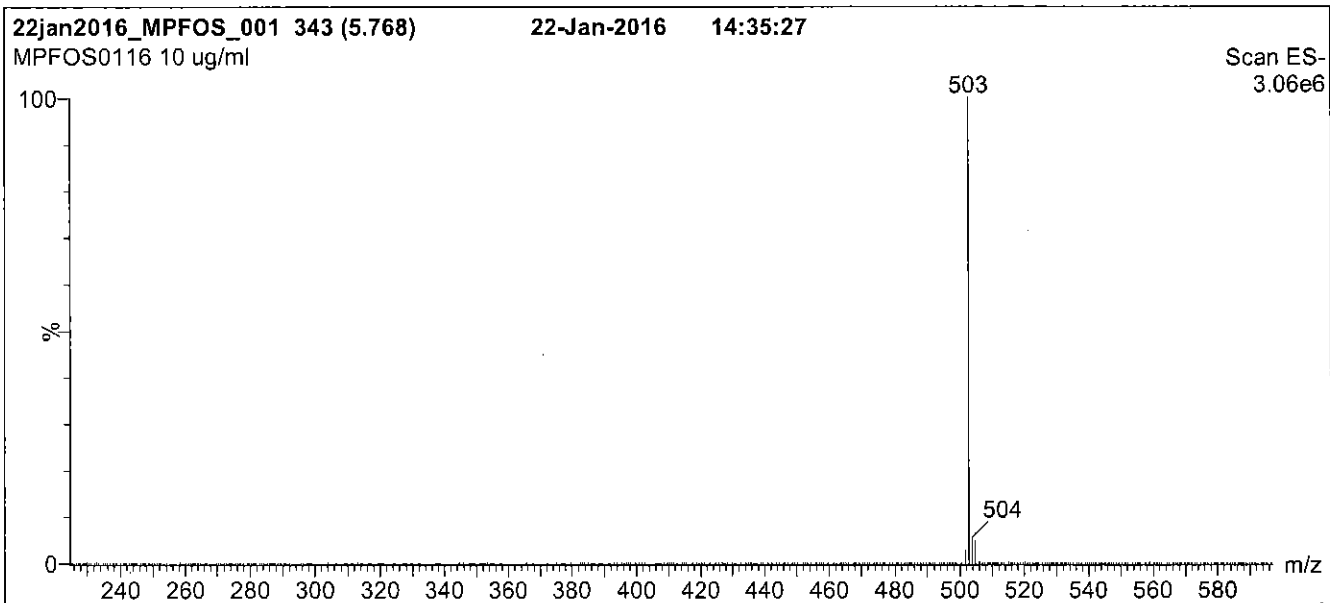
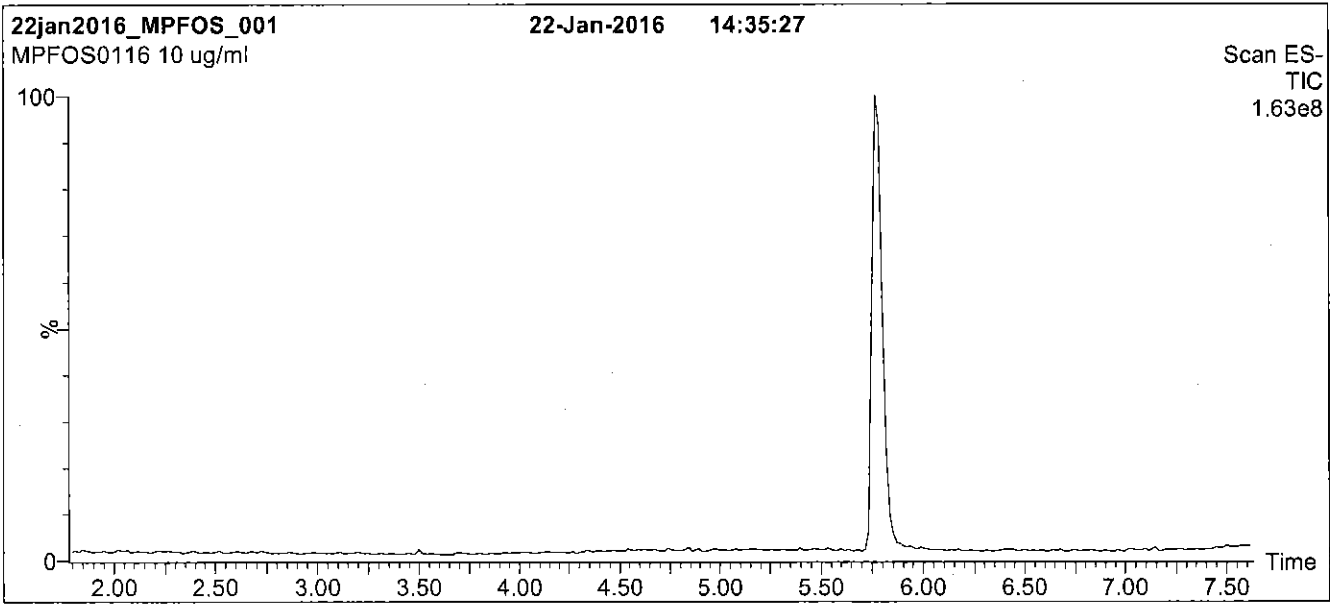
### **QUALITY MANAGEMENT:**

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



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

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

Mobile phase: Gradient  
Start: 55% (80:20 MeOH:ACN) / 45% 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

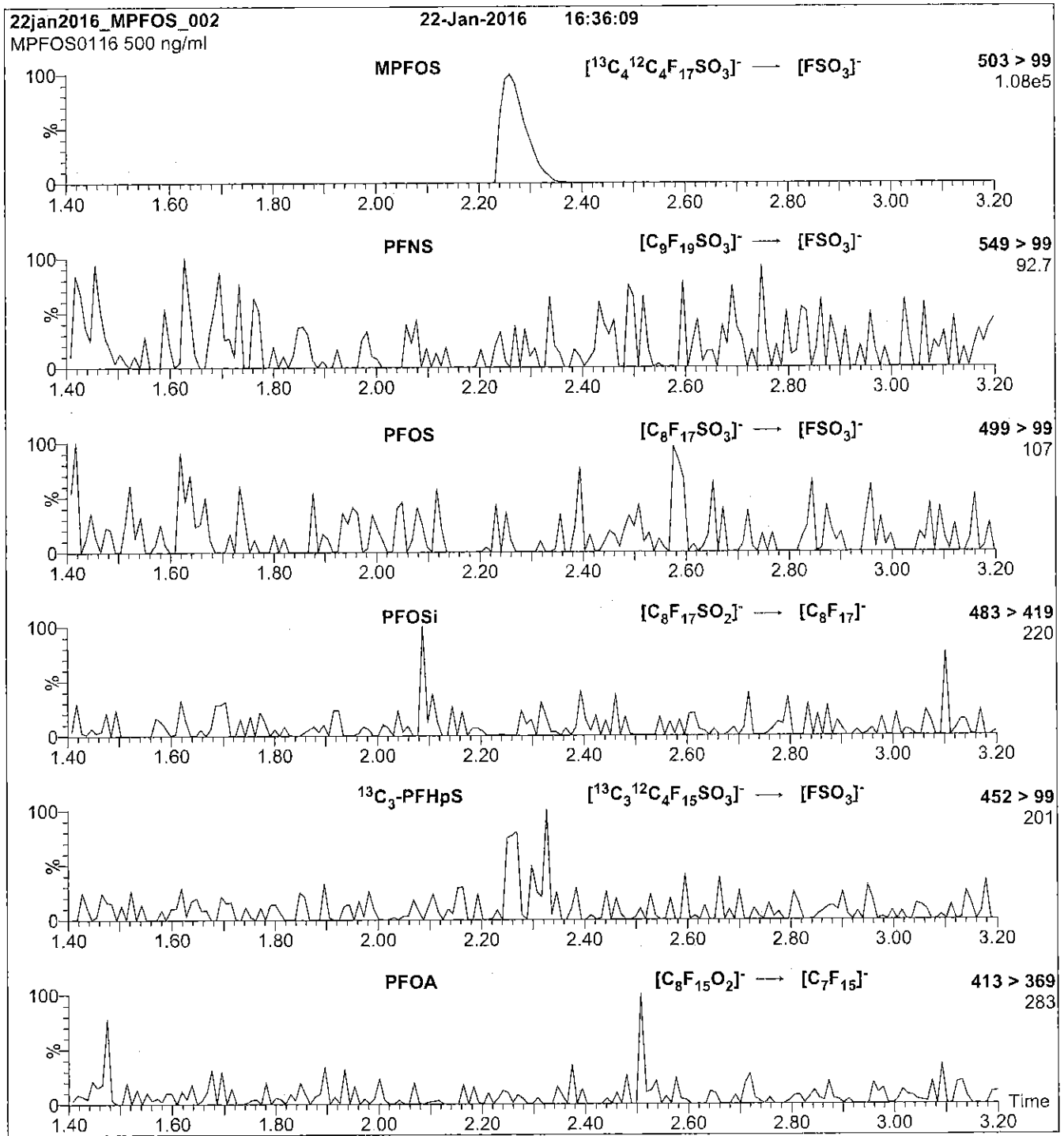
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 2.00  
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) = 3.70e-3  
Collision Energy (eV) = 40



Reagent

---

**LCMPFOS\_00018**

R: SBC 9/22/16



738686

ID: LCMFOS\_00018

Exp: 08/03/21 Prod: SBC

13C4-Perfluorooctanesulfo

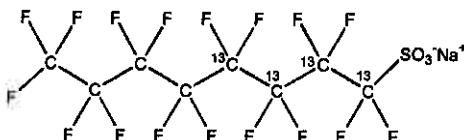


# WELLINGTON LABORATORIES

## 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<sub>4</sub>)  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2021  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place


### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

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

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

### **INTENDED USE:**

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

### **HAZARDS:**

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

### **SYNTHESIS / CHARACTERIZATION:**

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

### **HOMOGENEITY:**

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

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

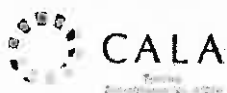
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

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

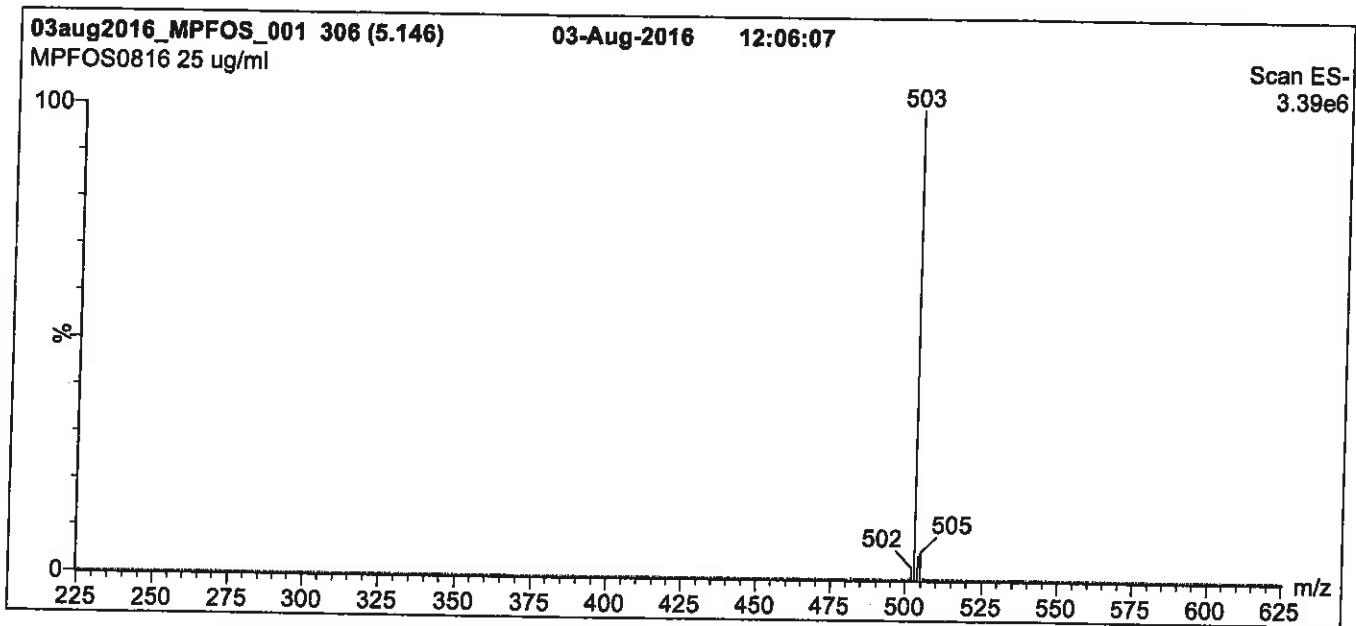
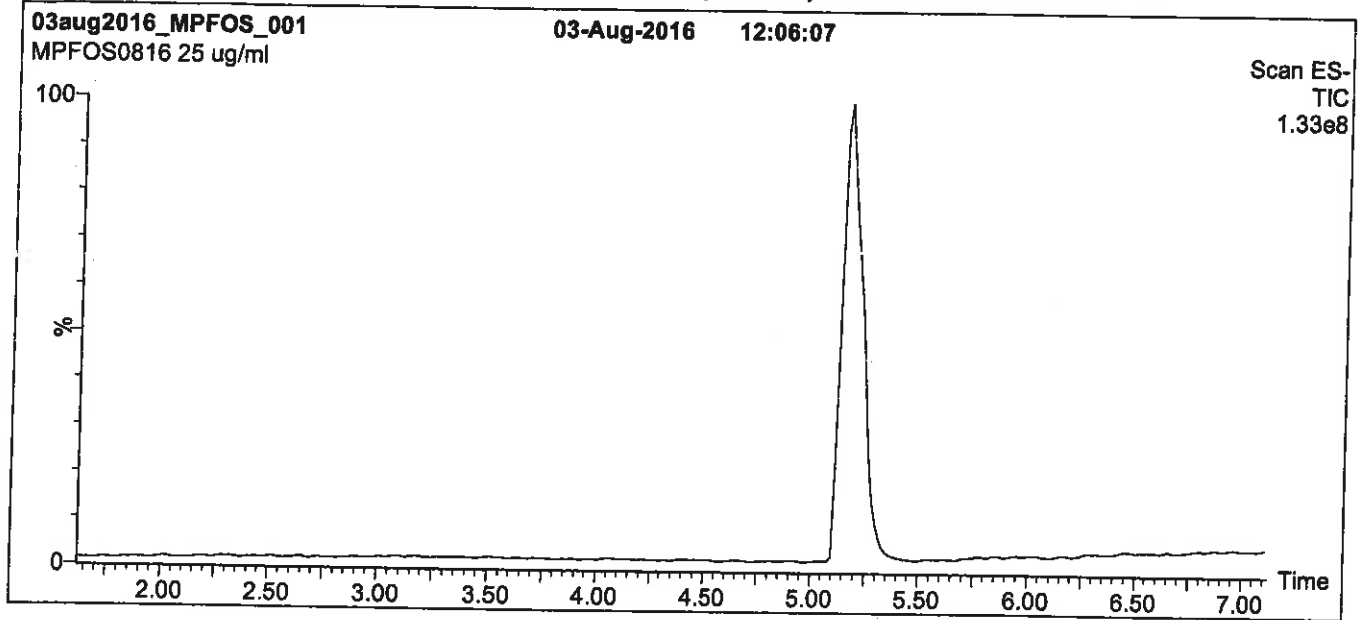
### **QUALITY MANAGEMENT:**

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



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

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

**Mobile phase:** Gradient  
 Start: 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

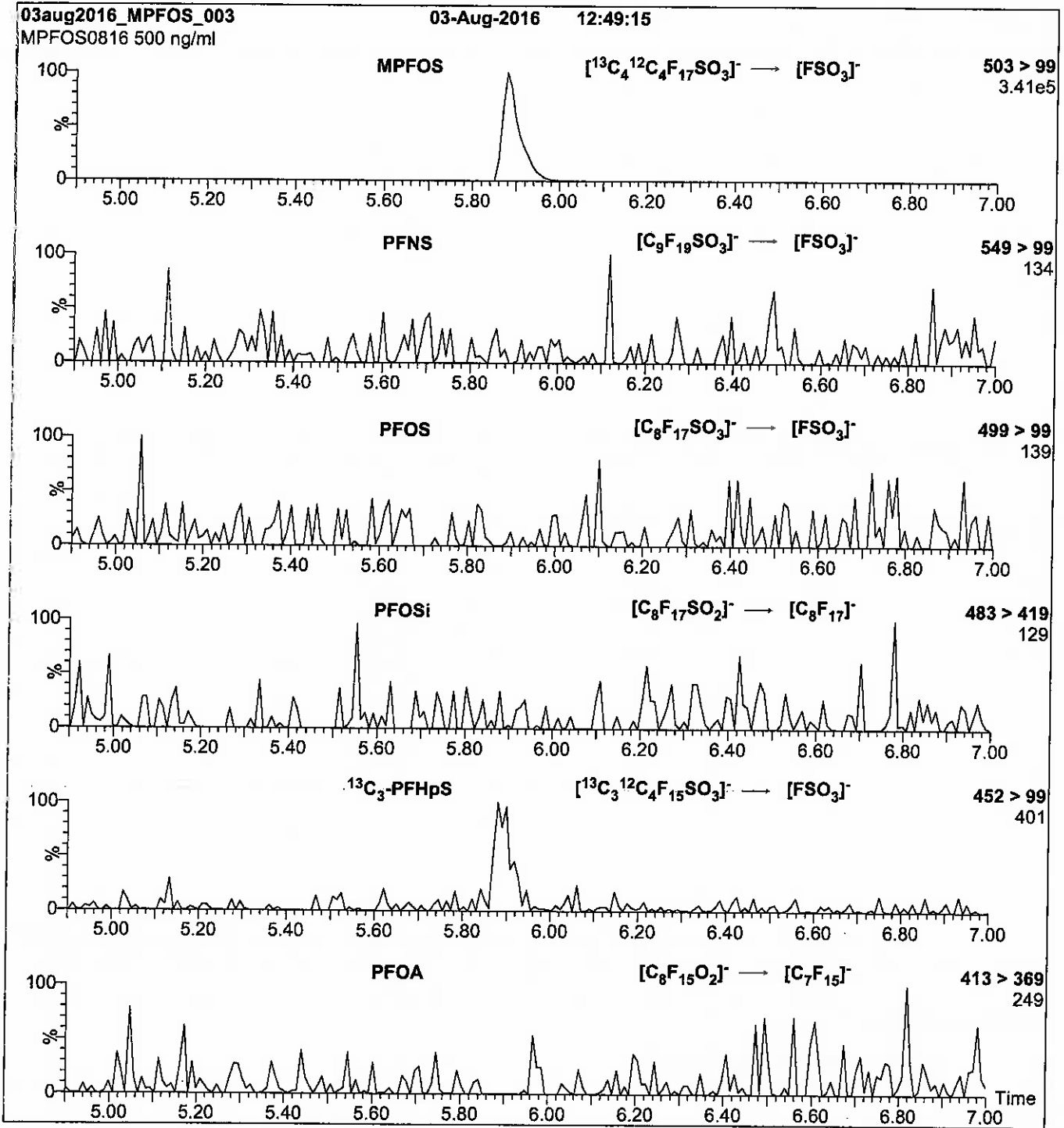
**Flow:** 300  $\mu$ l/min

**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

---

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

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WI-AF-2RW07-1116	320-23971-1	103	118
WI-AF-2FB07-1116	320-23971-2	112	112
WI-AF-2RW08-1116	320-23971-3	96	108
WI-AF-2FB08-1116	320-23971-4	108	105
WI-AF-3RW10-1116	320-23971-5	110	111
WI-AF-3FB10-1116	320-23971-6	117	106
WI-AF-3RW11-1116	320-23971-7	110	109
WI-AF-3FB11-1116	320-23971-8	108	108
WI-AF-3RW12-1116	320-23971-9	119	130
WI-AF-3FB12-1116	320-23971-10	99	105
	MB 320-140632/1-A	106	104
	LCS 320-140632/2-A	113	110
	LCSD 320-140632/3-A	117	111

PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA

QC LIMITS  
70-130  
70-130

# Column to be used to flag recovery values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 11DEC2016A6A\_007.d  
 Lab ID: LCS 320-140632/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	0.160	0.124	77	70-130	
Perfluorooctanoic acid (PFOA)	0.0811	0.0619	76	70-130	
Perfluorobutanesulfonic acid (PFBS)	0.359	0.275	77	70-130	

# Column to be used to flag recovery and RPD values



FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Matrix: Water Level: Low Lab File ID: 11DEC2016A6A\_008.d

Lab ID: LCSD 320-140632/3-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	0.160	0.129	80	4	30	70-130	
Perfluorooctanoic acid (PFOA)	0.0811	0.0627	77	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	0.359	0.294	82	7	30	70-130	

# Column to be used to flag recovery and RPD values

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 11DEC2016A6A\_006.d Lab Sample ID: MB 320-140632/1-A  
 Matrix: Water Date Extracted: 12/05/2016 11:42  
 Instrument ID: A6 Date Analyzed: 12/11/2016 13:31  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-140632/2-A	11DEC2016A6 A 007.d	12/11/2016 14:01
	LCSD 320-140632/3-A	11DEC2016A6 A 008.d	12/11/2016 14:30
WI-AF-2RW07-1116	320-23971-1	11DEC2016A6 A 009.d	12/11/2016 15:00
WI-AF-2FB07-1116	320-23971-2	11DEC2016A6 A 010.d	12/11/2016 15:30
WI-AF-2RW08-1116	320-23971-3	11DEC2016A6 A 011.d	12/11/2016 15:59
WI-AF-2FB08-1116	320-23971-4	11DEC2016A6 A 012.d	12/11/2016 16:29
WI-AF-3RW10-1116	320-23971-5	11DEC2016A6 A 013.d	12/11/2016 16:58
WI-AF-3FB10-1116	320-23971-6	11DEC2016A6 A 014.d	12/11/2016 17:28
WI-AF-3RW11-1116	320-23971-7	11DEC2016A6 A 015.d	12/11/2016 17:58
WI-AF-3FB11-1116	320-23971-8	11DEC2016A6 A 019.d	12/11/2016 19:56
WI-AF-3RW12-1116	320-23971-9	11DEC2016A6 A 020.d	12/11/2016 20:26
WI-AF-3FB12-1116	320-23971-10	11DEC2016A6 A 021.d	12/11/2016 20:55

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A6 Calibration Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.1(mm) Calibration End Date: 12/05/2016 19:54  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	965911	20.05	2046916	20.67		
UPPER LIMIT	1448867	20.55	3070374	21.17		
LOWER LIMIT	482956	19.55	1023458	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCV 320-140688/9 CCVL	1025187	20.05	2358079	20.67		
ICV 320-140688/11	877210	20.05	2015178	20.67		
CCV 320-141573/3 CCVL	802153	20.06	1836390	20.68		
CCV 320-141573/4 CCVIS	900761	20.06	1778917	20.68		
MB 320-140632/1-A	764515	20.06	1993596	20.68		
LCS 320-140632/2-A	813368	20.06	2105344	20.68		
LCSD 320-140632/3-A	733684	20.06	1868957	20.68		
320-23971-1	WI-AF-2RW07-1116	670638	20.05	2176264	20.68	
320-23971-2	WI-AF-2FB07-1116	698931	20.05	2028913	20.68	
320-23971-3	WI-AF-2RW08-1116	779708	20.05	2254015	20.68	
320-23971-4	WI-AF-2FB08-1116	781277	20.05	2077587	20.68	
320-23971-5	WI-AF-3RW10-1116	675004	20.05	1937434	20.67	
320-23971-6	WI-AF-3FB10-1116	864715	20.06	2424671	20.68	
320-23971-7	WI-AF-3RW11-1116	731987	20.06	2119325	20.68	
CCV 320-141573/17 CCVIS	805687	20.05	1720352	20.68		
CCV 320-141574/17 CCVIS	805687	20.05	1720352	20.68		
320-23971-8	WI-AF-3FB11-1116	768857	20.06	2063347	20.68	
320-23971-9	WI-AF-3RW12-1116	597162	20.06	2146584	20.68	
320-23971-10	WI-AF-3FB12-1116	772993	20.06	2088535	20.68	
CCV 320-141574/29 CCVIS	886505	20.05	1829934	20.68		

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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141573/4 Date Analyzed: 12/11/2016 12:32  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 11DEC2016A6A\_004.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	900761	20.06	1778917	20.68		
UPPER LIMIT	1261065	20.56	2490484	21.18		
LOWER LIMIT	630533	19.56	1245242	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-140632/1-A		764515	20.06	1993596	20.68	
LCS 320-140632/2-A		813368	20.06	2105344	20.68	
LCSD 320-140632/3-A		733684	20.06	1868957	20.68	
320-23971-1	WI-AF-2RW07-1116	670638	20.05	2176264	20.68	
320-23971-2	WI-AF-2FB07-1116	698931	20.05	2028913	20.68	
320-23971-3	WI-AF-2RW08-1116	779708	20.05	2254015	20.68	
320-23971-4	WI-AF-2FB08-1116	781277	20.05	2077587	20.68	
320-23971-5	WI-AF-3RW10-1116	675004	20.05	1937434	20.67	
320-23971-6	WI-AF-3FB10-1116	864715	20.06	2424671	20.68	
320-23971-7	WI-AF-3RW11-1116	731987	20.06	2119325	20.68	

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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141573/17 Date Analyzed: 12/11/2016 18:57  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 11DEC2016A6A\_017.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	805687	20.05	1720352	20.68		
UPPER LIMIT	1127962	20.55	2408493	21.18		
LOWER LIMIT	563981	19.55	1204246	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-140632/1-A		764515	20.06	1993596	20.68	
LCS 320-140632/2-A		813368	20.06	2105344	20.68	
LCSD 320-140632/3-A		733684	20.06	1868957	20.68	
320-23971-1	WI-AF-2RW07-1116	670638	20.05	2176264	20.68	
320-23971-2	WI-AF-2FB07-1116	698931	20.05	2028913	20.68	
320-23971-3	WI-AF-2RW08-1116	779708	20.05	2254015	20.68	
320-23971-4	WI-AF-2FB08-1116	781277	20.05	2077587	20.68	
320-23971-5	WI-AF-3RW10-1116	675004	20.05	1937434	20.67	
320-23971-6	WI-AF-3FB10-1116	864715	20.06	2424671	20.68	
320-23971-7	WI-AF-3RW11-1116	731987	20.06	2119325	20.68	

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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141574/17 Date Analyzed: 12/11/2016 18:57  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 11DEC2016A6A\_017.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	805687	20.05	1720352	20.68		
UPPER LIMIT	1127962	20.55	2408493	21.18		
LOWER LIMIT	563981	19.55	1204246	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23971-8	WI-AF-3FB11-1116	768857	20.06	2063347	20.68	
320-23971-9	WI-AF-3RW12-1116	597162	20.06	2146584	20.68	
320-23971-10	WI-AF-3FB12-1116	772993	20.06	2088535	20.68	

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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141574/29 Date Analyzed: 12/12/2016 00:52  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 11DEC2016A6A\_029.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	886505	20.05	1829934	20.68		
UPPER LIMIT	1241107	20.55	2561908	21.18		
LOWER LIMIT	620554	19.55	1280954	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23971-8	WI-AF-3FB11-1116	768857	20.06	2063347	20.68	
320-23971-9	WI-AF-3RW12-1116	597162	20.06	2146584	20.68	
320-23971-10	WI-AF-3FB12-1116	772993	20.06	2088535	20.68	

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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW07-1116 Lab Sample ID: 320-23971-1  
 Matrix: Water Lab File ID: 11DEC2016A6A\_009.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:10  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 257.9(mL) Date Analyzed: 12/11/2016 15:00  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.058	0.047	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	103		70-130
STL00996	13C2 PFDA	118		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_009.d  
 Lims ID: 320-23971-A-1-A  
 Client ID: WI-AF-2RW07-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:00:28 ALS Bottle#: 20 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:15:14

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

1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.615	17.611	0.004	1.000	9267	0.1741	42.0	
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	807916	10.3	26056	
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	16813	0.2467	331	
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.391	-0.011	1.000	2789	0.0342	1.1	
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.058	-0.011		670638	10.0	17663	
6 Perfluorooctanoic acid	413.0 > 369.0	20.059	20.058	0.001	1.000	8778	0.1258	1.7	
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.679	20.619	0.060	1.000	12959	0.1636	244	M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2176264	28.7	15062	
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	1643	0.0216	6.6	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	696041	11.8	22055	

QC Flag Legend

Review Flags

M - Manually Integrated

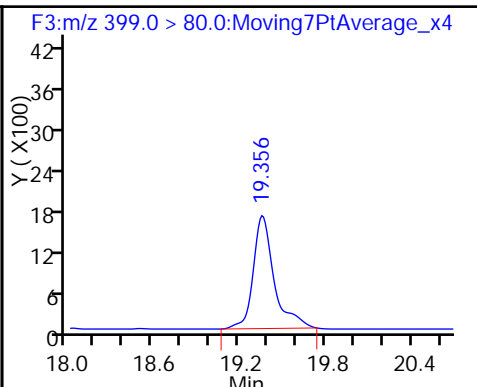
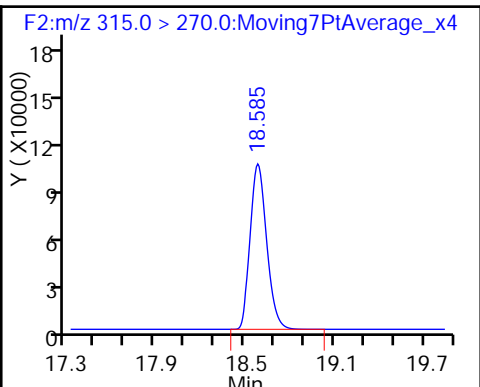
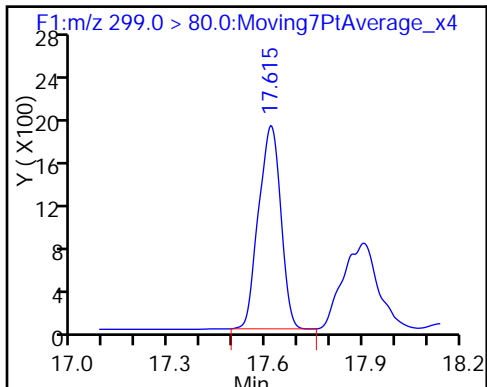
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_009.d  
Injection Date: 11-Dec-2016 15:00:28 Instrument ID: A6  
Lims ID: 320-23971-A-1-A Lab Sample ID: 320-23971-1  
Client ID: WI-AF-2RW07-1116  
Operator ID: CBW ALS Bottle#: 20 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

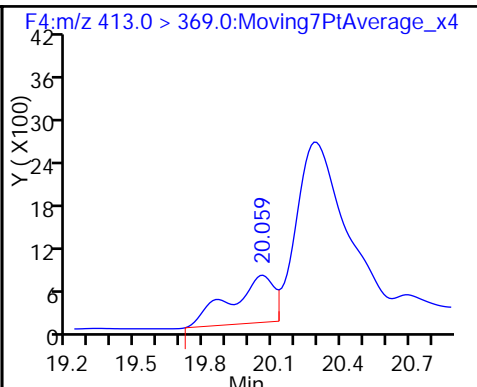
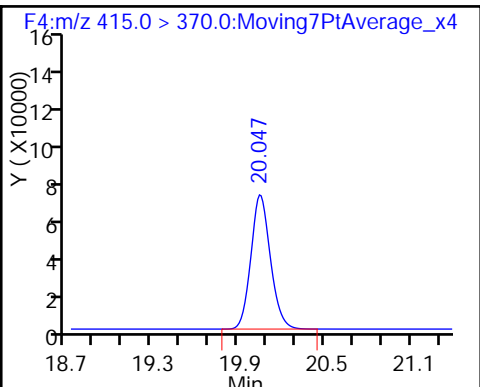
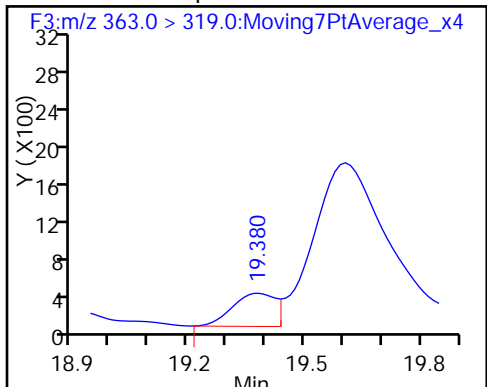
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

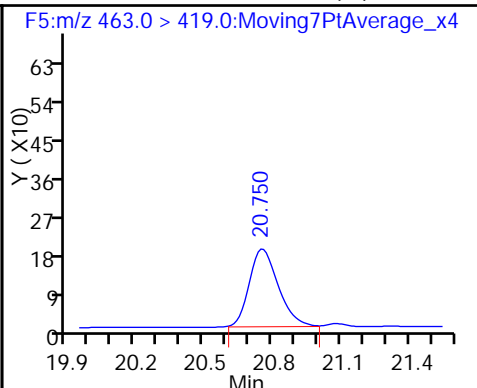
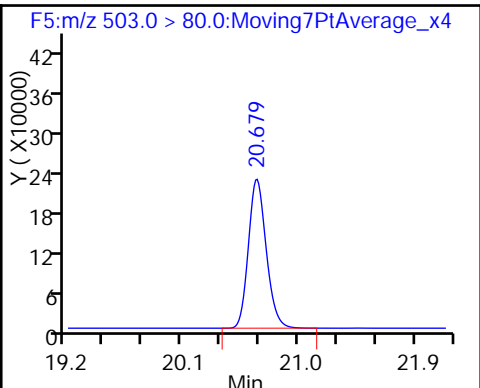
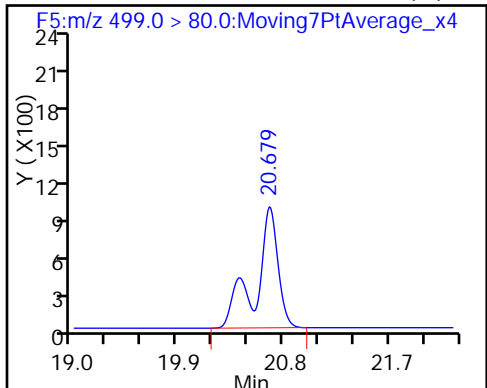
6 Perfluorooctanoic acid



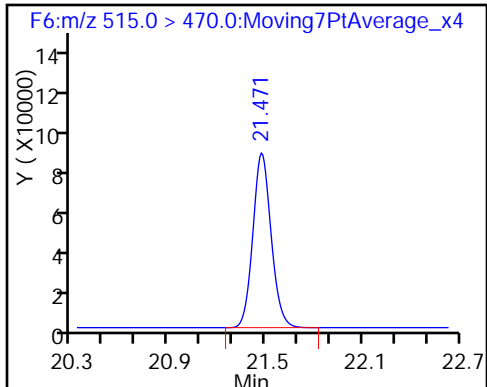
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_009.d  
 Lims ID: 320-23971-A-1-A  
 Client ID: WI-AF-2RW07-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:00:28 ALS Bottle#: 20 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:15:14

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	103.27
\$ 10 13C2 PFDA	10.0	11.8	118.44

TestAmerica Sacramento

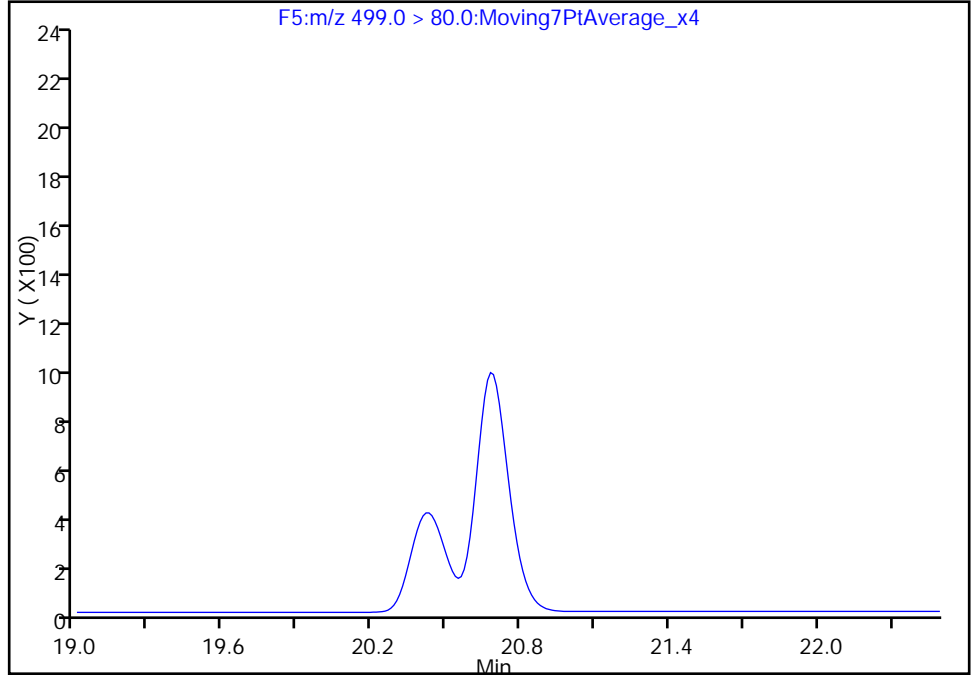
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_009.d  
Injection Date: 11-Dec-2016 15:00:28 Instrument ID: A6  
Lims ID: 320-23971-A-1-A Lab Sample ID: 320-23971-1  
Client ID: WI-AF-2RW07-1116  
Operator ID: CBW ALS Bottle#: 20 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

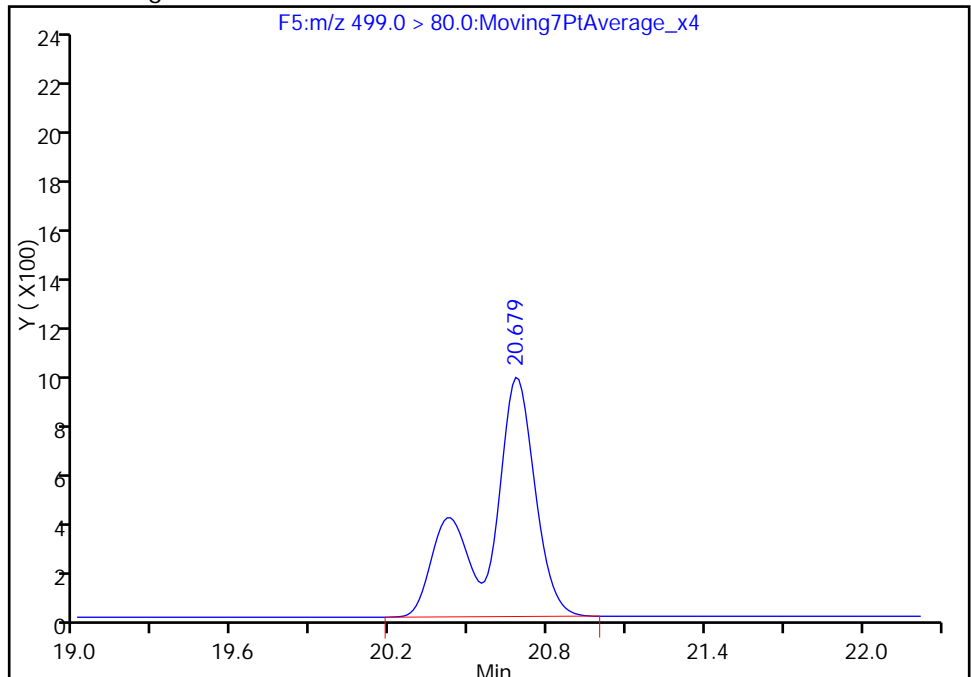
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.68  
Area: 12959  
Amount: 0.163585  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:22:49  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB07-1116 Lab Sample ID: 320-23971-2  
 Matrix: Water Lab File ID: 11DEC2016A6A\_010.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:12  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 266.2 (mL) Date Analyzed: 12/11/2016 15:30  
 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.: 141573 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	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_010.d  
 Lims ID: 320-23971-A-2-A  
 Client ID: WI-AF-2FB07-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:30:05 ALS Bottle#: 21 Worklist Smp#: 10  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:23:24

