



**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 J23929-1**

*Naval Air Station Whidbey Island  
Oak Harbor, Washington*

June 2019

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

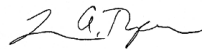
## ANALYTICAL REPORT

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

TestAmerica Job ID: 320-23929-1  
Client Project/Site: Whidbey Island

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

Attn: Tiffany Hill



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Authorized for release by:  
12/9/2016 4:07:53 PM

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### LINKS

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

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

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

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# Definitions/Glossary

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

TestAmerica Job ID: 320-23929-1

## Qualifiers

### LCMS

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

## Glossary

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

# Case Narrative

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

TestAmerica Job ID: 320-23929-1

**Job ID: 320-23929-1**

**Laboratory: TestAmerica Sacramento**

**Narrative**

## CASE NARRATIVE

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

**Project: Whidbey Island**

**Report Number: 320-23929-1**

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 12/01/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.7 C.

### **PFOA/PFOS**

Samples WI-AF-1RW01-1116 (320-23929-1), WI-AF-1FB01-1116 (320-23929-2), WI-AF-2RW01-1116 (320-23929-3), WI-AF-2FB01-1116 (320-23929-4), WI-AF-3RW02-1116 (320-23929-5), WI-AF-3FB02-1116 (320-23929-6), WI-AF-3RW01-1116 (320-23929-7), WI-AF-3FB01-1116 (320-23929-8), WI-AF-3RW03-1116 (320-23929-9) and WI-AF-3FB03-1116 (320-23929-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/02/2016 and analyzed on 12/08/2016 and 12/09/2016.

Surrogate recovery for the following sample was outside control limits: WI-AF-3FB02-1116 (320-23929-6). Re-analysis was performed

# Case Narrative

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

TestAmerica Job ID: 320-23929-1

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## Job ID: 320-23929-1 (Continued)

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### Laboratory: TestAmerica Sacramento (Continued)

with concurring results. The original analysis has been reported.

The following samples have a pH of 9: WI-AF-1RW01-1116 (320-23929-1), WI-AF-1FB01-1116 (320-23929-2), WI-AF-2RW01-1116 (320-23929-3), WI-AF-2FB01-1116 (320-23929-4), WI-AF-3RW02-1116 (320-23929-5), WI-AF-3FB02-1116 (320-23929-6), WI-AF-3RW01-1116 (320-23929-7), WI-AF-3FB01-1116 (320-23929-8), WI-AF-3RW03-1116 (320-23929-9) and WI-AF-3FB03-1116 (320-23929-10)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140400.

Sample WI-AF-3RW02-1116 (320-23929-5) left a film of black soot-like material on the top of the column while loading the sample onto the column.

No additional 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: 320-23929-1

**Client Sample ID: WI-AF-1RW01-1116**

**Lab Sample ID: 320-23929-1**

No Detections.

**Client Sample ID: WI-AF-1FB01-1116**

**Lab Sample ID: 320-23929-2**

No Detections.

**Client Sample ID: WI-AF-2RW01-1116**

**Lab Sample ID: 320-23929-3**

No Detections.

**Client Sample ID: WI-AF-2FB01-1116**

**Lab Sample ID: 320-23929-4**

No Detections.

**Client Sample ID: WI-AF-3RW02-1116**

**Lab Sample ID: 320-23929-5**

No Detections.

**Client Sample ID: WI-AF-3FB02-1116**

**Lab Sample ID: 320-23929-6**

No Detections.

**Client Sample ID: WI-AF-3RW01-1116**

**Lab Sample ID: 320-23929-7**

No Detections.

**Client Sample ID: WI-AF-3FB01-1116**

**Lab Sample ID: 320-23929-8**

No Detections.

**Client Sample ID: WI-AF-3RW03-1116**

**Lab Sample ID: 320-23929-9**

No Detections.

**Client Sample ID: WI-AF-3FB03-1116**

**Lab Sample ID: 320-23929-10**

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: 320-23929-1

**Client Sample ID: WI-AF-1RW01-1116**

**Lab Sample ID: 320-23929-1**

Date Collected: 11/28/16 14:15

Matrix: Water

Date Received: 12/01/16 09:50

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 07:18	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 07:18	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 07:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 07:18	1
13C2 PFDA	111		70 - 130				12/02/16 15:27	12/08/16 07:18	1

**Client Sample ID: WI-AF-1FB01-1116**

**Lab Sample ID: 320-23929-2**

Date Collected: 11/28/16 14:20

Matrix: Water

Date Received: 12/01/16 09:50

**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		12/02/16 15:27	12/08/16 07:47	1
Perfluorooctanoic acid (PFOA)	0.024	U	0.030	0.0093	ug/L		12/02/16 15:27	12/08/16 07:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/08/16 07:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		70 - 130				12/02/16 15:27	12/08/16 07:47	1
13C2 PFDA	117		70 - 130				12/02/16 15:27	12/08/16 07:47	1

**Client Sample ID: WI-AF-2RW01-1116**

**Lab Sample ID: 320-23929-3**

Date Collected: 11/28/16 16:15

Matrix: Water

Date Received: 12/01/16 09:50

**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		12/02/16 15:27	12/08/16 08:17	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L		12/02/16 15:27	12/08/16 08:17	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 08:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 08:17	1
13C2 PFDA	103		70 - 130				12/02/16 15:27	12/08/16 08:17	1

**Client Sample ID: WI-AF-2FB01-1116**

**Lab Sample ID: 320-23929-4**

Date Collected: 11/28/16 16:20

Matrix: Water

Date Received: 12/01/16 09:50

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 08:47	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 08:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 08:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130				12/02/16 15:27	12/08/16 08:47	1
13C2 PFDA	107		70 - 130				12/02/16 15:27	12/08/16 08:47	1

TestAmerica Sacramento



# Client Sample Results

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-3RW02-1116**

**Lab Sample ID: 320-23929-5**

**Date Collected: 11/28/16 14:25**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.048	U M	0.060	0.015	ug/L	-	12/02/16 15:27	12/08/16 10:45	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L	-	12/02/16 15:27	12/08/16 10:45	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L	-	12/02/16 15:27	12/08/16 10:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	76		70 - 130				12/02/16 15:27	12/08/16 10:45	1
13C2 PFDA	81		70 - 130				12/02/16 15:27	12/08/16 10:45	1

**Client Sample ID: WI-AF-3FB02-1116**

**Lab Sample ID: 320-23929-6**

**Date Collected: 11/28/16 14:26**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.058	0.015	ug/L	-	12/02/16 15:27	12/08/16 11:15	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L	-	12/02/16 15:27	12/08/16 11:15	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L	-	12/02/16 15:27	12/08/16 11:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	128		70 - 130				12/02/16 15:27	12/08/16 11:15	1
13C2 PFDA	134	Q	70 - 130				12/02/16 15:27	12/08/16 11:15	1

**Client Sample ID: WI-AF-3RW01-1116**

**Lab Sample ID: 320-23929-7**

**Date Collected: 11/28/16 13:50**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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	0.059	0.015	ug/L	-	12/02/16 15:27	12/08/16 13:19	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.0093	ug/L	-	12/02/16 15:27	12/08/16 13:19	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L	-	12/02/16 15:27	12/08/16 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 13:19	1
13C2 PFDA	120		70 - 130				12/02/16 15:27	12/08/16 13:19	1

**Client Sample ID: WI-AF-3FB01-1116**

**Lab Sample ID: 320-23929-8**

**Date Collected: 11/28/16 13:51**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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	-	12/02/16 15:27	12/08/16 13:48	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L	-	12/02/16 15:27	12/08/16 13:48	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L	-	12/02/16 15:27	12/08/16 13:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130				12/02/16 15:27	12/08/16 13:48	1
13C2 PFDA	110		70 - 130				12/02/16 15:27	12/08/16 13:48	1

TestAmerica Sacramento

# Client Sample Results

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-3RW03-1116**

**Lab Sample ID: 320-23929-9**

**Date Collected: 11/28/16 17:00**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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	0.059	0.015	ug/L	-	12/02/16 15:27	12/09/16 13:34	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.0092	ug/L	-	12/02/16 15:27	12/09/16 13:34	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L	-	12/02/16 15:27	12/09/16 13:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/02/16 15:27	12/09/16 13:34	1
13C2 PFDA	122		70 - 130				12/02/16 15:27	12/09/16 13:34	1

**Client Sample ID: WI-AF-3FB03-1116**

**Lab Sample ID: 320-23929-10**

**Date Collected: 11/28/16 17:00**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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	-	12/02/16 15:27	12/08/16 14:47	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0093	ug/L	-	12/02/16 15:27	12/08/16 14:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L	-	12/02/16 15:27	12/08/16 14:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	116		70 - 130				12/02/16 15:27	12/08/16 14:47	1
13C2 PFDA	112		70 - 130				12/02/16 15:27	12/08/16 14:47	1

# Surrogate Summary

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

TestAmerica Job ID: 320-23929-1

## 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 PFD/ (70-130)
320-23929-1	WI-AF-1RW01-1116	113	111
320-23929-2	WI-AF-1FB01-1116	119	117
320-23929-3	WI-AF-2RW01-1116	113	103
320-23929-4	WI-AF-2FB01-1116	103	107
320-23929-5	WI-AF-3RW02-1116	76	81
320-23929-6	WI-AF-3FB02-1116	128	134 Q
320-23929-7	WI-AF-3RW01-1116	113	120
320-23929-8	WI-AF-3FB01-1116	106	110
320-23929-9	WI-AF-3RW03-1116	108	122
320-23929-10	WI-AF-3FB03-1116	116	112
LLCS 320-140400/2-A	Lab Control Sample	112	108
LLCSD 320-140400/3-A	Lab Control Sample Dup	112	108
MB 320-140400/1-A	Method Blank	123	120

#### 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: 320-23929-1

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

**Lab Sample ID: MB 320-140400/1-A**  
**Matrix: Water**  
**Analysis Batch: 140948**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

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		12/02/16 15:27	12/08/16 11:41	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/02/16 15:27	12/08/16 11:41	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/02/16 15:27	12/08/16 11:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	123		70 - 130	12/02/16 15:27	12/08/16 11:41	1
13C2 PFDA	120		70 - 130	12/02/16 15:27	12/08/16 11:41	1

**Lab Sample ID: LLCS 320-140400/2-A**  
**Matrix: Water**  
**Analysis Batch: 140946**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

Analyte	Spike Added	LLCS LLCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0318	J	ug/L		79	50 - 150
Perfluorooctanoic acid (PFOA)	0.0198	0.0180	J	ug/L		90	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0805	J	ug/L		90	50 - 150

Surrogate	LLCS LLCS		Limits
	%Recovery	Qualifier	
13C2 PFHxA	112		70 - 130
13C2 PFDA	108		70 - 130

**Lab Sample ID: LLCSD 320-140400/3-A**  
**Matrix: Water**  
**Analysis Batch: 140946**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

Analyte	Spike Added	LLCSD LLCSD		Unit	D	%Rec	Limits	RPD	
		Result	Qualifier					RPD	Limit
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0315	J	ug/L		79	50 - 150	0.7	50
Perfluorooctanoic acid (PFOA)	0.0198	0.0185	J	ug/L		93	50 - 150	3	50
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0796	J	ug/L		89	50 - 150	1	50

Surrogate	LLCSD LLCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxA	112		70 - 130
13C2 PFDA	108		70 - 130

# QC Association Summary

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

TestAmerica Job ID: 320-23929-1

## LCMS

### Prep Batch: 140400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-1	WI-AF-1RW01-1116	Total/NA	Water	537	
320-23929-2	WI-AF-1FB01-1116	Total/NA	Water	537	
320-23929-3	WI-AF-2RW01-1116	Total/NA	Water	537	
320-23929-4	WI-AF-2FB01-1116	Total/NA	Water	537	
320-23929-5	WI-AF-3RW02-1116	Total/NA	Water	537	
320-23929-6	WI-AF-3FB02-1116	Total/NA	Water	537	
320-23929-7	WI-AF-3RW01-1116	Total/NA	Water	537	
320-23929-8	WI-AF-3FB01-1116	Total/NA	Water	537	
320-23929-9	WI-AF-3RW03-1116	Total/NA	Water	537	
320-23929-10	WI-AF-3FB03-1116	Total/NA	Water	537	
MB 320-140400/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-140400/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-140400/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 140946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 320-140400/2-A	Lab Control Sample	Total/NA	Water	537	140400
LLCSD 320-140400/3-A	Lab Control Sample Dup	Total/NA	Water	537	140400

### Analysis Batch: 140947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-1	WI-AF-1RW01-1116	Total/NA	Water	537	140400
320-23929-2	WI-AF-1FB01-1116	Total/NA	Water	537	140400
320-23929-3	WI-AF-2RW01-1116	Total/NA	Water	537	140400
320-23929-4	WI-AF-2FB01-1116	Total/NA	Water	537	140400

### Analysis Batch: 140948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-5	WI-AF-3RW02-1116	Total/NA	Water	537	140400
320-23929-6	WI-AF-3FB02-1116	Total/NA	Water	537	140400
MB 320-140400/1-A	Method Blank	Total/NA	Water	537	140400

### Analysis Batch: 141249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-7	WI-AF-3RW01-1116	Total/NA	Water	537	140400
320-23929-8	WI-AF-3FB01-1116	Total/NA	Water	537	140400
320-23929-10	WI-AF-3FB03-1116	Total/NA	Water	537	140400

### Analysis Batch: 141290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-9	WI-AF-3RW03-1116	Total/NA	Water	537	140400

# Lab Chronicle

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-1RW01-1116**

**Lab Sample ID: 320-23929-1**

Date Collected: 11/28/16 14:15

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			257.5 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140947	12/08/16 07:18	JRB	TAL SAC

**Client Sample ID: WI-AF-1FB01-1116**

**Lab Sample ID: 320-23929-2**

Date Collected: 11/28/16 14:20

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			253.5 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140947	12/08/16 07:47	JRB	TAL SAC

**Client Sample ID: WI-AF-2RW01-1116**

**Lab Sample ID: 320-23929-3**

Date Collected: 11/28/16 16:15

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			256.7 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140947	12/08/16 08:17	JRB	TAL SAC

**Client Sample ID: WI-AF-2FB01-1116**

**Lab Sample ID: 320-23929-4**

Date Collected: 11/28/16 16:20

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			258.3 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140947	12/08/16 08:47	JRB	TAL SAC

**Client Sample ID: WI-AF-3RW02-1116**

**Lab Sample ID: 320-23929-5**

Date Collected: 11/28/16 14:25

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			251.8 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140948	12/08/16 10:45	JRB	TAL SAC

**Client Sample ID: WI-AF-3FB02-1116**

**Lab Sample ID: 320-23929-6**

Date Collected: 11/28/16 14:26

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			259 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			140948	12/08/16 11:15	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-3RW01-1116**

**Lab Sample ID: 320-23929-7**

Date Collected: 11/28/16 13:50

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			254.5 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			141249	12/08/16 13:19	JRB	TAL SAC

**Client Sample ID: WI-AF-3FB01-1116**

**Lab Sample ID: 320-23929-8**

Date Collected: 11/28/16 13:51

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			257.4 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			141249	12/08/16 13:48	JRB	TAL SAC

**Client Sample ID: WI-AF-3RW03-1116**

**Lab Sample ID: 320-23929-9**

Date Collected: 11/28/16 17:00

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			254.7 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			141290	12/09/16 13:34	JRB	TAL SAC

**Client Sample ID: WI-AF-3FB03-1116**

**Lab Sample ID: 320-23929-10**

Date Collected: 11/28/16 17:00

Matrix: Water

Date Received: 12/01/16 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			253.4 mL	1 mL	140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1			141249	12/08/16 14:47	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: 320-23929-1

## 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: 320-23929-1

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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

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

# Sample Summary

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

TestAmerica Job ID: 320-23929-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23929-1	WI-AF-1RW01-1116	Water	11/28/16 14:15	12/01/16 09:50
320-23929-2	WI-AF-1FB01-1116	Water	11/28/16 14:20	12/01/16 09:50
320-23929-3	WI-AF-2RW01-1116	Water	11/28/16 16:15	12/01/16 09:50
320-23929-4	WI-AF-2FB01-1116	Water	11/28/16 16:20	12/01/16 09:50
320-23929-5	WI-AF-3RW02-1116	Water	11/28/16 14:25	12/01/16 09:50
320-23929-6	WI-AF-3FB02-1116	Water	11/28/16 14:26	12/01/16 09:50
320-23929-7	WI-AF-3RW01-1116	Water	11/28/16 13:50	12/01/16 09:50
320-23929-8	WI-AF-3FB01-1116	Water	11/28/16 13:51	12/01/16 09:50
320-23929-9	WI-AF-3RW03-1116	Water	11/28/16 17:00	12/01/16 09:50
320-23929-10	WI-AF-3FB03-1116	Water	11/28/16 17:00	12/01/16 09:50



West Sacramento, CA 95605  
phone 916.373.5600 fax

Regulatory Program:

DW  NPDES  RCRA  Other:

TestAmerica Laboratories, Inc.

Client Contact

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

Site Contact: Eric Epple  
Lab Contact: Laura Turpen

Date: 11/ /2016  
Carrier: FedEx

COC No: 1  
of COCS

Project Chemist  
1100 NE Circle Blvd Ste 300 Corvallis, OR 97330

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS

DATE: 11-29-16

Sampler:  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:

(541) 768-3109  
(541) 908-3794

TAT if different from Below: 7-Day  
 2 weeks  
 1 week  
 2 days  
 1 day

USEPA Method 537 (PFOA, PFOS, and PFBS)

Job / SDG No.:

Project Name: CTO-08

Site: NAS Whidbey Island

Perform MS / MSD ( Y / N )

Sample Specific Notes:

P O # : 100067106050 - 679580.06.FLFS

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grav)	Matrix	# of Cont.	Filtered Sample ( Y / N )	Perform MS / MSD ( Y / N )	Carrier	Date
WI-AF-1RW01-1116	11/28/16	1415	G	DW	2	N	X		
WI-AF-1FB01-1116	11/28/16	1420	G	DW	1	N	X		
WI-AF-2RW01-1116	11/28/16	1615	G	DW	2	N	X		
WI-AF-2FB01-1116	11/28/16	1620	G	DW	2	N	X		
WI-AF-3RW02-1116	11/28/16	1425	G	DW	2	N	X		
WI-AF-3FB02-1116	11/28/16	1426	G	DW	2	N	X		
WI-AF-3RW01-1116	11/28/16	1350	G	DW	2	N	X		
WI-AF-3FB01-1116	11/28/16	1351	G	DW	2	N	X		
WI-AF-3RW03-1116	11/28/16	1700	G	DW	2	N	X		
WI-AF-3FB03-1116	11/28/16	1700	G	DW	2	N	X		



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.

Special Instructions/QC Requirements & Comments:  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

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

Custody Seals Intact:  Yes  No

Cooler Temp (°C) Obs'd: 18.0  
Therm ID No.: 12

Relinquished by: Eric Epple

Received by: [Signature] Company: STARS Date/Time: 12-1-16 950

Relinquished by: [Signature]

Received by: [Signature] Company: STARS Date/Time: 12-1-16 950

Relinquished by: [Signature]

Received in Laboratory by: [Signature] Company: STARS Date/Time: 12-1-16 950

\* bottle label time is 1701 AM 12/1/16

# Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-23929-1

**Login Number: 23929**

**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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Job Number: 320-23929-1  
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  
12/9/2016 4:10 PM

---

Laura Turpen, Project Manager I  
880 Riverside Parkway, West Sacramento, CA, 95605  
(916)374-4414  
laura.turpen@testamericainc.com  
12/09/2016

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# Definitions/Glossary

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

TestAmerica Job ID: 320-23929-1

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## Qualifiers

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### LCMS

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

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## Glossary

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



## CASE NARRATIVE

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

**Project: Whidbey Island**

**Report Number: 320-23929-1**

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 12/01/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.7 C.

### **PFOA/PFOS**

Samples WI-AF-1RW01-1116 (320-23929-1), WI-AF-1FB01-1116 (320-23929-2), WI-AF-2RW01-1116 (320-23929-3), WI-AF-2FB01-1116 (320-23929-4), WI-AF-3RW02-1116 (320-23929-5), WI-AF-3FB02-1116 (320-23929-6), WI-AF-3RW01-1116 (320-23929-7), WI-AF-3FB01-1116 (320-23929-8), WI-AF-3RW03-1116 (320-23929-9) and WI-AF-3FB03-1116 (320-23929-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/02/2016 and analyzed on 12/08/2016 and 12/09/2016.

Surrogate recovery for the following sample was outside control limits: WI-AF-3FB02-1116 (320-23929-6). Re-analysis was performed with concurring results. The original analysis has been reported.

The following samples have a pH of 9: WI-AF-1RW01-1116 (320-23929-1), WI-AF-1FB01-1116 (320-23929-2), WI-AF-2RW01-1116 (320-23929-3), WI-AF-2FB01-1116 (320-23929-4), WI-AF-3RW02-1116 (320-23929-5), WI-AF-3FB02-1116 (320-23929-6), WI-AF-3RW01-1116 (320-23929-7), WI-AF-3FB01-1116 (320-23929-8), WI-AF-3RW03-1116 (320-23929-9) and WI-AF-3FB03-1116 (320-23929-10)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140400.

Sample WI-AF-3RW02-1116 (320-23929-5) left a film of black soot-like material on the top of the column while loading the sample onto the column.

No additional 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: 320-23929-1

**Client Sample ID: WI-AF-1RW01-1116**

**Lab Sample ID: 320-23929-1**

No Detections.

**Client Sample ID: WI-AF-1FB01-1116**

**Lab Sample ID: 320-23929-2**

No Detections.

**Client Sample ID: WI-AF-2RW01-1116**

**Lab Sample ID: 320-23929-3**

No Detections.

**Client Sample ID: WI-AF-2FB01-1116**

**Lab Sample ID: 320-23929-4**

No Detections.

**Client Sample ID: WI-AF-3RW02-1116**

**Lab Sample ID: 320-23929-5**

No Detections.

**Client Sample ID: WI-AF-3FB02-1116**

**Lab Sample ID: 320-23929-6**

No Detections.

**Client Sample ID: WI-AF-3RW01-1116**

**Lab Sample ID: 320-23929-7**

No Detections.

**Client Sample ID: WI-AF-3FB01-1116**

**Lab Sample ID: 320-23929-8**

No Detections.

**Client Sample ID: WI-AF-3RW03-1116**

**Lab Sample ID: 320-23929-9**

No Detections.

**Client Sample ID: WI-AF-3FB03-1116**

**Lab Sample ID: 320-23929-10**

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: 320-23929-1

## Client Sample ID: WI-AF-1RW01-1116

Date Collected: 11/28/16 14:15

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-1

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	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 07:18	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 07:18	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 07:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 07:18	1
13C2 PFDA	111		70 - 130				12/02/16 15:27	12/08/16 07:18	1

## Client Sample ID: WI-AF-1FB01-1116

Date Collected: 11/28/16 14:20

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.059	0.015	ug/L		12/02/16 15:27	12/08/16 07:47	1
Perfluorooctanoic acid (PFOA)	0.024	U	0.030	0.0093	ug/L		12/02/16 15:27	12/08/16 07:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/08/16 07:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		70 - 130				12/02/16 15:27	12/08/16 07:47	1
13C2 PFDA	117		70 - 130				12/02/16 15:27	12/08/16 07:47	1

## Client Sample ID: WI-AF-2RW01-1116

Date Collected: 11/28/16 16:15

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 08:17	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L		12/02/16 15:27	12/08/16 08:17	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 08:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 08:17	1
13C2 PFDA	103		70 - 130				12/02/16 15:27	12/08/16 08:17	1

## Client Sample ID: WI-AF-2FB01-1116

Date Collected: 11/28/16 16:20

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-4

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	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 08:47	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 08:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 08:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130				12/02/16 15:27	12/08/16 08:47	1
13C2 PFDA	107		70 - 130				12/02/16 15:27	12/08/16 08:47	1

# Client Sample Results

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-3RW02-1116**

**Lab Sample ID: 320-23929-5**

Date Collected: 11/28/16 14:25

Matrix: Water

Date Received: 12/01/16 09:50

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.048	U M	0.060	0.015	ug/L		12/02/16 15:27	12/08/16 10:45	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/02/16 15:27	12/08/16 10:45	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/08/16 10:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	76		70 - 130				12/02/16 15:27	12/08/16 10:45	1
13C2 PFDA	81		70 - 130				12/02/16 15:27	12/08/16 10:45	1

**Client Sample ID: WI-AF-3FB02-1116**

**Lab Sample ID: 320-23929-6**

Date Collected: 11/28/16 14:26

Matrix: Water

Date Received: 12/01/16 09:50

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.058	0.015	ug/L		12/02/16 15:27	12/08/16 11:15	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 11:15	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 11:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	128		70 - 130				12/02/16 15:27	12/08/16 11:15	1
13C2 PFDA	134	Q	70 - 130				12/02/16 15:27	12/08/16 11:15	1

**Client Sample ID: WI-AF-3RW01-1116**

**Lab Sample ID: 320-23929-7**

Date Collected: 11/28/16 13:50

Matrix: Water

Date Received: 12/01/16 09:50

**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	0.059	0.015	ug/L		12/02/16 15:27	12/08/16 13:19	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.0093	ug/L		12/02/16 15:27	12/08/16 13:19	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/08/16 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	113		70 - 130				12/02/16 15:27	12/08/16 13:19	1
13C2 PFDA	120		70 - 130				12/02/16 15:27	12/08/16 13:19	1

**Client Sample ID: WI-AF-3FB01-1116**

**Lab Sample ID: 320-23929-8**

Date Collected: 11/28/16 13:51

Matrix: Water

Date Received: 12/01/16 09:50

**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		12/02/16 15:27	12/08/16 13:48	1
Perfluorooctanoic acid (PFOA)	0.023	U M	0.029	0.0091	ug/L		12/02/16 15:27	12/08/16 13:48	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/02/16 15:27	12/08/16 13:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130				12/02/16 15:27	12/08/16 13:48	1
13C2 PFDA	110		70 - 130				12/02/16 15:27	12/08/16 13:48	1

# Client Sample Results

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

TestAmerica Job ID: 320-23929-1

**Client Sample ID: WI-AF-3RW03-1116**

**Lab Sample ID: 320-23929-9**

**Date Collected: 11/28/16 17:00**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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	0.059	0.015	ug/L		12/02/16 15:27	12/09/16 13:34	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.0092	ug/L		12/02/16 15:27	12/09/16 13:34	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/09/16 13:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130				12/02/16 15:27	12/09/16 13:34	1
13C2 PFDA	122		70 - 130				12/02/16 15:27	12/09/16 13:34	1

**Client Sample ID: WI-AF-3FB03-1116**

**Lab Sample ID: 320-23929-10**

**Date Collected: 11/28/16 17:00**

**Matrix: Water**

**Date Received: 12/01/16 09:50**

**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		12/02/16 15:27	12/08/16 14:47	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0093	ug/L		12/02/16 15:27	12/08/16 14:47	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.047	ug/L		12/02/16 15:27	12/08/16 14:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	116		70 - 130				12/02/16 15:27	12/08/16 14:47	1
13C2 PFDA	112		70 - 130				12/02/16 15:27	12/08/16 14:47	1

# Default Detection Limits

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

TestAmerica Job ID: 320-23929-1

## 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: 320-23929-1

## 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)
320-23929-1	WI-AF-1RW01-1116	113	111
320-23929-2	WI-AF-1FB01-1116	119	117
320-23929-3	WI-AF-2RW01-1116	113	103
320-23929-4	WI-AF-2FB01-1116	103	107
320-23929-5	WI-AF-3RW02-1116	76	81
320-23929-6	WI-AF-3FB02-1116	128	134 Q
320-23929-7	WI-AF-3RW01-1116	113	120
320-23929-8	WI-AF-3FB01-1116	106	110
320-23929-9	WI-AF-3RW03-1116	108	122
320-23929-10	WI-AF-3FB03-1116	116	112
LLCS 320-140400/2-A	Lab Control Sample	112	108
LLCSD 320-140400/3-A	Lab Control Sample Dup	112	108
MB 320-140400/1-A	Method Blank	123	120

### 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: 320-23929-1

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

**Lab Sample ID: MB 320-140400/1-A**  
**Matrix: Water**  
**Analysis Batch: 140948**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

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		12/02/16 15:27	12/08/16 11:41	1
Perfluorooctanoic acid (PFOA)	0.024	U M	0.030	0.0094	ug/L		12/02/16 15:27	12/08/16 11:41	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/02/16 15:27	12/08/16 11:41	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	123		70 - 130	12/02/16 15:27	12/08/16 11:41	1
13C2 PFDA	120		70 - 130	12/02/16 15:27	12/08/16 11:41	1

**Lab Sample ID: LLCS 320-140400/2-A**  
**Matrix: Water**  
**Analysis Batch: 140946**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

Analyte	Spike Added	LLCS	LLCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0318	J	ug/L		79	50 - 150
Perfluorooctanoic acid (PFOA)	0.0198	0.0180	J	ug/L		90	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0805	J	ug/L		90	50 - 150

Surrogate	LLCS	LLCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	112		70 - 130
13C2 PFDA	108		70 - 130

**Lab Sample ID: LLCSD 320-140400/3-A**  
**Matrix: Water**  
**Analysis Batch: 140946**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 140400**

Analyte	Spike Added	LLCSD	LLCSD	Unit	D	%Rec	Limits	RPD	RPD Limit
		Result	Qualifier						
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0315	J	ug/L		79	50 - 150	0.7	50
Perfluorooctanoic acid (PFOA)	0.0198	0.0185	J	ug/L		93	50 - 150	3	50
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0796	J	ug/L		89	50 - 150	1	50

Surrogate	LLCSD	LLCSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	112		70 - 130
13C2 PFDA	108		70 - 130

# QC Association Summary

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

TestAmerica Job ID: 320-23929-1

## LCMS

### Prep Batch: 140400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-1	WI-AF-1RW01-1116	Total/NA	Water	537	
320-23929-2	WI-AF-1FB01-1116	Total/NA	Water	537	
320-23929-3	WI-AF-2RW01-1116	Total/NA	Water	537	
320-23929-4	WI-AF-2FB01-1116	Total/NA	Water	537	
320-23929-5	WI-AF-3RW02-1116	Total/NA	Water	537	
320-23929-6	WI-AF-3FB02-1116	Total/NA	Water	537	
320-23929-7	WI-AF-3RW01-1116	Total/NA	Water	537	
320-23929-8	WI-AF-3FB01-1116	Total/NA	Water	537	
320-23929-9	WI-AF-3RW03-1116	Total/NA	Water	537	
320-23929-10	WI-AF-3FB03-1116	Total/NA	Water	537	
MB 320-140400/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-140400/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-140400/3-A	Lab Control Sample Dup	Total/NA	Water	537	

### Analysis Batch: 140946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 320-140400/2-A	Lab Control Sample	Total/NA	Water	537	140400
LLCSD 320-140400/3-A	Lab Control Sample Dup	Total/NA	Water	537	140400

### Analysis Batch: 140947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-1	WI-AF-1RW01-1116	Total/NA	Water	537	140400
320-23929-2	WI-AF-1FB01-1116	Total/NA	Water	537	140400
320-23929-3	WI-AF-2RW01-1116	Total/NA	Water	537	140400
320-23929-4	WI-AF-2FB01-1116	Total/NA	Water	537	140400

### Analysis Batch: 140948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-5	WI-AF-3RW02-1116	Total/NA	Water	537	140400
320-23929-6	WI-AF-3FB02-1116	Total/NA	Water	537	140400
MB 320-140400/1-A	Method Blank	Total/NA	Water	537	140400

### Analysis Batch: 141249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-7	WI-AF-3RW01-1116	Total/NA	Water	537	140400
320-23929-8	WI-AF-3FB01-1116	Total/NA	Water	537	140400
320-23929-10	WI-AF-3FB03-1116	Total/NA	Water	537	140400

### Analysis Batch: 141290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23929-9	WI-AF-3RW03-1116	Total/NA	Water	537	140400

# Lab Chronicle

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

TestAmerica Job ID: 320-23929-1

## Client Sample ID: WI-AF-1RW01-1116

Date Collected: 11/28/16 14:15

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140947	12/08/16 07:18	JRB	TAL SAC

## Client Sample ID: WI-AF-1FB01-1116

Date Collected: 11/28/16 14:20

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140947	12/08/16 07:47	JRB	TAL SAC

## Client Sample ID: WI-AF-2RW01-1116

Date Collected: 11/28/16 16:15

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140947	12/08/16 08:17	JRB	TAL SAC

## Client Sample ID: WI-AF-2FB01-1116

Date Collected: 11/28/16 16:20

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140947	12/08/16 08:47	JRB	TAL SAC

## Client Sample ID: WI-AF-3RW02-1116

Date Collected: 11/28/16 14:25

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140948	12/08/16 10:45	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB02-1116

Date Collected: 11/28/16 14:26

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	140948	12/08/16 11:15	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-23929-1

## Client Sample ID: WI-AF-3RW01-1116

Date Collected: 11/28/16 13:50

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	141249	12/08/16 13:19	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB01-1116

Date Collected: 11/28/16 13:51

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	141249	12/08/16 13:48	JRB	TAL SAC

## Client Sample ID: WI-AF-3RW03-1116

Date Collected: 11/28/16 17:00

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	141290	12/09/16 13:34	JRB	TAL SAC

## Client Sample ID: WI-AF-3FB03-1116

Date Collected: 11/28/16 17:00

Date Received: 12/01/16 09:50

## Lab Sample ID: 320-23929-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			140400	12/02/16 15:27	VPM	TAL SAC
Total/NA	Analysis	537		1	141249	12/08/16 14:47	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: 320-23929-1

## 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>
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# Method Summary

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

TestAmerica Job ID: 320-23929-1

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

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

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

# Sample Summary

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

TestAmerica Job ID: 320-23929-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23929-1	WI-AF-1RW01-1116	Water	11/28/16 14:15	12/01/16 09:50
320-23929-2	WI-AF-1FB01-1116	Water	11/28/16 14:20	12/01/16 09:50
320-23929-3	WI-AF-2RW01-1116	Water	11/28/16 16:15	12/01/16 09:50
320-23929-4	WI-AF-2FB01-1116	Water	11/28/16 16:20	12/01/16 09:50
320-23929-5	WI-AF-3RW02-1116	Water	11/28/16 14:25	12/01/16 09:50
320-23929-6	WI-AF-3FB02-1116	Water	11/28/16 14:26	12/01/16 09:50
320-23929-7	WI-AF-3RW01-1116	Water	11/28/16 13:50	12/01/16 09:50
320-23929-8	WI-AF-3FB01-1116	Water	11/28/16 13:51	12/01/16 09:50
320-23929-9	WI-AF-3RW03-1116	Water	11/28/16 17:00	12/01/16 09:50
320-23929-10	WI-AF-3FB03-1116	Water	11/28/16 17:00	12/01/16 09:50

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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.: 320-23929-1

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

Instrument ID: A6 Analysis Batch Number: 140947

Lab Sample ID: 320-23929-1 Client Sample ID: WI-AF-1RW01-1116

Date Analyzed: 12/08/16 07:18 Lab File ID: 05DEC2016A6A\_129.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.06	Wrong peak	krenns	12/08/16 15:24

Lab Sample ID: 320-23929-3 Client Sample ID: WI-AF-2RW01-1116

Date Analyzed: 12/08/16 08:17 Lab File ID: 05DEC2016A6A\_131.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	12/08/16 11:27

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Analysis Batch Number: 140948

Lab Sample ID: 320-23929-5 Client Sample ID: WI-AF-3RW02-1116

Date Analyzed: 12/08/16 10:45 Lab File ID: 05DEC2016A6A\_136.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.08	Split Peak	barnettj	12/08/16 13:51
Perfluorooctanesulfonic acid (PFOS)	20.38	Missed Peak	barnettj	12/08/16 13:51

Lab Sample ID: 320-23929-6 Client Sample ID: WI-AF-3FB02-1116

Date Analyzed: 12/08/16 11:15 Lab File ID: 05DEC2016A6A\_137.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.09	Missed Peak	barnettj	12/08/16 13:52
Perfluorooctanesulfonic acid (PFOS)	20.39	Missed Peak	barnettj	12/08/16 13:52

Lab Sample ID: MB 320-140400/1-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 12/08/16 11:41 Lab File ID: 05DEC2016A6A\_138.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	12/08/16 13:53
Perfluorooctanesulfonic acid (PFOS)	20.67	Missed Peak	barnettj	12/08/16 13:53

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Analysis Batch Number: 141249

Lab Sample ID: 320-23929-7 Client Sample ID: WI-AF-3RW01-1116

Date Analyzed: 12/08/16 13:19 Lab File ID: 05DEC2016A6A\_141.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.05	Missed Peak	barnettj	12/08/16 16:06
Perfluorooctanesulfonic acid (PFOS)	20.37	Missed Peak	barnettj	12/08/16 16:06

Lab Sample ID: 320-23929-8 Client Sample ID: WI-AF-3FB01-1116

Date Analyzed: 12/08/16 13:48 Lab File ID: 05DEC2016A6A\_142.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.04	Split Peak	barnettj	12/08/16 16:07
Perfluorooctanesulfonic acid (PFOS)	20.68	Missed Peak	barnettj	12/08/16 16:07

Lab Sample ID: 320-23929-10 Client Sample ID: WI-AF-3FB03-1116

Date Analyzed: 12/08/16 14:47 Lab File ID: 05DEC2016A6A\_144.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.06	Missed Peak	barnettj	12/08/16 16:14

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Analysis Batch Number: 141290

Lab Sample ID: 320-23929-9 Client Sample ID: WI-AF-3RW03-1116

Date Analyzed: 12/09/16 13:34 Lab File ID: 05DEC2016A6A\_188.d GC Column: Acquity ID: 2.1(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.01	Split Peak	barnettj	12/09/16 14:15
Perfluorooctanesulfonic acid (PFOS)	20.66	Missed Peak	barnettj	12/09/16 14:15

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-23929-1

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
					(Purchased Reagent)		13C4 PFOS	47.8 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.: 320-23929-1

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 PFOS	47.8 ug/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_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-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
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L2_00014</b>	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	34 uL	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.: 320-23929-1

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.: 320-23929-1

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-PFHxA_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-PFHxA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHxA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
....LC537 PFHxA_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.: 320-23929-1

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.: 320-23929-1

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.: 320-23929-1

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.: 320-23929-1

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-LSP_00016</b>	05/04/17	11/04/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00015	50 uL	Perfluorobutane Sulfonate	448.8 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	448.8 ng/mL
							Perfluoroheptanoic acid	53.7429 ng/mL
							Perfluorohexanesulfonic acid	151.291 ng/mL
							Perfluorononanoic acid	101.553 ng/mL
							Perfluorooctanoic acid (PFOA)	99.234 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	200.332 ng/mL
.LC537SPIM_00015	05/04/17	11/04/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutane Sulfonate	89.76 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHxA_00011	100 uL	Perfluoroheptanoic acid	10.7486 ug/mL
					LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00009	200 uL	Perfluorononanoic acid	20.3105 ug/mL
					LC537-PFOA_00010	100 uL	Perfluorooctanoic acid (PFOA)	19.8468 ug/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
..LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutane Sulfonate	2040 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHxA_00011	11/04/17	11/04/16	Methanol, Lot 090285	7 mL	LC537_PFHxA_00002	0.0076 g	Perfluoroheptanoic acid	1074.86 ug/mL
...LC537_PFHxA_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_00009	11/04/17	11/04/16	Methanol, Lot 090285	5.5 mL	LC537_PFNA_00002	0.0058 g	Perfluorononanoic acid	1015.53 ug/mL
...LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00010	11/04/17	11/04/16	Methanol, Lot 090285	7.5 mL	LC537_PFOA_00002	0.0149 g	Perfluorooctanoic acid (PFOA)	1984.68 ug/mL
...LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
...LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
<b>LC537-SU_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

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**LC537\_PFB\_00002**

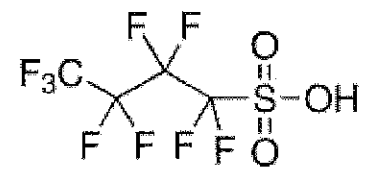
#: 4/1/15 SPV

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

### Certificate of Analysis

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

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



PFBS

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

*Jamie Gleason*

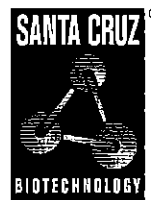
Jamie Gleason, Manager  
Quality Control  
Milwaukee, Wisconsin US

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

Reagent

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**LC537\_PFB2\_00001**



*The Power to Question*

# CERTIFICATE OF ANALYSIS

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

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

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



Reagent

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**LC537\_PFHpA\_00002**

R: 4/1/15 4V

**Certificate of Analysis**

**Product Name:** PERFLUOROHEPTANOIC ACID  
**Product Number:** 342041  
**Batch Number:** BCBM2579V  
**Brand:** Aldrich  
**CAS Number:** 375-85-9  
**Formula:**  $CF_3(CF_2)_5CO_2H$   
**Formula Weight:** 364.06  
**Quality Release Date:** 06 DEC 2013  
**Recommended Retest Date:** OCT 2018

PFHpA

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	COLORLESS OR WHITE	WHITE
APPEARANCE (FORM)	LIQUID OR SOLID	SOLID
TITRATION	98.5 - 101.5 %	99.8 %
TITRATION (METHOD)	-	BACK TITRATION
PURITY (GC AREA %)	≥ 98.5 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Dr. Claudia Geitner  
Manager Quality Control  
Buchs, Switzerland

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

Reagent

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**LC537\_PFHxS\_00002**

r: 4/1/15 stw

### Certificate of Analysis

**Product Name:** TRIDECAFLUOROHEXANE-1-SULFONIC ACID POTASSIUM SALT  
 >= 98.0 % T

**Product Number:** 50929

**Batch Number:** BCBL3545V

**Brand:** Aldrich

**CAS Number:** 3871-99-6

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

**Formula Weight:** 438.20

**Quality Release Date:** 20 JUN 2013

PFH<sub>13</sub>S-K

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO FAINT BEIGE	WHITE
APPEARANCE (FORM)	POWDER OR CRYSTALS	POWDER
TITRATION (ION EXCHANGE)	≥ 98.0 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Dr. Claudia Geitner  
Manager Quality Control  
Buchs, Switzerland

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

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

stw 4/1/15

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Reagent

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**LC537\_PENA\_00002**

R: 4/1/15 SKV



### Certificate of Analysis

Apr 2, 2015 (JST)

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

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

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

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

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

PFNA

Reagent

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**LC537\_PFOA\_00002**

3/21/15

# SIGMA-ALDRICH

## CERTIFICATE OF ANALYSIS

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

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

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

### Reference Material (RM)

#### 1. General Information

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

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

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

#### 2. Batch Analysis

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

complying  
99.4 %  
13.Nov.2013

#### 3. Advice and Remarks

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

Sigma-Aldrich Laborchemikalien GmbH  
Quality Management SA-LC

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**GC/MS-Method**

**Analytical Department**

**Article:** Pentadecafluorooctanoic acid OEKANAL

**Article-No.:** 33824

**Batch:** SZBD308XV

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

**Injector:** Split mode

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

**Inj.-temp.:** 280°C

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

**Split:** 1:100

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

**Detector:** MSD

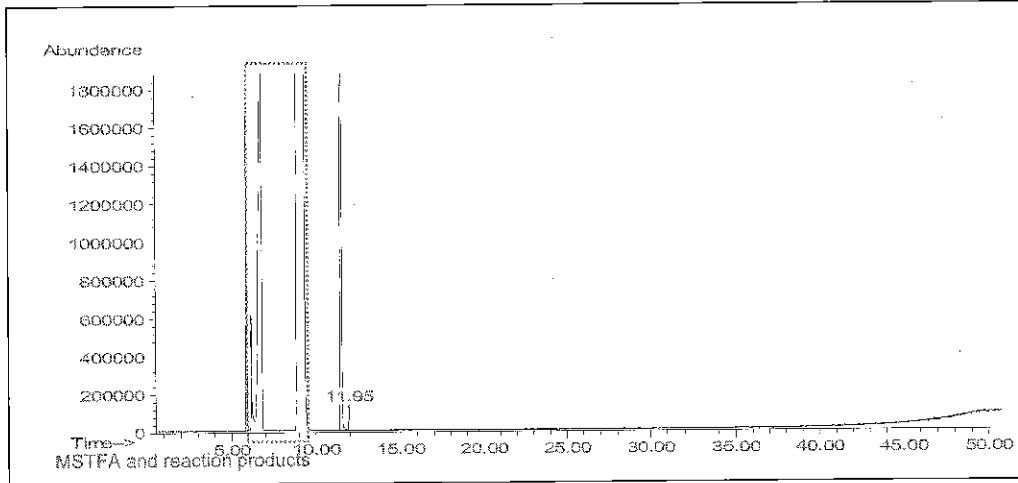
**Mass range:** 10-600 amu (Scan mode)

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

Identity: Mass spectrum complies

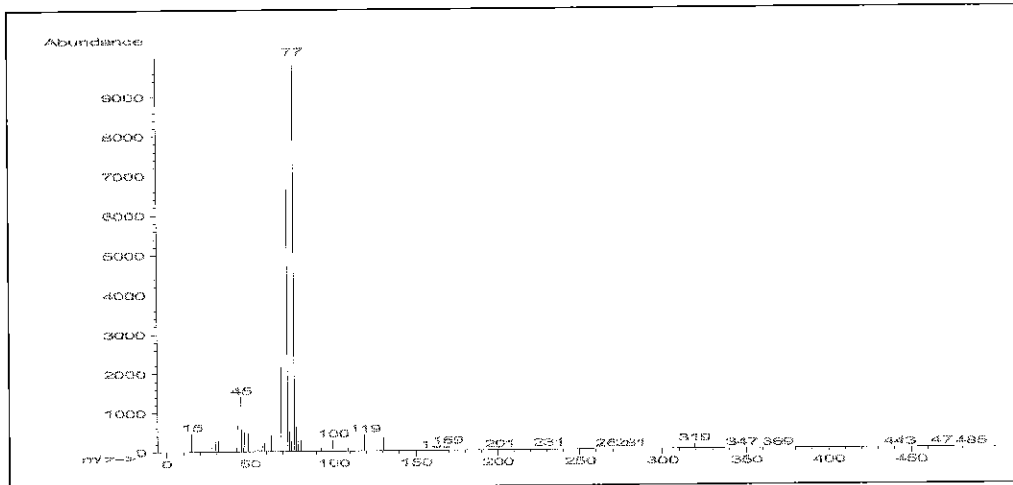
**Operator:** Ahrens / 2013-11-13

**Total Ion Chromatogram:**



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

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



Reagent

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**LC537\_PFOA2\_00001**

# Certificate of Analysis

**Alfa Aesar**  
A Johnson Matthey Company

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

PFOA

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

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

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

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

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+33 (0)3 8862 6864  
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Fax: +82-2-3140-6002  
Email: [saleskorea@alfa-asia.com](mailto:saleskorea@alfa-asia.com)

Reagent

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

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

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

**2. Batch Analysis**

Identity	complying
Assay (LC-MS)	98 %
Date of Analysis	10.Aug.2012

*FW-correction:*

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

*Purity = 91.06%*

**3. Advice and Remarks**

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

Sigma-Aldrich Laborchemikalien GmbH  
 Quality Management SA-LC

Reagent

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**LC537\_PFOs2\_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

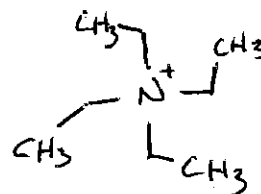
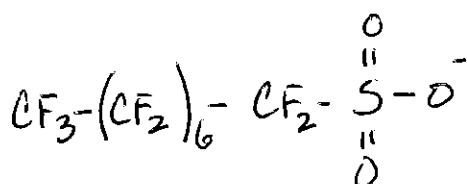
$$\text{Mw correction} = \frac{500.125}{629.37} = 0.7946$$

~~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> →

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## 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

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**Country of Origin** China

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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.

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

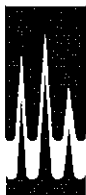
*We are committed to the success of our Customers, Employees and Shareholders through leadership in Life Science, High Technology and Service.*



Reagent

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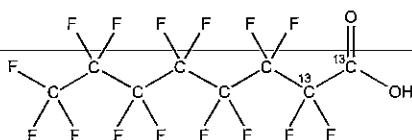
**LCM2PFOA\_00003**



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

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



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>6</sub>HF<sub>15</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 416.05  
**CONCENTRATION:** 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol  
Water (<1%)  
**CHEMICAL PURITY:** >98% **ISOTOPIC PURITY:** ≥99%<sup>13</sup>C  
(1,2-<sup>13</sup>C<sub>2</sub>)  
**LAST TESTED:** (mm/dd/yyyy) 03/19/2012  
**EXPIRY DATE:** (mm/dd/yyyy) 03/19/2017  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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

Certified By: \_\_\_\_\_

B.G. Chittim

Date: 01/09/2013  
(mm/dd/yyyy)

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

#### **INTENDED USE:**

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

#### **HAZARDS:**

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

#### **SYNTHESIS / CHARACTERIZATION:**

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

#### **HOMOGENEITY:**

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

#### **UNCERTAINTY:**

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

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

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

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.

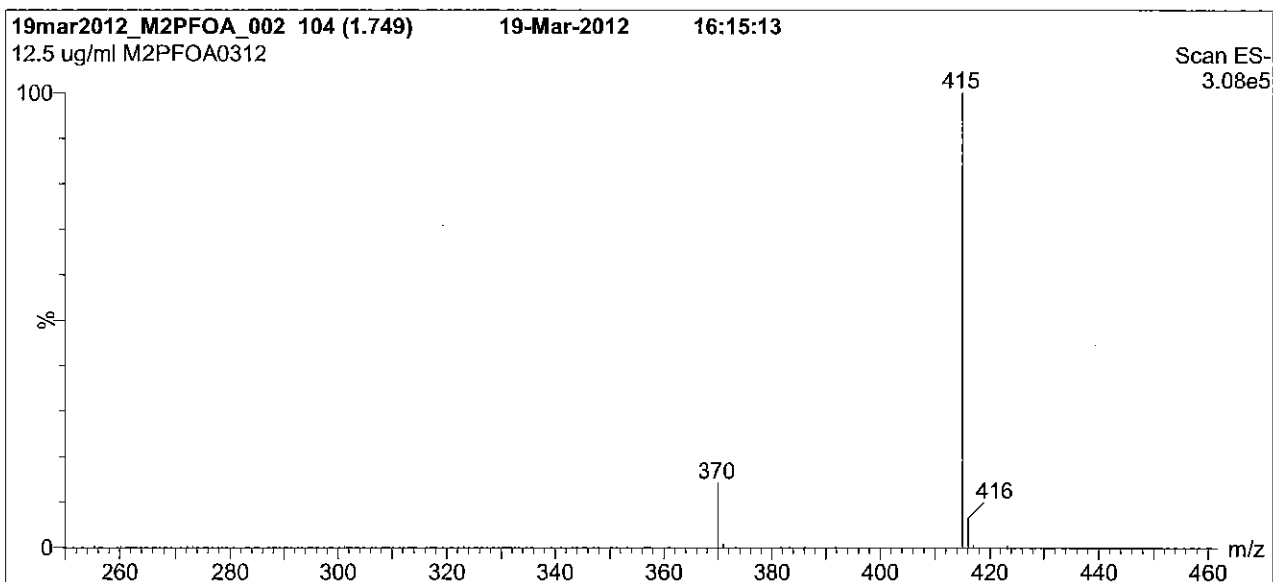
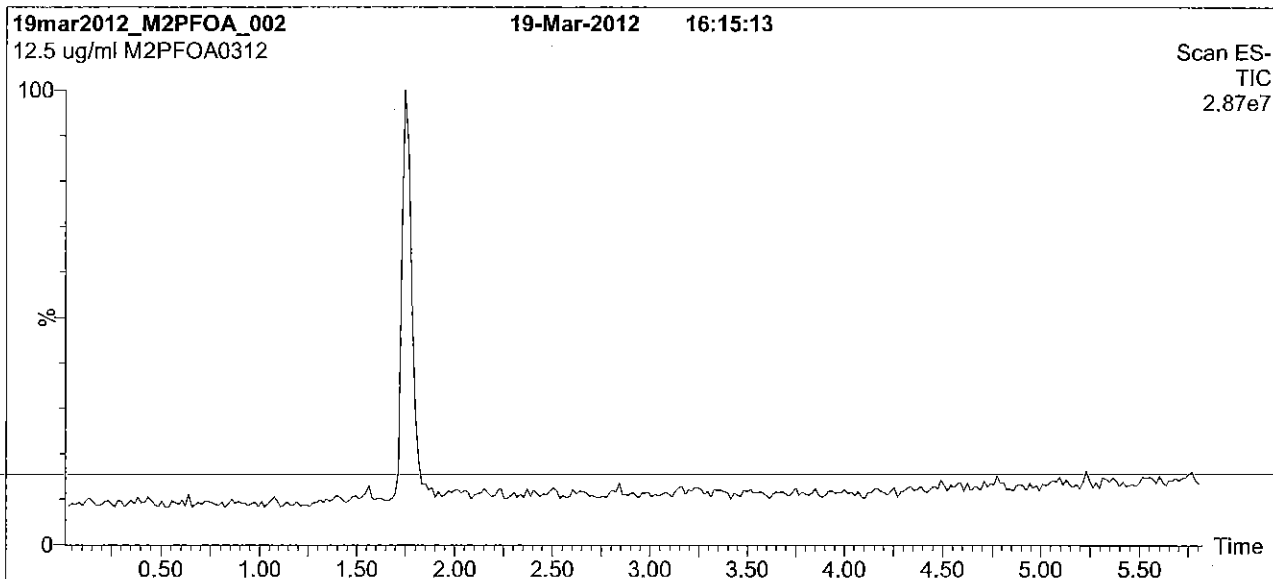
#### **QUALITY MANAGEMENT:**

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

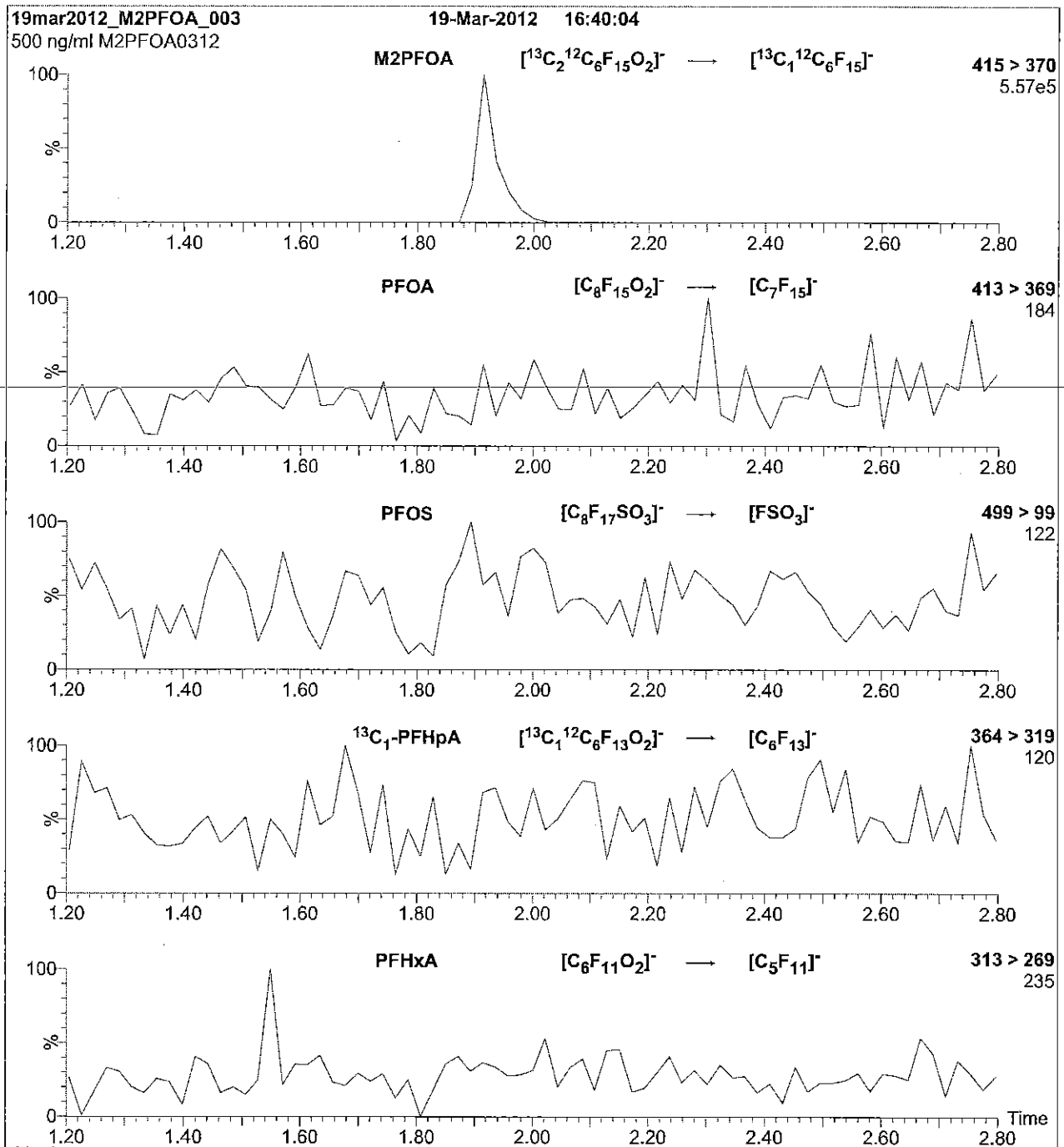
**Flow:** 300  $\mu$ l/min

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

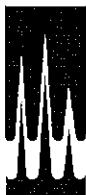
**MS Parameters**

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

Reagent

---

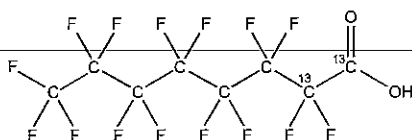
**LCM2PFOA\_00004**



# 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  
**LAST TESTED:** (mm/dd/yyyy) 03/19/2012 (1,2-<sup>13</sup>C<sub>2</sub>)  
**EXPIRY DATE:** (mm/dd/yyyy) 03/19/2017  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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

Certified By: \_\_\_\_\_

B.G. Chittim

Date: 01/09/2013  
(mm/dd/yyyy)

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

#### **INTENDED USE:**

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

#### **HAZARDS:**

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

#### **SYNTHESIS / CHARACTERIZATION:**

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

#### **HOMOGENEITY:**

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

#### **UNCERTAINTY:**

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

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

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

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

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

#### **TRACEABILITY:**

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external, ISO/IEC 17025:2005 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

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

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

#### **LIMITED WARRANTY:**

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#### **QUALITY MANAGEMENT:**

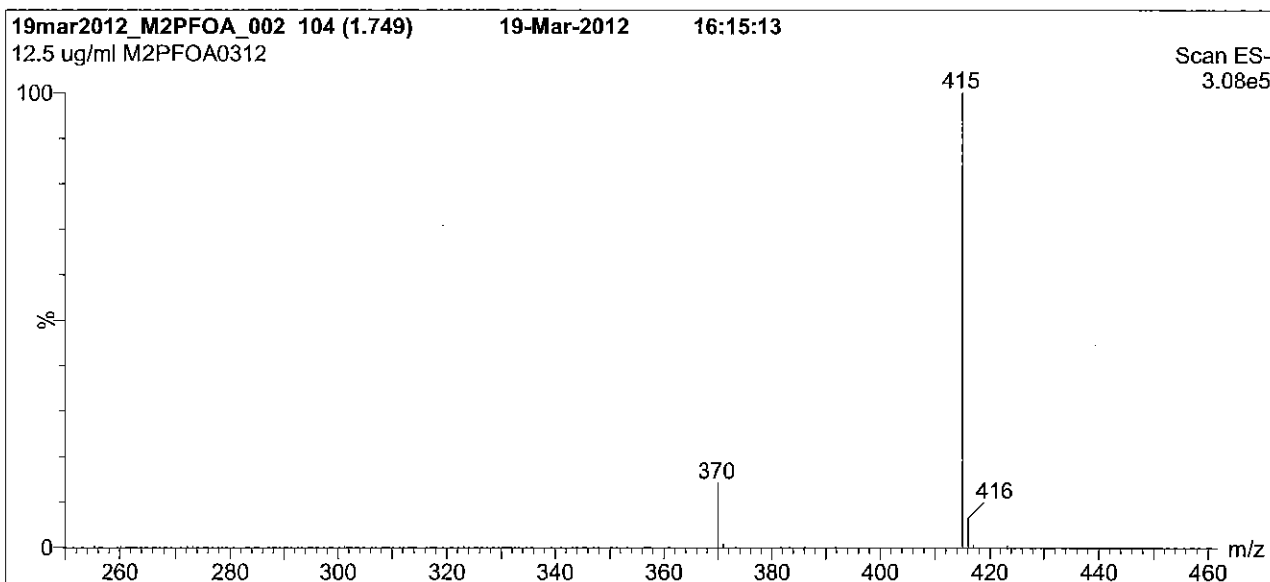
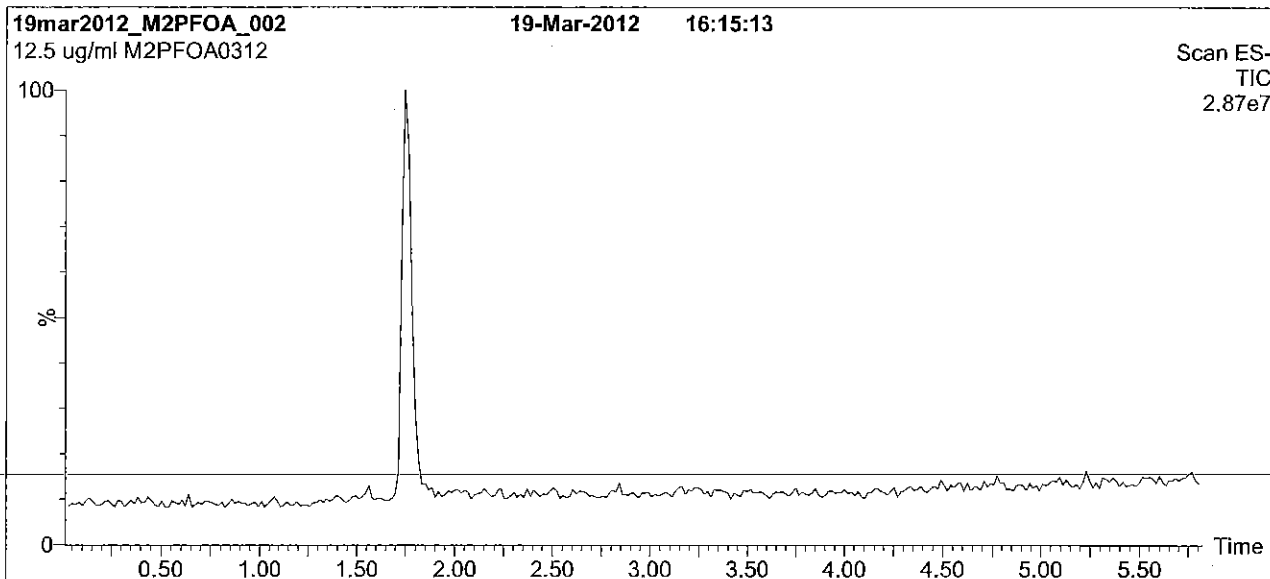
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**Figure 1: M2PFOA; LC/MS Data (TIC and Mass Spectrum)**



**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

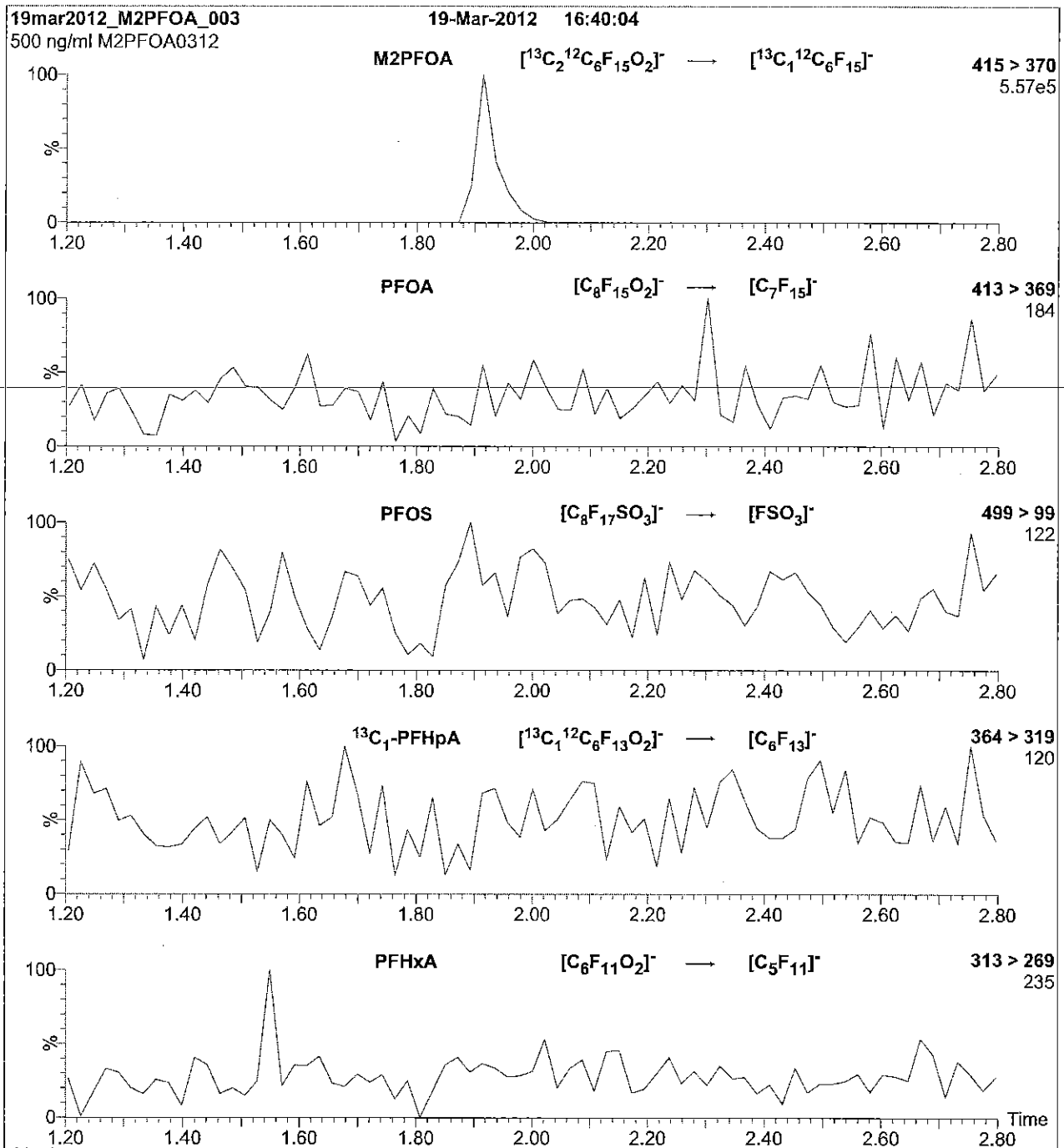
**Flow:** 300  $\mu$ l/min

**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

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**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:**

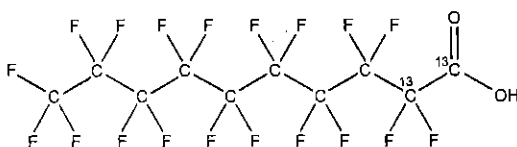
MPFDA

**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:**

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### **SYNTHESIS / CHARACTERIZATION:**

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

### **HOMOGENEITY:**

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

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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.

