



**Groundwater Sample Results,
Level 4 Laboratory Report, Electronic Data Deliverable,
Data Validation Report, and the Sample Location Report,
SDG 680-138385-1**

*Naval Construction Battalion Center Gulfport
Gulfport, Mississippi*

July 2019

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NCBC GULFPORT
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LABORATORY DATA PACKAGE, 680-138385-1, NCBC GULFPORT MS
5/24/2017
TEST AMERICA

ANALYTICAL REPORT

Job Number: 680-138385-1

SDG Number: 680-138385

Job Description: CTO JM09 - TT - Gulfport MS / Site 6

For:

Tetra Tech, Inc.

8640 Phillips Highway

Suite 16

Jacksonville, FL 32256

Attention: Mr. Greg Roof



Approved for release.
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Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Qualifiers

LCMS

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

Glossary

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

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: CTO JM09 - TT - Gulfport MS / Site 6

Report Number: 680-138385-1

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 the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 05/05/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.2° C and 7.1° C.

The following samples was received at the laboratory outside the required temperature criteria (7.1° C) : 06GW14050417 (680-138385-1), 06GW03050417 (680-138385-2), 06FD01-050417 (680-138385-3), 06GW04050417 (680-138385-4), 06GW06050417 (680-138385-5), 06GW08050417 (680-138385-6), 06GW15050417 (680-138385-7), 06GW16050417 (680-138385-8), 06GW09050417 (680-138385-9), 06GW09050417 (680-138385-9[MS]) and 06GW09050417 (680-138385-9[MSD]). The client as contacted and advised the lab to proceed with analysis.

PERFLUORINATED HYDROCARBONS

Samples 06GW14050417 (680-138385-1), 06GW03050417 (680-138385-2), 06FD01-050417 (680-138385-3), 06GW04050417 (680-138385-4), 06GW06050417 (680-138385-5), 06GW08050417 (680-138385-6), 06GW15050417 (680-138385-7), 06GW16050417 (680-138385-8) and 06GW09050417 (680-138385-9) were analyzed for Perfluorinated Hydrocarbons in accordance with TestAmerica SOP. The samples were prepared on 05/16/2017 and analyzed on 05/19/2017.

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

In the following sample the peak identified for perfluorobutanesulfonic acid (PFBS) by the data system exhibited chromatographic interferences that could not be resolved: 06GW06050417 (680-138385-5). The result may be biased high.

The following samples 06GW14050417 (680-138385-1) and 06GW03050417 (680-138385-2) were decanted prior to preparation.

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

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW14050417

Lab Sample ID: 680-138385-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	5.8	M	2.4	0.87	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.1		2.4	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.6		2.4	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	160	M	2.4	0.71	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11	M	3.8	1.2	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW03050417

Lab Sample ID: 680-138385-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.8	M	2.4	0.89	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3	J M	2.4	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1		2.4	0.77	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	150	M	2.4	0.72	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.3	M	3.9	1.2	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06FD01-050417

Lab Sample ID: 680-138385-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.9	M	2.2	0.79	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3	M	2.2	0.75	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.2	M	2.2	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	140	M	2.2	0.65	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.2	M	3.5	1.1	ng/L	1		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.71	J	2.2	0.57	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW04050417

Lab Sample ID: 680-138385-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	5.5		2.2	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.1		2.2	0.78	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.80	J M	2.2	0.71	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	44	M	2.2	0.67	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	19		3.6	1.1	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW06050417

Lab Sample ID: 680-138385-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	10	* M	2.2	0.80	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.0	M	2.2	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.5		2.2	0.70	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	58	M	2.2	0.65	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15	M	3.5	1.1	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW08050417

Lab Sample ID: 680-138385-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.0	M	2.2	0.80	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW15050417

Lab Sample ID: 680-138385-7

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW15050417 (Continued)

Lab Sample ID: 680-138385-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	1.3	J	2.2	0.70	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.1		2.2	0.66	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.5	1.1	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW16050417

Lab Sample ID: 680-138385-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.84	J	2.2	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.0	J M	2.2	0.67	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.6	J M	3.6	1.1	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: 06GW09050417

Lab Sample ID: 680-138385-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.3	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.0		2.3	0.79	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.8	M	2.3	0.68	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW14050417

Date Collected: 05/04/17 08:10
Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-1

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	5.8	M	2.4	0.87	ng/L		05/16/17 19:25	05/19/17 11:59	1
Perfluorohexanesulfonic acid (PFHxS)	5.1		2.4	0.82	ng/L		05/16/17 19:25	05/19/17 11:59	1
Perfluoroheptanoic acid (PFHpA)	7.6		2.4	0.76	ng/L		05/16/17 19:25	05/19/17 11:59	1
Perfluorooctanoic acid (PFOA)	160	M	2.4	0.71	ng/L		05/16/17 19:25	05/19/17 11:59	1
Perfluorooctanesulfonic acid (PFOS)	11	M	3.8	1.2	ng/L		05/16/17 19:25	05/19/17 11:59	1
Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.62	ng/L		05/16/17 19:25	05/19/17 11:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	91		25 - 150				05/16/17 19:25	05/19/17 11:59	1
13C4-PFHpA	73		25 - 150				05/16/17 19:25	05/19/17 11:59	1
13C4 PFOA	64		25 - 150				05/16/17 19:25	05/19/17 11:59	1
13C4 PFOS	91		25 - 150				05/16/17 19:25	05/19/17 11:59	1
13C5 PFNA	38		25 - 150				05/16/17 19:25	05/19/17 11:59	1