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	916221	11.2	29466
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.058	-0.011		698931	10.0	18293
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.702	20.619	0.083	1.000	663	0.008977	19.5	M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2028913	28.7	52998
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.750	0.0	1.000	6160	0.0777	45.7	
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	687782	11.2	21530

QC Flag Legend

Review Flags

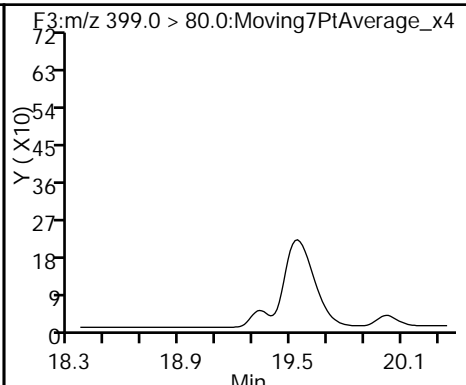
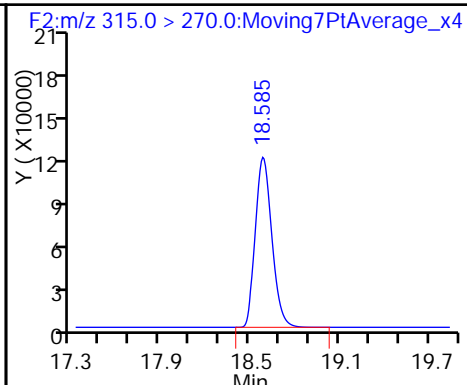
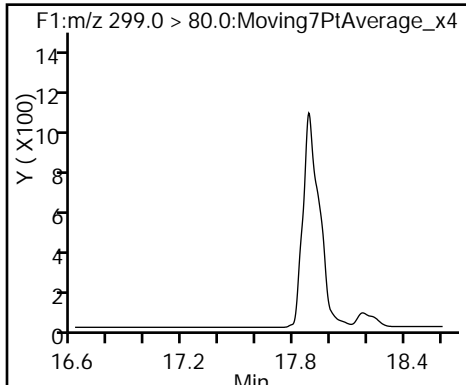
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_010.d  
Injection Date: 11-Dec-2016 15:30:05 Instrument ID: A6  
Lims ID: 320-23971-A-2-A Lab Sample ID: 320-23971-2  
Client ID: WI-AF-2FB07-1116  
Operator ID: CBW ALS Bottle#: 21 Worklist Smp#: 10  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

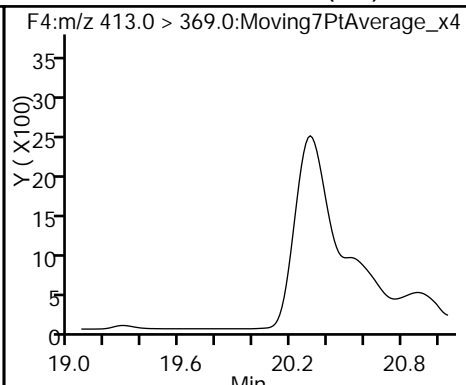
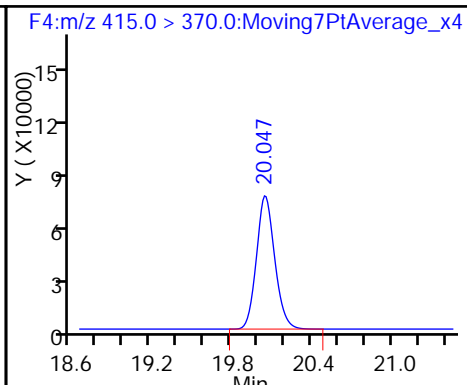
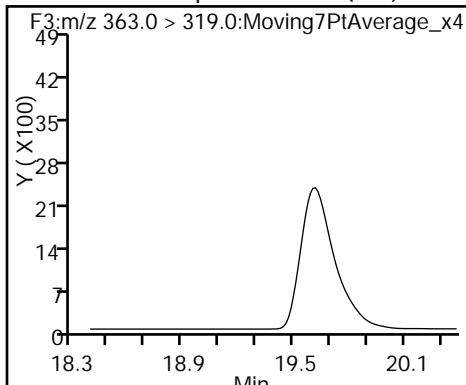
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

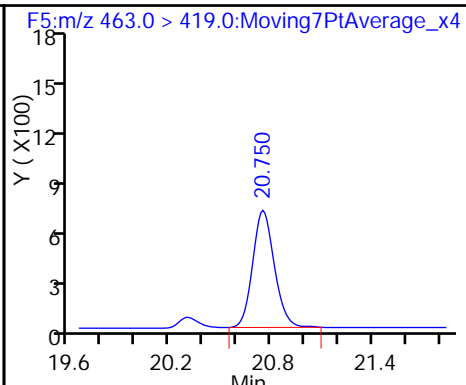
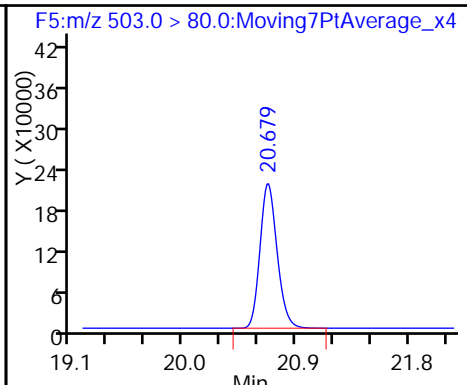
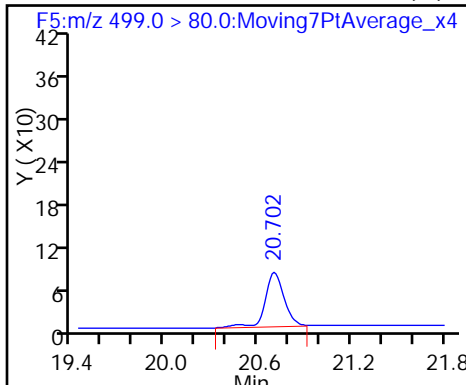
6 Perfluorooctanoic acid (ND)



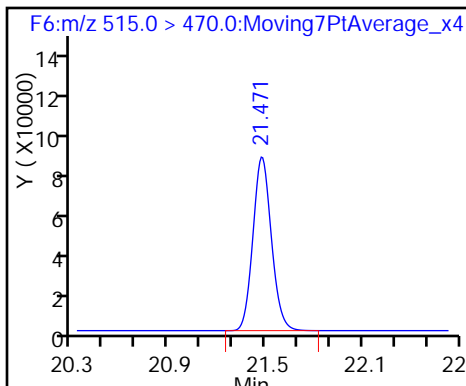
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_010.d  
 Lims ID: 320-23971-A-2-A  
 Client ID: WI-AF-2FB07-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:30:05 ALS Bottle#: 21 Worklist Smp#: 10  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:23:24

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	112.38
\$ 10 13C2 PFDA	10.0	11.2	112.30



TestAmerica Sacramento

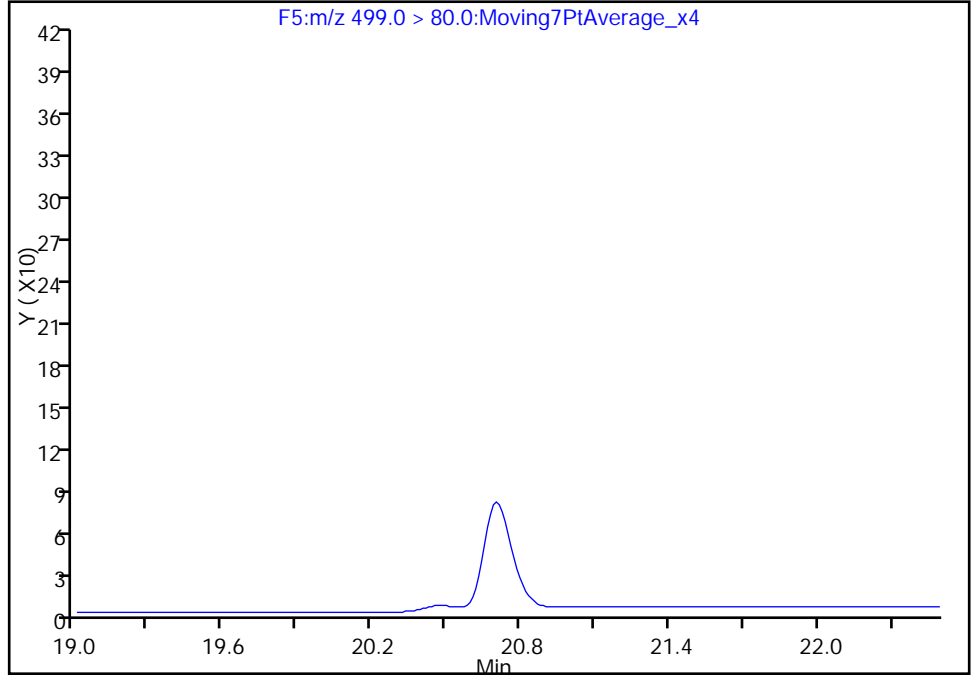
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_010.d  
Injection Date: 11-Dec-2016 15:30:05 Instrument ID: A6  
Lims ID: 320-23971-A-2-A Lab Sample ID: 320-23971-2  
Client ID: WI-AF-2FB07-1116  
Operator ID: CBW ALS Bottle#: 21 Worklist Smp#: 10  
Injection Vol: 10.0 ul 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

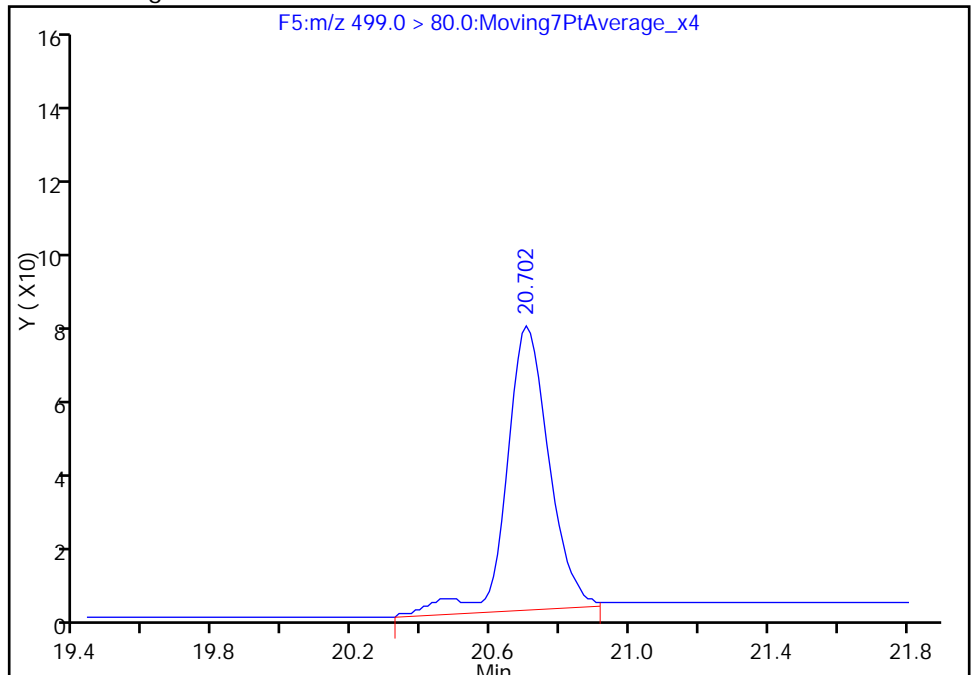
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.70  
Area: 663  
Amount: 0.008977  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:23:24  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW08-1116 Lab Sample ID: 320-23971-3  
 Matrix: Water Lab File ID: 11DEC2016A6A\_011.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:30  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 269(mL) Date Analyzed: 12/11/2016 15:59  
 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.: 141573 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	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U M	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	96		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_011.d  
 Lims ID: 320-23971-A-3-A  
 Client ID: WI-AF-2RW08-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:59:42 ALS Bottle#: 22 Worklist Smp#: 11  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:24:23

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	869665	9.56	28087
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	22527	0.3192	106
4 Perfluoroheptanoic acid	363.0 > 319.0	19.320	19.391	-0.071	1.000	433	0.004570	0.2
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.058	-0.011		779708	10.0	11657
6 Perfluorooctanoic acid	413.0 > 369.0	20.070	20.058	0.012	1.000	3138	0.0387	1.1 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.679	20.619	0.060	1.000	3225	0.0393	26.0 M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2254015	28.7	21365
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.750	-0.012	1.000	8396	0.0949	23.4
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	737074	10.8	23365

QC Flag Legend

Review Flags

M - Manually Integrated

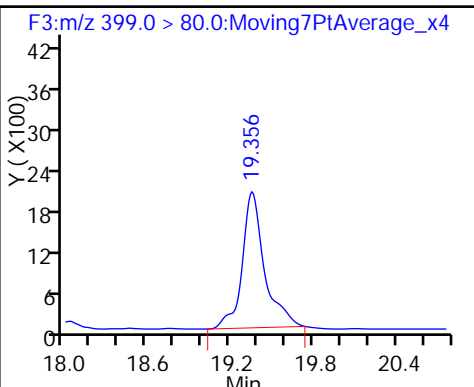
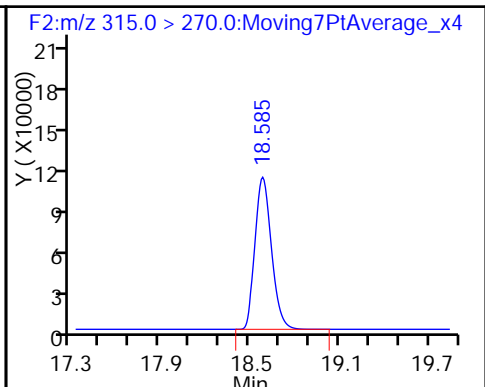
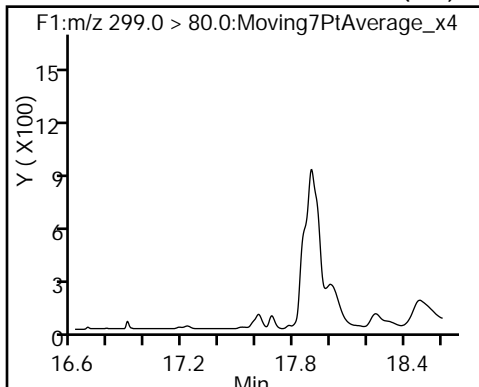
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_011.d  
Injection Date: 11-Dec-2016 15:59:42 Instrument ID: A6  
Lims ID: 320-23971-A-3-A Lab Sample ID: 320-23971-3  
Client ID: WI-AF-2RW08-1116  
Operator ID: CBW ALS Bottle#: 22 Worklist Smp#: 11  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

\$ 2 13C2 PFHxA

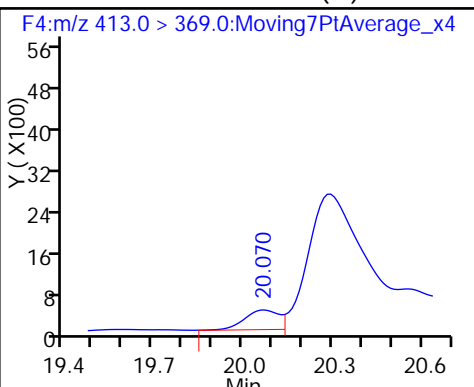
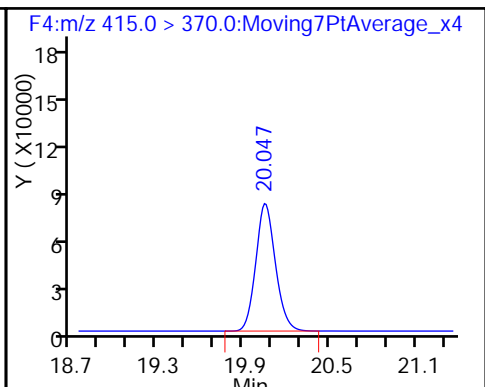
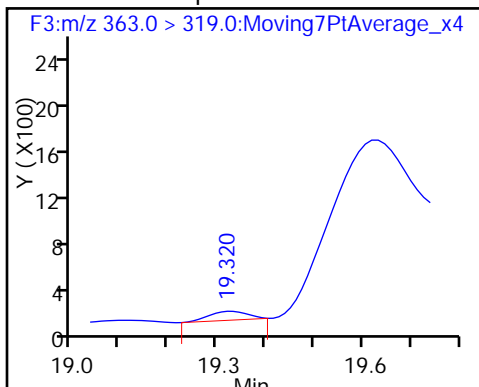
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

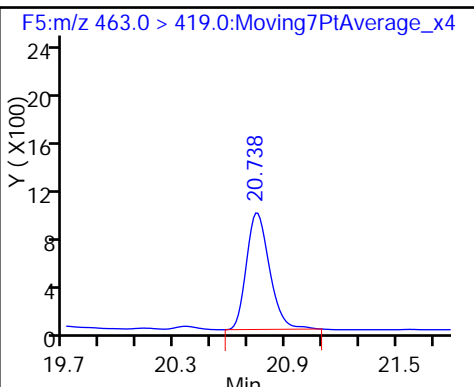
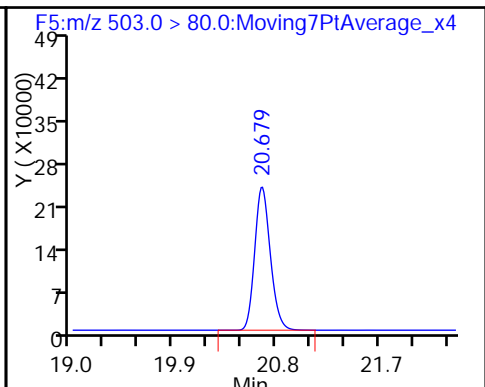
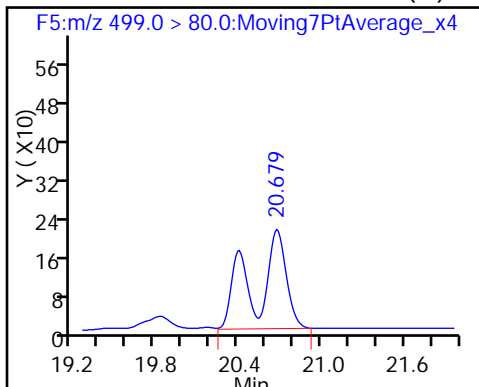
6 Perfluorooctanoic acid (M)



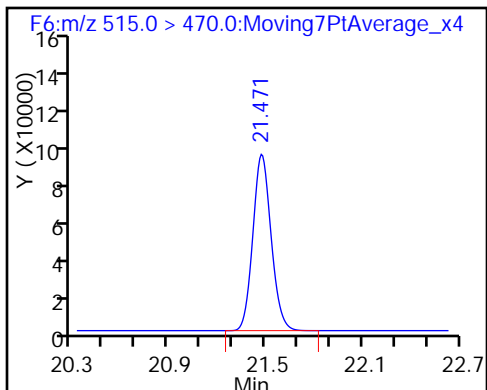
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_011.d  
 Lims ID: 320-23971-A-3-A  
 Client ID: WI-AF-2RW08-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 15:59:42 ALS Bottle#: 22 Worklist Smp#: 11  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:24:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.56	95.61
\$ 10 13C2 PFDA	10.0	10.8	107.88

TestAmerica Sacramento

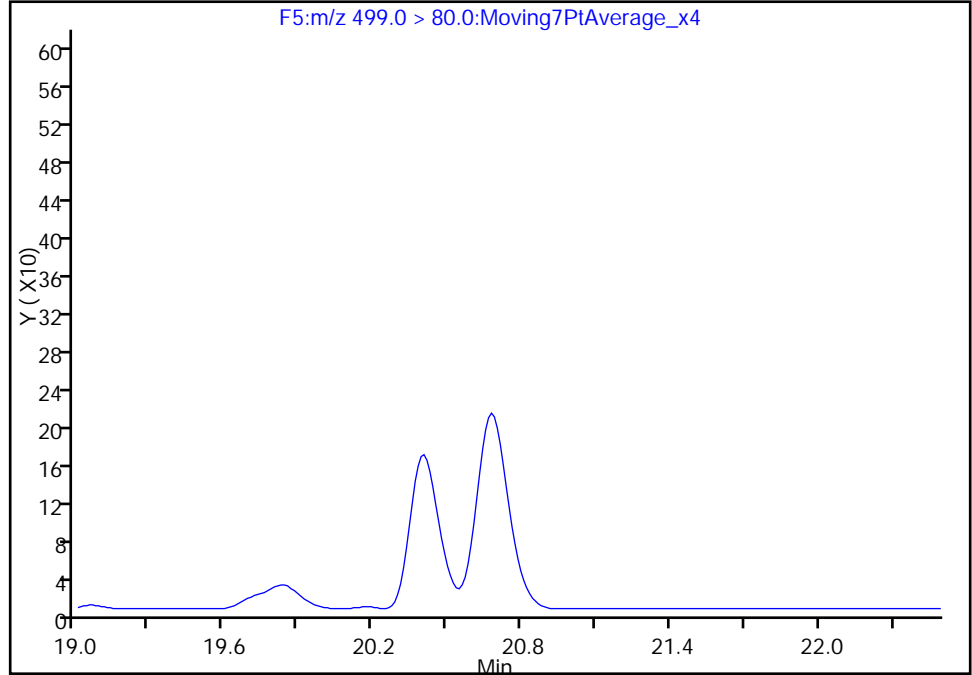
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_011.d  
Injection Date: 11-Dec-2016 15:59:42 Instrument ID: A6  
Lims ID: 320-23971-A-3-A Lab Sample ID: 320-23971-3  
Client ID: WI-AF-2RW08-1116  
Operator ID: CBW ALS Bottle#: 22 Worklist Smp#: 11  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:M/RM

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

Signal: 1

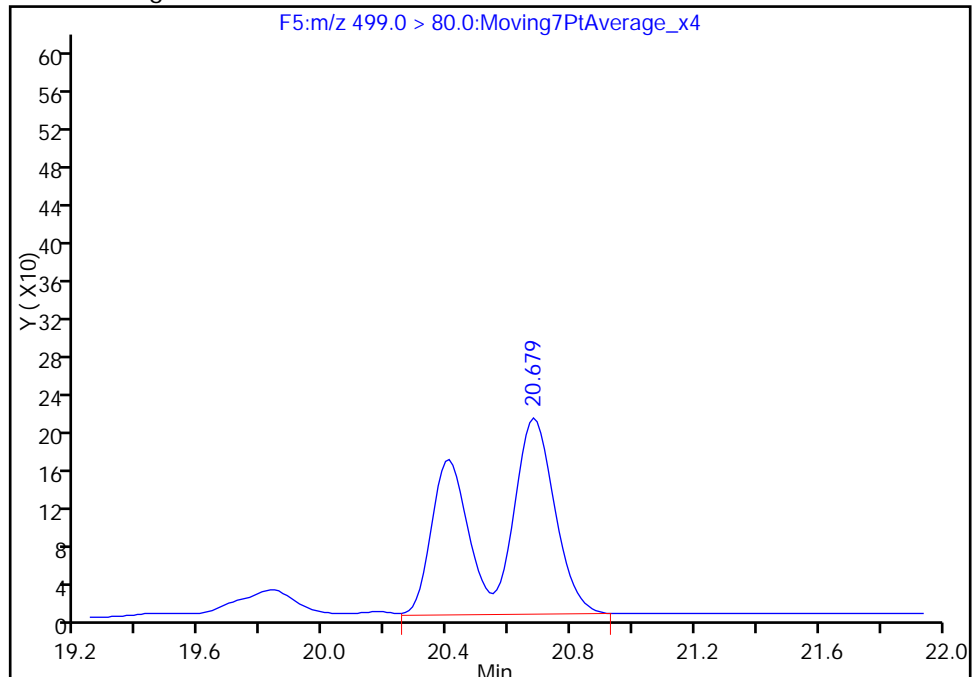
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.68  
Area: 3225  
Amount: 0.039306  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:24:23  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

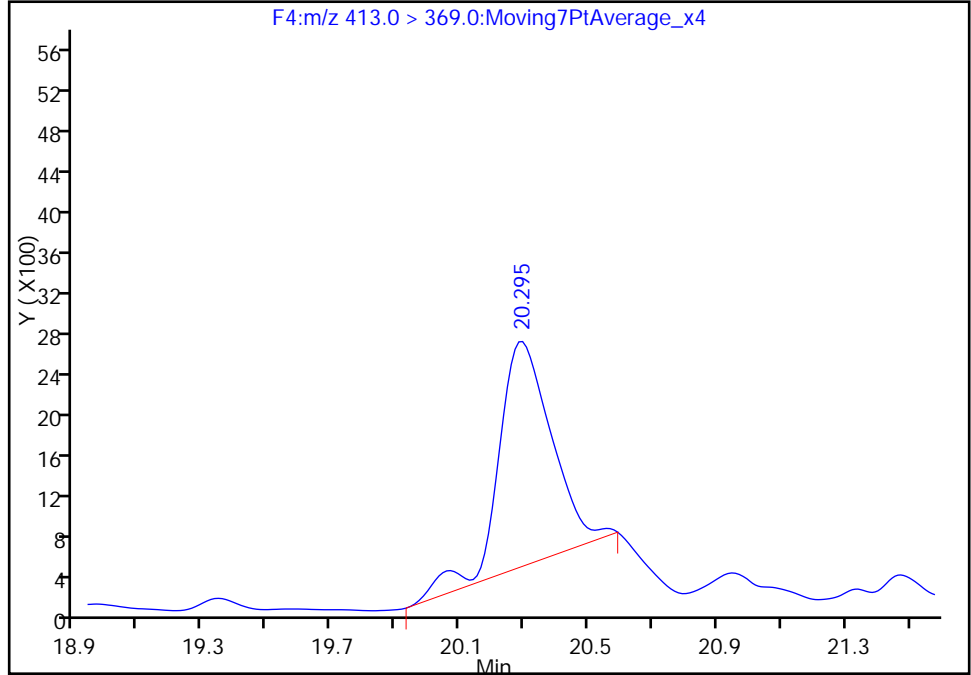
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_011.d  
Injection Date: 11-Dec-2016 15:59:42 Instrument ID: A6  
Lims ID: 320-23971-A-3-A Lab Sample ID: 320-23971-3  
Client ID: WI-AF-2RW08-1116  
Operator ID: CBW ALS Bottle#: 22 Worklist Smp#: 11  
Injection Vol: 10.0 ul 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

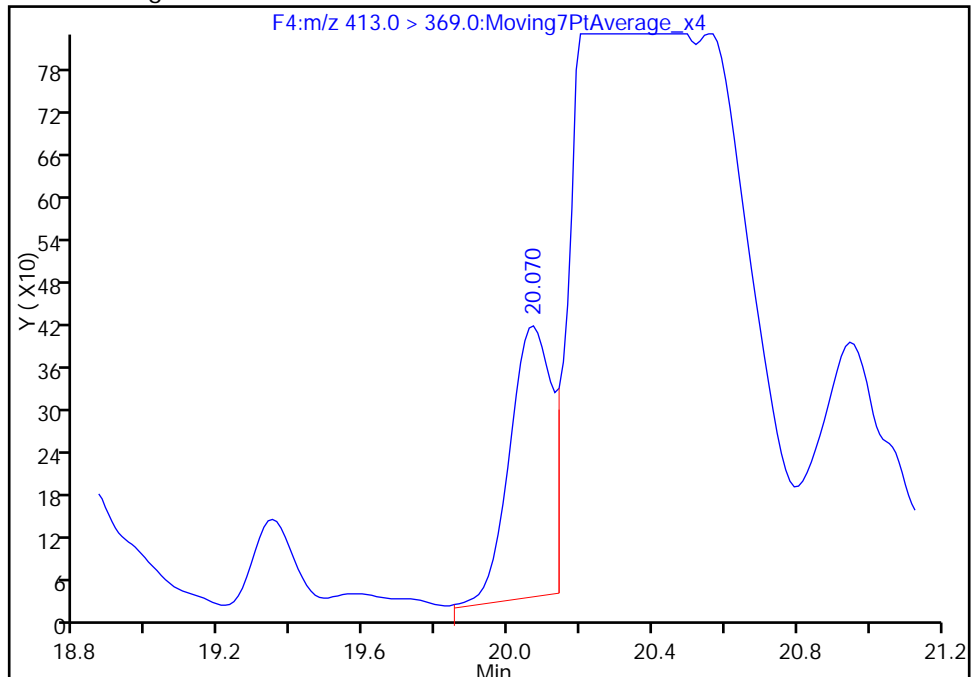
RT: 20.30  
Area: 25696  
Amount: 0.316754  
Amount Units: ng/ml

Processing Integration Results



RT: 20.07  
Area: 3138  
Amount: 0.038682  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 12-Dec-2016 15:24:23  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB08-1116 Lab Sample ID: 320-23971-4  
 Matrix: Water Lab File ID: 11DEC2016A6A\_012.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:32  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 263.7(mL) Date Analyzed: 12/11/2016 16:29  
 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.: 141573 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	108		70-130
STL00996	13C2 PFDA	105		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_012.d  
 Lims ID: 320-23971-A-4-A  
 Client ID: WI-AF-2FB08-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 16:29:17 ALS Bottle#: 23 Worklist Smp#: 12  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:13

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

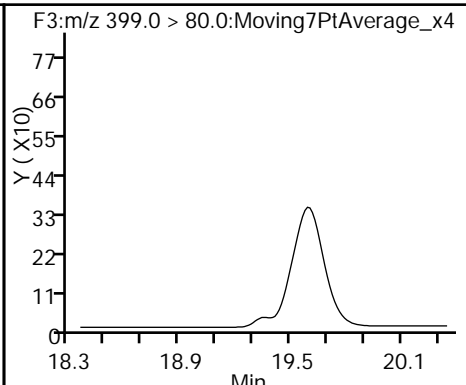
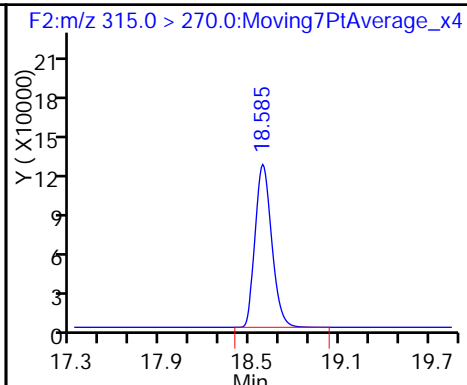
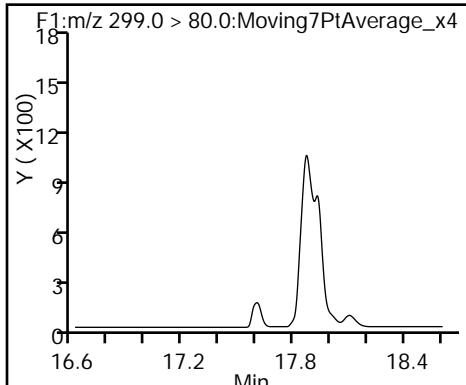
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	986599	10.8	31626
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.058	-0.011		781277	10.0	20511
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2077587	28.7	54101
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	5565	0.0628	164
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	721905	10.5	22949

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_012.d  
Injection Date: 11-Dec-2016 16:29:17 Instrument ID: A6  
Lims ID: 320-23971-A-4-A Lab Sample ID: 320-23971-4  
Client ID: WI-AF-2FB08-1116  
Operator ID: CBW ALS Bottle#: 23 Worklist Smp#: 12  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

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

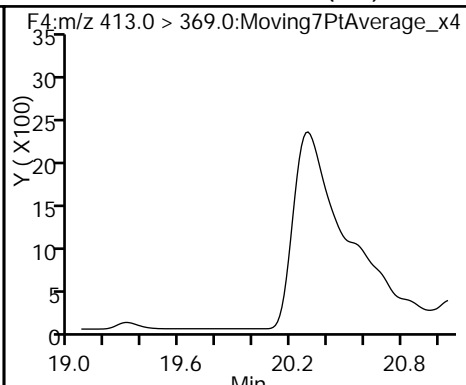
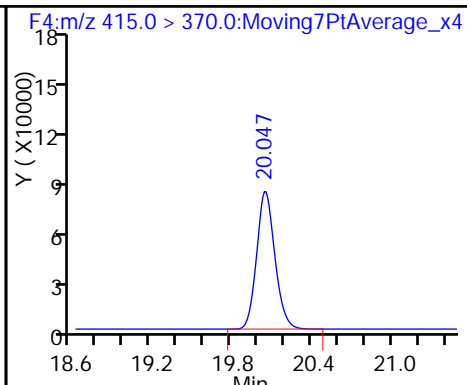
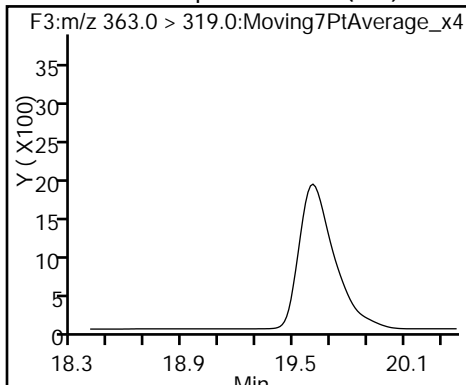
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

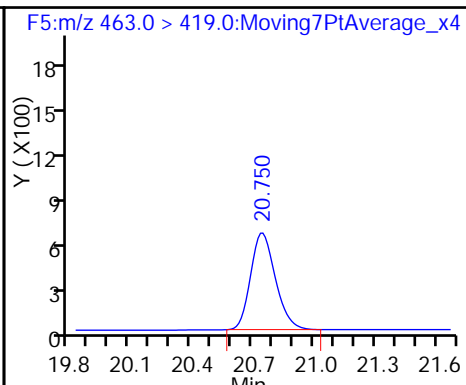
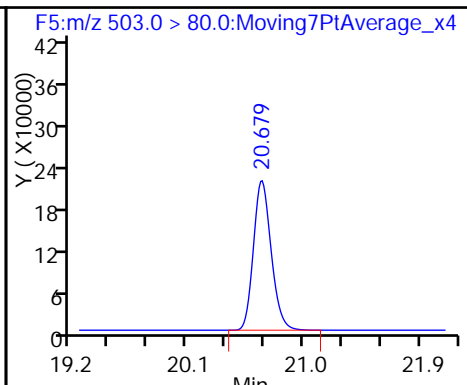
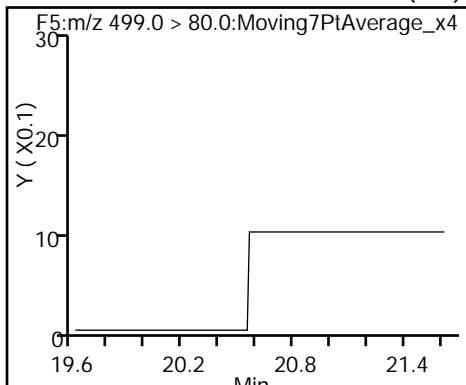
6 Perfluorooctanoic acid (ND)



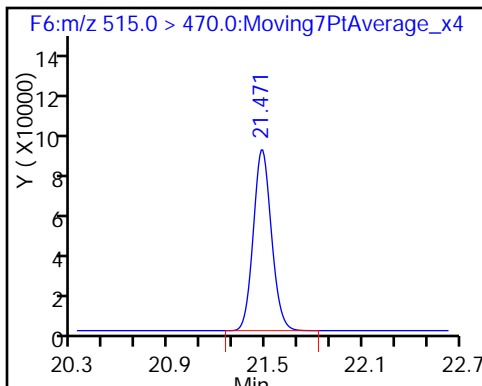
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_012.d  
 Lims ID: 320-23971-A-4-A  
 Client ID: WI-AF-2FB08-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 16:29:17 ALS Bottle#: 23 Worklist Smp#: 12  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.8	108.25
\$ 10 13C2 PFDA	10.0	10.5	105.45

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW10-1116 Lab Sample ID: 320-23971-5  
 Matrix: Water Lab File ID: 11DEC2016A6A\_013.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 264(mL) Date Analyzed: 12/11/2016 16:58  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	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	110		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_013.d  
 Lims ID: 320-23971-A-5-A  
 Client ID: WI-AF-3RW10-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 16:58:53 ALS Bottle#: 24 Worklist Smp#: 13  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:33

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

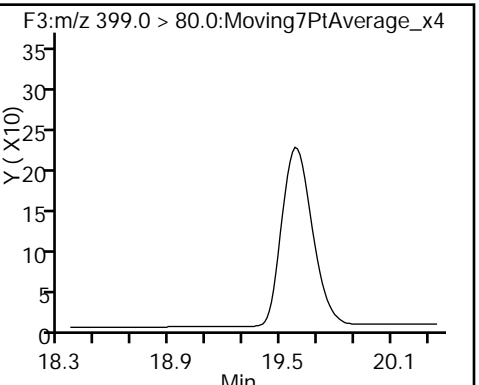
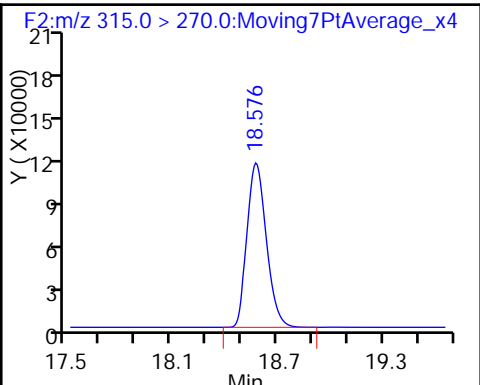
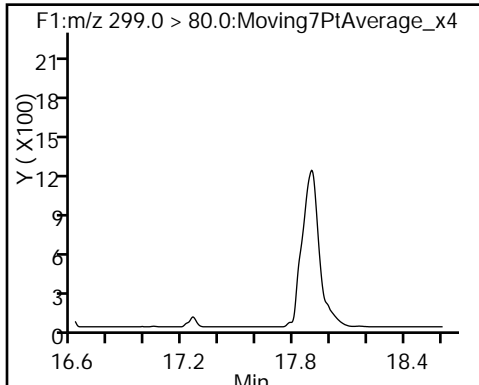
\$ 2 13C2 PFHxA	315.0 > 270.0	18.576	18.585	-0.009	1.000	867480	11.0	8055
4 Perfluoroheptanoic acid	363.0 > 319.0	19.225	19.391	-0.166	1.000	483	0.005889	0.2
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.058	-0.011		675004	10.0	17697
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.679	-0.012		1937434	28.7	50819
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.750	-0.012	1.000	11292	0.1475	132
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.480	-0.018	1.000	654536	11.1	20476

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_013.d  
Injection Date: 11-Dec-2016 16:58:53 Instrument ID: A6  
Lims ID: 320-23971-A-5-A Lab Sample ID: 320-23971-5  
Client ID: WI-AF-3RW10-1116  
Operator ID: CBW ALS Bottle#: 24 Worklist Smp#: 13  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

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

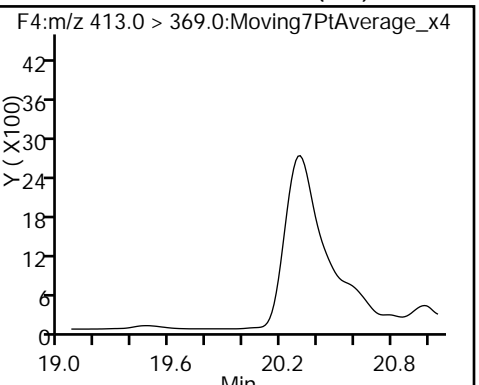
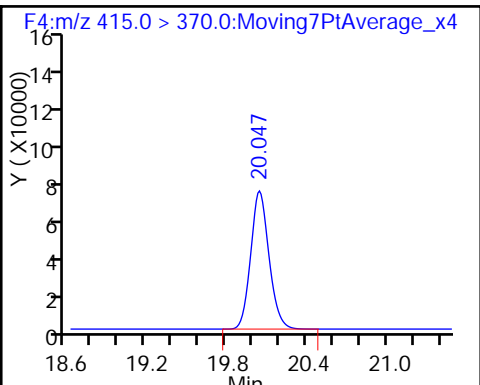
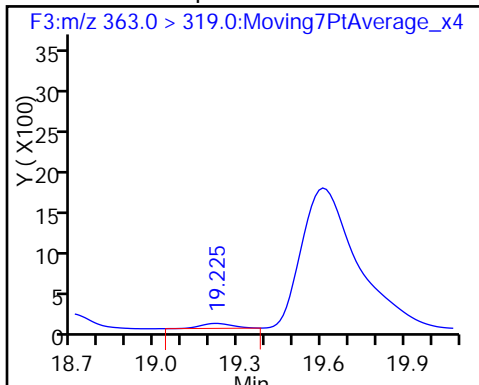
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