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

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

### **LIMITED WARRANTY:**

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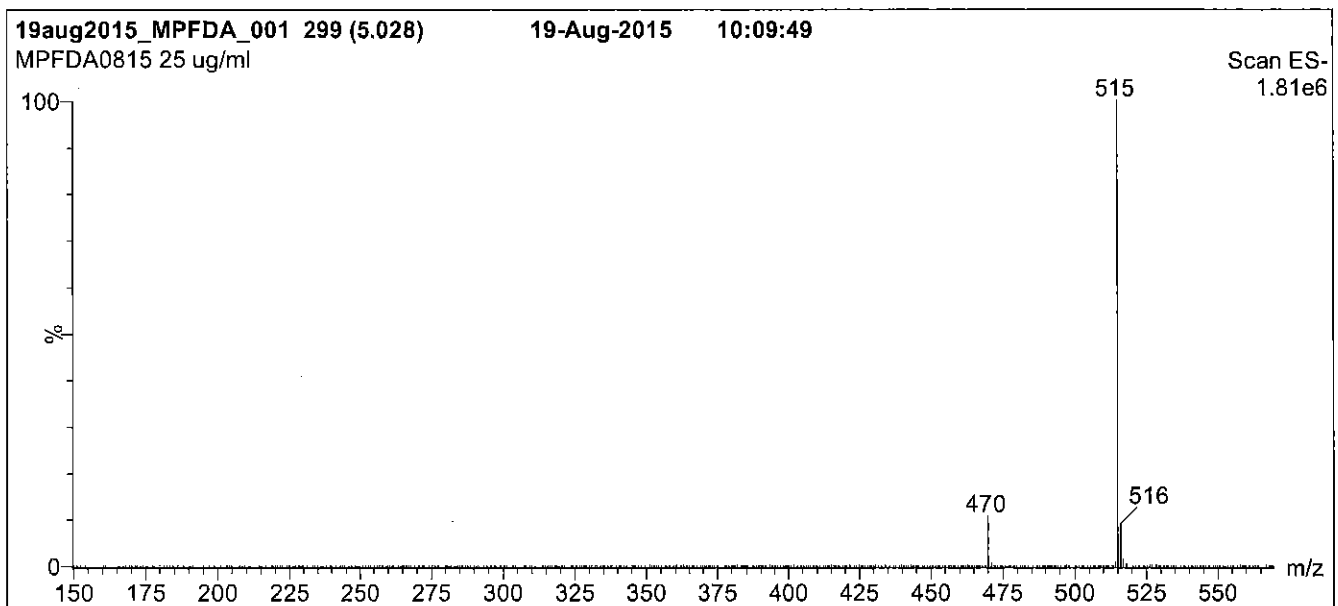
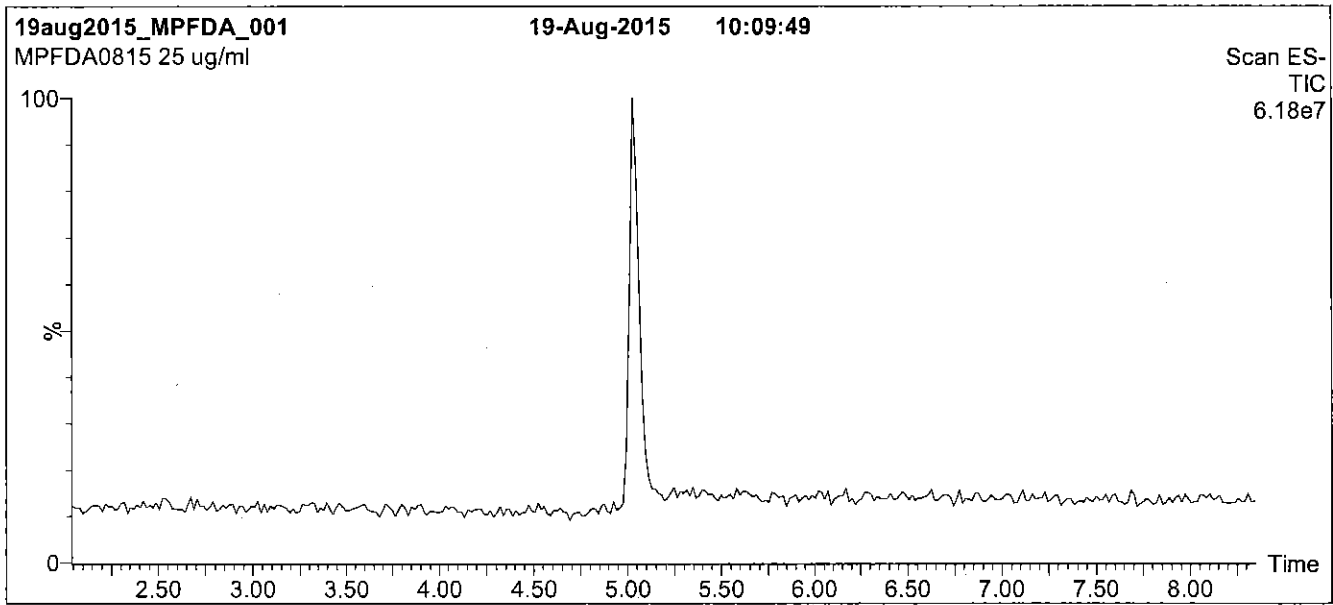
### **QUALITY MANAGEMENT:**

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

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

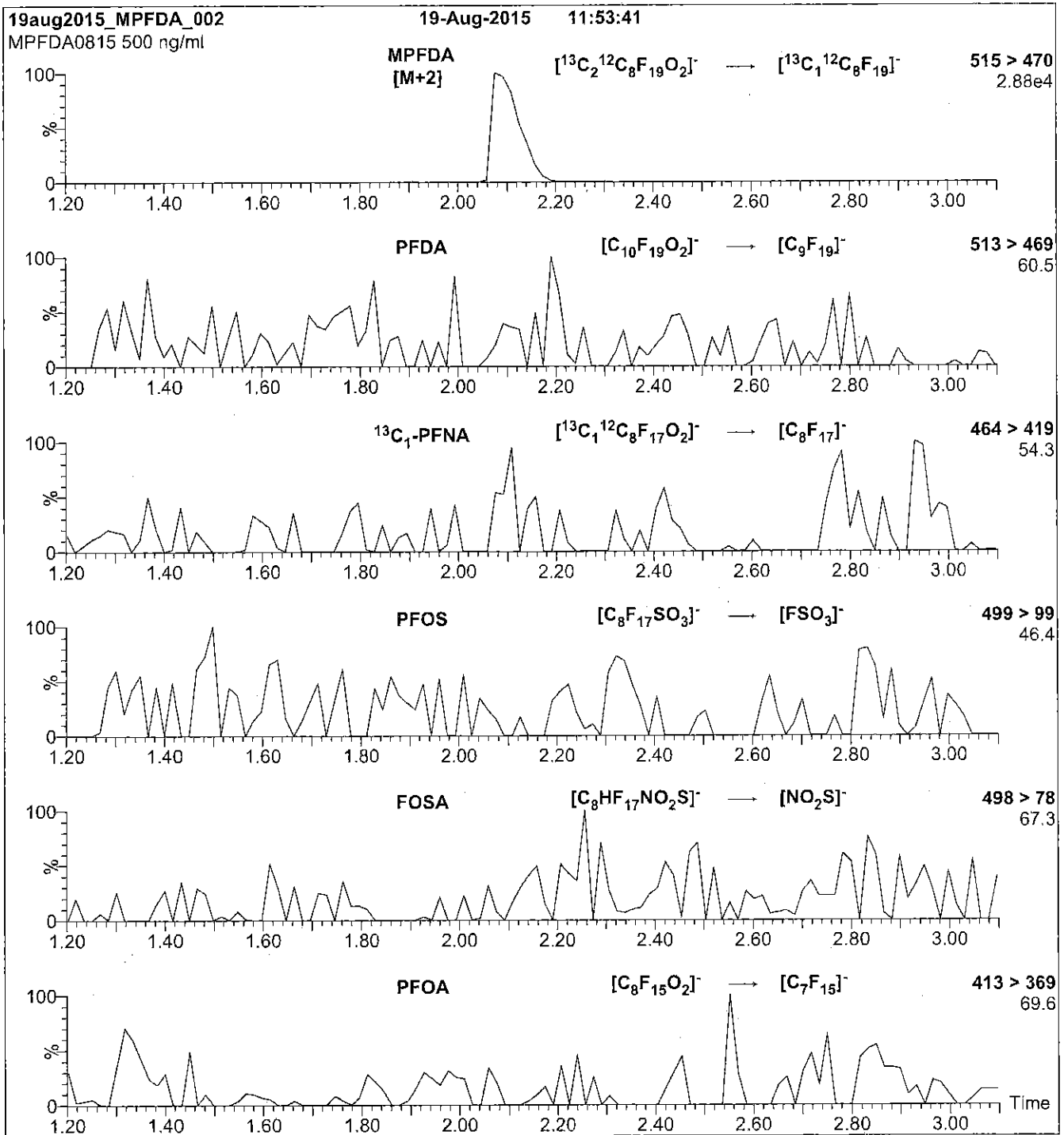
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 2.00  
Cone Voltage (V) = 15.00  
Cone Gas Flow (l/hr) = 50  
Desolvation Gas Flow (l/hr) = 750

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



**Conditions for Figure 2:**

Injection: Direct loop injection  
 10  $\mu$ l (500 ng/ml MPFDA)

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

Flow: 300  $\mu$ l/min

**MS Parameters**

Collision Gas (mbar) = 3.35e-3  
 Collision Energy (eV) = 13

Reagent

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**LCMPFHxA\_00009**





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

Rec. 3/29/16 JRB ✓



# WELLINGTON LABORATORIES

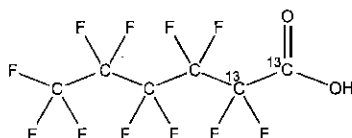
## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

**LOT NUMBER:** MPFHxA0415

**STRUCTURE:**

**CAS #:** Not available



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

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

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 04/09/2015

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

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

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

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

Certified By:   
 B.G. Chittim

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

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

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

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**EXPIRY DATE / PERIOD OF VALIDITY:**

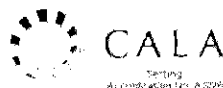
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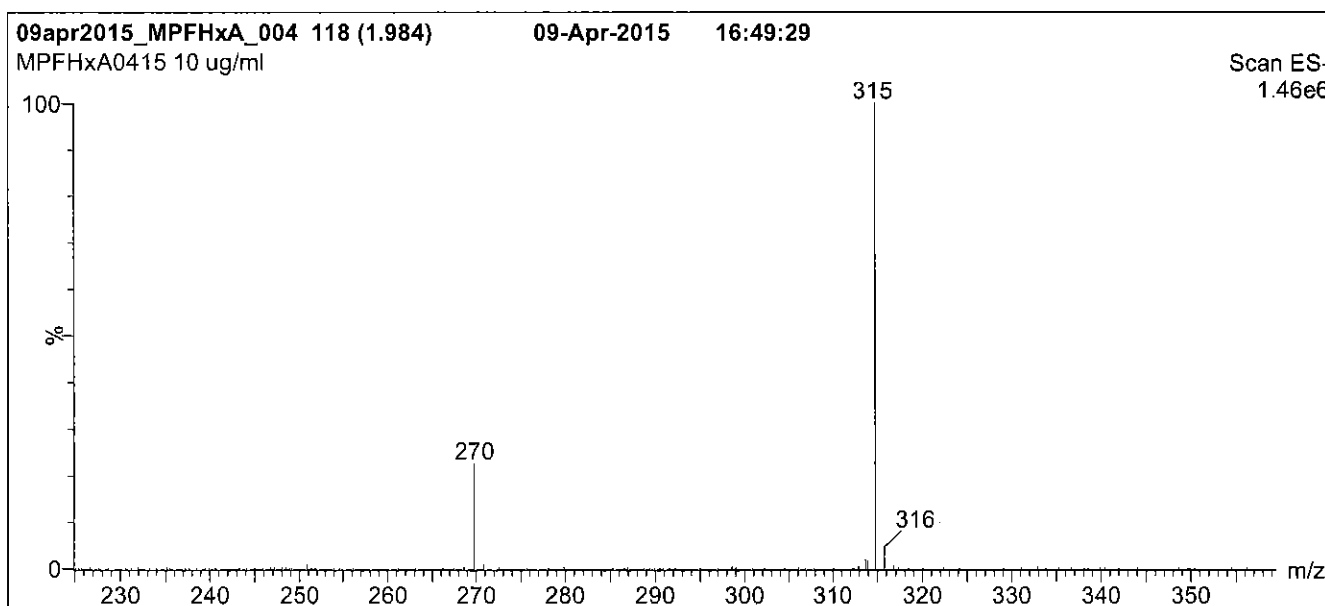
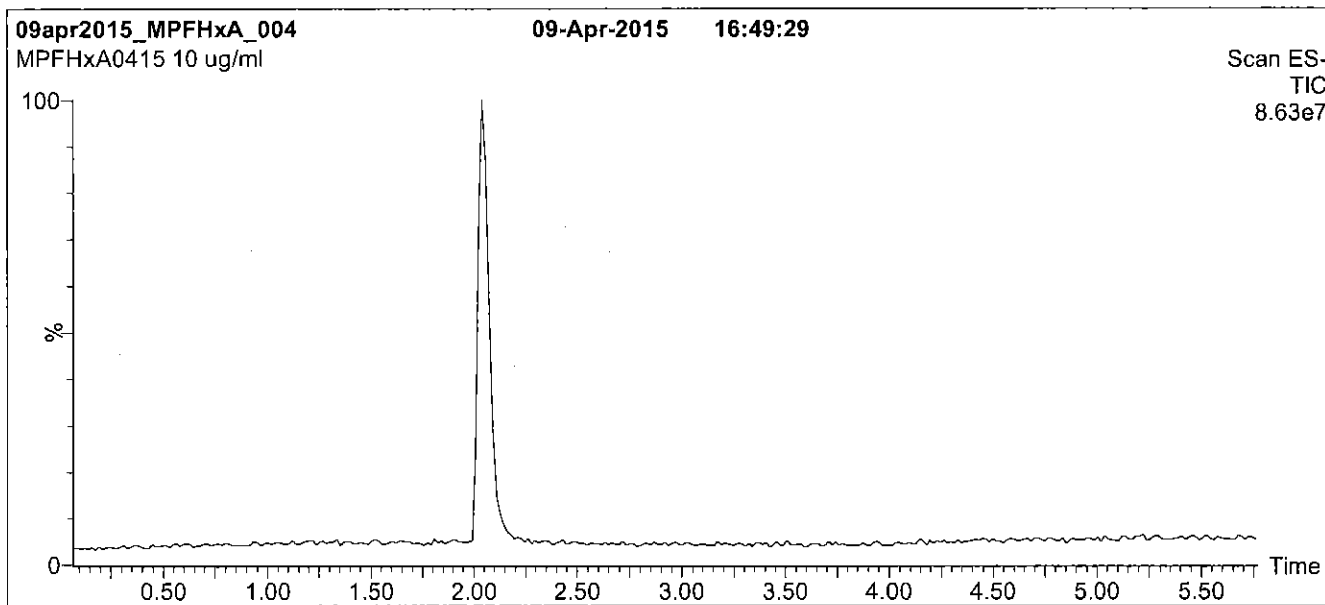
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**Figure 1: MPFHxA; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

Mobile phase: Gradient  
Start: 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

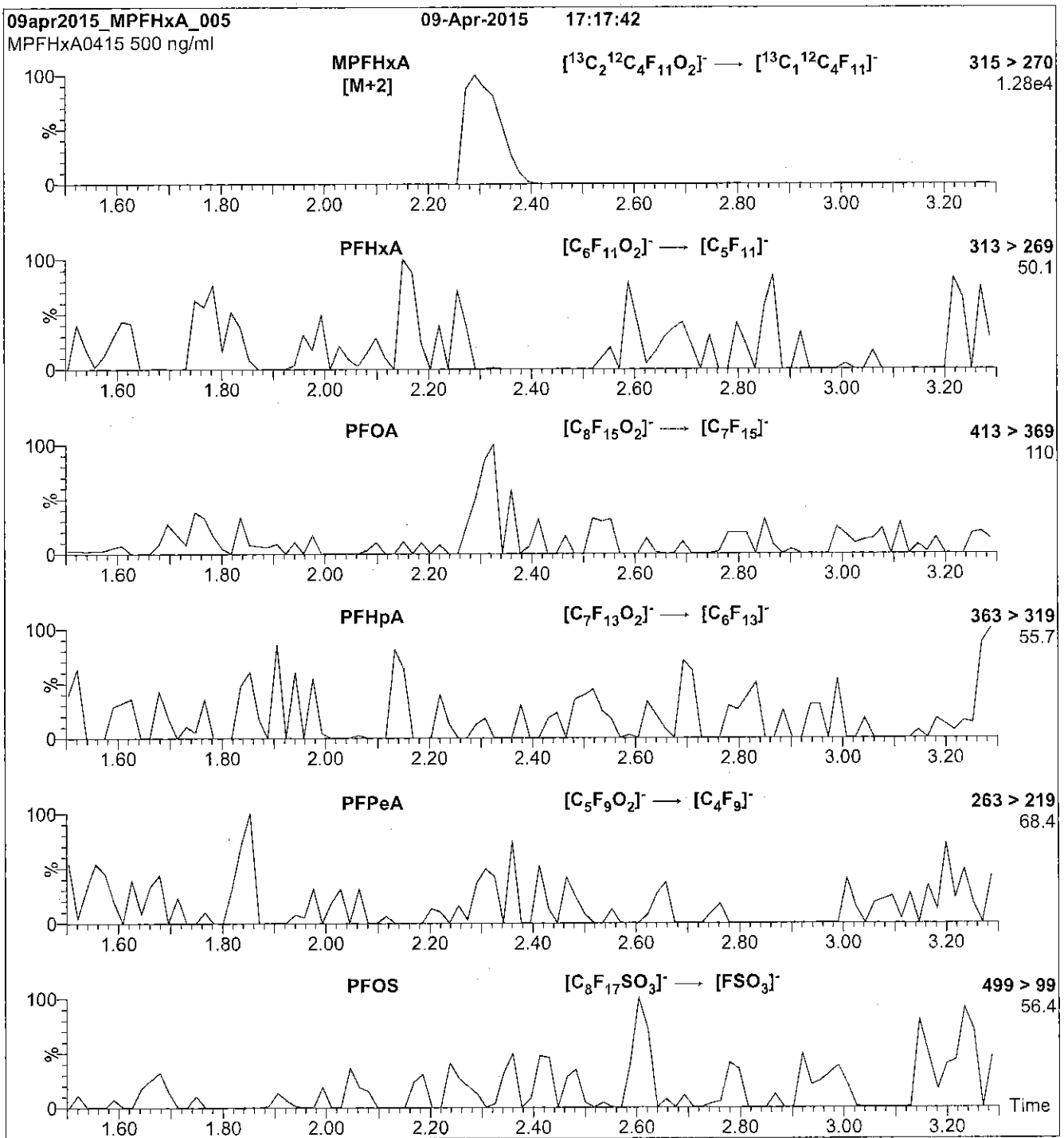
Flow: 300  $\mu$ l/min

**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

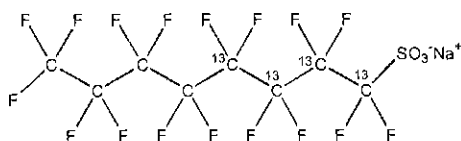


# WELLINGTON LABORATORIES

## 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.

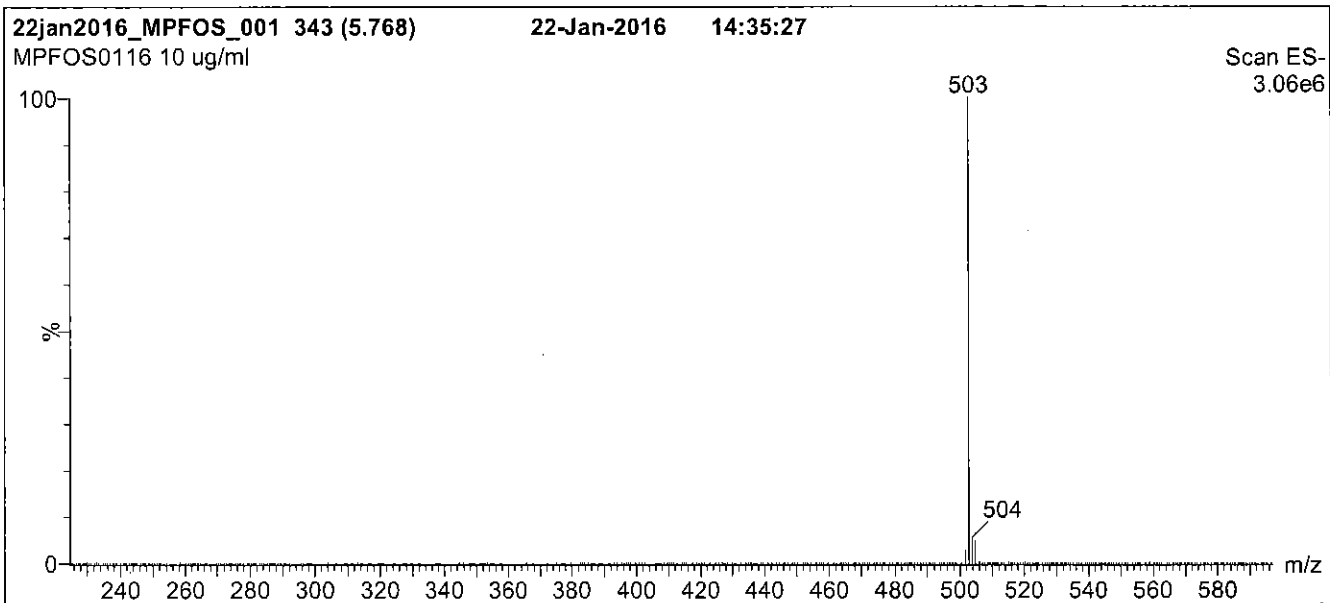
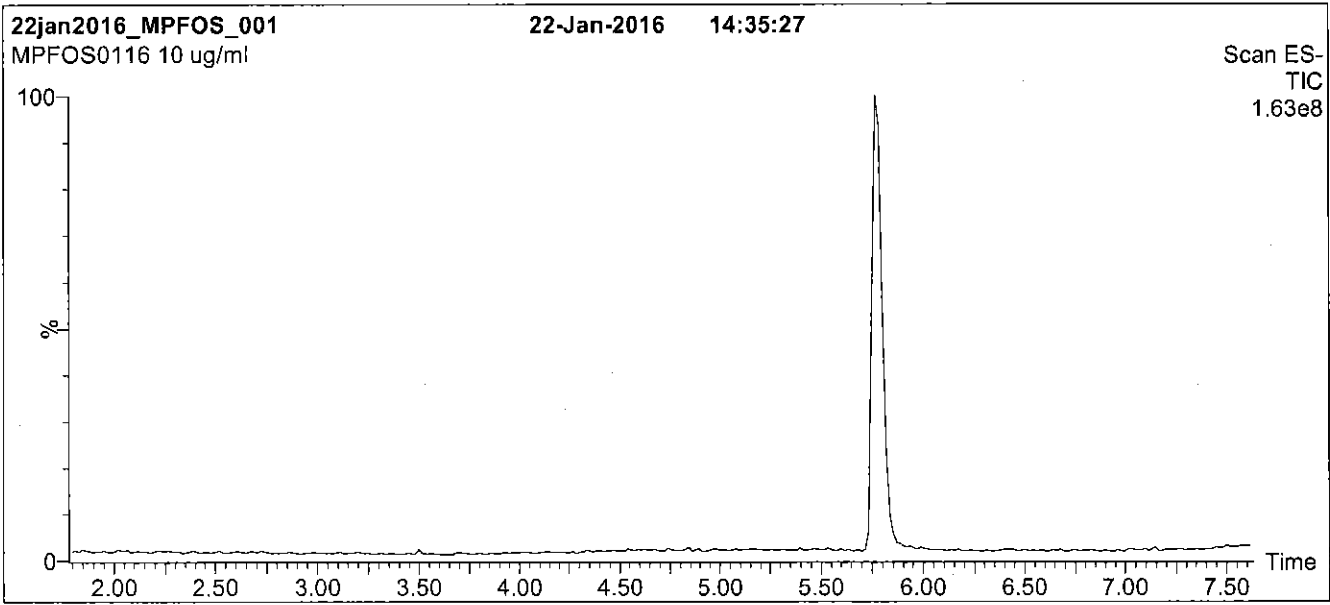
### **QUALITY MANAGEMENT:**

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

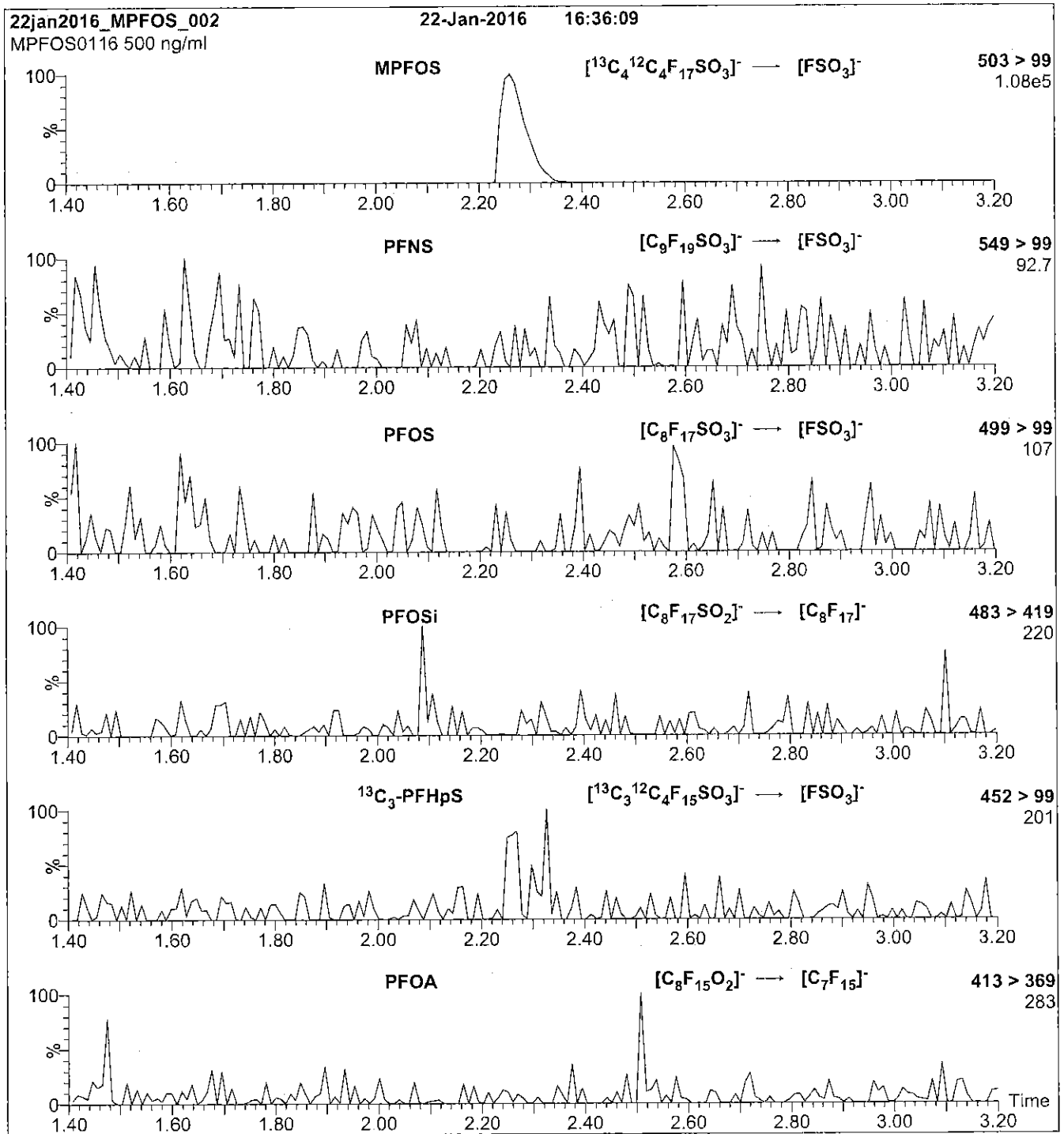
**MS Parameters**

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

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**LCMPFOS\_00018**

R: SBC 9/22/16



738686

ID: LCMFOS\_00018

Exp: 08/03/21 Prod: SBC

13C4-Perfluorooctanesulfo

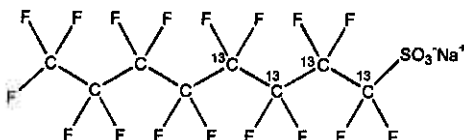


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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



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


### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

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

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

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### **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.

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

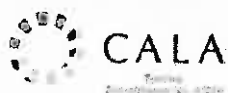
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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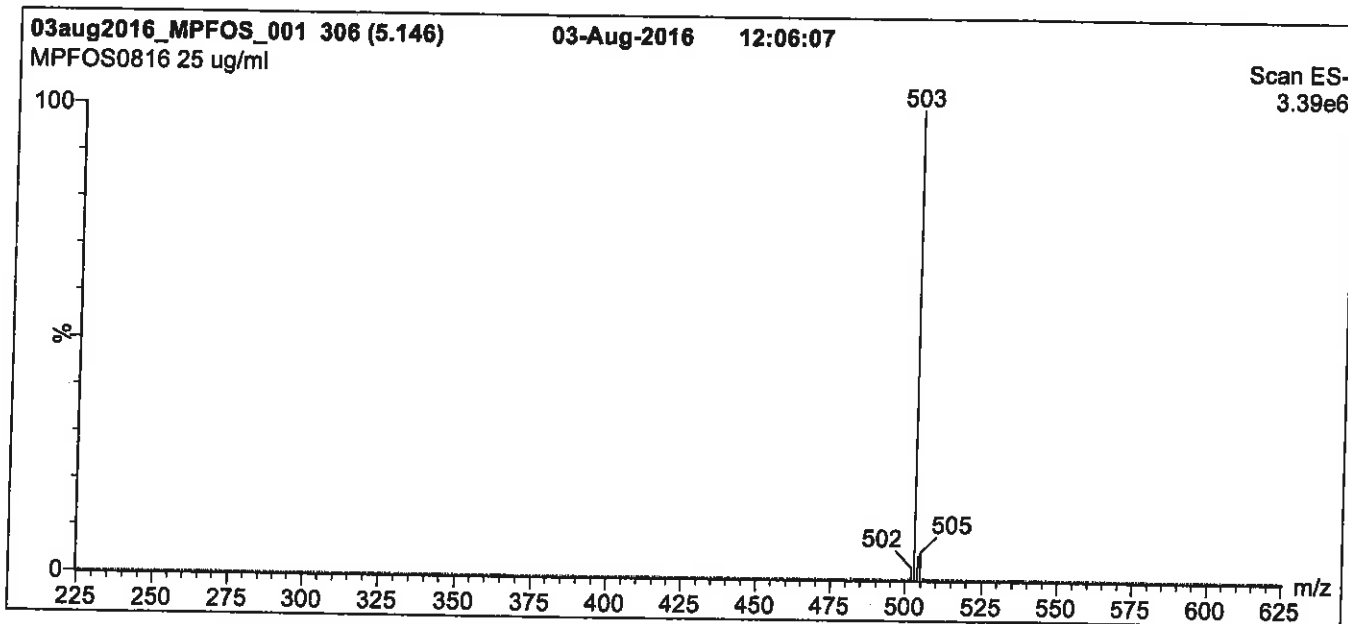
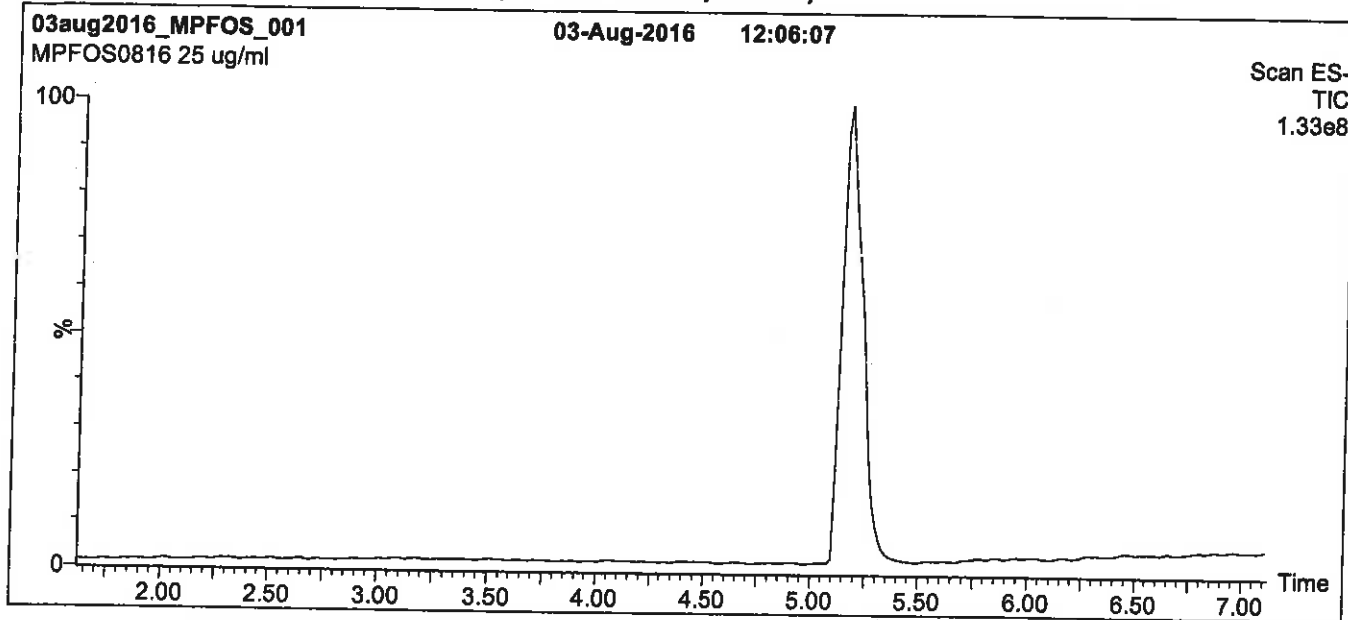
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**Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

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

**Mobile phase:** Gradient  
 Start: 45% (80:20 MeOH:ACN) / 55% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc buffer)  
 Ramp to 90% organic over 7 min and hold for 1.5 min  
 before returning to initial conditions in 0.5 min.  
 Time: 10 min

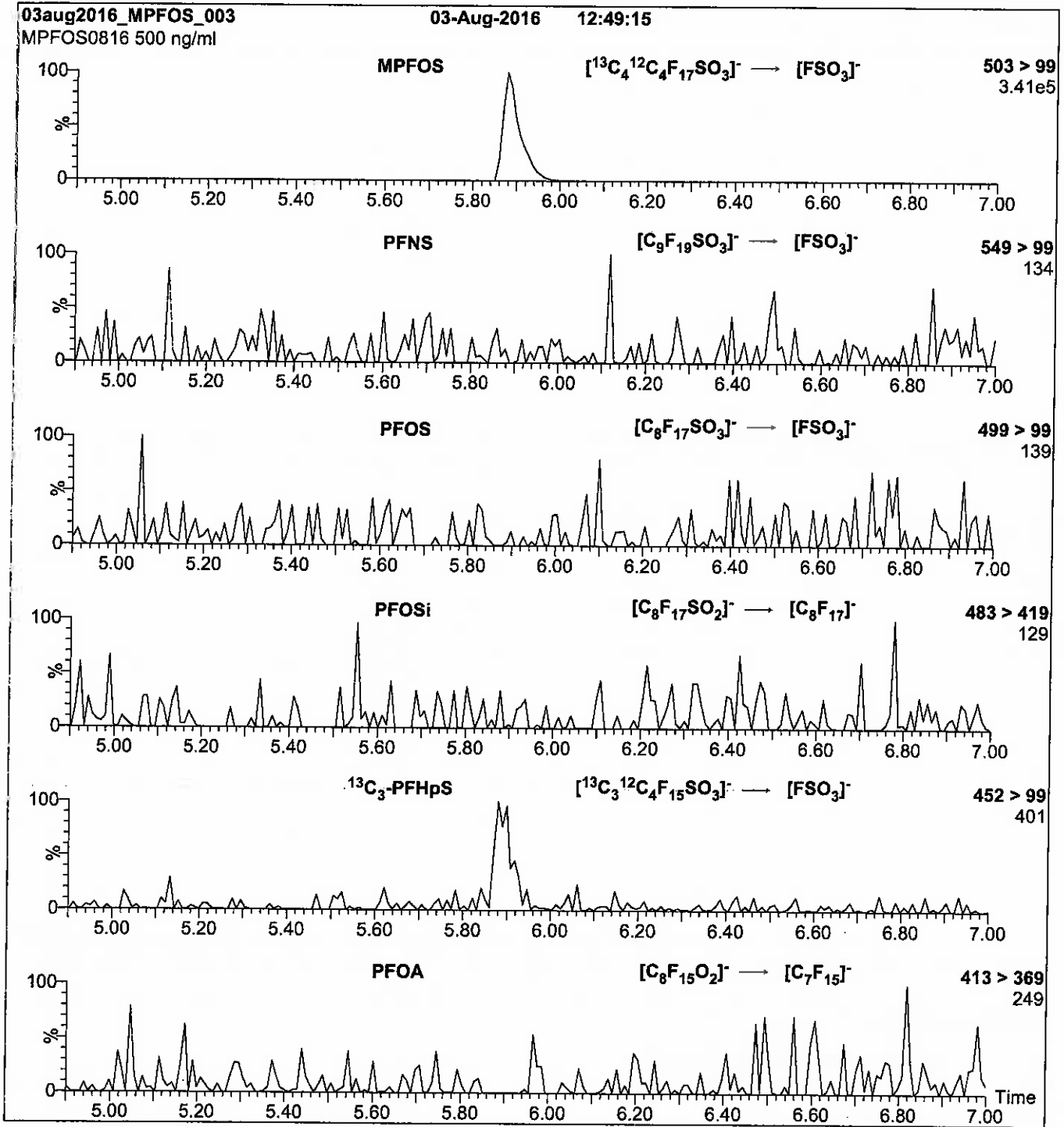
**Flow:** 300  $\mu$ l/min

**MS Parameters**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
 Capillary Voltage (kV) = 3.00  
 Cone Voltage (V) = 60.00  
 Cone Gas Flow (l/hr) = 50  
 Desolvation Gas Flow (l/hr) = 750

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



**Conditions for Figure 2:**

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

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

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

**MS Parameters**

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

# Method 537 DOD

---

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

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WI-AF-1RW01-1116	320-23929-1	113	111
WI-AF-1FB01-1116	320-23929-2	119	117
WI-AF-2RW01-1116	320-23929-3	113	103
WI-AF-2FB01-1116	320-23929-4	103	107
WI-AF-3RW02-1116	320-23929-5	76	81
WI-AF-3FB02-1116	320-23929-6	128	134 Q
WI-AF-3RW01-1116	320-23929-7	113	120
WI-AF-3FB01-1116	320-23929-8	106	110
WI-AF-3RW03-1116	320-23929-9	108	122
WI-AF-3FB03-1116	320-23929-10	116	112
	MB 320-140400/1-A	123	120
	LLCS 320-140400/2-A	112	108
	LLCSD 320-140400/3-A	112	108

PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA

QC LIMITS  
70-130  
70-130

# Column to be used to flag recovery values



FORM III  
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Matrix: Water Level: Low Lab File ID: 05DEC2016A6A\_116.d

Lab ID: LLCS 320-140400/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LLCS CONCENTRATION (ug/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0318 J	79	50-150	
Perfluorooctanoic acid (PFOA)	0.0198	0.0180 J	90	50-150	
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0805 J	90	50-150	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 05DEC2016A6A\_117.d  
 Lab ID: LLCSD 320-140400/3-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LLCSD CONCENTRATION (ug/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	0.0401	0.0315 J	79	0.7	50	50-150	
Perfluorooctanoic acid (PFOA)	0.0198	0.0185 J	93	3	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	0.0898	0.0796 J	89	1	50	50-150	

# Column to be used to flag recovery and RPD values

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 05DEC2016A6A\_138.d Lab Sample ID: MB 320-140400/1-A  
 Matrix: Water Date Extracted: 12/02/2016 15:27  
 Instrument ID: A6 Date Analyzed: 12/08/2016 11:41  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-140400/2-A	05DEC2016A6 A 116.d	12/08/2016 00:53
	LLCSD 320-140400/3-A	05DEC2016A6 A 117.d	12/08/2016 01:23
WI-AF-1RW01-1116	320-23929-1	05DEC2016A6 A 129.d	12/08/2016 07:18
WI-AF-1FB01-1116	320-23929-2	05DEC2016A6 A 130.d	12/08/2016 07:47
WI-AF-2RW01-1116	320-23929-3	05DEC2016A6 A 131.d	12/08/2016 08:17
WI-AF-2FB01-1116	320-23929-4	05DEC2016A6 A 132.d	12/08/2016 08:47
WI-AF-3RW02-1116	320-23929-5	05DEC2016A6 A 136.d	12/08/2016 10:45
WI-AF-3FB02-1116	320-23929-6	05DEC2016A6 A 137.d	12/08/2016 11:15
WI-AF-3RW01-1116	320-23929-7	05DEC2016A6 A 141.d	12/08/2016 13:19
WI-AF-3FB01-1116	320-23929-8	05DEC2016A6 A 142.d	12/08/2016 13:48
WI-AF-3FB03-1116	320-23929-10	05DEC2016A6 A 144.d	12/08/2016 14:47
WI-AF-3RW03-1116	320-23929-9	05DEC2016A6 A 188.d	12/09/2016 13:34

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 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 320-140946/29 CCVIS	825149	20.05	1824739	20.67		
LLCS 320-140400/2-A	827196	20.04	2275824	20.66		
LLCSD 320-140400/3-A	830936	20.05	2269539	20.67		
CCV 320-140946/42 CCVIS	815069	20.04	1721192	20.67		
CCV 320-140947/42 CCVIS	815069	20.04	1721192	20.67		
320-23929-1	WI-AF-1RW01-1116	803834	20.04	2185385	20.66	
320-23929-2	WI-AF-1FB01-1116	752291	20.04	2150304	20.66	
320-23929-3	WI-AF-2RW01-1116	813045	20.04	2212488	20.66	
320-23929-4	WI-AF-2FB01-1116	737073	20.04	1954348	20.66	
CCV 320-140947/55 CCVIS	852422	20.04	1761773	20.67		
CCV 320-140948/55 CCVIS	852422	20.04	1761773	20.67		
320-23929-5	WI-AF-3RW02-1116	845758	20.04	2205325	20.67	
320-23929-6	WI-AF-3FB02-1116	798408	20.04	2243232	20.66	
MB 320-140400/1-A	730789	20.05	1996434	20.67		
CCV 320-140948/101 CCVIS	907626	20.04	1887289	20.66		
CCV 320-141249/101 CCVIS	907626	20.04	1887289	20.66		
320-23929-7	WI-AF-3RW01-1116	795605	20.05	2251671	20.66	
320-23929-8	WI-AF-3FB01-1116	734517	20.05	2045966	20.66	
320-23929-10	WI-AF-3FB03-1116	826116	20.05	2215282	20.67	
CCV 320-141249/68 CCVIS	890167	20.06	1723267	20.68		
CCV 320-141290/2 CCVIS	712405	20.05	1555728	20.68		
320-23929-9	WI-AF-3RW03-1116	644979	20.04	1786260	20.66	
CCV 320-141290/15 CCVIS	791868	20.02	1660744	20.66		

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.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140946/29 Date Analyzed: 12/07/2016 20:56  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_108.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	825149	20.05	1824739	20.67		
UPPER LIMIT	1155209	20.55	2554635	21.17		
LOWER LIMIT	577604	19.55	1277317	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCS 320-140400/2-A		827196	20.04	2275824	20.66	
LLCSD 320-140400/3-A		830936	20.05	2269539	20.67	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140946/42 Date Analyzed: 12/08/2016 03:21  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_121.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	815069	20.04	1721192	20.67		
UPPER LIMIT	1141097	20.54	2409669	21.17		
LOWER LIMIT	570548	19.54	1204834	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCS 320-140400/2-A		827196	20.04	2275824	20.66	
LLCSD 320-140400/3-A		830936	20.05	2269539	20.67	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140947/42 Date Analyzed: 12/08/2016 03:21  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_121.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	815069	20.04	1721192	20.67		
UPPER LIMIT	1141097	20.54	2409669	21.17		
LOWER LIMIT	570548	19.54	1204834	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-1	WI-AF-1RW01-1116	803834	20.04	2185385	20.66	
320-23929-2	WI-AF-1FB01-1116	752291	20.04	2150304	20.66	
320-23929-3	WI-AF-2RW01-1116	813045	20.04	2212488	20.66	
320-23929-4	WI-AF-2FB01-1116	737073	20.04	1954348	20.66	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140947/55 Date Analyzed: 12/08/2016 09:46  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_134.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	852422	20.04	1761773	20.67		
UPPER LIMIT	1193391	20.54	2466482	21.17		
LOWER LIMIT	596695	19.54	1233241	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-1	WI-AF-1RW01-1116	803834	20.04	2185385	20.66	
320-23929-2	WI-AF-1FB01-1116	752291	20.04	2150304	20.66	
320-23929-3	WI-AF-2RW01-1116	813045	20.04	2212488	20.66	
320-23929-4	WI-AF-2FB01-1116	737073	20.04	1954348	20.66	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits



FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140948/55 Date Analyzed: 12/08/2016 09:46  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_134.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	852422	20.04	1761773	20.67		
UPPER LIMIT	1193391	20.54	2466482	21.17		
LOWER LIMIT	596695	19.54	1233241	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-5	WI-AF-3RW02-1116	845758	20.04	2205325	20.67	
320-23929-6	WI-AF-3FB02-1116	798408	20.04	2243232	20.66	
MB 320-140400/1-A		730789	20.05	1996434	20.67	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-140948/101 Date Analyzed: 12/08/2016 12:14  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_139.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	907626	20.04	1887289	20.66		
UPPER LIMIT	1270676	20.54	2642205	21.16		
LOWER LIMIT	635338	19.54	1321102	20.16		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-5	WI-AF-3RW02-1116	845758	20.04	2205325	20.67	
320-23929-6	WI-AF-3FB02-1116	798408	20.04	2243232	20.66	
MB 320-140400/1-A		730789	20.05	1996434	20.67	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141249/101 Date Analyzed: 12/08/2016 12:14  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_139.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	907626	20.04	1887289	20.66		
UPPER LIMIT	1270676	20.54	2642205	21.16		
LOWER LIMIT	635338	19.54	1321102	20.16		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-7	WI-AF-3RW01-1116	795605	20.05	2251671	20.66	
320-23929-8	WI-AF-3FB01-1116	734517	20.05	2045966	20.66	
320-23929-10	WI-AF-3FB03-1116	826116	20.05	2215282	20.67	

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141249/68 Date Analyzed: 12/08/2016 18:35  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_151.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	890167	20.06	1723267	20.68		
UPPER LIMIT	1246234	20.56	2412574	21.18		
LOWER LIMIT	623117	19.56	1206287	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-7	WI-AF-3RW01-1116	795605	20.05	2251671	20.66	
320-23929-8	WI-AF-3FB01-1116	734517	20.05	2045966	20.66	
320-23929-10	WI-AF-3FB03-1116	826116	20.05	2215282	20.67	

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.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141290/2 Date Analyzed: 12/09/2016 07:25  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_177.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	712405	20.05	1555728	20.68		
UPPER LIMIT	997367	20.55	2178019	21.18		
LOWER LIMIT	498684	19.55	1089010	20.18		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-9	WI-AF-3RW03-1116		644979	20.04	1786260	20.66

13PFOA = 13C2-PFOA  
 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.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-141290/15 Date Analyzed: 12/09/2016 14:33  
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 05DEC2016A6A\_190.d Heated Purge: (Y/N) N  
 Calibration ID: 26888

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	791868	20.02	1660744	20.66		
UPPER LIMIT	1108615	20.52	2325042	21.16		
LOWER LIMIT	554308	19.52	1162521	20.16		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-23929-9	WI-AF-3RW03-1116		644979	20.04	1786260	20.66

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA  
 PFOS = 13C4 PFOS  
 PFOS = 13C4 PFOS  
 Area Limit = 70%-140% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-1RW01-1116 Lab Sample ID: 320-23929-1  
 Matrix: Water Lab File ID: 05DEC2016A6A\_129.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:15  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 257.5 (mL) Date Analyzed: 12/08/2016 07:18  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U M	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	113		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_129.d  
 Lims ID: 320-23929-A-1-A  
 Client ID: WI-AF-1RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 07:18:14 ALS Bottle#: 13 Worklist Smp#: 50  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 15:24:48 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: XAWRK025

First Level Reviewer: krenns Date: 08-Dec-2016 15:24:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.558	-0.010	1.000	1059765	11.3	34919
4 Perfluoroheptanoic acid	363.0 > 319.0	19.592	19.368	0.224	1.000	20327	0.2081	124
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		803834	10.0	20985
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.035	0.023	1.000	548	0.006552	0.3 M
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		2185385	28.7	56905
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	4695	0.0515	59.7
\$ 10 13C2 PFDA	515.0 > 470.0	21.453	21.462	-0.009	1.000	784079	11.1	24807

QC Flag Legend

Review Flags

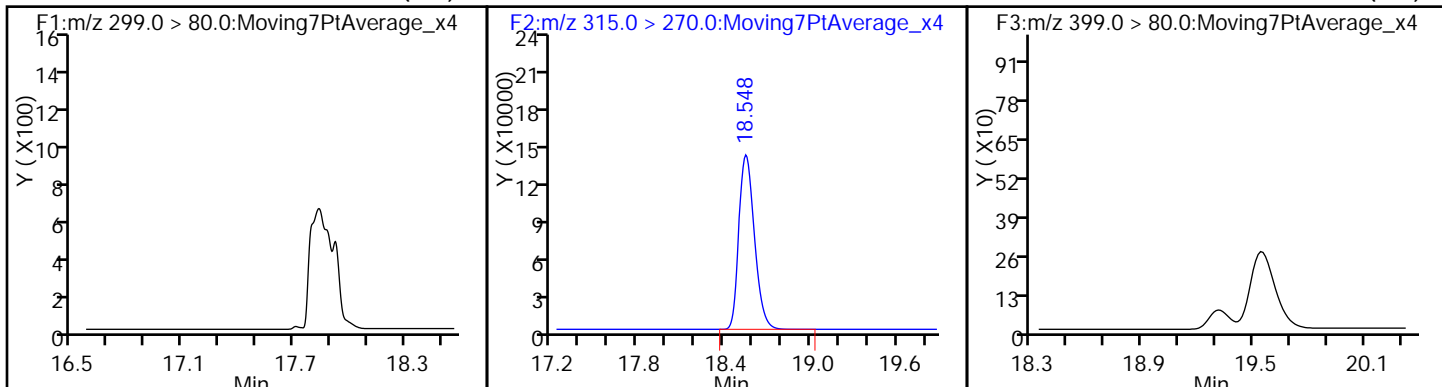
M - Manually Integrated



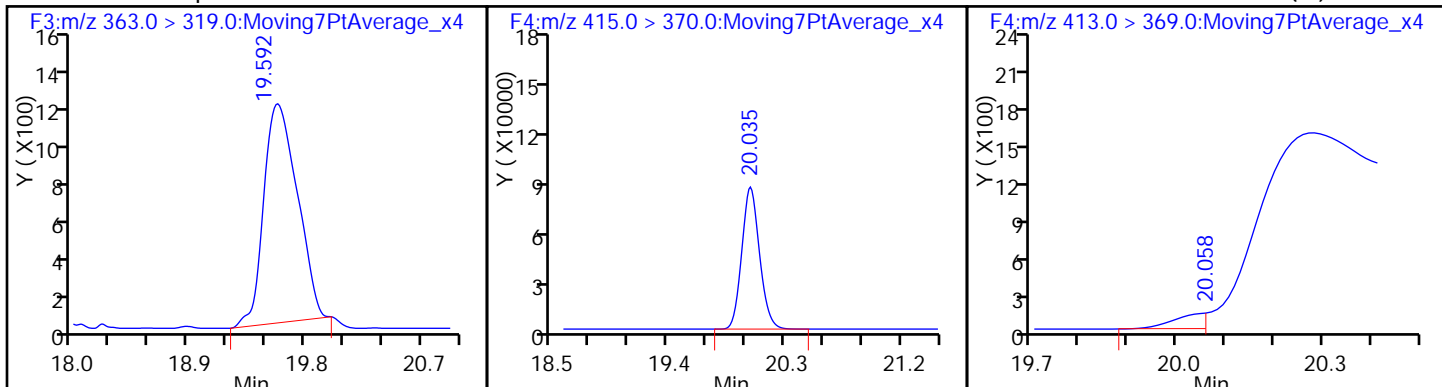
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_129.d  
Injection Date: 08-Dec-2016 07:18:14 Instrument ID: A6  
Lims ID: 320-23929-A-1-A Lab Sample ID: 320-23929-1  
Client ID: WI-AF-1RW01-1116  
Operator ID: CBW ALS Bottle#: 13 Worklist Smp#: 50  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