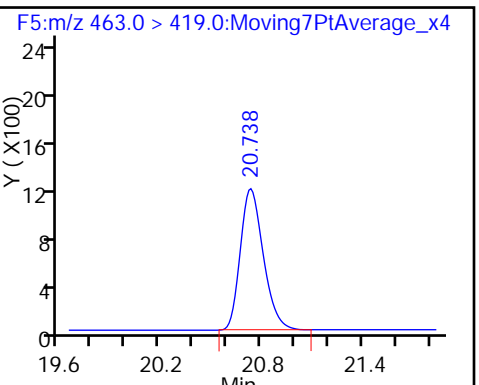
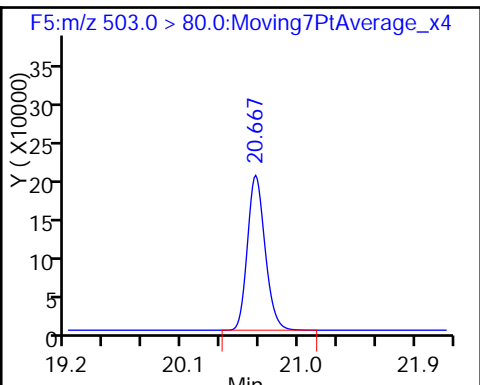
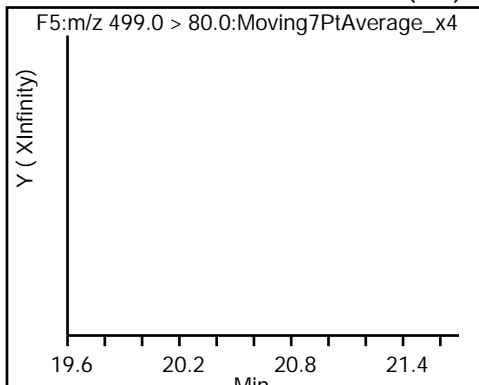
6 Perfluorooctanoic acid (ND)



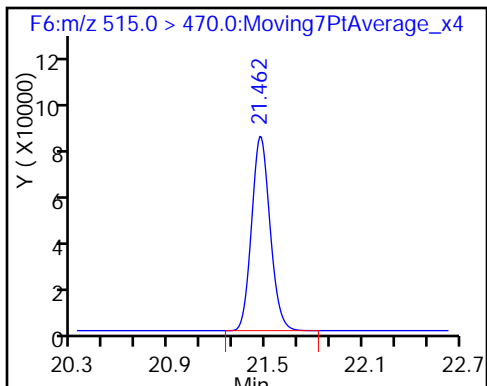
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_013.d  
 Lims ID: 320-23971-A-5-A  
 Client ID: WI-AF-3RW10-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 16:58:53 ALS Bottle#: 24 Worklist Smp#: 13  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:33

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	110.17
\$ 10 13C2 PFDA	10.0	11.1	110.66

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB10-1116 Lab Sample ID: 320-23971-6  
 Matrix: Water Lab File ID: 11DEC2016A6A\_014.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 270.1(mL) Date Analyzed: 12/11/2016 17:28  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U M	0.056	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0087
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	117		70-130
STL00996	13C2 PFDA	106		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_014.d  
 Lims ID: 320-23971-B-6-A  
 Client ID: WI-AF-3FB10-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 17:28:30 ALS Bottle#: 25 Worklist Smp#: 14  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-b-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:58

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1181965	11.7	37646
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		864715	10.0	22754
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.667	20.619	0.048	1.000	721	0.008169	15.8 M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2424671	28.7	63593
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	6326	0.0645	229
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	806342	10.6	25182

QC Flag Legend

Review Flags

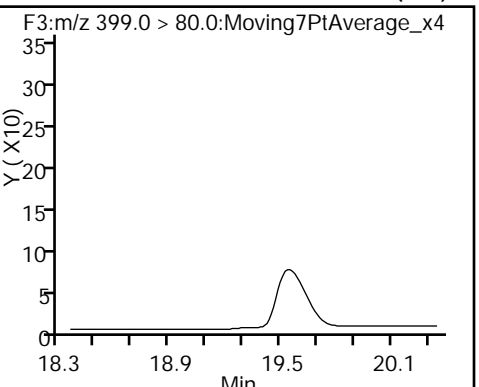
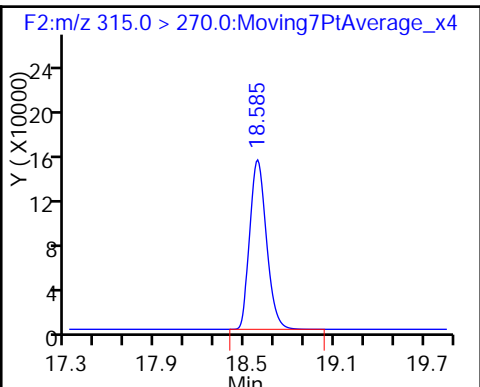
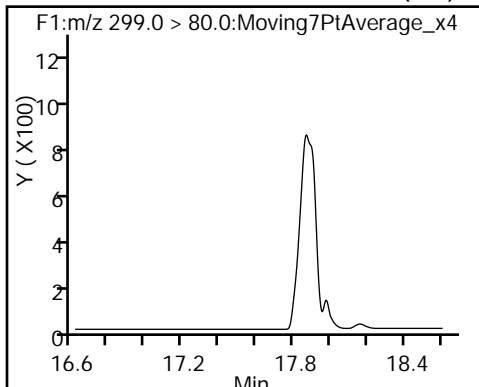
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_014.d  
Injection Date: 11-Dec-2016 17:28:30 Instrument ID: A6  
Lims ID: 320-23971-B-6-A Lab Sample ID: 320-23971-6  
Client ID: WI-AF-3FB10-1116  
Operator ID: CBW ALS Bottle#: 25 Worklist Smp#: 14  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

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

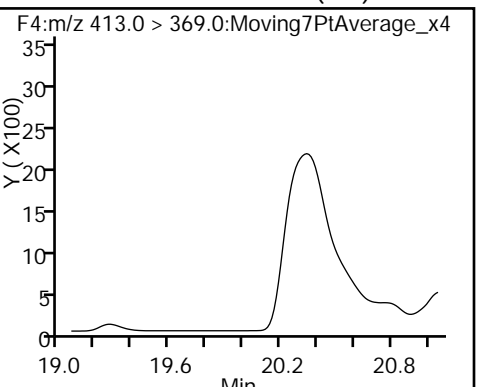
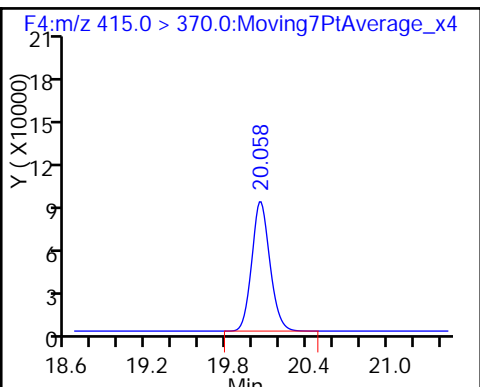
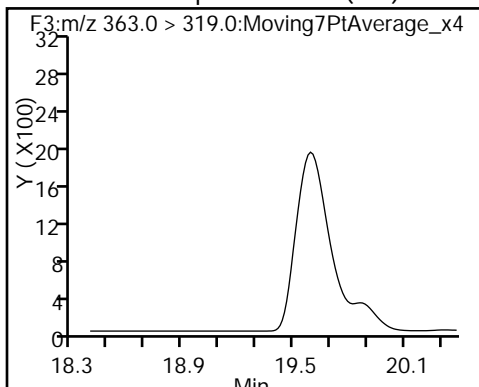
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

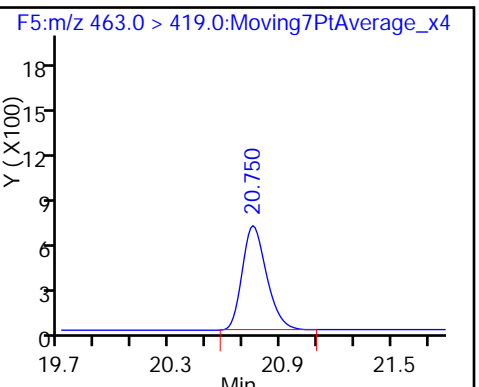
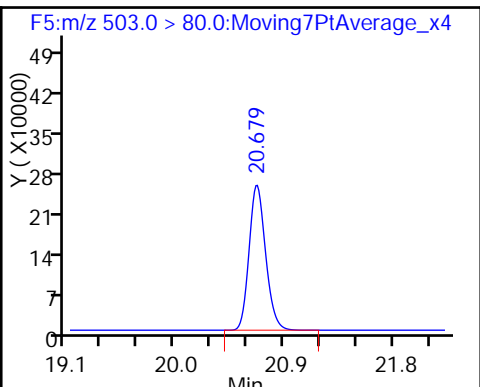
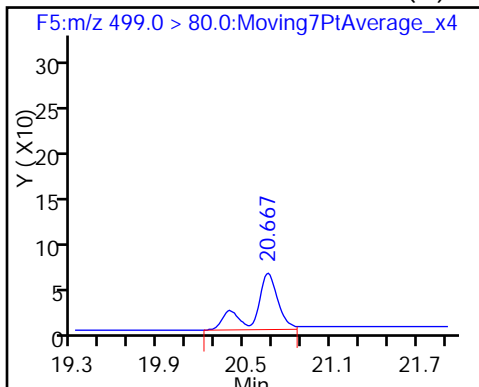
6 Perfluorooctanoic acid (ND)



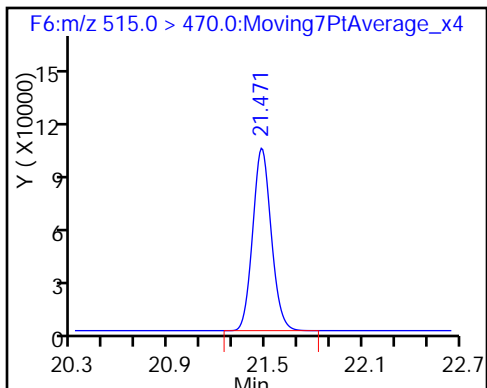
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_014.d  
 Lims ID: 320-23971-B-6-A  
 Client ID: WI-AF-3FB10-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 17:28:30 ALS Bottle#: 25 Worklist Smp#: 14  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-b-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:38:58

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.7	117.18
\$ 10 13C2 PFDA	10.0	10.6	106.42

TestAmerica Sacramento

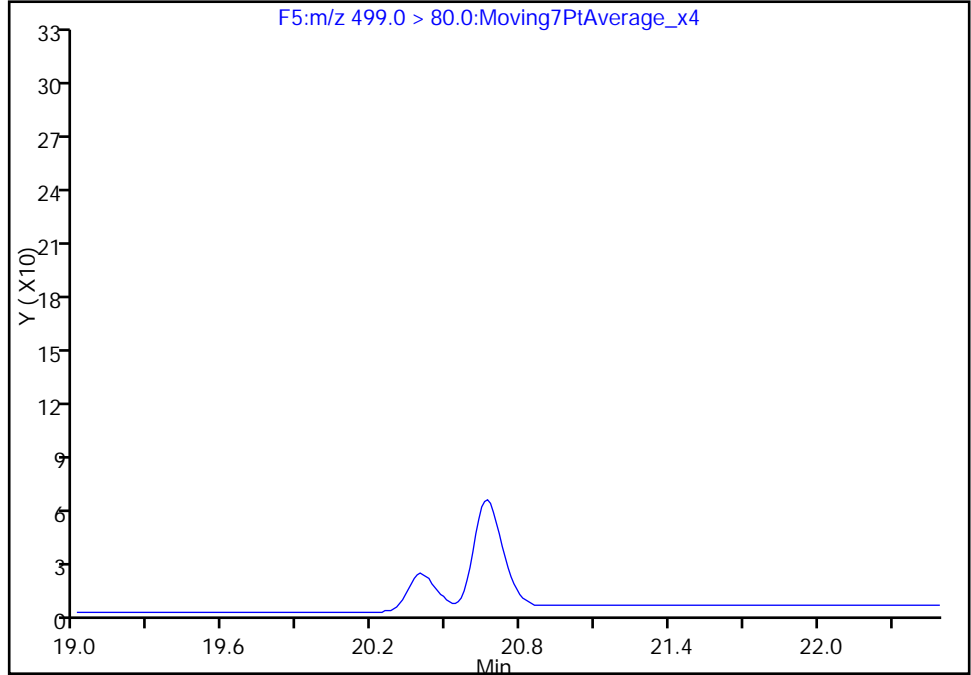
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_014.d  
Injection Date: 11-Dec-2016 17:28:30 Instrument ID: A6  
Lims ID: 320-23971-B-6-A Lab Sample ID: 320-23971-6  
Client ID: WI-AF-3FB10-1116  
Operator ID: CBW ALS Bottle#: 25 Worklist Smp#: 14  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:M/RM

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

Signal: 1

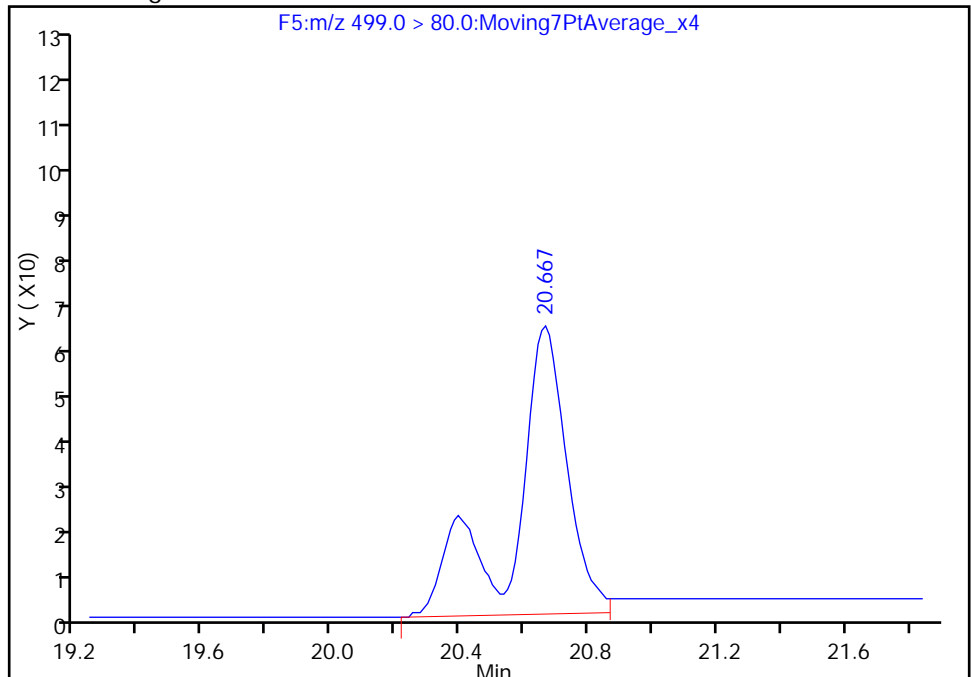
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.67  
Area: 721  
Amount: 0.008169  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:38:58  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW11-1116 Lab Sample ID: 320-23971-7  
 Matrix: Water Lab File ID: 11DEC2016A6A\_015.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:30  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 268.9(mL) Date Analyzed: 12/11/2016 17:58  
 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.: 141573 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	110		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_015.d  
 Lims ID: 320-23971-A-7-A  
 Client ID: WI-AF-3RW11-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 17:58:05 ALS Bottle#: 26 Worklist Smp#: 15  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 13:51:39

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	940504	11.0	30201
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		731987	10.0	19157
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2119325	28.7	55558
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	13436	0.1618	210
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	696464	10.9	21994

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_015.d

Injection Date: 11-Dec-2016 17:58:05

Instrument ID: A6

Lims ID: 320-23971-A-7-A

Lab Sample ID: 320-23971-7

Client ID: WI-AF-3RW11-1116

Operator ID: CBW

ALS Bottle#: 26

Worklist Smp#: 15

Injection Vol: 10.0 ul

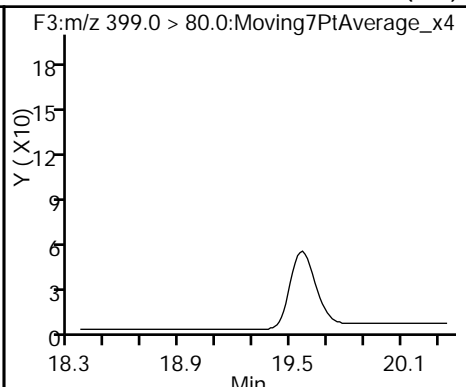
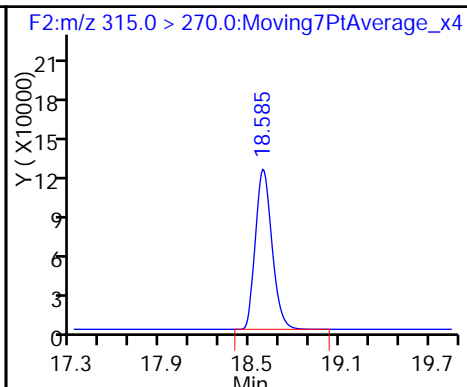
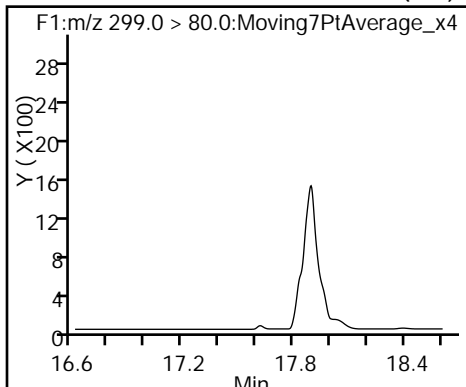
Dil. Factor: 1.0000

Method: 537\_\_A6

Limit Group: LC 537 ICAL

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

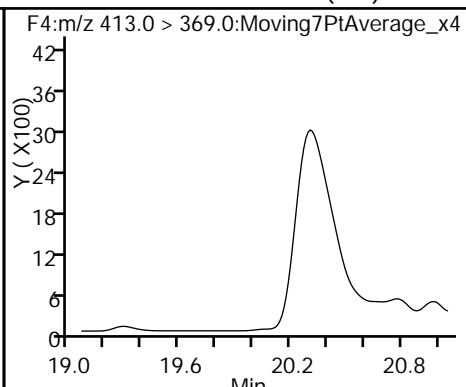
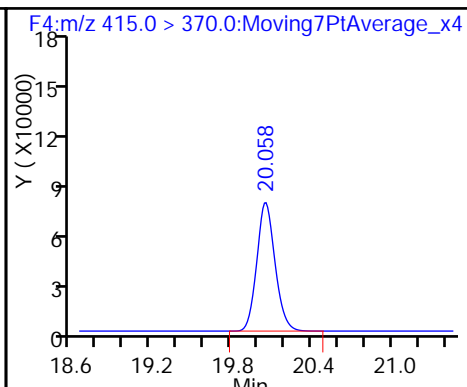
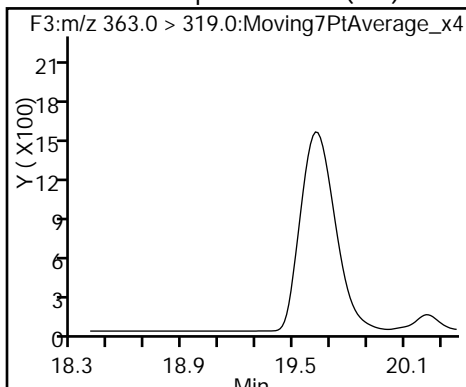
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

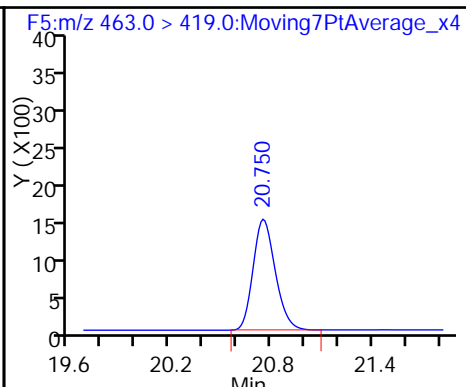
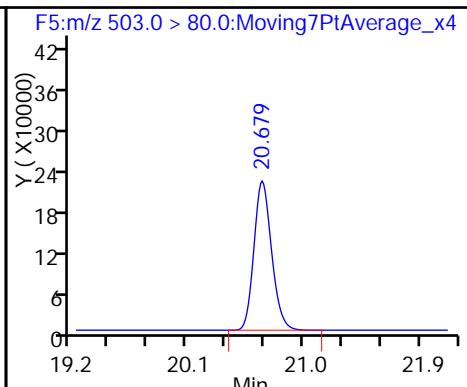
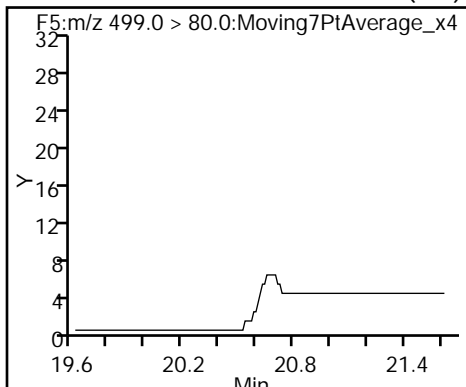
6 Perfluorooctanoic acid (ND)



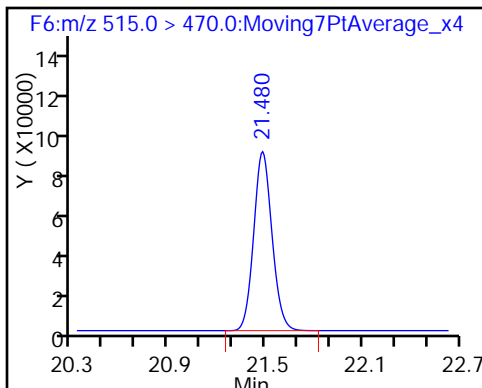
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_015.d  
 Lims ID: 320-23971-A-7-A  
 Client ID: WI-AF-3RW11-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 17:58:05 ALS Bottle#: 26 Worklist Smp#: 15  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 13:51:39

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	110.14
\$ 10 13C2 PFDA	10.0	10.9	108.58



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB11-1116 Lab Sample ID: 320-23971-8  
 Matrix: Water Lab File ID: 11DEC2016A6A\_019.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:31  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 265.1(mL) Date Analyzed: 12/11/2016 19:56  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.057	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	108		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_019.d  
 Lims ID: 320-23971-A-8-A  
 Client ID: WI-AF-3FB11-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 19:56:26 ALS Bottle#: 27 Worklist Smp#: 19  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:39:27

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	964741	10.8	30960
* 5 13C2-PFOA	415.0 > 370.0	20.059	20.047	0.012		768857	10.0	20020
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.679	20.619	0.060	1.000	651	0.008667	20.5 M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2063347	28.7	27132
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	8357	0.0958	235
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	726581	10.8	22720

QC Flag Legend

Review Flags

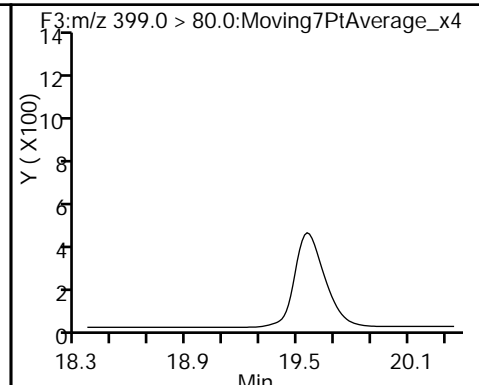
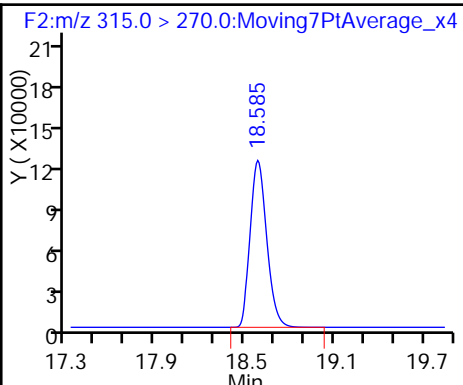
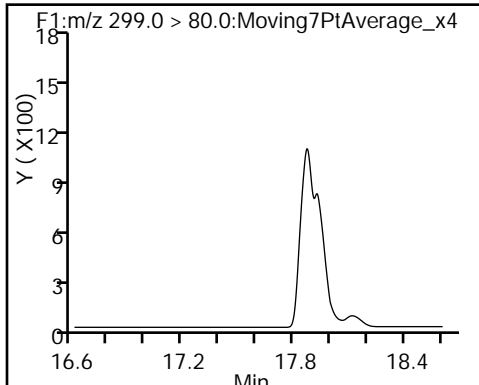
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_019.d  
Injection Date: 11-Dec-2016 19:56:26 Instrument ID: A6  
Lims ID: 320-23971-A-8-A Lab Sample ID: 320-23971-8  
Client ID: WI-AF-3FB11-1116  
Operator ID: CBW ALS Bottle#: 27 Worklist Smp#: 19  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

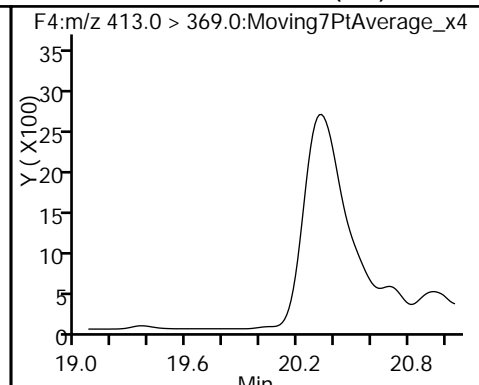
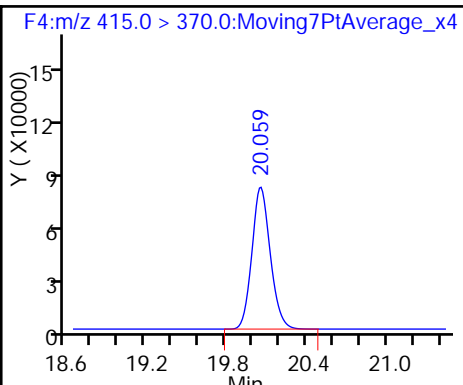
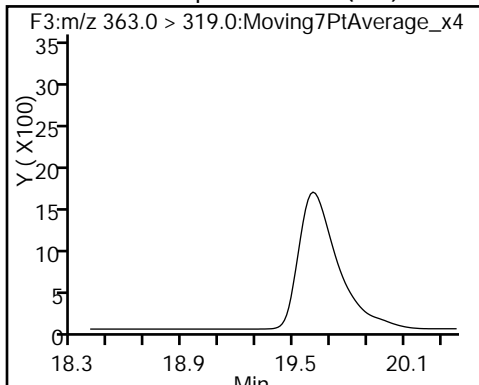
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

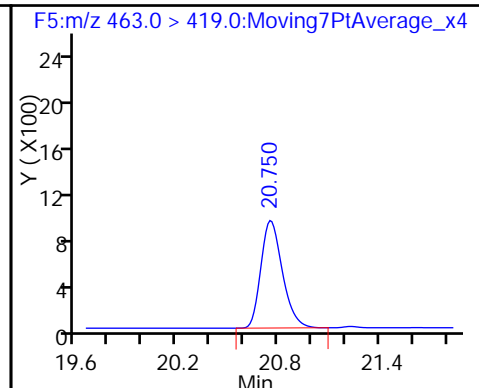
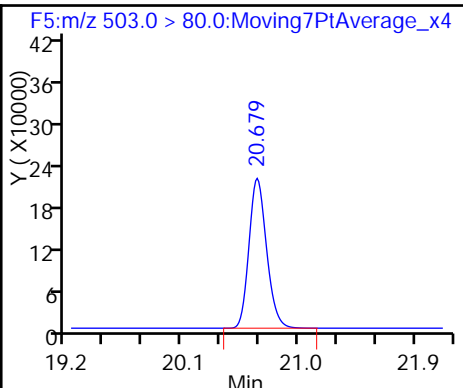
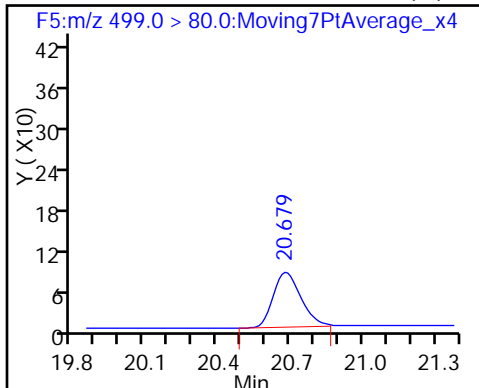
6 Perfluorooctanoic acid (ND)



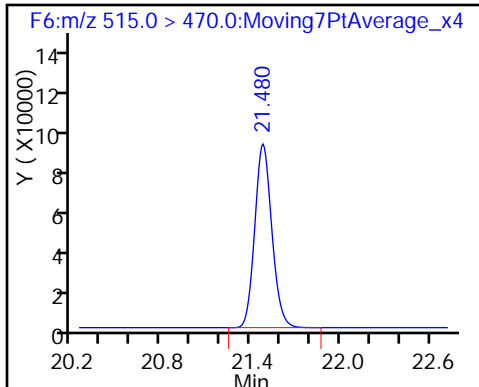
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_019.d  
 Lims ID: 320-23971-A-8-A  
 Client ID: WI-AF-3FB11-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 19:56:26 ALS Bottle#: 27 Worklist Smp#: 19  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:39:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.8	107.56
\$ 10 13C2 PFDA	10.0	10.8	107.84

TestAmerica Sacramento

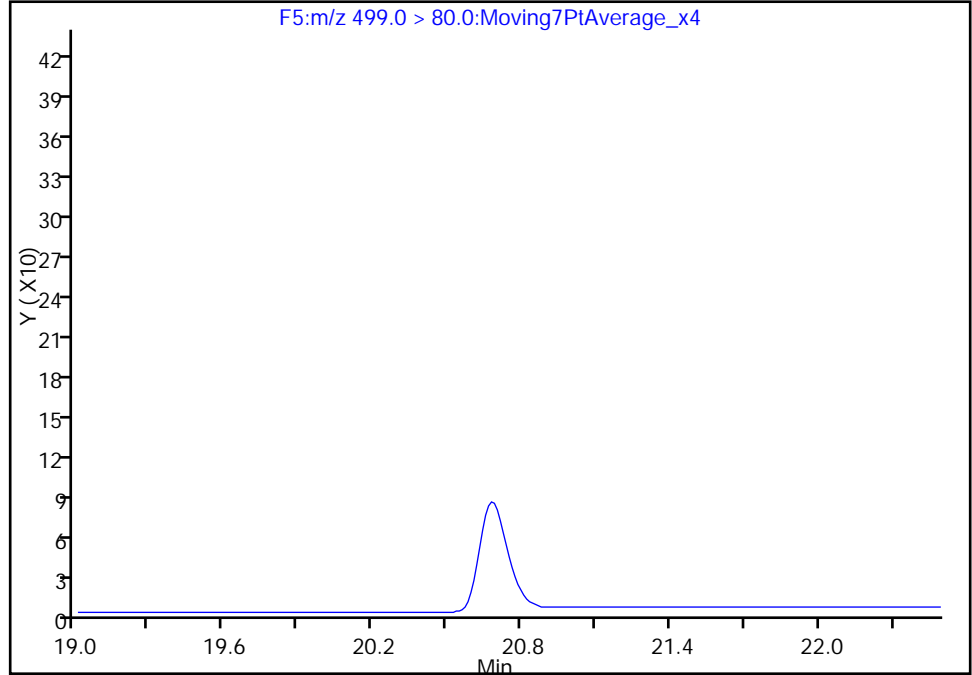
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_019.d  
Injection Date: 11-Dec-2016 19:56:26 Instrument ID: A6  
Lims ID: 320-23971-A-8-A Lab Sample ID: 320-23971-8  
Client ID: WI-AF-3FB11-1116  
Operator ID: CBW ALS Bottle#: 27 Worklist Smp#: 19  
Injection Vol: 10.0 ul 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

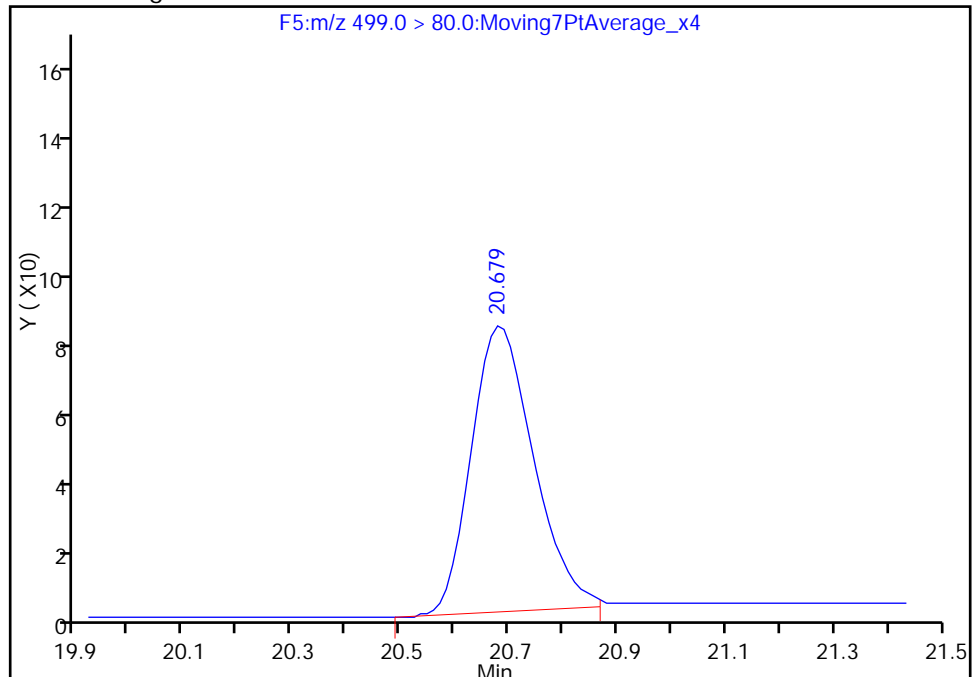
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.68  
Area: 651  
Amount: 0.008667  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:41:05  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW12-1116 Lab Sample ID: 320-23971-9  
 Matrix: Water Lab File ID: 11DEC2016A6A\_020.d  
 Analysis Method: 537 Date Collected: 11/30/2016 17:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 256.4 (mL) Date Analyzed: 12/11/2016 20:26  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	119		70-130
STL00996	13C2 PFDA	130		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_020.d  
 Lims ID: 320-23971-A-9-A  
 Client ID: WI-AF-3RW12-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 20:26:02 ALS Bottle#: 28 Worklist Smp#: 20  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:41:52

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	828115	11.9	26495
* 5 13C2-PFOA	415.0 > 370.0	20.059	20.047	0.012		597162	10.0	15430
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2146584	28.7	37593
9 Perfluorononanoic acid								M
	463.0 > 419.0	20.762	20.750	0.012	1.000	1499	0.0221	14.9 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	680430	13.0	21575

QC Flag Legend

Review Flags

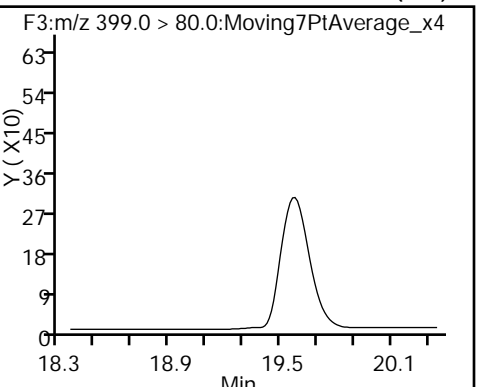
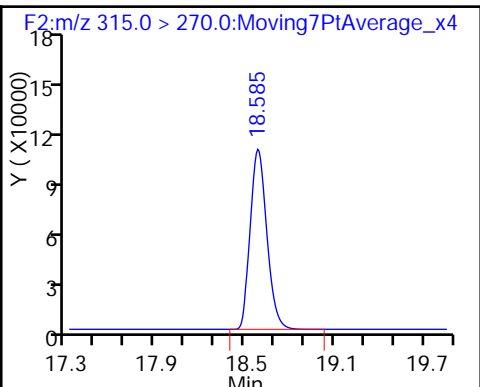
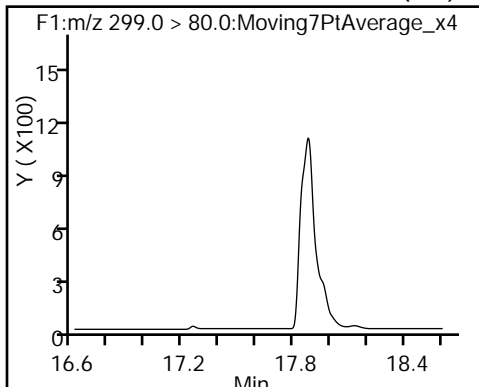
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_020.d  
Injection Date: 11-Dec-2016 20:26:02 Instrument ID: A6  
Lims ID: 320-23971-A-9-A Lab Sample ID: 320-23971-9  
Client ID: WI-AF-3RW12-1116  
Operator ID: CBW ALS Bottle#: 28 Worklist Smp#: 20  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

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

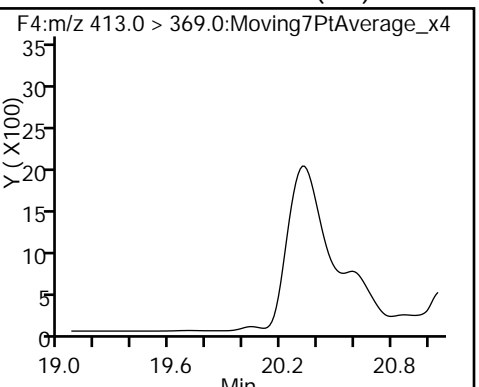
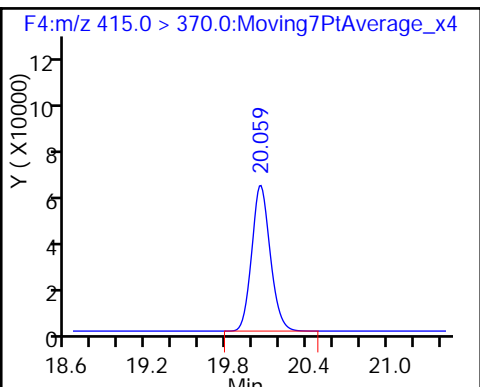
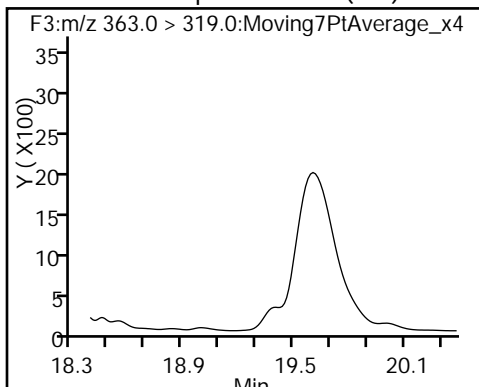
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