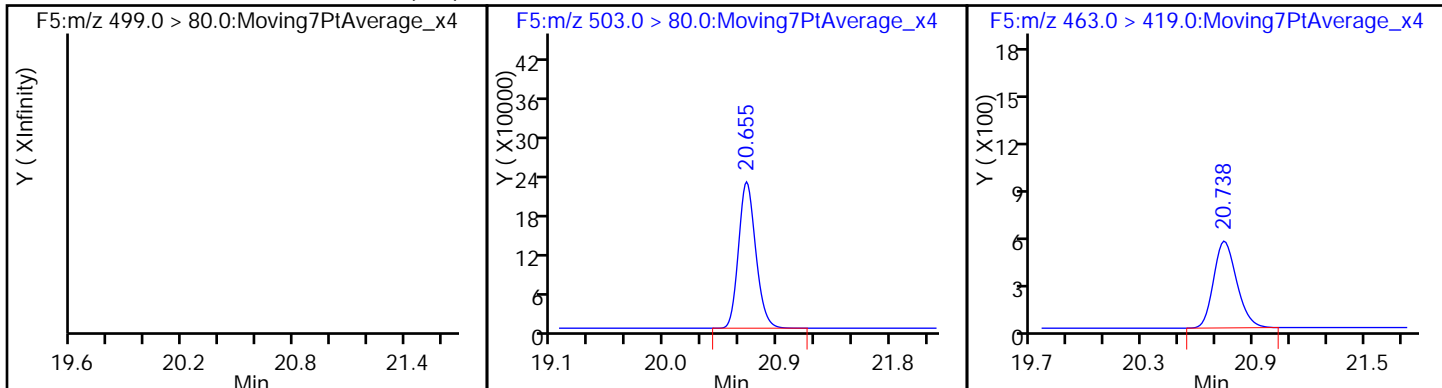
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



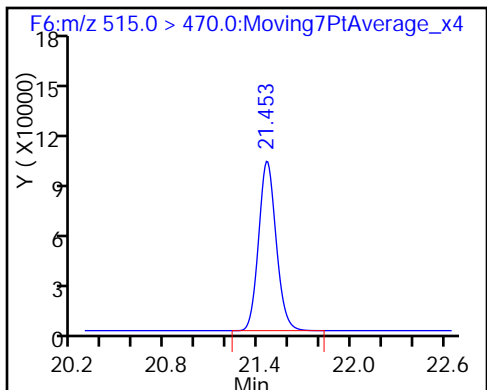
4 Perfluoroheptanoic acid \* 5 13C2-PFOA 6 Perfluorooctanoic acid (M)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_129.d  
 Lims ID: 320-23929-A-1-A  
 Client ID: WI-AF-1RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 07:18:14 ALS Bottle#: 13 Worklist Smp#: 50  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-1-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 15:24:48 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: XAWRK025

First Level Reviewer: krenns Date: 08-Dec-2016 15:24:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	113.02
\$ 10 13C2 PFDA	10.0	11.1	111.31

TestAmerica Sacramento

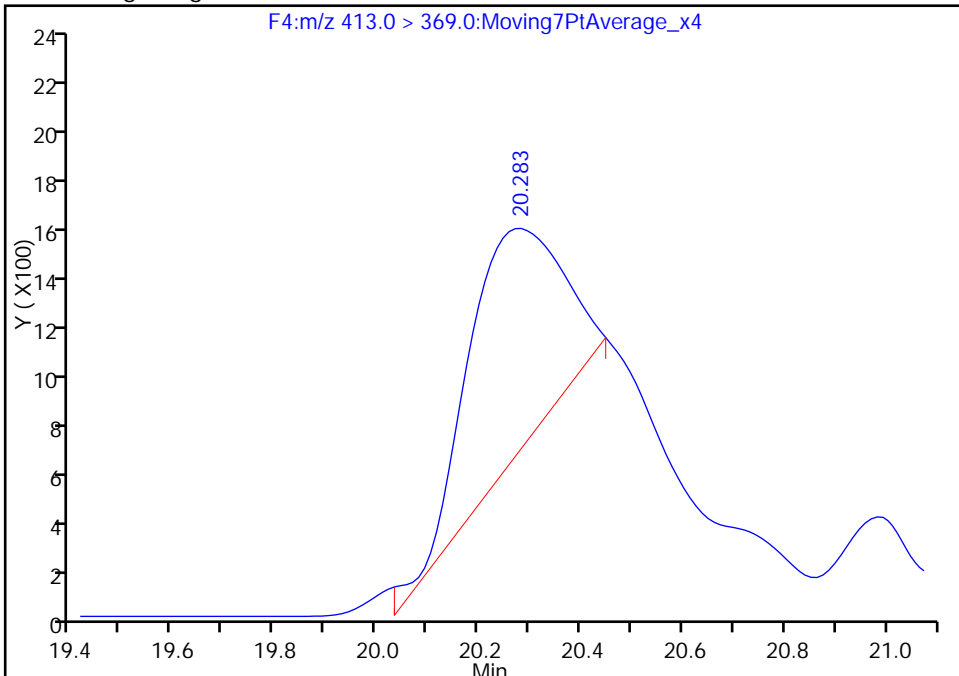
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_129.d  
Injection Date: 08-Dec-2016 07:18:14 Instrument ID: A6  
Lims ID: 320-23929-A-1-A Lab Sample ID: 320-23929-1  
Client ID: WI-AF-1RW01-1116  
Operator ID: CBW ALS Bottle#: 13 Worklist Smp#: 50  
Injection Vol: 10.0 ul 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

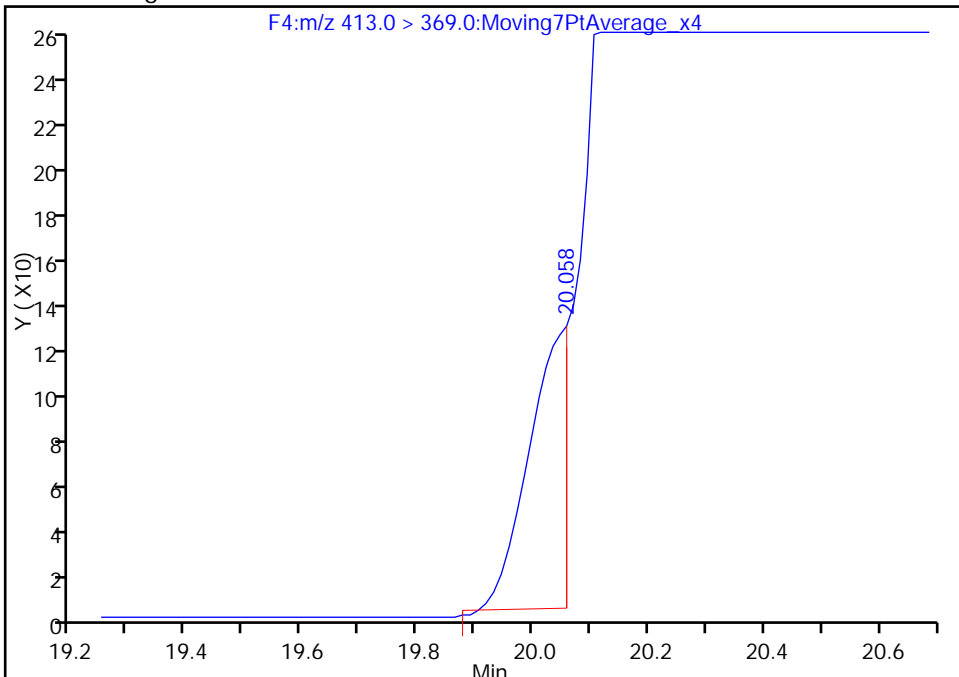
RT: 20.28  
Area: 11816  
Amount: 0.141284  
Amount Units: ng/ml

Processing Integration Results



RT: 20.06  
Area: 548  
Amount: 0.006552  
Amount Units: ng/ml

Manual Integration Results



Reviewer: krenns, 08-Dec-2016 15:24:48  
Audit Action: Manually Integrated

Audit Reason: Wrong peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-1FB01-1116 Lab Sample ID: 320-23929-2  
 Matrix: Water Lab File ID: 05DEC2016A6A\_130.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:20  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 253.5 (mL) Date Analyzed: 12/08/2016 07:47  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 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)	0.024	U	0.030	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	119		70-130
STL00996	13C2 PFDA	117		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_130.d  
 Lims ID: 320-23929-A-2-A  
 Client ID: WI-AF-1FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 07:47:50 ALS Bottle#: 14 Worklist Smp#: 51  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:24:53 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:27:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1045015	11.9	33905
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		752291	10.0	19500
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		2150304	28.7	56129
9 Perfluorononanoic acid								M
463.0 > 419.0	20.738	20.738	0.0	1.000	2872	0.0337	163	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	767987	11.7	24133

QC Flag Legend

Review Flags

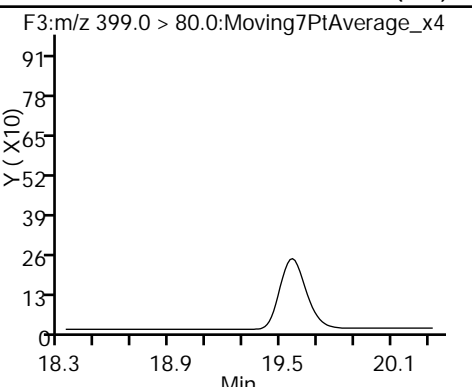
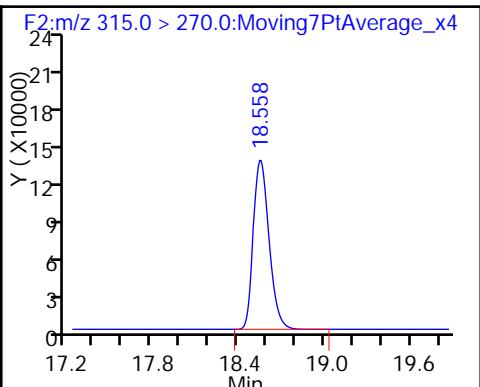
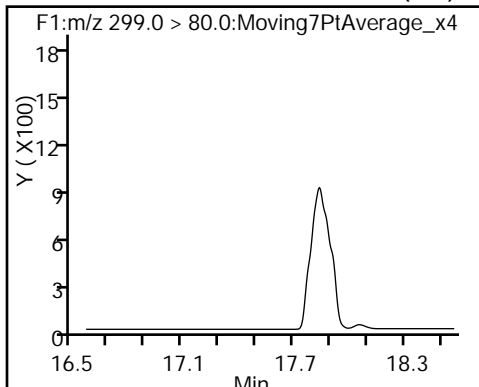
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_130.d  
Injection Date: 08-Dec-2016 07:47:50 Instrument ID: A6  
Lims ID: 320-23929-A-2-A Lab Sample ID: 320-23929-2  
Client ID: WI-AF-1FB01-1116  
Operator ID: CBW ALS Bottle#: 14 Worklist Smp#: 51  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

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

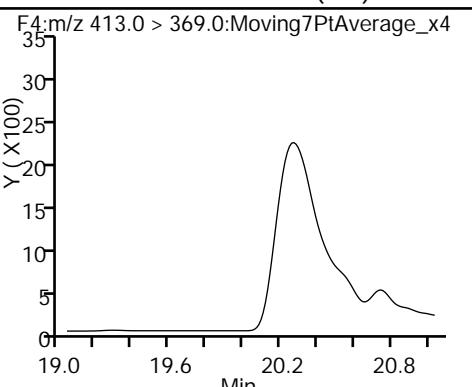
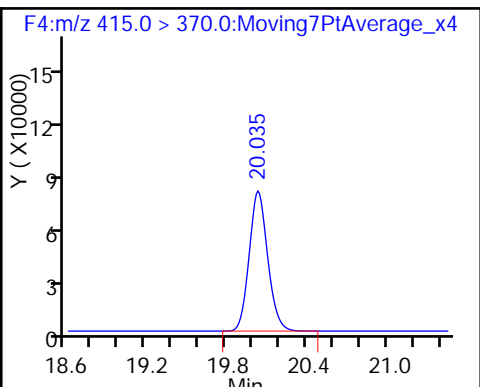
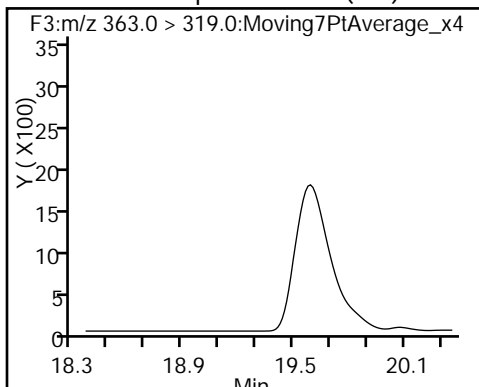
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

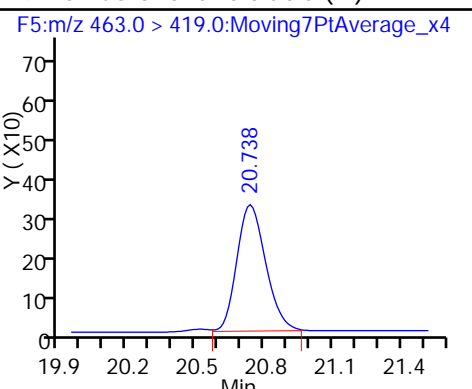
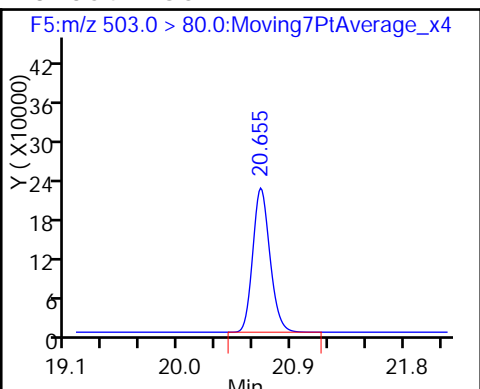
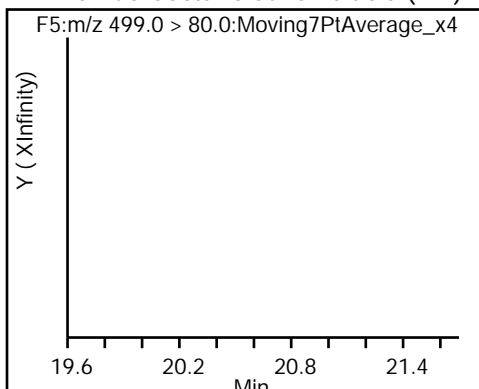
6 Perfluorooctanoic acid (ND)



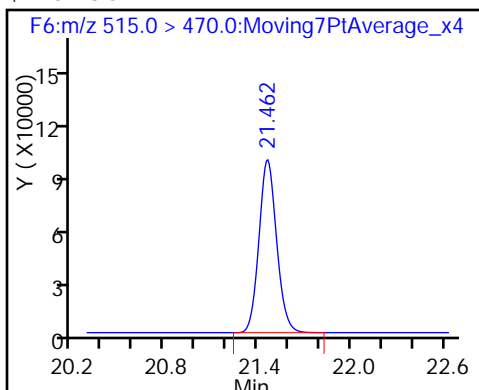
7 Perfluorooctane sulfonic acid (ND)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_130.d  
 Lims ID: 320-23929-A-2-A  
 Client ID: WI-AF-1FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 07:47:50 ALS Bottle#: 14 Worklist Smp#: 51  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:24:53 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:27:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.9	119.08
\$ 10 13C2 PFDA	10.0	11.7	116.50

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW01-1116 Lab Sample ID: 320-23929-3  
 Matrix: Water Lab File ID: 05DEC2016A6A\_131.d  
 Analysis Method: 537 Date Collected: 11/28/2016 16:15  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 256.7(mL) Date Analyzed: 12/08/2016 08:17  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 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	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	103		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_131.d  
 Lims ID: 320-23929-A-3-A  
 Client ID: WI-AF-2RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 08:17:28 ALS Bottle#: 15 Worklist Smp#: 52  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:24:53 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:27:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.563	17.573	-0.010	1.000	5818	0.1075	7.1	
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.558	-0.010	1.000	1069431	11.3	35370	
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		813045	10.0	21270	
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.667	20.619	0.048	1.000	281	0.003489	8.3	M
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		2212488	28.7	25676	
9 Perfluorononanoic acid	463.0 > 419.0	20.726	20.738	-0.012	1.000	7130	0.0773	166	
\$ 10 13C2 PFDA	515.0 > 470.0	21.453	21.462	-0.009	1.000	735245	10.3	23305	

QC Flag Legend

Review Flags

M - Manually Integrated

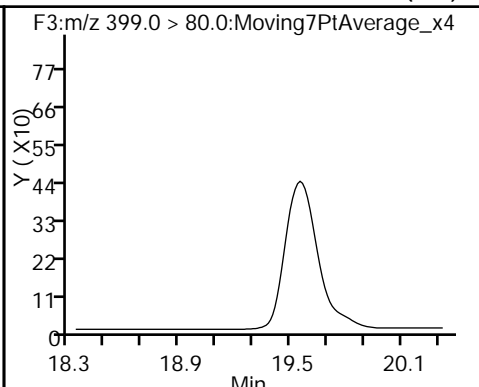
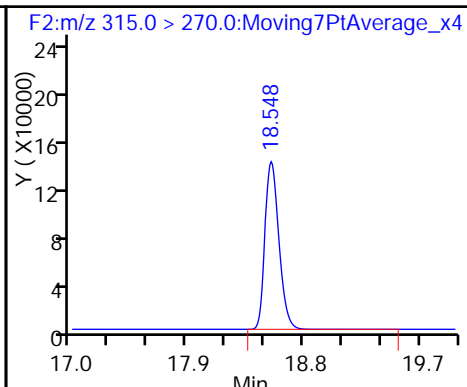
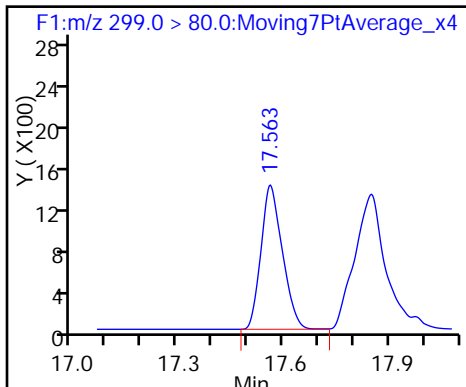
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_131.d  
Injection Date: 08-Dec-2016 08:17:28 Instrument ID: A6  
Lims ID: 320-23929-A-3-A Lab Sample ID: 320-23929-3  
Client ID: WI-AF-2RW01-1116  
Operator ID: CBW ALS Bottle#: 15 Worklist Smp#: 52  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

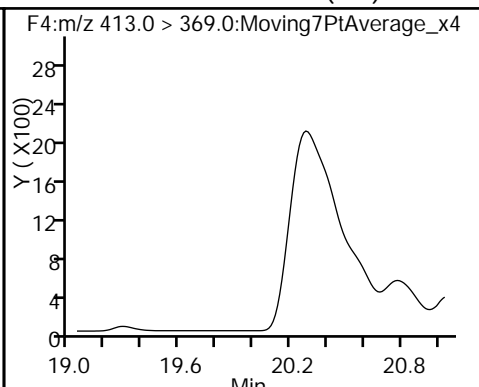
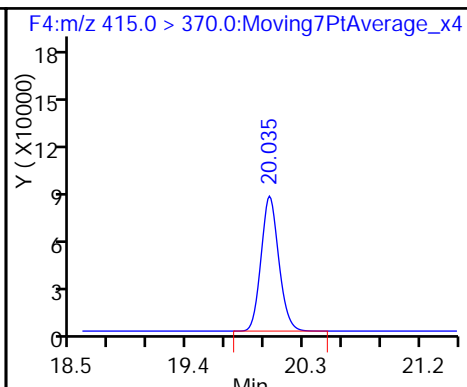
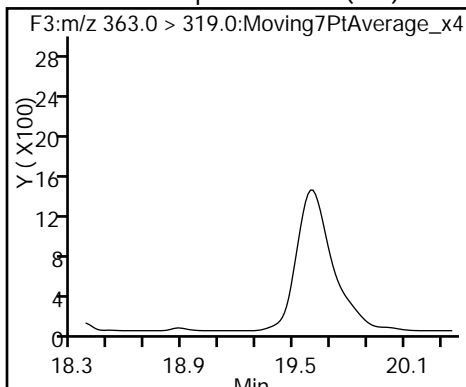
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

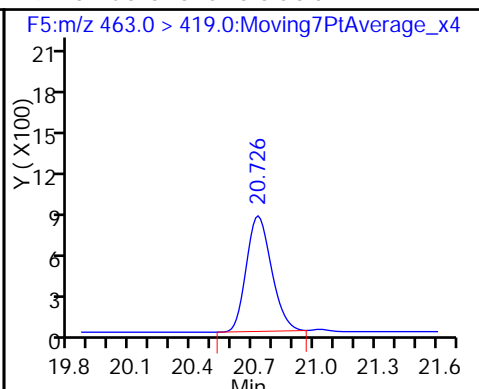
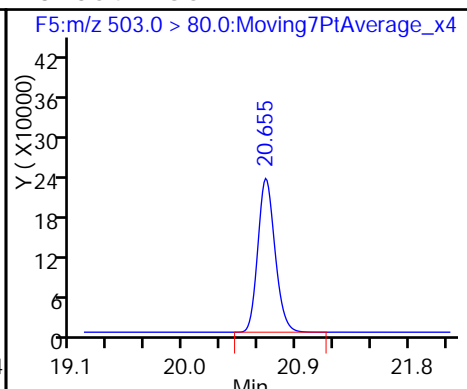
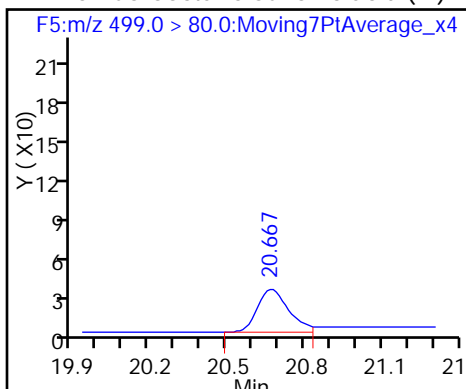
6 Perfluorooctanoic acid (ND)



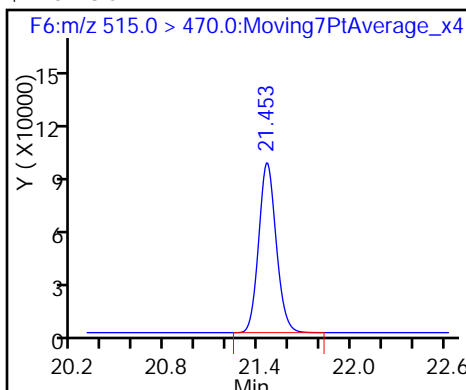
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_131.d  
 Lims ID: 320-23929-A-3-A  
 Client ID: WI-AF-2RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 08:17:28 ALS Bottle#: 15 Worklist Smp#: 52  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:24:53 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:27:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	112.76
\$ 10 13C2 PFDA	10.0	10.3	103.20

TestAmerica Sacramento

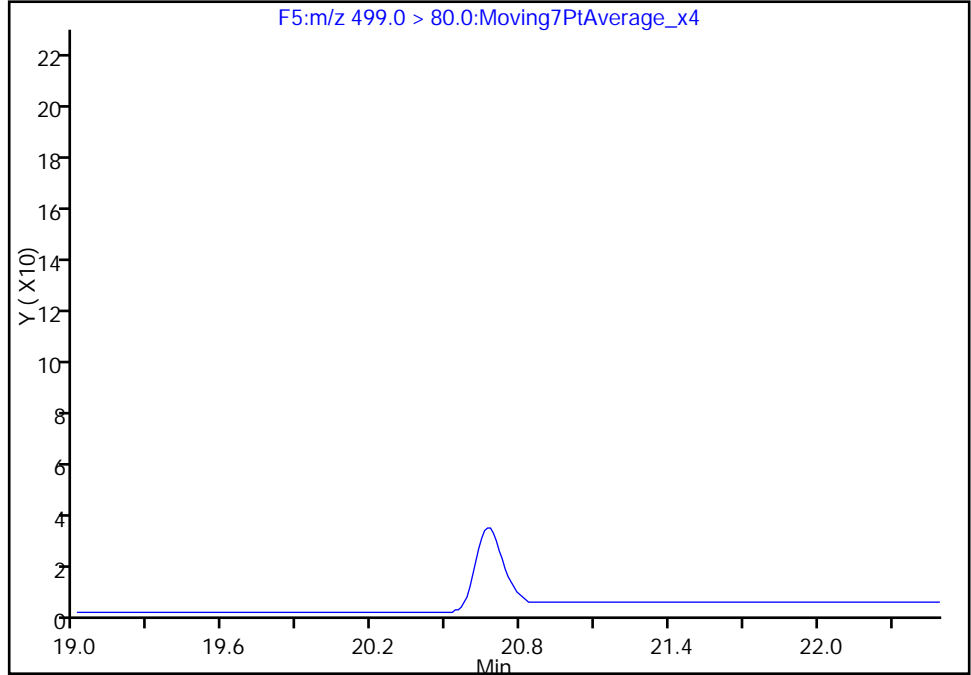
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Injection Date: 08-Dec-2016 08:17:28 Instrument ID: A6  
Lims ID: 320-23929-A-3-A Lab Sample ID: 320-23929-3  
Client ID: WI-AF-2RW01-1116  
Operator ID: CBW ALS Bottle#: 15 Worklist Smp#: 52  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 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

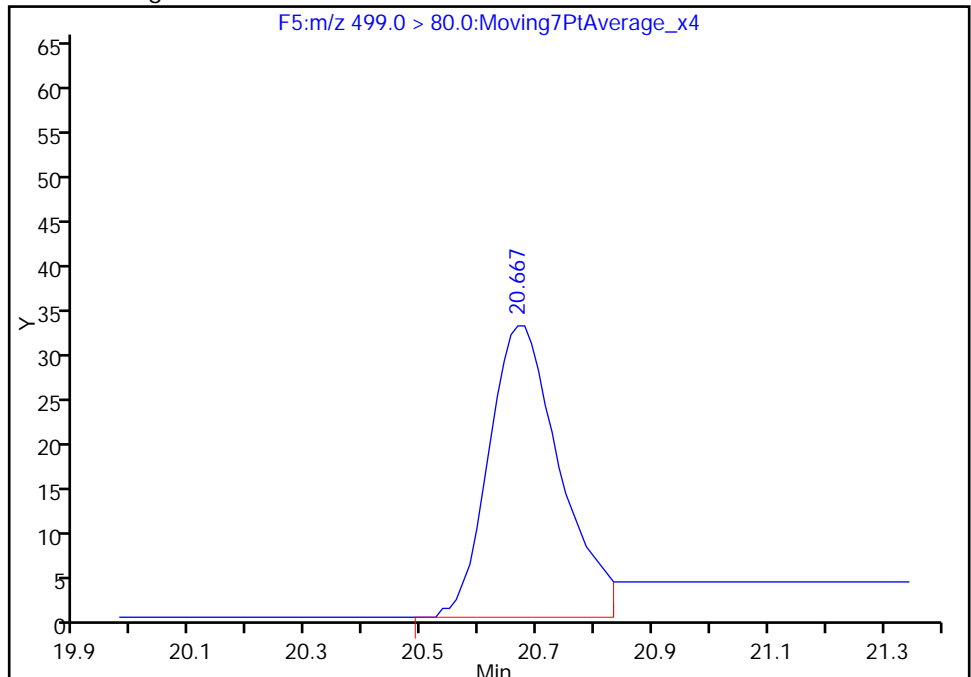
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.67  
Area: 281  
Amount: 0.003489  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 11:27:59  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB01-1116 Lab Sample ID: 320-23929-4  
 Matrix: Water Lab File ID: 05DEC2016A6A\_132.d  
 Analysis Method: 537 Date Collected: 11/28/2016 16:20  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 258.3(mL) Date Analyzed: 12/08/2016 08:47  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_132.d  
 Lims ID: 320-23929-A-4-A  
 Client ID: WI-AF-2FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 08:47:07 ALS Bottle#: 16 Worklist Smp#: 53  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:13 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:28:20

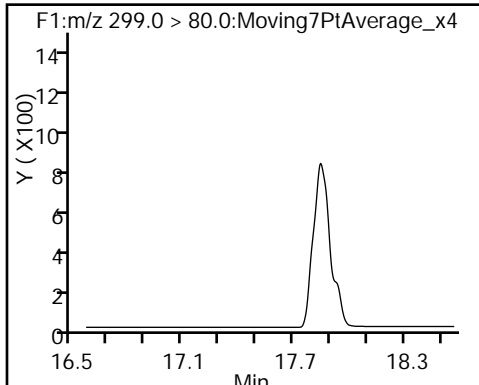
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	881377	10.3	28867
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		737073	10.0	19438
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		1954348	28.7	51422
9 Perfluorononanoic acid	463.0 > 419.0	20.726	20.738	-0.012	1.000	5745	0.0687	165
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	689797	10.7	21774

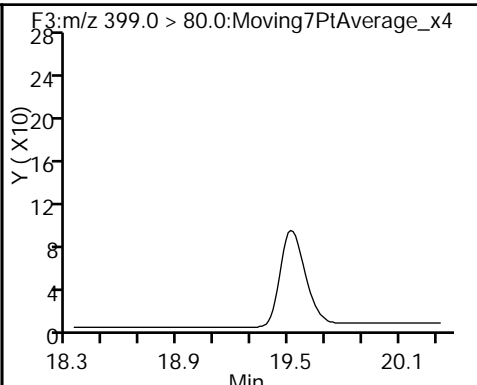
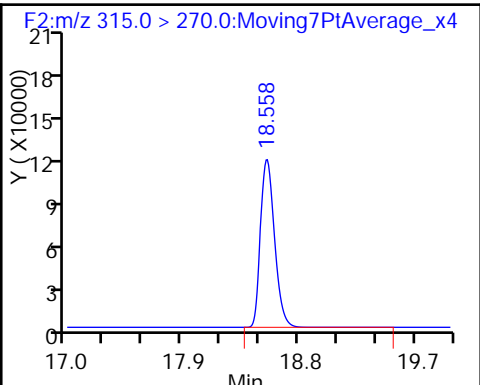
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_132.d  
Injection Date: 08-Dec-2016 08:47:07 Instrument ID: A6  
Lims ID: 320-23929-A-4-A Lab Sample ID: 320-23929-4  
Client ID: WI-AF-2FB01-1116  
Operator ID: CBW ALS Bottle#: 16 Worklist Smp#: 53  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL

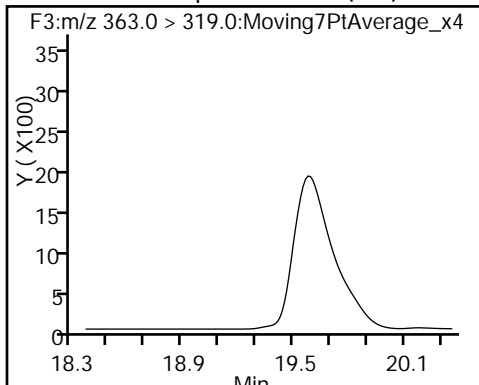
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



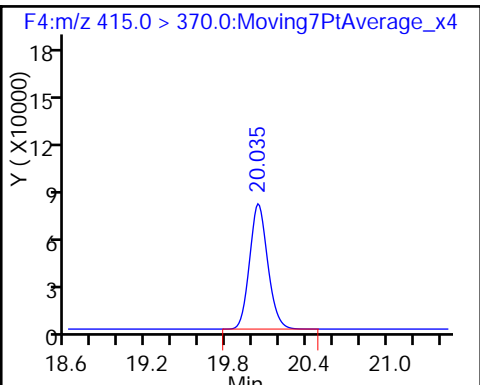
3 Perfluorohexanesulfonic acid (ND)



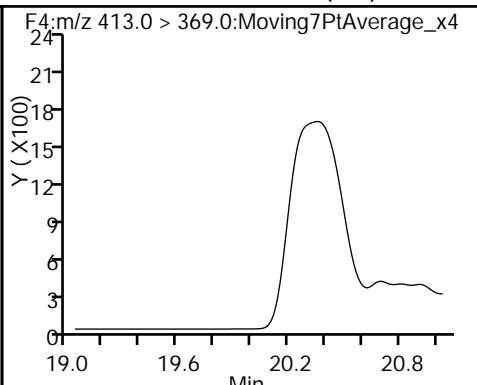
4 Perfluoroheptanoic acid (ND)



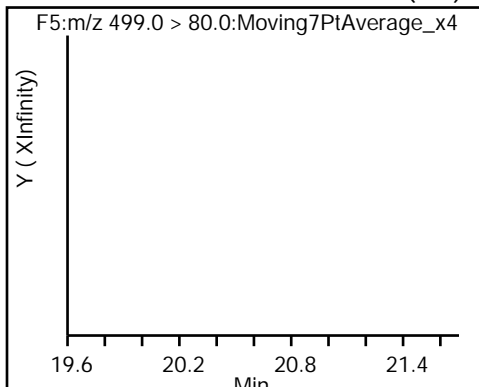
\* 5 13C2-PFOA



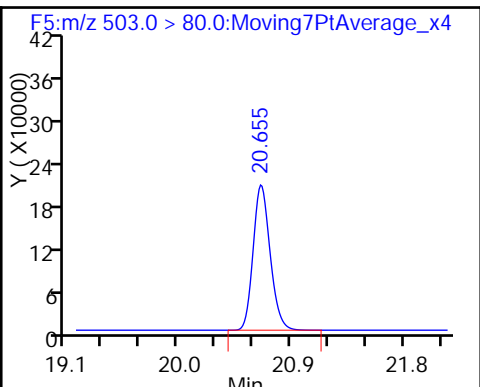
6 Perfluorooctanoic acid (ND)



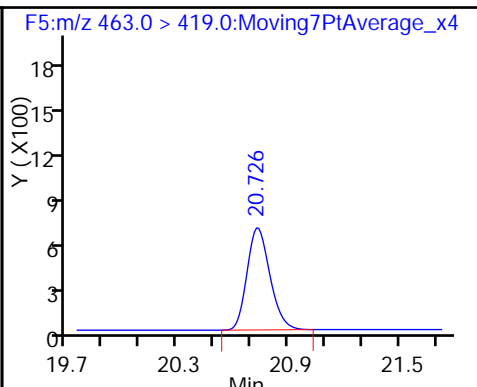
7 Perfluorooctane sulfonic acid (ND)



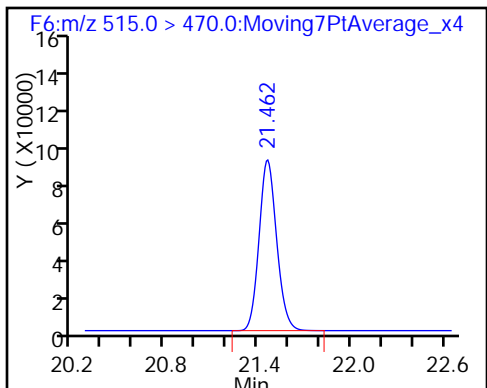
\* 8 13C4 PFOS



9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_132.d  
 Lims ID: 320-23929-A-4-A  
 Client ID: WI-AF-2FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 08:47:07 ALS Bottle#: 16 Worklist Smp#: 53  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-4-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:13 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 11:28:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	102.51
\$ 10 13C2 PFDA	10.0	10.7	106.80



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW02-1116 Lab Sample ID: 320-23929-5  
 Matrix: Water Lab File ID: 05DEC2016A6A\_136.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:25  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 251.8(mL) Date Analyzed: 12/08/2016 10:45  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140948 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	0.015
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	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	76		70-130
STL00996	13C2 PFDA	81		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_136.d  
 Lims ID: 320-23929-A-5-A  
 Client ID: WI-AF-3RW02-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 10:45:33 ALS Bottle#: 17 Worklist Smp#: 57  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:51:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.573	17.579	-0.006	1.000	3447	0.0639	7.5	
\$ 2 13C2 PFHxA	315.0 > 270.0	18.557	18.558	-0.001	1.000	748753	7.59	24626	
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.332	0.012	1.000	9036	0.1309	24.6	M
4 Perfluoroheptanoic acid	363.0 > 319.0	19.190	19.368	-0.178	1.000	1917	0.0187	0.7	
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		845758	10.0	21897	
6 Perfluorooctanoic acid	413.0 > 369.0	20.082	20.035	0.047	1.000	1155	0.0131	0.4	M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.383	20.619	-0.236	1.000	834	0.0104	27.3	M
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		2205325	28.7	46400	
9 Perfluorononanoic acid	463.0 > 419.0	20.750	20.738	0.012	1.000	8136	0.0848	29.3	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	600386	8.10	18841	

QC Flag Legend

Review Flags

M - Manually Integrated

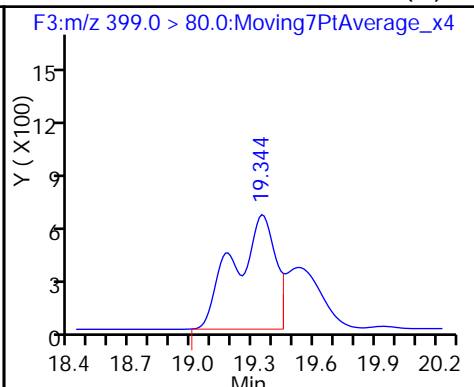
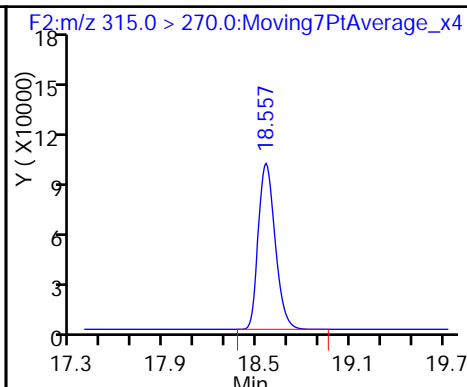
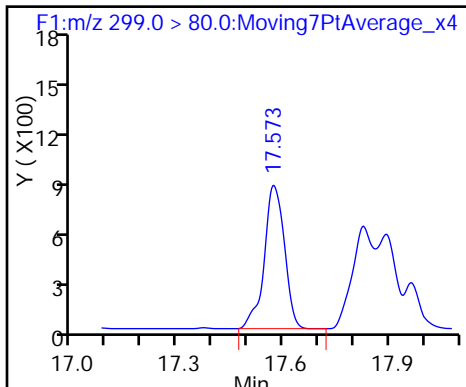
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_136.d  
Injection Date: 08-Dec-2016 10:45:33 Instrument ID: A6  
Lims ID: 320-23929-A-5-A Lab Sample ID: 320-23929-5  
Client ID: WI-AF-3RW02-1116  
Operator ID: CBW ALS Bottle#: 17 Worklist Smp#: 57  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

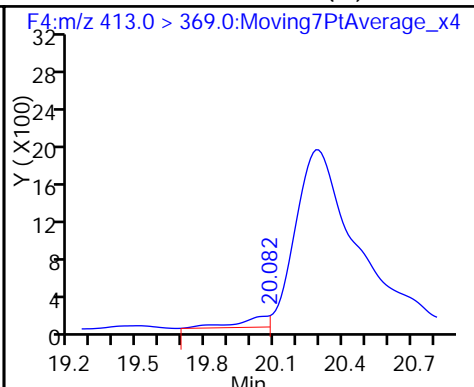
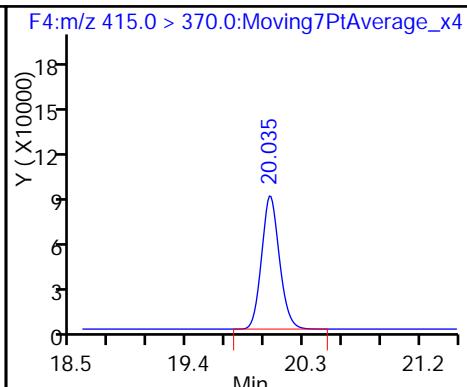
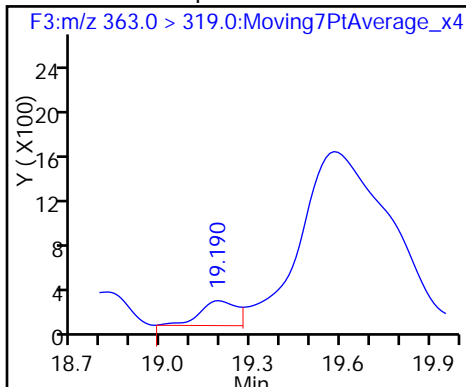
3 Perfluorohexanesulfonic acid (M)



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

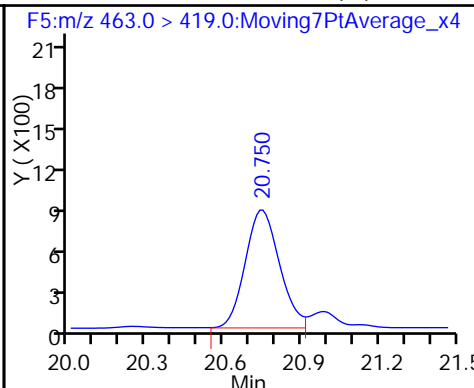
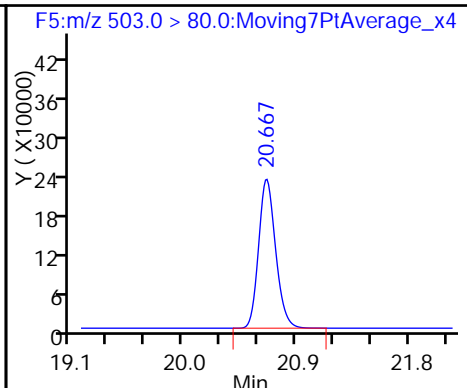
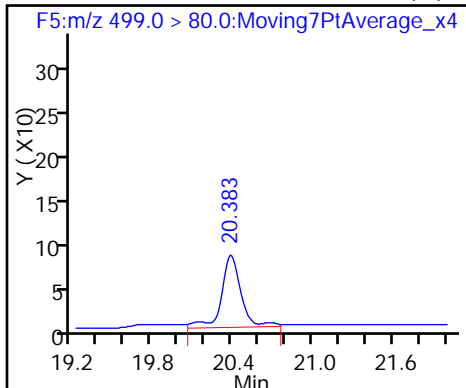
6 Perfluorooctanoic acid (M)



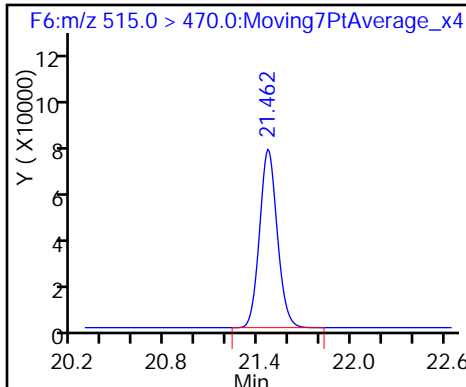
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_136.d  
 Lims ID: 320-23929-A-5-A  
 Client ID: WI-AF-3RW02-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 10:45:33 ALS Bottle#: 17 Worklist Smp#: 57  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-5-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:51:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	7.59	75.89
\$ 10 13C2 PFDA	10.0	8.10	81.01

TestAmerica Sacramento

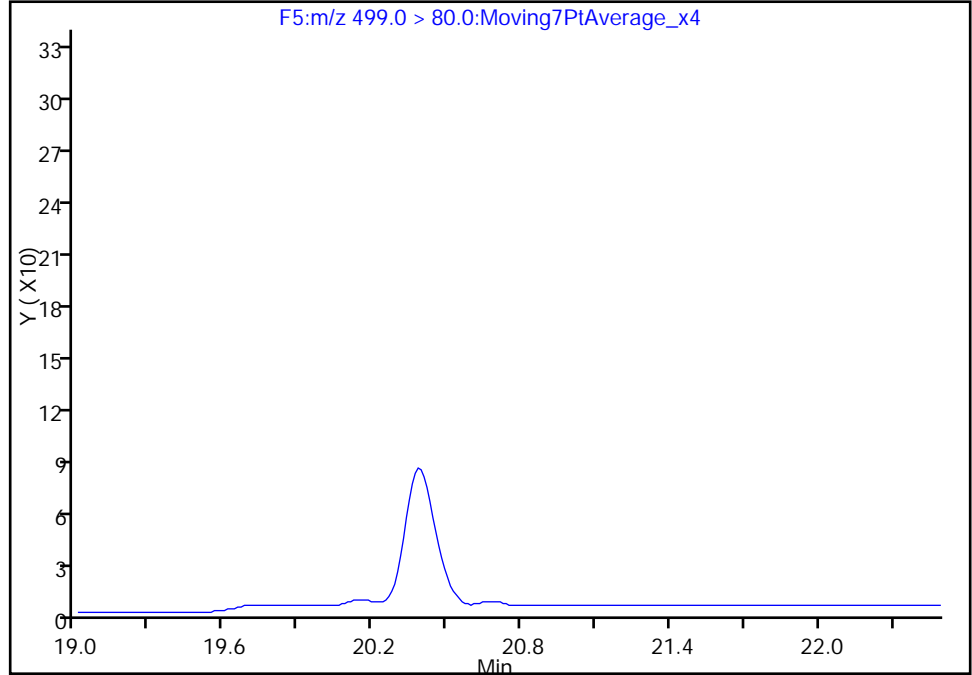
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Injection Date: 08-Dec-2016 10:45:33 Instrument ID: A6  
Lims ID: 320-23929-A-5-A Lab Sample ID: 320-23929-5  
Client ID: WI-AF-3RW02-1116  
Operator ID: CBW ALS Bottle#: 17 Worklist Smp#: 57  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 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

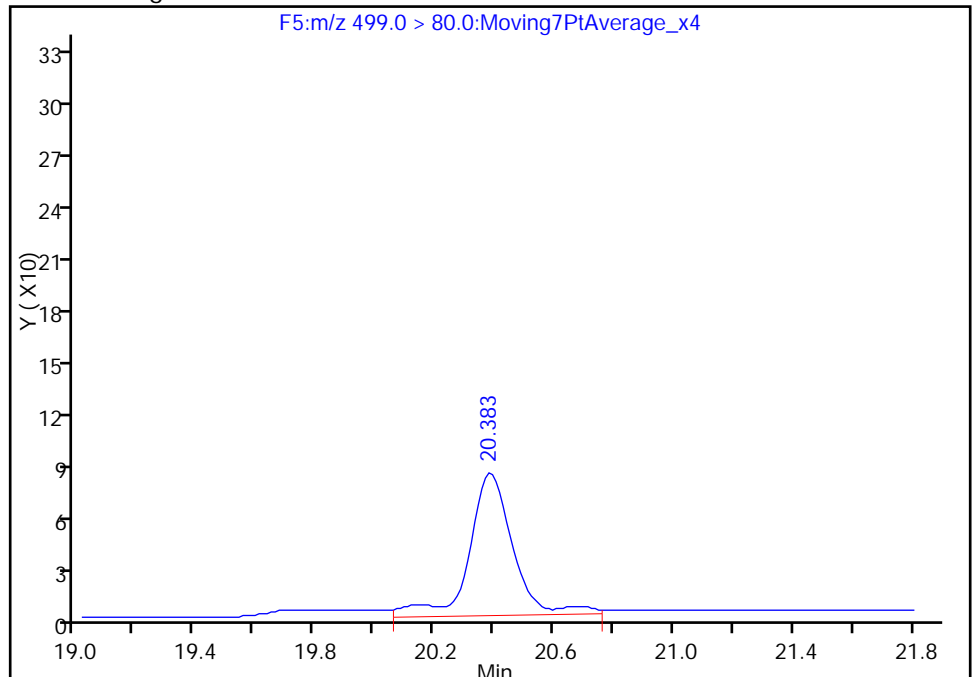
Not Detected  
Expected RT: 20.62

Processing Integration Results



RT: 20.38  
Area: 834  
Amount: 0.010389  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 08-Dec-2016 13:51:18  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

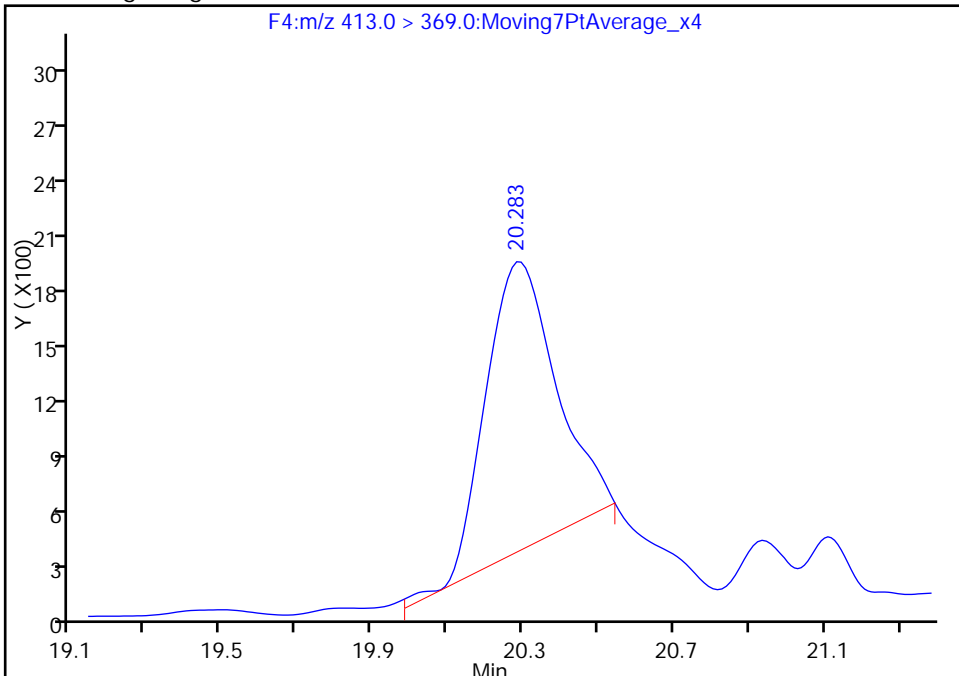
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_136.d  
Injection Date: 08-Dec-2016 10:45:33 Instrument ID: A6  
Lims ID: 320-23929-A-5-A Lab Sample ID: 320-23929-5  
Client ID: WI-AF-3RW02-1116  
Operator ID: CBW ALS Bottle#: 17 Worklist Smp#: 57  
Injection Vol: 10.0 ul 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

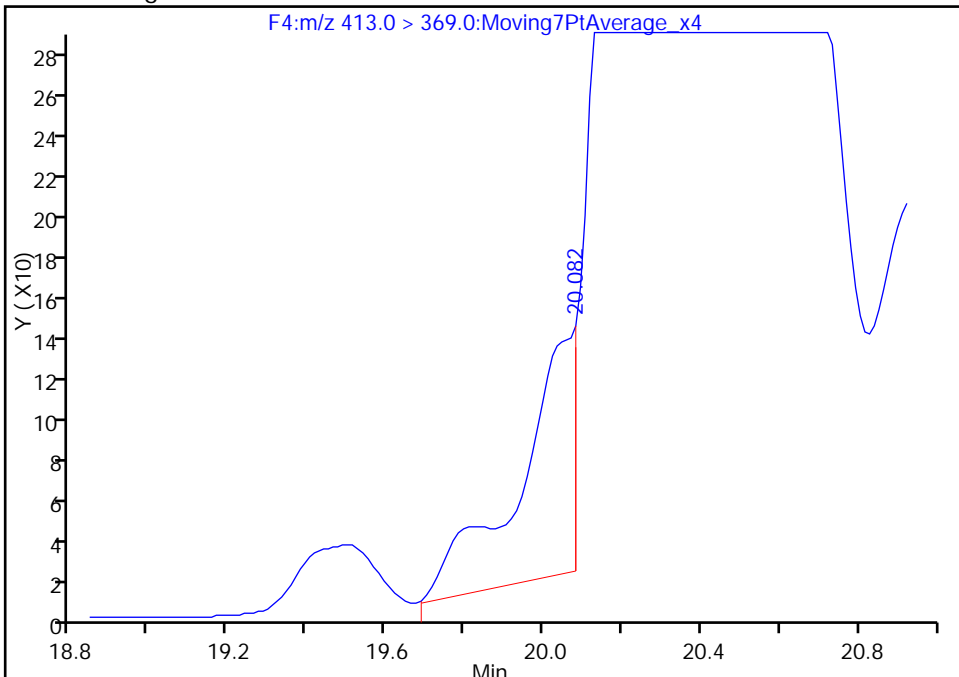
RT: 20.28  
Area: 20681  
Amount: 0.235025  
Amount Units: ng/ml

Processing Integration Results



RT: 20.08  
Area: 1155  
Amount: 0.013126  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 08-Dec-2016 13:51:18  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB02-1116 Lab Sample ID: 320-23929-6  
 Matrix: Water Lab File ID: 05DEC2016A6A\_137.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:26  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 259(mL) Date Analyzed: 12/08/2016 11:15  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140948 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U M	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U M	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	128		70-130
STL00996	13C2 PFDA	134	Q	70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_137.d  
 Lims ID: 320-23929-A-6-A  
 Client ID: WI-AF-3FB02-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 11:15:08 ALS Bottle#: 18 Worklist Smp#: 58  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:52:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1191975	12.8	38691
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	1014	0.0105	0.8
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		798408	10.0	20752
6 Perfluorooctanoic acid	413.0 > 369.0	20.094	20.035	0.059	1.000	459	0.005526	0.2 M
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.394	20.619	-0.225	1.000	246	0.003013	6.8 M
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		2243232	28.7	46593
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	3701	0.0409	42.6 M
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	934250	13.4	29278

QC Flag Legend

Review Flags

M - Manually Integrated

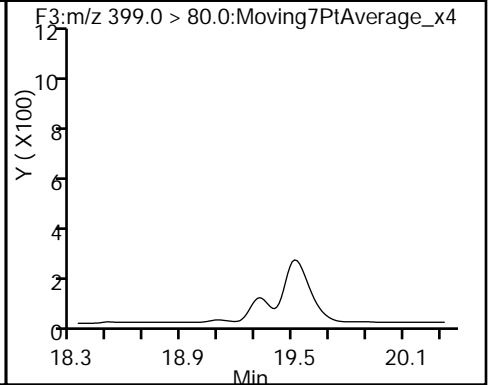
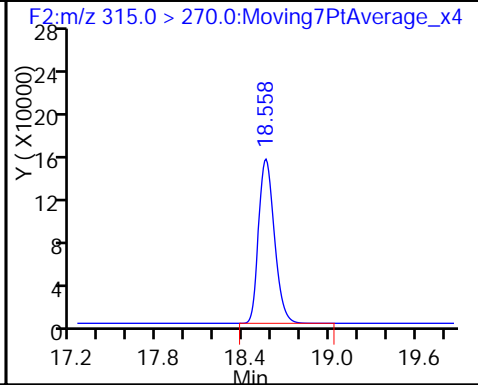
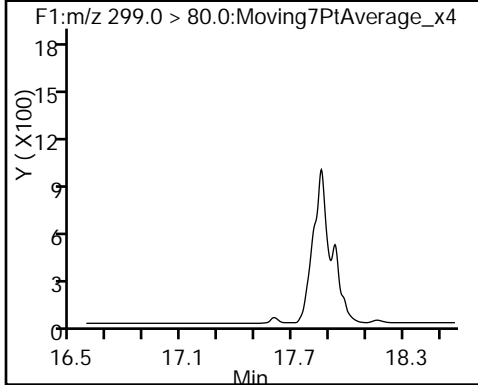


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_137.d  
Injection Date: 08-Dec-2016 11:15:08 Instrument ID: A6  
Lims ID: 320-23929-A-6-A Lab Sample ID: 320-23929-6  
Client ID: WI-AF-3FB02-1116  
Operator ID: CBW ALS Bottle#: 18 Worklist Smp#: 58  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

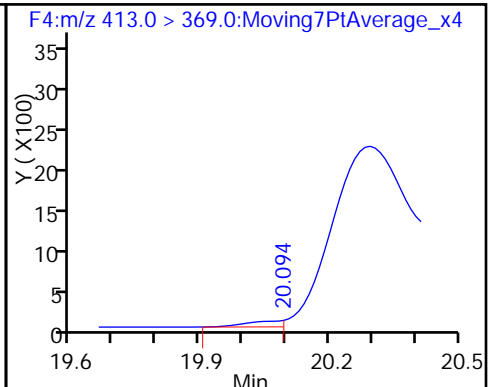
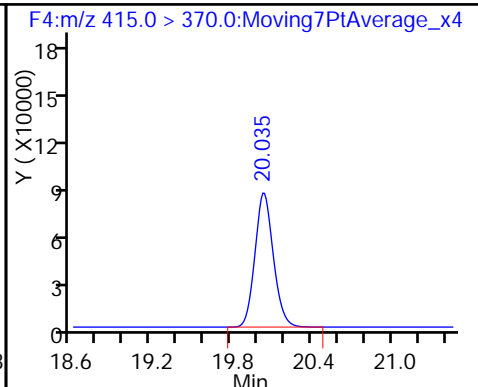
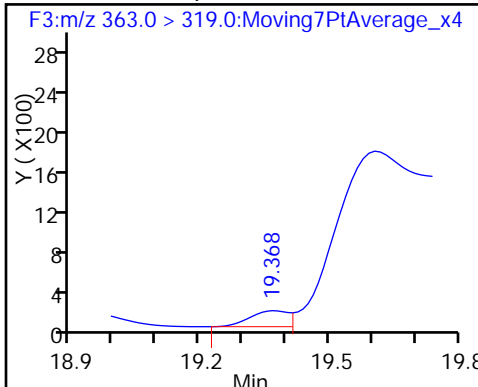
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

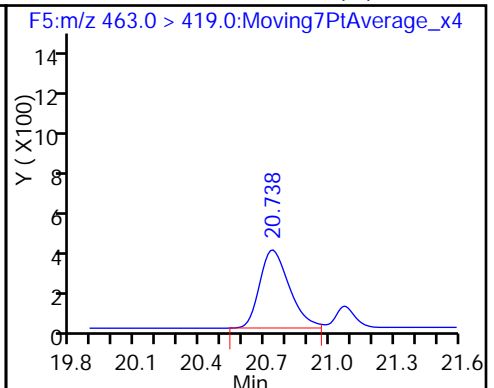
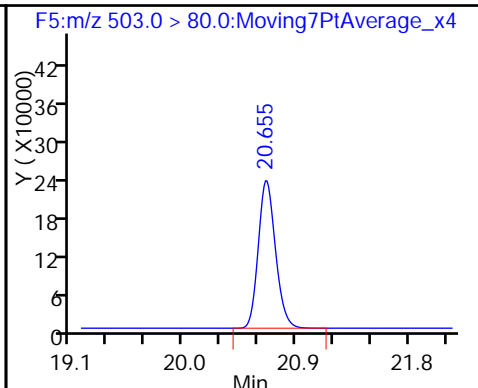
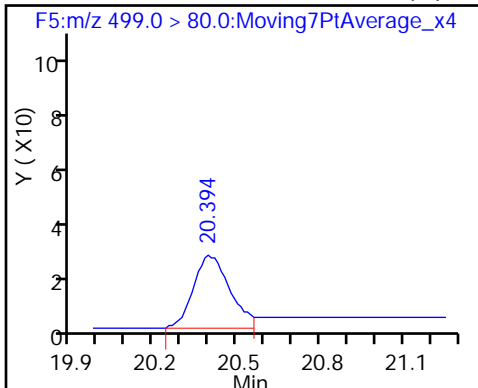
6 Perfluorooctanoic acid (M)



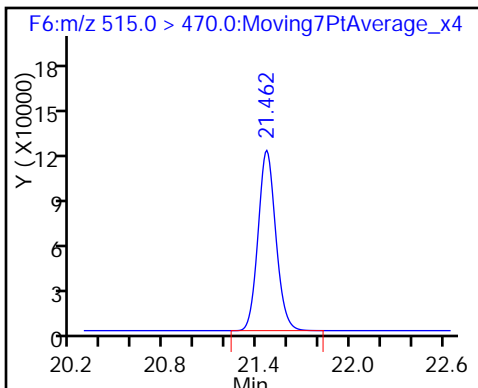
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_137.d  
 Lims ID: 320-23929-A-6-A  
 Client ID: WI-AF-3FB02-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 11:15:08 ALS Bottle#: 18 Worklist Smp#: 58  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-6-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:52:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	12.8	127.98
\$ 10 13C2 PFDA	10.0	13.4	133.54