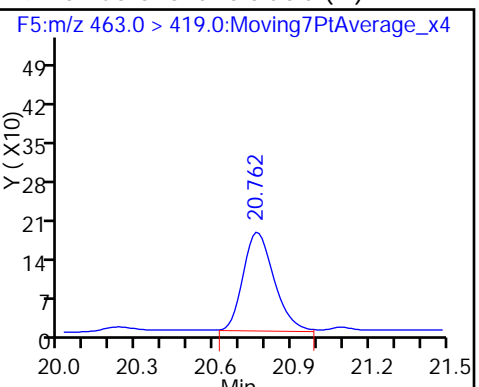
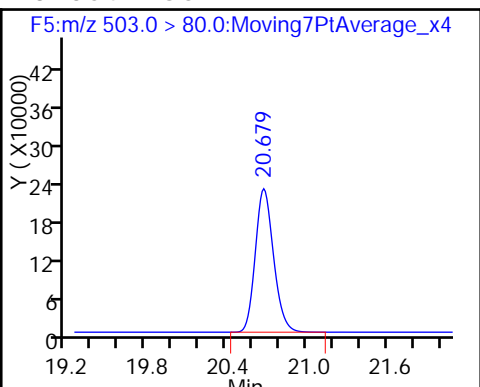
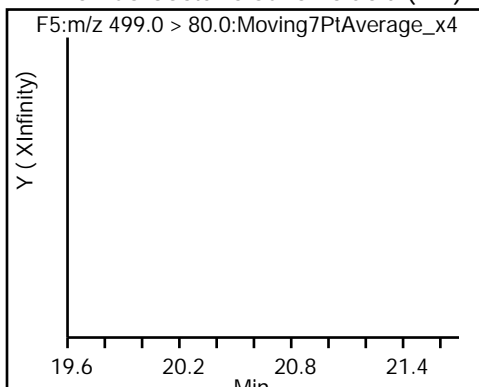
6 Perfluorooctanoic acid (ND)



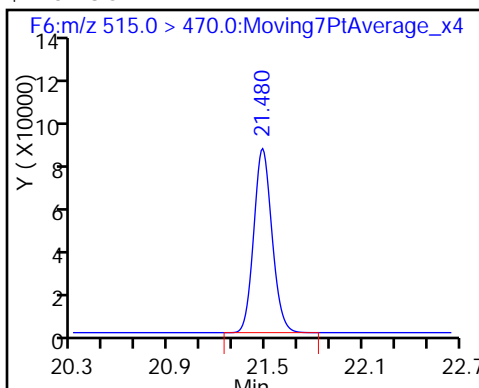
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_020.d  
 Lims ID: 320-23971-A-9-A  
 Client ID: WI-AF-3RW12-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 20:26:02 ALS Bottle#: 28 Worklist Smp#: 20  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:41:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.9	118.88
\$ 10 13C2 PFDA	10.0	13.0	130.03

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB12-1116 Lab Sample ID: 320-23971-10  
 Matrix: Water Lab File ID: 11DEC2016A6A\_021.d  
 Analysis Method: 537 Date Collected: 11/30/2016 17:01  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 265.2 (mL) Date Analyzed: 12/11/2016 20:55  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	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	99		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_021.d  
 Lims ID: 320-23971-A-10-A  
 Client ID: WI-AF-3FB12-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 20:55:38 ALS Bottle#: 29 Worklist Smp#: 21  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:42:27

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	894651	9.92	28817
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.047	0.011		772993	10.0	20214
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2088535	28.7	27254
9 Perfluorononanoic acid								M
463.0 > 419.0	20.750	20.750	0.0	1.000	4266	0.0487	119	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	713508	10.5	22429

QC Flag Legend

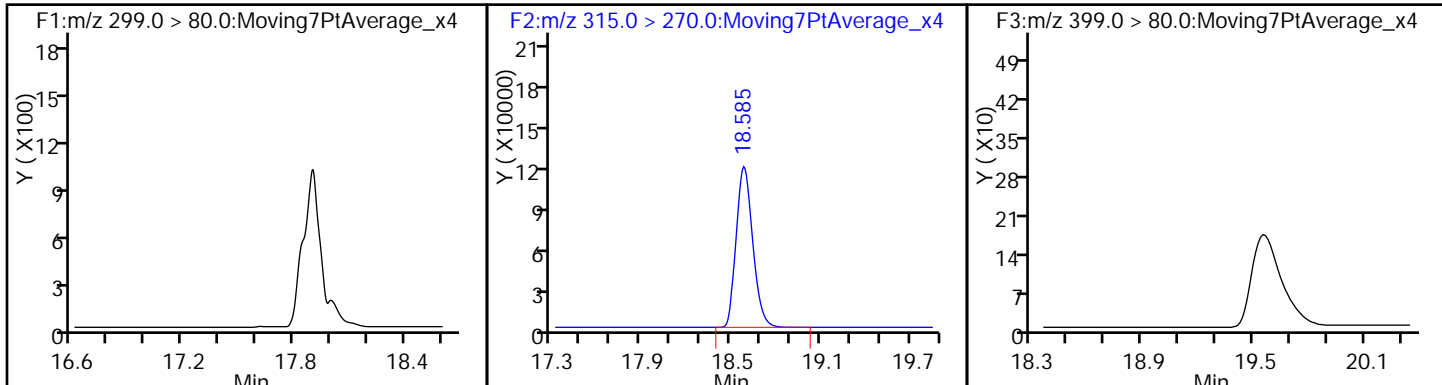
Review Flags

M - Manually Integrated

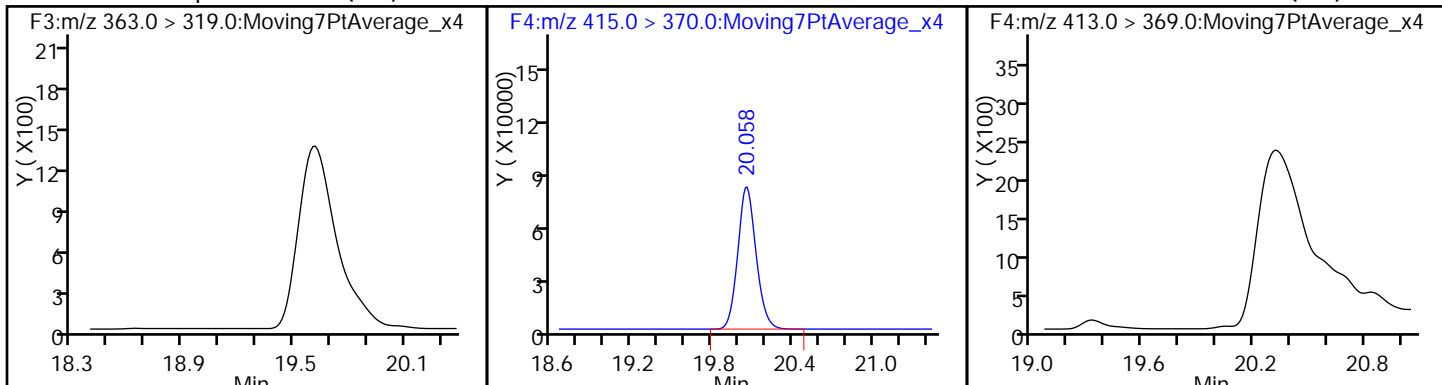
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_021.d  
Injection Date: 11-Dec-2016 20:55:38 Instrument ID: A6  
Lims ID: 320-23971-A-10-A Lab Sample ID: 320-23971-10  
Client ID: WI-AF-3FB12-1116  
Operator ID: CBW ALS Bottle#: 29 Worklist Smp#: 21  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

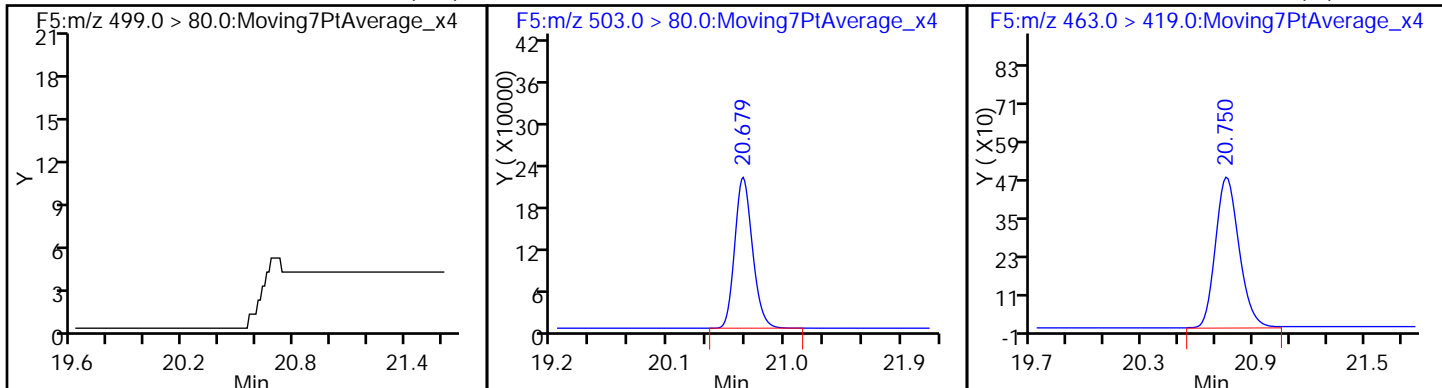
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



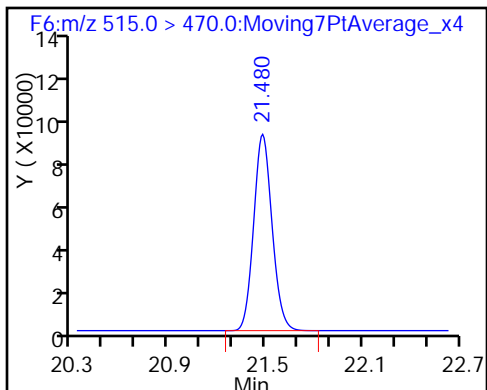
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (ND)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_021.d  
 Lims ID: 320-23971-A-10-A  
 Client ID: WI-AF-3FB12-1116  
 Sample Type: Client  
 Inject. Date: 11-Dec-2016 20:55:38 ALS Bottle#: 29 Worklist Smp#: 21  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23971-a-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:02:26 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:42:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.92	99.22
\$ 10 13C2 PFDA	10.0	10.5	105.34

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

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1 Analy Batch No.: 140688

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

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

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_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)	0.7247 0.6563	0.6525	0.7178	0.7256	0.7321	Ave		0.7015			5.2		30.0				
Perfluorohexanesulfonic acid	0.8344 0.8930	0.7757	0.9290	0.9478	1.0082	Ave		0.8980			9.3		30.0				
Perfluoroheptanoic acid	1.4137 1.1078	1.1891	1.2161	1.1975	1.1665	Ave		1.2151			8.6		30.0				
Perfluorooctanoic acid (PFOA)	0.9720 1.0610	0.9049	1.0674	1.1235	1.1136	Ave		1.0404			8.2		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.8855 1.0951	0.9020	1.0711	1.0966	1.2136	Ave		1.0440			12.1		30.0				
Perfluorononanoic acid	0.9735 1.1655	0.9961	1.1929	1.2321	1.2453	Ave		1.1342			10.5		30.0				
13C2 PFHxA	1.0366 1.2091	1.0515	1.1929	1.2298	1.2791	Ave		1.1665			8.5		30.0				
13C2 PFDA	0.8084 0.9456	0.7439	0.8674	0.9054	0.9868	Ave		0.8763			10.2		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.: 320-23971-1 Analy Batch No.: 140688

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

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

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_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	437563 7753569	1227165	2489398	4401661	6630132	8.76 178	22.9	45.1	90.9	135
Perfluorohexanesulfonic acid	PFOS	Ave	169827 3556638	491809	1086082	1938237	3077974	2.95 60.1	7.72	15.2	30.6	45.4
Perfluoroheptanoic acid	13PF OA	Ave	126557 2032288	324913	658044	1121930	1727957	0.994 20.2	2.60	5.12	10.3	15.3
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	173304 3876381	492431	1150281	2096404	3285195	1.98 40.3	5.17	10.2	20.5	30.4
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	238662 5775285	757269	1658139	2969550	4906017	3.91 79.6	10.2	20.1	40.6	60.1
Perfluorononanoic acid	13PF OA	Ave	168128 4124664	525061	1245341	2227031	3558831	1.92 39.0	5.01	9.87	19.9	29.5
13C2 PFHxA	13PF OA	Ave	933751 1095977	1106485	1261522	1117585	1240474	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	728204 857144	782778	917302	822787	957025	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.: 320-23971-1 Analy Batch No.: 140688

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

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

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_009.d

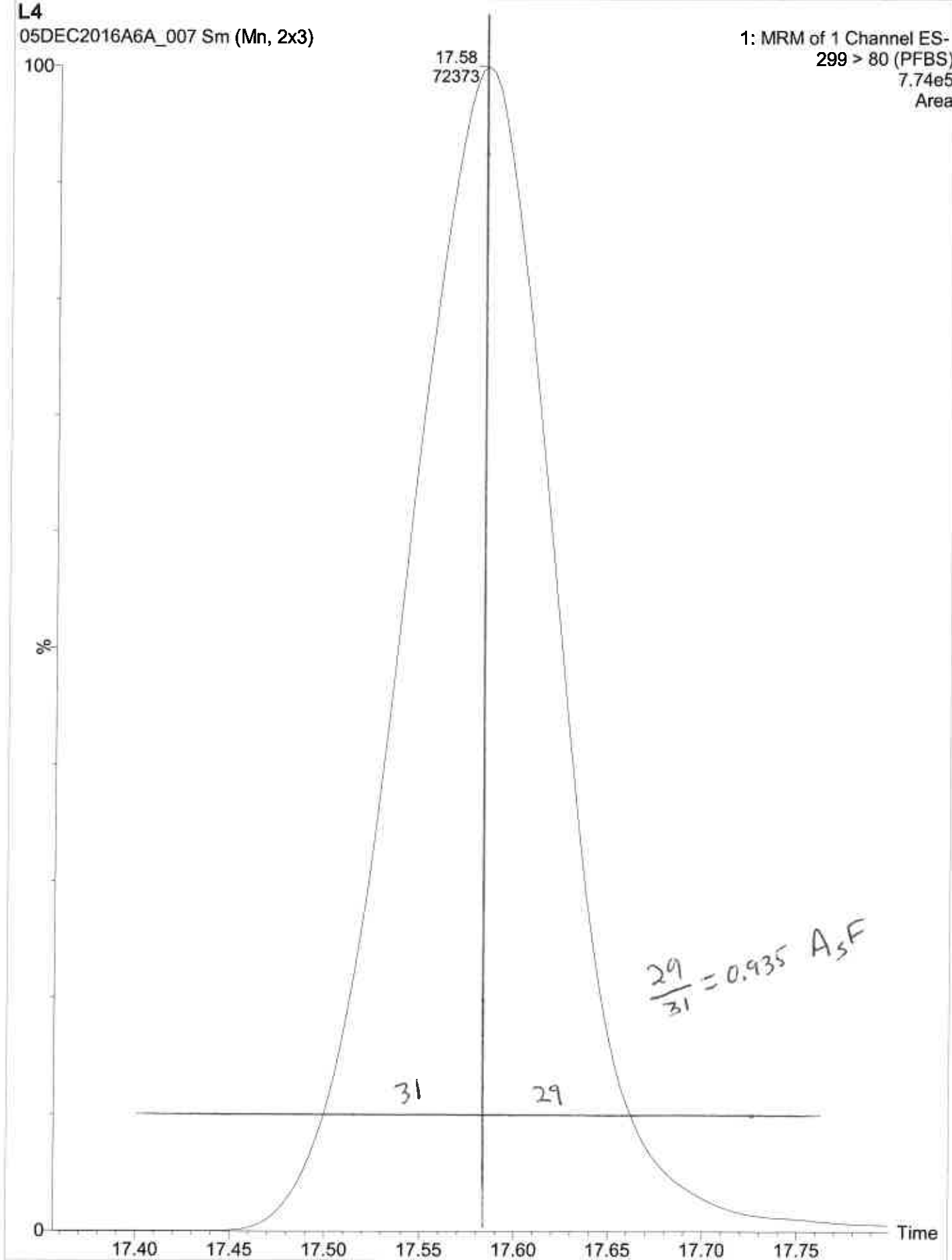
ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	3.3	-7.0	2.3	3.4	4.4	-6.4	50	50	50	50	50	50
Perfluorohexanesulfonic acid	-7.1	-13.6	3.4	5.5	12.3	-0.6	50	50	50	50	50	50
Perfluoroheptanoic acid	16.3	-2.1	0.1	-1.5	-4.0	-8.8	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.6	-13.0	2.6	8.0	7.0	2.0	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-15.2	-13.6	2.6	5.0	16.2	4.9	50	50	50	50	50	50
Perfluorononanoic acid	-14.2	-12.2	5.2	8.6	9.8	2.8	50	50	50	50	50	50
13C2 PFHxA	-11.1	-9.9	2.3	5.4	9.7	3.7	30	30	30	30	30	30
13C2 PFDA	-7.7	-15.1	-1.0	3.3	12.6	7.9	30	30	30	30	30	30



L4

05DEC2016A6A\_007 Sm (Mn, 2x3)

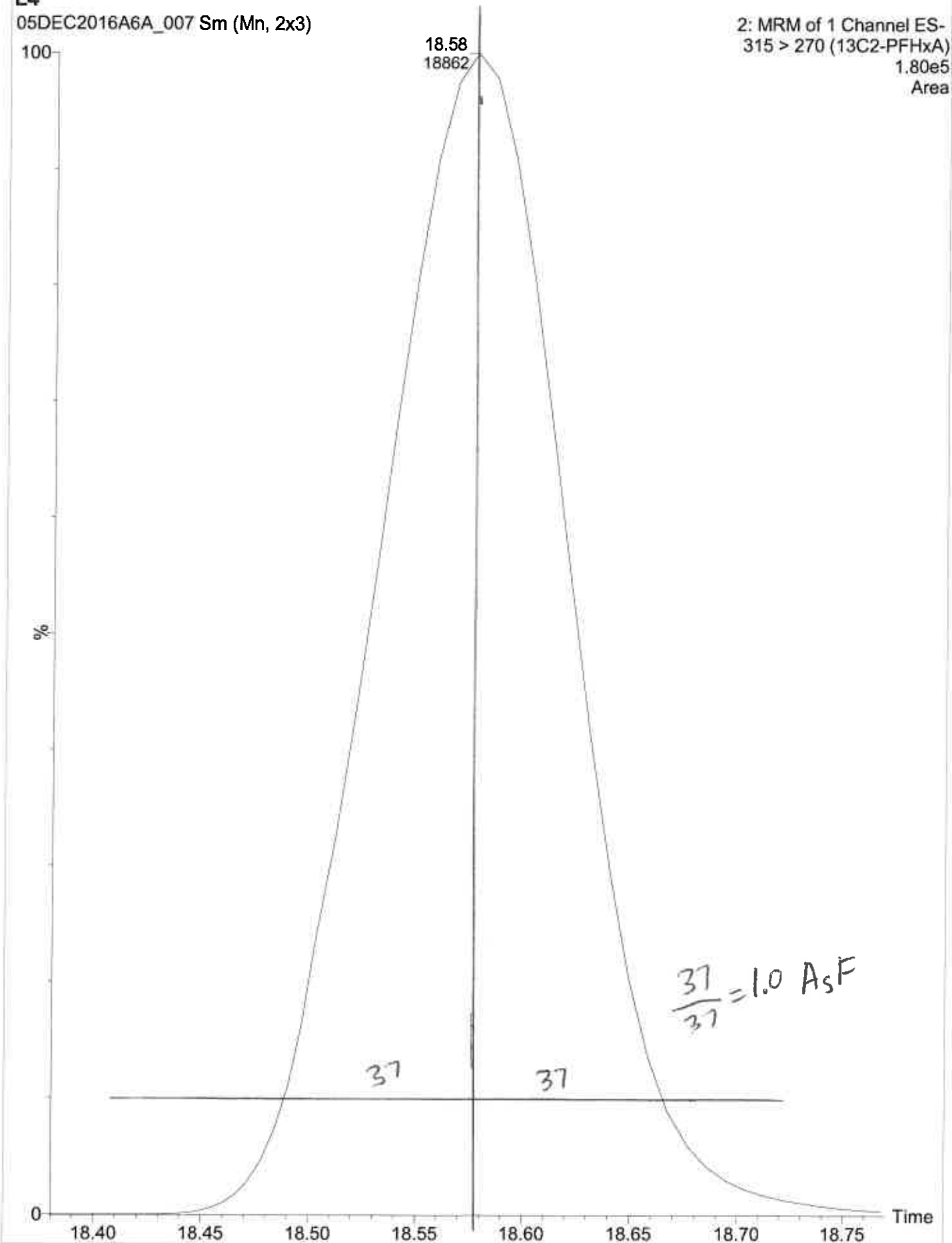
1: MRM of 1 Channel ES-  
299 > 80 (PFBS)  
7.74e5  
Area



L4

05DEC2016A6A\_007 Sm (Mn, 2x3)

2: MRM of 1 Channel ES-  
315 > 270 (13C2-PFHxA)  
1.80e5  
Area



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d  
 Lims ID: STD L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 05-Dec-2016 17:26:03 ALS Bottle#: 1 Worklist Smp#: 2  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:34 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 10:00:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.581	-0.005	1.000	437563	9.05	466
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	933751	8.89	30467
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.342	-0.010	1.000	169827	2.74	4140
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.378	-0.010	1.000	126557	1.16	45.1 M
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		900764	10.0	23392
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	173304	1.85	35.0 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	238662	3.32	2941
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		1976615	28.7	40886
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.748	-0.010	1.000	168128	1.65	6043
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.474	-0.003	1.000	728204	9.23	22953

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L1\_00015

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d

Injection Date: 05-Dec-2016 17:26:03

Instrument ID: A6

Lims ID: STD L1

Client ID:

Operator ID: CBW

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

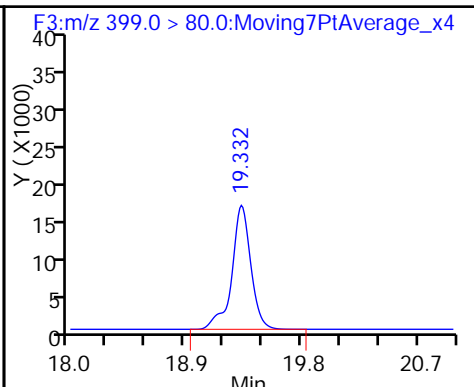
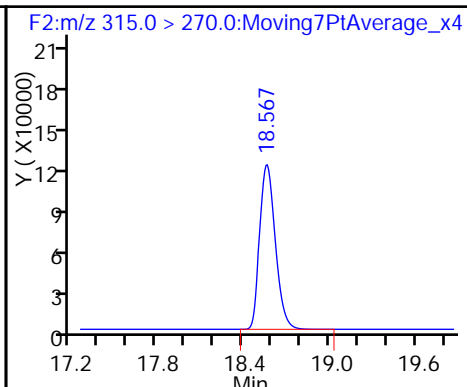
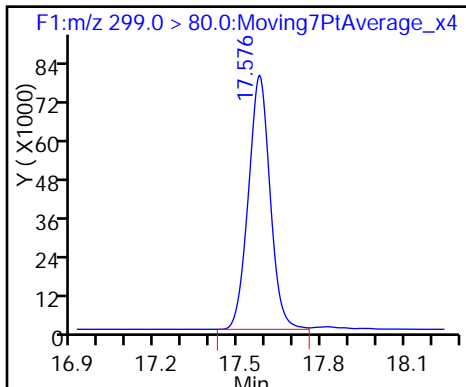
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

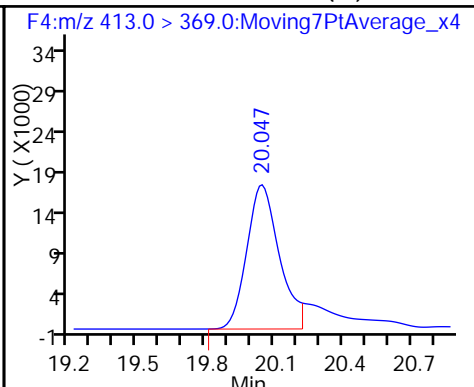
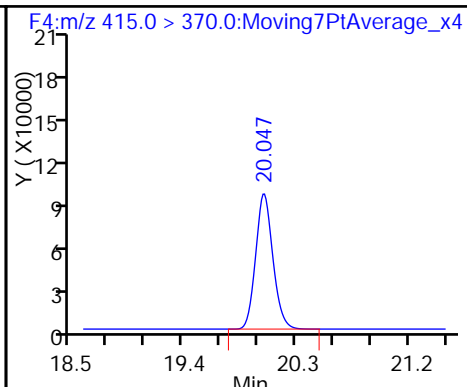
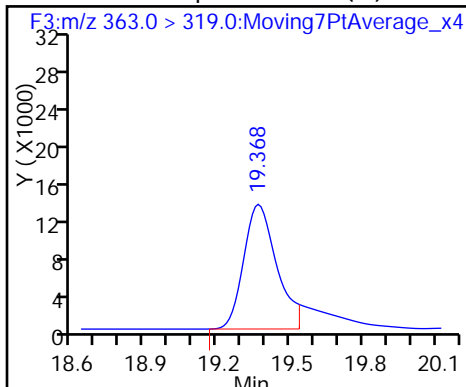
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

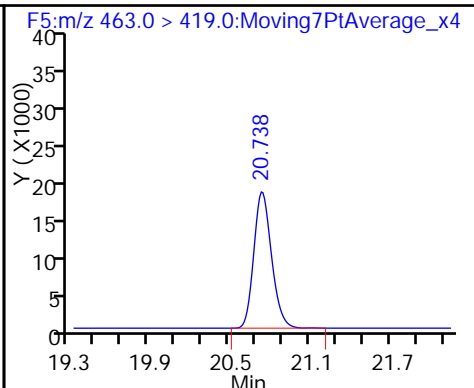
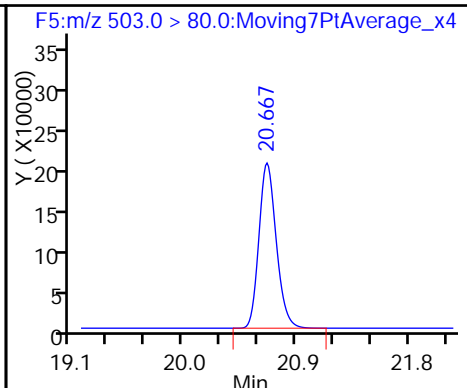
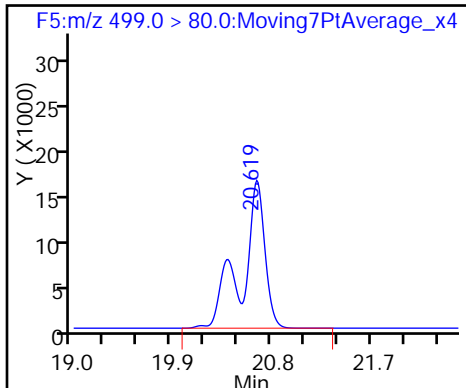
6 Perfluorooctanoic acid (M)



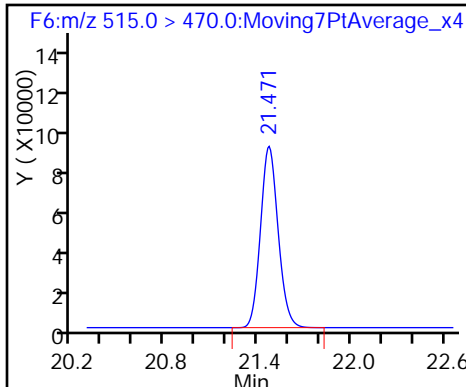
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

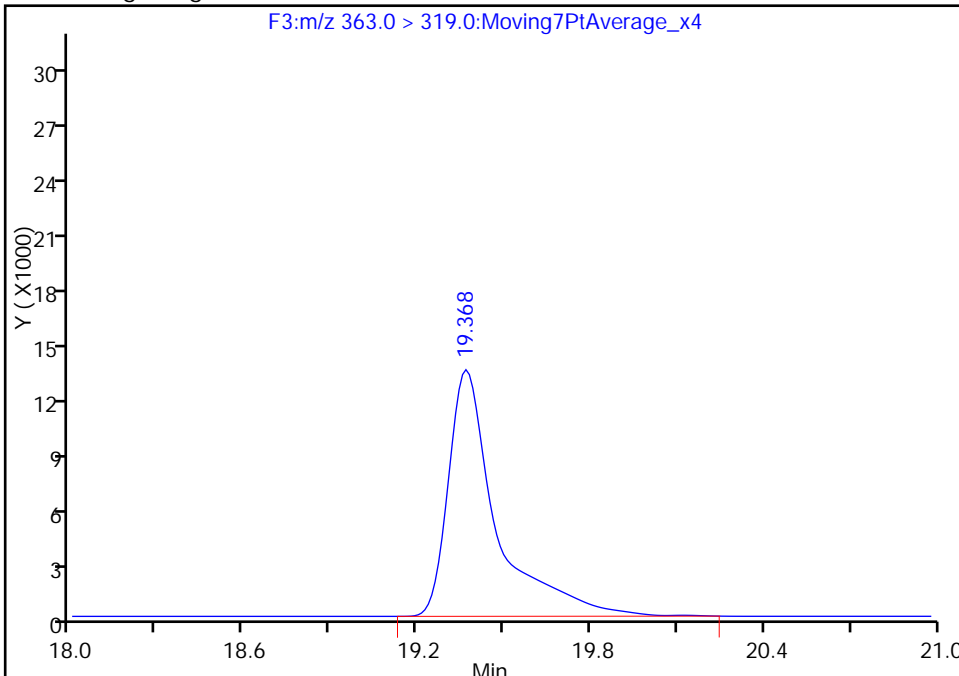
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d  
Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

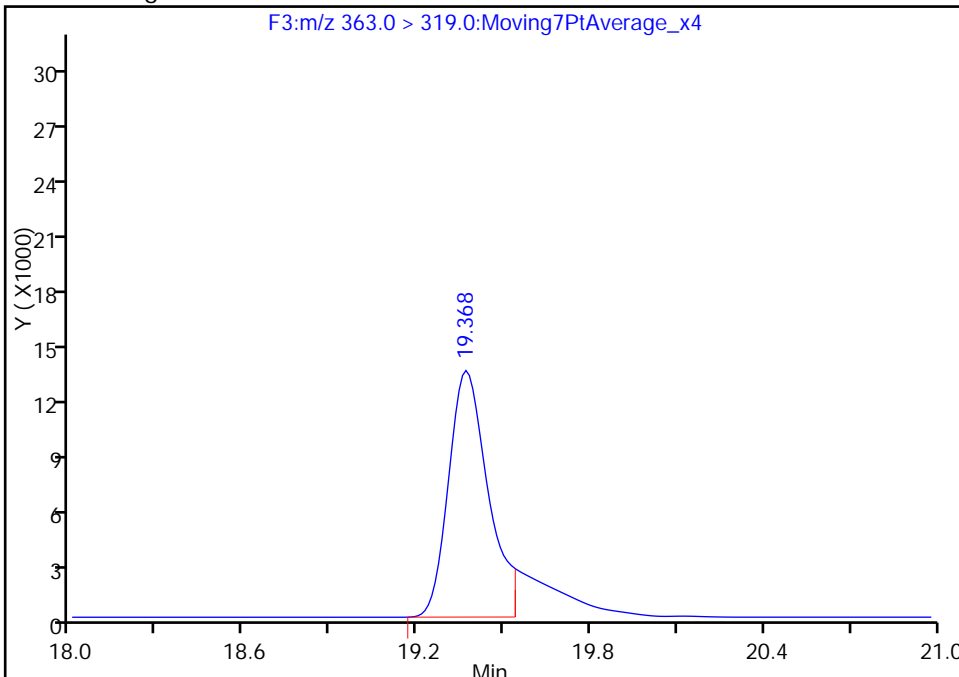
RT: 19.37  
Area: 155591  
Amount: 1.476072  
Amount Units: ng/ml

Processing Integration Results



RT: 19.37  
Area: 126557  
Amount: 1.156251  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:00:02  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

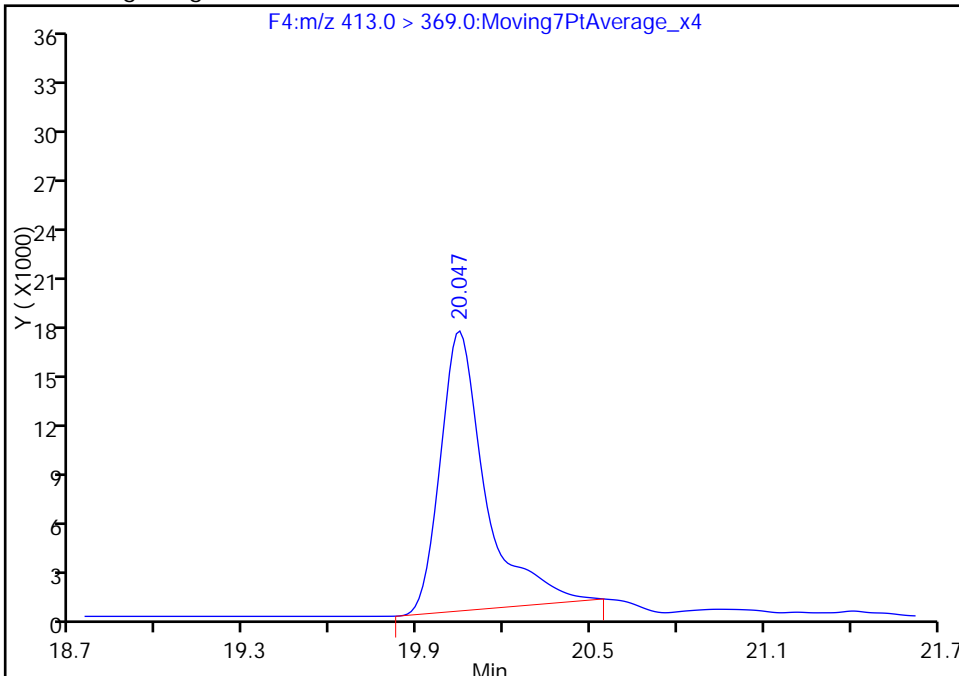
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d  
Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

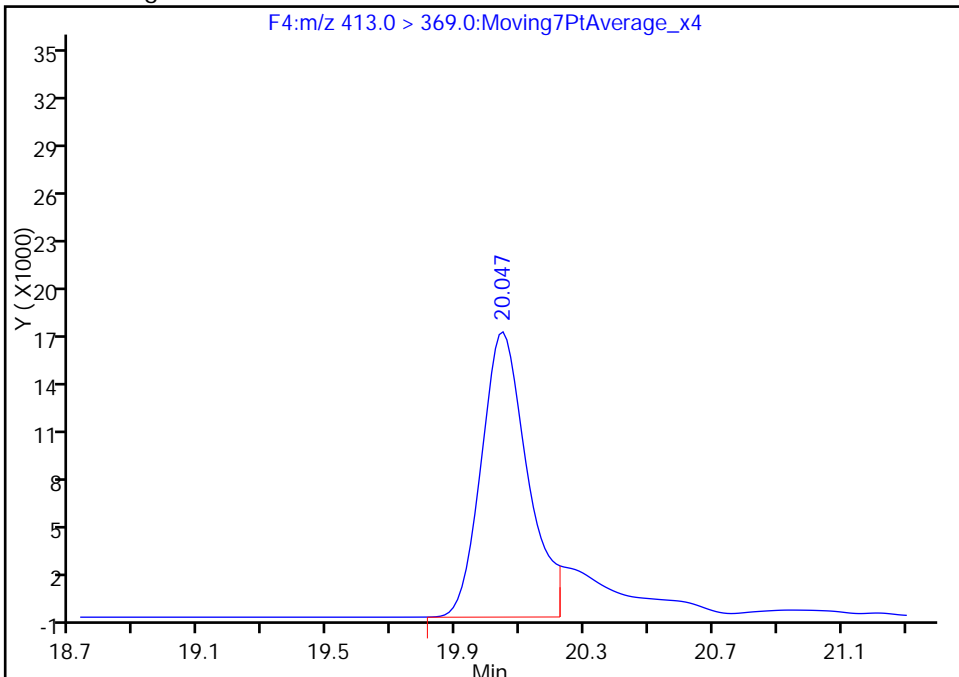
RT: 20.05  
Area: 186490  
Amount: 1.959453  
Amount Units: ng/ml

Processing Integration Results



RT: 20.05  
Area: 173304  
Amount: 1.849212  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:00:02  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d  
 Lims ID: STD L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 05-Dec-2016 17:55:38 ALS Bottle#: 2 Worklist Smp#: 3  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:35 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 09:58:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.581	0.001	1.000	1227165	21.3	5055
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1106485	9.01	35678
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	491809	6.67	11495
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	324913	2.54	155 M
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		1052273	10.0	27645
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	492431	4.50	100 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	757269	8.83	8449
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		2356620	28.7	30757
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	525061	4.40	13911
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.474	0.006	1.000	782778	8.49	24678



**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L2\_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d

Injection Date: 05-Dec-2016 17:55:38

Instrument ID: A6

Lims ID: STD L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

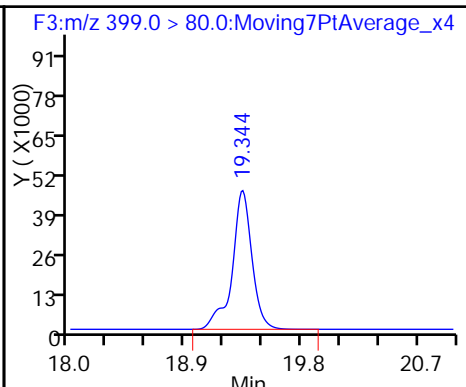
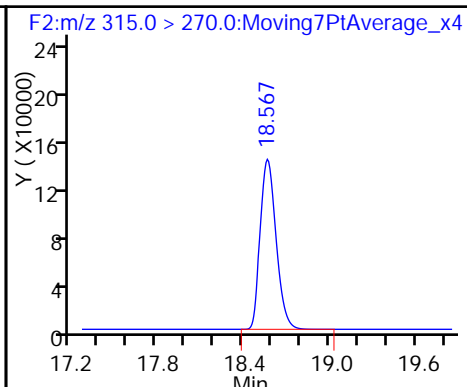
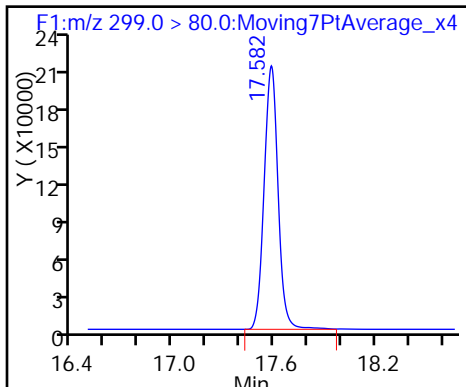
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

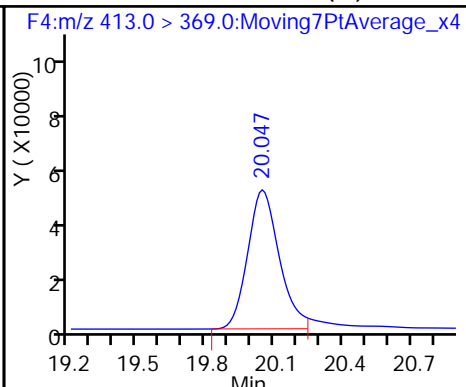
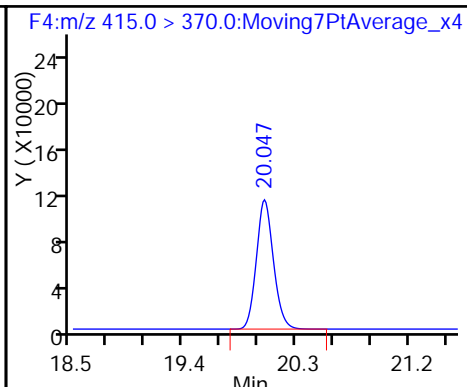
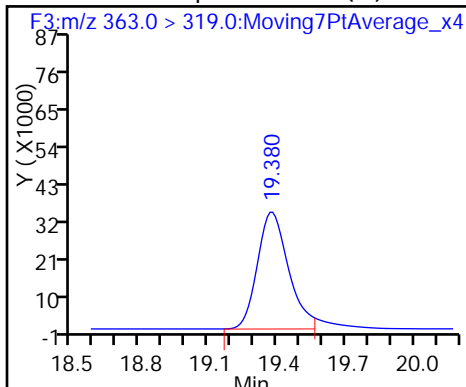
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