TestAmerica Sacramento

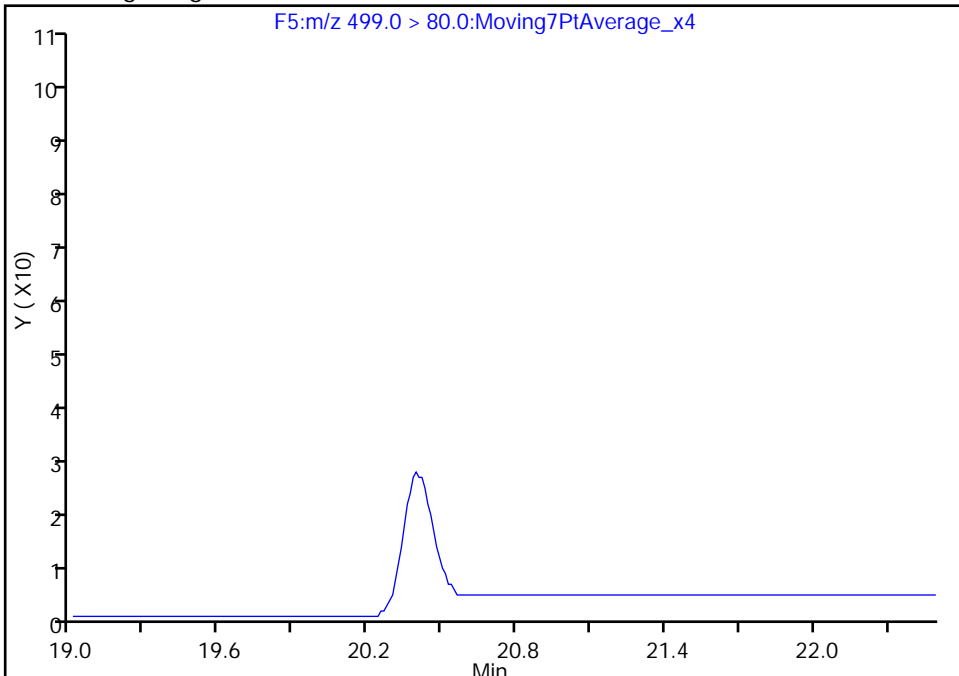
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_137.d  
Injection Date: 08-Dec-2016 11:15:08 Instrument ID: A6  
Lims ID: 320-23929-A-6-A Lab Sample ID: 320-23929-6  
Client ID: WI-AF-3FB02-1116  
Operator ID: CBW ALS Bottle#: 18 Worklist Smp#: 58  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

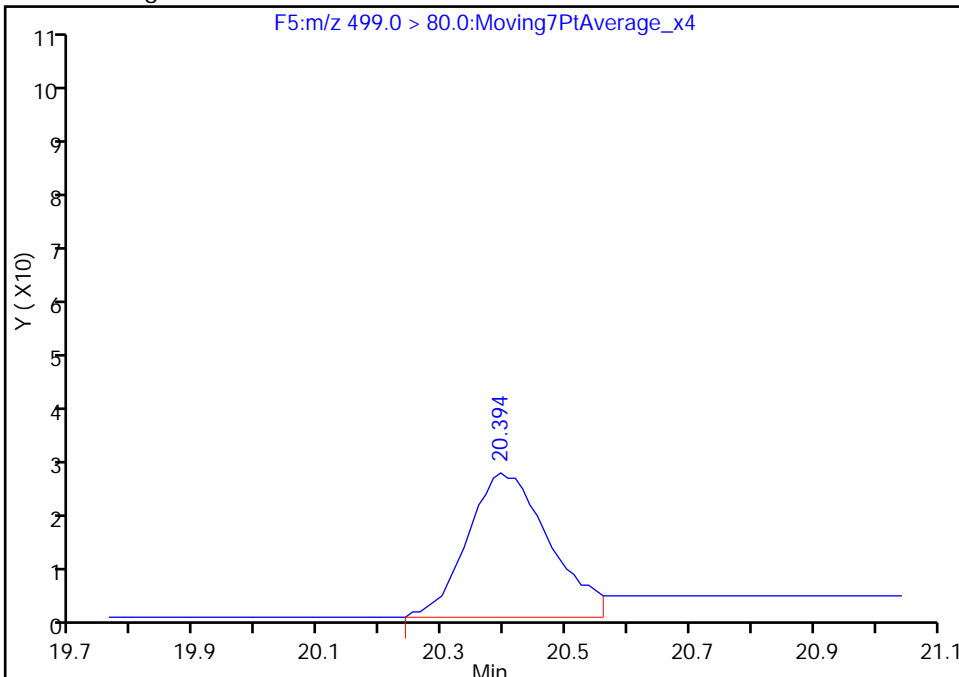
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.39  
Area: 246  
Amount: 0.003013  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 13:52:20  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

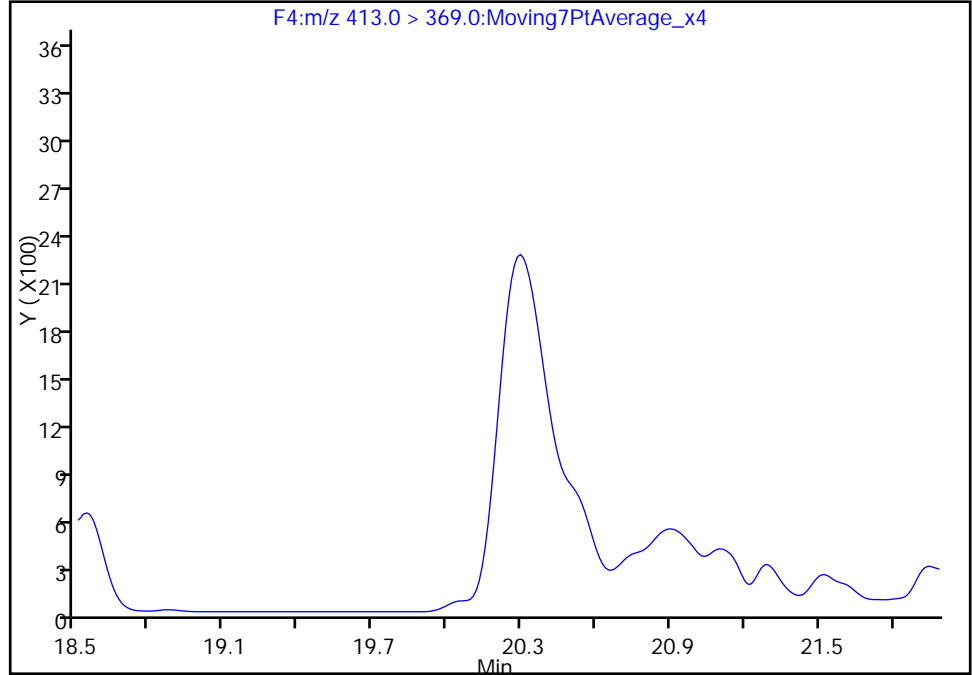
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_137.d  
Injection Date: 08-Dec-2016 11:15:08 Instrument ID: A6  
Lims ID: 320-23929-A-6-A Lab Sample ID: 320-23929-6  
Client ID: WI-AF-3FB02-1116  
Operator ID: CBW ALS Bottle#: 18 Worklist Smp#: 58  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

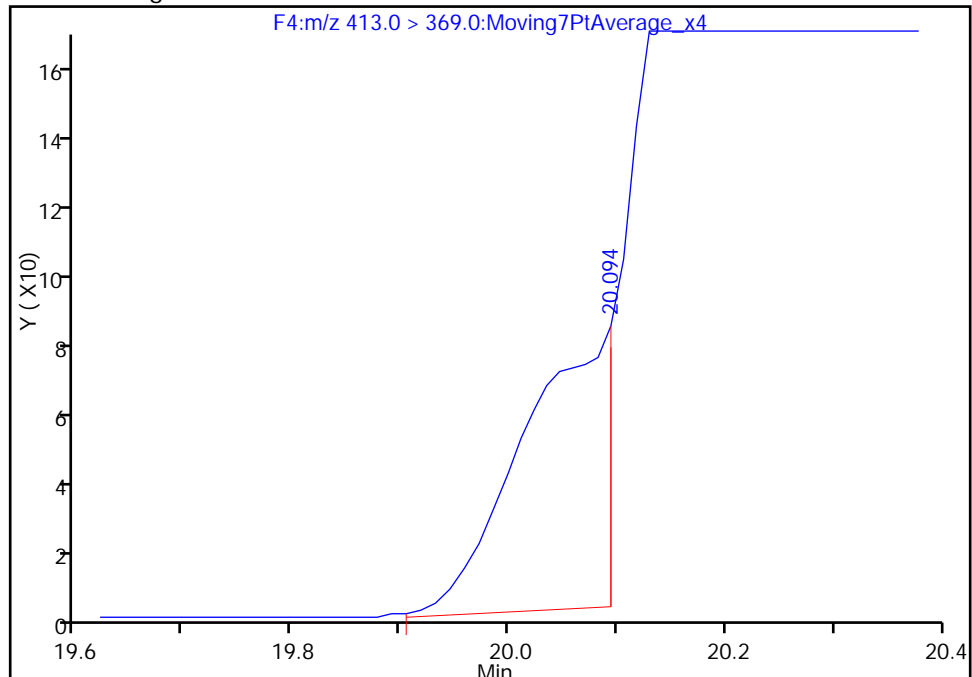
Not Detected  
Expected RT: 20.03

Processing Integration Results



Manual Integration Results

RT: 20.09  
Area: 459  
Amount: 0.005526  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 13:52:20  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW01-1116 Lab Sample ID: 320-23929-7  
 Matrix: Water Lab File ID: 05DEC2016A6A\_141.d  
 Analysis Method: 537 Date Collected: 11/28/2016 13:50  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 254.5 (mL) Date Analyzed: 12/08/2016 13:19  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	120		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_141.d  
 Lims ID: 320-23929-A-7-A  
 Client ID: WI-AF-3RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 13:19:04 ALS Bottle#: 19 Worklist Smp#: 59  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:06:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.548	0.010	1.000	1049273	11.3	33926
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.035	0.012		795605	10.0	20652
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.047	20.035	0.012	1.000	746	0.009012	0.3	M
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.371	20.655	-0.284	1.000	347	0.004234	10.3	M
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.655	0.0		2251671	28.7	58544
9 Perfluorononanoic acid								
463.0 > 419.0	20.738	20.726	0.012	1.000	8487	0.0940	233	
\$ 10 13C2 PFDA	515.0 > 470.0	21.453	21.453	0.0	1.000	836586	12.0	26108

QC Flag Legend

Review Flags

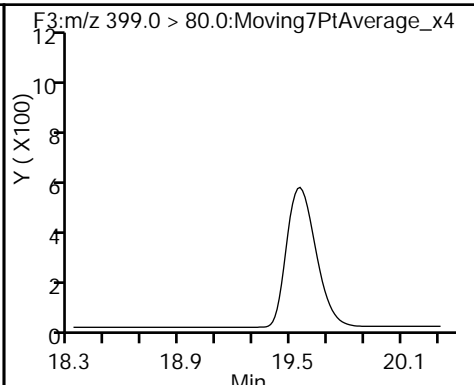
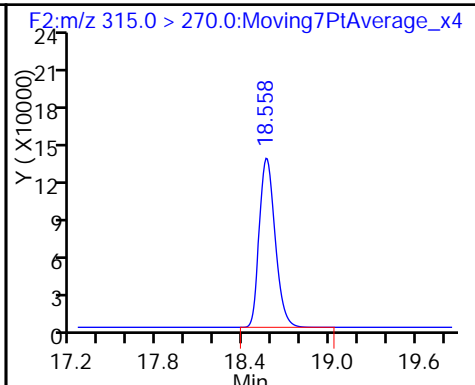
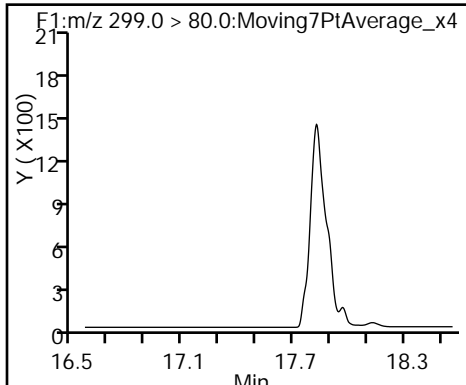
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_141.d  
Injection Date: 08-Dec-2016 13:19:04 Instrument ID: A6  
Lims ID: 320-23929-A-7-A Lab Sample ID: 320-23929-7  
Client ID: WI-AF-3RW01-1116  
Operator ID: CBW ALS Bottle#: 19 Worklist Smp#: 59  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

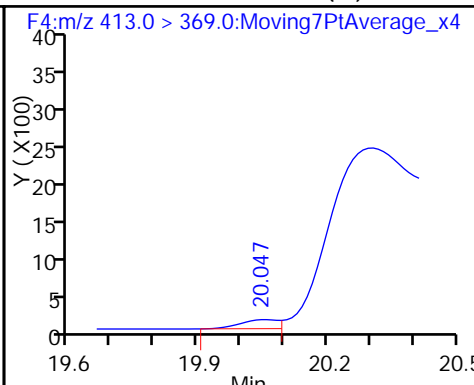
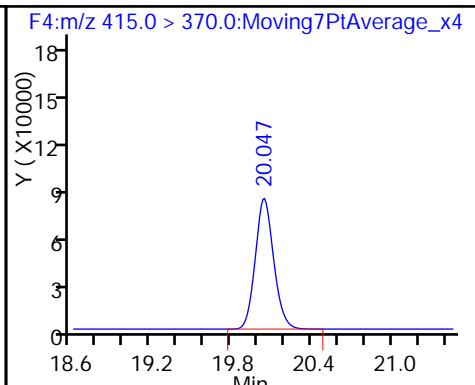
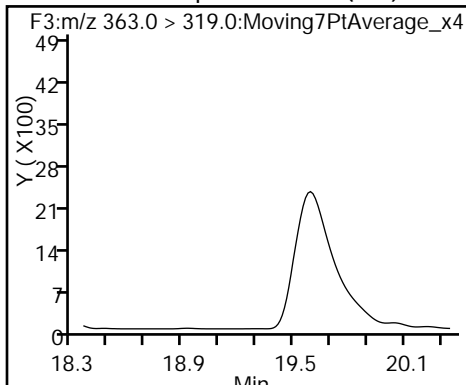
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

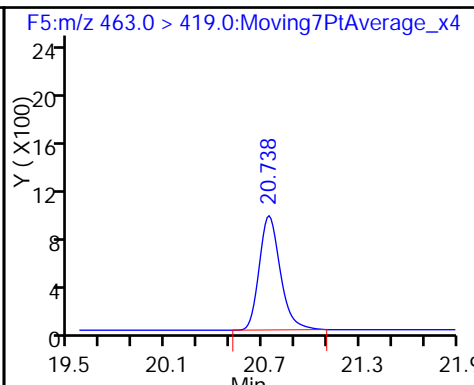
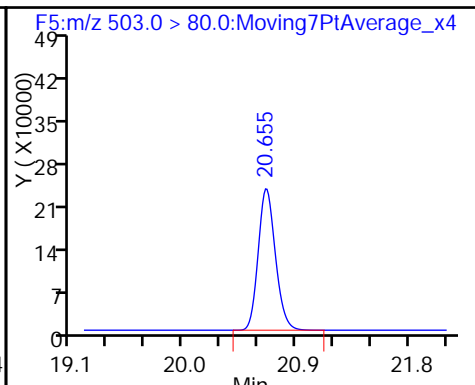
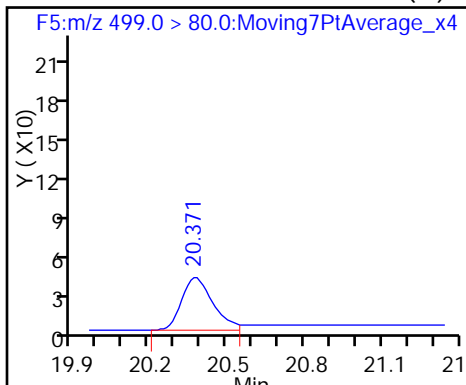
6 Perfluorooctanoic acid (M)



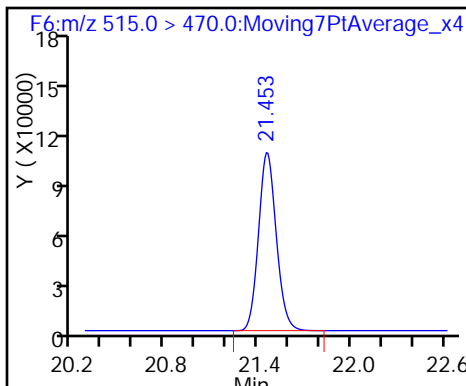
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_141.d  
 Lims ID: 320-23929-A-7-A  
 Client ID: WI-AF-3RW01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 13:19:04 ALS Bottle#: 19 Worklist Smp#: 59  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-7-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:06:10

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.3	113.06
\$ 10 13C2 PFDA	10.0	12.0	120.00



TestAmerica Sacramento

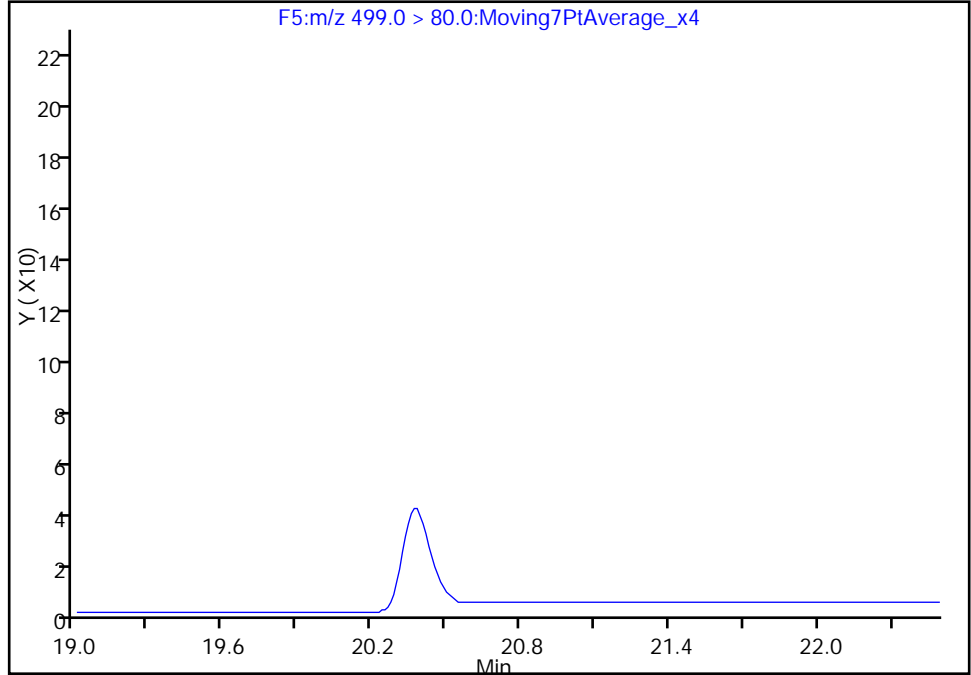
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_141.d  
Injection Date: 08-Dec-2016 13:19:04 Instrument ID: A6  
Lims ID: 320-23929-A-7-A Lab Sample ID: 320-23929-7  
Client ID: WI-AF-3RW01-1116  
Operator ID: CBW ALS Bottle#: 19 Worklist Smp#: 59  
Injection Vol: 10.0 ul 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

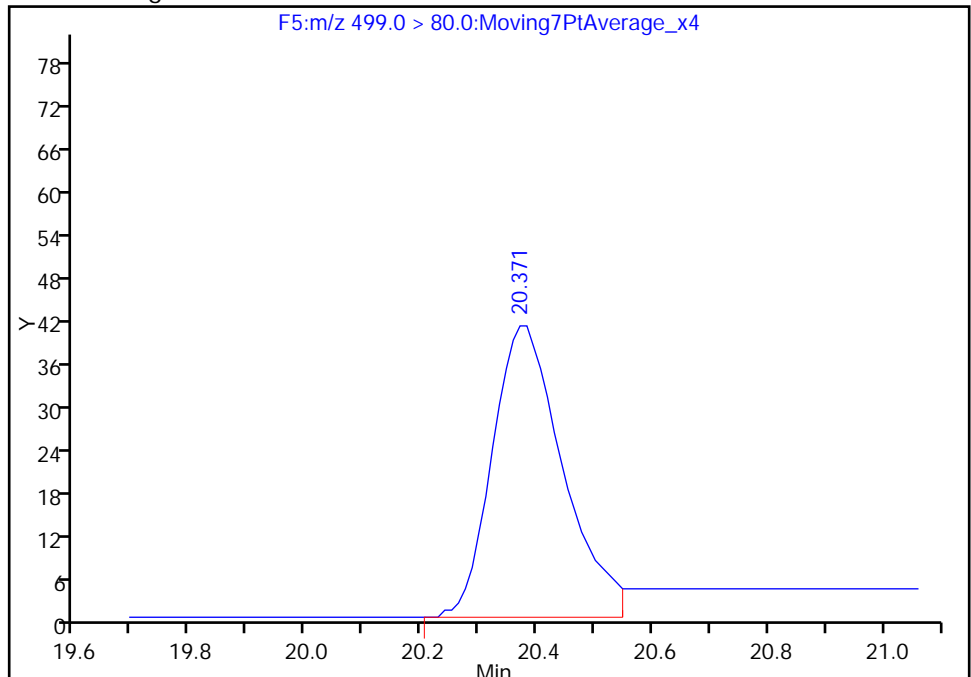
Not Detected  
Expected RT: 20.65

Processing Integration Results



Manual Integration Results

RT: 20.37  
Area: 347  
Amount: 0.004234  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 16:06:10  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

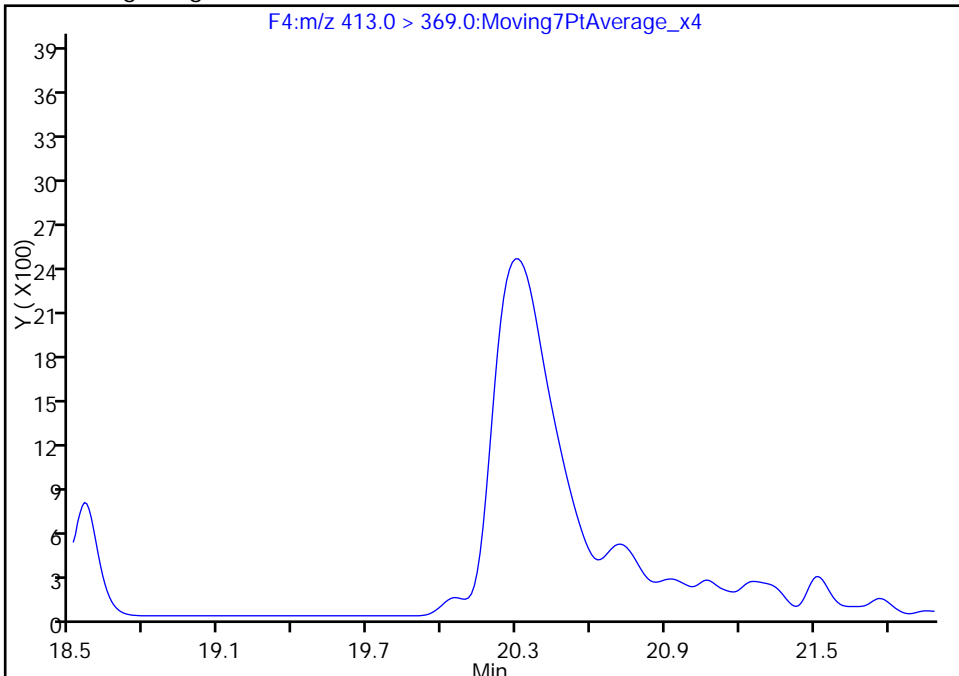
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_141.d  
Injection Date: 08-Dec-2016 13:19:04 Instrument ID: A6  
Lims ID: 320-23929-A-7-A Lab Sample ID: 320-23929-7  
Client ID: WI-AF-3RW01-1116  
Operator ID: CBW ALS Bottle#: 19 Worklist Smp#: 59  
Injection Vol: 10.0 ul 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

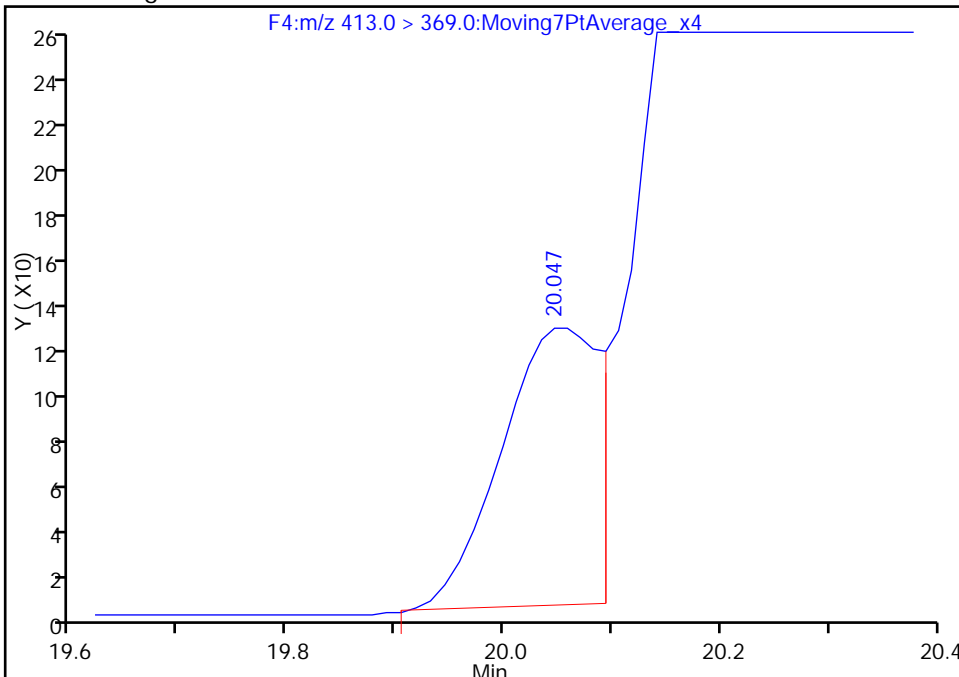
Not Detected  
Expected RT: 20.03

Processing Integration Results



Manual Integration Results

RT: 20.05  
Area: 746  
Amount: 0.009012  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 16:06:10  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB01-1116 Lab Sample ID: 320-23929-8  
 Matrix: Water Lab File ID: 05DEC2016A6A\_142.d  
 Analysis Method: 537 Date Collected: 11/28/2016 13:51  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 257.4(mL) Date Analyzed: 12/08/2016 13:48  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 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 M	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	106		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_142.d  
 Lims ID: 320-23929-A-8-A  
 Client ID: WI-AF-3FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 13:48:40 ALS Bottle#: 20 Worklist Smp#: 60  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:07:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.548	0.010	1.000	905251	10.6	29696
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.035	0.012		734517	10.0	19200
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.035	20.035	0.0	1.000	1600	0.0209	0.6	M
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.679	20.655	0.024	1.000	830	0.0111	18.5	M
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.655	0.0		2045966	28.7	21501
9 Perfluorononanoic acid								
463.0 > 419.0	20.738	20.726	0.012	1.000	7169	0.0861	207	
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.453	0.009	1.000	709188	11.0	22496

QC Flag Legend

Review Flags

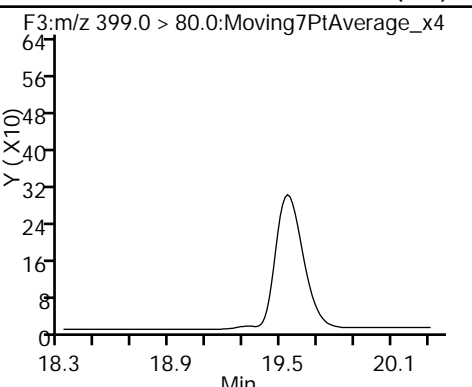
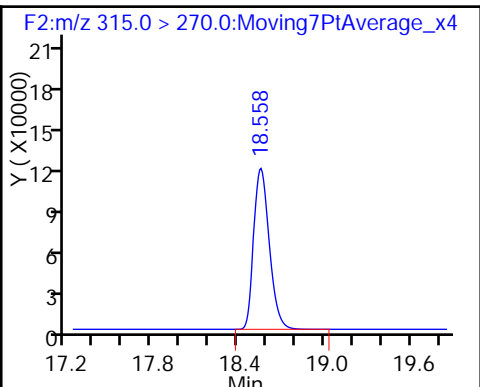
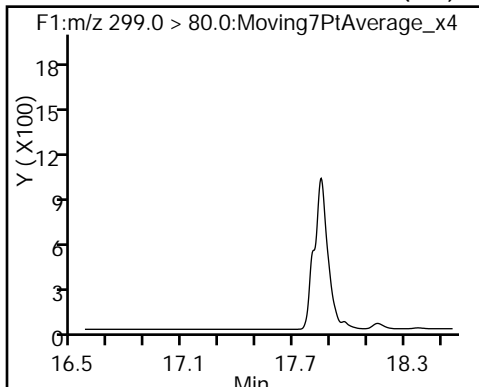
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_142.d  
Injection Date: 08-Dec-2016 13:48:40 Instrument ID: A6  
Lims ID: 320-23929-A-8-A Lab Sample ID: 320-23929-8  
Client ID: WI-AF-3FB01-1116  
Operator ID: CBW ALS Bottle#: 20 Worklist Smp#: 60  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

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

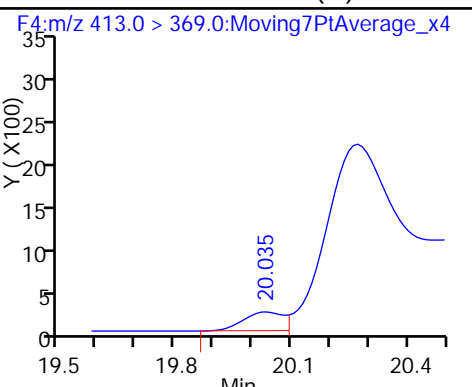
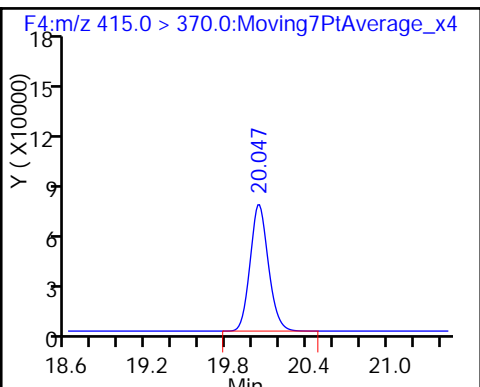
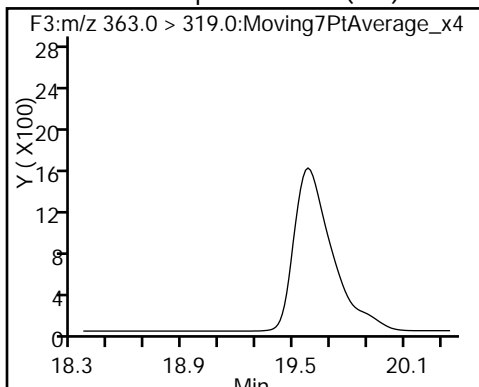
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

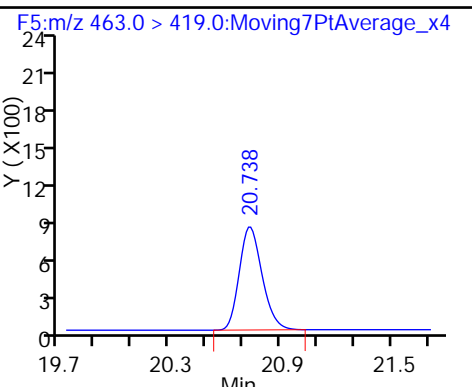
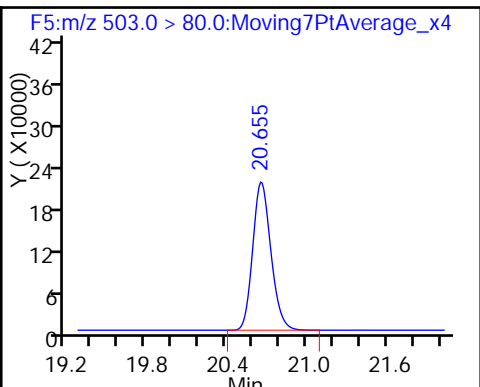
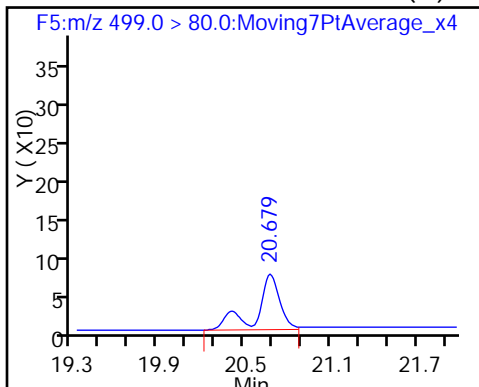
6 Perfluorooctanoic acid (M)



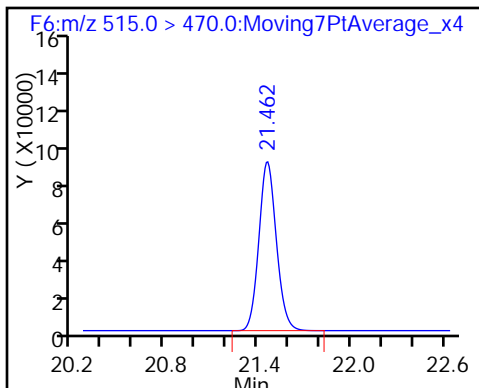
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_142.d  
 Lims ID: 320-23929-A-8-A  
 Client ID: WI-AF-3FB01-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 13:48:40 ALS Bottle#: 20 Worklist Smp#: 60  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-8-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:07:34

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	105.65
\$ 10 13C2 PFDA	10.0	11.0	110.18

TestAmerica Sacramento

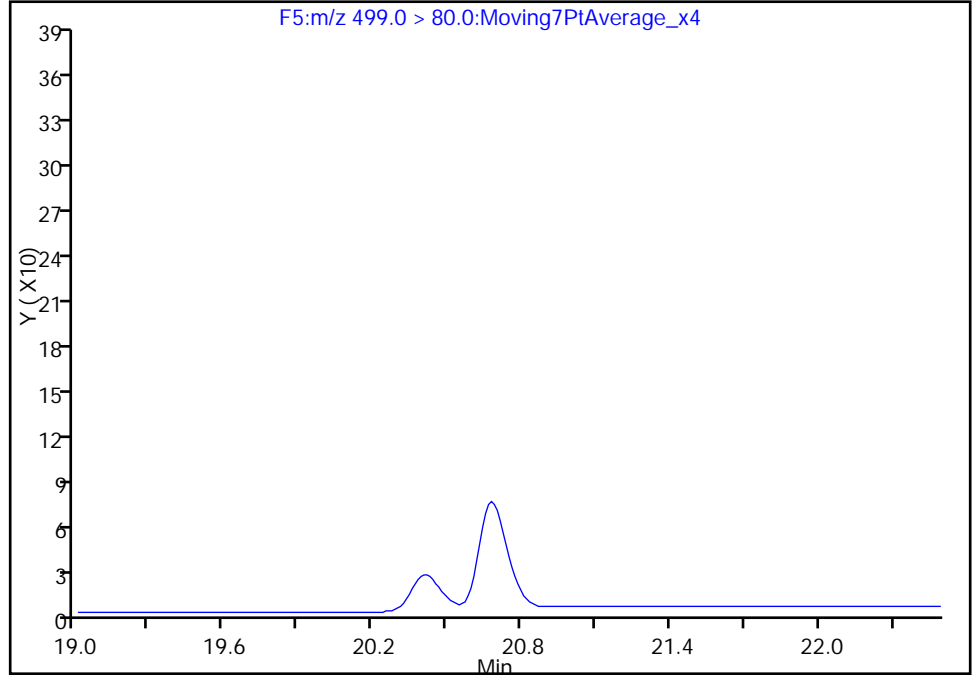
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_142.d  
Injection Date: 08-Dec-2016 13:48:40 Instrument ID: A6  
Lims ID: 320-23929-A-8-A Lab Sample ID: 320-23929-8  
Client ID: WI-AF-3FB01-1116  
Operator ID: CBW ALS Bottle#: 20 Worklist Smp#: 60  
Injection Vol: 10.0 ul 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

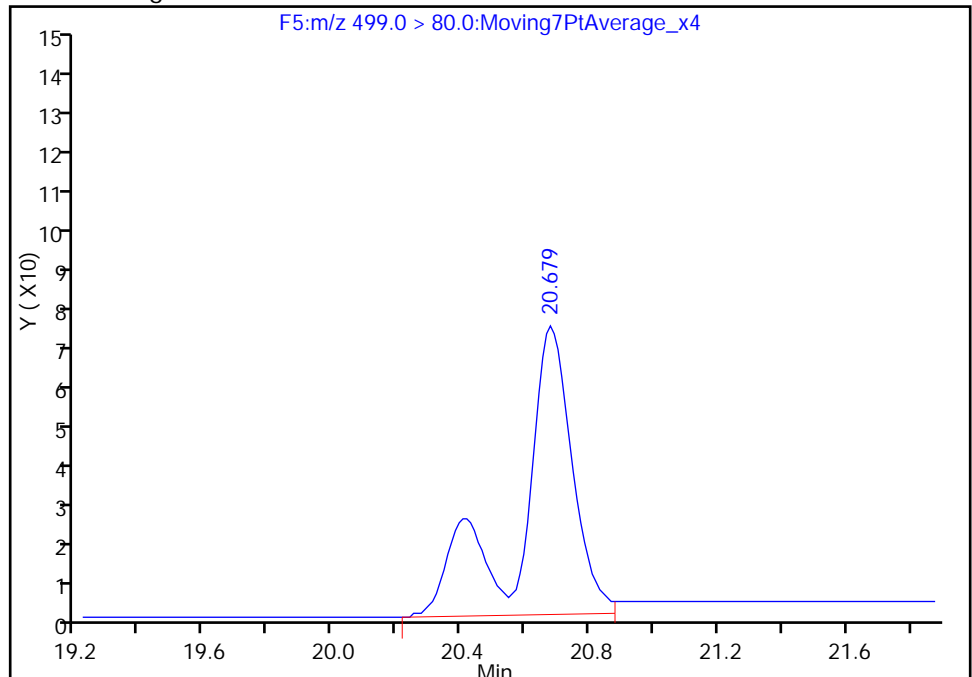
Not Detected  
Expected RT: 20.65

Processing Integration Results



RT: 20.68  
Area: 830  
Amount: 0.011145  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 08-Dec-2016 16:07:34  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

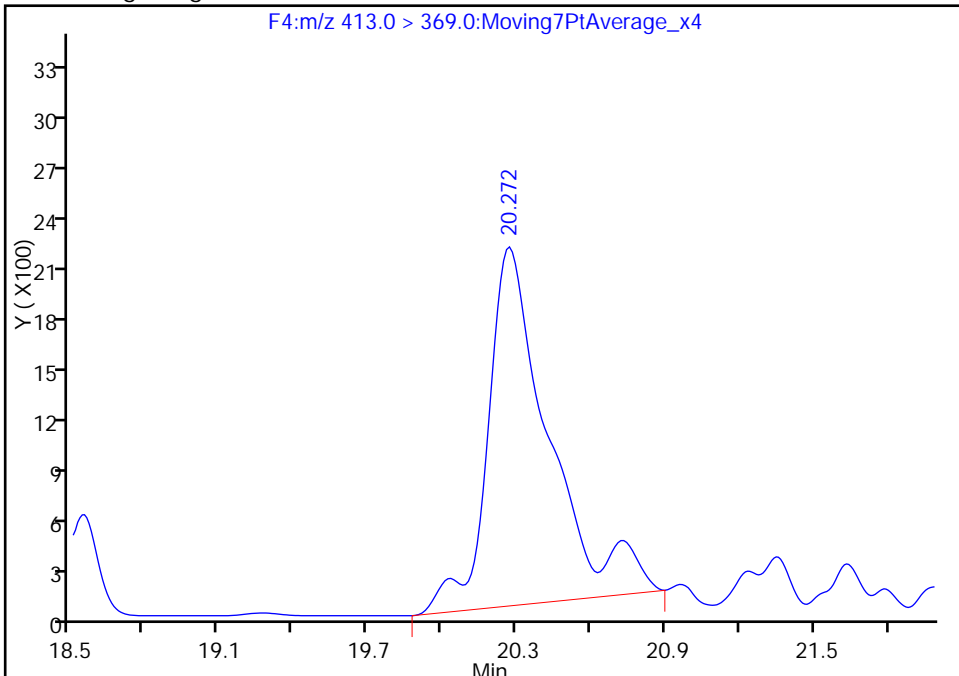
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_142.d  
Injection Date: 08-Dec-2016 13:48:40 Instrument ID: A6  
Lims ID: 320-23929-A-8-A Lab Sample ID: 320-23929-8  
Client ID: WI-AF-3FB01-1116  
Operator ID: CBW ALS Bottle#: 20 Worklist Smp#: 60  
Injection Vol: 10.0 ul 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

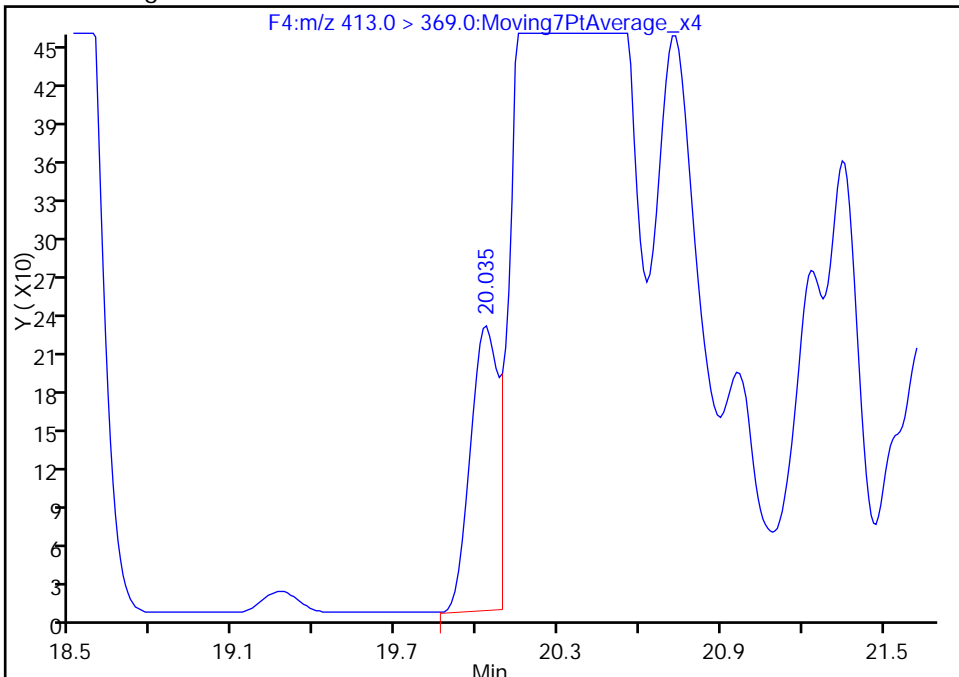
RT: 20.27  
Area: 36786  
Amount: 0.481360  
Amount Units: ng/ml

Processing Integration Results



RT: 20.03  
Area: 1600  
Amount: 0.020937  
Amount Units: ng/ml

Manual Integration Results





FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW03-1116 Lab Sample ID: 320-23929-9  
 Matrix: Water Lab File ID: 05DEC2016A6A\_188.d  
 Analysis Method: 537 Date Collected: 11/28/2016 17:00  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 254.7(mL) Date Analyzed: 12/09/2016 13:34  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141290 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U M	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U M	0.029	0.024	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	122		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_188.d  
 Lims ID: 320-23929-A-9-A  
 Client ID: WI-AF-3RW03-1116  
 Sample Type: Client  
 Inject. Date: 09-Dec-2016 13:34:43 ALS Bottle#: 48 Worklist Smp#: 13  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 14:41:00 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: XAWRK020

First Level Reviewer: barnettj Date: 09-Dec-2016 14:15:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.594	-0.009	1.000	813289	10.8	17594
3 Perfluorohexanesulfonic acid								M
399.0 > 80.0	19.308	19.344	-0.036	1.000	51	0.000912	0.3	M
* 5 13C2-PFOA								
415.0 > 370.0	20.035	20.047	-0.012		644979	10.0	16880	
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.011	20.047	-0.036	1.000	753	0.0112	0.2	M
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.655	20.619	0.036	1.000	658	0.0101	19.5	M
* 8 13C4 PFOS								
503.0 > 80.0	20.655	20.679	-0.024		1786260	28.7	46735	
9 Perfluorononanoic acid								
463.0 > 419.0	20.738	20.762	-0.024	1.000	5913	0.0808	40.9	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.480	21.498	-0.018	1.000	688214	12.2	21434	

QC Flag Legend

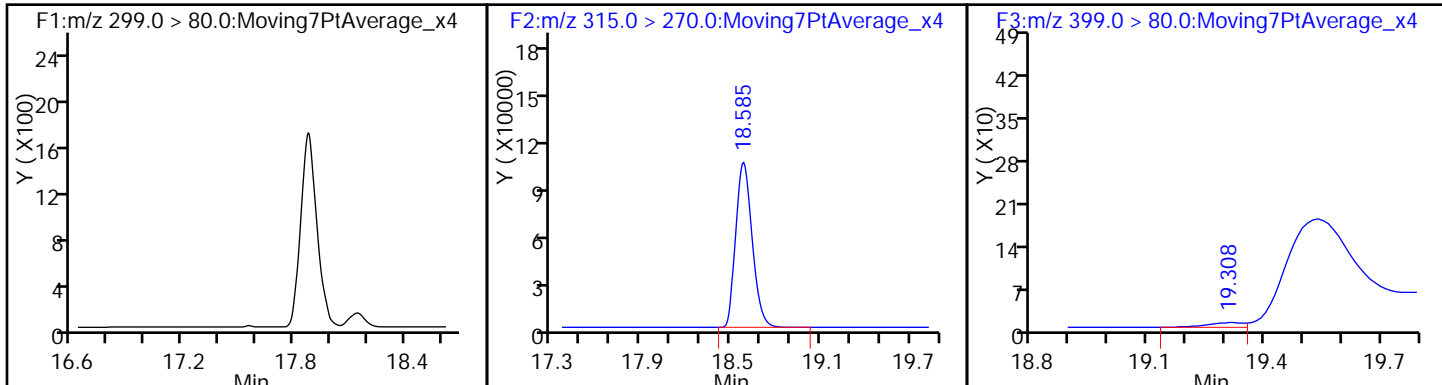
Review Flags

M - Manually Integrated

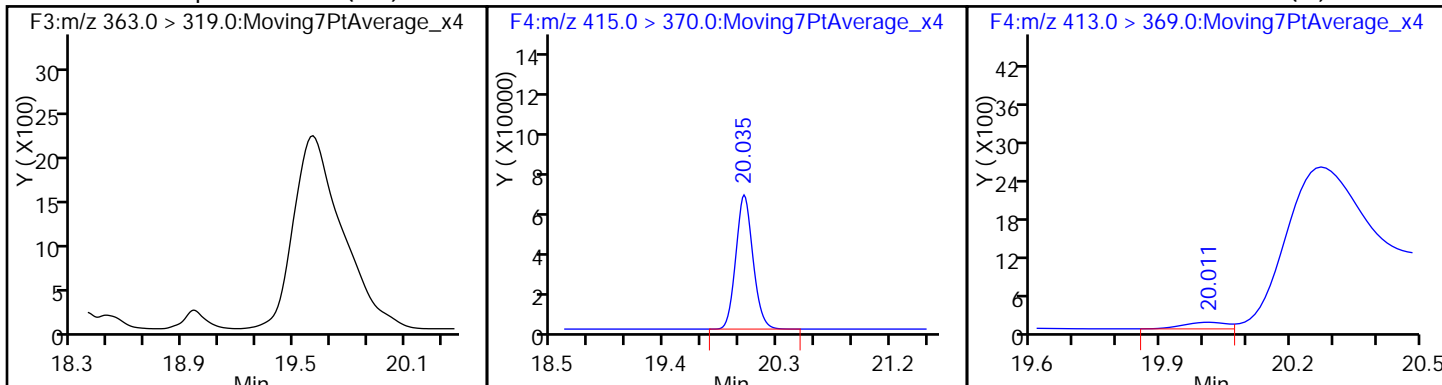
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_188.d  
Injection Date: 09-Dec-2016 13:34:43 Instrument ID: A6  
Lims ID: 320-23929-A-9-A Lab Sample ID: 320-23929-9  
Client ID: WI-AF-3RW03-1116  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 13  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

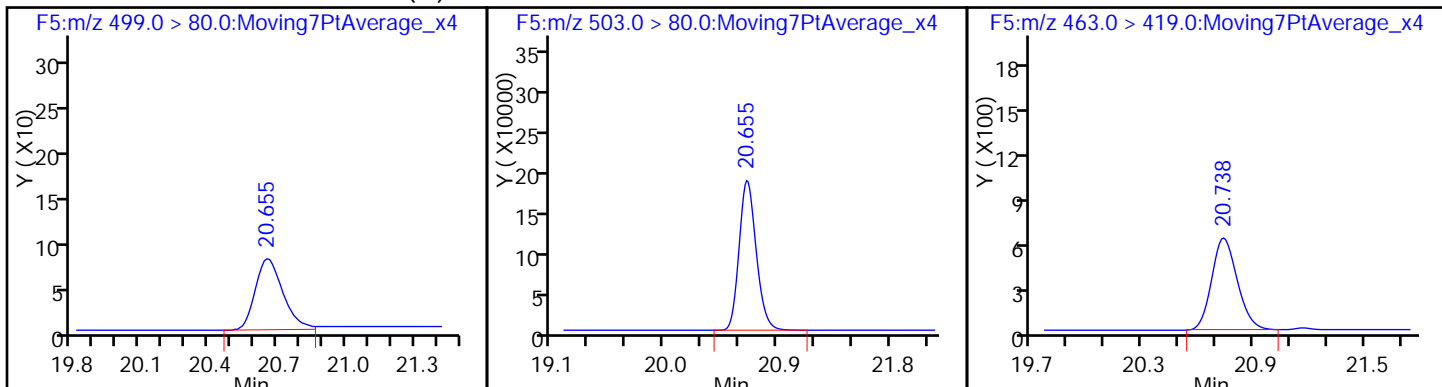
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (M)



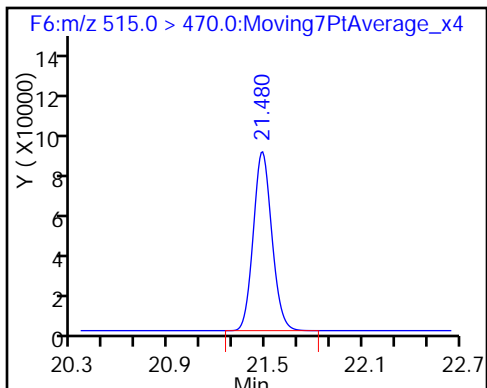
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (M)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_188.d  
 Lims ID: 320-23929-A-9-A  
 Client ID: WI-AF-3RW03-1116  
 Sample Type: Client  
 Inject. Date: 09-Dec-2016 13:34:43 ALS Bottle#: 48 Worklist Smp#: 13  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-9-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 14:41:00 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: XAWRK020

First Level Reviewer: barnettj Date: 09-Dec-2016 14:15:33

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.8	108.09
\$ 10 13C2 PFDA	10.0	12.2	121.77

TestAmerica Sacramento

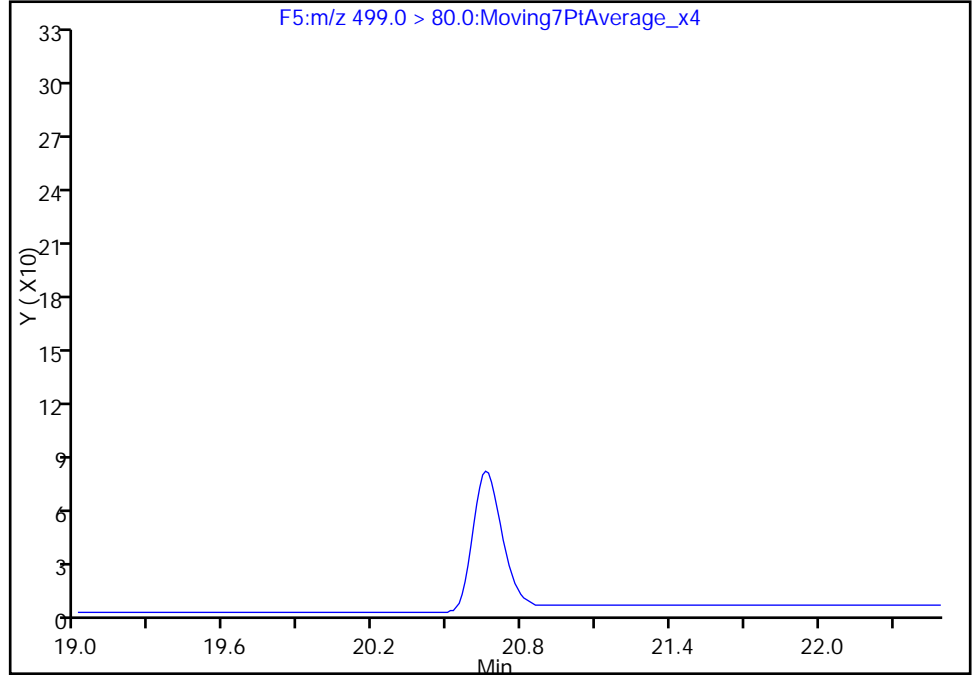
Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_188.d  
Injection Date: 09-Dec-2016 13:34:43 Instrument ID: A6  
Lims ID: 320-23929-A-9-A Lab Sample ID: 320-23929-9  
Client ID: WI-AF-3RW03-1116  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 13  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:M/RM

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

Signal: 1

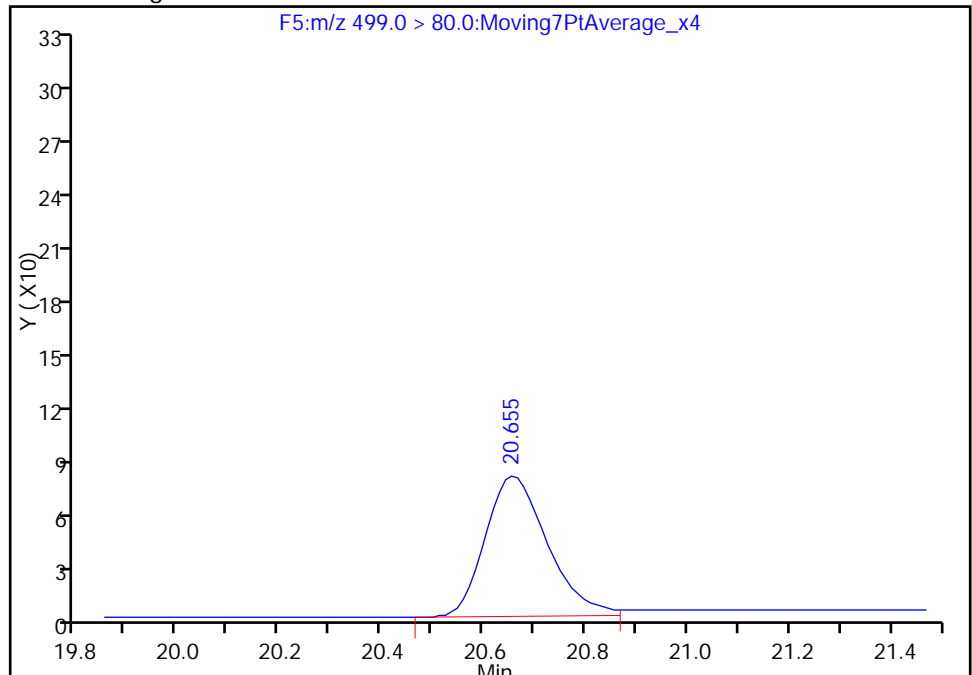
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.65  
Area: 658  
Amount: 0.010120  
Amount Units: ng/ml



Reviewer: barnettj, 09-Dec-2016 14:15:33  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

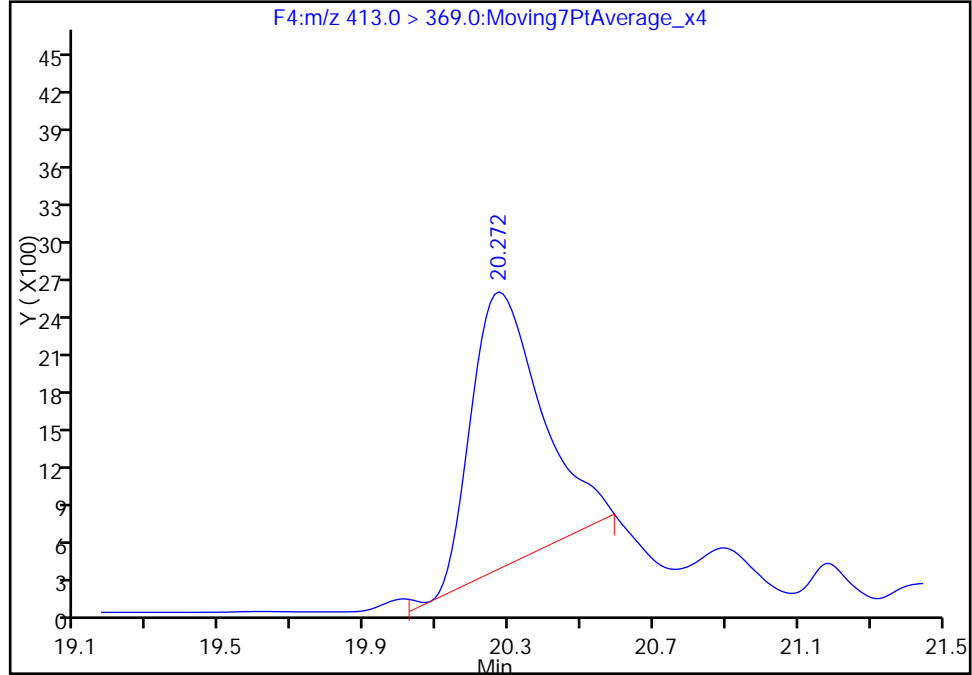
Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_188.d  
Injection Date: 09-Dec-2016 13:34:43 Instrument ID: A6  
Lims ID: 320-23929-A-9-A Lab Sample ID: 320-23929-9  
Client ID: WI-AF-3RW03-1116  
Operator ID: CBW ALS Bottle#: 48 Worklist Smp#: 13  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:M/RM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

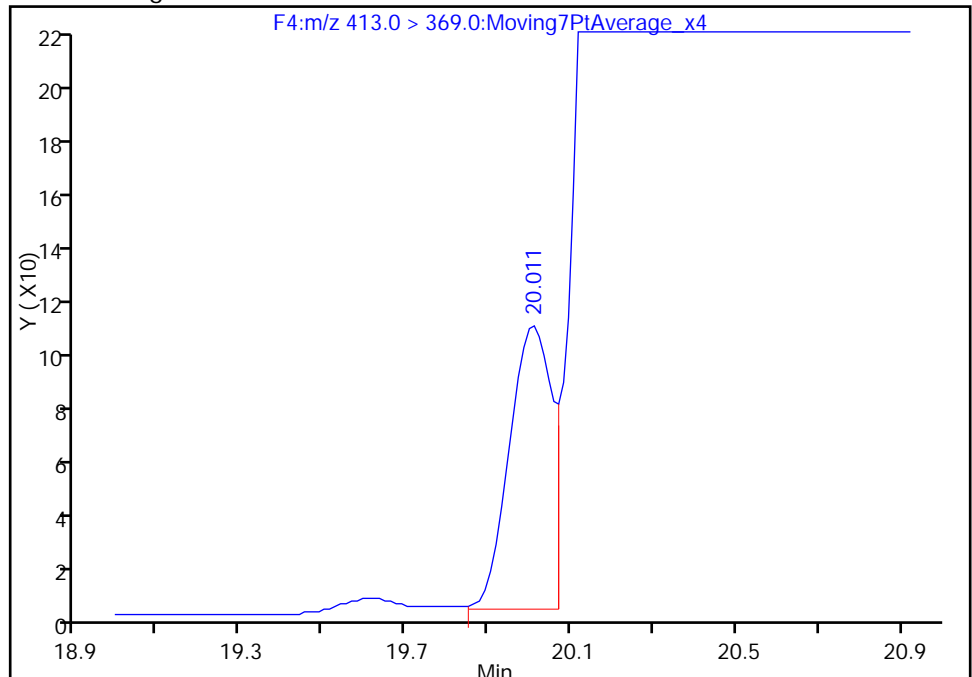
RT: 20.27  
Area: 30092  
Amount: 0.448430  
Amount Units: ng/ml