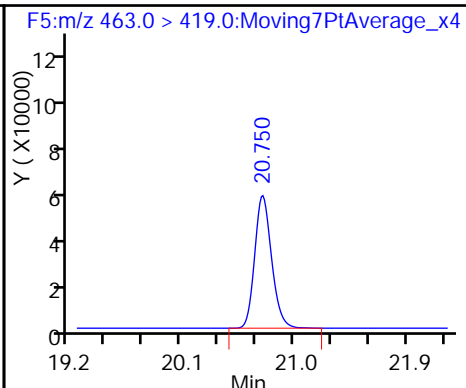
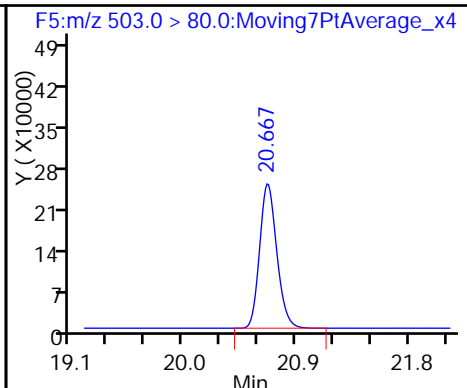
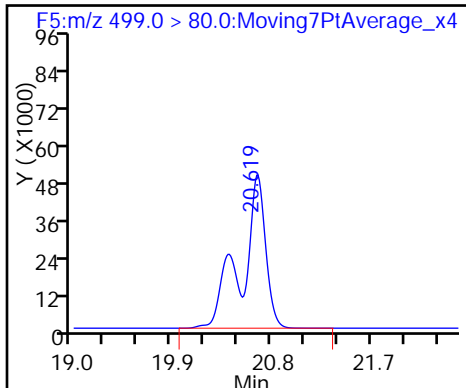
6 Perfluorooctanoic acid (M)



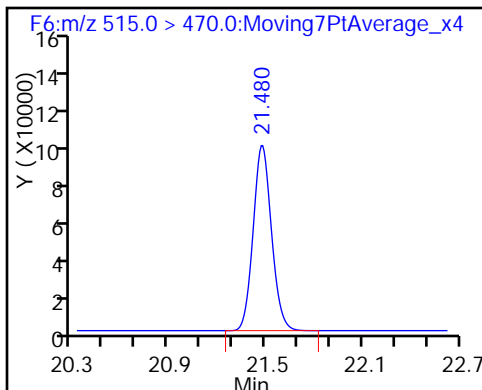
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

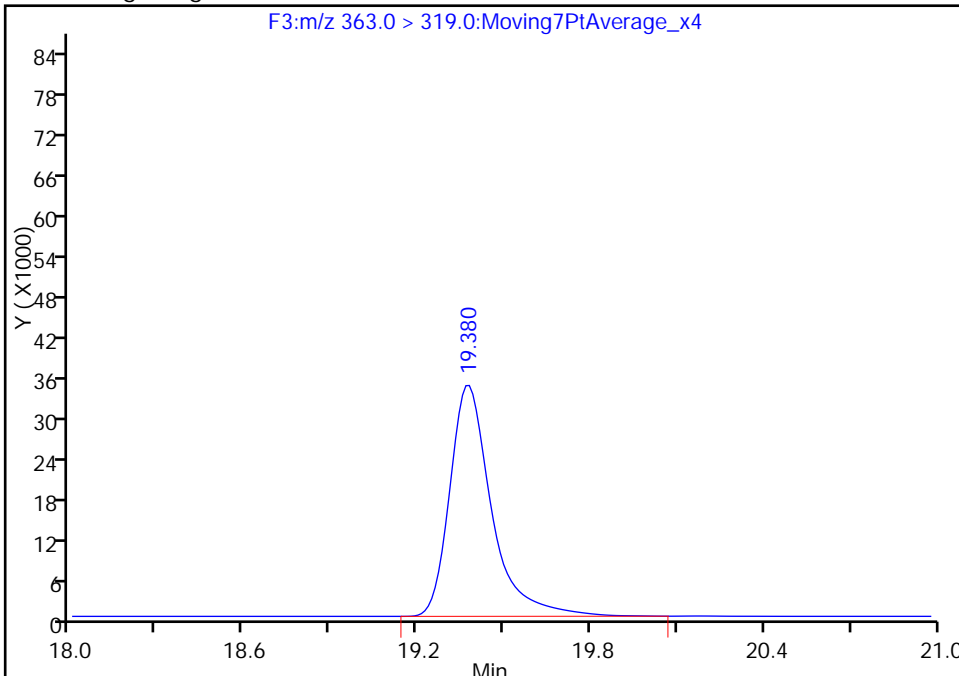
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d  
Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6  
Lims ID: STD L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

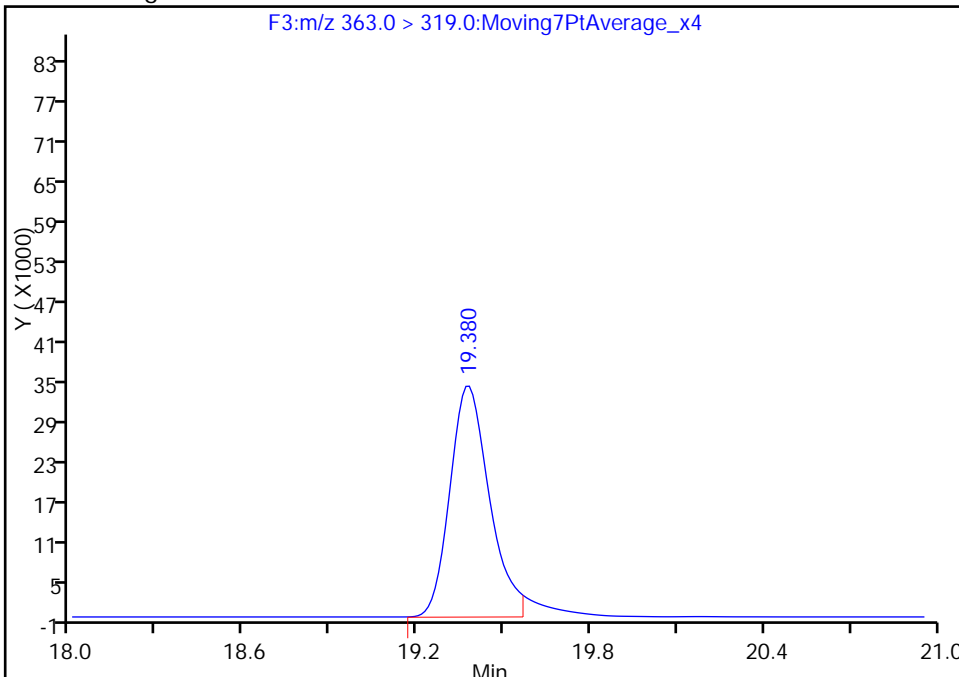
RT: 19.38  
Area: 344811  
Amount: 2.670013  
Amount Units: ng/ml

Processing Integration Results



RT: 19.38  
Area: 324913  
Amount: 2.541065  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:03:30  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

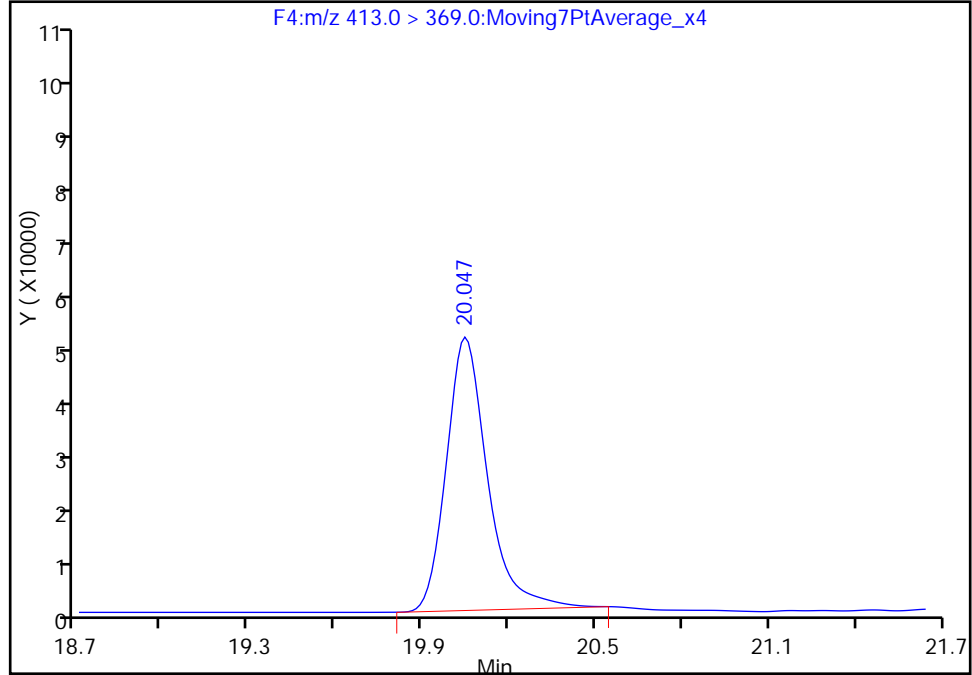
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d  
Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6  
Lims ID: STD L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

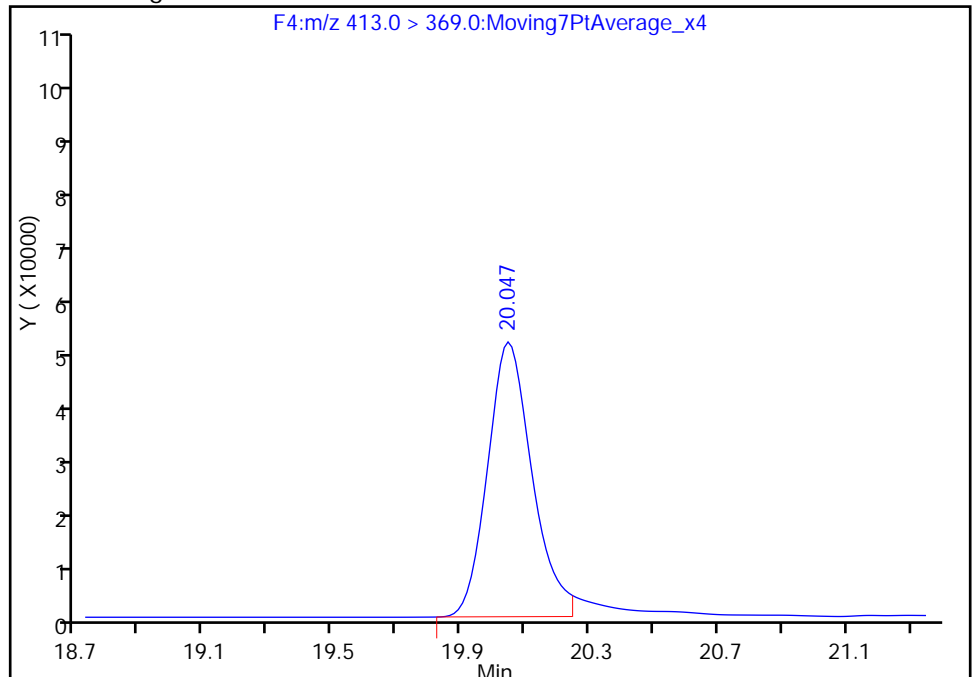
RT: 20.05  
Area: 504990  
Amount: 4.595586  
Amount Units: ng/ml

Processing Integration Results



RT: 20.05  
Area: 492431  
Amount: 4.497863  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:03:30  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_006.d  
 Lims ID: STD L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 05-Dec-2016 18:25:13 ALS Bottle#: 3 Worklist Smp#: 4  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:36 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 09:58:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.581	0.001	1.000	2489398	46.2	1804
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1261522	10.2	40506
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	1086082	15.7	25400
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	658044	5.12	4774
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		1057506	10.0	27287
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	1150281	10.5	429
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1658139	20.7	19019
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		2205243	28.7	57142
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	1245341	10.4	13210
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.474	-0.003	1.000	917302	9.90	28753

Reagents:

LC537-L3\_00016 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_006.d

Injection Date: 05-Dec-2016 18:25:13

Instrument ID: A6

Lims ID: STD L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

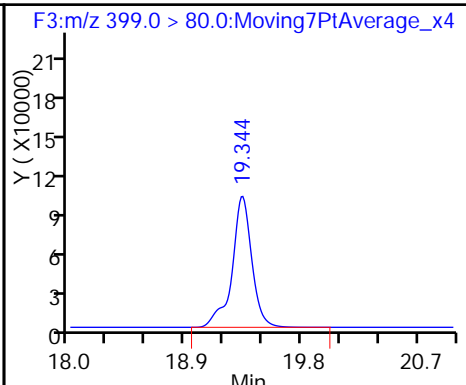
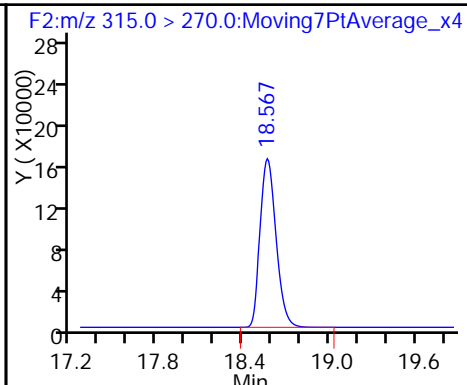
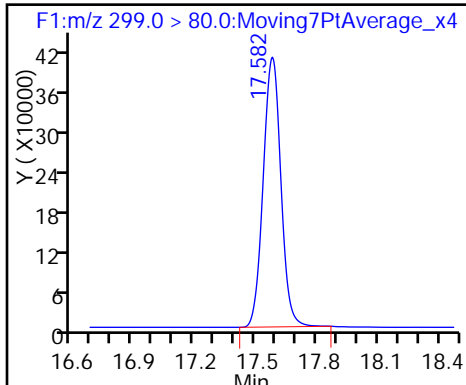
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

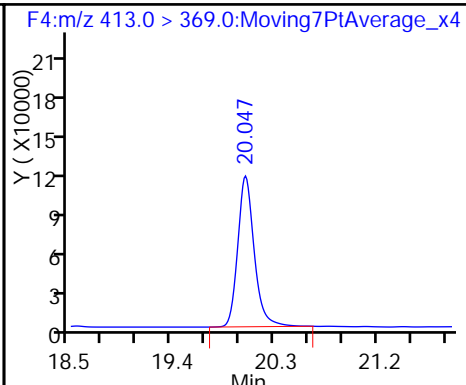
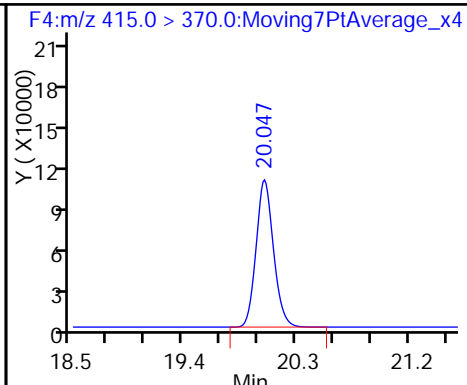
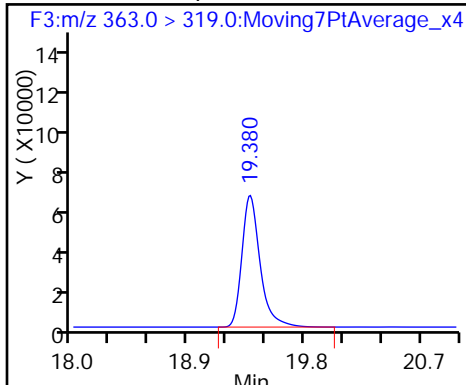
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

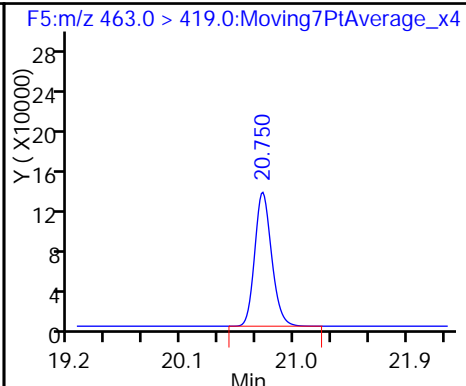
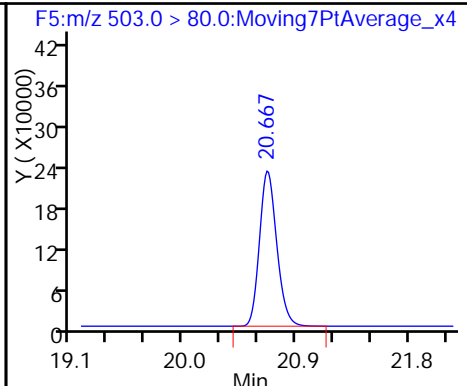
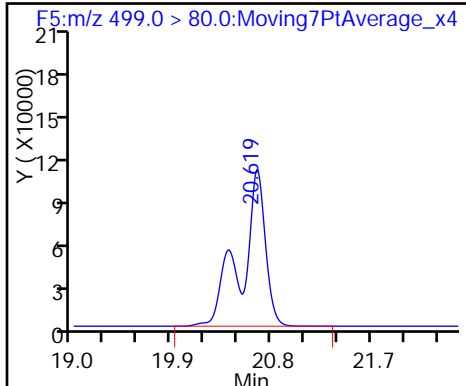
6 Perfluorooctanoic acid



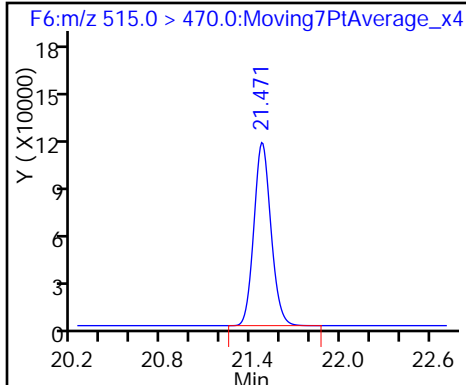
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_007.d  
 Lims ID: STD L4  
 Client ID:  
 Sample Type: ICISAV Calib Level: 4  
 Inject. Date: 05-Dec-2016 18:54:48 ALS Bottle#: 4 Worklist Smp#: 5  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:37 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 13:43:03

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

1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.579	17.581	-0.002	1.000	4401661	94.0	2768
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1117585	10.5	28676
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	1938237	32.3	25196
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	1121930	10.2	12796
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		908727	10.0	23744
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	2096404	22.2	516
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	2969550	42.6	9704
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		1914415	28.7	28032
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	2227031	21.6	23494
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.474	-0.003	1.000	822787	10.3	25796

Reagents:

LC537-L4\_00015 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_007.d

Injection Date: 05-Dec-2016 18:54:48

Instrument ID: A6

Lims ID: STD L4

Client ID:

Operator ID: CBW

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

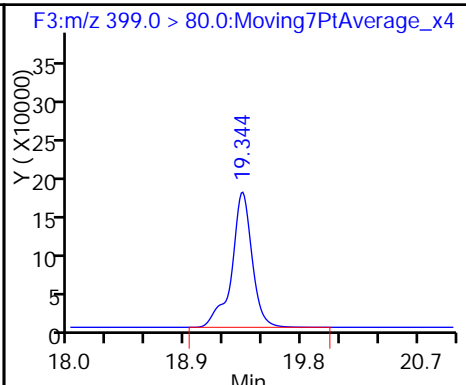
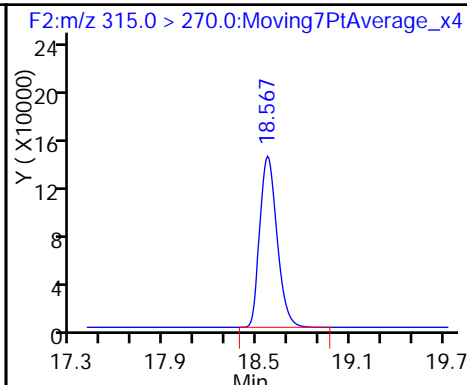
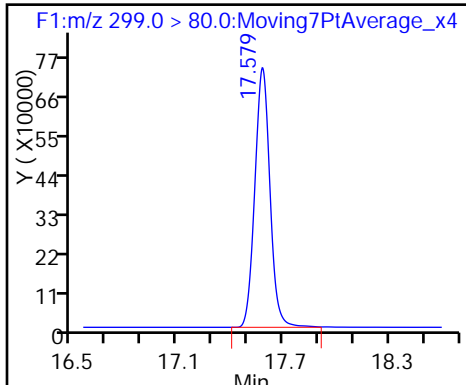
Method: 537\_\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

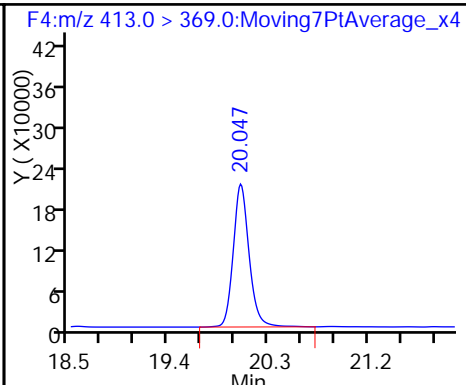
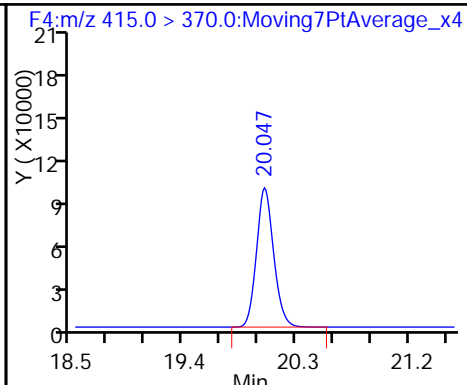
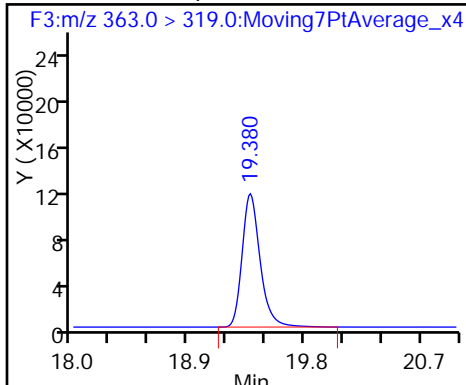
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

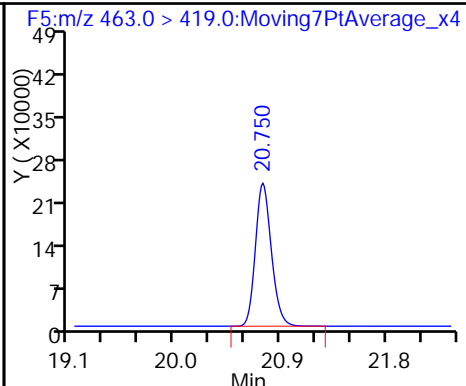
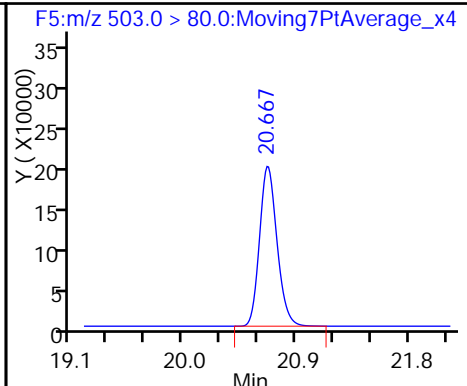
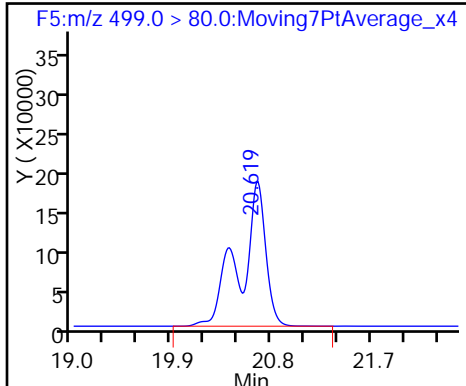
6 Perfluorooctanoic acid



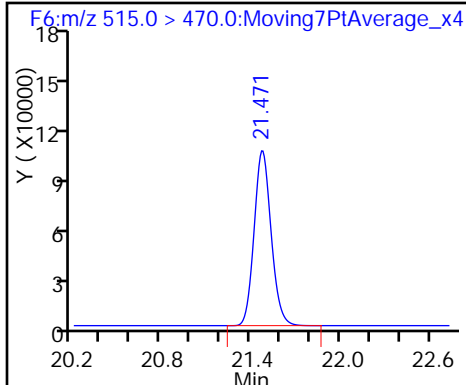
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_008.d  
 Lims ID: STD L5  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 05-Dec-2016 19:24:23 ALS Bottle#: 5 Worklist Smp#: 6  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:38 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.581	0.001	1.000	6630132	140.5	3208
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1240474	11.0	39454
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	3077974	51.0	14553
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	1727957	14.7	6886
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		969779	10.0	24964
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	3285195	32.6	1114
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.620	20.619	0.001	1.000	4906017	69.9	10146
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.669	0.010		1929192	28.7	32805
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	3558831	32.4	16307
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.474	0.006	1.000	957025	11.3	30231

Reagents:

LC537-L5\_00017 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_008.d

Injection Date: 05-Dec-2016 19:24:23

Instrument ID: A6

Lims ID: STD L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

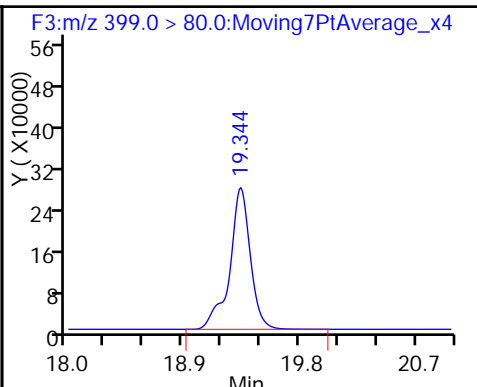
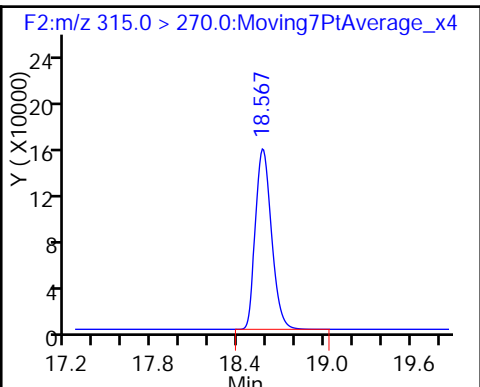
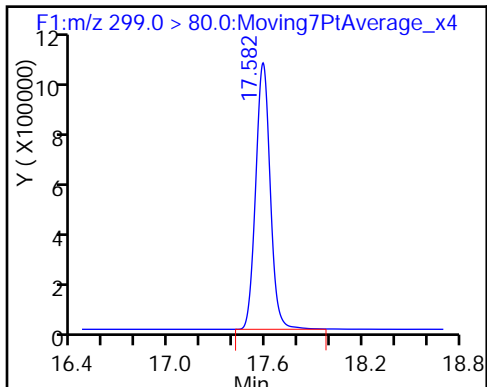
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

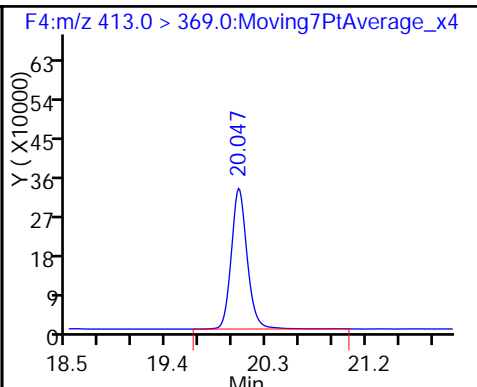
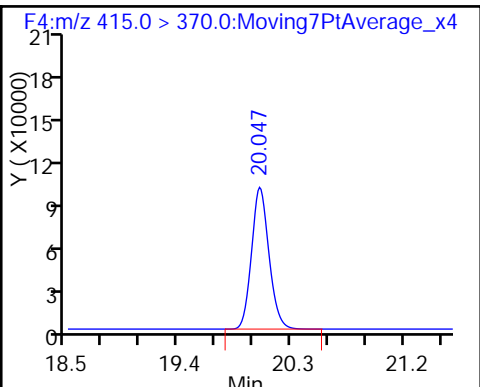
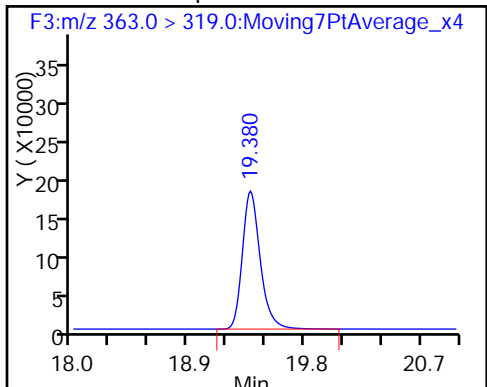
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

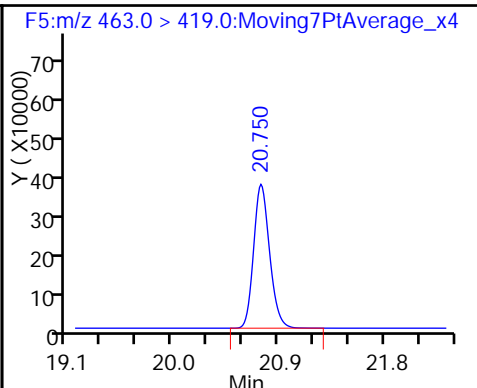
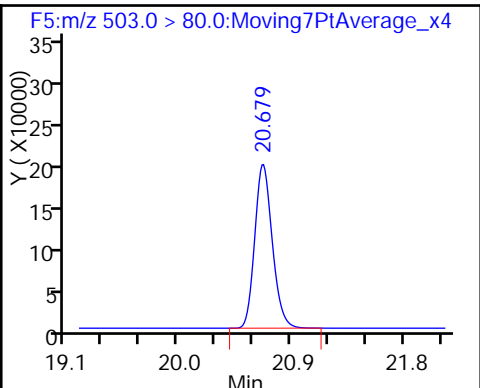
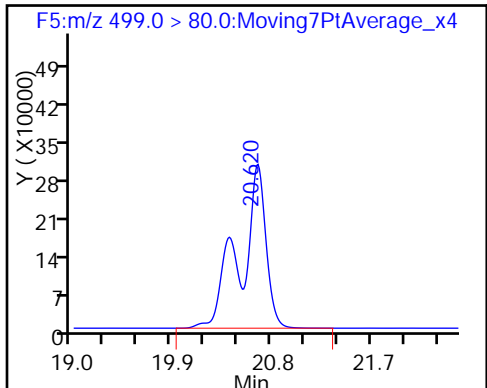
6 Perfluorooctanoic acid



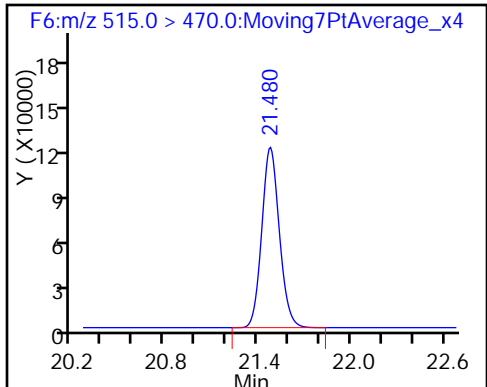
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Lims ID: STD L6  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 05-Dec-2016 19:54:00 ALS Bottle#: 6 Worklist Smp#: 7  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:39 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.581	0.001	1.000	7753569	166.9	8570
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1095977	10.4	34796
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	3556638	59.8	31299
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	2032288	18.5	6367
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		906416	10.0	23083
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	3876381	41.1	917
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	5775285	83.5	12991
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		1899408	28.7	17628
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	4124664	40.1	17939
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.474	-0.003	1.000	857144	10.8	26862

Reagents:

LC537-L6\_00014 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d

Injection Date: 05-Dec-2016 19:54:00

Instrument ID: A6

Lims ID: STD L6

Client ID:

Operator ID: CBW

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

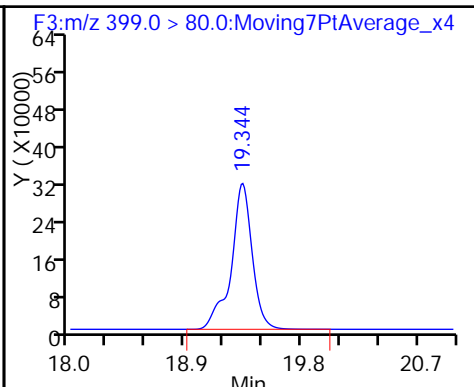
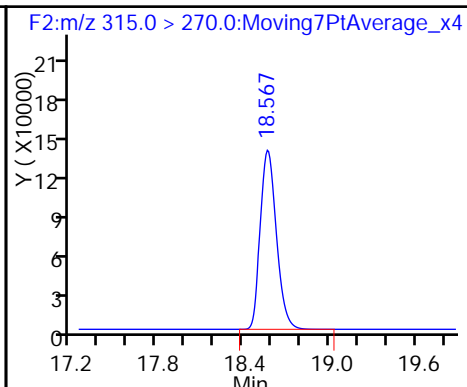
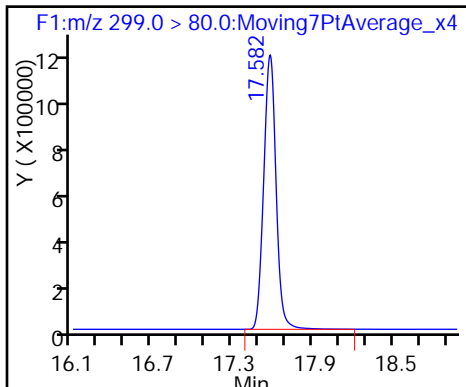
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

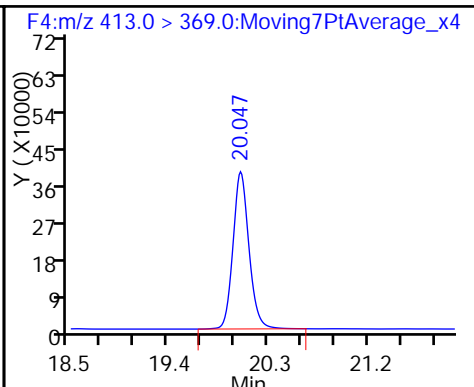
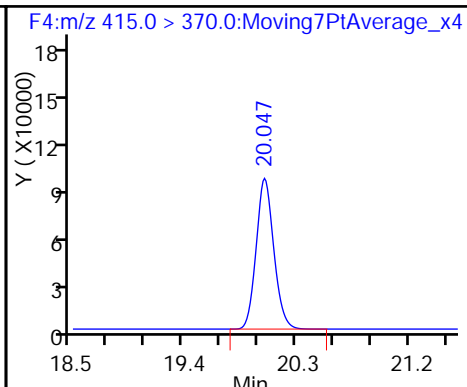
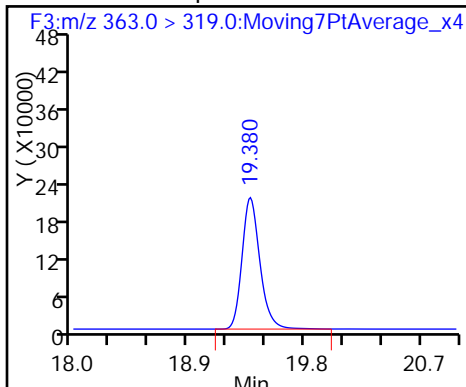
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

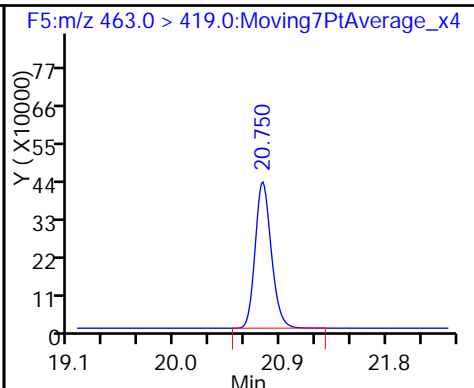
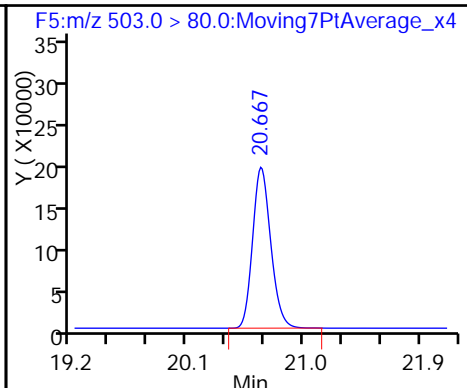
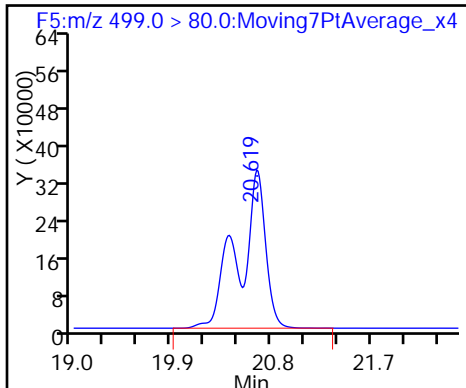
6 Perfluorooctanoic acid



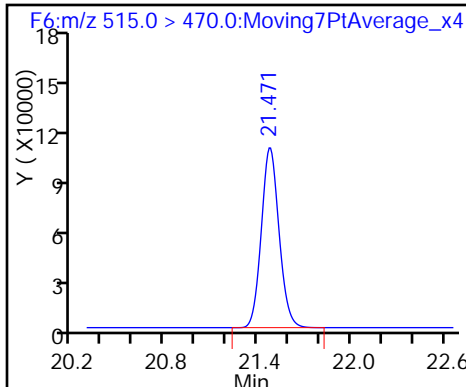
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140688/9 Calibration Date: 12/05/2016 20:53  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 05DEC2016A6A\_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	0.7015	0.6306		20.6	22.9	-10.1	50.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.7822		6.72	7.72	-12.9	50.0
Perfluoroheptanoic acid	Ave	1.215	1.239		2.65	2.60	1.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	0.9133		4.54	5.17	-12.2	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8902		8.71	10.2	-14.7	50.0
Perfluorononanoic acid	Ave	1.134	1.093		4.83	5.01	-3.6	50.0
13C2 PFHxA	Ave	1.167	1.081		9.27	10.0	-7.3	30.0
13C2 PFDA	Ave	0.8763	0.8211		9.37	10.0	-6.3	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_011.d  
 Lims ID: CCV L2  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 05-Dec-2016 20:53:12 ALS Bottle#: 2 Worklist Smp#: 9  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:35:40 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 10:08:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.586	17.581	0.005	1.000	1186753	20.6	693
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1108698	9.27	35970
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	496197	6.72	11535
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	329772	2.65	166 M
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		1025187	10.0	21492
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	484196	4.54	93.2 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	747766	8.71	8549
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		2358079	28.7	20478
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	561371	4.83	15032
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.474	-0.003	1.000	841818	9.37	26813

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L2\_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_011.d

Injection Date: 05-Dec-2016 20:53:12

Instrument ID: A6

Lims ID: CCV L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 9

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

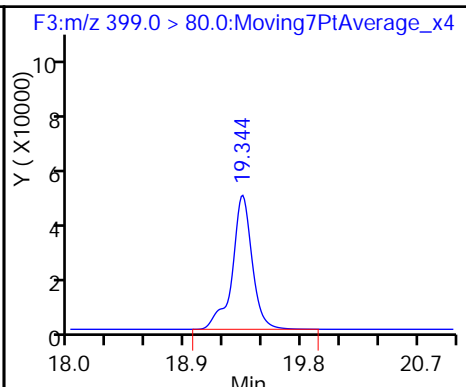
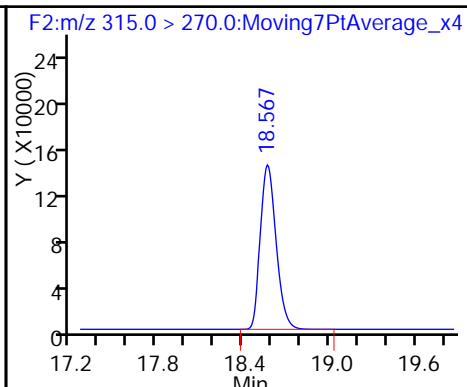
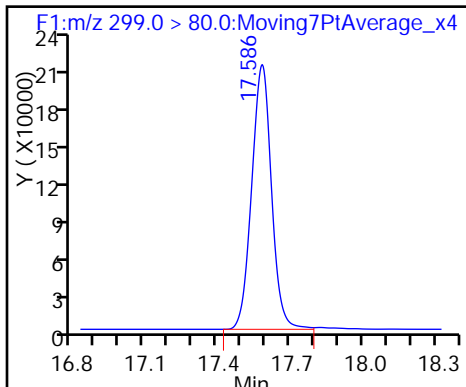
Method: 537\_\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