Processing Integration Results



RT: 20.01  
Area: 753  
Amount: 0.011221  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Dec-2016 14:15:33  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB03-1116 Lab Sample ID: 320-23929-10  
 Matrix: Water Lab File ID: 05DEC2016A6A\_144.d  
 Analysis Method: 537 Date Collected: 11/28/2016 17:00  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 253.4(mL) Date Analyzed: 12/08/2016 14:47  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 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)	0.024	U M	0.030	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	116		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_144.d  
 Lims ID: 320-23929-A-10-A  
 Client ID: WI-AF-3FB03-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 14:47:53 ALS Bottle#: 22 Worklist Smp#: 62  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:14:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.548	0.010	1.000	1120587	11.6	36637
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.035	0.012		826116	10.0	21821
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.059	20.035	0.024	1.000	732	0.008516	0.3	M
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.655	0.012		2215282	28.7	46130
9 Perfluorononanoic acid								M
463.0 > 419.0	20.738	20.726	0.012	1.000	2258	0.0241	17.1	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.453	0.009	1.000	813433	11.2	25469

QC Flag Legend

Review Flags

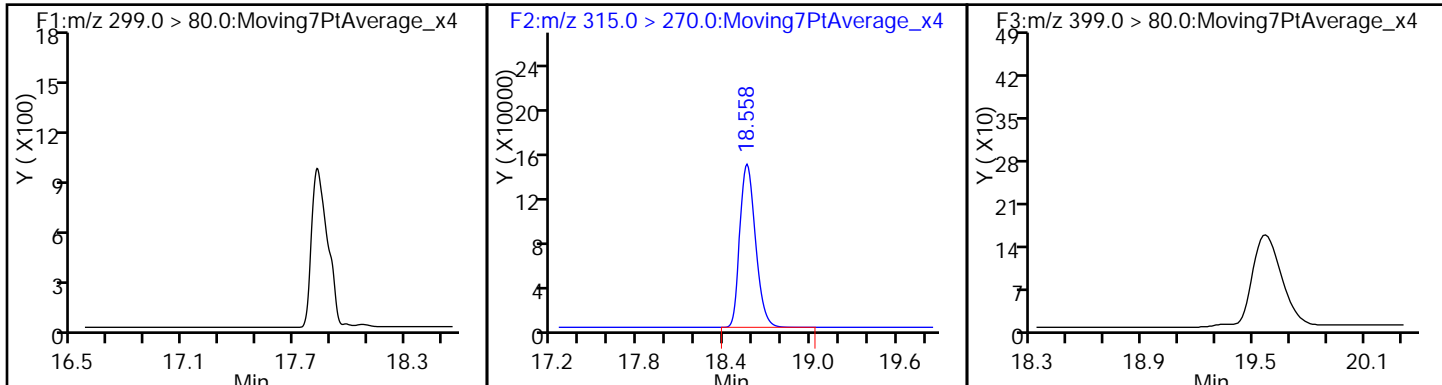
M - Manually Integrated



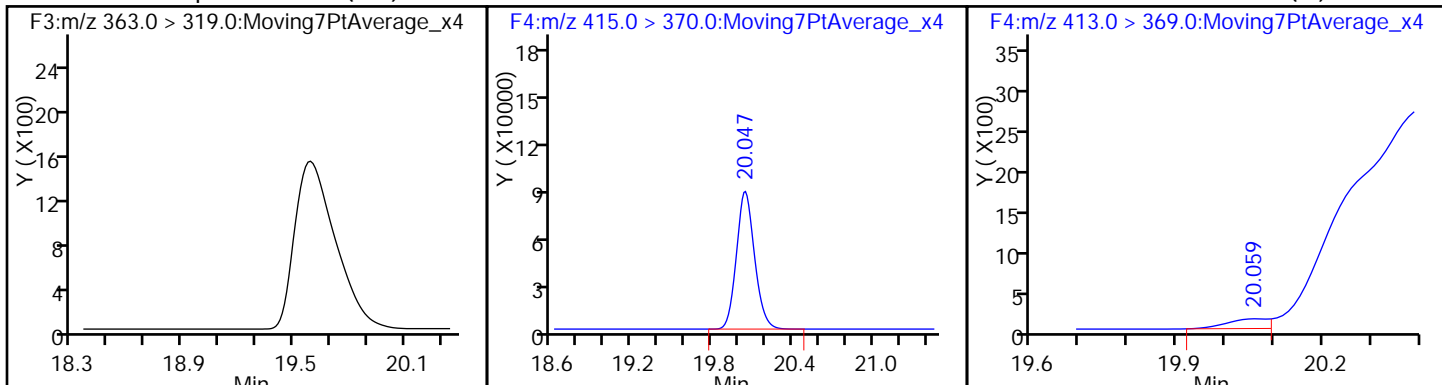
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_144.d  
Injection Date: 08-Dec-2016 14:47:53 Instrument ID: A6  
Lims ID: 320-23929-A-10-A Lab Sample ID: 320-23929-10  
Client ID: WI-AF-3FB03-1116  
Operator ID: CBW ALS Bottle#: 22 Worklist Smp#: 62  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_A6 Limit Group: LC 537 ICAL

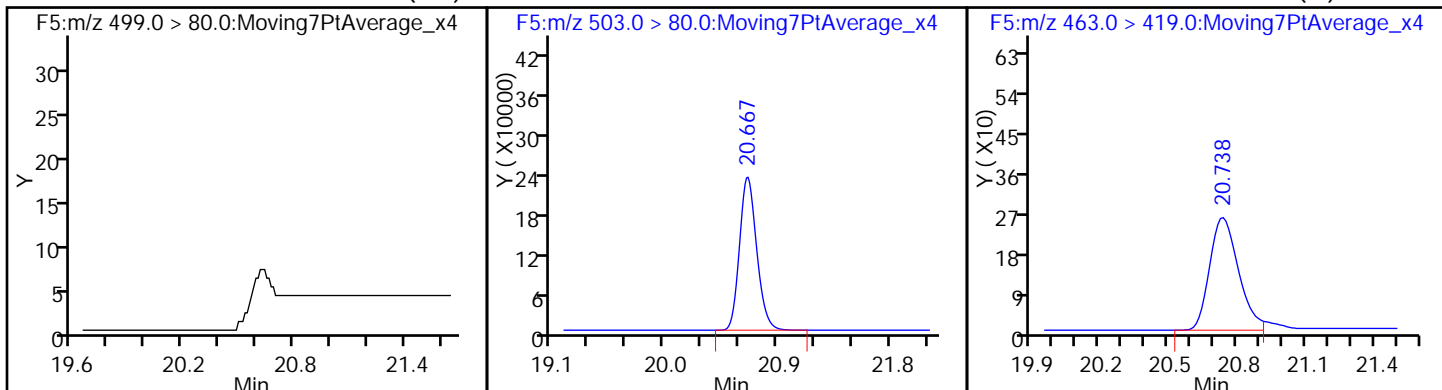
1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA 3 Perfluorohexanesulfonic acid (ND)



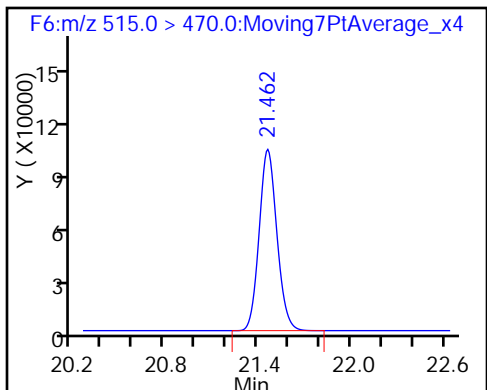
4 Perfluoroheptanoic acid (ND) \* 5 13C2-PFOA 6 Perfluorooctanoic acid (M)



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



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_144.d  
 Lims ID: 320-23929-A-10-A  
 Client ID: WI-AF-3FB03-1116  
 Sample Type: Client  
 Inject. Date: 08-Dec-2016 14:47:53 ALS Bottle#: 22 Worklist Smp#: 62  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-23929-a-10-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:01:39 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: XAWRK020

First Level Reviewer: barnettj Date: 08-Dec-2016 16:14:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.6	116.28
\$ 10 13C2 PFDA	10.0	11.2	112.37

TestAmerica Sacramento

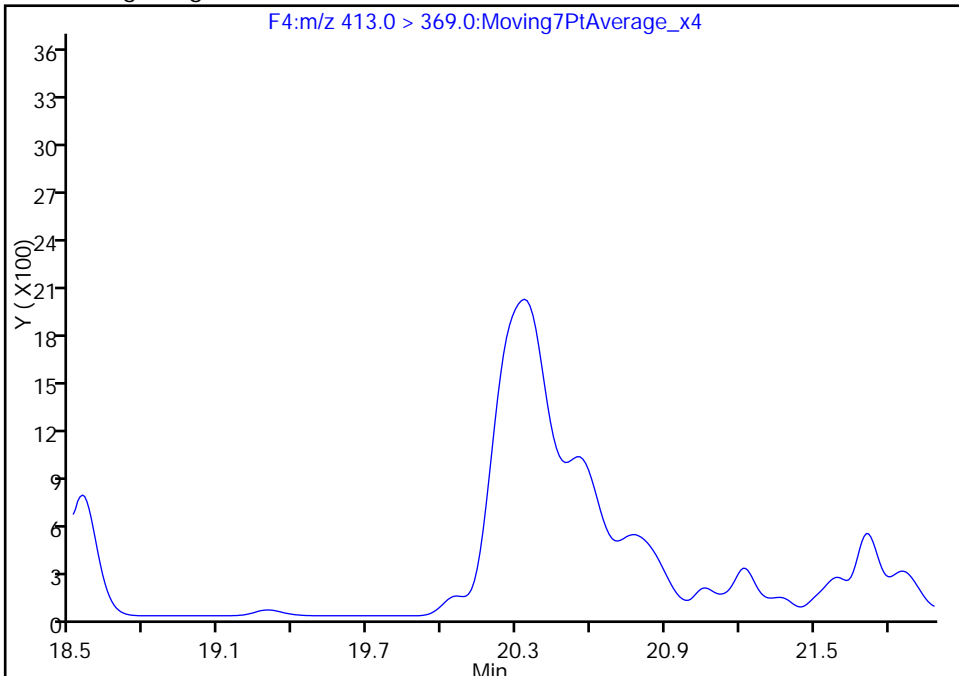
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_144.d  
Injection Date: 08-Dec-2016 14:47:53 Instrument ID: A6  
Lims ID: 320-23929-A-10-A Lab Sample ID: 320-23929-10  
Client ID: WI-AF-3FB03-1116  
Operator ID: CBW ALS Bottle#: 22 Worklist Smp#: 62  
Injection Vol: 10.0 ul 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

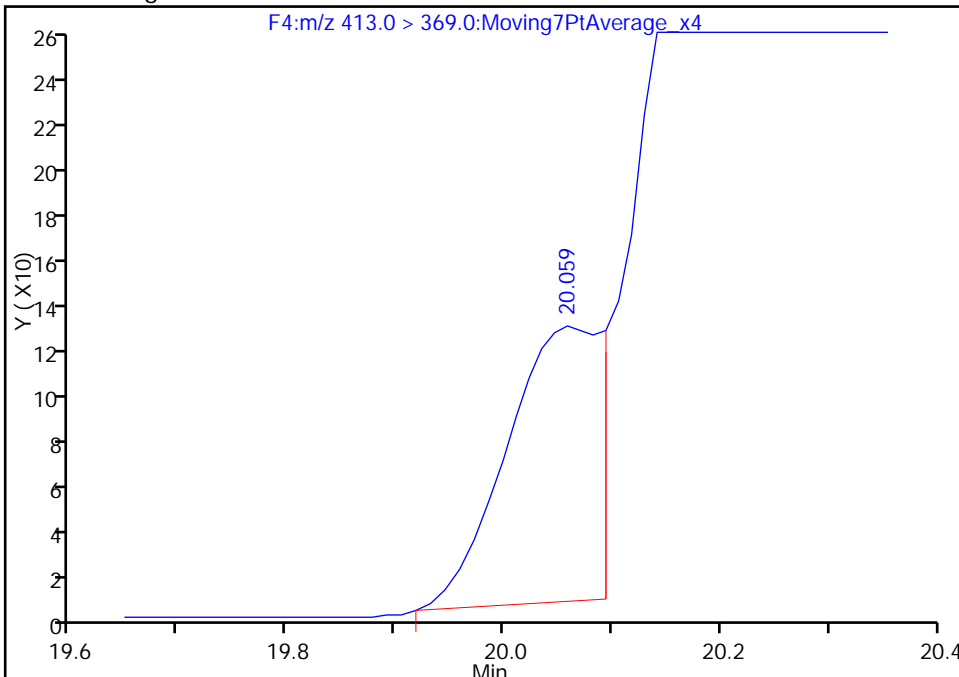
Not Detected  
Expected RT: 20.03

Processing Integration Results



Manual Integration Results

RT: 20.06  
Area: 732  
Amount: 0.008516  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 16:14:42  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

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

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1 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.: 320-23929-1 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.: 320-23929-1 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:

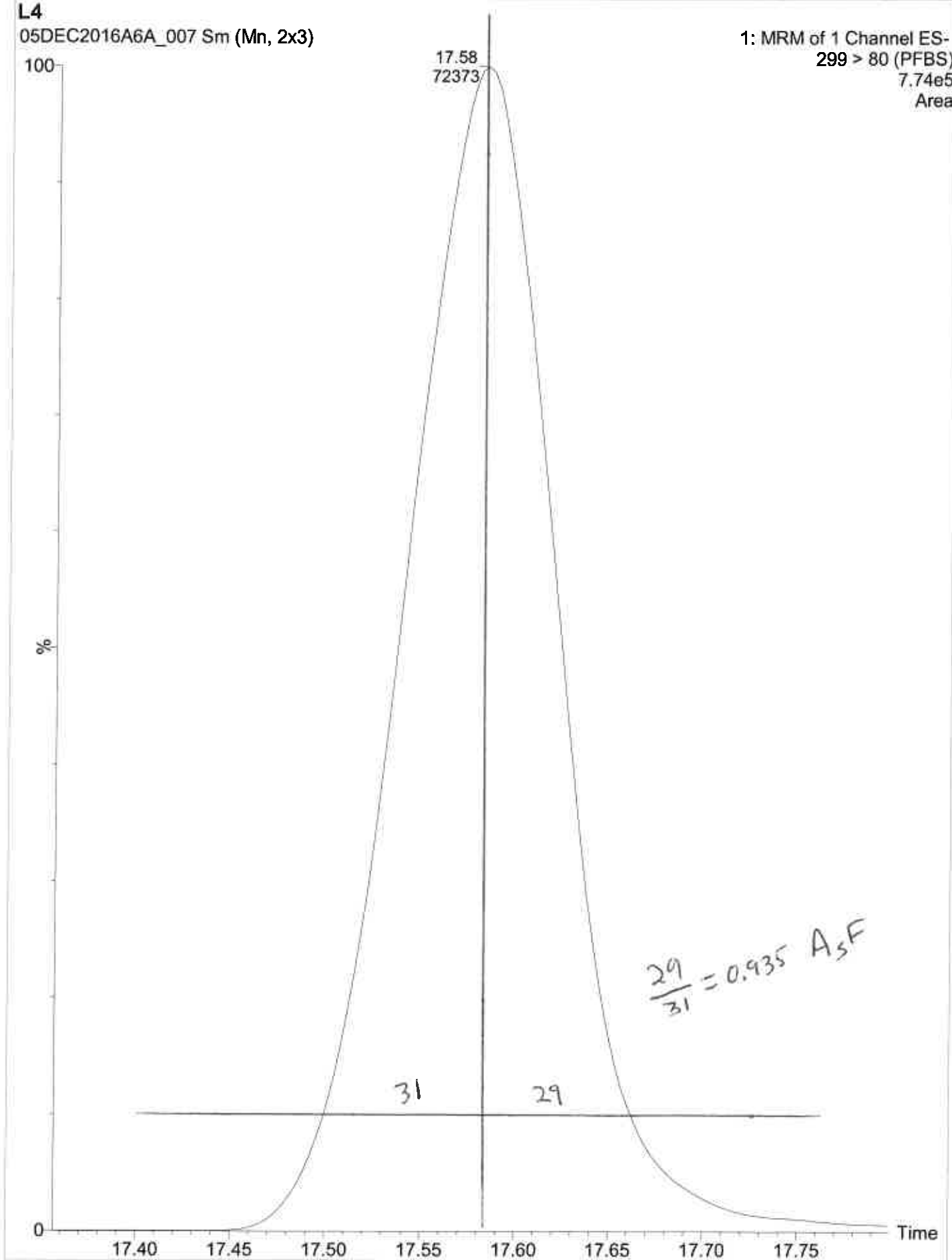
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_009.d

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)

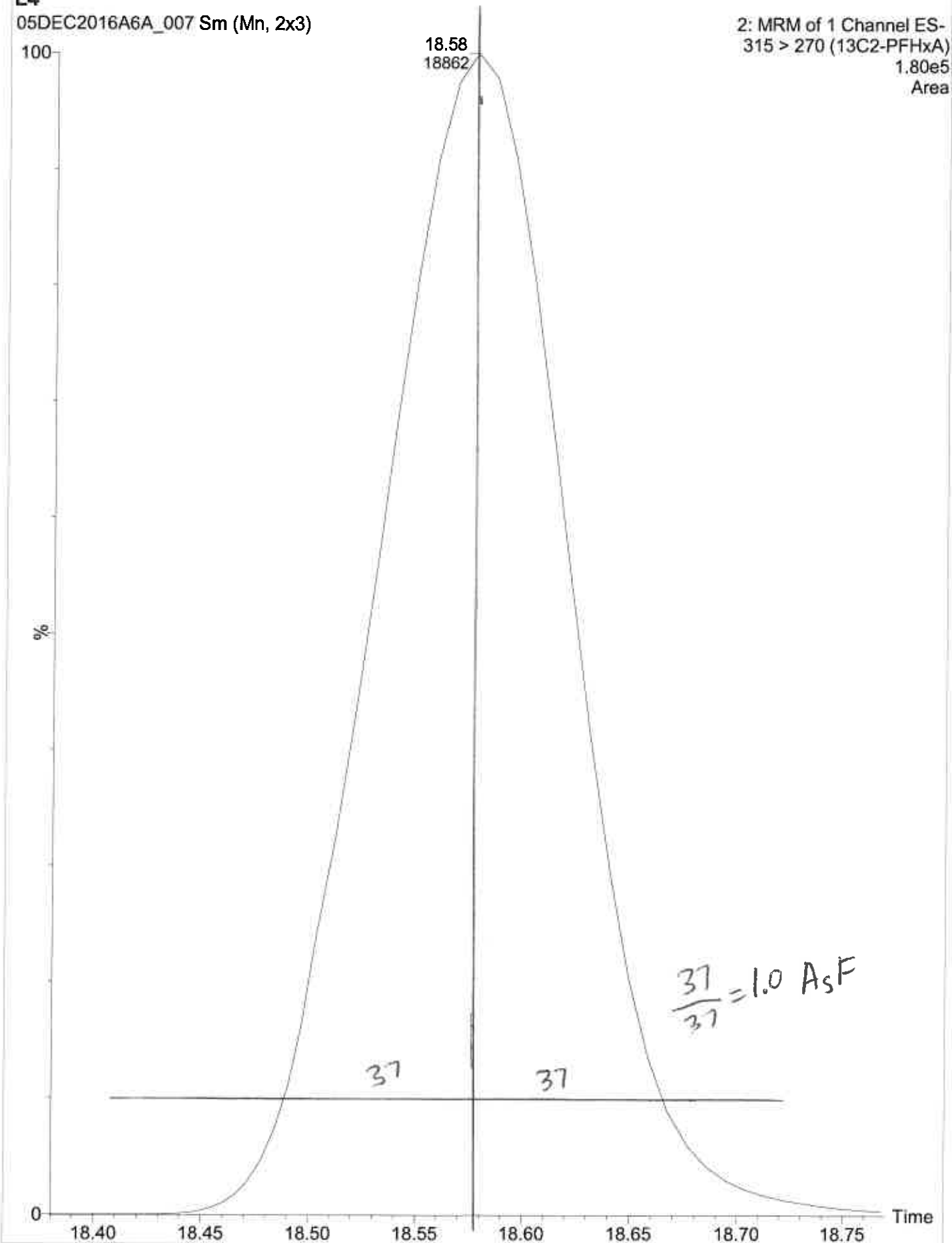
1: MRM of 1 Channel ES-  
299 > 80 (PFBS)  
7.74e5  
Area



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

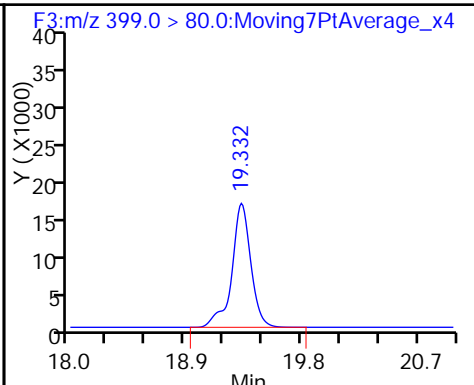
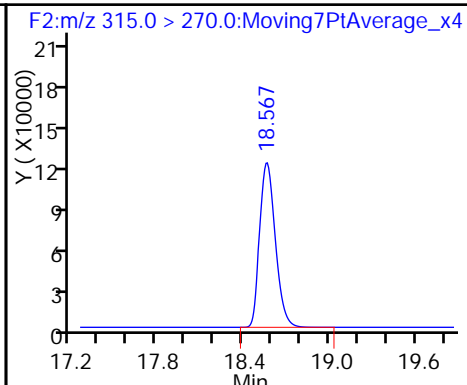
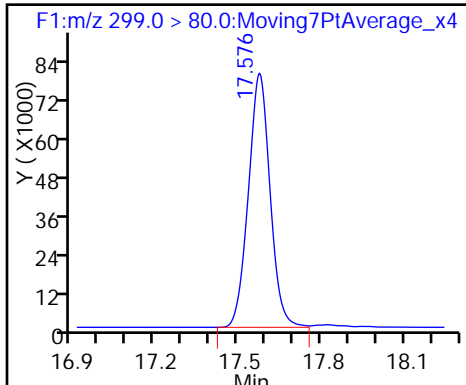
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

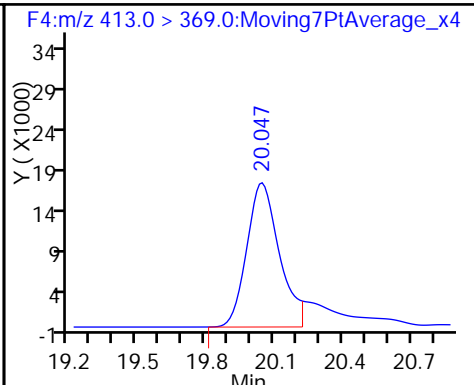
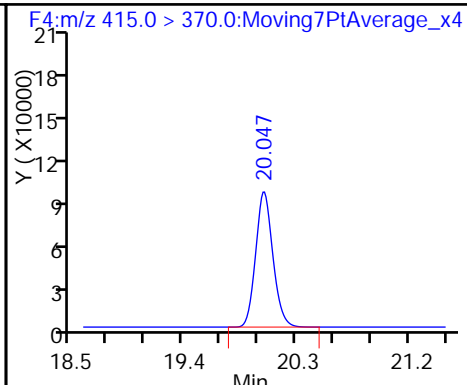
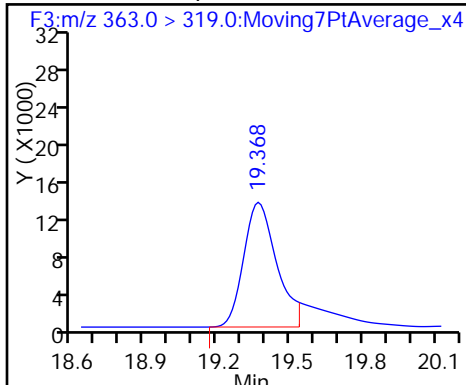
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

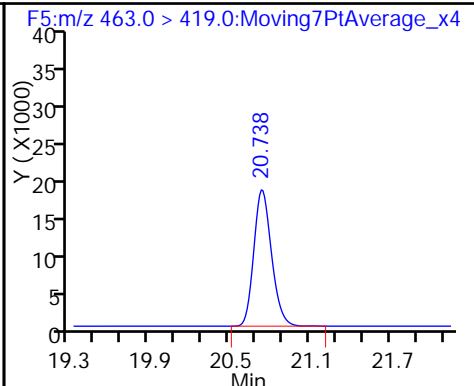
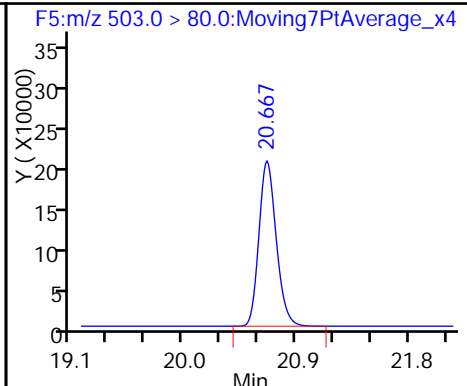
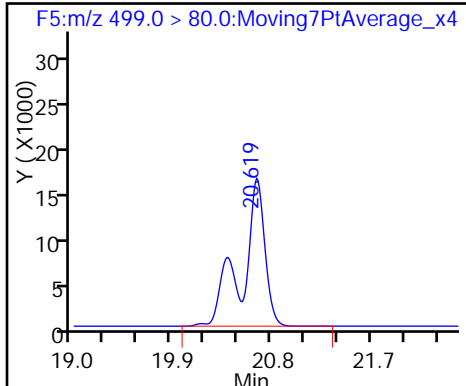
6 Perfluorooctanoic acid (M)



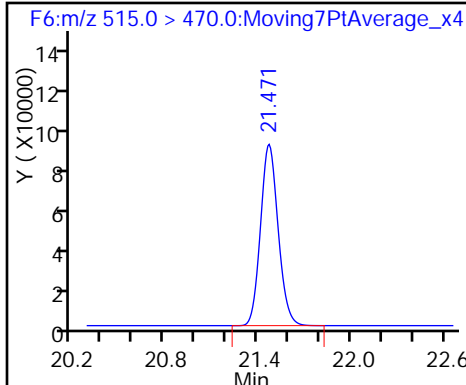
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

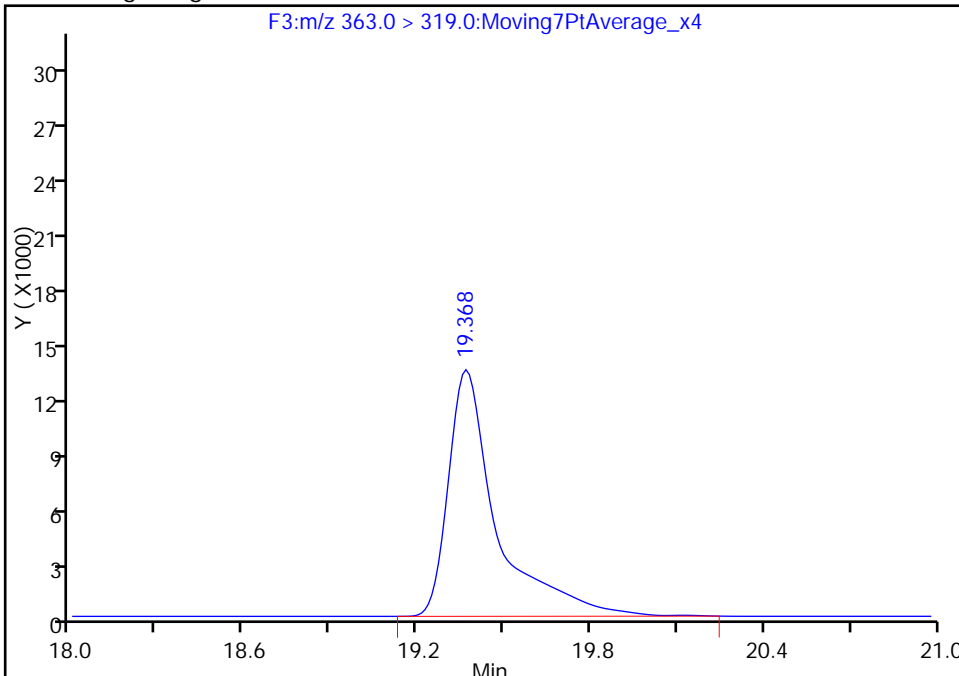
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d  
Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC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

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

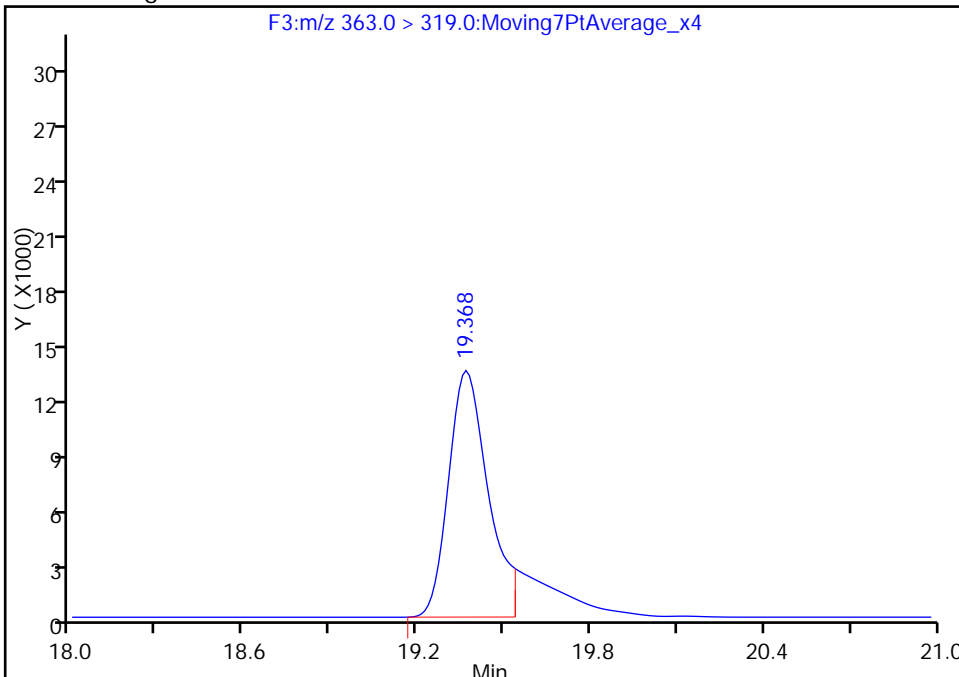
RT: 19.37  
Area: 155591  
Amount: 1.476072  
Amount Units: ng/ml

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

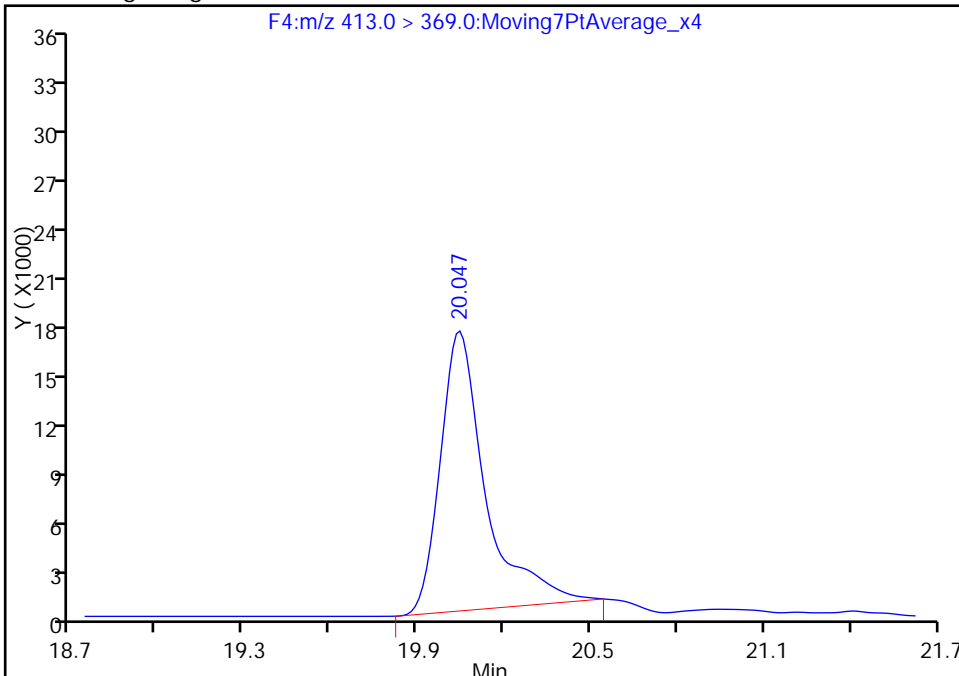
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_004.d  
Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6  
Lims ID: STD L1  
Client ID:  
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC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

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

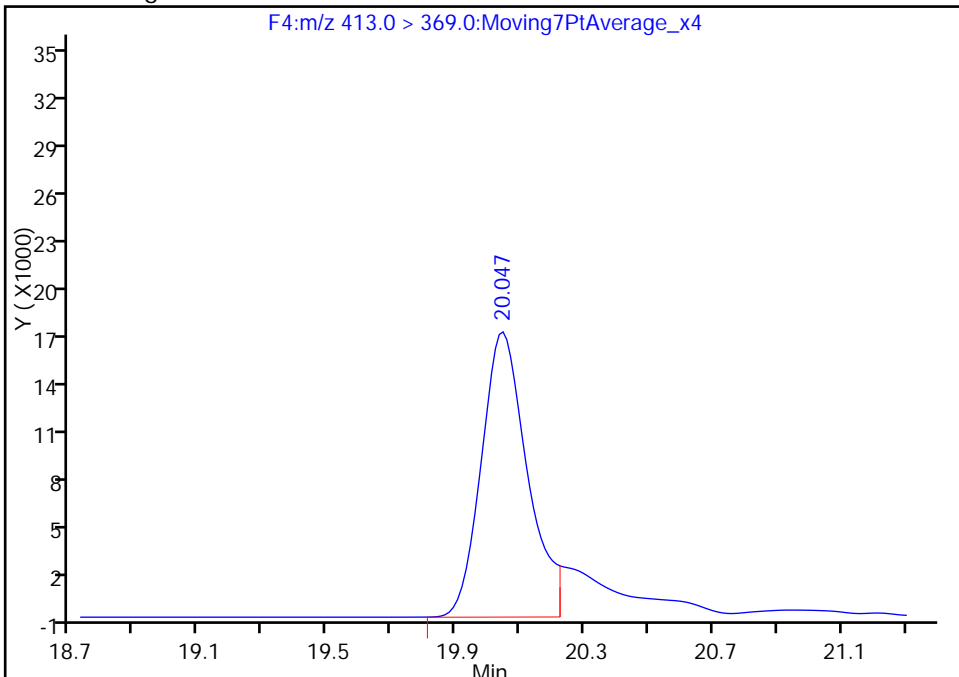
RT: 20.05  
Area: 186490  
Amount: 1.959453  
Amount Units: ng/ml

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

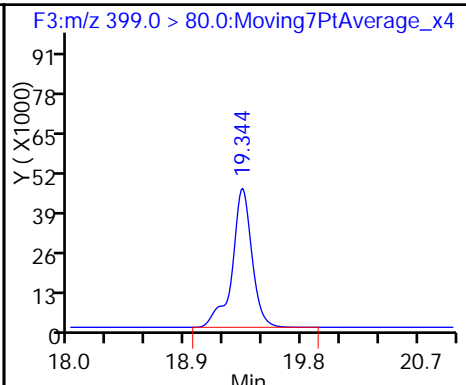
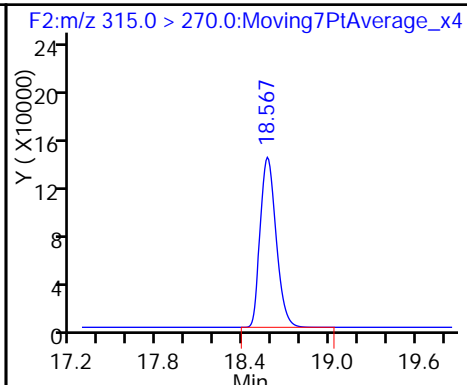
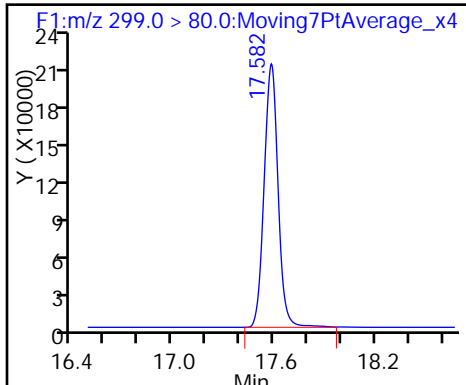
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

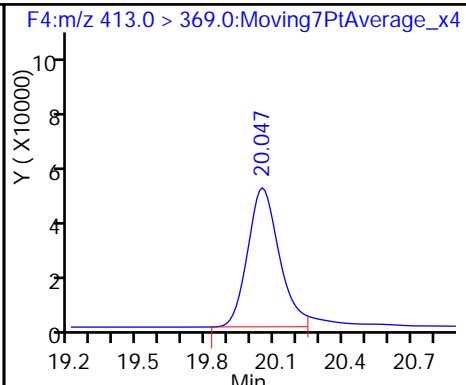
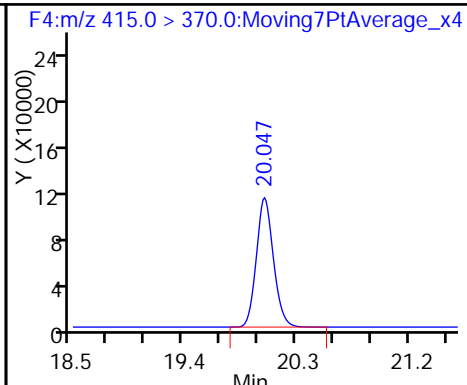
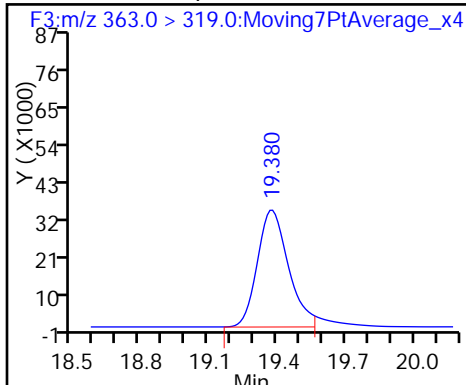
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

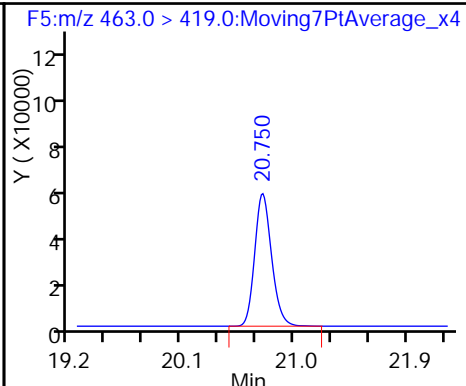
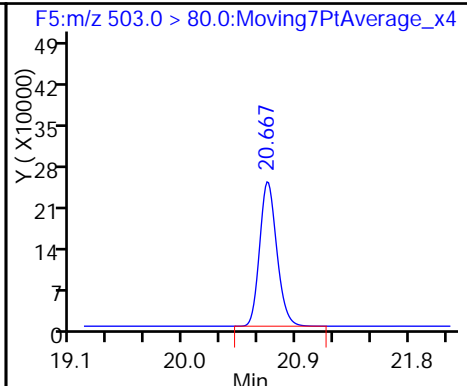
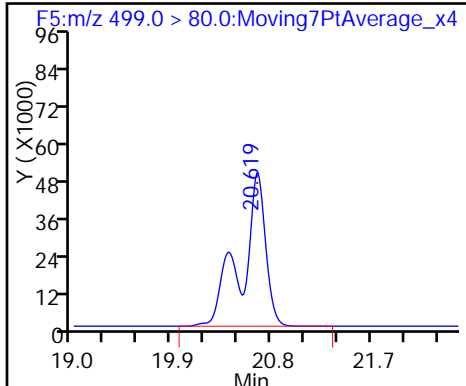
6 Perfluorooctanoic acid (M)



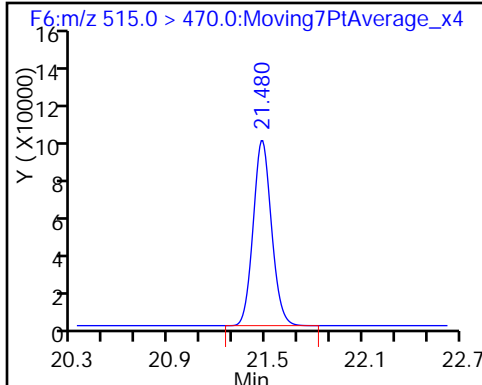
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





TestAmerica Sacramento

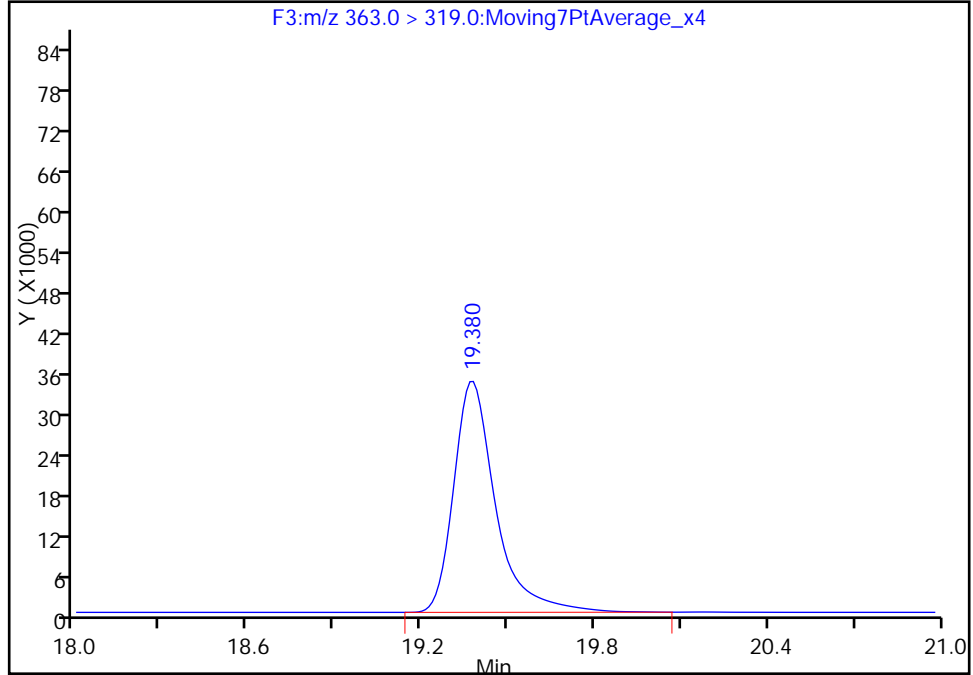
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d  
Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6  
Lims ID: STD L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC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

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

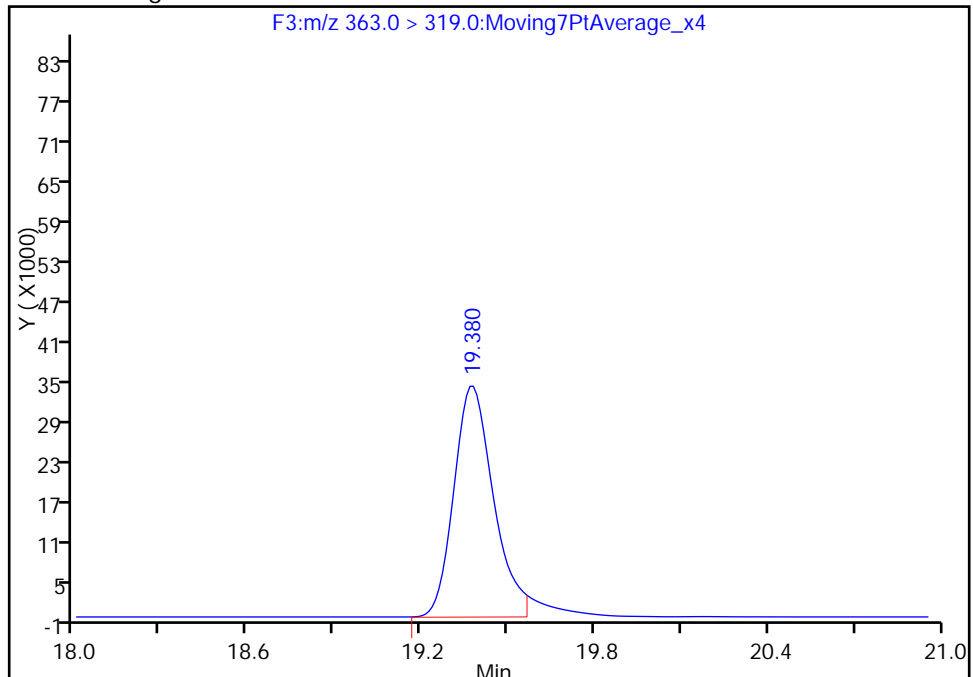
RT: 19.38  
Area: 344811  
Amount: 2.670013  
Amount Units: ng/ml

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

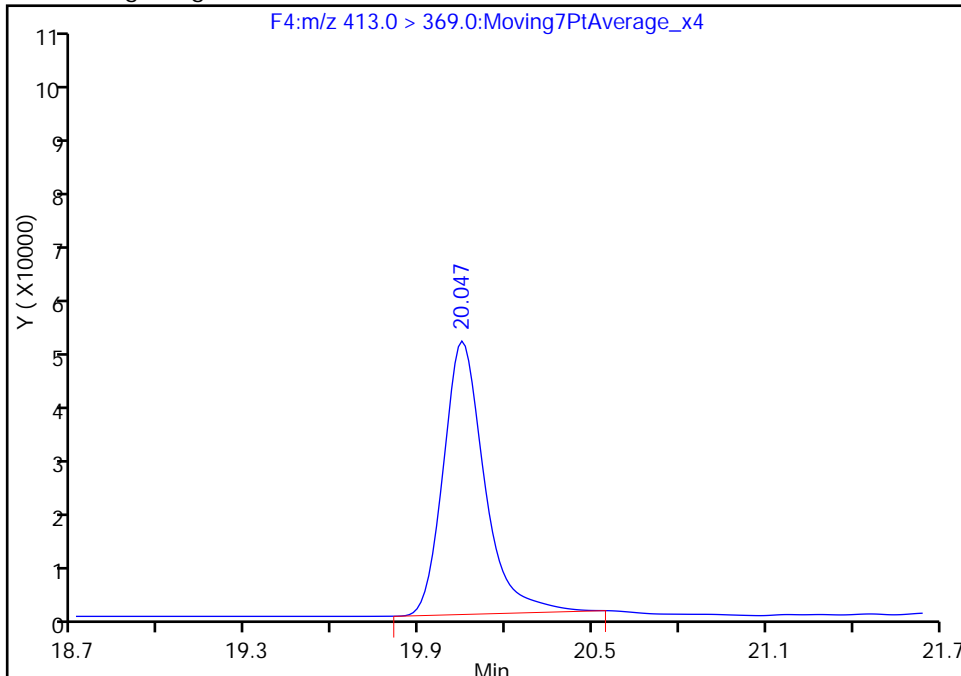
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_005.d  
Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6  
Lims ID: STD L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC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

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

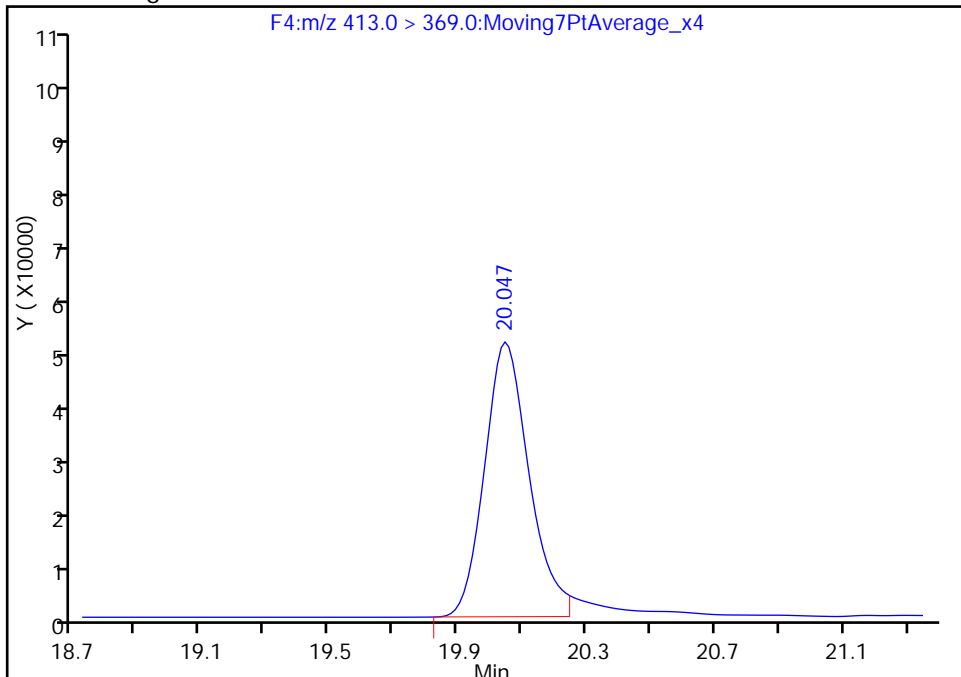
RT: 20.05  
Area: 504990  
Amount: 4.595586  
Amount Units: ng/ml

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

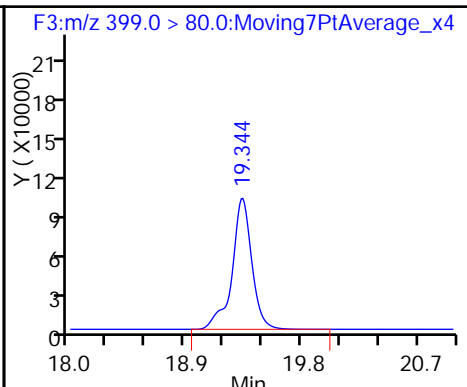
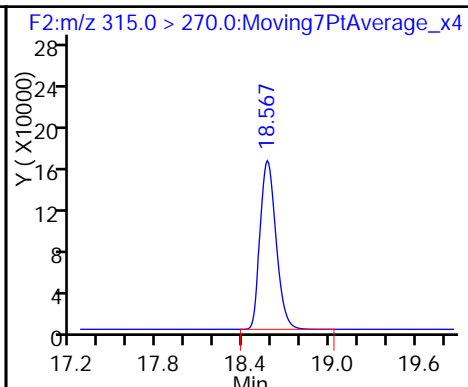
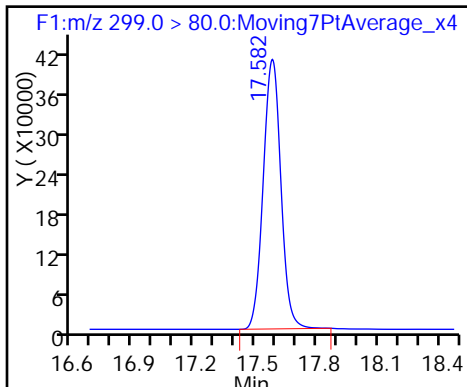
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

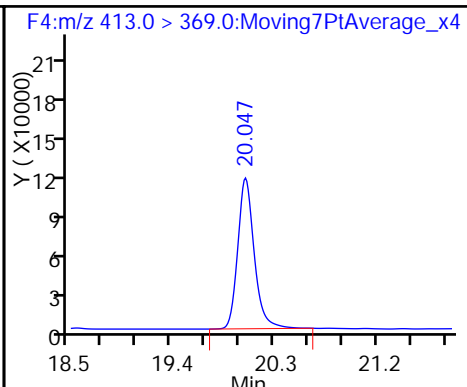
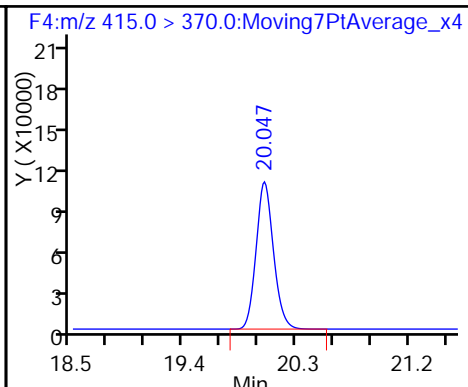
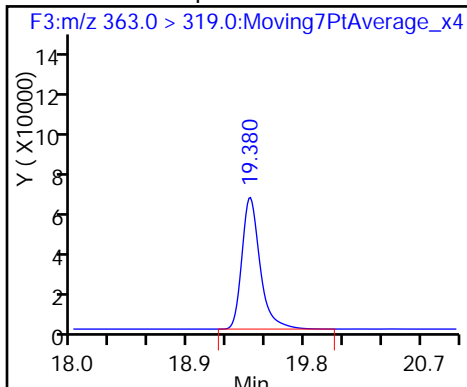
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

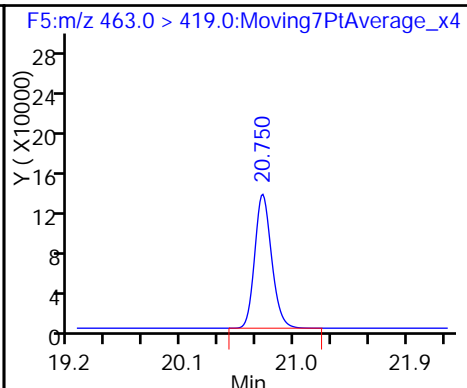
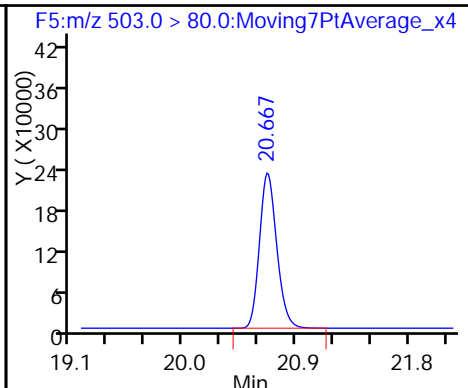
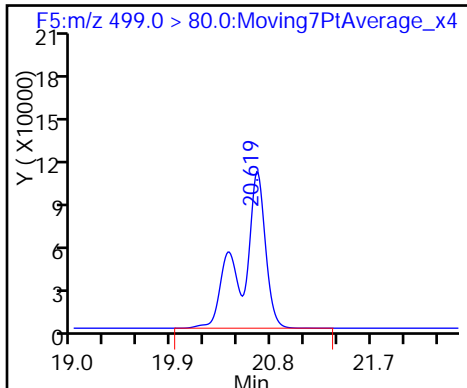
6 Perfluorooctanoic acid



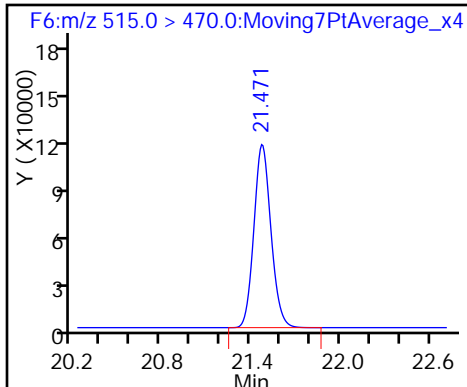
7 Perfluorooctane sulfonic acid

\* 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
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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

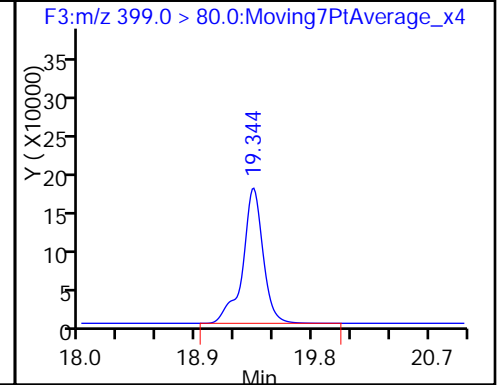
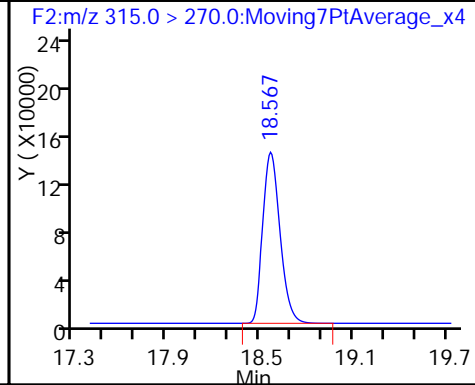
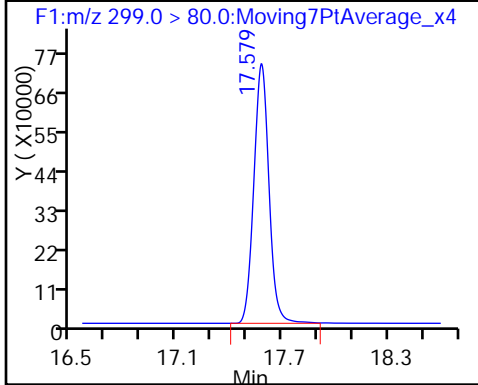
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

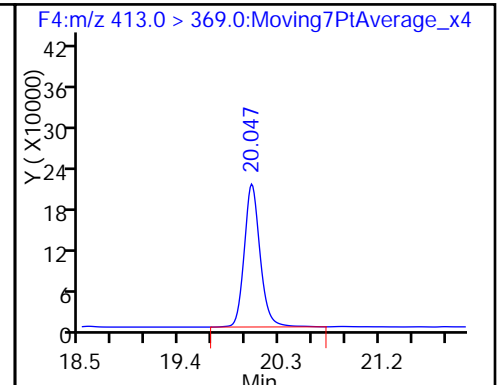
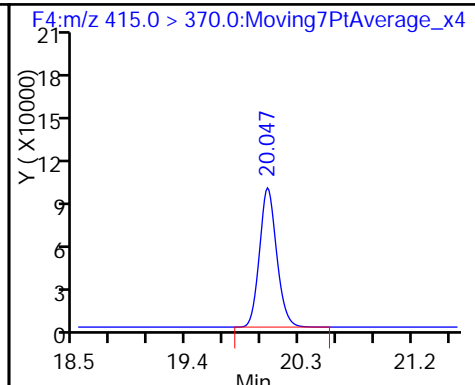
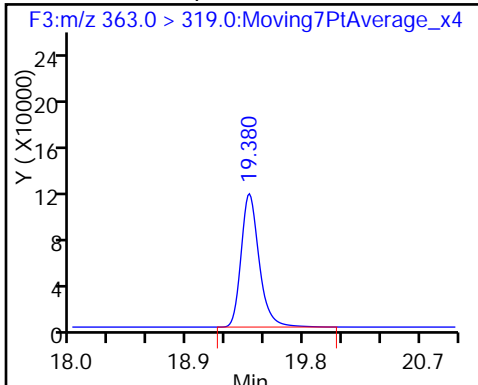
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

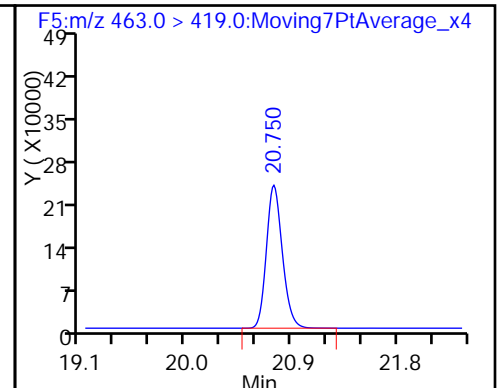
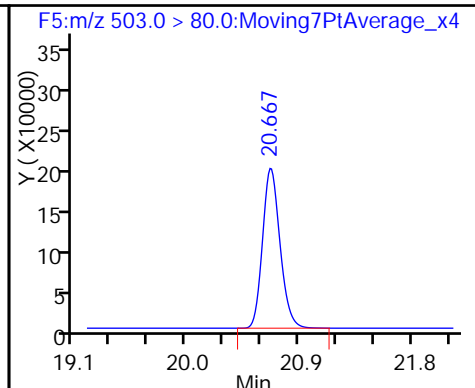
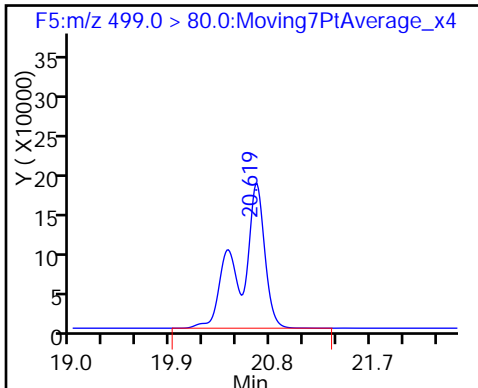
6 Perfluorooctanoic acid