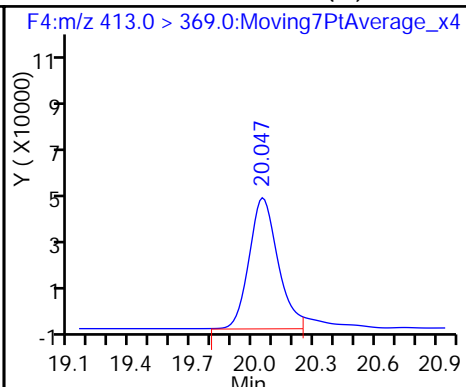
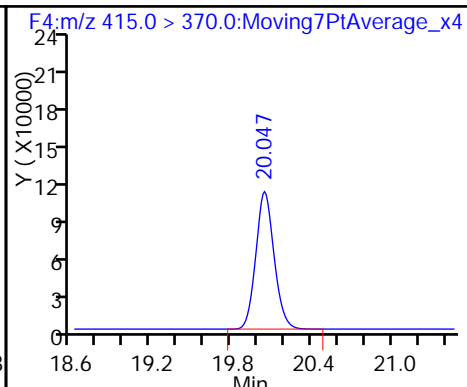
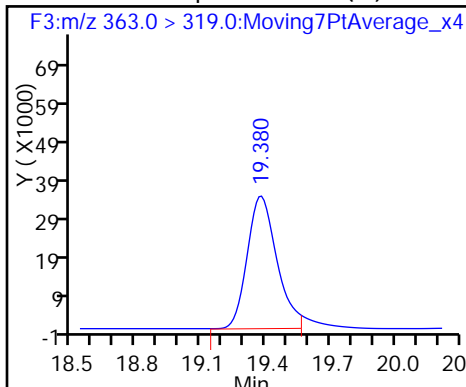
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

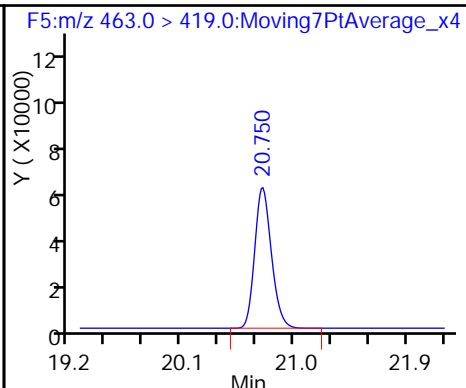
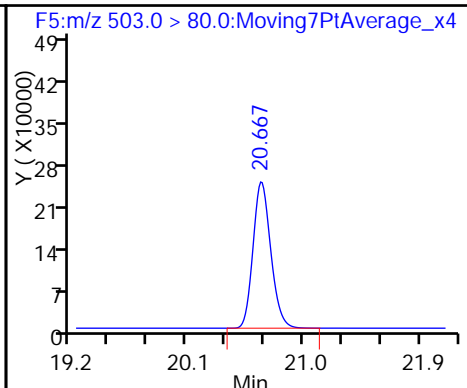
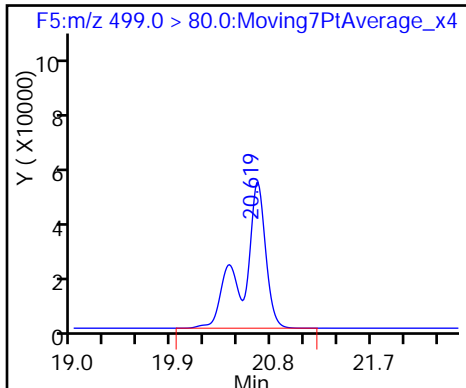
6 Perfluorooctanoic acid (M)



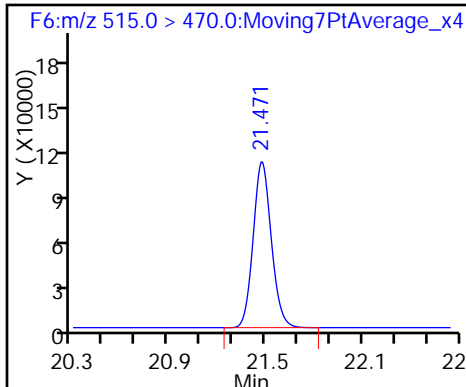
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

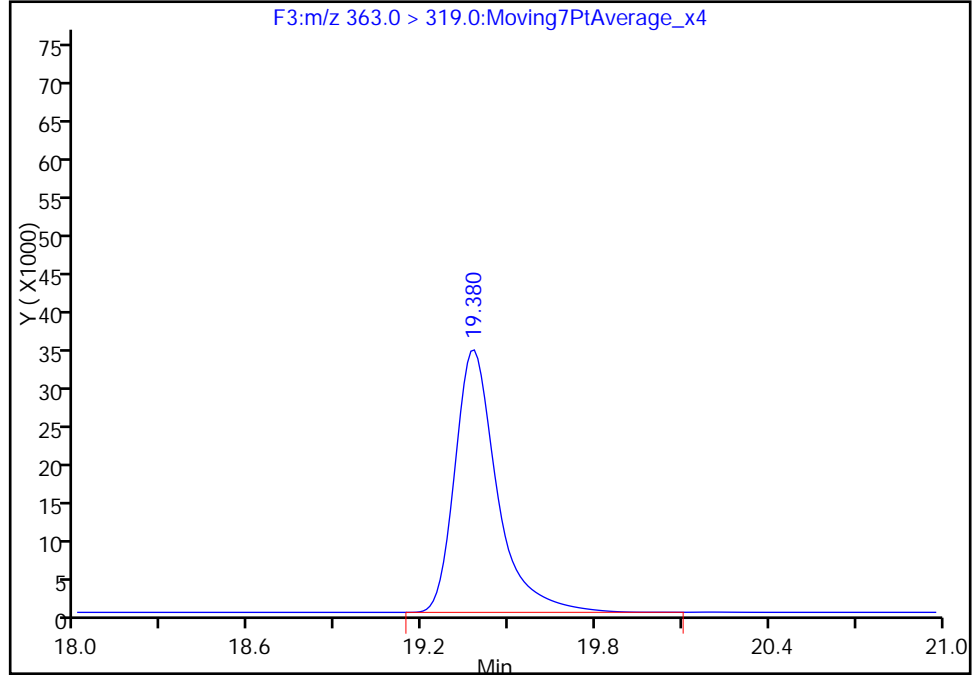
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_011.d  
Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F3:M/RM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

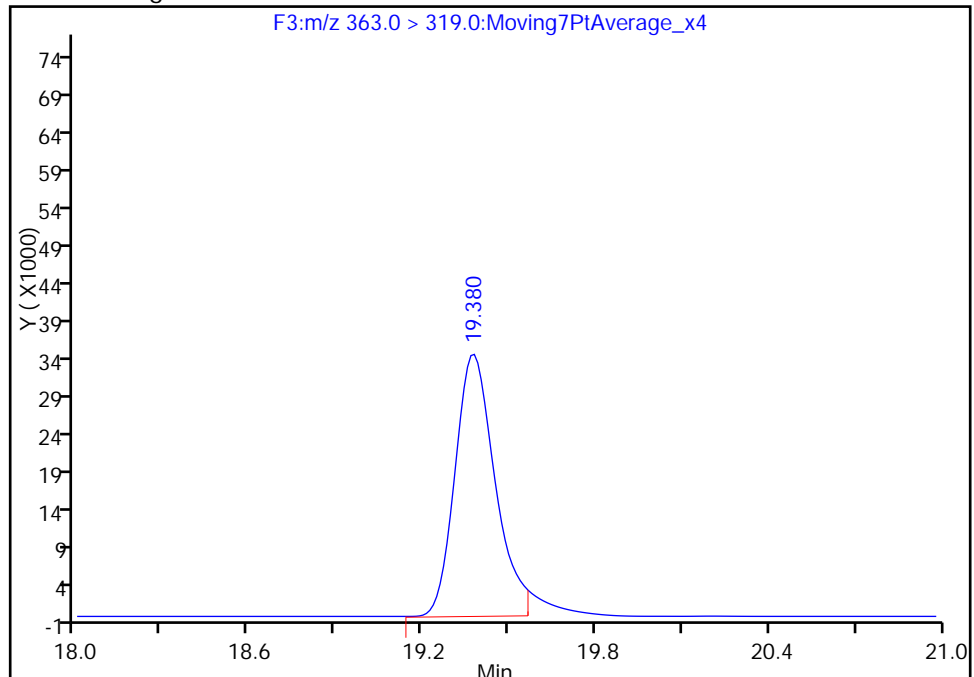
RT: 19.38  
Area: 349162  
Amount: 2.802857  
Amount Units: ng/ml

Processing Integration Results



RT: 19.38  
Area: 329772  
Amount: 2.647206  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:08:33  
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

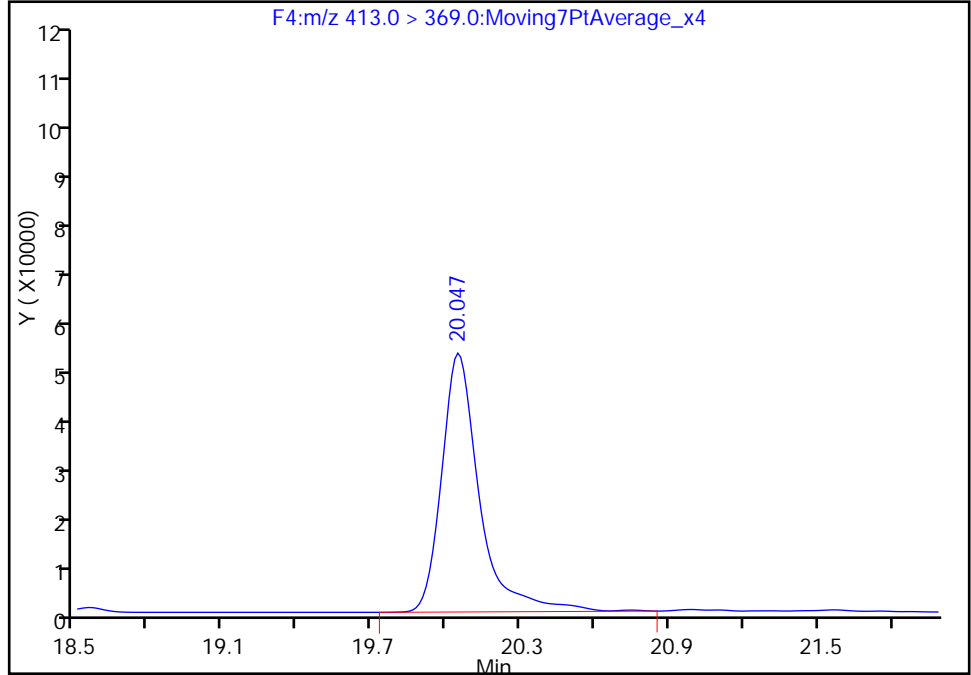
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_011.d  
Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

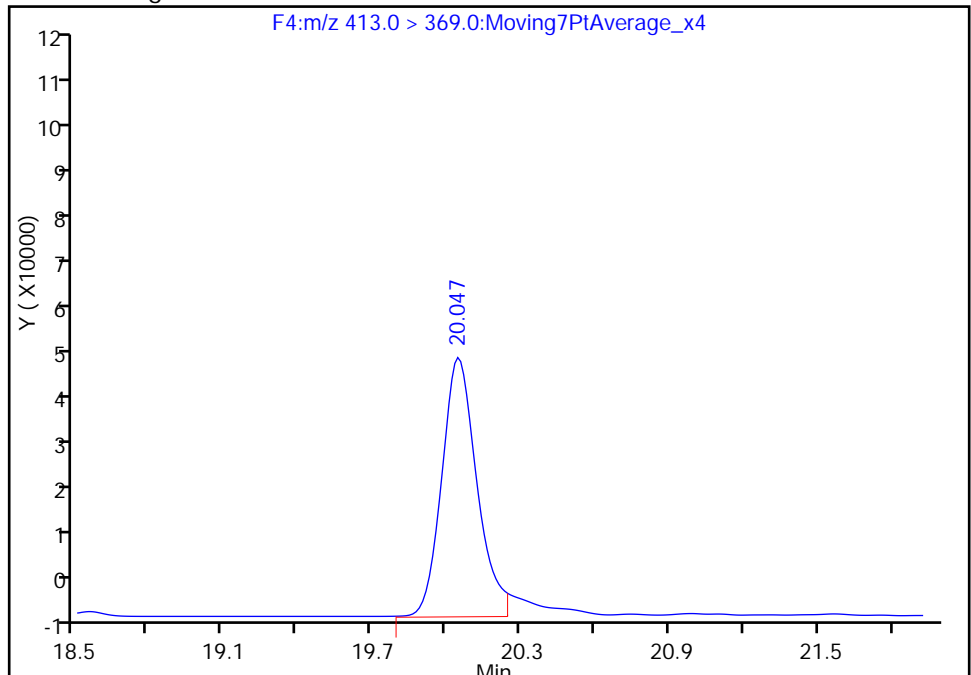
RT: 20.05  
Area: 520603  
Amount: 4.880820  
Amount Units: ng/ml

Processing Integration Results



RT: 20.05  
Area: 484196  
Amount: 4.539493  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:08:33  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-140688/11 Calibration Date: 12/05/2016 21:52  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 05DEC2016A6A\_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	0.7015	0.5756		94.2	115	-18.0	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.6976		20.6	26.5	-22.3	30.0
Perfluoroheptanoic acid	Ave	1.215	1.155		11.9	12.5	-4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	0.9604		23.2	25.1	-7.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8424		22.0	27.2	-19.3	30.0
Perfluorononanoic acid	Ave	1.134	0.9316		20.6	25.1	-17.9	30.0
13C2 PFHxA	Ave	1.167	1.079		9.25	10.0	-7.5	30.0
13C2 PFDA	Ave	0.8763	0.8628		9.85	10.0	-1.5	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_013.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 05-Dec-2016 21:52:24 ALS Bottle#: 7 Worklist Smp#: 11  
 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\20161205-37524.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 06-Dec-2016 16:53:23 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d

Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 16:34:53

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

1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.582	17.581	0.001	1.000	4641388	94.2	8629
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	946677	9.25	29673
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.342	0.002	1.000	1298107	20.6	29738
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.378	0.002	1.000	1267011	11.9	9991
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		877210	10.0	22431
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	2114272	23.2	647
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1612191	22.0	13496
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.669	-0.002		2015178	28.7	51574
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.748	0.002	1.000	2051048	20.6	7161
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.474	0.006	1.000	756809	9.85	23714

Reagents:

LC537-ICV\_00017 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_013.d

Injection Date: 05-Dec-2016 21:52:24

Instrument ID: A6

Lims ID: ICV

Client ID:

Operator ID: CBW

ALS Bottle#: 7

Worklist Smp#: 11

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

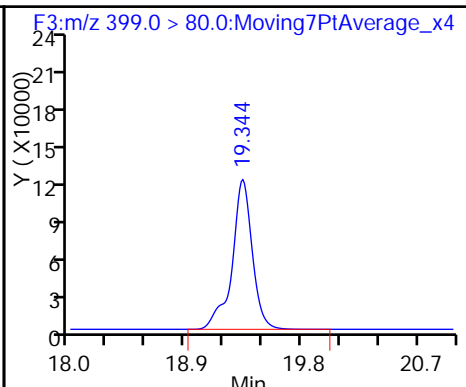
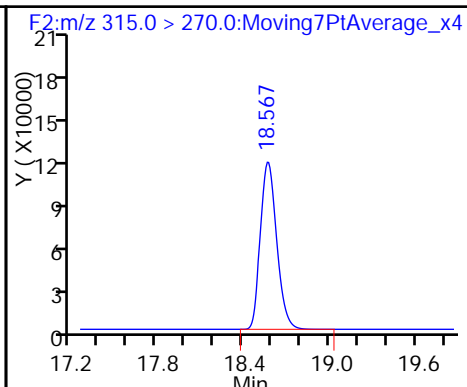
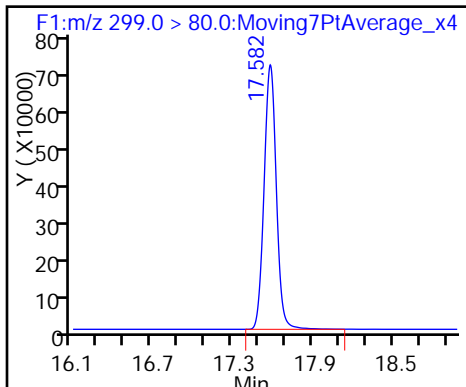
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

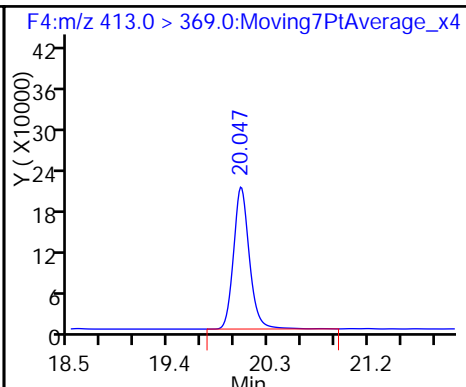
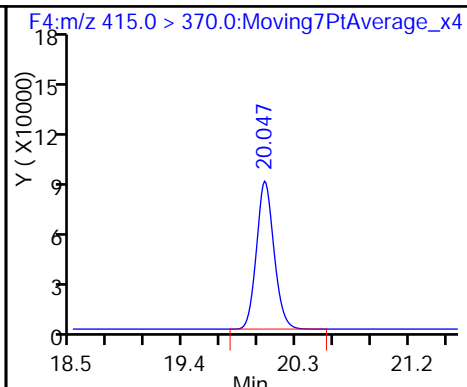
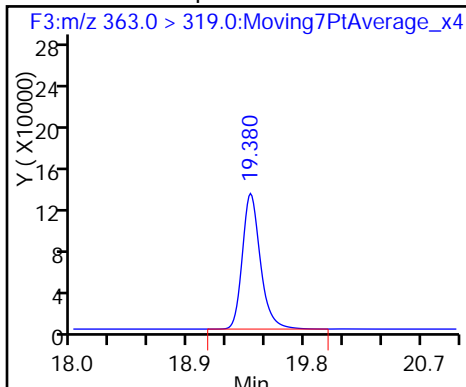
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

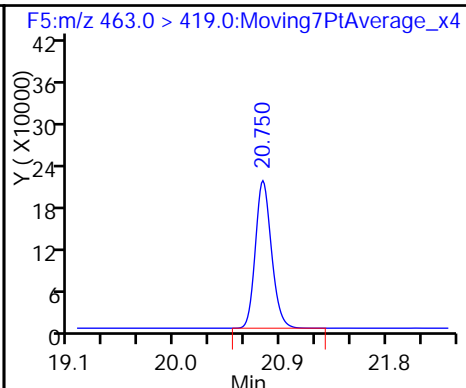
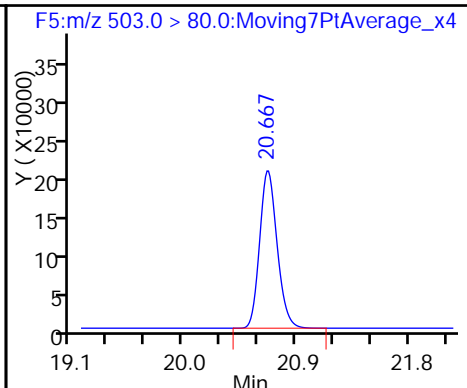
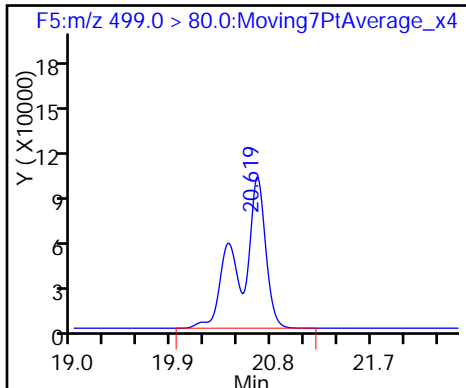
6 Perfluorooctanoic acid



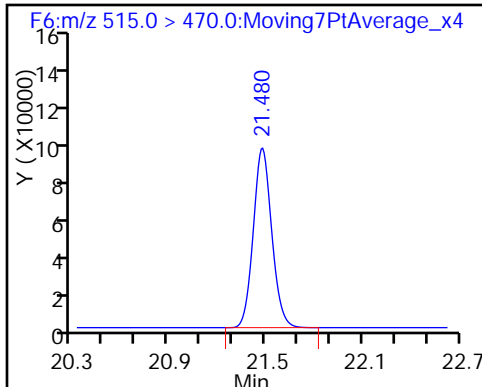
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141573/3 Calibration Date: 12/11/2016 12:02  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 11DEC2016A6A\_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.6477		21.1	22.9	-7.7	50.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.7642		6.57	7.72	-14.9	50.0
Perfluoroheptanoic acid	Ave	1.215	1.413		3.02	2.60	16.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.044		5.19	5.17	0.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8884		8.69	10.2	-14.9	50.0
Perfluorononanoic acid	Ave	1.134	1.098		4.85	5.01	-3.2	50.0
13C2 PFHxA	Ave	1.167	1.108		9.50	10.0	-5.0	30.0
13C2 PFDA	Ave	0.8763	0.7903		9.02	10.0	-9.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_003.d  
 Lims ID: CCV L2  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 11-Dec-2016 12:02:56 ALS Bottle#: 2 Worklist Smp#: 3  
 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\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:28 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: westendorfc Date: 11-Dec-2016 12:36:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.612	17.612	0.0	1.000	949190	21.1	569
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	889175	9.50	27996
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	377563	6.57	8685
4 Perfluoroheptanoic acid	363.0 > 319.0	19.391	19.391	0.0	1.000	294373	3.02	4026
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		802153	10.0	20748
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	432862	5.19	181
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	581183	8.69	5853
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1836390	28.7	27361
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	441361	4.85	3888
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	633909	9.02	19884

Reagents:

LC537-L2\_00014 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_003.d

Injection Date: 11-Dec-2016 12:02:56

Instrument ID: A6

Lims ID: CCV L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

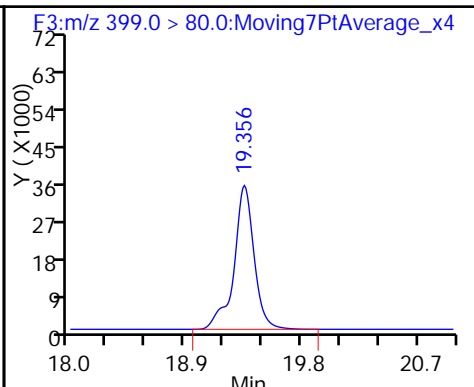
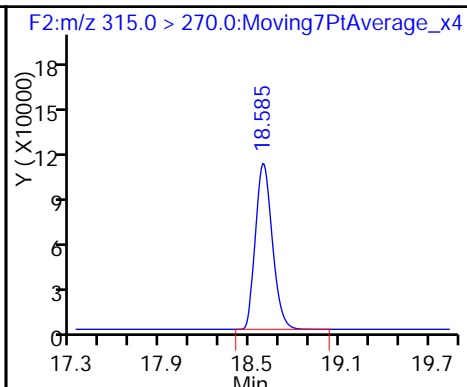
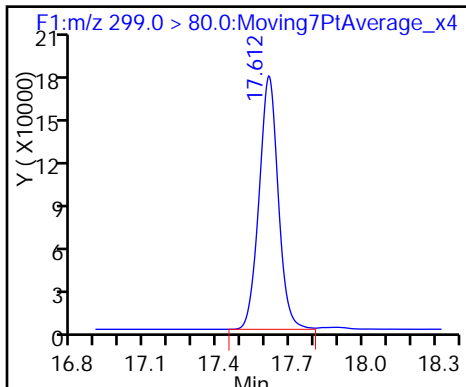
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

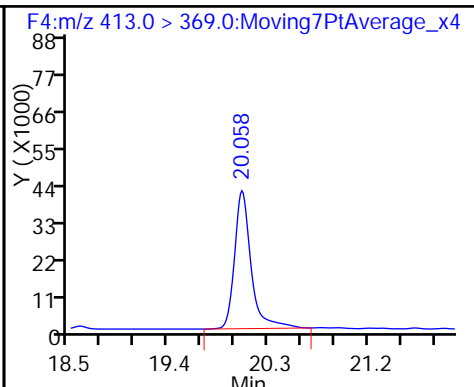
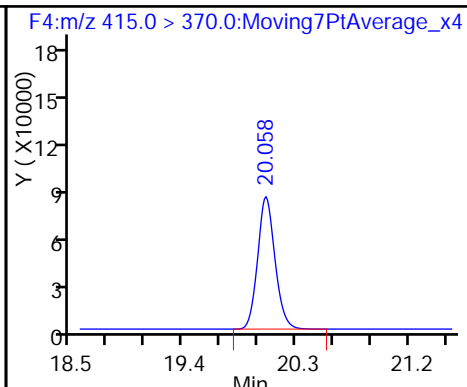
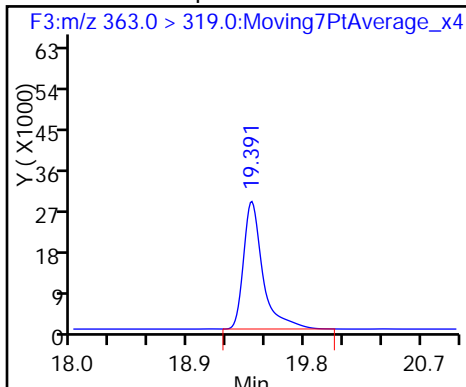
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

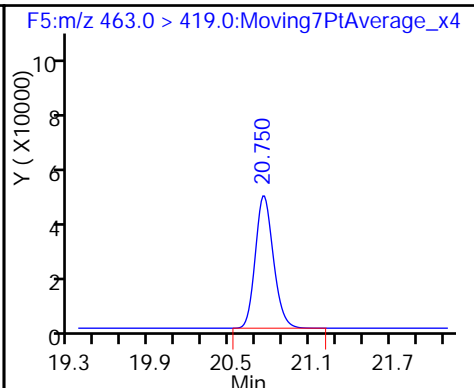
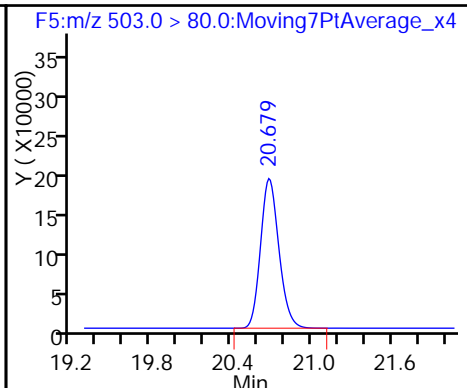
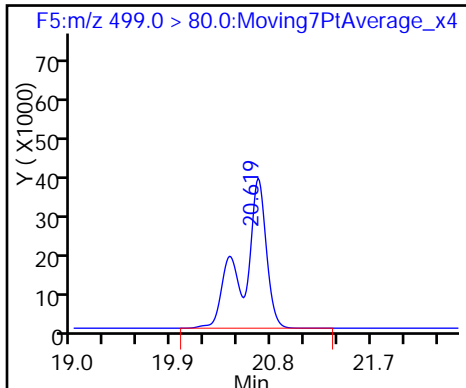
6 Perfluorooctanoic acid



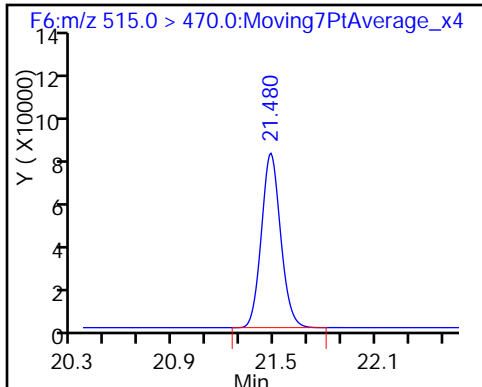
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141573/4 Calibration Date: 12/11/2016 12:32  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 11DEC2016A6A\_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7094		136	135	1.1	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	1.006		50.9	45.4	12.1	30.0
Perfluoroheptanoic acid	Ave	1.215	1.198		15.1	15.3	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.111		32.5	30.4	6.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.179		67.8	60.1	12.9	30.0
Perfluorononanoic acid	Ave	1.134	1.179		30.6	29.5	3.9	30.0
13C2 PFHxA	Ave	1.167	1.324		11.4	10.0	13.5	30.0
13C2 PFDA	Ave	0.8763	0.9513		10.9	10.0	8.6	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_004.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 11-Dec-2016 12:32:31 ALS Bottle#: 5 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5 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\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

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

1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.611	17.611	0.0	1.000	5924235	136.2	7103
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1192925	11.4	38299
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	2833340	50.9	25601
4 Perfluoroheptanoic acid	363.0 > 319.0	19.391	19.391	0.0	1.000	1648862	15.1	5901
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		900761	10.0	23241
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	3044806	32.5	748
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4393612	67.8	5235
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1778917	28.7	16519
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	3128230	30.6	15591
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	856896	10.9	27089

Reagents:

LC537-L5\_00017 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_004.d

Injection Date: 11-Dec-2016 12:32:31

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 4

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

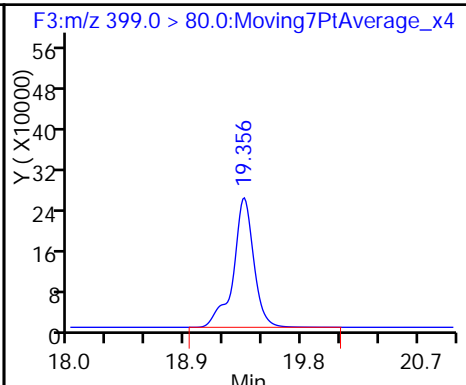
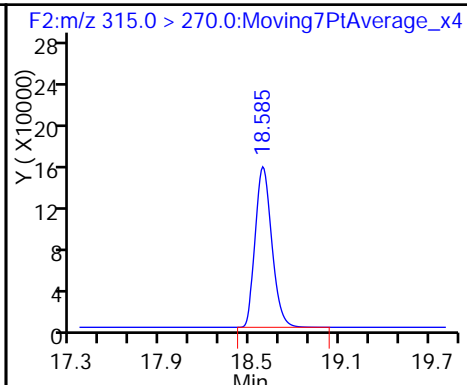
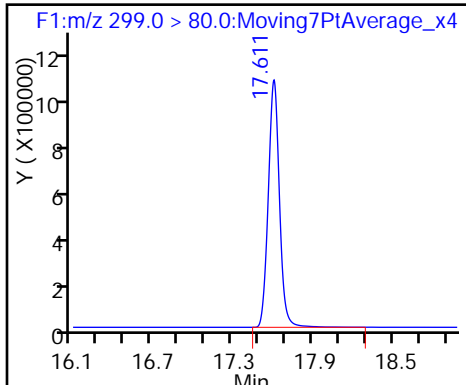
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

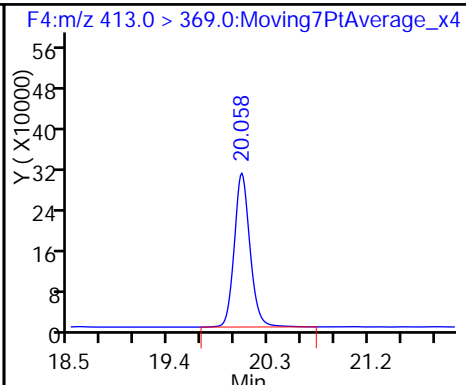
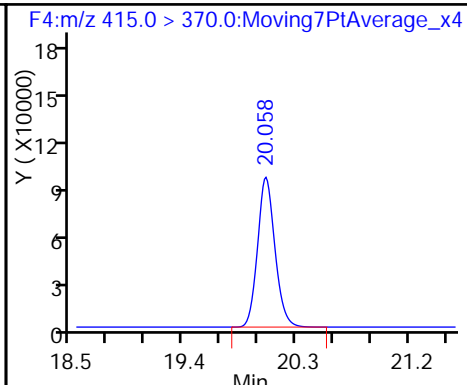
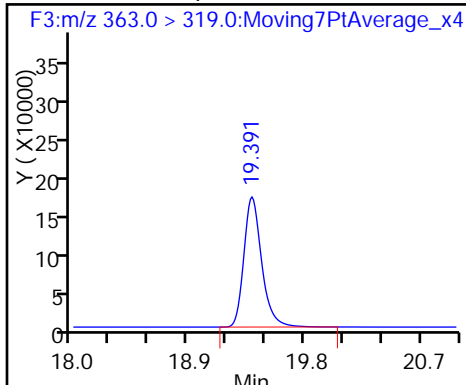
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

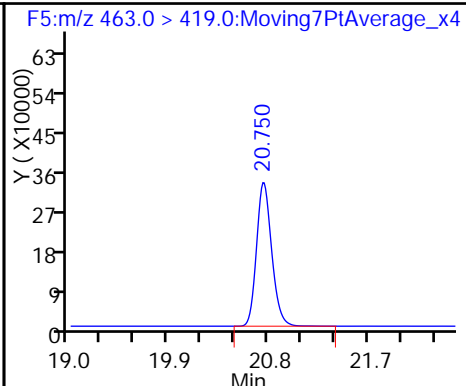
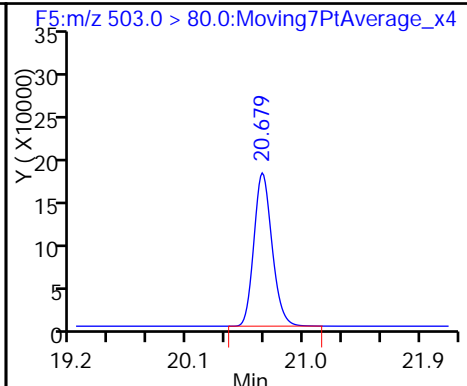
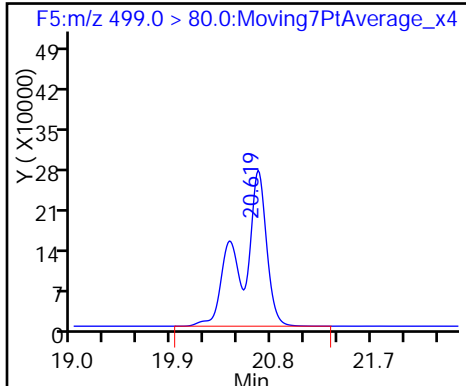
6 Perfluorooctanoic acid



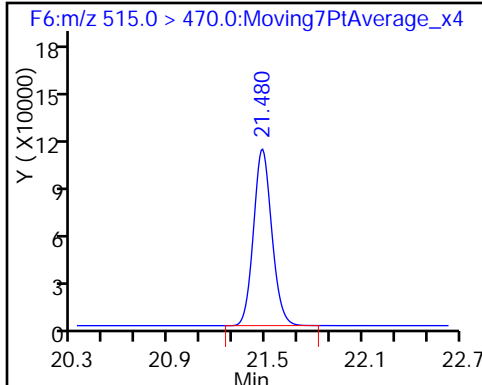
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141573/17 Calibration Date: 12/11/2016 18:57  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 11DEC2016A6A\_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7477		48.1	45.1	6.6	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9640		16.3	15.2	7.4	30.0
Perfluoroheptanoic acid	Ave	1.215	1.333		5.61	5.12	9.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.051		10.3	10.2	1.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.062		20.5	20.1	1.7	30.0
Perfluorononanoic acid	Ave	1.134	1.172		10.2	9.87	3.3	30.0
13C2 PFHxA	Ave	1.167	1.173		10.1	10.0	0.5	30.0
13C2 PFDA	Ave	0.8763	0.8911		10.2	10.0	1.7	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141574/17 Calibration Date: 12/11/2016 18:57  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 11DEC2016A6A\_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7477		48.1	45.1	6.6	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9640		16.3	15.2	7.4	30.0
Perfluoroheptanoic acid	Ave	1.215	1.333		5.61	5.12	9.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.051		10.3	10.2	1.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.062		20.5	20.1	1.7	30.0
Perfluorononanoic acid	Ave	1.134	1.172		10.2	9.87	3.3	30.0
13C2 PFHxA	Ave	1.167	1.173		10.1	10.0	0.5	30.0
13C2 PFDA	Ave	0.8763	0.8911		10.2	10.0	1.7	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_017.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 11-Dec-2016 18:57:16 ALS Bottle#: 3 Worklist Smp#: 17  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3 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\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:44 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.608	17.608	0.0	1.000	2022947	48.1	841
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	944910	10.1	29815
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	879241	16.3	20597
4 Perfluoroheptanoic acid	363.0 > 319.0	19.391	19.391	0.0	1.000	549674	5.61	6137
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		805687	10.0	20791
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	863299	10.3	241
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1282046	20.5	12589
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1720352	28.7	22446
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	931931	10.2	10954
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	717912	10.2	22552

Reagents:

LC537-L3\_00016 Amount Added: 1.00 Units: mL

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_017.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 11-Dec-2016 18:57:16 ALS Bottle#: 3 Worklist Smp#: 17  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3 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\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:44 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.608	17.608	0.0	1.000	2022947	48.1	841
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	944910	10.1	29815
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	879241	16.3	20597
4 Perfluoroheptanoic acid	363.0 > 319.0	19.391	19.391	0.0	1.000	549674	5.61	6137
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		805687	10.0	20791
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	863299	10.3	241
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1282046	20.5	12589
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1720352	28.7	22446
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	931931	10.2	10954
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	717912	10.2	22552

Reagents:

LC537-L3\_00016 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_017.d

Injection Date: 11-Dec-2016 18:57:16

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 17

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

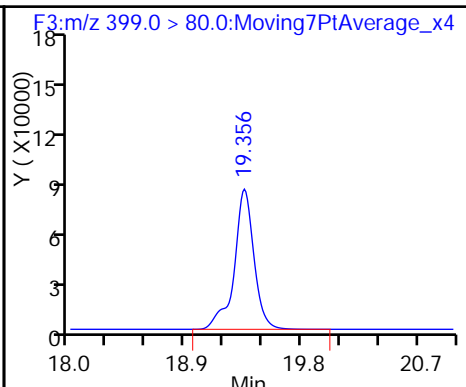
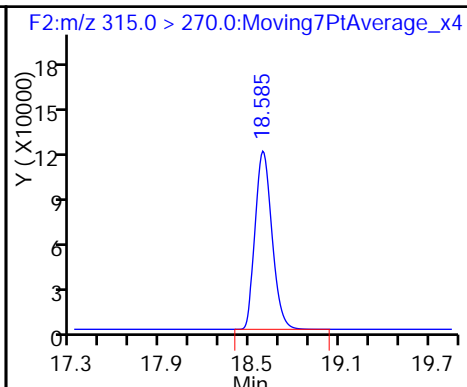
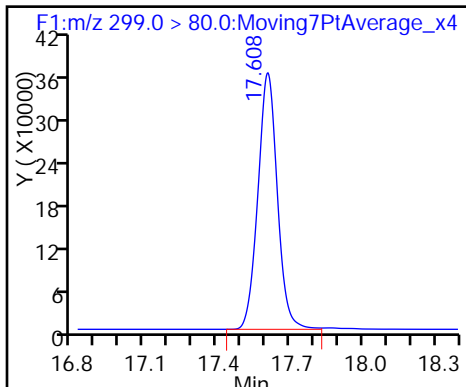
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