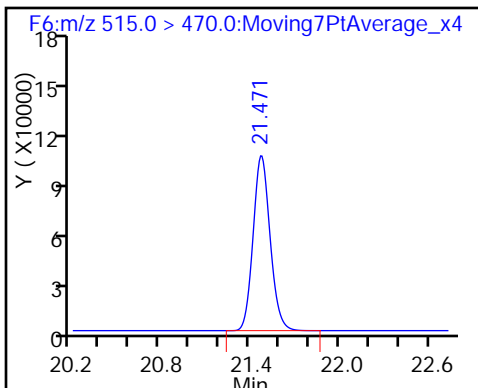
7 Perfluorooctane sulfonic acid

\* 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

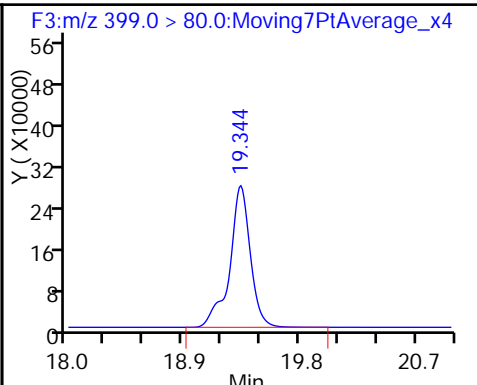
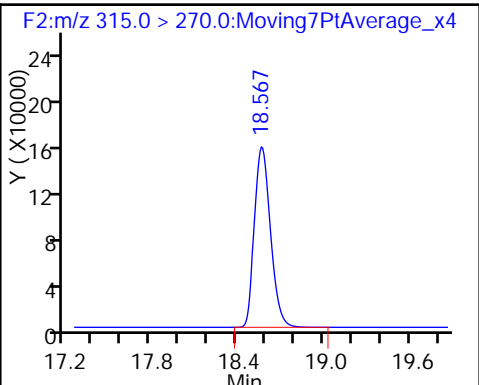
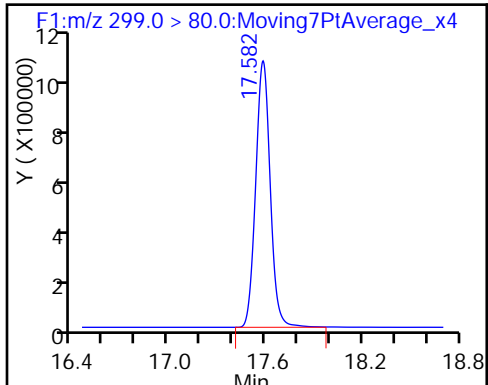
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

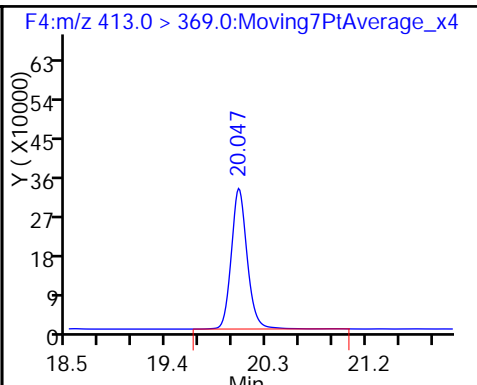
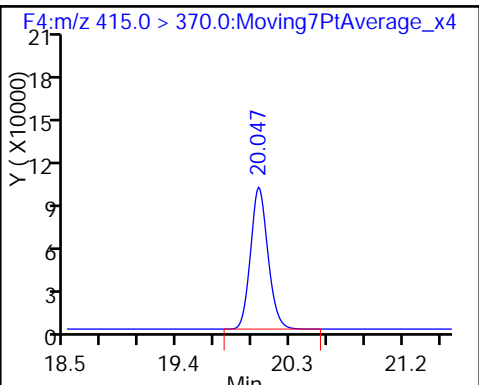
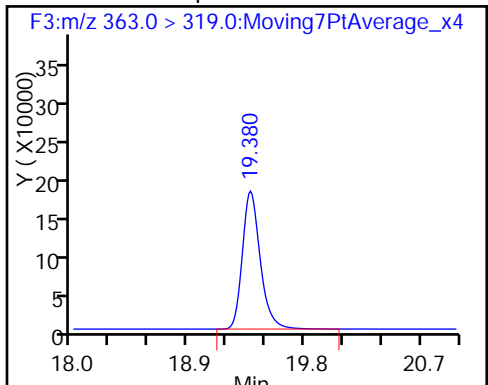
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

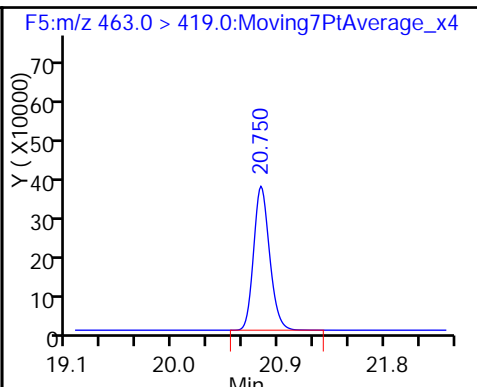
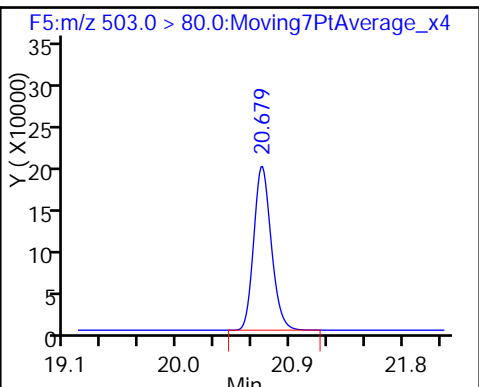
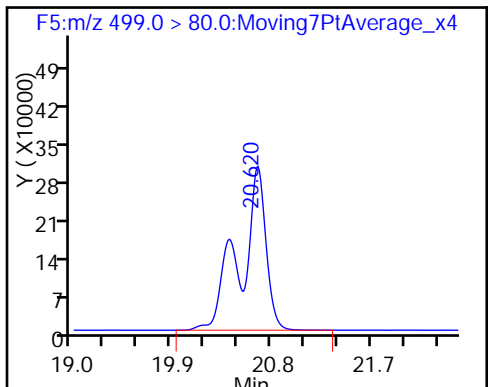
6 Perfluorooctanoic acid



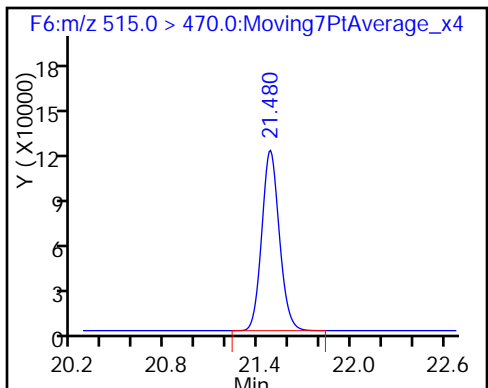
7 Perfluorooctane sulfonic acid

\* 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

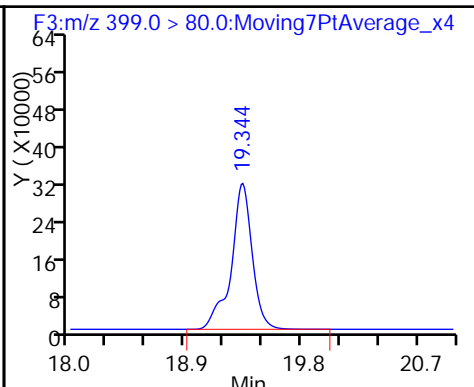
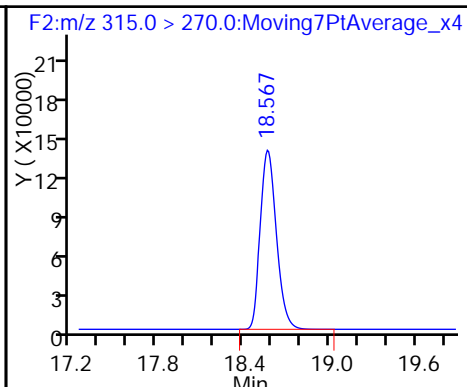
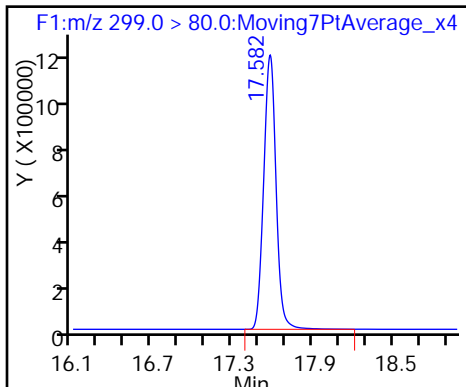
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

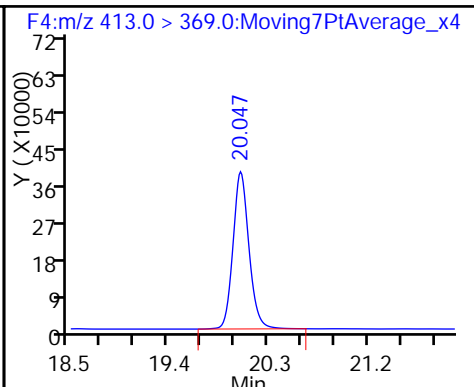
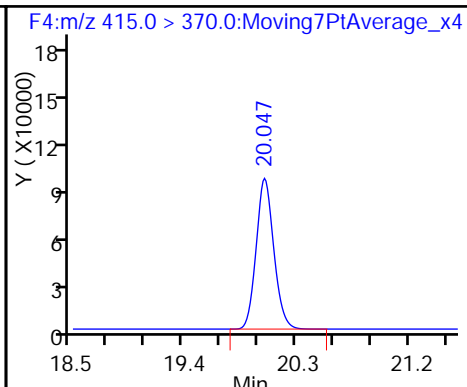
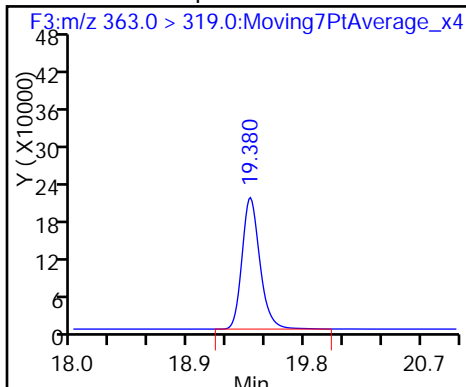
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

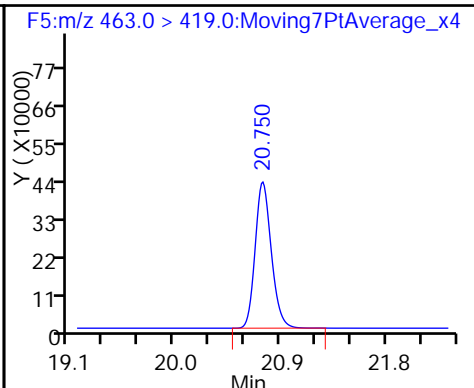
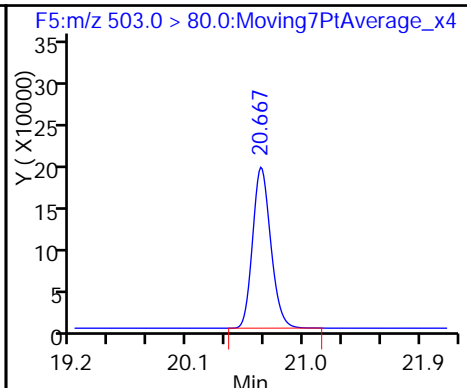
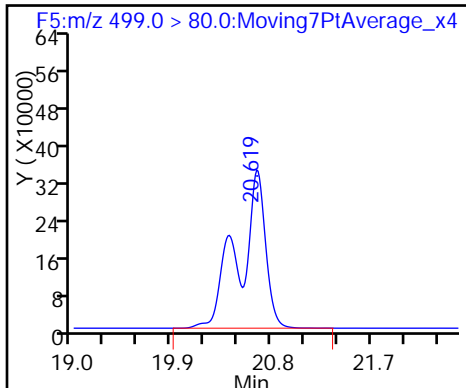
6 Perfluorooctanoic acid



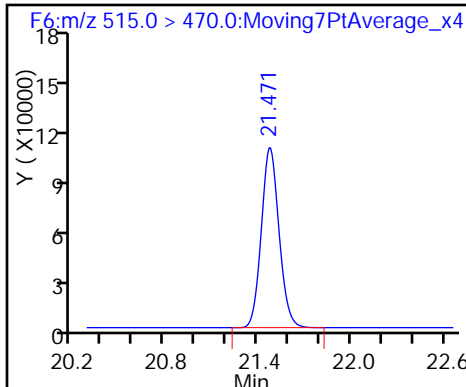
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 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

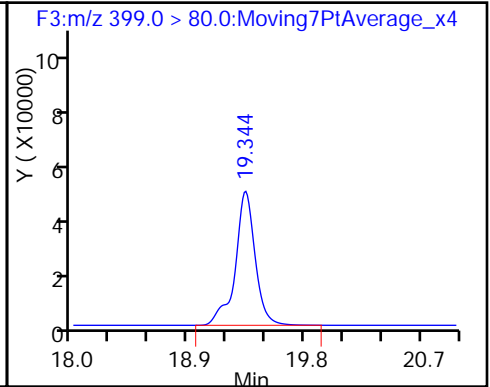
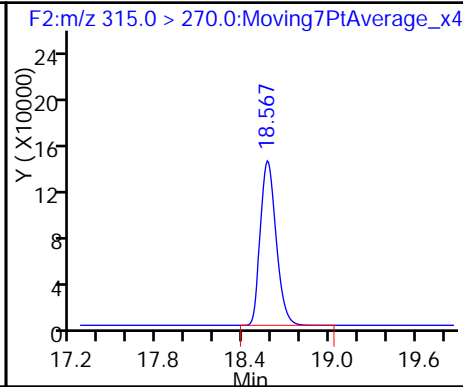
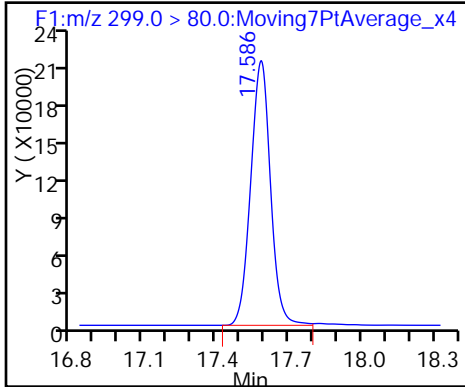
Method: 537\_\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

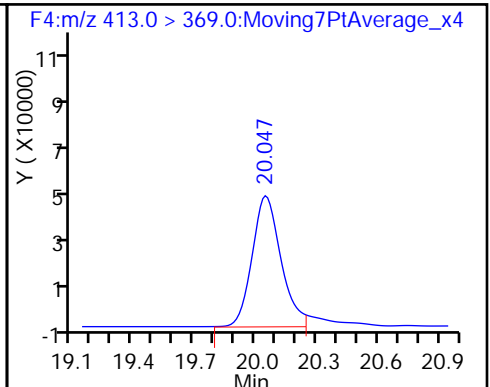
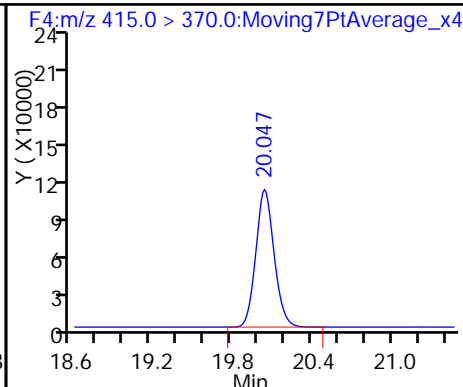
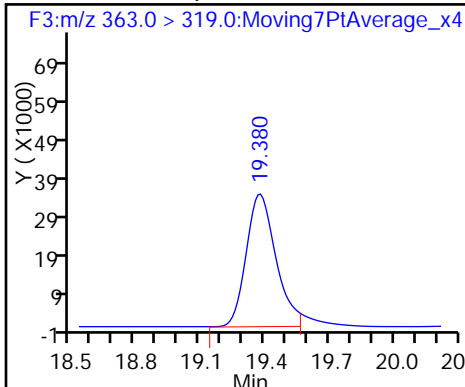
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

\* 5 13C2-PFOA

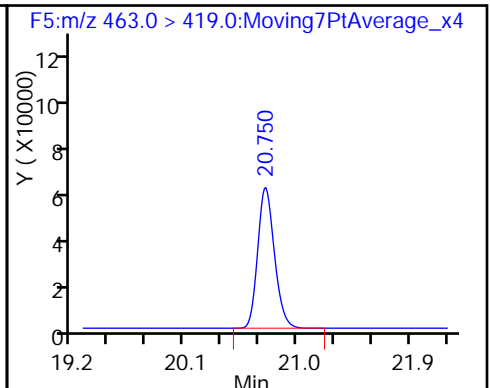
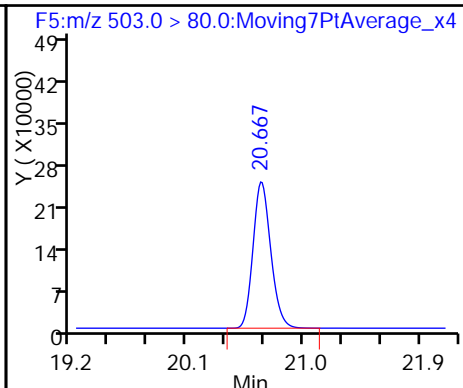
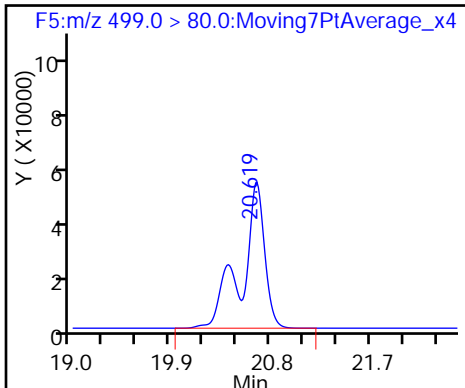
6 Perfluorooctanoic acid (M)



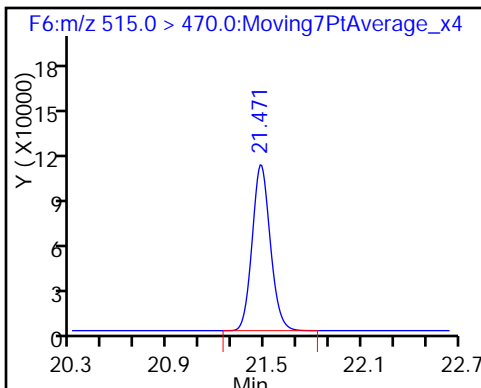
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

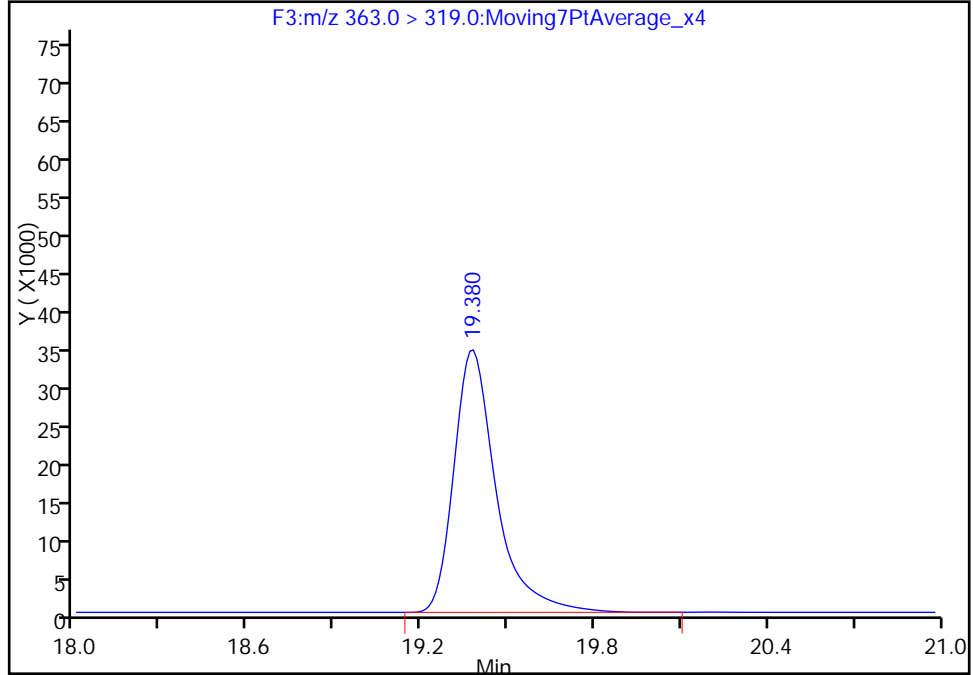
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A\_011.d  
Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC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

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

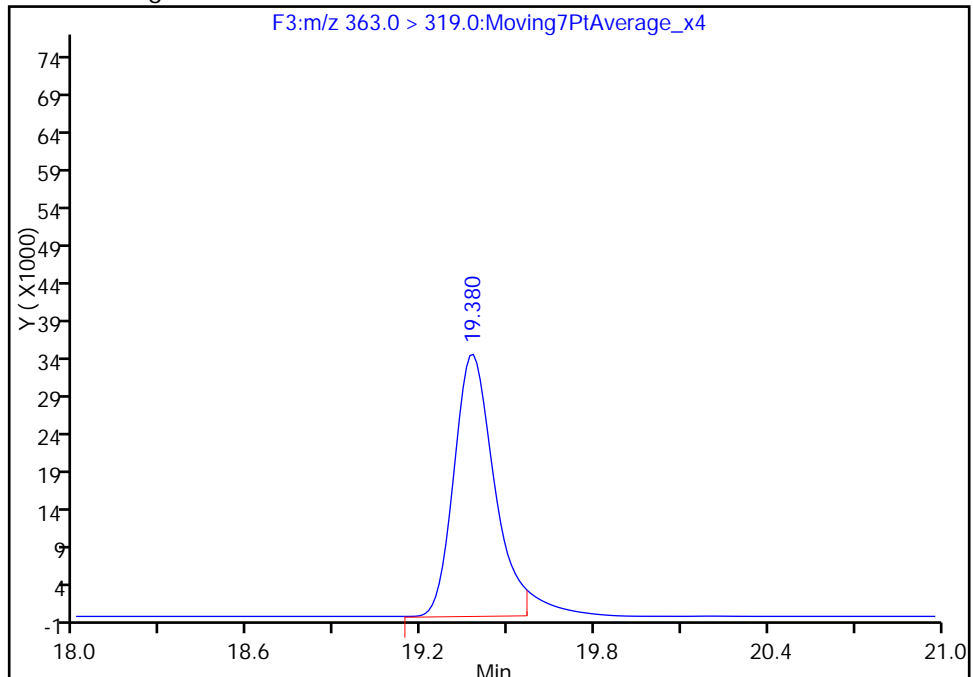
RT: 19.38  
Area: 349162  
Amount: 2.802857  
Amount Units: ng/ml

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

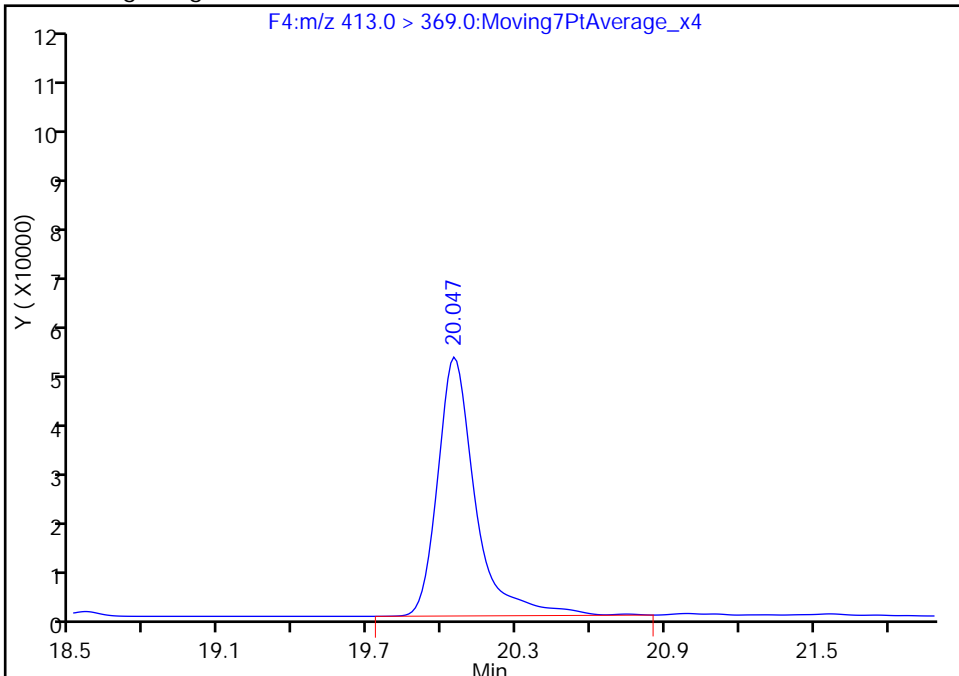
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Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6  
Lims ID: CCV L2  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH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

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

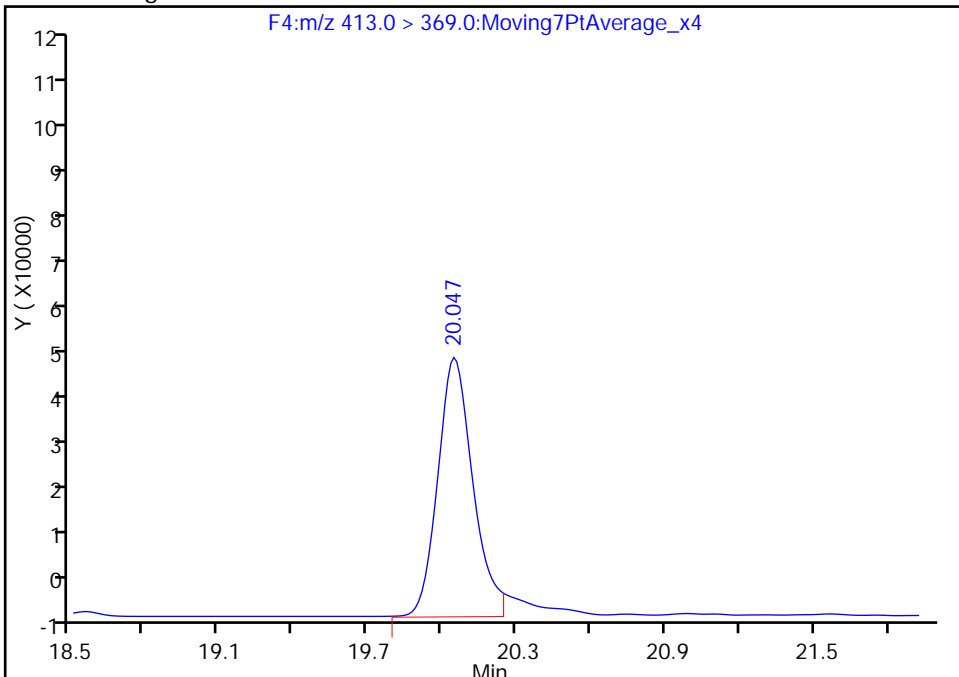
RT: 20.05  
Area: 520603  
Amount: 4.880820  
Amount Units: ng/ml

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.: 320-23929-1  
 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
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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

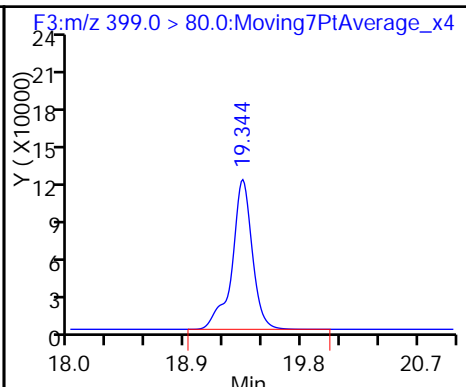
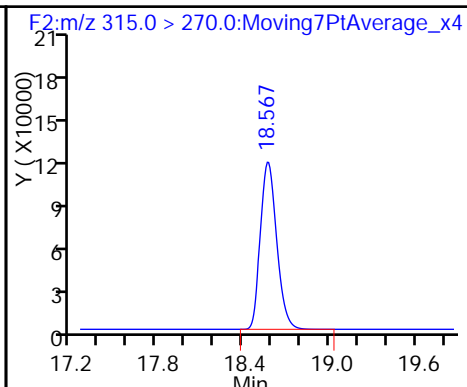
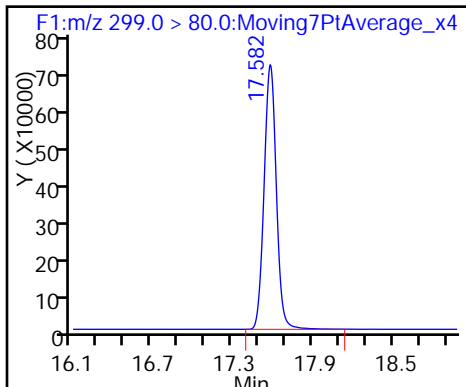
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

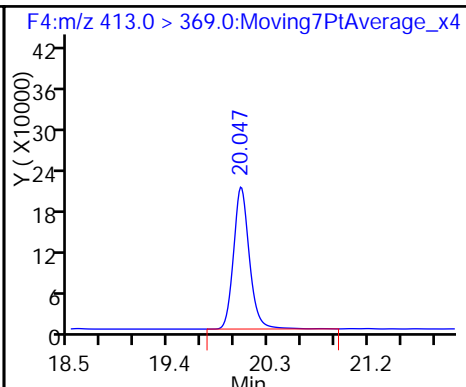
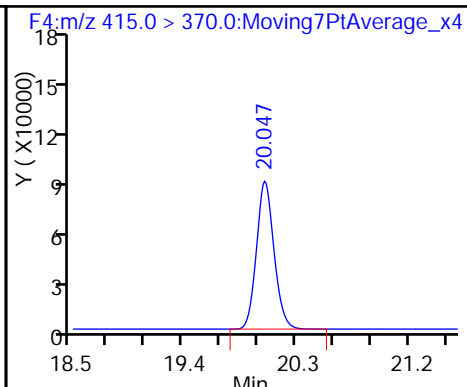
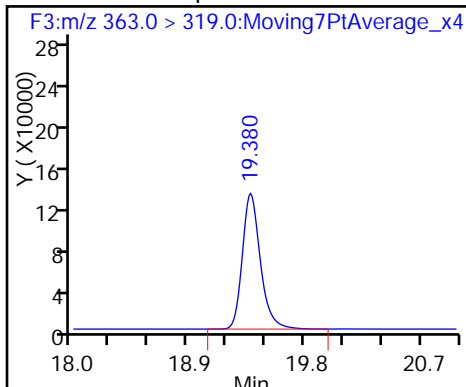
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

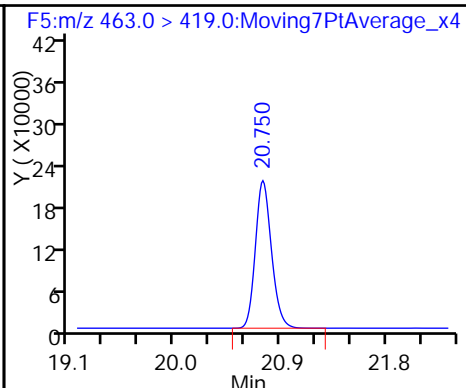
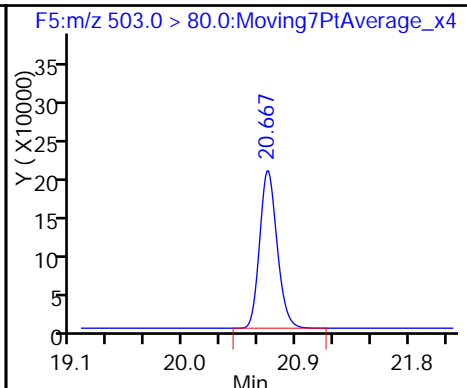
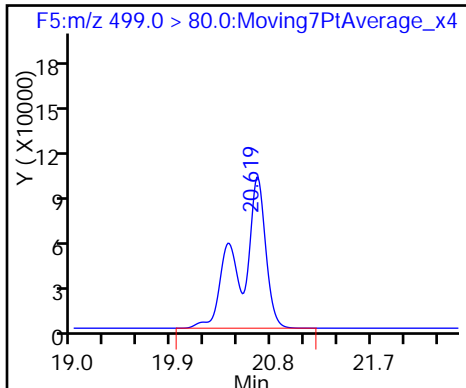
6 Perfluorooctanoic acid



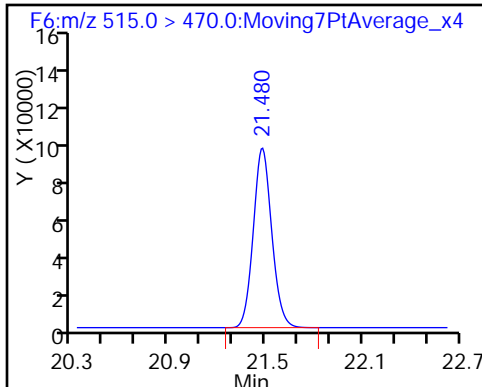
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140946/29 Calibration Date: 12/07/2016 20:56  
 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\_108.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	0.7512		48.3	45.1	7.1	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9374		15.9	15.2	4.4	30.0
Perfluoroheptanoic acid	Ave	1.215	1.222		5.14	5.12	0.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.093		10.7	10.2	5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.079		20.8	20.1	3.3	30.0
Perfluorononanoic acid	Ave	1.134	1.162		10.1	9.87	2.5	30.0
13C2 PFHxA	Ave	1.167	1.255		10.8	10.0	7.6	30.0
13C2 PFDA	Ave	0.8763	0.8918		10.2	10.0	1.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_108.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 07-Dec-2016 20:56:33 ALS Bottle#: 3 Worklist Smp#: 29  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:29:58 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 10:01:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.579	17.579	0.0	1.000	2155655	48.3	1821
\$ 2 13C2 PFHxA	315.0 > 270.0	18.567	18.567	0.0	1.000	1035733	10.8	33420
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	906834	15.9	20753
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.380	0.0	1.000	515756	5.14	10458
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		825149	10.0	21328
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	919258	10.7	449
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1381989	20.8	16907
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1824739	28.7	47070
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	946706	10.1	25181
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.471	0.0	1.000	735878	10.2	23073

Reagents:

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

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_108.d

Injection Date: 07-Dec-2016 20:56:33

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 29

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

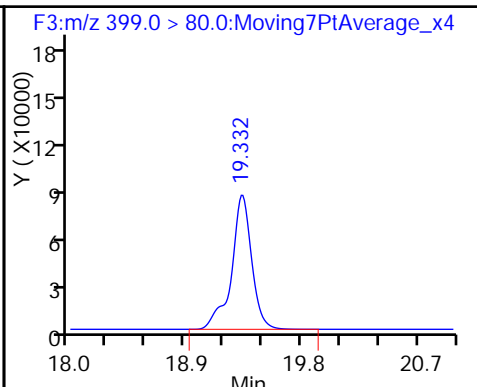
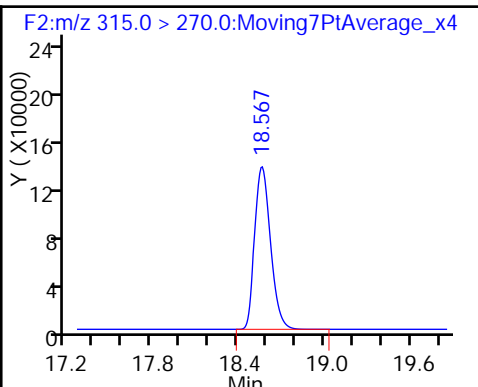
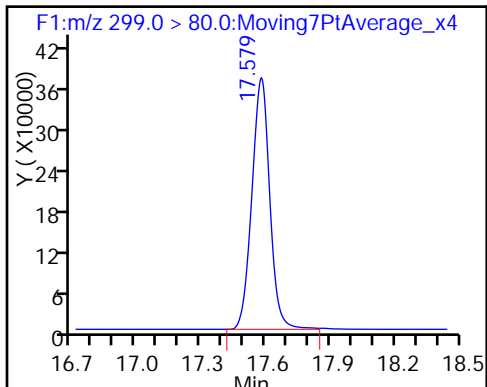
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

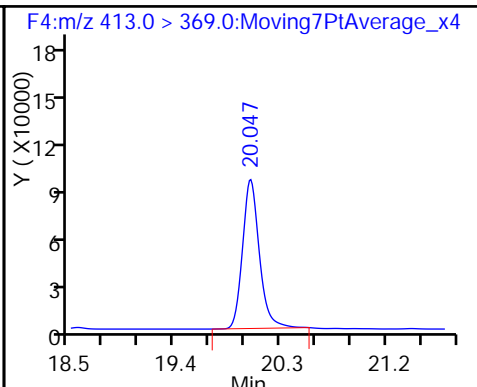
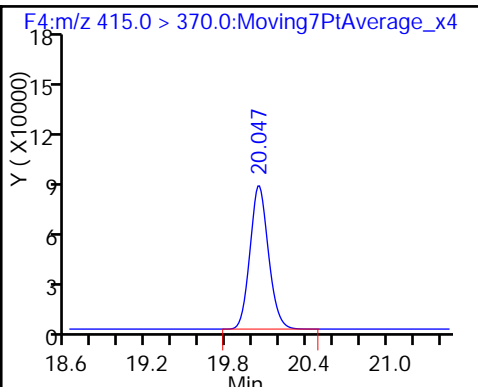
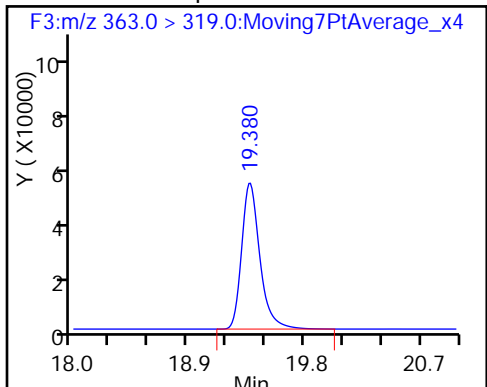
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

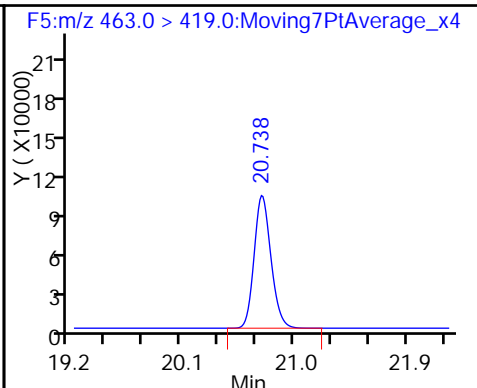
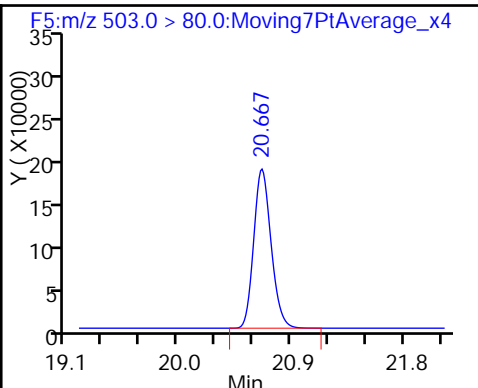
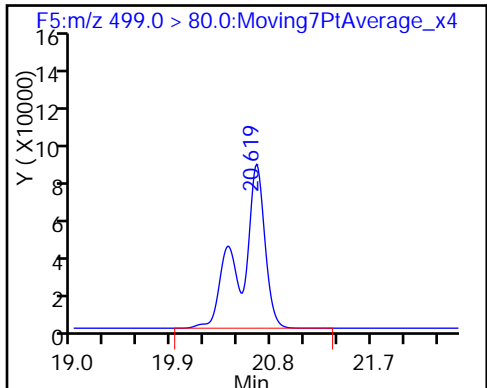
6 Perfluorooctanoic acid



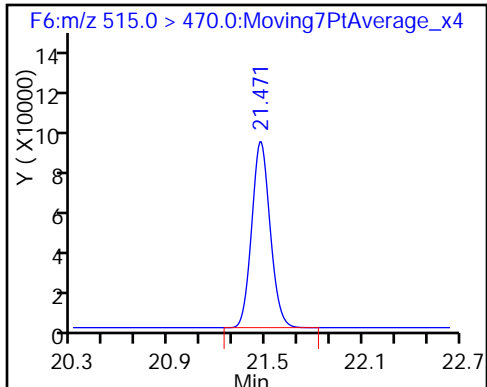
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140946/42 Calibration Date: 12/08/2016 03:21  
 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\_121.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	0.7245		139	135	3.3	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9634		48.7	45.4	7.3	30.0
Perfluoroheptanoic acid	Ave	1.215	1.230		15.5	15.3	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.095		32.0	30.4	5.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.219		70.2	60.1	16.8	30.0
Perfluorononanoic acid	Ave	1.134	1.239		32.2	29.5	9.2	30.0
13C2 PFHxA	Ave	1.167	1.340		11.5	10.0	14.8	30.0
13C2 PFDA	Ave	0.8763	1.020		11.6	10.0	16.4	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140947/42 Calibration Date: 12/08/2016 03:21  
 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\_121.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	0.7245		139	135	3.3	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9634		48.7	45.4	7.3	30.0
Perfluoroheptanoic acid	Ave	1.215	1.230		15.5	15.3	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.095		32.0	30.4	5.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.219		70.2	60.1	16.8	30.0
Perfluorononanoic acid	Ave	1.134	1.239		32.2	29.5	9.2	30.0
13C2 PFHxA	Ave	1.167	1.340		11.5	10.0	14.8	30.0
13C2 PFDA	Ave	0.8763	1.020		11.6	10.0	16.4	30.0



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_121.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 03:21:26 ALS Bottle#: 5 Worklist Smp#: 42  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:31:06 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.573	17.573	0.0	1.000	5854370	139.1	10432
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1091977	11.5	35509
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	2624037	48.7	38974
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	1530801	15.5	5445
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		815069	10.0	20880
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	2714168	32.0	1411
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4397310	70.2	22963
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1721192	28.7	44035
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	2975365	32.2	52083
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	831597	11.6	26375

Reagents:

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_121.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 03:21:26 ALS Bottle#: 5 Worklist Smp#: 42  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:31:06 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.573	17.573	0.0	1.000	5854370	139.1	10432
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1091977	11.5	35509
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	2624037	48.7	38974
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	1530801	15.5	5445
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		815069	10.0	20880
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	2714168	32.0	1411
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4397310	70.2	22963
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1721192	28.7	44035
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	2975365	32.2	52083
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	831597	11.6	26375

Reagents:

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

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_121.d

Injection Date: 08-Dec-2016 03:21:26

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 42

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

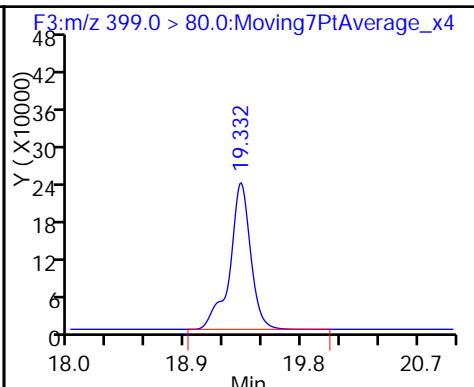
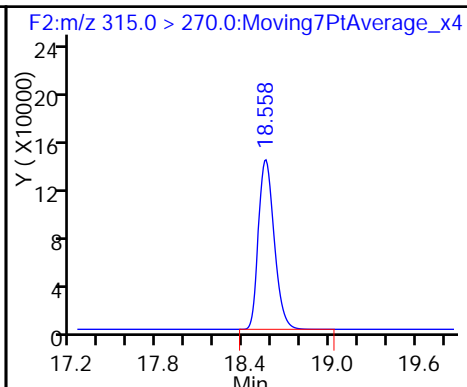
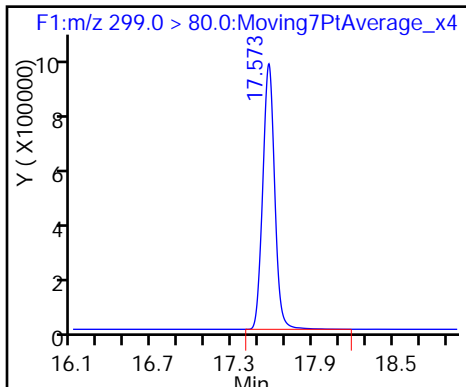
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

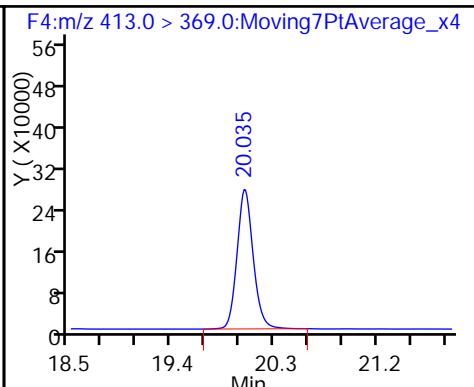
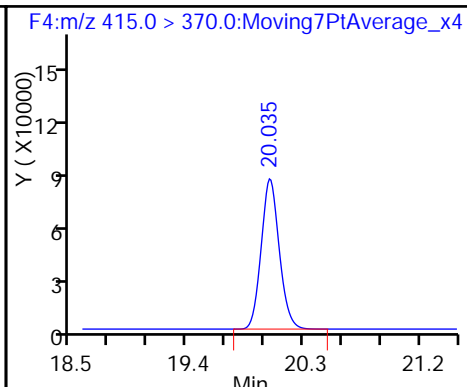
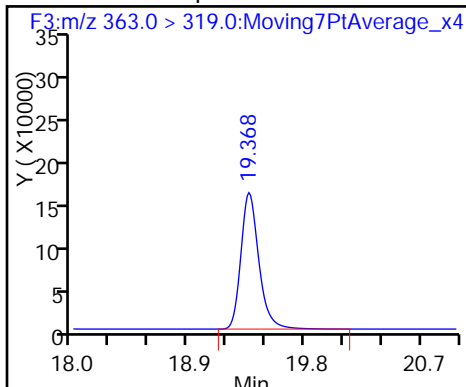
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

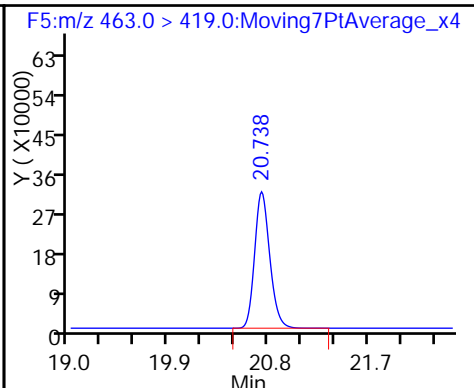
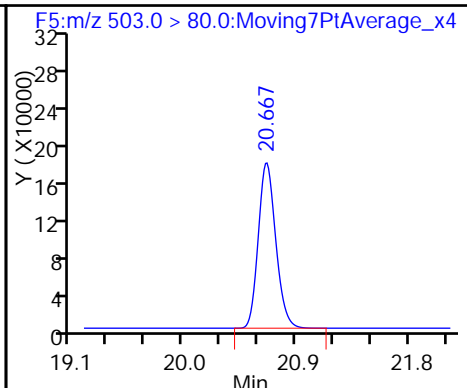
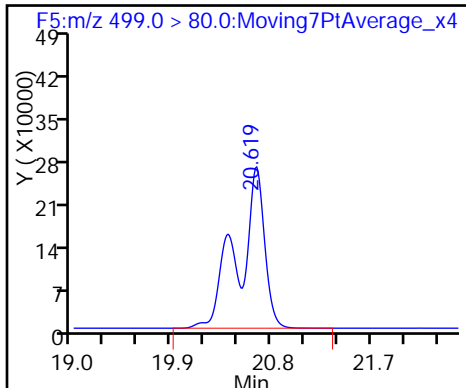
6 Perfluorooctanoic acid



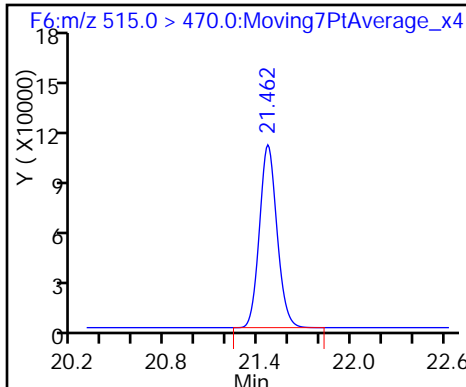
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_121.d

Injection Date: 08-Dec-2016 03:21:26

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 42

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

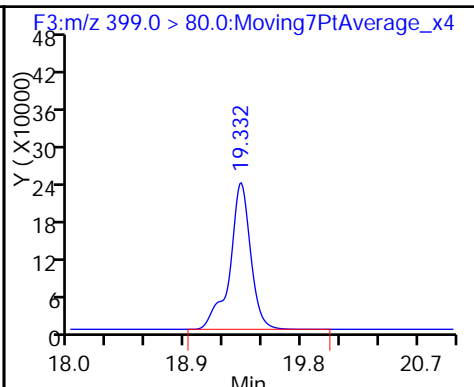
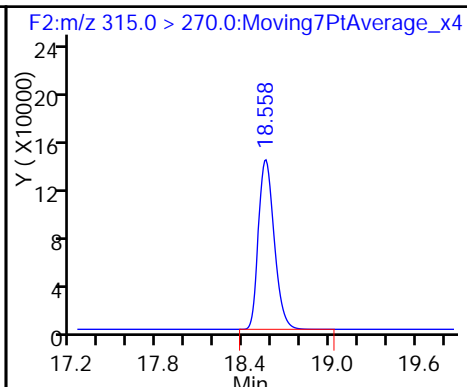
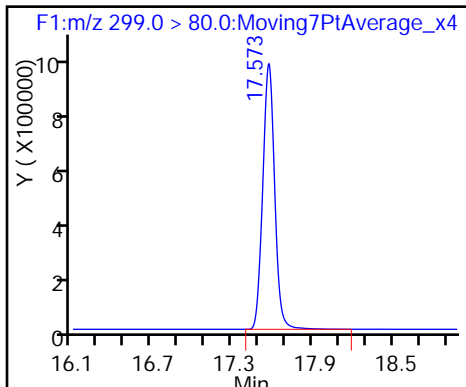
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

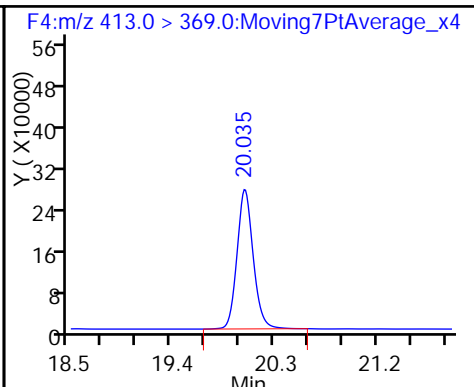
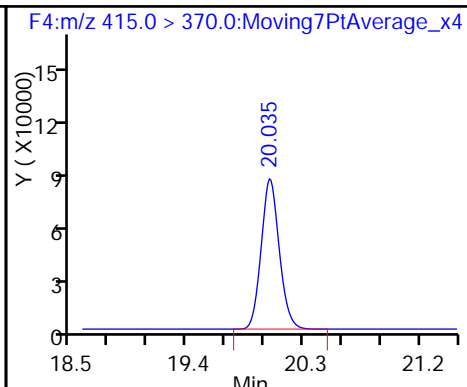
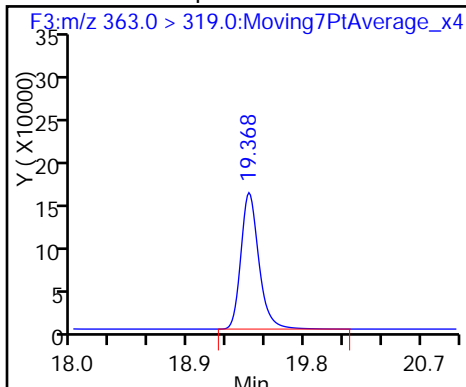
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

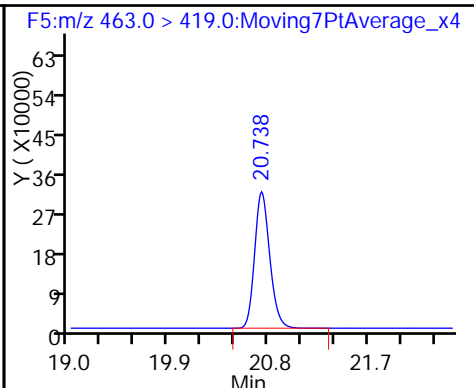
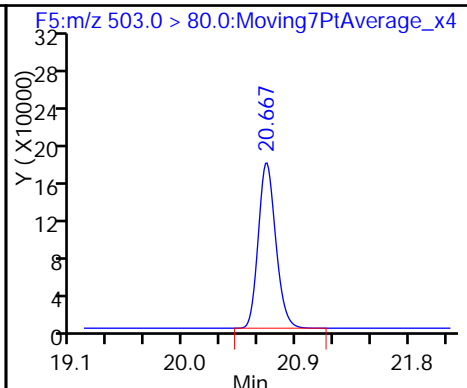
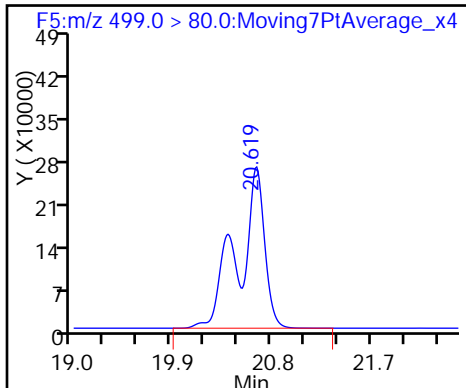
6 Perfluorooctanoic acid



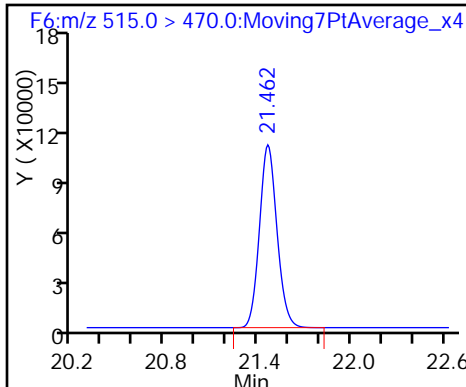
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140947/55 Calibration Date: 12/08/2016 09:46  
 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\_134.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	0.7368		47.4	45.1	5.0	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9518		16.1	15.2	6.0	30.0
Perfluoroheptanoic acid	Ave	1.215	1.236		5.21	5.12	1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.040		10.2	10.2	-0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.105		21.3	20.1	5.9	30.0
Perfluorononanoic acid	Ave	1.134	1.110		9.66	9.87	-2.1	30.0
13C2 PFHxA	Ave	1.167	1.205		10.3	10.0	3.3	30.0
13C2 PFDA	Ave	0.8763	0.8283		9.45	10.0	-5.5	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140948/55 Calibration Date: 12/08/2016 09:46  
 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\_134.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	0.7368		47.4	45.1	5.0	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9518		16.1	15.2	6.0	30.0
Perfluoroheptanoic acid	Ave	1.215	1.236		5.21	5.12	1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.040		10.2	10.2	-0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.105		21.3	20.1	5.9	30.0
Perfluorononanoic acid	Ave	1.134	1.110		9.66	9.87	-2.1	30.0
13C2 PFHxA	Ave	1.167	1.205		10.3	10.0	3.3	30.0
13C2 PFDA	Ave	0.8763	0.8283		9.45	10.0	-5.5	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_134.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 09:46:20 ALS Bottle#: 3 Worklist Smp#: 55  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:25:41 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.579	17.579	0.0	1.000	2041325	47.4	1612
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1027004	10.3	33287
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	888976	16.1	20771
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	539217	5.21	11092
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		852422	10.0	22083
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	903388	10.2	345
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1367079	21.3	17937
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1761773	28.7	45688
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	934278	9.66	4122
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	706078	9.45	22250

Reagents:

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_134.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 09:46:20 ALS Bottle#: 3 Worklist Smp#: 55  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:25:41 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.579	17.579	0.0	1.000	2041325	47.4	1612
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1027004	10.3	33287
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	888976	16.1	20771
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	539217	5.21	11092
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		852422	10.0	22083
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	903388	10.2	345
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1367079	21.3	17937
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1761773	28.7	45688
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	934278	9.66	4122
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	706078	9.45	22250

Reagents:

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



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_134.d

Injection Date: 08-Dec-2016 09:46:20

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 55

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

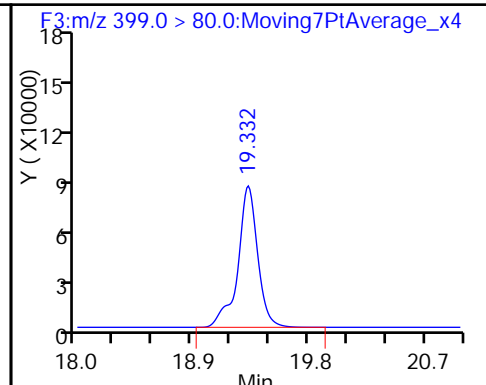
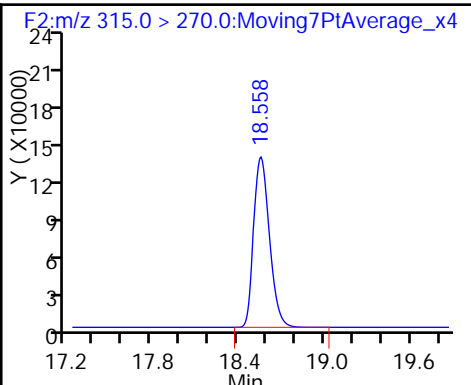
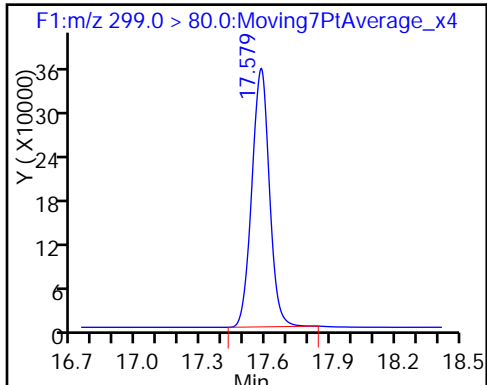
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

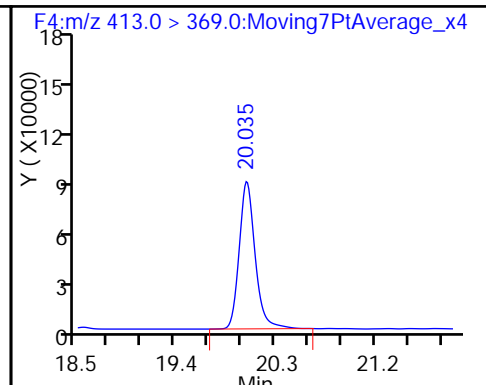
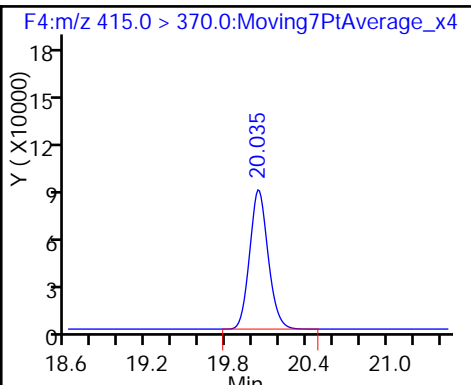
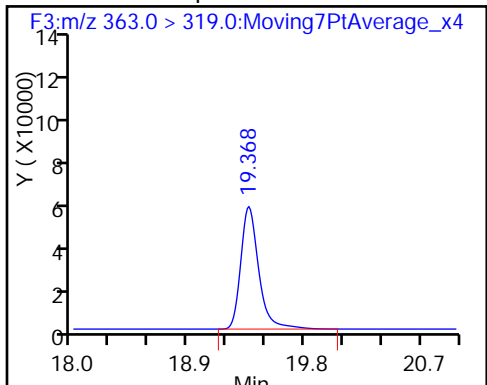
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