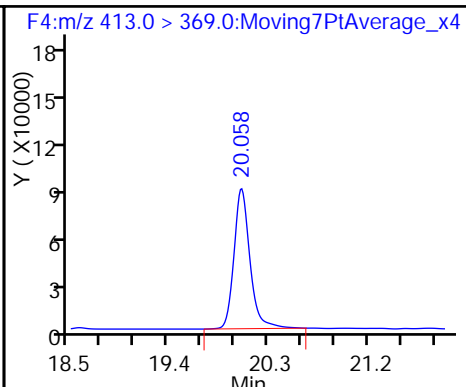
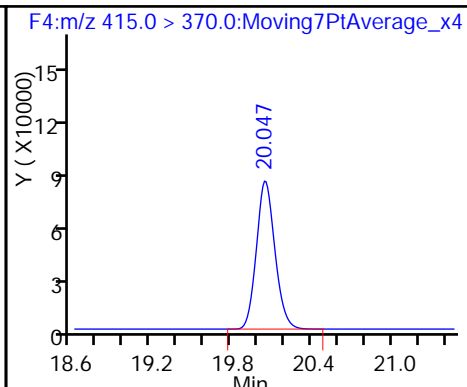
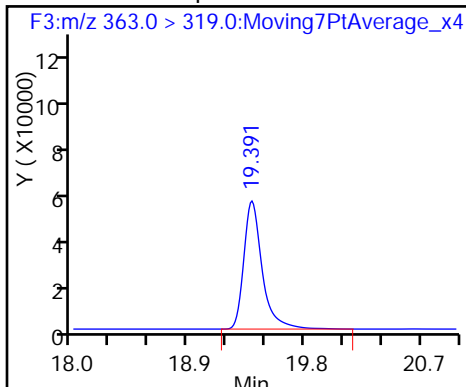
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

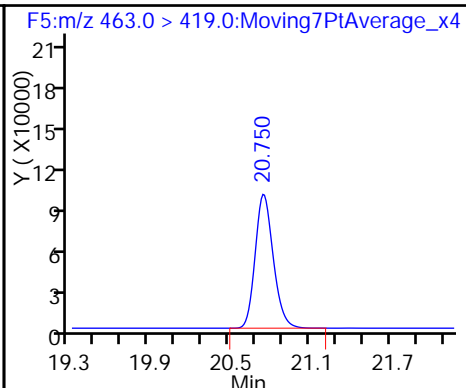
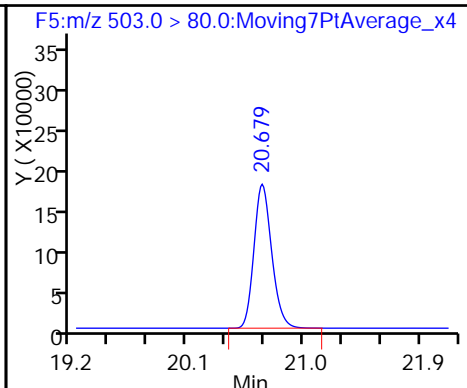
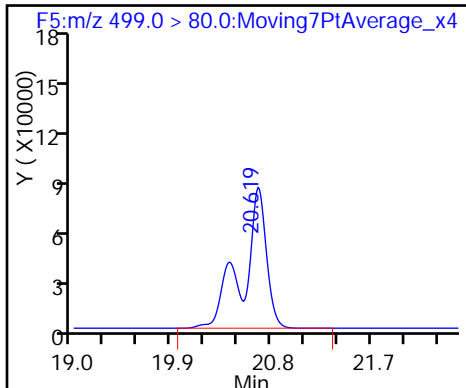
6 Perfluorooctanoic acid



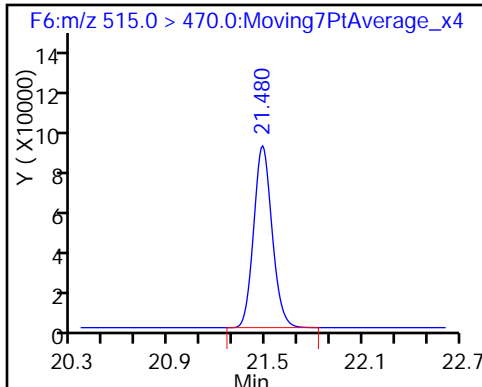
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_017.d

Injection Date: 11-Dec-2016 18:57:16

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 17

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

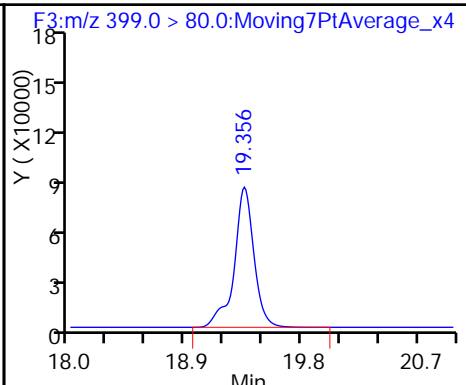
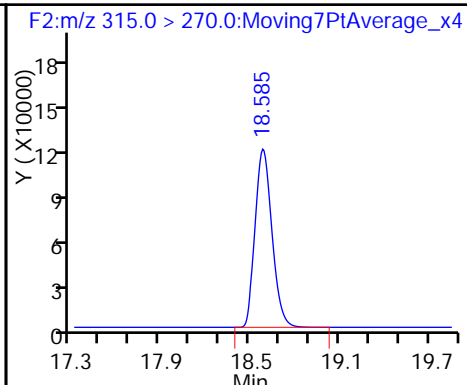
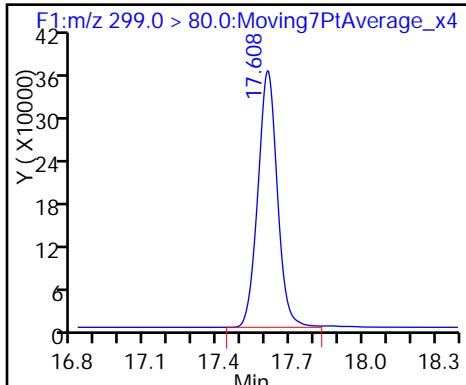
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

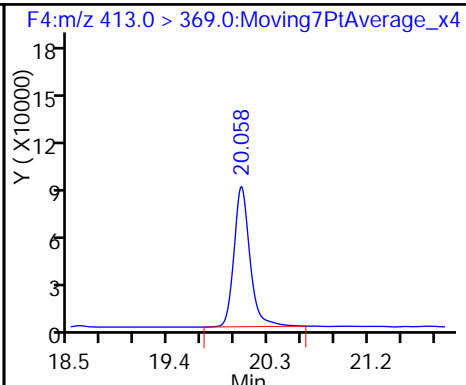
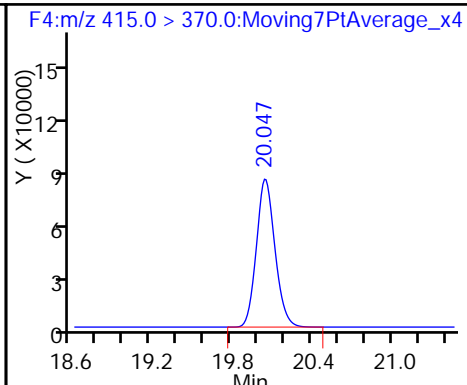
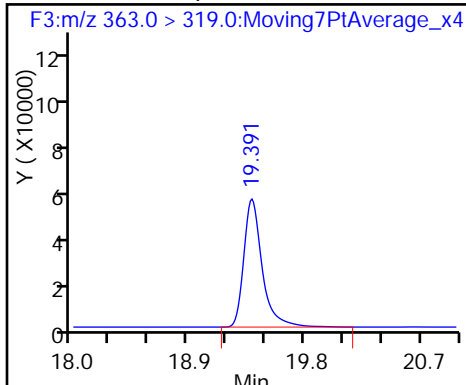
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

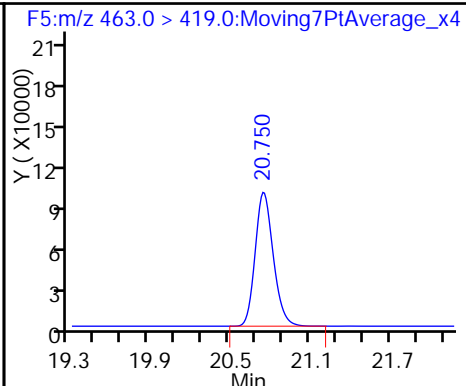
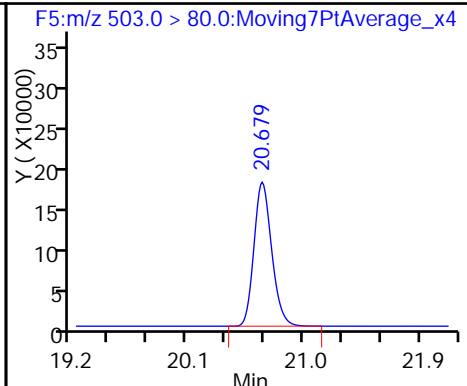
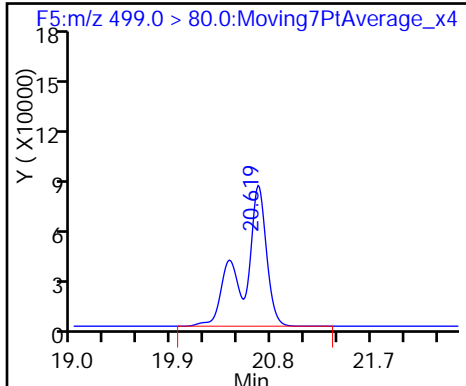
6 Perfluorooctanoic acid



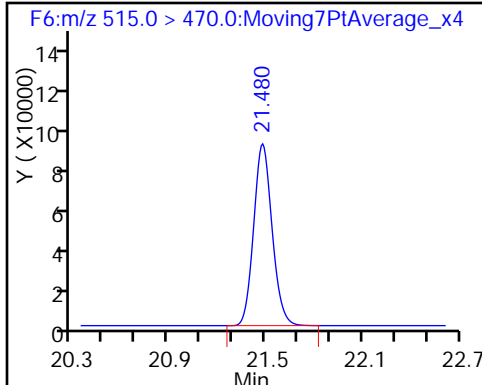
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141574/29 Calibration Date: 12/12/2016 00:52  
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54  
 Lab File ID: 11DEC2016A6A\_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7417		142	135	5.7	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	1.056		53.4	45.4	17.6	30.0
Perfluoroheptanoic acid	Ave	1.215	1.187		14.9	15.3	-2.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.100		32.2	30.4	5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.251		72.0	60.1	19.8	30.0
Perfluorononanoic acid	Ave	1.134	1.223		31.8	29.5	7.8	30.0
13C2 PFHxA	Ave	1.167	1.297		11.1	10.0	11.2	30.0
13C2 PFDA	Ave	0.8763	0.9257		10.6	10.0	5.6	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_029.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 12-Dec-2016 00:52:23 ALS Bottle#: 5 Worklist Smp#: 29  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5 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\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 16:03:06 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.612	17.612	0.0	1.000	6371773	142.4	26361
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1149765	11.1	37115
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.344	0.0	1.000	3058257	53.4	68628
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.380	0.0	1.000	1607457	14.9	23861
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		886505	10.0	22969
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	2965495	32.2	1550
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4797861	72.0	24477
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1829934	28.7	37378
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	3194560	31.8	47943
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.471	0.0	1.000	820622	10.6	25626

Reagents:

LC537-L5\_00017 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_029.d

Injection Date: 12-Dec-2016 00:52:23

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 29

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

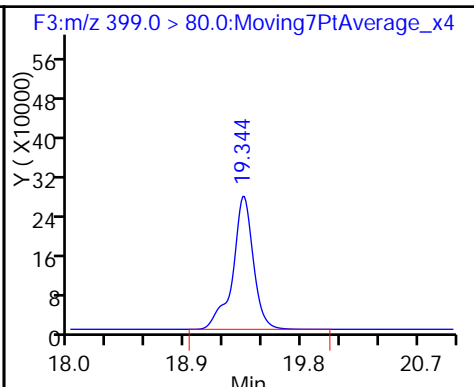
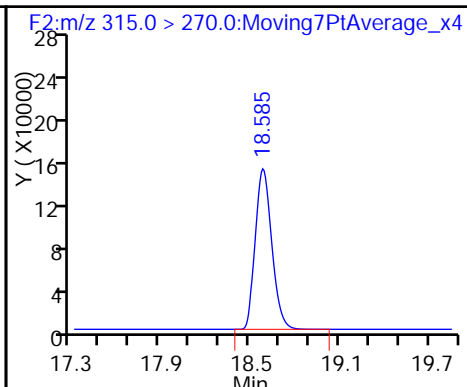
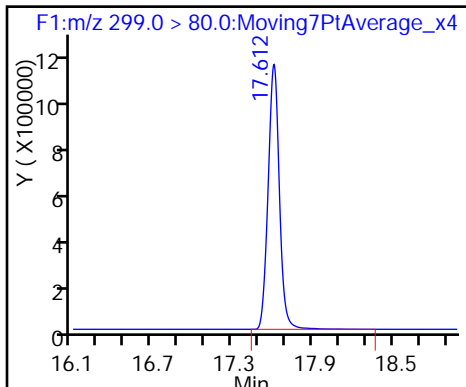
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

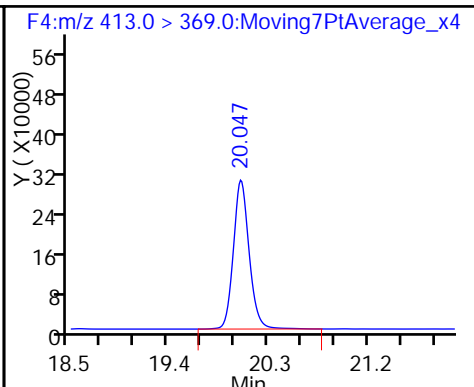
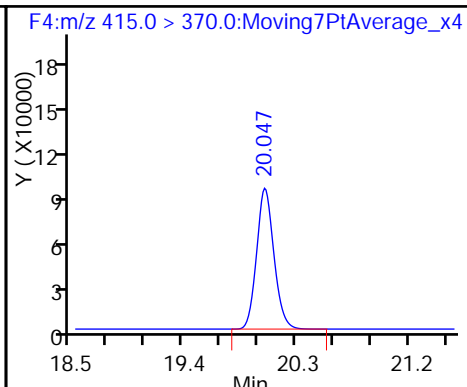
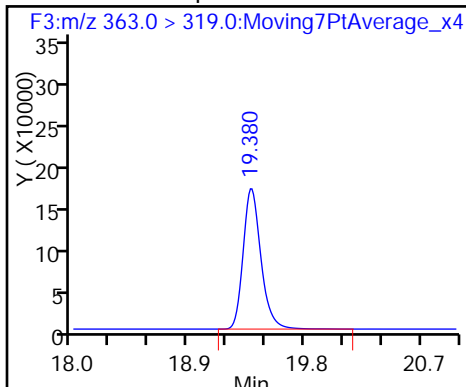
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

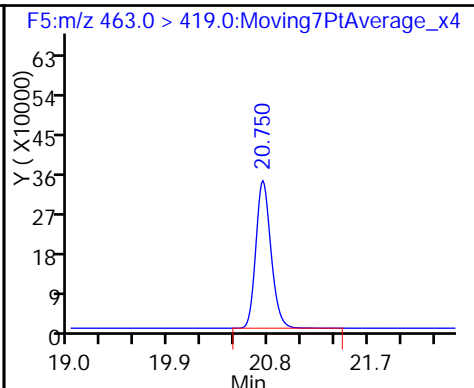
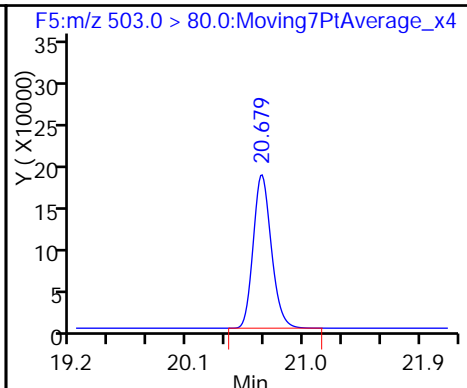
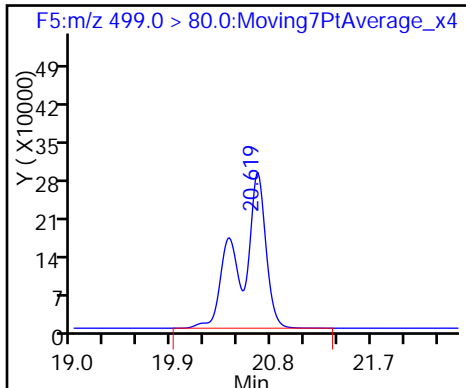
6 Perfluorooctanoic acid



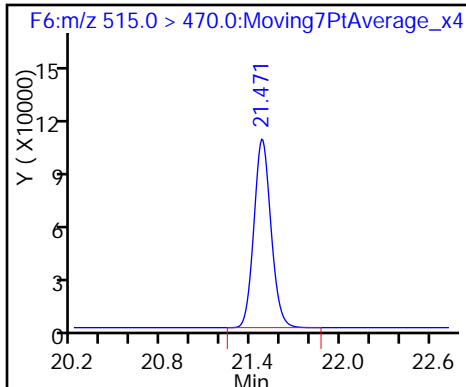
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-140632/1-A  
 Matrix: Water Lab File ID: 11DEC2016A6A\_006.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/11/2016 13:31  
 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.: 141573 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	106		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_006.d  
 Lims ID: MB 320-140632/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 11-Dec-2016 13:31:42 ALS Bottle#: 17 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-140632/1-a BOX 17  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:00:54

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

\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	941882	10.6	30302
* 5 13C2-PFOA	415.0 > 370.0	20.059	20.058	0.001		764515	10.0	20056
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.047	20.058	-0.011	1.000	1174	0.0148	0.3	M
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.655	20.619	0.036	1.000	732	0.0101	14.8	M
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1993596	28.7	51558
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	696850	10.4	21920

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_006.d

Injection Date: 11-Dec-2016 13:31:42

Instrument ID: A6

Lims ID: MB 320-140632/1-A

Client ID:

Operator ID: CBW

ALS Bottle#: 17

Worklist Smp#: 6

Injection Vol: 10.0 ul

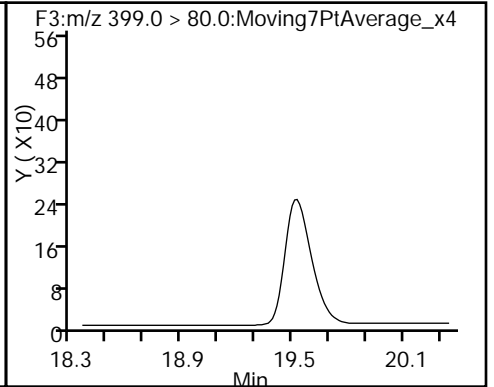
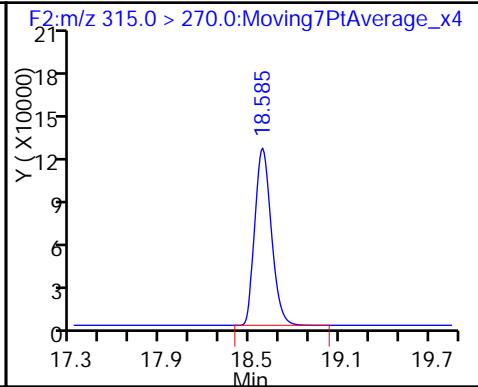
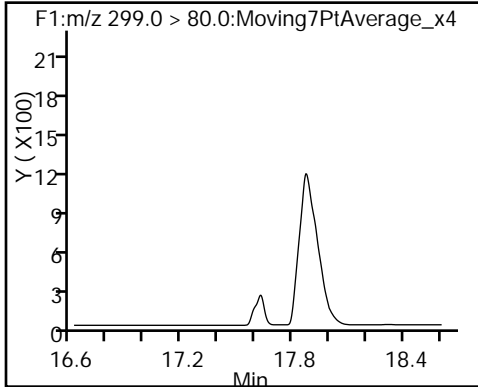
Dil. Factor: 1.0000

Method: 537\_A6

Limit Group: LC 537 ICAL

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

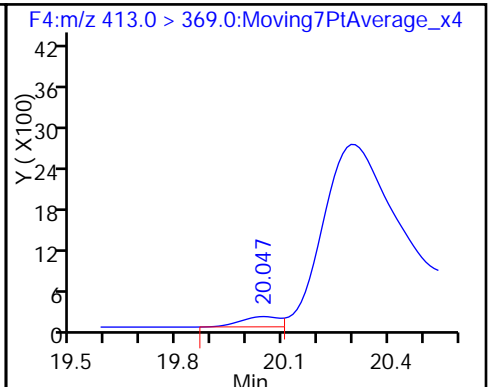
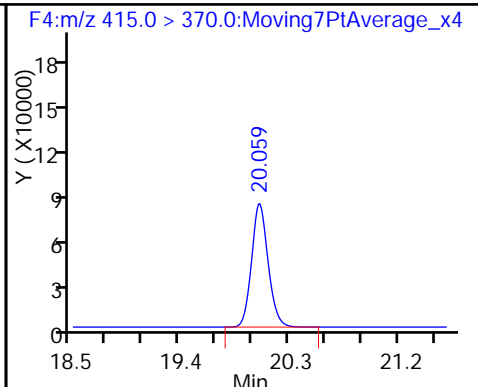
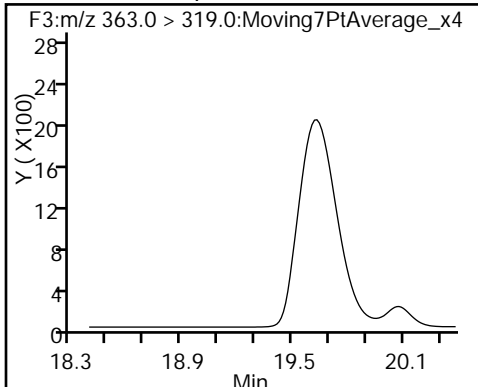
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

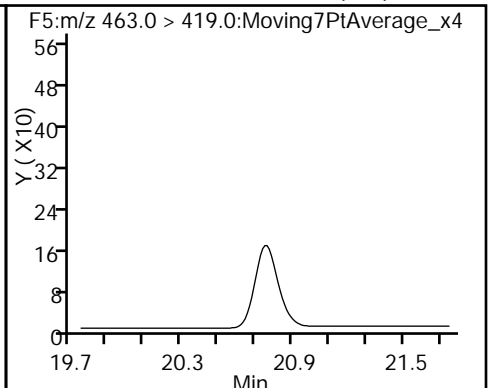
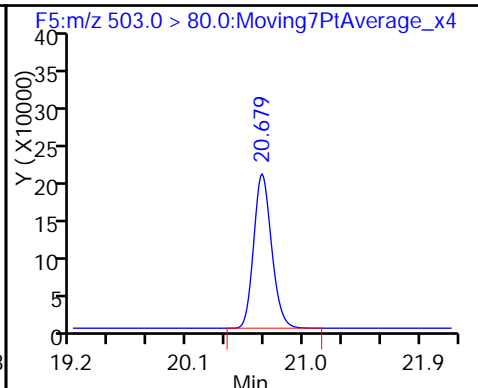
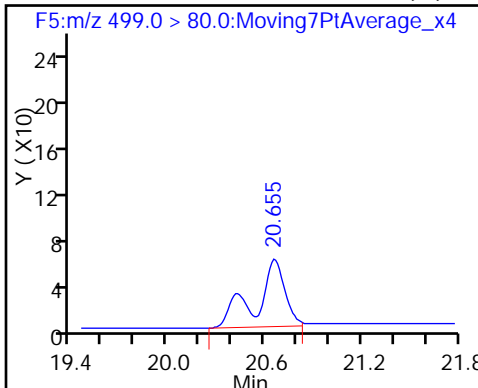
6 Perfluorooctanoic acid (M)



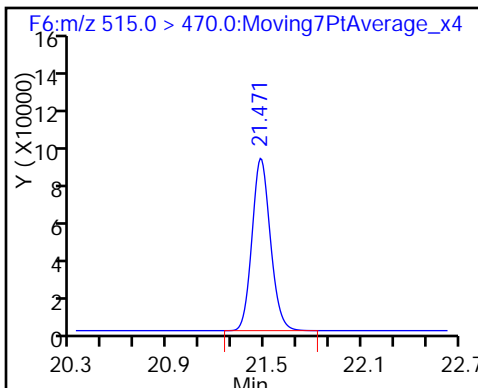
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_006.d  
 Lims ID: MB 320-140632/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 11-Dec-2016 13:31:42 ALS Bottle#: 17 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-140632/1-a BOX 17  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 15:00:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	105.61
\$ 10 13C2 PFDA	10.0	10.4	104.02



TestAmerica Sacramento

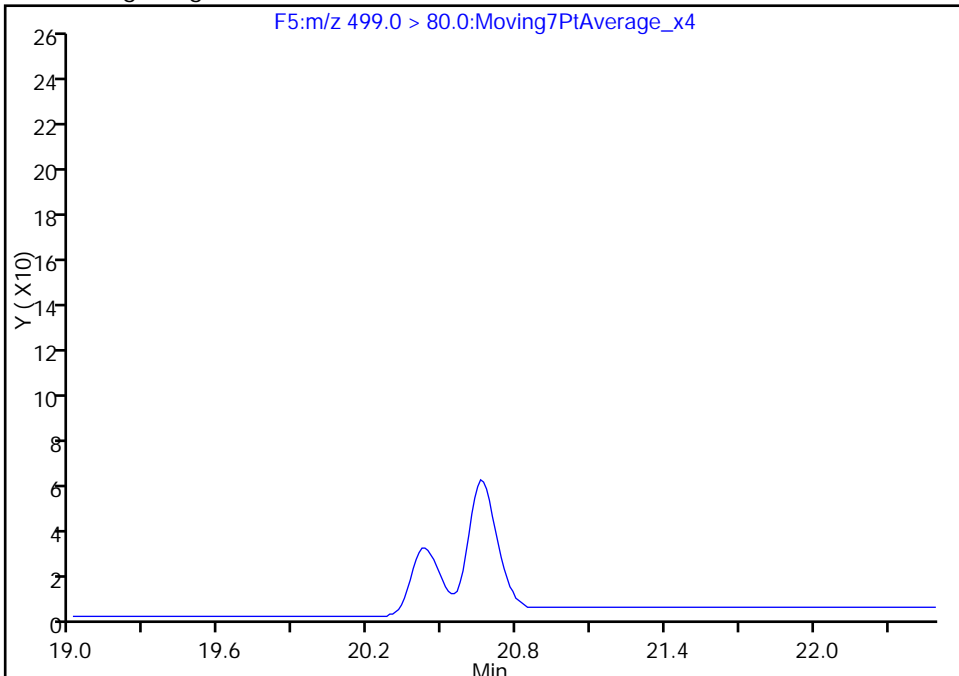
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_006.d  
Injection Date: 11-Dec-2016 13:31:42 Instrument ID: A6  
Lims ID: MB 320-140632/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 17 Worklist Smp#: 6  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

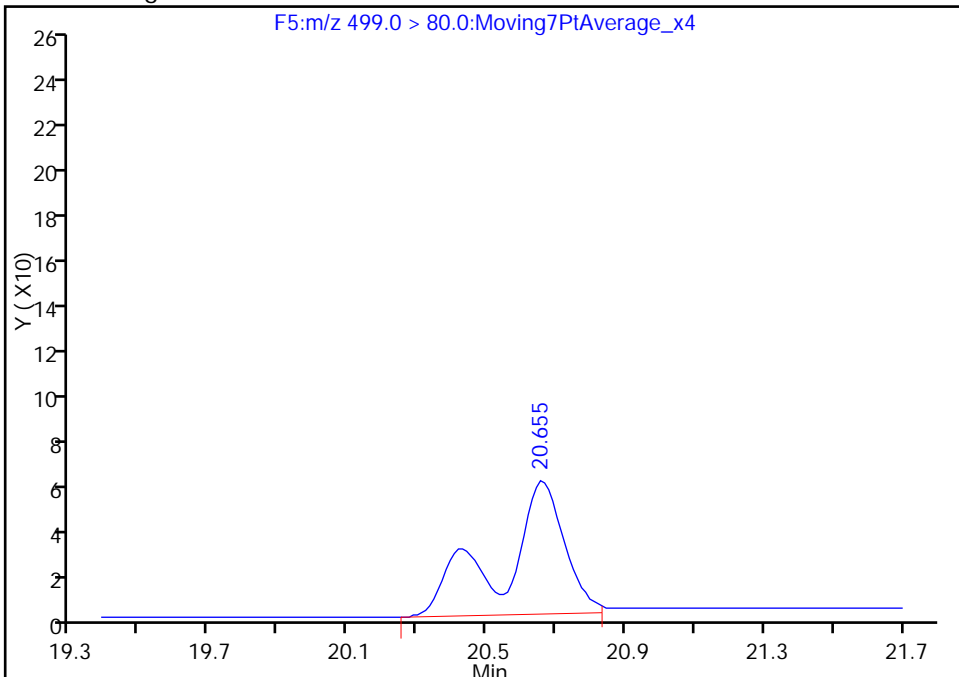
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.66  
Area: 732  
Amount: 0.010087  
Amount Units: ng/ml



Reviewer: barnettj, 12-Dec-2016 15:00:54  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

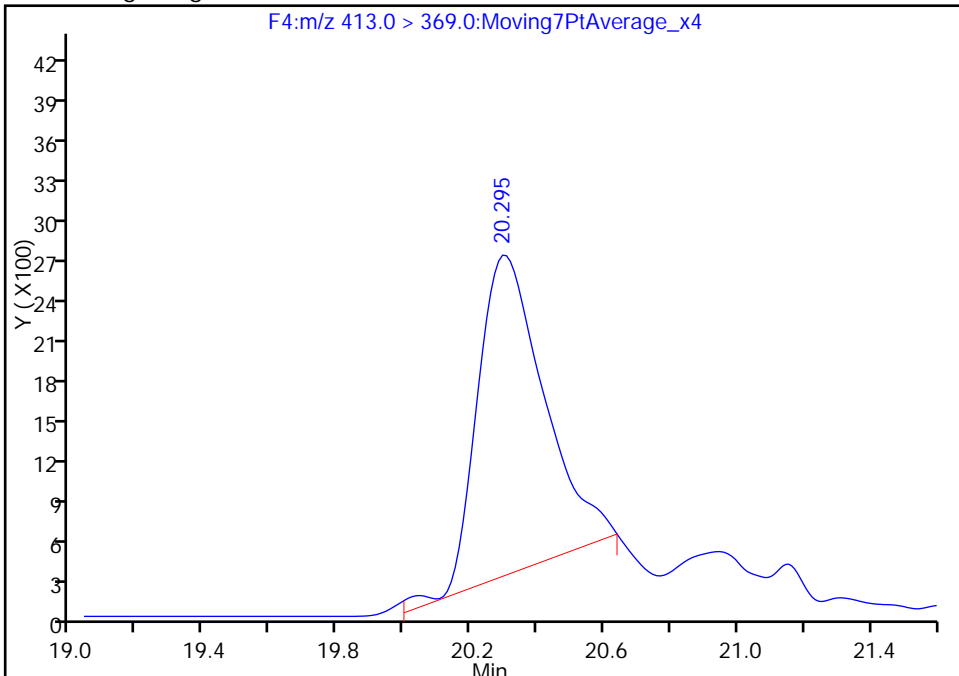
Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_006.d  
Injection Date: 11-Dec-2016 13:31:42 Instrument ID: A6  
Lims ID: MB 320-140632/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 17 Worklist Smp#: 6  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:M/RM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

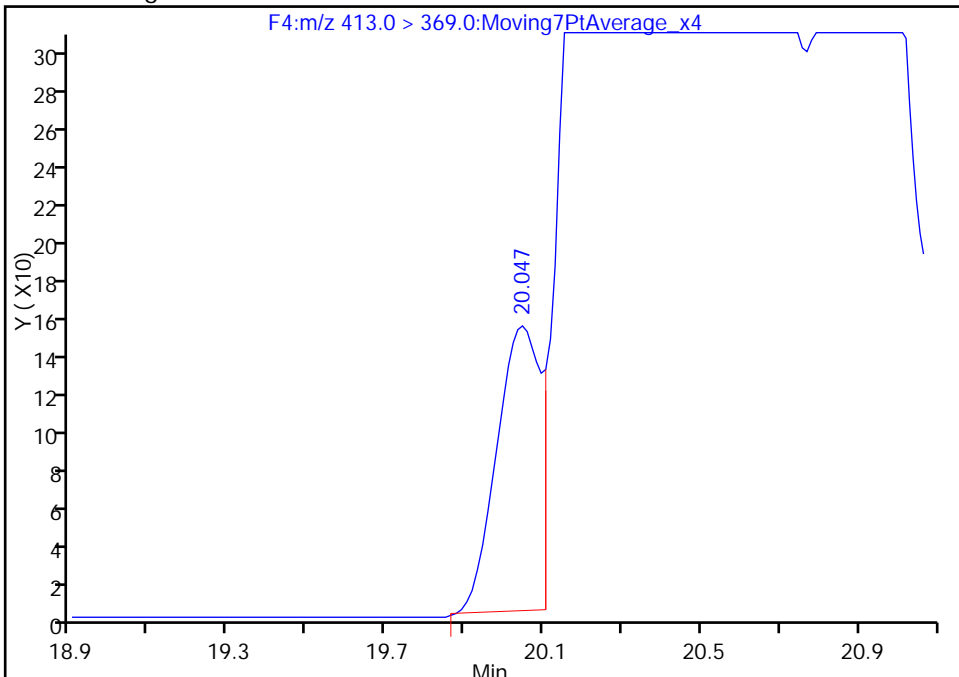
RT: 20.30  
Area: 33028  
Amount: 0.415227  
Amount Units: ng/ml

Processing Integration Results



RT: 20.05  
Area: 1174  
Amount: 0.014759  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 12-Dec-2016 15:00:54  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-140632/2-A  
 Matrix: Water Lab File ID: 11DEC2016A6A\_007.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/11/2016 14:01  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.124		0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0619		0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.275		0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_007.d  
 Lims ID: LCS 320-140632/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 11-Dec-2016 14:01:18 ALS Bottle#: 18 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-140632/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 13:50:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.608	17.611	-0.003	1.000	3545743	68.9	1681
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1070896	11.3	22997
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	1595835	24.2	36853
4 Perfluoroheptanoic acid	363.0 > 319.0	19.392	19.391	0.001	1.000	827715	8.37	5358
* 5 13C2-PFOA	415.0 > 370.0	20.059	20.058	0.001		813368	10.0	21246
6 Perfluorooctanoic acid	413.0 > 369.0	20.059	20.058	0.001	1.000	1308804	15.5	572
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	2375806	31.0	24256
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		2105344	28.7	16826
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	1500116	16.3	15932
\$ 10 13C2 PFDA	515.0 > 470.0	21.480	21.480	0.0	1.000	786329	11.0	24953

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_007.d

Injection Date: 11-Dec-2016 14:01:18

Instrument ID: A6

Lims ID: LCS 320-140632/2-A

Client ID:

Operator ID: CBW

ALS Bottle#: 18

Worklist Smp#: 7

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

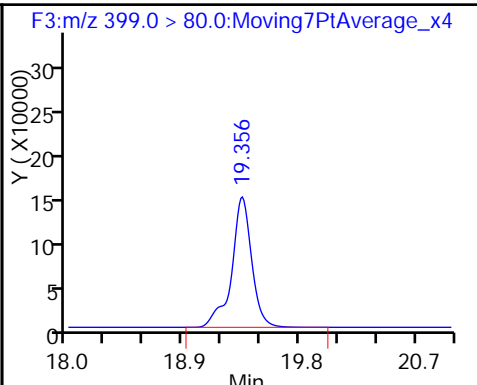
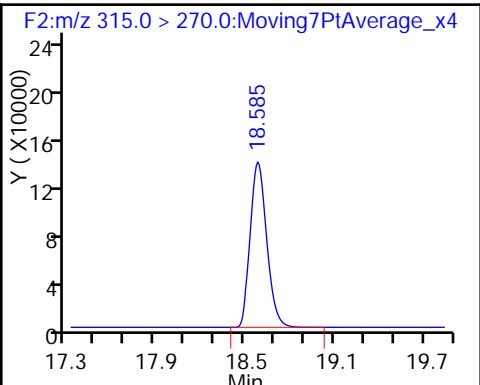
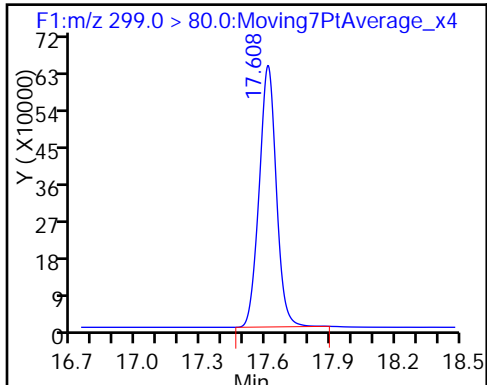
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

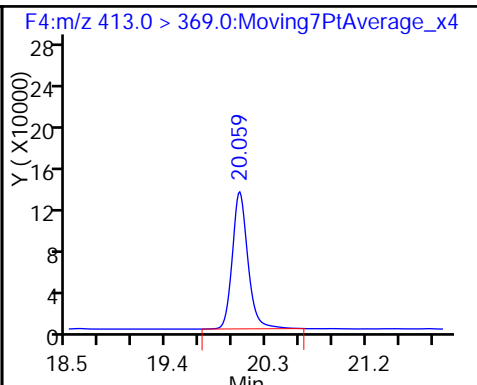
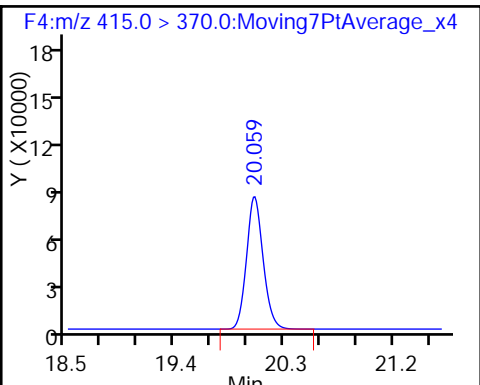
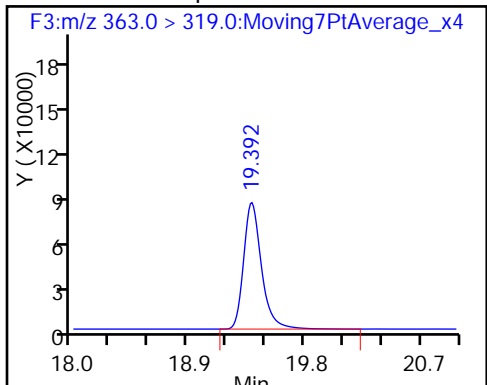
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

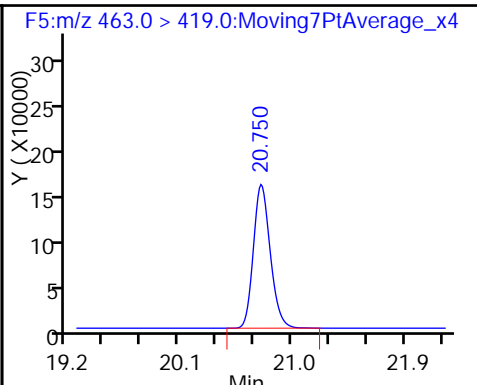
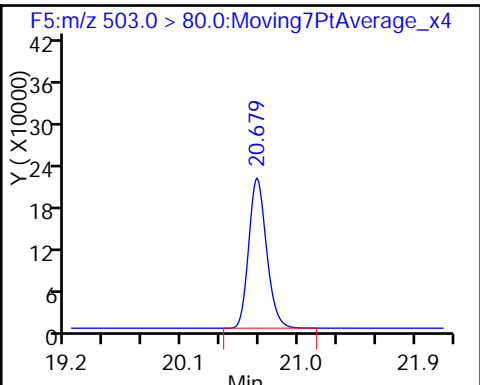
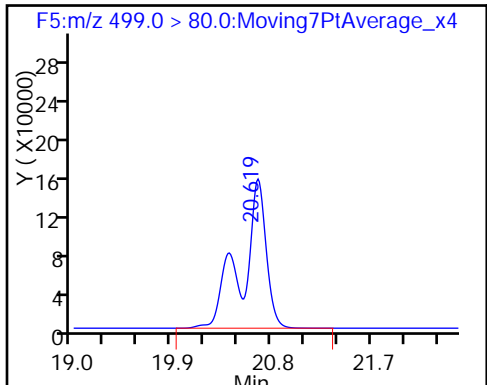
6 Perfluorooctanoic acid



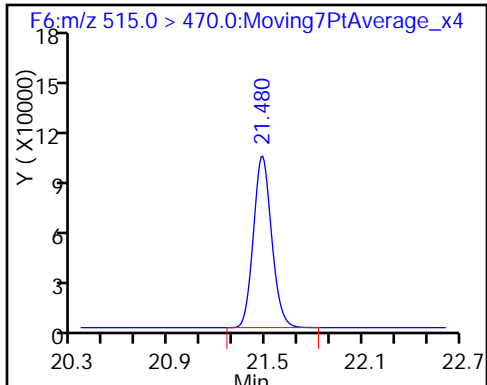
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_007.d  
 Lims ID: LCS 320-140632/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 11-Dec-2016 14:01:18 ALS Bottle#: 18 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-140632/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

First Level Reviewer: barnettj Date: 12-Dec-2016 13:50:34

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	112.87
\$ 10 13C2 PFDA	10.0	11.0	110.33

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCSD 320-140632/3-A  
 Matrix: Water Lab File ID: 11DEC2016A6A\_008.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/11/2016 14:30  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.129		0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0627		0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.294		0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	117		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_008.d  
 Lims ID: LCSD 320-140632/3-A  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 11-Dec-2016 14:30:53 ALS Bottle#: 19 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: lcsd 320-140632/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.612	17.611	0.001	1.000	3361963	73.5	1101
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1000894	11.7	32019
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.356	19.356	0.0	1.000	1494371	25.5	22827
4 Perfluoroheptanoic acid	363.0 > 319.0	19.392	19.391	0.001	1.000	779470	8.74	5329
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		733684	10.0	19232
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	1196673	15.7	496
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	2187840	32.2	12847
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1868957	28.7	27574
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.750	0.0	1.000	1424554	17.1	16768
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.480	-0.009	1.000	711593	11.1	22420



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_008.d

Injection Date: 11-Dec-2016 14:30:53

Instrument ID: A6

Lims ID: LCSD 320-140632/3-A

Client ID:

Operator ID: CBW

ALS Bottle#: 19

Worklist Smp#: 8

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

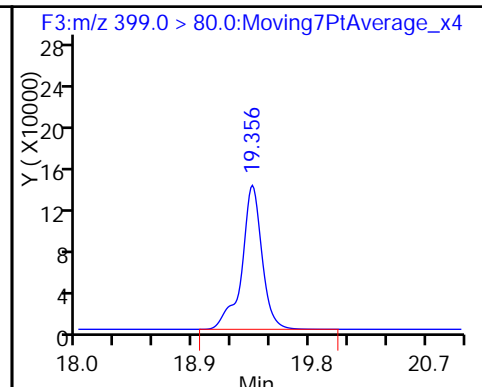
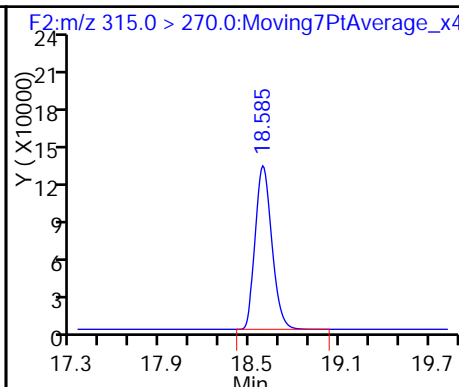
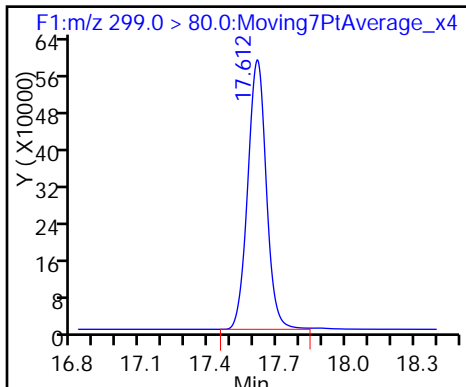
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

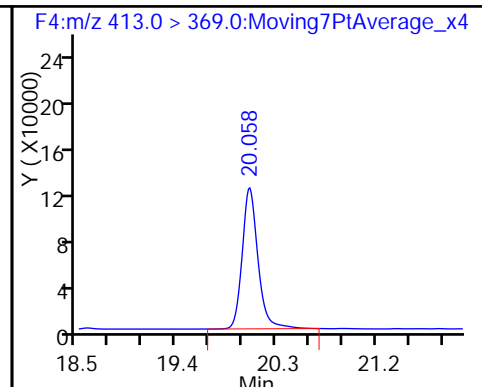
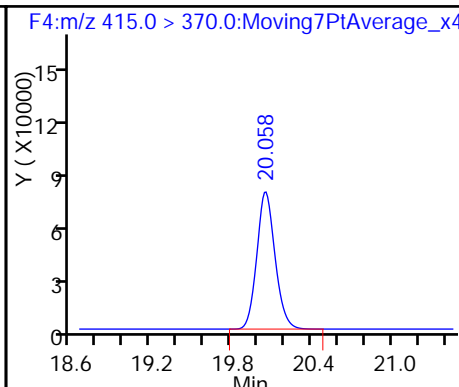
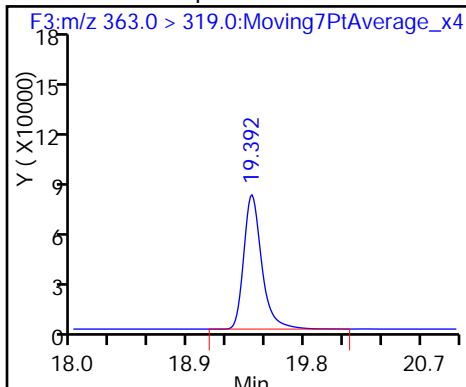
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

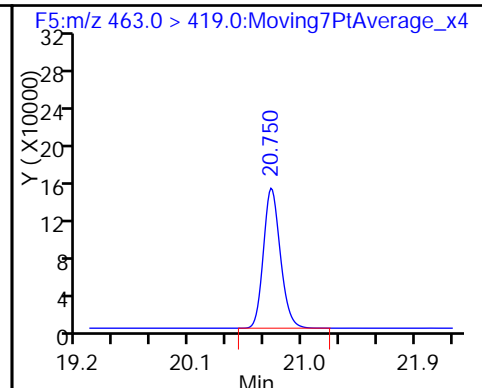
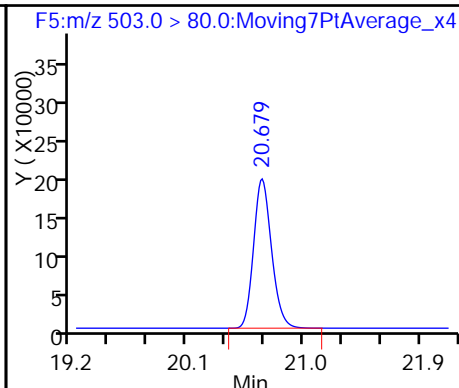
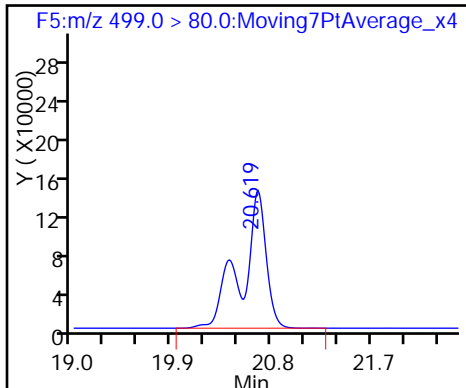
6 Perfluorooctanoic acid



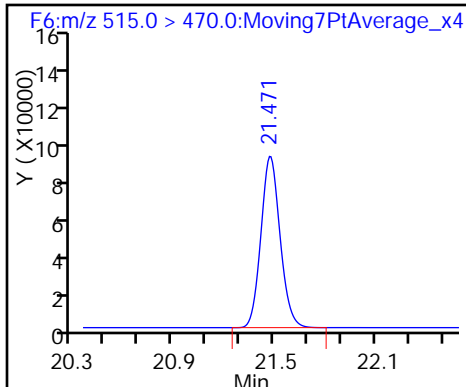
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\11DEC2016A6A\_008.d  
 Lims ID: LCSD 320-140632/3-A  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 11-Dec-2016 14:30:53 ALS Bottle#: 19 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: lcsd 320-140632/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 12-Dec-2016 15:39:30 Calib Date: 05-Dec-2016 19:54:00  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_009.d  
 Column 1 : Acquity BEH C18 ( 2.10 mm) Det: F1:MRM  
 Process Host: XAWRK002

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.7	116.95
\$ 10 13C2 PFDA	10.0	11.1	110.68

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Start Date: 12/05/2016 17:26

Analysis Batch Number: 140688 End Date: 12/06/2016 02:48

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 320-140688/2 IC		12/05/2016 17:26	1	05DEC2016A6A_00 4.d	Acquity 2.1 (mm)
STD 320-140688/3 IC		12/05/2016 17:55	1	05DEC2016A6A_00 5.d	Acquity 2.1 (mm)
STD 320-140688/4 IC		12/05/2016 18:25	1	05DEC2016A6A_00 6.d	Acquity 2.1 (mm)
STD 320-140688/5 ICISAV		12/05/2016 18:54	1	05DEC2016A6A_00 7.d	Acquity 2.1 (mm)
STD 320-140688/6 IC		12/05/2016 19:24	1	05DEC2016A6A_00 8.d	Acquity 2.1 (mm)
STD 320-140688/7 IC		12/05/2016 19:54	1	05DEC2016A6A_00 9.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 20:23	1		Acquity 2.1 (mm)
CCV 320-140688/9 CCVL		12/05/2016 20:53	1	05DEC2016A6A_01 1.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 21:22	1		Acquity 2.1 (mm)
ICV 320-140688/11		12/05/2016 21:52	1	05DEC2016A6A_01 3.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 22:22	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 22:51	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 23:21	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 23:50	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 00:20	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 00:49	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 01:19	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 01:49	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 02:18	1		Acquity 2.1 (mm)
CCV 320-140688/21 CCVIS		12/06/2016 02:48	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Start Date: 12/11/2016 12:02

Analysis Batch Number: 141573 End Date: 12/11/2016 18:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-141573/3 CCVL		12/11/2016 12:02	1	11DEC2016A6A_00 3.d	Acquity 2.1 (mm)
CCV 320-141573/4 CCVIS		12/11/2016 12:32	1	11DEC2016A6A_00 4.d	Acquity 2.1 (mm)
ZZZZZ		12/11/2016 13:02	1		Acquity 2.1 (mm)
MB 320-140632/1-A		12/11/2016 13:31	1	11DEC2016A6A_00 6.d	Acquity 2.1 (mm)
LCS 320-140632/2-A		12/11/2016 14:01	1	11DEC2016A6A_00 7.d	Acquity 2.1 (mm)
LCSD 320-140632/3-A		12/11/2016 14:30	1	11DEC2016A6A_00 8.d	Acquity 2.1 (mm)
320-23971-1		12/11/2016 15:00	1	11DEC2016A6A_00 9.d	Acquity 2.1 (mm)
320-23971-2		12/11/2016 15:30	1	11DEC2016A6A_01 0.d	Acquity 2.1 (mm)
320-23971-3		12/11/2016 15:59	1	11DEC2016A6A_01 1.d	Acquity 2.1 (mm)
320-23971-4		12/11/2016 16:29	1	11DEC2016A6A_01 2.d	Acquity 2.1 (mm)
320-23971-5		12/11/2016 16:58	1	11DEC2016A6A_01 3.d	Acquity 2.1 (mm)
320-23971-6		12/11/2016 17:28	1	11DEC2016A6A_01 4.d	Acquity 2.1 (mm)
320-23971-7		12/11/2016 17:58	1	11DEC2016A6A_01 5.d	Acquity 2.1 (mm)
CCV 320-141573/17 CCVIS		12/11/2016 18:57	1	11DEC2016A6A_01 7.d	Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Instrument ID: A6 Start Date: 12/11/2016 18:57

Analysis Batch Number: 141574 End Date: 12/12/2016 00:52

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-141574/17 CCVIS		12/11/2016 18:57	1	11DEC2016A6A_01 7.d	Acquity 2.1(mm)
ZZZZZ		12/11/2016 19:26	1		Acquity 2.1(mm)
320-23971-8		12/11/2016 19:56	1	11DEC2016A6A_01 9.d	Acquity 2.1(mm)
320-23971-9		12/11/2016 20:26	1	11DEC2016A6A_02 0.d	Acquity 2.1(mm)
320-23971-10		12/11/2016 20:55	1	11DEC2016A6A_02 1.d	Acquity 2.1(mm)
ZZZZZ		12/11/2016 21:25	1		Acquity 2.1(mm)
ZZZZZ		12/11/2016 21:54	1		Acquity 2.1(mm)
ZZZZZ		12/11/2016 22:24	1		Acquity 2.1(mm)
ZZZZZ		12/11/2016 22:54	1		Acquity 2.1(mm)
ZZZZZ		12/11/2016 23:23	1		Acquity 2.1(mm)
ZZZZZ		12/11/2016 23:53	1		Acquity 2.1(mm)
CCV 320-141574/29 CCVIS		12/12/2016 00:52	1	11DEC2016A6A_02 9.d	Acquity 2.1(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1

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

Batch Number: 140632 Batch Start Date: 12/05/16 11:42 Batch Analyst: Sharifi, Nooshin

Batch Method: 537 Batch End Date: 12/06/16 18:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00025
MB 320-140632/1		537, 537				250 mL	1.0 mL	7 SU	20 uL
LCS 320-140632/2		537, 537				250 mL	1.0 mL	7 SU	20 uL
LCSD 320-140632/3		537, 537				250 mL	1.0 mL	7 SU	20 uL
320-23971-A-1	WI-AF-2RW07-1116	537, 537	T	295.87 g	38.00 g	257.9 mL	1.0 mL	7 SU	20 uL
320-23971-A-2	WI-AF-2FB07-1116	537, 537	T	292.77 g	26.56 g	266.2 mL	1.0 mL	9 SU	20 uL
320-23971-A-3	WI-AF-2RW08-1116	537, 537	T	296.15 g	27.13 g	269 mL	1.0 mL	9 SU	20 uL
320-23971-A-4	WI-AF-2FB08-1116	537, 537	T	290.78 g	27.11 g	263.7 mL	1.0 mL	9 SU	20 uL
320-23971-A-5	WI-AF-3RW10-1116	537, 537	T	291.63 g	27.59 g	264 mL	1.0 mL	9 SU	20 uL
320-23971-B-6	WI-AF-3FB10-1116	537, 537	T	297.66 g	27.53 g	270.1 mL	1.0 mL	9 SU	20 uL
320-23971-A-7	WI-AF-3RW11-1116	537, 537	T	296.13 g	27.21 g	268.9 mL	1.0 mL	9 SU	20 uL
320-23971-A-8	WI-AF-3FB11-1116	537, 537	T	292.51 g	27.39 g	265.1 mL	1.0 mL	9 SU	20 uL
320-23971-A-9	WI-AF-3RW12-1116	537, 537	T	282.97 g	26.61 g	256.4 mL	1.0 mL	7 SU	20 uL
320-23971-A-10	WI-AF-3FB12-1116	537, 537	T	292.38 g	27.21 g	265.2 mL	1.0 mL	9 SU	20 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00014	LC537-SU 00022	AnalysisComment			
MB 320-140632/1		537, 537			50 uL	Chlorine ND			
LCS 320-140632/2		537, 537		50 uL	50 uL	Chlorine ND			
LCSD 320-140632/3		537, 537		50 uL	50 uL	Chlorine ND			
320-23971-A-1	WI-AF-2RW07-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-2	WI-AF-2FB07-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-3	WI-AF-2RW08-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-4	WI-AF-2FB08-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-5	WI-AF-3RW10-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-B-6	WI-AF-3FB10-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-7	WI-AF-3RW11-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-8	WI-AF-3FB11-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-9	WI-AF-3RW12-1116	537, 537	T		50 uL	Chlorine ND			
320-23971-A-10	WI-AF-3FB12-1116	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.: 320-23971-1

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

Batch Number: 140632 Batch Start Date: 12/05/16 11:42 Batch Analyst: Sharifi, Nooshin

Batch Method: 537 Batch End Date: 12/06/16 18:30

Batch Notes	
Manifold ID	2,4
Methanol ID	789820
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	ERW
Analyst ID - IS Reagent Drop Witness	NSH
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	VPM
Analyst ID - TA Reagent Drop	NSH
Analyst ID - TA Reagent Drop Witness	VPM
SPE Cartridge ID	6332578-03
Trizma ID	SLBN2122V
Reagent Water ID	11/29/16

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.

AL6

Job No: 23971, 23970 Instrument ID & Date: 12-11-16 ICAL Batch: 140688  
 Extraction Batch: 140632 Worklist #: 37708 TALS Batch: 141573, 141574, 141758

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 12-13-16

2<sup>nd</sup> Level Reviewer / Date: Murray 12/3/2016

NCM # and Comments: 72739



Instrument ID & Date: <sup>A6</sup> 12-5-16 Worklist#: 37524

ICAL Batch: 140688, 140689 Calibration ID number: 26888, 26889

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x <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: JRB 12-6-16

2<sup>nd</sup> Level Reviewer / Date: R. H. H. 12/7/16

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 11DEC2016A\_A6 537      Worklist Number: 37708  
 Instrument Name: A6      Chrom Method: 537\_A6  
 Data Directory: \\ChromNA\Sacramento\ChromData\A6\20161211-37708.b  
 QC Batching: Enabled      Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 141573
# 1 RB	# 1 RB
# 2 RB	# 2 RB
# 3 CCV L2	# 3 CCV L2
# 4 CCV L5	# 4 CCV L5
# 5 RB	# 5 RB
# 6 MB 320-140632/1-A	# 6 MB 320-140632/1-A
# 7 LCS 320-140632/2-A	# 7 LCS 320-140632/2-A
# 8 LCSD 320-140632/3-A	# 8 LCSD 320-140632/3-A
# 9 320-23971-A-1-A	# 9 320-23971-A-1-A
#10 320-23971-A-2-A	#10 320-23971-A-2-A
#11 320-23971-A-3-A	#11 320-23971-A-3-A
#12 320-23971-A-4-A	#12 320-23971-A-4-A
#13 320-23971-A-5-A	#13 320-23971-A-5-A
#14 320-23971-B-6-A	#14 320-23971-B-6-A
#15 320-23971-A-7-A	#15 320-23971-A-7-A
#16 RB	#16 RB
#17 CCV L3	#17 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 141574
#17 CCV L3	#17 CCV L3
#18 RB	#18 RB
#19 320-23971-A-8-A	#19 320-23971-A-8-A
#20 320-23971-A-9-A	#20 320-23971-A-9-A
#21 320-23971-A-10-A	#21 320-23971-A-10-A
#22 320-23970-A-1-A	#22 320-23970-A-1-A
#23 320-23970-A-2-A	#23 320-23970-A-2-A
#24 320-23970-A-3-A	#24 320-23970-A-3-A
#25 320-23970-A-4-A	#25 320-23970-A-4-A
#26 320-23970-A-5-A	#26 320-23970-A-5-A
#27 320-23970-A-6-A	#27 320-23970-A-6-A
#28 RB	#28 RB
#29 CCV L5	#29 CCV L5

*sur out,*

QC Batch: 3	LC 537 ICAL Raw Batch: 141575
#29 CCV L5	#29 CCV L5
#30 RB	#30 RB
#31 MB 320-140697/1-A	#31 MB 320-140697/1-A
#32 LCS 320-140697/2-A	#32 LCS 320-140697/2-A
#33 LCSD 320-140697/3-A	#33 LCSD 320-140697/3-A
#34 320-24005-A-1-A	#34 320-24005-A-1-A
#35 320-24005-A-2-A	#35 320-24005-A-2-A
#36 320-24005-A-3-A	#36 320-24005-A-3-A
#37 320-24005-A-4-A	#37 320-24005-A-4-A
#38 320-24005-A-5-A	#38 320-24005-A-5-A
#39 320-24005-A-6-A	#39 320-24005-A-6-A
#40 320-24005-A-7-A	#40 320-24005-A-7-A
#41 RB	#41 RB
#42 CCV L3	#42 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 141576
#42 CCV L3	#42 CCV L3
#43 RB	#43 RB
#44 320-24005-A-8-A	#44 320-24005-A-8-A
#45 320-24007-A-1-A	#45 320-24007-A-1-A
#46 320-24007-A-2-A	#46 320-24007-A-2-A
#47 RB	#47 RB
#48 CCV L5	#48 CCV L5

QC Batch: 5	LC 537 ICAL Raw Batch: 141577
#48 CCV L5	#48 CCV L5
#49 RB	#49 RB
#50 320-23719-A-4-A	#50 320-23719-A-4-A
#51 320-23719-A-5-A	#51 320-23719-A-5-A
#52 320-23719-A-6-A	#52 320-23719-A-6-A
#53 320-23719-A-7-A	#53 320-23719-A-7-A
#54 320-23719-A-8-A	#54 320-23719-A-8-A
#55 320-23719-A-9-A	#55 320-23719-A-9-A
#56 320-23720-A-1-A	#56 320-23720-A-1-A
#57 320-23720-A-2-A	#57 320-23720-A-2-A
#58 320-23721-A-1-A	#58 320-23721-A-1-A
#59 320-23722-A-1-A	#59 320-23722-A-1-A
#60 RB	#60 RB
#61 CCV L3	#61 CCV L3

QC Batch: 6	LC 537 ICAL Raw Batch: 141758
#61 CCV L3	#61 CCV L3
#79 RB	#79 RB
#62 320-23928-A-15-A	#62 320-23928-A-15-A
#63 320-23928-A-28-A	#63 320-23928-A-28-A
#64 320-23928-A-25-D MS	#64 320-23928-A-25-D MS
#65 320-23928-A-25-D MS	#65 320-23928-A-25-D MS
#66 320-23928-A-27-D MS	#66 320-23928-A-27-D MS
#67 320-23928-A-27-A	#67 320-23928-A-27-A
#68 320-23928-A-27-D MS	#68 320-23928-A-27-D MS
#69 320-23970-A-1-A	#69 320-23970-A-1-A
#70 RB	#70 RB
#71 CCV L5	#71 CCV L5

QC Batch: 7	LC 537 ICAL Raw Batch: 141759
#71 CCV L5	#71 CCV L5
#72 RB	#72 RB
#73 320-24005-A-1-A	#73 320-24005-A-1-A
#74 320-24005-A-3-A	#74 320-24005-A-3-A
#75 320-24005-A-8-A	#75 320-24005-A-8-A
#76 320-24007-A-1-A	#76 320-24007-A-1-A
#77 RB	#77 RB
#78 CCV L3	#78 CCV L3
#80 RB	#80 RB

11 Rushes

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140632

Method Code: 320-537\_Prep-320

Analyst: Sharifi, Nooshin

Batch Open: 12/5/2016 11:42:00AM

Batch End: 12/10/16 18:30

Screened At 12/7/16

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-320-140632/1 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	MB-320-140632/1-A
2 LCS-320-140632/2 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	LCS-320-140632/2-A
3 LCS-320-140632/3 N/A	N/A		250 mL 1.0 mL	7		N/A	N/A	N/A	Chlorine ND	LCS-320-140632/3-A
4 320-23971-A-1 (537_DOD5)	N/A (320-23971-1)	295.87 g 88.00 g	257.9 mL 1.0 mL	7		12/6/16	5_Days	4	Chlorine ND	320-23971-A-1-A
5 320-23971-A-2 (537_DOD5)	N/A (320-23971-1)	292.77 g 26.56 g	266.2 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-A-2-A
6 320-23971-A-3 (537_DOD5)	N/A (320-23971-1)	296.15 g 27.13 g	269 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-A-3-A
7 320-23971-A-4 (537_DOD5)	N/A (320-23971-1)	290.78 g 27.11 g	263.7 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-A-4-A
8 320-23971-A-5 (537_DOD5)	N/A (320-23971-1)	291.63 g 27.59 g	264 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-A-5-A
9 320-23971-B-6 (537_DOD5)	N/A (320-23971-1)	297.66 g 27.53 g	270.1 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-B-6-A
10 320-23971-A-7 (537_DOD5)	N/A (320-23971-1)	296.13 g 27.21 g	268.9 mL 1.0 mL	9		12/6/16	5_Days	4	Chlorine ND	320-23971-A-7-A

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140632

Analyst: Sharifi, Nooshin

Batch Open: 12/5/2016 11:42:00AM

Method Code: 320-537\_Prep-320

Batch End:

Line No.	Sample ID	Weight (g)	Volume (mL)	Replicates	Date	5_Days	Chlorine ND
11	320-23971-A-8 (537_DOD5)	292.51 g	265.1 mL	9	12/6/16		Chlorine ND
		27.39 g	1.0 mL				
12	320-23971-A-9 (537_DOD5)	282.97 g	256.4 mL	7	12/6/16		Chlorine ND
		26.61 g	1.0 mL				
13	320-23971-A-10 (537_DOD5)	292.38 g	265.2 mL	9	12/6/16		Chlorine ND
		27.21 g	1.0 mL				
14	320-23970-A-1 (537_DOD5)	293.55 g	255.7 mL	7	12/6/16		Chlorine ND
		27.83 g	1.0 mL				
15	320-23970-A-2 (537_DOD5)	296.96 g	269.6 mL	9	12/6/16		Chlorine ND
		27.32 g	1.0 mL				
16	320-23970-A-3 (537_DOD5)	289.54 g	251.4 mL	7	12/6/16		Chlorine ND
		28.13 g	1.0 mL				
17	320-23970-A-4 (537_DOD5)	289.59 g	262 mL	9	12/6/16		Chlorine ND
		27.60 g	1.0 mL				
18	320-23970-A-5 (537_DOD5)	289.52 g	261.5 mL	9	12/6/16		Chlorine ND
		27.99 g	1.0 mL				
19	320-23970-A-6 (537_DOD5)	288.84 g	261.7 mL	9	12/6/16		Chlorine ND
		27.15 g	1.0 mL				

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140632

Method Code: 320-537\_Prep-320

Analyst: Sharifi, Nooshin

Batch Open: 12/5/2016 11:42:00AM

Batch End:

Batch Notes	
Manifold ID	2,4
Trizma ID	SLBN2122V
SPE Cartridge ID	6332578-03
Methanol ID	789820
Reagent Water ID	11/29/16
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	NSH
Analyst ID - TA Reagent Drop Witness	VPM
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	VPM
Analyst ID - IS Reagent Drop	NSH
Analyst ID - IS Reagent Drop Witness	ERW 12/6/16
Batch Comment	

Comments

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140632

Analyst: Sharifi, Nooshin

Batch Open: 12/5/2016 11:42:00AM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-140632/1	LC537-SU_00022	50 uL	1.0 mL	NSH 12-5-16	VPM 12/6/16
LCS 320-140632/2	LC537-MSP_00014	50 uL	1.0 mL		
LCS 320-140632/2	LC537-SU_00022	50 uL	1.0 mL		
LCSD 320-140632/3	LC537-MSP_00014	50 uL	1.0 mL		
LCSD 320-140632/3	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-1	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-2	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-3	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-4	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-5	LC537-SU_00022	50 uL	1.0 mL		
320-23971-B-6	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-7	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-8	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-9	LC537-SU_00022	50 uL	1.0 mL		
320-23971-A-10	LC537-SU_00022	50 uL	1.0 mL		
320-23970-A-1	LC537-SU_00022	50 uL	1.0 mL		
320-23970-A-2	LC537-SU_00022	50 uL	1.0 mL		
320-23970-A-3	LC537-SU_00022	50 uL	1.0 mL		

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Sharifi, Nooshin

Batch Open: 12/5/2016 11:42:00AM

Batch End:

Batch Number: 320-140632

Method Code: 320-537\_Prep-320

320-23970-A-4	LC537-SU_00022	50 uL	1.0 mL	NSA 12-5-16	VPM 12/05/16
320-23970-A-5	LC537-SU_00022	50 uL	1.0 mL		
320-23970-A-6	LC537-SU_00022	50 uL	1.0 mL		

Reagent	Amount/Units	Lot#:
LC537-IS-00025	20 uL	
exp - 3/19/17		
0.5 - 1.434 ug/mL		



Preparation Batch Number(s): 140632 Test: 537-10005 Rush  
 Earliest Holding Time: 12-14-16

<b>Sample List Tab</b>		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		/	✓
<b>Worksheet Tab</b>		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		/	✓
All additional information transcribed into TALS is correct and raw data is attached		/	✓
Comments are transcribed correctly in TALS		/	✓
<b>Reagents Tab</b>		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		/	✓
<b>Batch Information</b>		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		/	✓

1<sup>st</sup> Level Reviewer: VPM

Date: 12/06/16

2<sup>nd</sup> Level Reviewer: ERW

Date: 12/6/16

Comments: \_\_\_\_\_

# Shipping and Receiving Documents

West Sacramento, CA 95605  
phone 916.373.5600 fax

TestAmerica Laboratories, Inc.

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

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

Client Contact: Tiffany Hill  
Project Chemist: \_\_\_\_\_

1100 NE Circle Blvd Ste 300 Corvallis, OR 97330  
(541) 768-3109  
(541) 908-3794

Project Name: CTO-08  
Site: NAS Whidbey Island  
P.O.#: 100067106050 - 679580.06.FIFS

Date: 12/01/2016  
Carrier: FedEx

COC No. 3 of 1 COCs

Sampler: \_\_\_\_\_

For Lab Use Only:  
Walk-in Client: \_\_\_\_\_  
Lab Sampling: \_\_\_\_\_

Job / SDG No.: \_\_\_\_\_

Sample Specific Notes: \_\_\_\_\_

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 (FOA, FOS, and FBS)	Analysis Turnaround Time						
									CALENDAR DAYS	TAT if different from Below	7-Day	2 weeks	1 week	2 days	1 day
WI-AF-2RW07-1116	11/30/16	0910	G	DW	2	N	N	X							
WI-AF-2FB07-1116	11/30/16	0912	G	DW	1	N	N	X							
WI-AF-2RW08-1116	11/30/16	0930	G	DW	2	N	N	X							
WI-AF-2FB08-1116	11/30/16	0932	G	DW	2	N	N	X							
WI-AF-3RW10-1116	11/30/16	1000	G	DW	2	N	N	X							
WI-AF-3FB10-1116	11/30/16	1000	G	DW	2	N	N	X							
WI-AF-3RW11-1116	11/30/16	1030	G	DW	2	N	N	X							
WI-AF-3FB11-1116	11/30/16	1031	G	DW	2	N	N	X							
WI-AF-3RW12-1116	11/30/16	1700	G	DW	2	N	N	X							
WI-AF-3FB11-1116	11/30/16	1701	G	DW	2	N	N	X							



320-23971 Chain of Custody

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

Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the 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. (°C): Obs'd: 3 Cor'd: 09 Therm ID No.: 12

Received by: Eric Epple Date/Time: 12-1-16/1:00  
Company: CH2M

Received by: THWS Date/Time: 12/2/16 09:40  
Company:

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Company:

Custody Seal No.: \_\_\_\_\_  
Company: CH2M

Relinquished by: Eric Epple Date/Time: \_\_\_\_\_  
Company:

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Company:

\* label ID: WI-AF-3FB12-1116 OML 12/3/16

# Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-23971-1

**Login Number: 23971**

**List Source: TestAmerica Sacramento**

**List Number: 1**

**Creator: Turpen, Troy**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seals
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.	False	Refer to Job Narrative for details.
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: 320-23971  
Laboratory: Test America, Sacramento, California  
Site: Whidbey Island, CTO-0008, Washington  
Date: December 21, 2016

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-AF-2RW07-1116	320-23971-1	Water
2	WI-AF-2FB07-1116	320-23971-2	Water
3	WI-AF-2RW08-1116	320-23971-3	Water
4	WI-AF-2FB08-1116	320-23971-4	Water
5	WI-AF-3RW10-1116	320-23971-5	Water
6	WI-AF-3FB10-1116	320-23971-6	Water
7	WI-AF-3RW11-1116	320-23971-7	Water
8	WI-AF-3FB11-1116	320-23971-8	Water
9	WI-AF-3RW12-1116	320-23971-9	Water
10	WI-AF-3FB12-1116	320-23971-10	Water

A full data validation was performed on the analytical data for five water samples and five aqueous field blank samples collected on November 30, 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.
- There was a discrepancy between the container label and the Chain-of-Custody for EDS Sample ID #10. The client and the laboratory resolved the issue and no action was required by the reviewer.

### **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 percent difference (%D) 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

- All 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. No action was required.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver  
Nancy Weaver  
Senior Chemist

Dated: 12/21/16

Data Qualifier	Definition
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.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW07-1116 Lab Sample ID: 320-23971-1  
 Matrix: Water Lab File ID: 11DEC2016A6A\_009.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:10  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 257.9(mL) Date Analyzed: 12/11/2016 15:00  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.058	0.047	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	103		70-130
STL00996	13C2 PFDA	118		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB07-1116 Lab Sample ID: 320-23971-2  
 Matrix: Water Lab File ID: 11DEC2016A6A\_010.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:12  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 266.2(mL) Date Analyzed: 12/11/2016 15:30  
 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.: 141573 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	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

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

3

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW08-1116 Lab Sample ID: 320-23971-3  
 Matrix: Water Lab File ID: 11DEC2016A6A\_011.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:30  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 269(mL) Date Analyzed: 12/11/2016 15:59  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U <del>N</del>	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U <del>N</del>	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	96		70-130
STL00996	13C2 PFDA	108		70-130

4

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB08-1116 Lab Sample ID: 320-23971-4  
 Matrix: Water Lab File ID: 11DEC2016A6A\_012.d  
 Analysis Method: 537 Date Collected: 11/30/2016 09:32  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 263.7(mL) Date Analyzed: 12/11/2016 16:29  
 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.: 141573 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	108		70-130
STL00996	13C2 PFDA	105		70-130



5

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW10-1116 Lab Sample ID: 320-23971-5  
 Matrix: Water Lab File ID: 11DEC2016A6A\_013.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 264 (mL) Date Analyzed: 12/11/2016 16:58  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	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	110		70-130
STL00996	13C2 PFDA	111		70-130

6

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB10-1116 Lab Sample ID: 320-23971-6  
 Matrix: Water Lab File ID: 11DEC2016A6A\_014.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 270.1(mL) Date Analyzed: 12/11/2016 17:28  
 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.: 141573 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U <del>M</del>	0.056	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0087
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	117		70-130
STL00996	13C2 PFDA	106		70-130

7

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW11-1116 Lab Sample ID: 320-23971-7  
 Matrix: Water Lab File ID: 11DEC2016A6A\_015.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:30  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 268.9(mL) Date Analyzed: 12/11/2016 17:58  
 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.: 141573 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	110		70-130
STL00996	13C2 PFDA	109		70-130

8

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB11-1116 Lab Sample ID: 320-23971-8  
 Matrix: Water Lab File ID: 11DEC2016A6A\_019.d  
 Analysis Method: 537 Date Collected: 11/30/2016 10:31  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 265.1(mL) Date Analyzed: 12/11/2016 19:56  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U M	0.057	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	108		70-130
STL00996	13C2 PFDA	108		70-130

9

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW12-1116 Lab Sample ID: 320-23971-9  
 Matrix: Water Lab File ID: 11DEC2016A6A\_020.d  
 Analysis Method: 537 Date Collected: 11/30/2016 17:00  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 256.4 (mL) Date Analyzed: 12/11/2016 20:26  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	119		70-130
STL00996	13C2 PFDA	130		70-130

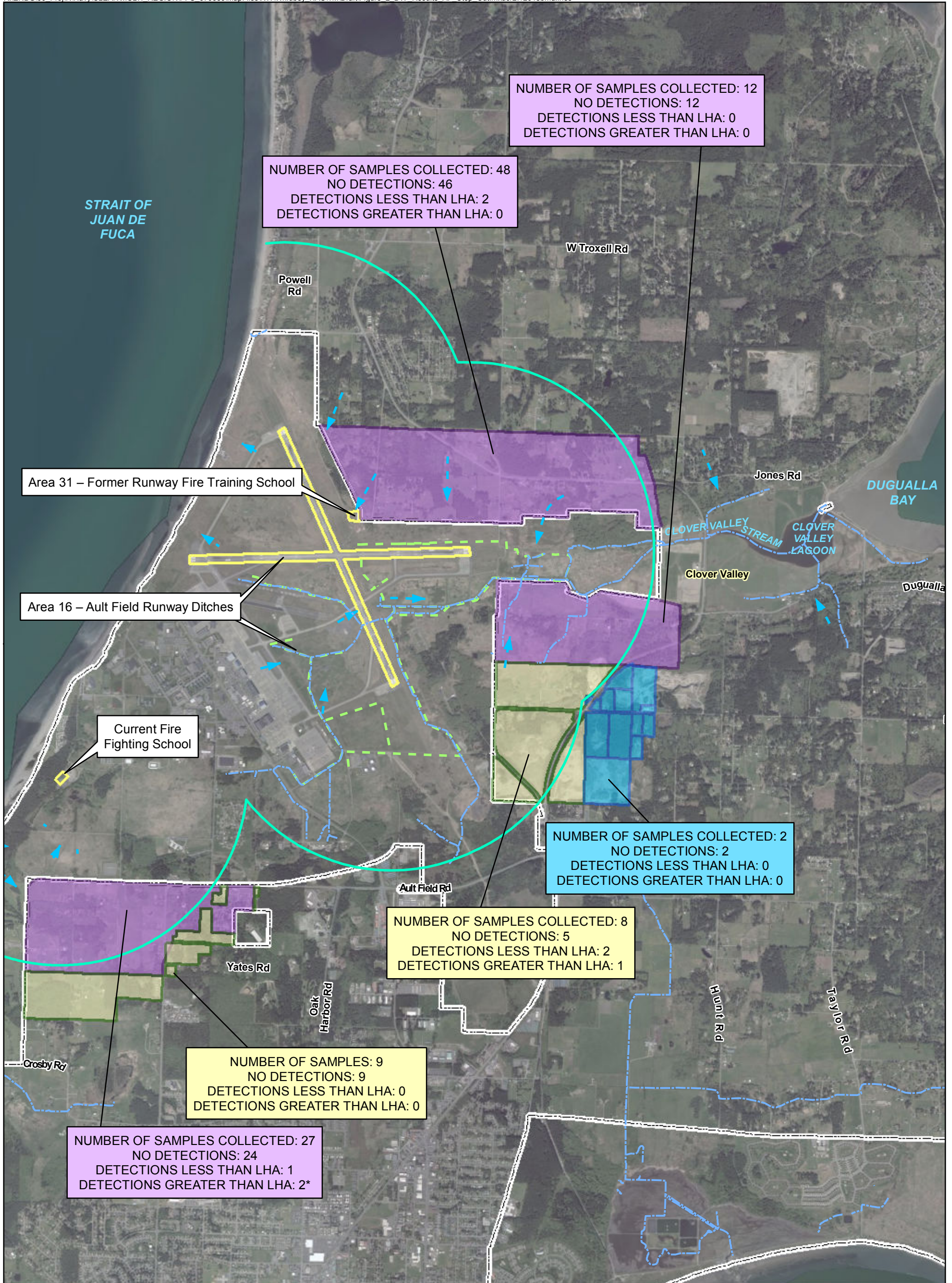
FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

10

Lab Name: TestAmerica Sacramento Job No.: 320-23971-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB12-1116 Lab Sample ID: 320-23971-10  
 Matrix: Water Lab File ID: 11DEC2016A6A\_021.d  
 Analysis Method: 537 Date Collected: 11/30/2016 17:01  
 Extraction Method: 537 Date Extracted: 12/05/2016 11:42  
 Sample wt/vol: 265.2(mL) Date Analyzed: 12/11/2016 20:55  
 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.: 141574 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	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	99		70-130
STL00996	13C2 PFDA	105		70-130



- Legend**
- 1 Mile Zone
  - - - Surface Water
  - - - Drainage Ditch
  - Suspected Source Area
  - Phase 1 Sampling Area
  - Phase 2 Sampling Area
  - Phase 3 Sampling Area
  - Base Boundary
  - - - ▶ Inferred Groundwater Flow Direction

**Notes:**

1. Results shown on this figure are for PFOA and PFOS. See text and Table 2 for PFBS results
2. \* Both results above the LHA are from the same well; the second sample collected was a confirmation sample.

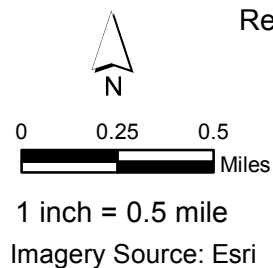


Figure 2  
 Results for Drinking Water Well Sampling  
 Near Ault Field  
 Naval Air Station Whidbey Island  
 Oak Harbor, Washington

For Official Use Only