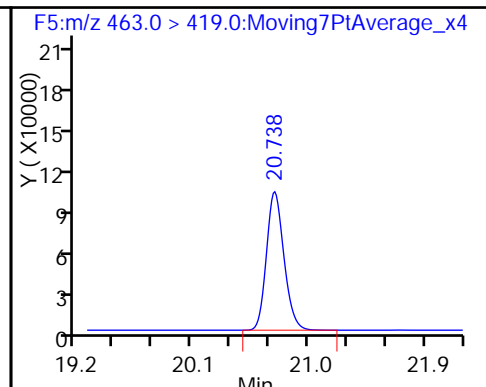
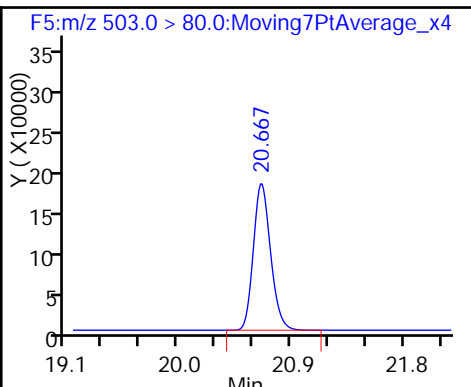
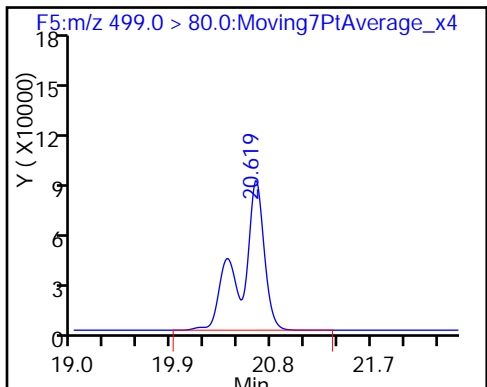
6 Perfluorooctanoic acid



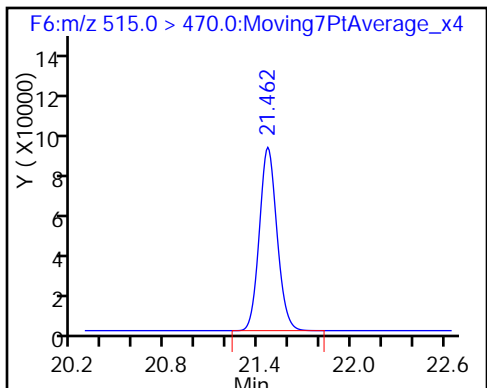
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_134.d

Injection Date: 08-Dec-2016 09:46:20

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 55

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

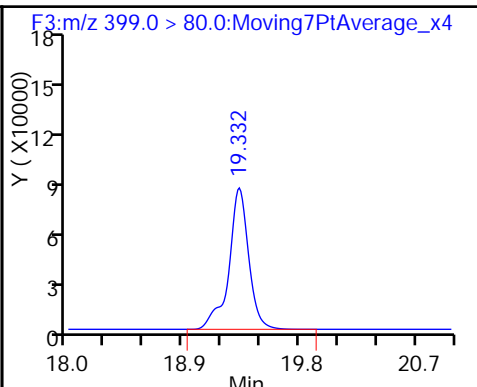
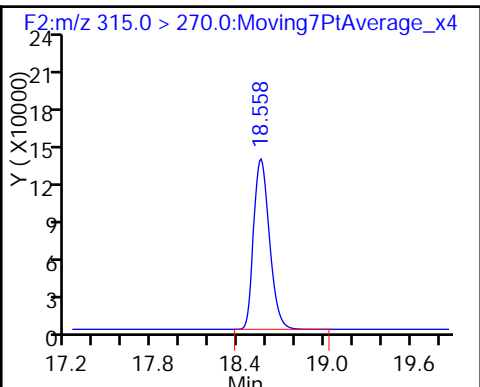
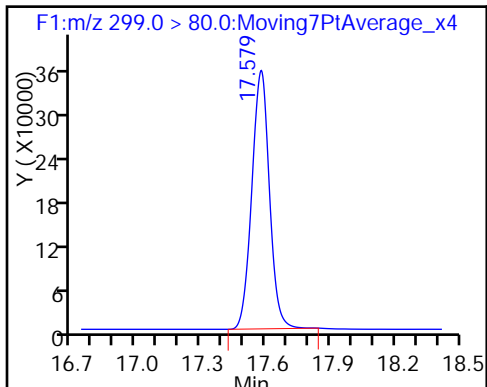
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

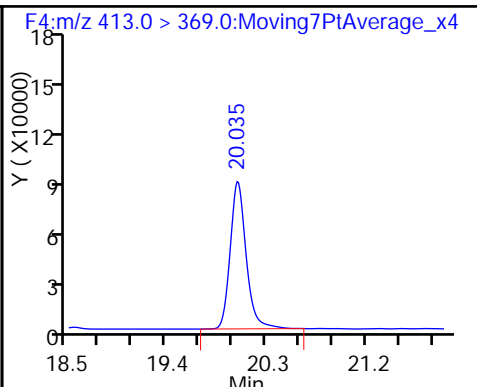
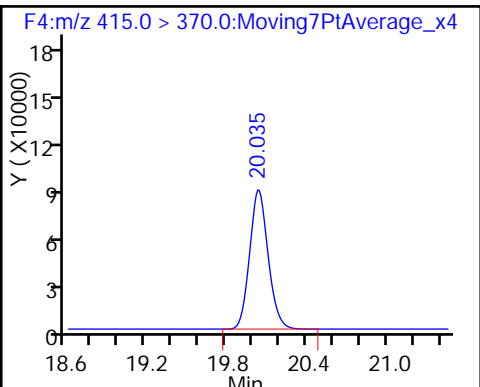
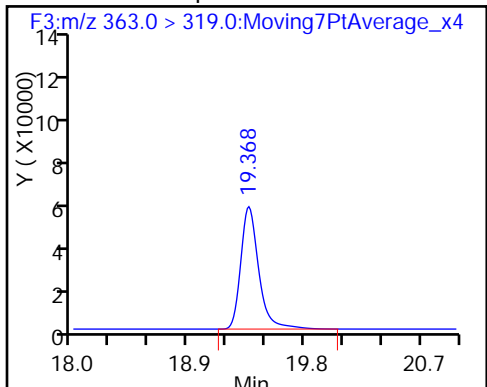
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

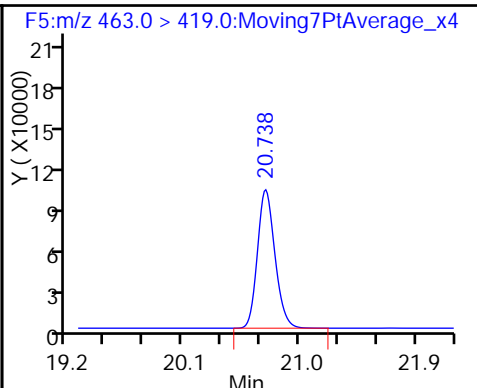
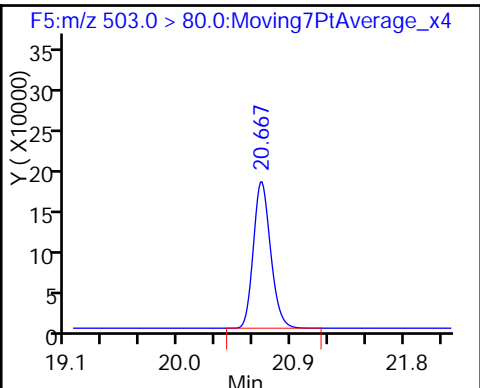
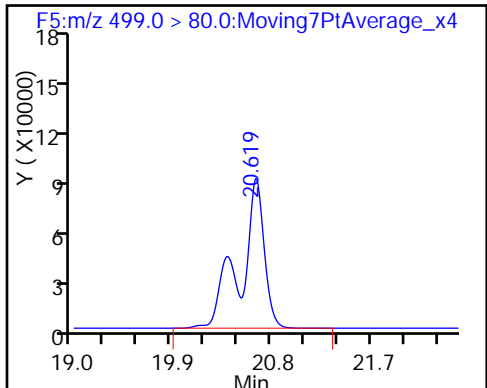
6 Perfluorooctanoic acid



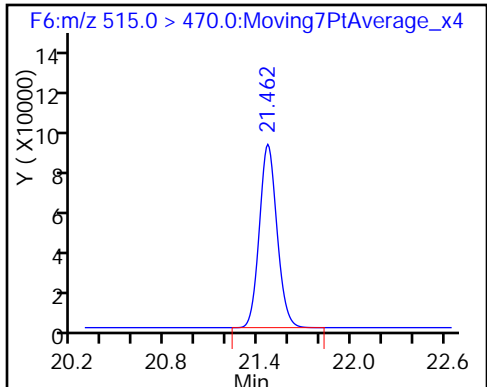
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-140948/101 Calibration Date: 12/08/2016 12:14  
 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\_139.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	0.7521		48.4	45.1	7.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9698		16.4	15.2	8.0	30.0
Perfluoroheptanoic acid	Ave	1.215	1.208		5.09	5.12	-0.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.090		10.7	10.2	4.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.093		21.1	20.1	4.7	30.0
Perfluorononanoic acid	Ave	1.134	1.138		9.90	9.87	0.3	30.0
13C2 PFHxA	Ave	1.167	1.221		10.5	10.0	4.7	30.0
13C2 PFDA	Ave	0.8763	0.8825		10.1	10.0	0.7	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141249/101 Calibration Date: 12/08/2016 12:14  
 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\_139.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	0.7521		48.4	45.1	7.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9698		16.4	15.2	8.0	30.0
Perfluoroheptanoic acid	Ave	1.215	1.208		5.09	5.12	-0.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.090		10.7	10.2	4.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.093		21.1	20.1	4.7	30.0
Perfluorononanoic acid	Ave	1.134	1.138		9.90	9.87	0.3	30.0
13C2 PFHxA	Ave	1.167	1.221		10.5	10.0	4.7	30.0
13C2 PFDA	Ave	0.8763	0.8825		10.1	10.0	0.7	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_139.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 12:14:14 ALS Bottle#: 3 Worklist Smp#: 101  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 14:01:10 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:54:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.566	17.566	0.0	1.000	2232265	48.4	1181
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	1108334	10.5	36106
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.320	0.0	1.000	970349	16.4	22358
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.356	0.0	1.000	560899	5.09	5757
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		907626	10.0	23440
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	1008028	10.7	310
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.655	20.655	0.0	1.000	1447715	21.1	23592
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.655	0.0		1887289	28.7	21676
9 Perfluorononanoic acid	463.0 > 419.0	20.726	20.726	0.0	1.000	1019625	9.90	9017
\$ 10 13C2 PFDA	515.0 > 470.0	21.453	21.453	0.0	1.000	800977	10.1	25163

Reagents:

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

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_139.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 12:14:14 ALS Bottle#: 3 Worklist Smp#: 101  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 14:01:10 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:54:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.566	17.566	0.0	1.000	2232265	48.4	1181
\$ 2 13C2 PFHxA	315.0 > 270.0	18.548	18.548	0.0	1.000	1108334	10.5	36106
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.320	19.320	0.0	1.000	970349	16.4	22358
4 Perfluoroheptanoic acid	363.0 > 319.0	19.356	19.356	0.0	1.000	560899	5.09	5757
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.035	0.0		907626	10.0	23440
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.035	0.0	1.000	1008028	10.7	310
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.655	20.655	0.0	1.000	1447715	21.1	23592
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.655	0.0		1887289	28.7	21676
9 Perfluorononanoic acid	463.0 > 419.0	20.726	20.726	0.0	1.000	1019625	9.90	9017
\$ 10 13C2 PFDA	515.0 > 470.0	21.453	21.453	0.0	1.000	800977	10.1	25163

Reagents:

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

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_139.d

Injection Date: 08-Dec-2016 12:14:14

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 101

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

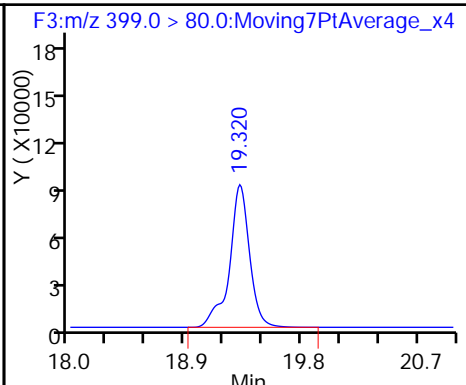
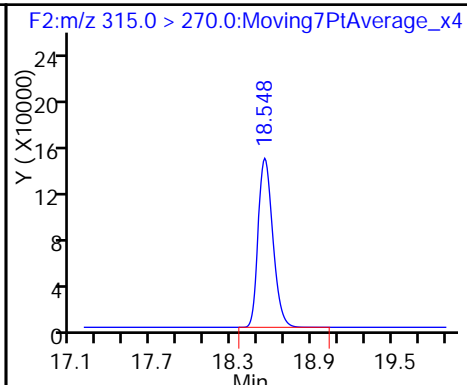
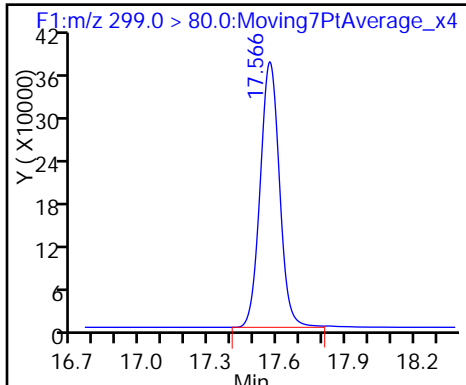
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

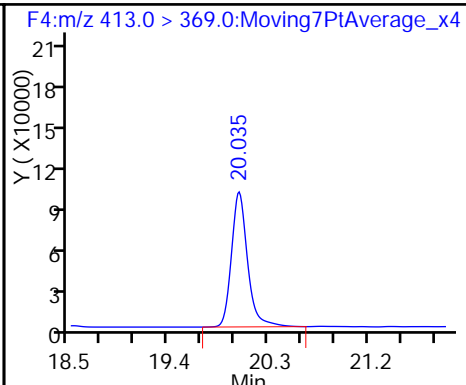
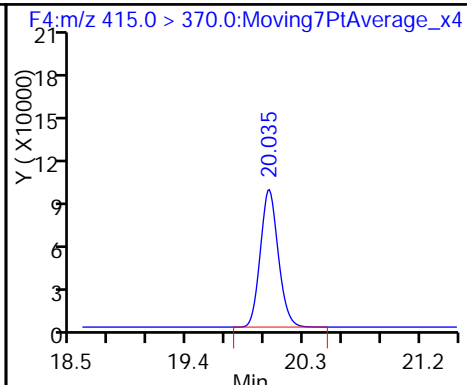
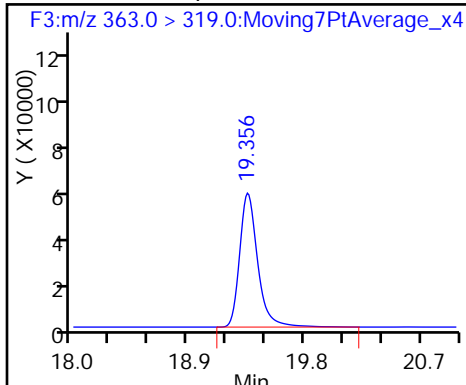
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

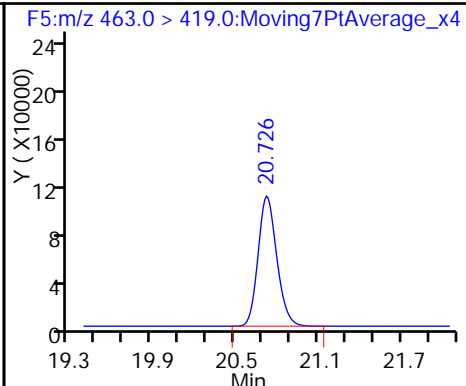
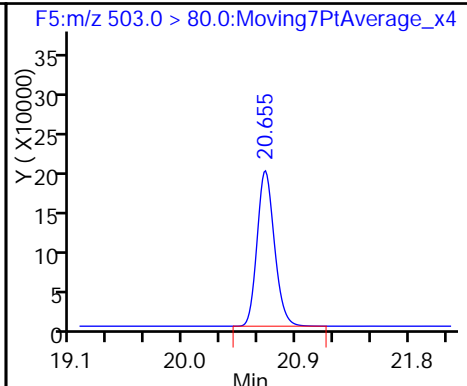
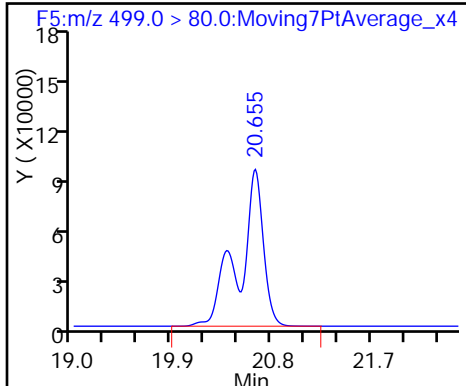
6 Perfluorooctanoic acid



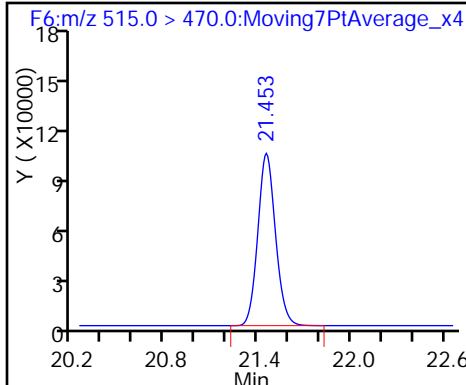
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_139.d

Injection Date: 08-Dec-2016 12:14:14

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 101

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

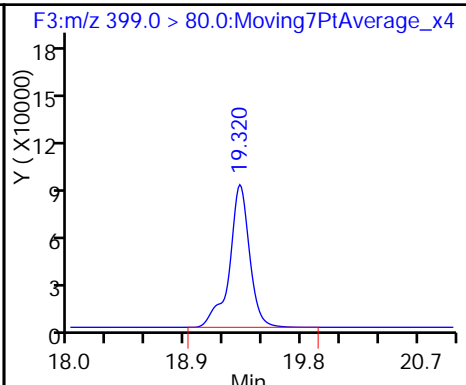
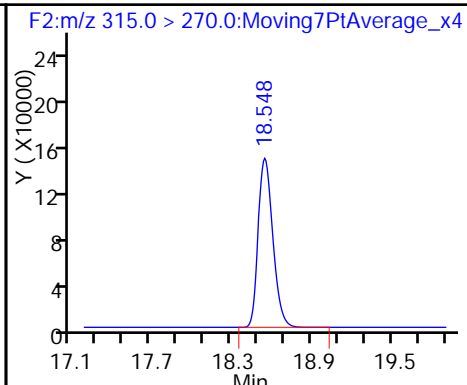
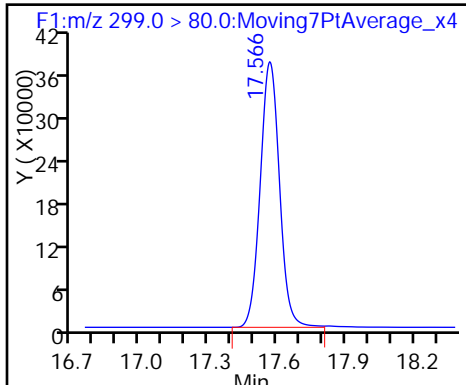
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

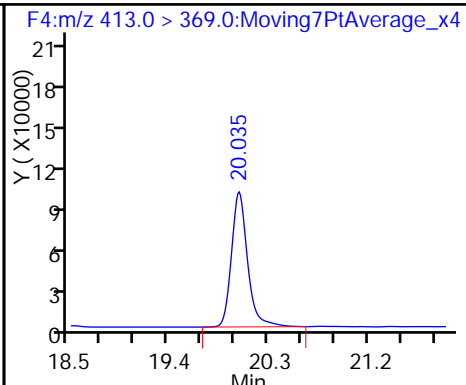
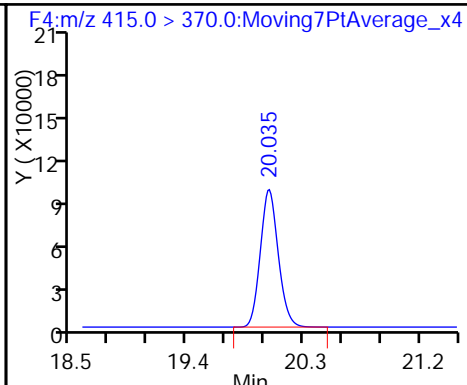
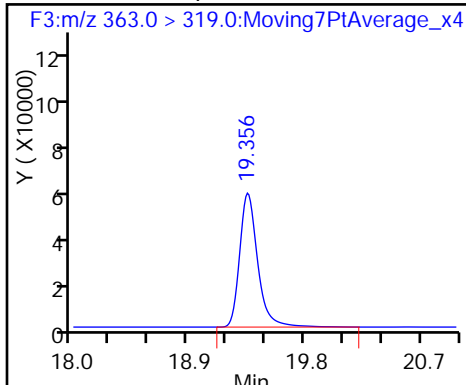
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

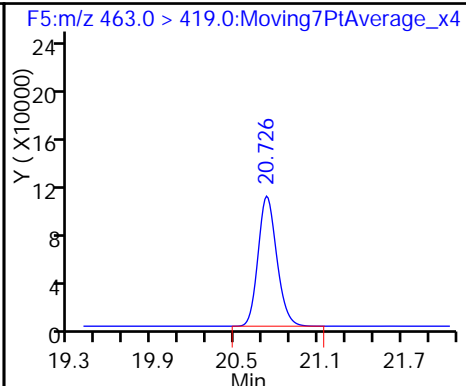
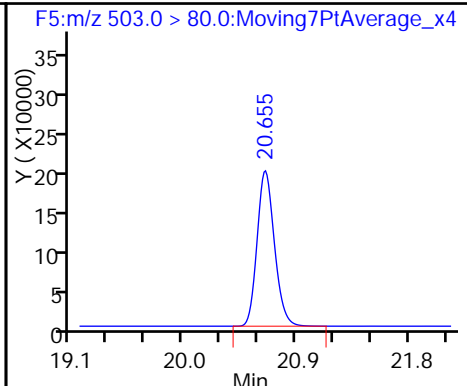
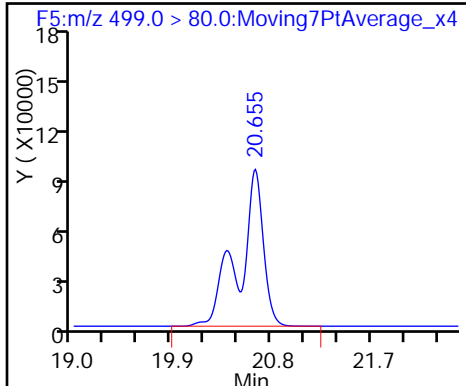
6 Perfluorooctanoic acid



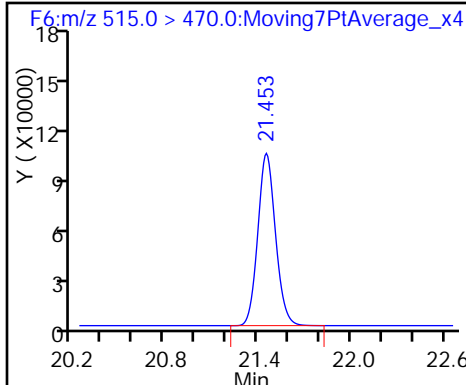
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141249/68 Calibration Date: 12/08/2016 18:35  
 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\_151.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	0.7801		150	135	11.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	1.080		54.6	45.4	20.3	30.0
Perfluoroheptanoic acid	Ave	1.215	1.178		14.8	15.3	-3.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.096		32.0	30.4	5.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.255		72.2	60.1	20.2	30.0
Perfluorononanoic acid	Ave	1.134	1.151		29.9	29.5	1.4	30.0
13C2 PFHxA	Ave	1.167	1.334		11.4	10.0	14.4	30.0
13C2 PFDA	Ave	0.8763	0.9279		10.6	10.0	5.9	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_151.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 08-Dec-2016 18:35:36 ALS Bottle#: 5 Worklist Smp#: 68  
 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\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 10:02:15 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: XAWRK020

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	6310590	149.7	10277
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	1187567	11.4	37984
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.344	0.0	1.000	2946634	54.6	6803
4 Perfluoroheptanoic acid	363.0 > 319.0	19.380	19.380	0.0	1.000	1601994	14.8	11116
* 5 13C2-PFOA	415.0 > 370.0	20.058	20.058	0.0		890167	10.0	22846
6 Perfluorooctanoic acid	413.0 > 369.0	20.058	20.058	0.0	1.000	2967530	32.0	946
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	4531506	72.2	6922
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1723267	28.7	29354
9 Perfluorononanoic acid	463.0 > 419.0	20.762	20.762	0.0	1.000	3018094	29.9	24534
\$ 10 13C2 PFDA	515.0 > 470.0	21.489	21.489	0.0	1.000	825969	10.6	26404

Reagents:

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

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_151.d

Injection Date: 08-Dec-2016 18:35:36

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 68

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

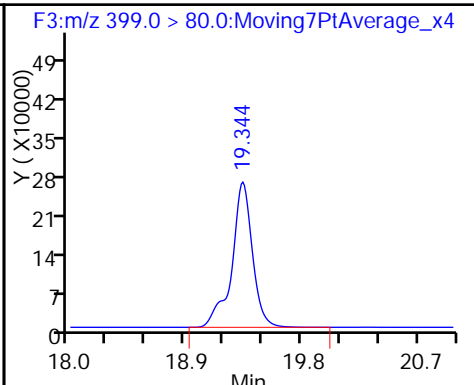
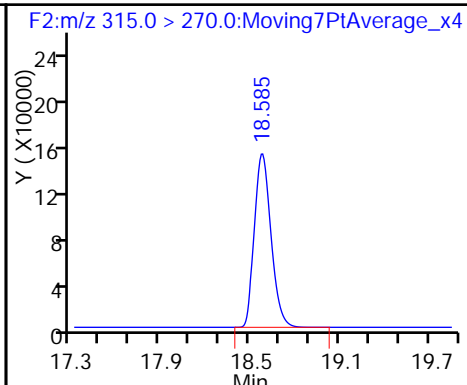
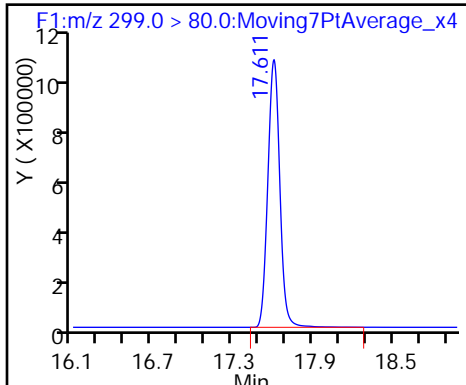
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

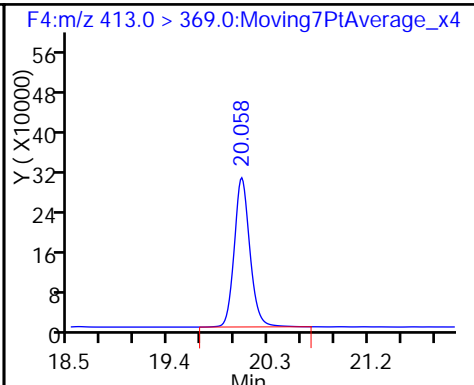
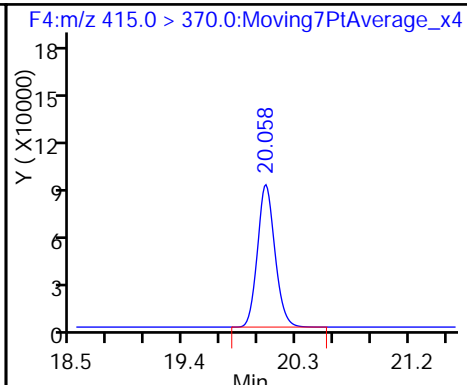
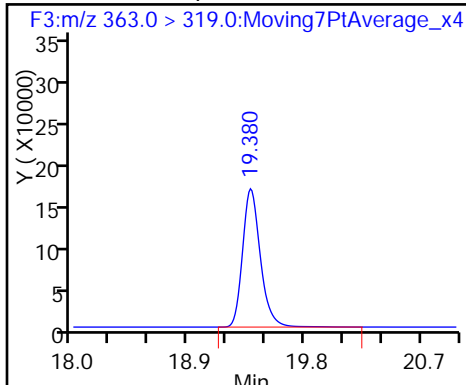
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

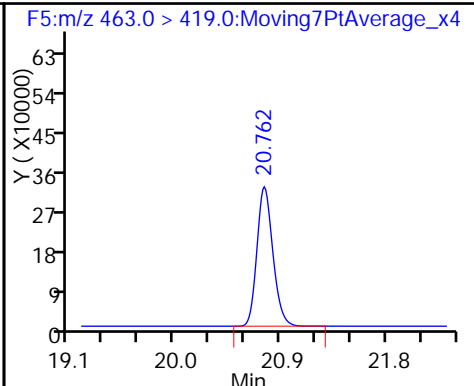
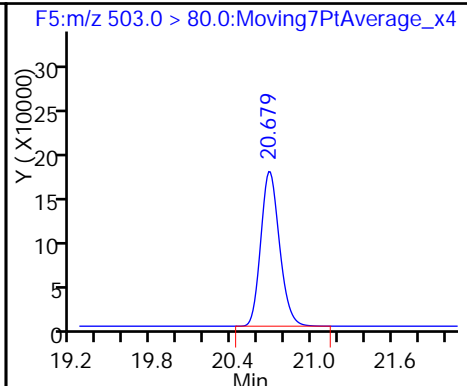
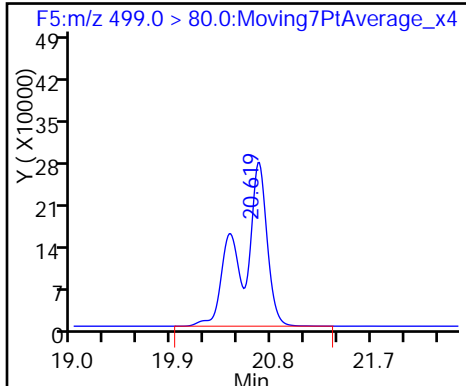
6 Perfluorooctanoic acid



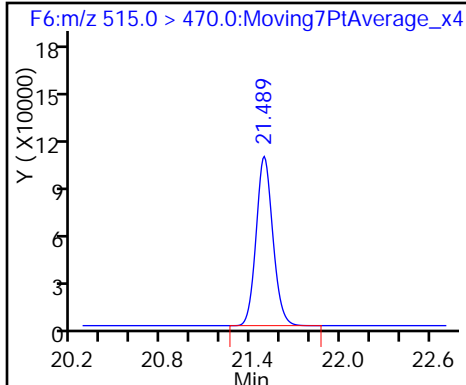
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141290/2 Calibration Date: 12/09/2016 07:25  
 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\_177.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	0.7446		143	135	6.1	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	1.045		52.8	45.4	16.4	30.0
Perfluoroheptanoic acid	Ave	1.215	1.318		16.6	15.3	8.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.185		34.6	30.4	13.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.164		67.0	60.1	11.5	30.0
Perfluorononanoic acid	Ave	1.134	1.267		32.9	29.5	11.7	30.0
13C2 PFHxA	Ave	1.167	1.398		12.0	10.0	19.8	30.0
13C2 PFDA	Ave	0.8763	0.9125		10.4	10.0	4.1	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_177.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 09-Dec-2016 07:25:04 ALS Bottle#: 5 Worklist Smp#: 2  
 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\20161208-37652.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 14:41:00 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: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.628	17.628	0.0	1.000	5438084	142.9	2048
\$ 2 13C2 PFHxA	315.0 > 270.0	18.594	18.594	0.0	1.000	995764	12.0	31801
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.344	19.344	0.0	1.000	2572842	52.8	58279
4 Perfluoroheptanoic acid	363.0 > 319.0	19.379	19.379	0.0	1.000	1434547	16.6	8203
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		712405	10.0	18378
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	2567243	34.6	1092
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	3794150	67.0	16922
* 8 13C4 PFOS	503.0 > 80.0	20.679	20.679	0.0		1555728	28.7	40010
9 Perfluorononanoic acid	463.0 > 419.0	20.762	20.762	0.0	1.000	2660354	32.9	39804
\$ 10 13C2 PFDA	515.0 > 470.0	21.498	21.498	0.0	1.000	650071	10.4	20399

Reagents:

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

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_177.d

Injection Date: 09-Dec-2016 07:25:04

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 2

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

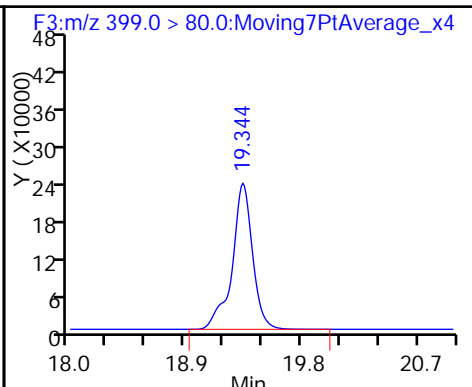
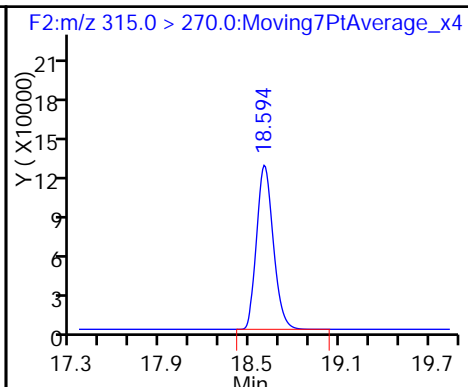
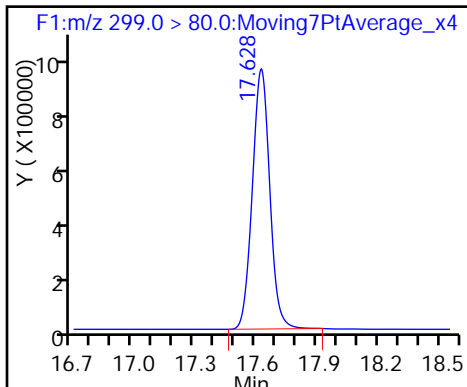
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

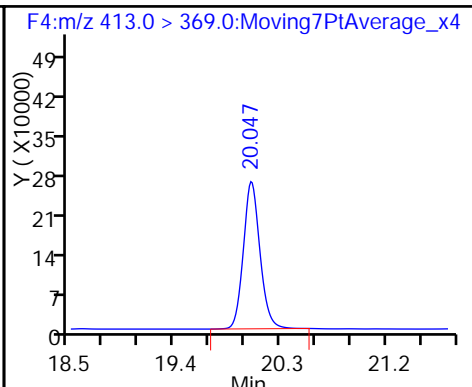
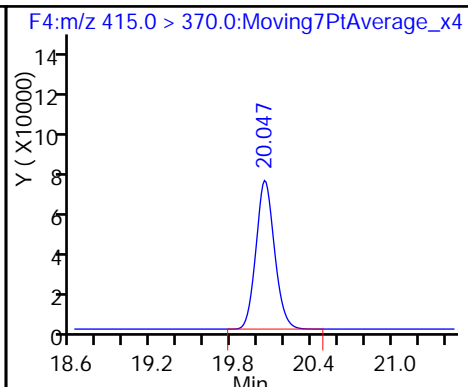
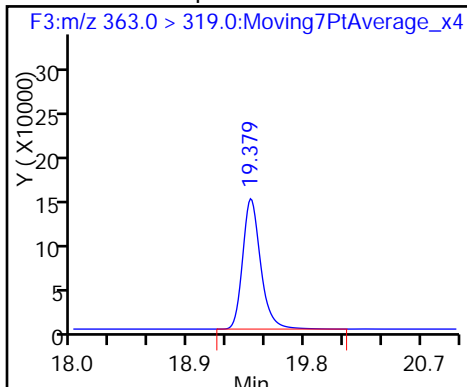
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

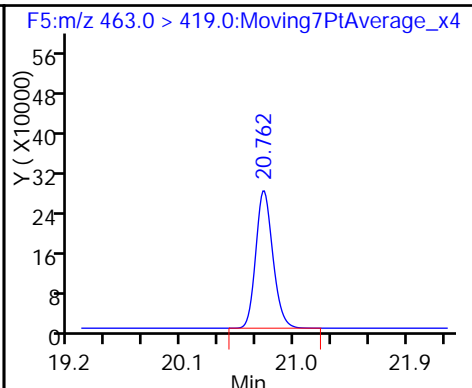
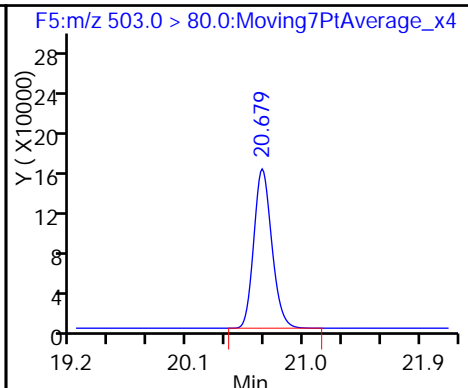
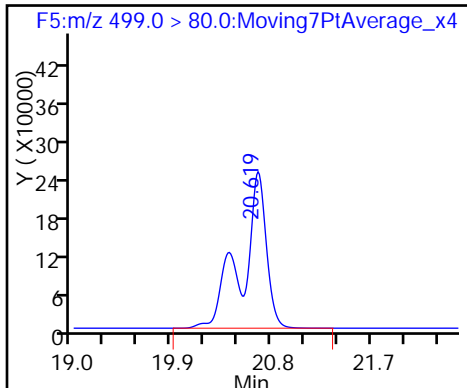
6 Perfluorooctanoic acid



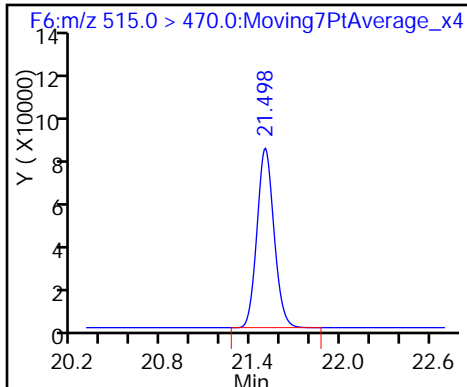
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-141290/15 Calibration Date: 12/09/2016 14:33  
 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\_190.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	0.7379		47.4	45.1	5.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9766		16.5	15.2	8.8	30.0
Perfluoroheptanoic acid	Ave	1.215	1.252		5.27	5.12	3.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.022		10.0	10.2	-1.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.082		20.9	20.1	3.7	30.0
Perfluorononanoic acid	Ave	1.134	1.158		10.1	9.87	2.1	30.0
13C2 PFHxA	Ave	1.167	1.172		10.0	10.0	0.5	30.0
13C2 PFDA	Ave	0.8763	0.8477		9.67	10.0	-3.3	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_190.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 09-Dec-2016 14:33:55 ALS Bottle#: 3 Worklist Smp#: 15  
 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\20161208-37652.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 09-Dec-2016 15:07:10 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: XAWRK020

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	1927256	47.4	1049
\$ 2 13C2 PFHxA	315.0 > 270.0	18.585	18.585	0.0	1.000	928189	10.0	29771
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	859881	16.5	20205
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.368	0.0	1.000	507170	5.27	12834
* 5 13C2-PFOA	415.0 > 370.0	20.023	20.023	0.0		791868	10.0	9032
6 Perfluorooctanoic acid	413.0 > 369.0	20.023	20.023	0.0	1.000	824885	10.0	537
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	1261754	20.9	16957
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.655	0.0		1660744	28.7	17129
9 Perfluorononanoic acid	463.0 > 419.0	20.726	20.726	0.0	1.000	905582	10.1	23726
\$ 10 13C2 PFDA	515.0 > 470.0	21.471	21.471	0.0	1.000	671268	9.67	21277

Reagents:

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



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b\05DEC2016A6A\_190.d

Injection Date: 09-Dec-2016 14:33:55

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 15

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

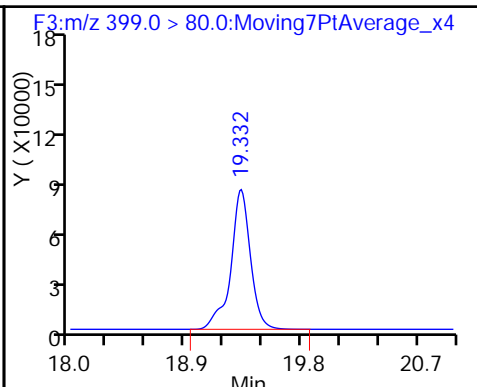
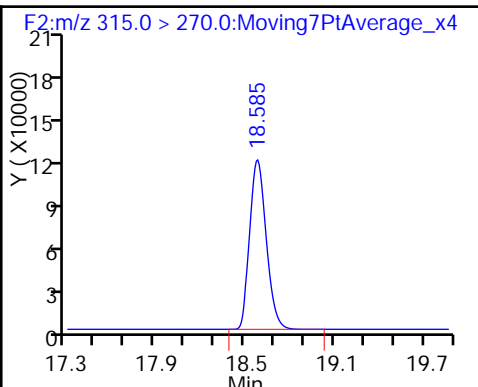
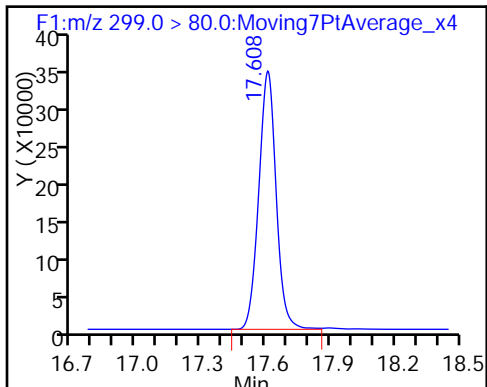
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

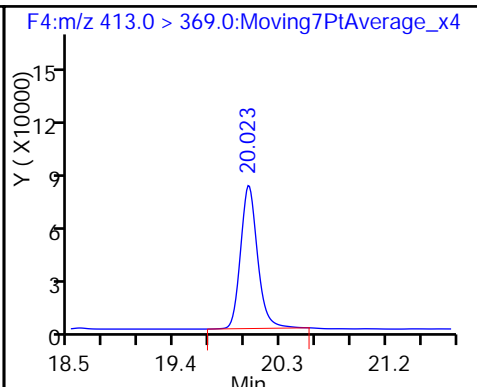
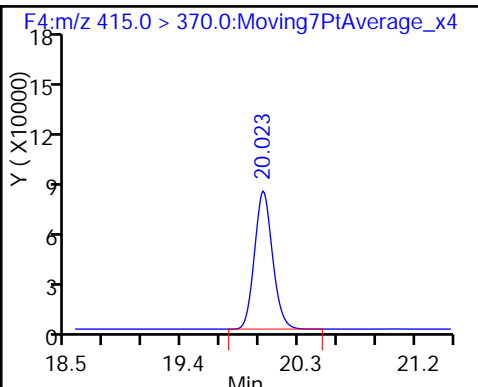
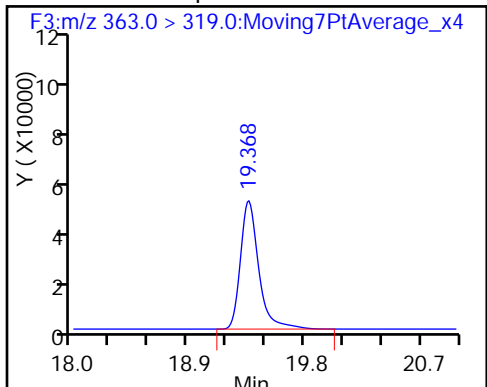
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

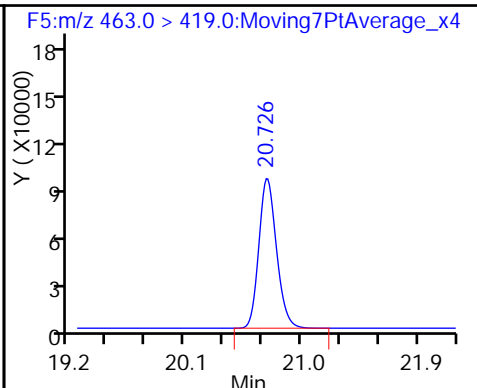
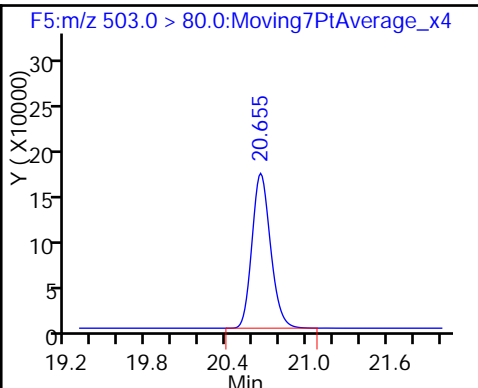
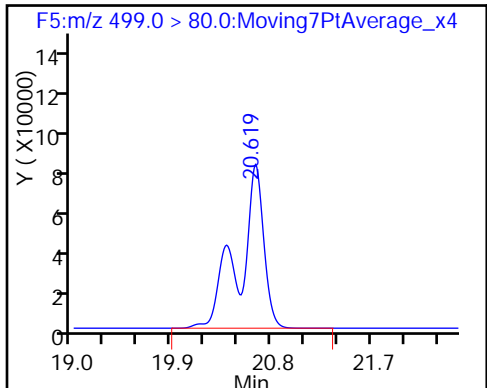
6 Perfluorooctanoic acid



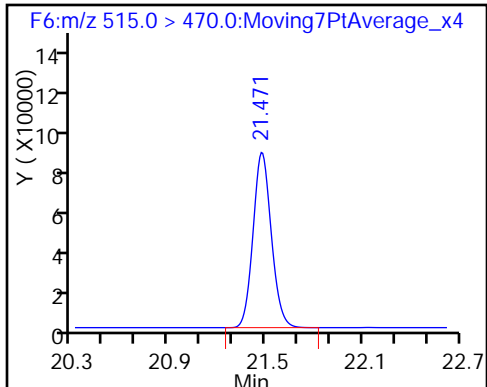
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-140400/1-A  
 Matrix: Water Lab File ID: 05DEC2016A6A\_138.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/08/2016 11:41  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140948 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	123		70-130
STL00996	13C2 PFDA	120		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_138.d  
 Lims ID: MB 320-140400/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 08-Dec-2016 11:41:08 ALS Bottle#: 2 Worklist Smp#: 100  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-140400/1-a BOX 14  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:53:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.558	0.0	1.000	1052399	12.3	34400
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.035	0.012		730789	10.0	38224
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.070	20.035	0.035	1.000	1190	0.0157	0.6	M
7 Perfluorooctane sulfonic acid								M
499.0 > 80.0	20.667	20.619	0.048	1.000	604	0.008311	11.8	M
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		1996434	28.7	69873
9 Perfluorononanoic acid								M
463.0 > 419.0	20.750	20.738	0.012	1.000	620	0.007480	9.5	M
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.462	0.0	1.000	771344	12.0	24463

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_138.d

Injection Date: 08-Dec-2016 11:41:08

Instrument ID: A6

Lims ID: MB 320-140400/1-A

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 100

Injection Vol: 10.0 ul

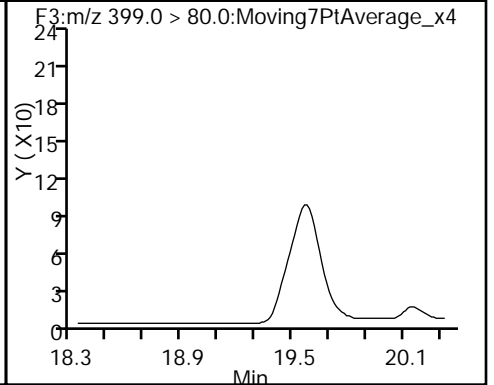
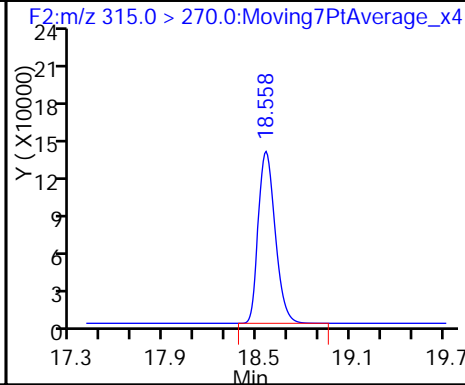
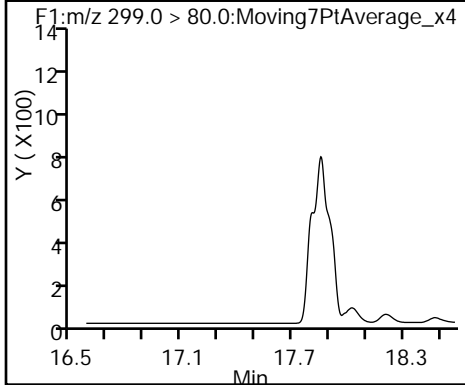
Dil. Factor: 1.0000

Method: 537\_\_A6

Limit Group: LC 537 ICAL

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

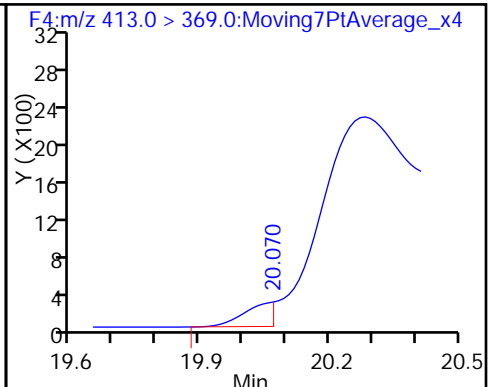
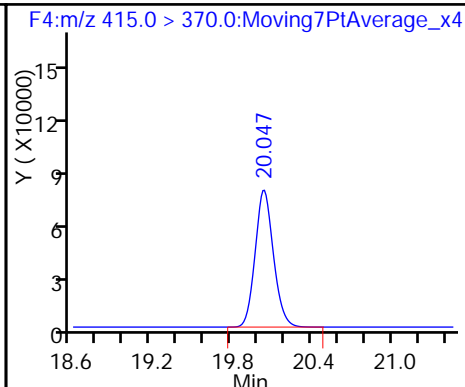
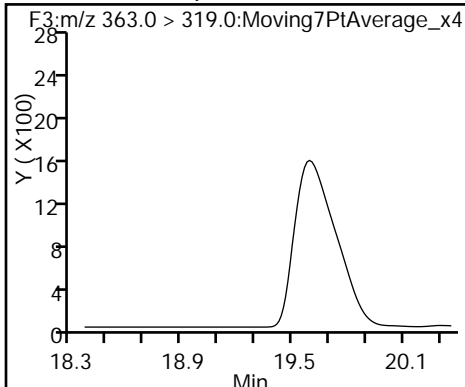
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

\* 5 13C2-PFOA

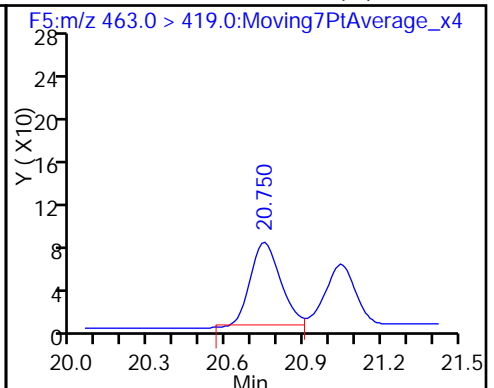
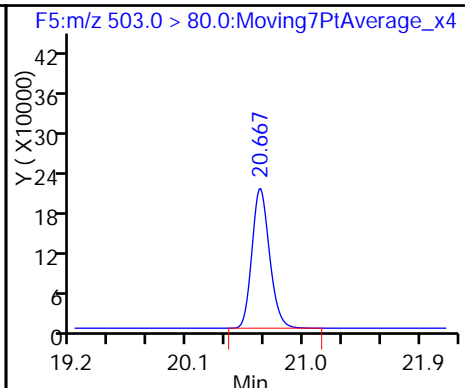
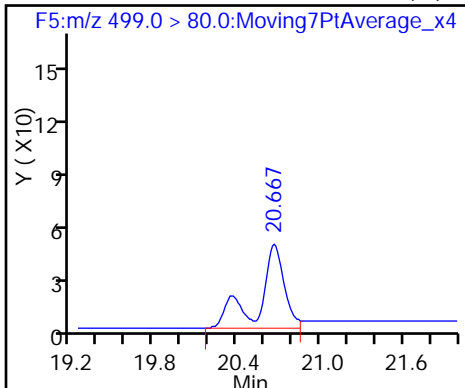
6 Perfluorooctanoic acid (M)



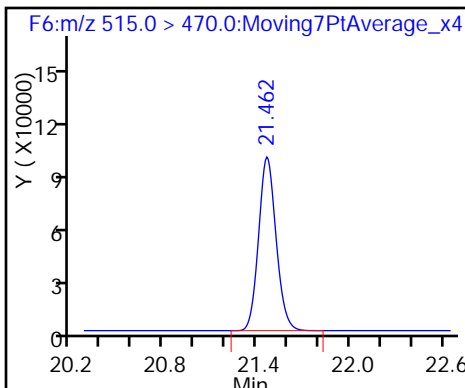
7 Perfluorooctane sulfonic acid (M)

\* 8 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_138.d  
 Lims ID: MB 320-140400/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 08-Dec-2016 11:41:08 ALS Bottle#: 2 Worklist Smp#: 100  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-140400/1-a BOX 14  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35°C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 13:54:01 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: XAWRK014

First Level Reviewer: barnettj Date: 08-Dec-2016 13:53:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	12.3	123.45
\$ 10 13C2 PFDA	10.0	12.0	120.45

TestAmerica Sacramento

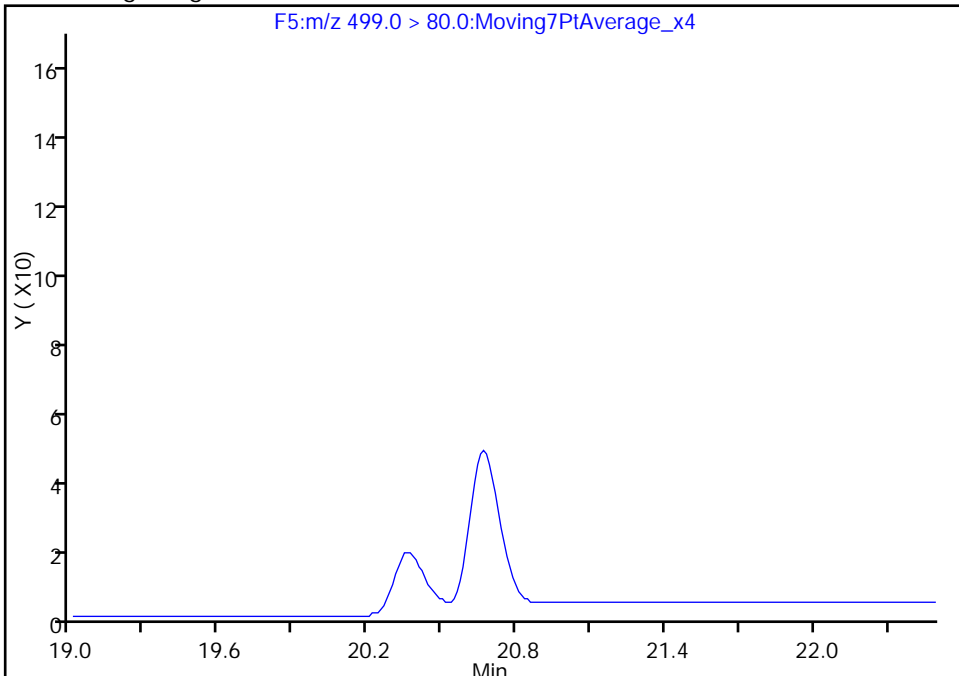
Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_138.d  
Injection Date: 08-Dec-2016 11:41:08 Instrument ID: A6  
Lims ID: MB 320-140400/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 100  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F5:MRM

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

Signal: 1

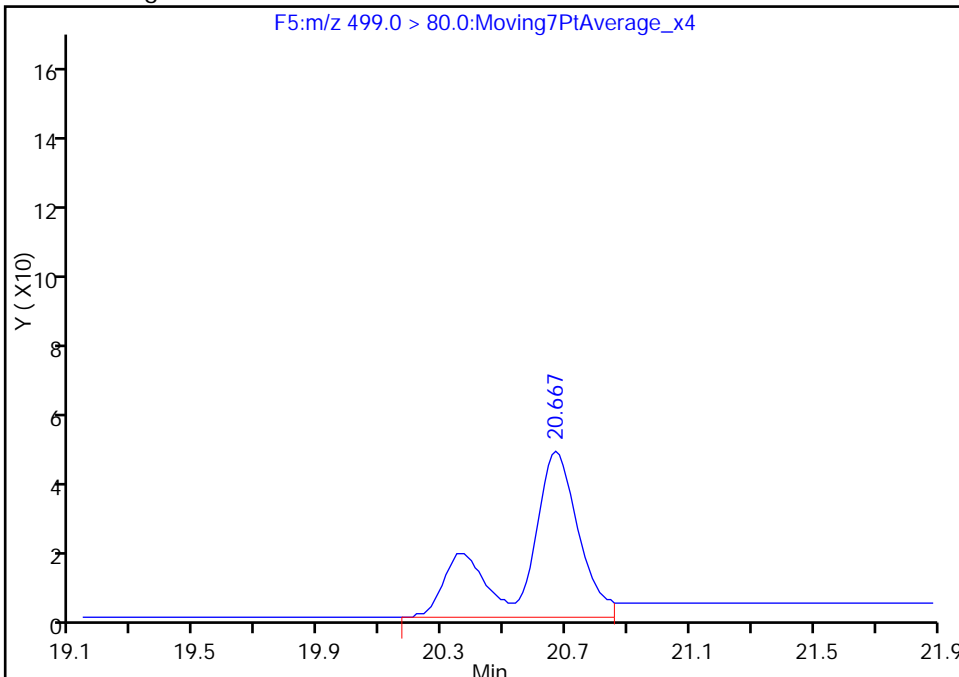
Not Detected  
Expected RT: 20.62

Processing Integration Results



Manual Integration Results

RT: 20.67  
Area: 604  
Amount: 0.008311  
Amount Units: ng/ml



Reviewer: barnettj, 08-Dec-2016 13:53:52  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

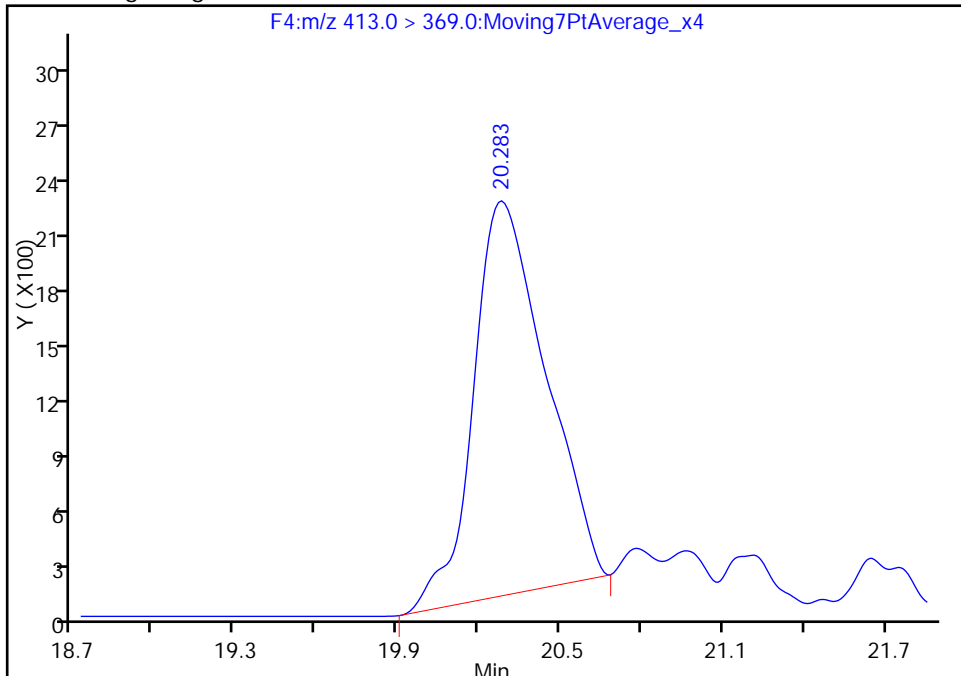
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Injection Date: 08-Dec-2016 11:41:08 Instrument ID: A6  
Lims ID: MB 320-140400/1-A  
Client ID:  
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 100  
Injection Vol: 10.0 ul Dil. Factor: 1.0000  
Method: 537\_\_A6 Limit Group: LC 537 ICAL  
Column: Acquity BEH C18 ( 2.10 mm) Detector F4:M/RM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

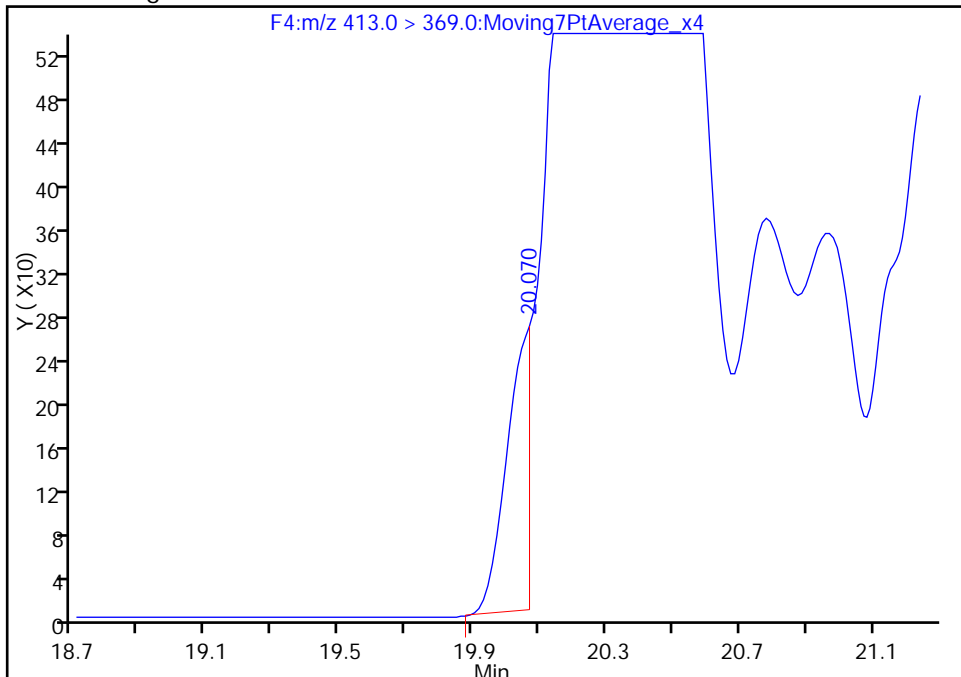
RT: 20.28  
Area: 39445  
Amount: 0.518787  
Amount Units: ng/ml

Processing Integration Results



RT: 20.07  
Area: 1190  
Amount: 0.015651  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 08-Dec-2016 13:53:52  
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LLCS 320-140400/2-A  
 Matrix: Water Lab File ID: 05DEC2016A6A\_116.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/08/2016 00:53  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140946 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.0318	J	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0180	J	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.0805	J	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	108		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_116.d  
 Lims ID: LLCS 320-140400/2-A  
 Client ID:  
 Sample Type: LLCS  
 Inject. Date: 08-Dec-2016 00:53:25 ALS Bottle#: 3 Worklist Smp#: 37  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcs 320-140400/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:30:17 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.573	17.579	-0.006	1.000	1120294	20.1	696
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.567	-0.009	1.000	1079010	11.2	46909
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	406587	5.71	9673
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.380	-0.012	1.000	263401	2.62	1987
* 5 13C2-PFOA	415.0 > 370.0	20.035	20.047	-0.012		827196	10.0	21631
6 Perfluorooctanoic acid	413.0 > 369.0	20.035	20.047	-0.012	1.000	386392	4.49	248
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	657942	7.94	8766
* 8 13C4 PFOS	503.0 > 80.0	20.655	20.667	-0.012		2275824	28.7	59033
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	367468	3.92	9923
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.471	-0.009	1.000	784265	10.8	24916

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_116.d

Injection Date: 08-Dec-2016 00:53:25

Instrument ID: A6

Lims ID: LLCS 320-140400/2-A

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 37

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

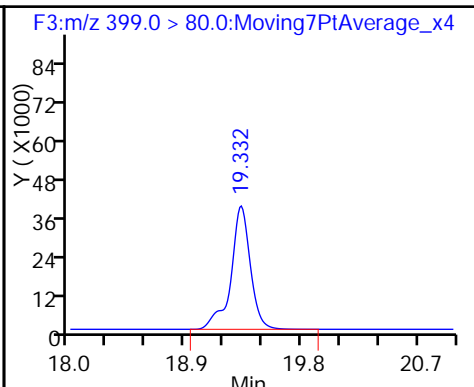
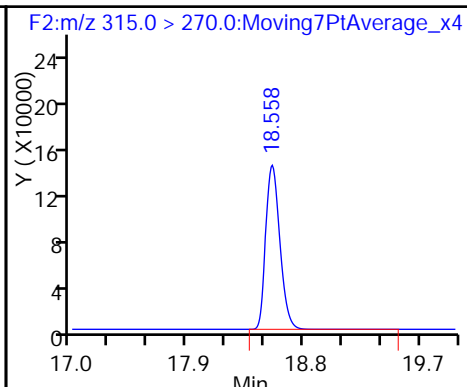
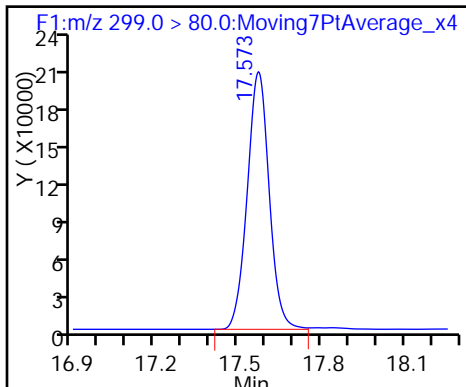
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

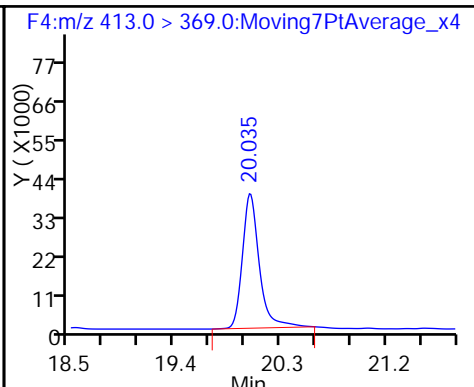
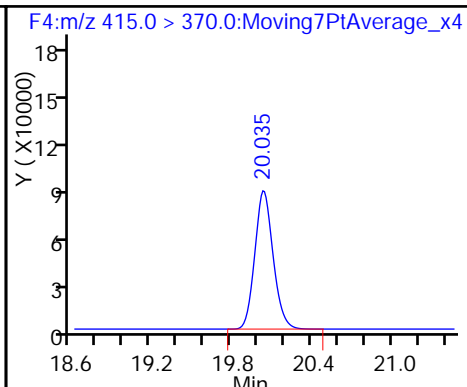
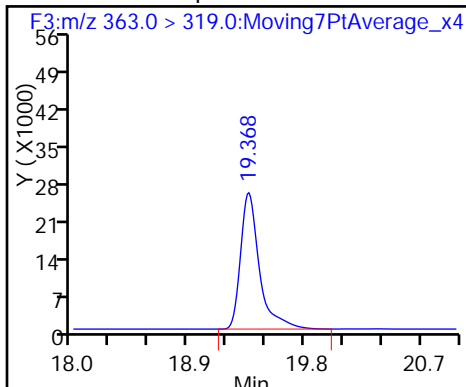
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

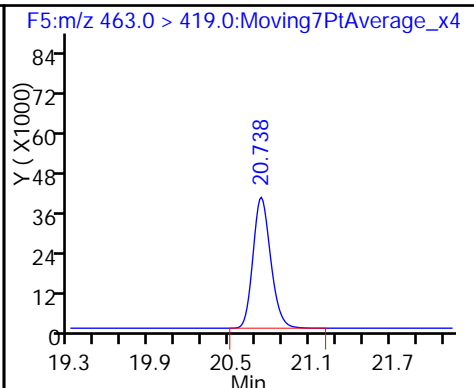
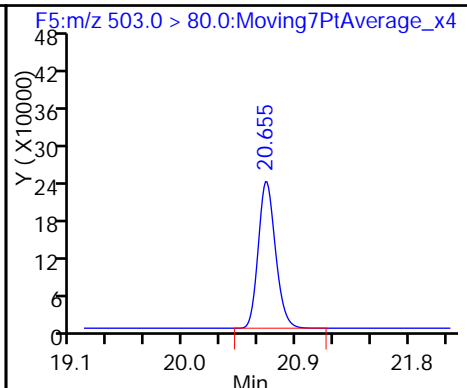
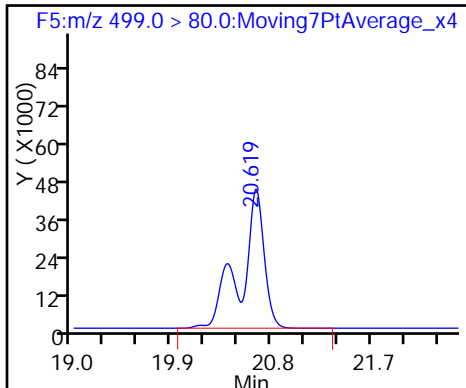
6 Perfluorooctanoic acid



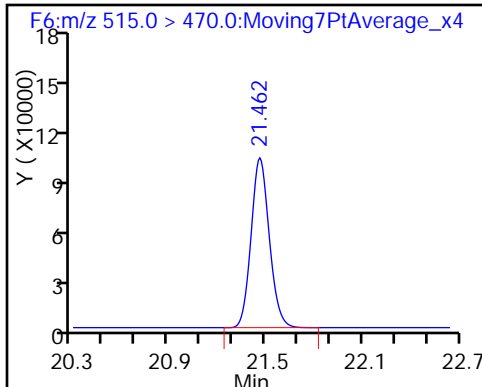
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_116.d  
 Lims ID: LLCS 320-140400/2-A  
 Client ID:  
 Sample Type: LLCS  
 Inject. Date: 08-Dec-2016 00:53:25 ALS Bottle#: 3 Worklist Smp#: 37  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcs 320-140400/2-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:30:17 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: XAWRK014

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	111.82
\$ 10 13C2 PFDA	10.0	10.8	108.20

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LLCSD 320-140400/3-A  
 Matrix: Water Lab File ID: 05DEC2016A6A\_117.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 250 (mL) Date Analyzed: 12/08/2016 01:23  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140946 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.0315	J	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.0185	J	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.0796	J	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_117.d  
 Lims ID: LLCSD 320-140400/3-A  
 Client ID:  
 Sample Type: LLCSD  
 Inject. Date: 08-Dec-2016 01:23:01 ALS Bottle#: 4 Worklist Smp#: 38  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcsd 320-140400/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:30:17 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: XAWRK014

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid	299.0 > 80.0	17.576	17.579	-0.003	1.000	1105089	19.9	879
\$ 2 13C2 PFHxA	315.0 > 270.0	18.558	18.567	-0.009	1.000	1085857	11.2	35333
3 Perfluorohexanesulfonic acid	399.0 > 80.0	19.332	19.332	0.0	1.000	438138	6.17	10252
4 Perfluoroheptanoic acid	363.0 > 319.0	19.368	19.380	-0.012	1.000	273562	2.71	2236
* 5 13C2-PFOA	415.0 > 370.0	20.047	20.047	0.0		830936	10.0	21569
6 Perfluorooctanoic acid	413.0 > 369.0	20.047	20.047	0.0	1.000	398803	4.61	189
7 Perfluorooctane sulfonic acid	499.0 > 80.0	20.619	20.619	0.0	1.000	651554	7.89	8323
* 8 13C4 PFOS	503.0 > 80.0	20.667	20.667	0.0		2269539	28.7	46901
9 Perfluorononanoic acid	463.0 > 419.0	20.738	20.738	0.0	1.000	392806	4.17	20481
\$ 10 13C2 PFDA	515.0 > 470.0	21.462	21.471	-0.009	1.000	785054	10.8	24569

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_117.d

Injection Date: 08-Dec-2016 01:23:01

Instrument ID: A6

Lims ID: LLCSD 320-140400/3-A

Client ID:

Operator ID: CBW

ALS Bottle#: 4

Worklist Smp#: 38

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

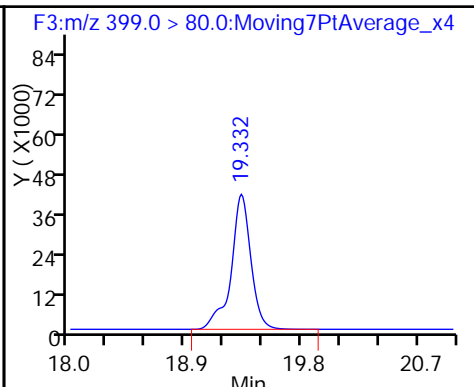
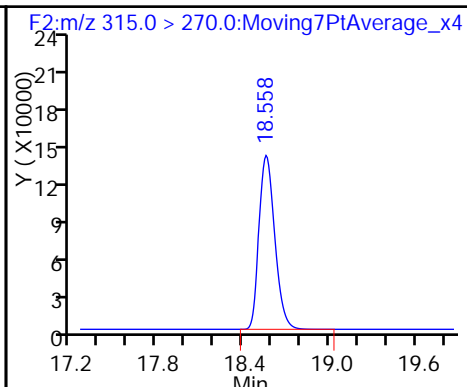
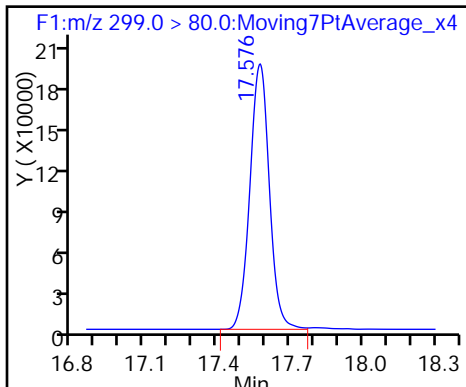
Method: 537\_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

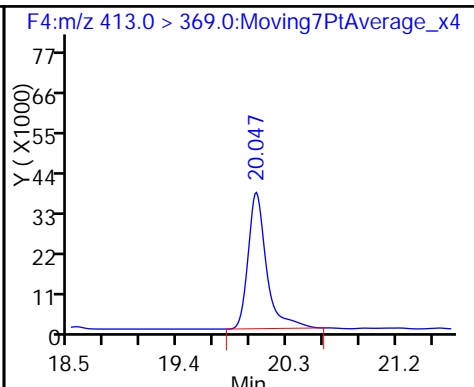
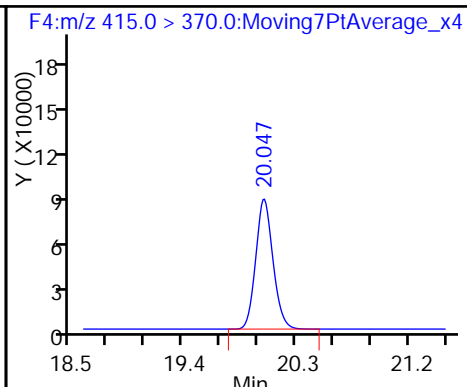
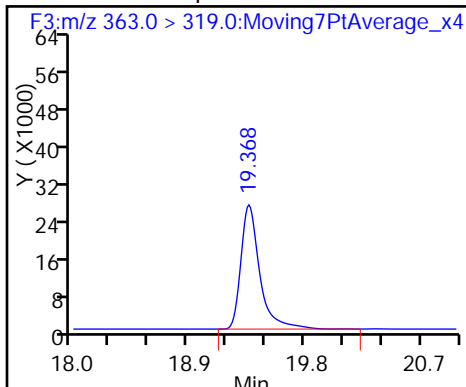
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

\* 5 13C2-PFOA

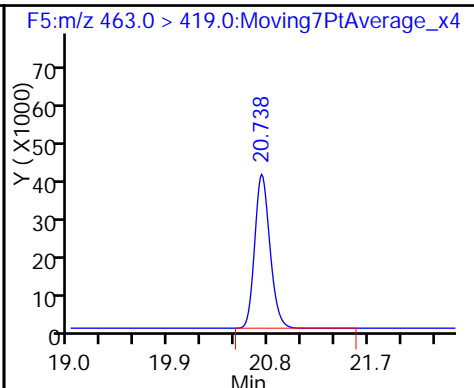
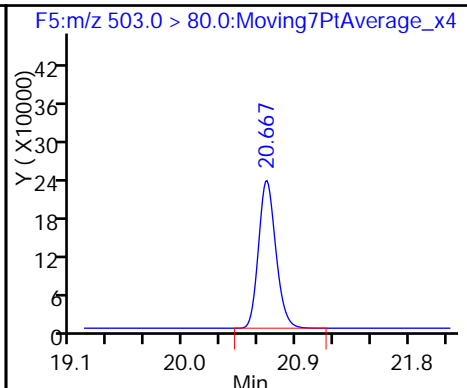
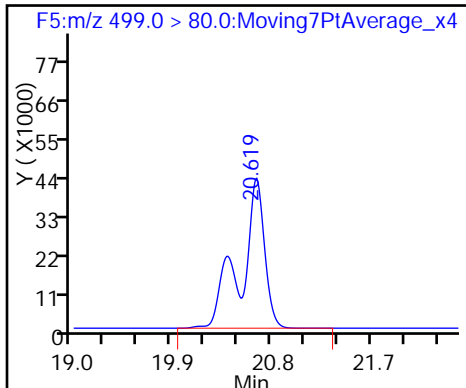
6 Perfluorooctanoic acid



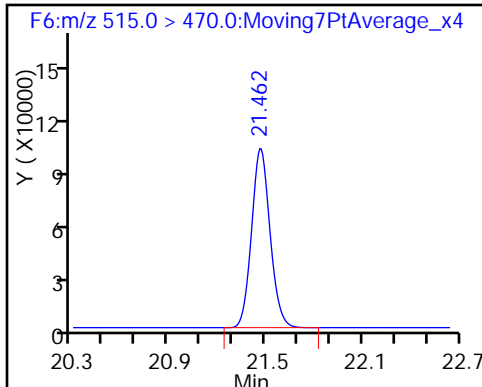
7 Perfluorooctane sulfonic acid

\* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\05DEC2016A6A\_117.d  
 Lims ID: LLCSD 320-140400/3-A  
 Client ID:  
 Sample Type: LLCSD  
 Inject. Date: 08-Dec-2016 01:23:01 ALS Bottle#: 4 Worklist Smp#: 38  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: llcsd 320-140400/3-a  
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35\*C  
 Operator ID: CBW Instrument ID: A6  
 Method: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b\537\_\_A6.m  
 Limit Group: LC 537 ICAL  
 Last Update: 08-Dec-2016 11:30:17 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: XAWRK014

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.2	112.02
\$ 10 13C2 PFDA	10.0	10.8	107.82

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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.: 320-23929-1

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

Instrument ID: A6 Start Date: 12/07/2016 20:56

Analysis Batch Number: 140946 End Date: 12/08/2016 03:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-140946/29 CCVIS		12/07/2016 20:56	1	05DEC2016A6A_10 8.d	Acquity 2.1(mm)
ZZZZZ		12/07/2016 21:26	1		Acquity 2.1(mm)
ZZZZZ		12/07/2016 21:55	1		Acquity 2.1(mm)
ZZZZZ		12/07/2016 22:25	1		Acquity 2.1(mm)
ZZZZZ		12/07/2016 22:54	1		Acquity 2.1(mm)
ZZZZZ		12/07/2016 23:24	1		Acquity 2.1(mm)
ZZZZZ		12/07/2016 23:54	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 00:23	1		Acquity 2.1(mm)
LLCS 320-140400/2-A		12/08/2016 00:53	1	05DEC2016A6A_11 6.d	Acquity 2.1(mm)
LLCSD 320-140400/3-A		12/08/2016 01:23	1	05DEC2016A6A_11 7.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 01:52	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 02:22	1		Acquity 2.1(mm)
CCV 320-140946/42 CCVIS		12/08/2016 03:21	1	05DEC2016A6A_12 1.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Start Date: 12/08/2016 03:21

Analysis Batch Number: 140947 End Date: 12/08/2016 09:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-140947/42 CCVIS		12/08/2016 03:21	1	05DEC2016A6A_12 1.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 03:51	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 04:20	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 04:50	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 05:19	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 05:49	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 06:19	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 06:48	1		Acquity 2.1(mm)
320-23929-1		12/08/2016 07:18	1	05DEC2016A6A_12 9.d	Acquity 2.1(mm)
320-23929-2		12/08/2016 07:47	1	05DEC2016A6A_13 0.d	Acquity 2.1(mm)
320-23929-3		12/08/2016 08:17	1	05DEC2016A6A_13 1.d	Acquity 2.1(mm)
320-23929-4		12/08/2016 08:47	1	05DEC2016A6A_13 2.d	Acquity 2.1(mm)
CCV 320-140947/55 CCVIS		12/08/2016 09:46	1	05DEC2016A6A_13 4.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Start Date: 12/08/2016 09:46

Analysis Batch Number: 140948 End Date: 12/08/2016 12:14

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-140948/55 CCVIS		12/08/2016 09:46	1	05DEC2016A6A_13 4.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 10:15	1		Acquity 2.1(mm)
320-23929-5		12/08/2016 10:45	1	05DEC2016A6A_13 6.d	Acquity 2.1(mm)
320-23929-6		12/08/2016 11:15	1	05DEC2016A6A_13 7.d	Acquity 2.1(mm)
MB 320-140400/1-A		12/08/2016 11:41	1	05DEC2016A6A_13 8.d	Acquity 2.1(mm)
CCV 320-140948/101 CCVIS		12/08/2016 12:14	1	05DEC2016A6A_13 9.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Start Date: 12/08/2016 12:14

Analysis Batch Number: 141249 End Date: 12/08/2016 18:35

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-141249/101 CCVIS		12/08/2016 12:14	1	05DEC2016A6A_13 9.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 12:43	1		Acquity 2.1(mm)
320-23929-7		12/08/2016 13:19	1	05DEC2016A6A_14 1.d	Acquity 2.1(mm)
320-23929-8		12/08/2016 13:48	1	05DEC2016A6A_14 2.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 14:18	1		Acquity 2.1(mm)
320-23929-10		12/08/2016 14:47	1	05DEC2016A6A_14 4.d	Acquity 2.1(mm)
ZZZZZ		12/08/2016 15:17	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 15:44	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 16:35	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 17:06	1		Acquity 2.1(mm)
ZZZZZ		12/08/2016 17:36	1		Acquity 2.1(mm)
CCV 320-141249/68 CCVIS		12/08/2016 18:35	1	05DEC2016A6A_15 1.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Instrument ID: A6 Start Date: 12/09/2016 07:25

Analysis Batch Number: 141290 End Date: 12/09/2016 14:33

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-141290/2 CCVIS		12/09/2016 07:25	1	05DEC2016A6A_17 7.d	Acquity 2.1(mm)
ZZZZZ		12/09/2016 08:29	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 09:00	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 09:30	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 10:00	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 10:29	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 11:28	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 11:58	1		Acquity 2.1(mm)
ZZZZZ		12/09/2016 12:28	1		Acquity 2.1(mm)
320-23929-9		12/09/2016 13:34	1	05DEC2016A6A_18 8.d	Acquity 2.1(mm)
CCV 320-141290/15 CCVIS		12/09/2016 14:33	1	05DEC2016A6A_19 0.d	Acquity 2.1(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1

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

Batch Number: 140400 Batch Start Date: 12/02/16 15:24 Batch Analyst: Marchenko, Veronika P

Batch Method: 537 Batch End Date: 12/03/16 18:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00025
MB 320-140400/1		537, 537				250 mL	1 mL	7 SU	20 uL
LLCS 320-140400/2		537, 537				250 mL	1 mL	7 SU	20 uL
LLCSD 320-140400/3		537, 537				250 mL	1 mL	7 SU	20 uL
320-23929-A-1	WI-AF-1RW01-1116	537, 537	T	284.94 g	27.41 g	257.5 mL	1 mL	9 SU	20 uL
320-23929-A-2	WI-AF-1FB01-1116	537, 537	T	279.62 g	26.14 g	253.5 mL	1 mL	9 SU	20 uL
320-23929-A-3	WI-AF-2RW01-1116	537, 537	T	284.03 g	27.38 g	256.7 mL	1 mL	9 SU	20 uL
320-23929-A-4	WI-AF-2FB01-1116	537, 537	T	285.07 g	26.77 g	258.3 mL	1 mL	9 SU	20 uL
320-23929-A-5	WI-AF-3RW02-1116	537, 537	T	279.04 g	27.22 g	251.8 mL	1 mL	9 SU	20 uL
320-23929-A-6	WI-AF-3FB02-1116	537, 537	T	285.91 g	26.90 g	259 mL	1 mL	9 SU	20 uL
320-23929-A-7	WI-AF-3RW01-1116	537, 537	T	281.98 g	27.51 g	254.5 mL	1 mL	9 SU	20 uL
320-23929-A-8	WI-AF-3FB01-1116	537, 537	T	283.53 g	26.13 g	257.4 mL	1 mL	9 SU	20 uL
320-23929-A-9	WI-AF-3RW03-1116	537, 537	T	281.97 g	27.32 g	254.7 mL	1 mL	9 SU	20 uL
320-23929-A-10	WI-AF-3FB03-1116	537, 537	T	280.22 g	26.82 g	253.4 mL	1 mL	9 SU	20 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00016	LC537-SU 00022	AnalysisComment			
MB 320-140400/1		537, 537			50 uL	Chlorine ND			
LLCS 320-140400/2		537, 537		50 uL	50 uL	Chlorine ND			
LLCSD 320-140400/3		537, 537		50 uL	50 uL	Chlorine ND			
320-23929-A-1	WI-AF-1RW01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-2	WI-AF-1FB01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-3	WI-AF-2RW01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-4	WI-AF-2FB01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-5	WI-AF-3RW02-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-6	WI-AF-3FB02-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-7	WI-AF-3RW01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-8	WI-AF-3FB01-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-9	WI-AF-3RW03-1116	537, 537	T		50 uL	Chlorine ND			
320-23929-A-10	WI-AF-3FB03-1116	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.: 320-23929-1

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

Batch Number: 140400 Batch Start Date: 12/02/16 15:24

Batch Analyst: Marchenko, Veronika P

Batch Method: 537 Batch End Date: 12/03/16 18:10

Batch Notes	
Manifold ID	1,3
Methanol ID	789821
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	NSH
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6332578-03
Trizma ID	SLBN2122V
Reagent Water ID	12-02-16

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.

A6

Job No: 23929 Instrument ID & Date: 12-8-16 ICAL Batch: 140688  
 Extraction Batch: 140400 Worklist #: 37576 TALS Batch: 140947, 140948, 141249, 141290

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 12-9-16 2<sup>nd</sup> Level Reviewer / Date: SEL 12/9/16

NCM # and Comments: 72423

Result for 23929-9 is in batch 141290.



Instrument ID & Date: AL6 12-5-16 Worklist#: 37524

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

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
<b>Initial Calibration</b>				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x <sup>2</sup> )Linear Quadratic (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R <sup>2</sup> ≥ 0.990 for Linear R <sup>2</sup> ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 <sup>nd</sup> source) ± 30% of true value?	✓			✓
11. Is ICV (2 <sup>nd</sup> source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			✓
13. ICAL locked in TALS and scanned?				✓

1<sup>st</sup> Level Reviewer / Date: JRB 12-6-16

2<sup>nd</sup> Level Reviewer / Date: R. [Signature] 12/7/16

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

## TestAmerica Laboratories

## Worklist QC Batch Report

Worklist Name: 06DEC2016C\_A6 537

Worklist Number: 37576

Instrument Name: A6

Chrom Method: 537\_\_A6

Data Directory: \\ChromNA\Sacramento\ChromData\A6\20161207-37576.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 140943
# 1 RB	# 1 RB
# 2 CCV L3	# 2 CCV L3
# 3 RB	# 3 RB
# 4 RB	# 4 RB
# 5 MB 320-140280/1-A	# 5 MB 320-140280/1-A
# 6 LCS 320-140280/2-A	# 6 LCS 320-140280/2-A
# 7 LCSD 320-140280/3-A	# 7 LCSD 320-140280/3-A
# 8 320-23917-A-1-A	# 8 320-23917-A-1-A
# 9 320-23917-A-2-A	# 9 320-23917-A-2-A
#10 320-23917-A-3-A	#10 320-23917-A-3-A
#11 320-23917-A-4-A	#11 320-23917-A-4-A
#12 320-23917-A-5-A	#12 320-23917-A-5-A
#13 320-23917-A-6-A	#13 320-23917-A-6-A
#14 320-23917-A-1-A	#14 320-23917-A-1-A
#15 RB	#15 RB
#16 CCV L5	#16 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 140945
#16 CCV L5	#16 CCV L5
#17 RB	#17 RB
#18 320-23917-A-7-A	#18 320-23917-A-7-A
#19 320-23917-A-8-A	#19 320-23917-A-8-A
#20 320-23917-A-9-A	#20 320-23917-A-9-A
#21 320-23917-A-10-A	#21 320-23917-A-10-A
#22 320-23917-A-11-A	#22 320-23917-A-11-A
#23 320-23917-A-12-A	#23 320-23917-A-12-A
#24 320-23917-A-13-A	#24 320-23917-A-13-A
#25 320-23917-A-14-A	#25 320-23917-A-14-A
#26 320-23917-A-15-A	#26 320-23917-A-15-A
#27 320-23917-A-13-A	#27 320-23917-A-13-A
#28 RB	#28 RB
#29 CCV L3	#29 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 140946
#29 CCV L3	#29 CCV L3
#30 RB	#30 RB
#31 320-23917-A-16-A	#31 320-23917-A-16-A
#32 320-23917-A-17-A	#32 320-23917-A-17-A
#33 320-23917-A-18-A	#33 320-23917-A-18-A
#34 320-23917-A-19-A	#34 320-23917-A-19-A
#35 320-23917-A-20-A	#35 320-23917-A-20-A
#36 MB 320-140400/1-A	#36 MB 320-140400/1-A
#37 LLCS 320-140400/2-A	#37 LLCS 320-140400/2-A
#38 LLCSD 320-140400/3-A	#38 LLCSD 320-140400/3-A
#39 320-23917-A-21-A	#39 320-23917-A-21-A
#40 320-23917-A-22-A	#40 320-23917-A-22-A
#41 RB	#41 RB
#42 CCV L5	#42 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 140947
#42 CCV L5	#42 CCV L5
#43 RB	#43 RB
#44 320-23917-A-23-A	#44 320-23917-A-23-A
#45 320-23917-A-24-A	#45 320-23917-A-24-A
#46 320-23917-A-25-A	#46 320-23917-A-25-A
#47 320-23917-A-26-A	#47 320-23917-A-26-A
#48 320-23917-A-27-A	#48 320-23917-A-27-A
#49 320-23917-A-28-A	#49 320-23917-A-28-A
#50 320-23929-A-1-A	#50 320-23929-A-1-A
#51 320-23929-A-2-A	#51 320-23929-A-2-A
#52 320-23929-A-3-A	#52 320-23929-A-3-A
#53 320-23929-A-4-A	#53 320-23929-A-4-A
#54 RB	#54 RB
#55 CCV L3	#55 CCV L3

QC Batch: 5	LC 537 ICAL Raw Batch: 140948
#55 CCV L3	#55 CCV L3
#56 RB	#56 RB
#57 320-23929-A-5-A	#57 320-23929-A-5-A
#58 320-23929-A-6-A	#58 320-23929-A-6-A
#100 MB 320-140400/1-A	#100 MB 320-140400/1-A
#101 CCV L3	#101 CCV L3

QC Batch: 6	LC 537 ICAL Raw Batch: 141249
#101 CCV L3	#101 CCV L3
#102 RB	#102 RB
#59 320-23929-A-7-A	#59 320-23929-A-7-A
#60 320-23929-A-8-A	#60 320-23929-A-8-A
#61 320-23929-A-9-A	#61 320-23929-A-9-A
#62 320-23929-A-10-A	#62 320-23929-A-10-A
#63 320-23919-A-1-A	#63 320-23919-A-1-A
#64 320-23919-A-2-A	#64 320-23919-A-2-A
#103 320-23929-A-6-A	#103 320-23929-A-6-A
#65 MB 320-140409/1-A	#65 MB 320-140409/1-A
#66 LCS 320-140409/2-A	#66 LCS 320-140409/2-A
#67 RB	#67 RB
#68 CCV L5	#68 CCV L5

IS out. Was rerun in batch 141290  
 Confirms high surrogate recovery

QC Batch: 7	LC 537 ICAL Raw Batch: 140949
#68 CCV L5	#68 CCV L5
#69 RB	#69 RB
#70 LCSD 320-140409/3-A	#70 LCSD 320-140409/3-A
#71 320-23919-A-3-A	#71 320-23919-A-3-A
#72 320-23919-A-4-A	#72 320-23919-A-4-A
#73 320-23919-A-5-A	#73 320-23919-A-5-A
#74 320-23919-A-6-A	#74 320-23919-A-6-A
#75 320-23919-A-7-A	#75 320-23919-A-7-A
#76 320-23919-A-8-A	#76 320-23919-A-8-A
#77 320-23919-A-9-A	#77 320-23919-A-9-A
#78 320-23919-A-10-A	#78 320-23919-A-10-A
#79 320-23919-A-11-A	#79 320-23919-A-11-A
#80 RB	#80 RB
#81 CCV L3	#81 CCV L3

QC Batch: 8	LC 537 ICAL Raw Batch: 140950
#81 CCV L3	#81 CCV L3
#82 RB	#82 RB
#83 320-23919-A-12-A	#83 320-23919-A-12-A
#84 320-23919-A-13-A	#84 320-23919-A-13-A
#85 320-23919-A-14-A	#85 320-23919-A-14-A
#86 320-23919-A-15-A	#86 320-23919-A-15-A
#87 320-23919-A-16-A	#87 320-23919-A-16-A
#88 320-23919-A-17-A	#88 320-23919-A-17-A
#89 320-23919-A-18-A	#89 320-23919-A-18-A
#90 320-23919-A-19-A	#90 320-23919-A-19-A
#91 320-23919-A-20-A	#91 320-23919-A-20-A
#92 320-23919-A-13-A	#92 320-23919-A-13-A
#93 RB	#93 RB
#94 CCV L5	#94 CCV L5
#95 RB	#95 RB

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 09DEC2016A\_A6 537      Worklist Number: 37652  
 Instrument Name: A6      Chrom Method: 537\_A6  
 Data Directory: \\ChromNA\Sacramento\ChromData\A6\20161208-37652.b  
 QC Batching: Enabled      Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 141290
# 1 RB	# 1 RB
# 2 CCV L5	# 2 CCV L5
# 3 RB	# 3 RB
# 4 320-23919-A-21-A	# 4 320-23919-A-21-A
# 5 320-23919-A-22-A	# 5 320-23919-A-22-A
# 6 MB 320-140094/1-A	# 6 MB 320-140094/1-A
# 7 LCS 320-140094/2-A	# 7 LCS 320-140094/2-A
# 8 LCSD 320-140094/3-A	# 8 LCSD 320-140094/3-A
# 9 wrong sample	# 9 wrong sample
#10 320-23681-B-1-A	#10 320-23681-B-1-A
#11 320-23681-B-4-A	#11 320-23681-B-4-A
#12 320-23681-B-7-A	#12 320-23681-B-7-A
#13 320-23929-A-9-A	#13 320-23929-A-9-A
#14 RB	#14 RB
#15 CCV L3	#15 CCV L3

re-run. I.S. OK.

QC Batch: 2	LC 537 ICAL Raw Batch: 141291
#15 CCV L3	#15 CCV L3
#16 RB	#16 RB
#17 320-23681-B-10-A	#17 320-23681-B-10-A
#18 320-23693-B-1-A	#18 320-23693-B-1-A
#19 320-23693-B-4-A	#19 320-23693-B-4-A
#20 320-23693-B-7-A	#20 320-23693-B-7-A
#21 MB 320-140442/1-A	#21 MB 320-140442/1-A
#22 LCS 320-140442/2-A	#22 LCS 320-140442/2-A
#23 320-23919-A-23-A	#23 320-23919-A-23-A
#24 320-23919-A-24-A	#24 320-23919-A-24-A
#25 320-23919-A-25-A	#25 320-23919-A-25-A
#26 320-23919-A-26-A	#26 320-23919-A-26-A
#27 RB	#27 RB
#28 CCV L5	#28 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 141292
#28 CCV L5	#28 CCV L5
#29 RB	#29 RB
#30 320-23919-A-27-A	#30 320-23919-A-27-A
#31 320-23919-A-28-A	#31 320-23919-A-28-A
#32 320-23919-A-29-A	#32 320-23919-A-29-A
#33 320-23919-A-30-A	#33 320-23919-A-30-A
#34 320-23928-A-1-A	#34 320-23928-A-1-A
#35 320-23928-A-2-A	#35 320-23928-A-2-A
#36 320-23928-A-3-A	#36 320-23928-A-3-A
#37 320-23928-A-4-A	#37 320-23928-A-4-A
#38 320-23928-A-5-A	#38 320-23928-A-5-A
#39 320-23928-A-6-A	#39 320-23928-A-6-A
#40 RB	#40 RB
#41 CCV L3	#41 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 141293
#41 CCV L3	#41 CCV L3
#42 RB	#42 RB
#43 320-23928-A-7-A	#43 320-23928-A-7-A
#44 320-23928-A-3-A	#44 320-23928-A-3-A
#45 320-23928-A-8-A	#45 320-23928-A-8-A
#46 320-23928-A-9-A	#46 320-23928-A-9-A
#47 320-23928-A-9-B MS	#47 320-23928-A-9-B MS
#48 320-23928-A-9-C MSD	#48 320-23928-A-9-C MSD
#49 320-23928-A-10-A	#49 320-23928-A-10-A
#50 320-23928-A-11-A	#50 320-23928-A-11-A
#51 320-23928-A-12-A	#51 320-23928-A-12-A
#52 MB 320-140478/1-A	#52 MB 320-140478/1-A
#53 RB	#53 RB
#54 CCV L5	#54 CCV L5

QC Batch: 5	LC 537 ICAL Raw Batch: 141294
#54 CCV L5	#54 CCV L5
#55 RB	#55 RB
#56 LLCS 320-140478/2-A	#56 LLCS 320-140478/2-A
#57 320-23928-A-13-A	#57 320-23928-A-13-A
#58 320-23928-A-13-A	#58 320-23928-A-13-A
#59 320-23928-A-14-A	#59 320-23928-A-14-A
#60 320-23928-A-15-A	#60 320-23928-A-15-A
#61 320-23928-A-16-A	#61 320-23928-A-16-A
#62 320-23928-A-17-A	#62 320-23928-A-17-A
#63 320-23928-A-18-A	#63 320-23928-A-18-A
#64 320-23928-A-19-A	#64 320-23928-A-19-A
#65 320-23928-A-20-A	#65 320-23928-A-20-A
#66 RB	#66 RB
#67 CCV L3	#67 CCV L3

QC Batch: 6	LC 537 ICAL Raw Batch: 141295
#67 CCV L3	#67 CCV L3
#68 RB	#68 RB
#69 320-23928-A-21-A	#69 320-23928-A-21-A
#70 320-23928-A-22-A	#70 320-23928-A-22-A
#71 320-23928-A-23-A	#71 320-23928-A-23-A
#72 320-23928-A-24-A	#72 320-23928-A-24-A
#73 320-23928-A-25-A	#73 320-23928-A-25-A
#74 320-23928-A-25-D MS	#74 320-23928-A-25-D MS
#75 320-23928-A-25-E MSD	#75 320-23928-A-25-E MSD
#76 320-23928-A-26-A	#76 320-23928-A-26-A
#77 320-23928-A-28-A	#77 320-23928-A-28-A
#78 RB	#78 RB
#79 CCV L5	#79 CCV L5

QC Batch: 7	LC 537 ICAL Raw Batch: 141475
#79 CCV L5	#79 CCV L5
#80 RB	#80 RB
#81 320-23928-A-27-A	#81 320-23928-A-27-A
#82 320-23928-A-27-D MS	#82 320-23928-A-27-D MS
#83 320-23928-A-27-E MSD	#83 320-23928-A-27-E MSD
#84 320-23928-A-27-A	#84 320-23928-A-27-A
#85 320-23928-A-27-D MS	#85 320-23928-A-27-D MS
#86 320-23928-A-27-E MSD	#86 320-23928-A-27-E MSD
#87 RB	#87 RB

QC Batch: 7	LC 537 ICAL Raw Batch: 141475
#88 CCV L3 #89 RB	#88 CCV L3 #89 RB

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140400

Analyst: Marchenko, Veronika P











Batch Open: 12/2/2016 3:24:00PM

Method Code: 320-537\_Prep-320

Batch End: 12-3-16 18:10 PM

## Extraction of Perfluorinated Alkyl Acids

*Screened A4 12/3/16*

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1					
1 MB-320-140400/1 N/A	N/A		250 mL 1 mL	7		N/A	N/A	N/A	Chlorine ND	
2 LLCS-320-140400/2 N/A	N/A		250 mL 1 mL	7		N/A	N/A	N/A	Chlorine ND	
3 LLCSD-320-140400/3 N/A	N/A		250 mL 1 mL	7		N/A	N/A	N/A	Chlorine ND	
4 320-23917-A-21 (537_DOD5)	N/A (320-23917-1)	283.91 g 27.51 g	256.4 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
5 320-23917-A-22 (537_DOD5)	N/A (320-23917-1)	282.00 g 26.11 g	255.9 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
6 320-23917-A-23 (537_DOD5)	N/A (320-23917-1)	277.74 g 27.59 g	250.2 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
7 320-23917-A-24 (537_DOD5)	N/A (320-23917-1)	285.57 g 26.16 g	259.4 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
8 320-23917-A-25 (537_DOD5)	N/A (320-23917-1)	285.97 g 27.57 g	258.4 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
9 320-23917-A-26 (537_DOD5)	N/A (320-23917-1)	287.86 g 26.73 g	261.1 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	
10 320-23917-A-27 (537_DOD5)	N/A (320-23917-1)	278.61 g 26.80 g	251.8 mL 1 mL	9		12/5/16	5_Days	4	Chlorine ND	



# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140400

Analyst: Marchenko, Veronika P

Batch Open: 12/2/2016 3:24:00PM

Method Code: 320-537\_Prep-320

Batch End:

Sample ID	Weight (g)	Volume (mL)	9	12/5/16	5_Days	Chlorine ND	Barcode
320-23917-A-28 (537_DOD5)	287.29 g 26.29 g	261 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23917-A-28-A
320-23929-A-1 (537_DOD5)	284.94 g 27.41 g	257.5 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-1-A
320-23929-A-2 (537_DOD5)	279.62 g 26.14 g	253.5 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-2-A
320-23929-A-3 (537_DOD5)	284.03 g 27.38 g	256.7 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-3-A
320-23929-A-4 (537_DOD5)	285.07 g 26.77 g	258.3 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-4-A
320-23929-A-5 (537_DOD5)	279.04 g 27.22 g	251.8 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-5-A
320-23929-A-6 (537_DOD5)	285.91 g 26.90 g	259 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-6-A
320-23929-A-7 (537_DOD5)	281.98 g 27.51 g	254.5 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-7-A
320-23929-A-8 (537_DOD5)	283.53 g 26.13 g	257.4 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-8-A
320-23929-A-9 (537_DOD5)	281.97 g 27.32 g	254.7 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-9-A
320-23929-A-10 (537_DOD5)	280.22 g 26.82 g	253.4 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23929-A-10-A
320-23919-A-1 (537_DOD5)	282.15 g 27.77 g	254.4 mL 1 mL	9	12/5/16	5_Days	Chlorine ND	320-23919-A-1-A

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140400

Analyst: Marchenko, Veronika P

Batch Open: 12/2/2016 3:24:00PM

Method Code: 320-537\_Prep-320

Batch End:

320-23919-A-2 (537_DOD5)	N/A (320-23919-1)	284.16 g	257.4 mL	9	12/5/16	5_Days	4	Chlorine ND
		26.81 g	1 mL					



Batch Notes	
Manifold ID 1,3	
Trizma ID SLBN2122V	
SPE Cartridge ID 6332578-03	
Methanol ID 789821	
Reagent Water ID 12-02-16	
Pipette ID MD05306	
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	VPM (791602) 20ul exp. 3/19/17
Analyst ID - IS Reagent Drop Witness	NSH
Batch Comment	NA

Comments	

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140400

Analyst: Marchenko, Veronika P

Batch Open: 12/2/2016 3:24:00PM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-140400/1	LC537-SU_00022	50 uL	1 mL	VPM 12-02-16	KMK 12-2-16
LLCS 320-140400/2	LC537-LSP_00016	50 uL	1 mL		
LLCS 320-140400/2	LC537-SU_00022	50 uL	1 mL		
LLCSD 320-140400/3	LC537-LSP_00016	50 uL	1 mL		
LLCSD 320-140400/3	LC537-SU_00022	50 uL	1 mL		
320-23917-A-21	LC537-SU_00022	50 uL	1 mL		
320-23917-A-22	LC537-SU_00022	50 uL	1 mL		
320-23917-A-23	LC537-SU_00022	50 uL	1 mL		
320-23917-A-24	LC537-SU_00022	50 uL	1 mL		
320-23917-A-25	LC537-SU_00022	50 uL	1 mL		
320-23917-A-26	LC537-SU_00022	50 uL	1 mL		
320-23917-A-27	LC537-SU_00022	50 uL	1 mL		
320-23917-A-28	LC537-SU_00022	50 uL	1 mL		
320-23929-A-1	LC537-SU_00022	50 uL	1 mL		
320-23929-A-2	LC537-SU_00022	50 uL	1 mL		
320-23929-A-3	LC537-SU_00022	50 uL	1 mL		
320-23929-A-4	LC537-SU_00022	50 uL	1 mL		
320-23929-A-5	LC537-SU_00022	50 uL	1 mL		

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-140400

Analyst: Marchenko, Veronika P

Batch Open: 12/2/2016 3:24:00PM

Method Code: 320-537\_Prep-320

Batch End:

320-23929-A-6	LC537-SU_00022	50 uL	1 mL	VPM 12-02-16	EMK 12-2-16
320-23929-A-7	LC537-SU_00022	50 uL	1 mL		
320-23929-A-8	LC537-SU_00022	50 uL	1 mL		
320-23929-A-9	LC537-SU_00022	50 uL	1 mL		
320-23929-A-10	LC537-SU_00022	50 uL	1 mL		
320-23919-A-1	LC537-SU_00022	50 uL	1 mL		
320-23919-A-2	LC537-SU_00022	50 uL	1 mL		

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 140400

Test: 537-0005 - Push

Earliest Holding Time: 12/12/16

<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: 12/03/16

2<sup>nd</sup> Level Reviewer: NSH

Date: 12-03-16

Comments: \_\_\_\_\_

# Shipping and Receiving Documents

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact: Tiffany Hill  
Project Manager: Katie Tippin  
Tel/Fax: (757) 671-6258

Site Contact: Eric Epple  
Lab Contact: Laura Turpen

Date: 11/ 2016  
Carrier: FedEx

COC No: 1  
of COCs

Project Chemist: 1100 NE Circle Blvd Ste 300 Corvallis, OR 97330  
(541) 768-3109  
(541) 908-3794  
Project Name: CTO-08  
Site: NAS Windibey Island  
P O #: 100067106050 - 679580.06 F.L.F.S.

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

Filtered Sample (Y / N)  
Perform MS / MSD (Y / N)  
USEPA Method 537 (PFOA, PFOS, and PFBS)

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

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	USEPA Method 537 (PFOA, PFOS, and PFBS)
WI-AF-1RW01-1116	11/28/16	1415	G	DW	2	N	N	X
WI-AE-1FB01-1116	11/28/16	1420	G	DW	1	N	N	X
WI-AF-2RW01-1116	11/28/16	1615	G	DW	2	N	N	X
WI-AF-2FB01-1116	11/28/16	1620	G	DW	2	N	N	X
WI-AF-3RW02-1116	11/28/16	1425	G	DW	2	N	N	X
WI-AF-3FB02-1116	11/28/16	1426	G	DW	2	N	N	X
WI-AF-3RW01-1116	11/28/16	1350	G	DW	2	N	N	X
WI-AF-3FB01-1116	11/28/16	1351	G	DW	2	N	N	X
WI-AF-3RW03-1116	11/28/16	1700	G	DW	2	N	N	X
WI-AF-3FB03-1116	11/28/16	1700	G	DW	2	N	N	X



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.

Special Instructions/QC Requirements & Comments:  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seals Intact:  Yes  No  
Cooler Temp. (C): Obs'd: 1.0 Cor'd: 0.7 Therm ID No.: 12

Relinquished by: Eric Epple Company: CH2M Date/Time: 11-24-16/1600 Received by: [Signature] Company: STARS Date/Time: 12-1-16 950

Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received in Laboratory by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

\* bottle label time is 1701 on 12/1/16

# Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-23929-1

**Login Number: 23929**

**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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	







**DATA VALIDATION SUMMARY REPORT  
WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon  
 SDG: 320-23929  
 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-1RW01-1116	320-23929-1	Water
2	WI-AF-1FB01-1116	320-23929-2	Water
3	WI-AF-2RW01-1116	320-23929-3	Water
4	WI-AF-2FB01-1116	320-23929-4	Water
5	WI-AF-3RW02-1116	320-23929-5	Water
6	WI-AF-3FB02-1116	320-23929-6	Water
7	WI-AF-3RW01-1116	320-23929-7	Water
8	WI-AF-3FB01-1116	320-23929-8	Water
9	WI-AF-3RW03-1116	320-23929-9	Water
10	WI-AF-3FB03-1116	320-23929-10	Water

A full data validation was performed on the analytical data for five water samples and five aqueous field blank samples collected on November 28, 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 (LCS)/Laboratory Control Sample Duplicate recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

### **Data Usability Assessment**

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

### **Perfluorinated Compounds (PFCs)**

### **Data Completeness, Case Narrative & Custody Documentation**

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

### **Holding Times**

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

### **GC/MS Tuning**

- All criteria were met.

### Initial Calibration

- All 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

- The field blank samples were free of contamination.

### Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values except for the following.

Sample ID	Surrogate	%R	Qualifier
6	13C2-PFDA	134%	None - Sample ND

### 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

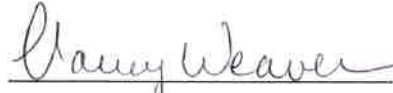
- All criteria were met. No action was required.

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  
Senior Chemist

Dated: 12/21/16

<b>Data Qualifier</b>	<b>Definition</b>
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.





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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-1RW01-1116 Lab Sample ID: 320-23929-1  
 Matrix: Water Lab File ID: 05DEC2016A6A\_129.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:15  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 257.5(mL) Date Analyzed: 12/08/2016 07:18  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U <del>M</del>	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	113		70-130
STL00996	13C2 PFDA	111		70-130

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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-1FB01-1116 Lab Sample ID: 320-23929-2  
 Matrix: Water Lab File ID: 05DEC2016A6A\_130.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:20  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 253.5(mL) Date Analyzed: 12/08/2016 07:47  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 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)	0.024	U	0.030	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	119		70-130
STL00996	13C2 PFDA	117		70-130

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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2RW01-1116 Lab Sample ID: 320-23929-3  
 Matrix: Water Lab File ID: 05DEC2016A6A\_131.d  
 Analysis Method: 537 Date Collected: 11/28/2016 16:15  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 256.7(mL) Date Analyzed: 12/08/2016 08:17  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U <del>N</del>	0.058	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	113		70-130
STL00996	13C2 PFDA	103		70-130

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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-2FB01-1116 Lab Sample ID: 320-23929-4  
 Matrix: Water Lab File ID: 05DEC2016A6A\_132.d  
 Analysis Method: 537 Date Collected: 11/28/2016 16:20  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 258.3(mL) Date Analyzed: 12/08/2016 08:47  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140947 Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	107		70-130

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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW02-1116 Lab Sample ID: 320-23929-5  
 Matrix: Water Lab File ID: 05DEC2016A6A\_136.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:25  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 251.8(mL) Date Analyzed: 12/08/2016 10:45  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140948 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.048	U <del>M</del>	0.060	0.048	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U <del>N</del>	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	76		70-130
STL00996	13C2 PFDA	81		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB02-1116 Lab Sample ID: 320-23929-6  
 Matrix: Water Lab File ID: 05DEC2016A6A\_137.d  
 Analysis Method: 537 Date Collected: 11/28/2016 14:26  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 259(mL) Date Analyzed: 12/08/2016 11:15  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 140948 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U <del>M</del>	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U <del>M</del>	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	128		70-130
STL00996	13C2 PFDA	134	Q	70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3RW01-1116 Lab Sample ID: 320-23929-7  
 Matrix: Water Lab File ID: 05DEC2016A6A\_141.d  
 Analysis Method: 537 Date Collected: 11/28/2016 13:50  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 254.5(mL) Date Analyzed: 12/08/2016 13:19  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U <del>M</del>	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U <del>M</del>	0.029	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	120		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB01-1116 Lab Sample ID: 320-23929-8  
 Matrix: Water Lab File ID: 05DEC2016A6A\_142.d  
 Analysis Method: 537 Date Collected: 11/28/2016 13:51  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 257.4 (mL) Date Analyzed: 12/08/2016 13:48  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U <del>N</del>	0.058	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U <del>N</del>	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	106		70-130
STL00996	13C2 PFDA	110		70-130



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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-23929-1</u>
SDG No.: _____	
Client Sample ID: <u>WI-AF-3RW03-1116</u>	Lab Sample ID: <u>320-23929-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>05DEC2016A6A_188.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>11/28/2016 17:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>12/02/2016 15:27</u>
Sample wt/vol: <u>254.7 (mL)</u>	Date Analyzed: <u>12/09/2016 13:34</u>
Con. Extract Vol.: <u>1 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>10 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: <u>(Y/N) N</u>
Analysis Batch No.: <u>141290</u>	Units: <u>ug/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U <del>M</del>	0.059	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U <del>M</del>	0.029	0.024	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	122		70-130

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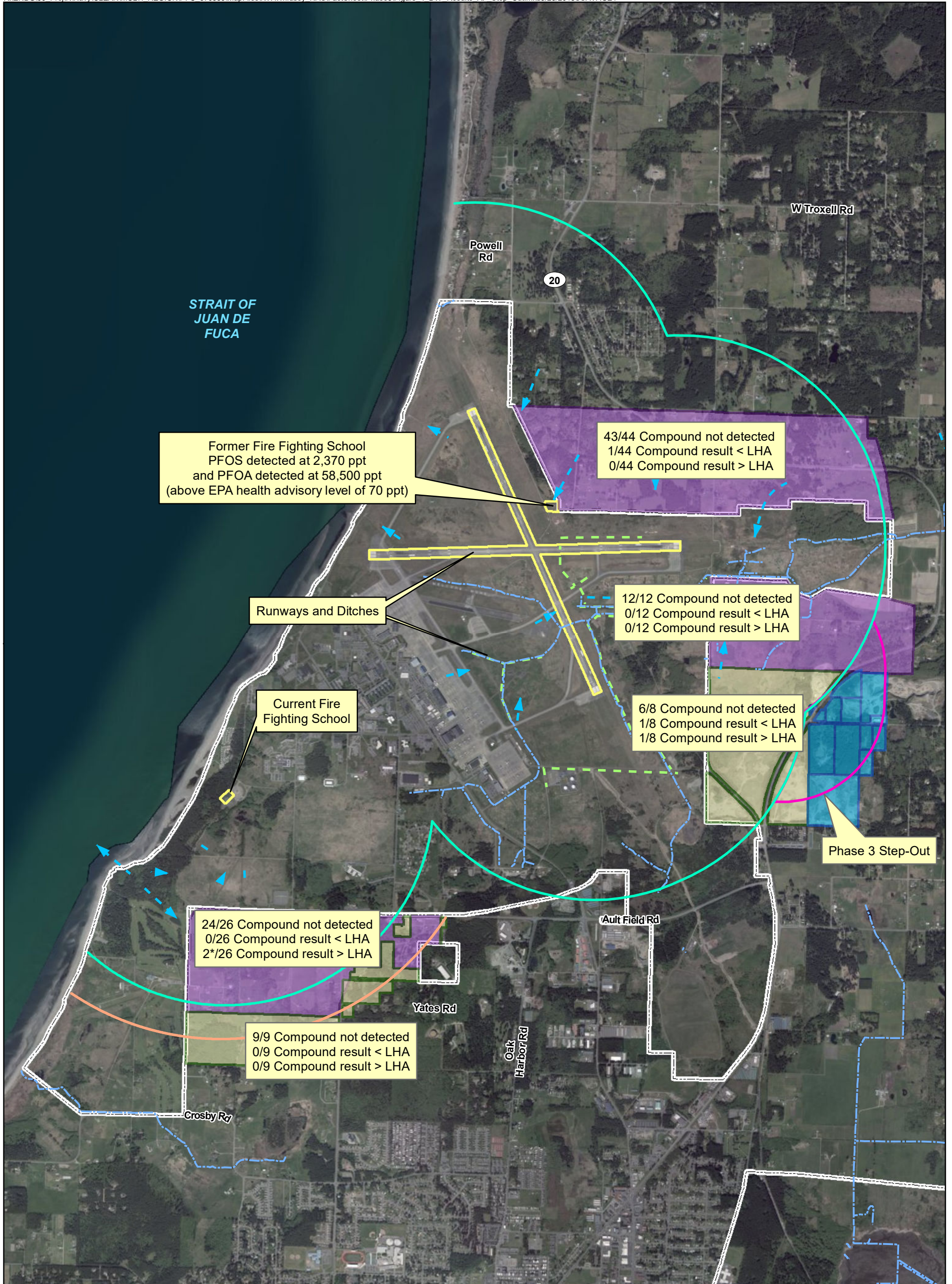
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Lab Name: TestAmerica Sacramento Job No.: 320-23929-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WI-AF-3FB03-1116 Lab Sample ID: 320-23929-10  
 Matrix: Water Lab File ID: 05DEC2016A6A\_144.d  
 Analysis Method: 537 Date Collected: 11/28/2016 17:00  
 Extraction Method: 537 Date Extracted: 12/02/2016 15:27  
 Sample wt/vol: 253.4(mL) Date Analyzed: 12/08/2016 14:47  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 141249 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)	0.024	U <span style="color: red;">M</span>	0.030	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	116		70-130
STL00996	13C2 PFDA	112		70-130

WI 21 2116



Former Fire Fighting School  
 PFOS detected at 2,370 ppt  
 and PFOA detected at 58,500 ppt  
 (above EPA health advisory level of 70 ppt)

43/44 Compound not detected  
 1/44 Compound result < LHA  
 0/44 Compound result > LHA

Runways and Ditches

12/12 Compound not detected  
 0/12 Compound result < LHA  
 0/12 Compound result > LHA

Current Fire Fighting School

6/8 Compound not detected  
 1/8 Compound result < LHA  
 1/8 Compound result > LHA

Phase 3 Step-Out

24/26 Compound not detected  
 0/26 Compound result < LHA  
 2\*/26 Compound result > LHA

9/9 Compound not detected  
 0/9 Compound result < LHA  
 0/9 Compound result > LHA

**Legend**

- 1 Mile Zone
- Half-mile Step-out Downgradient
- - - Surface Water
- - - Drainage Ditch
- Half-mile Step-out Downgradient
- Suspected Source Area
- Parcels in Phase 1 Sampling Area
- Parcels Identified in Phase 2 Sampling Area
- Parcels Identified in Phase 3 Sampling Area

- Base Boundary
- - - Inferred Groundwater Flow Direction

\* Second result above the EPA health advisory is from a duplicate sample collected from the well with the first exceedance near Ault Field.

Note:  
 PFOA and PFOS results reflected on figure,  
 PFBS results discussed in Table 2 and text.



0 0.225 0.45  
 Miles

1 inch = 0.45 mile  
 Imagery Source: Esri

Figure 2  
 Results for Drinking Water Well Sampling  
 Ault Field  
 Naval Air Station Whidbey Island  
 Oak Harbor, Washington