Client Sample ID: 06GW03050417

Date Collected: 05/04/17 09:10
Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-2

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	3.8	M	2.4	0.89	ng/L		05/16/17 19:25	05/19/17 12:06	1
Perfluorohexanesulfonic acid (PFHxS)	2.3	J M	2.4	0.84	ng/L		05/16/17 19:25	05/19/17 12:06	1
Perfluoroheptanoic acid (PFHpA)	4.1		2.4	0.77	ng/L		05/16/17 19:25	05/19/17 12:06	1
Perfluorooctanoic acid (PFOA)	150	M	2.4	0.72	ng/L		05/16/17 19:25	05/19/17 12:06	1
Perfluorooctanesulfonic acid (PFOS)	5.3	M	3.9	1.2	ng/L		05/16/17 19:25	05/19/17 12:06	1
Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.63	ng/L		05/16/17 19:25	05/19/17 12:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	91		25 - 150				05/16/17 19:25	05/19/17 12:06	1
13C4-PFHpA	73		25 - 150				05/16/17 19:25	05/19/17 12:06	1
13C4 PFOA	74		25 - 150				05/16/17 19:25	05/19/17 12:06	1
13C4 PFOS	85		25 - 150				05/16/17 19:25	05/19/17 12:06	1
13C5 PFNA	64		25 - 150				05/16/17 19:25	05/19/17 12:06	1

Client Sample ID: 06FD01-050417

Date Collected: 05/04/17 00:00
Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-3

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	3.9	M	2.2	0.79	ng/L		05/16/17 19:25	05/19/17 12:14	1
Perfluorohexanesulfonic acid (PFHxS)	2.3	M	2.2	0.75	ng/L		05/16/17 19:25	05/19/17 12:14	1
Perfluoroheptanoic acid (PFHpA)	4.2	M	2.2	0.69	ng/L		05/16/17 19:25	05/19/17 12:14	1
Perfluorooctanoic acid (PFOA)	140	M	2.2	0.65	ng/L		05/16/17 19:25	05/19/17 12:14	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06FD01-050417

Lab Sample ID: 680-138385-3

Date Collected: 05/04/17 00:00

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	5.2	M	3.5	1.1	ng/L		05/16/17 19:25	05/19/17 12:14	1
Perfluorononanoic acid (PFNA)	0.71	J	2.2	0.57	ng/L		05/16/17 19:25	05/19/17 12:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	90		25 - 150				05/16/17 19:25	05/19/17 12:14	1
13C4-PFHpA	71		25 - 150				05/16/17 19:25	05/19/17 12:14	1
13C4 PFOA	72		25 - 150				05/16/17 19:25	05/19/17 12:14	1
13C4 PFOS	85		25 - 150				05/16/17 19:25	05/19/17 12:14	1
13C5 PFNA	60		25 - 150				05/16/17 19:25	05/19/17 12:14	1

Client Sample ID: 06GW04050417

Lab Sample ID: 680-138385-4

Date Collected: 05/04/17 09:45

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	5.5		2.2	0.82	ng/L		05/16/17 19:25	05/19/17 12:21	1
Perfluorohexanesulfonic acid (PFHxS)	5.1		2.2	0.78	ng/L		05/16/17 19:25	05/19/17 12:21	1
Perfluoroheptanoic acid (PFHpA)	0.80	J M	2.2	0.71	ng/L		05/16/17 19:25	05/19/17 12:21	1
Perfluorooctanoic acid (PFOA)	44	M	2.2	0.67	ng/L		05/16/17 19:25	05/19/17 12:21	1
Perfluorooctanesulfonic acid (PFOS)	19		3.6	1.1	ng/L		05/16/17 19:25	05/19/17 12:21	1
Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.58	ng/L		05/16/17 19:25	05/19/17 12:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	82		25 - 150				05/16/17 19:25	05/19/17 12:21	1
13C4-PFHpA	63		25 - 150				05/16/17 19:25	05/19/17 12:21	1
13C4 PFOA	66		25 - 150				05/16/17 19:25	05/19/17 12:21	1
13C4 PFOS	88		25 - 150				05/16/17 19:25	05/19/17 12:21	1
13C5 PFNA	75		25 - 150				05/16/17 19:25	05/19/17 12:21	1

Client Sample ID: 06GW06050417

Lab Sample ID: 680-138385-5

Date Collected: 05/04/17 10:25

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	10	* M	2.2	0.80	ng/L		05/16/17 19:25	05/19/17 12:29	1
Perfluorohexanesulfonic acid (PFHxS)	7.0	M	2.2	0.76	ng/L		05/16/17 19:25	05/19/17 12:29	1
Perfluoroheptanoic acid (PFHpA)	6.5		2.2	0.70	ng/L		05/16/17 19:25	05/19/17 12:29	1
Perfluorooctanoic acid (PFOA)	58	M	2.2	0.65	ng/L		05/16/17 19:25	05/19/17 12:29	1
Perfluorooctanesulfonic acid (PFOS)	15	M	3.5	1.1	ng/L		05/16/17 19:25	05/19/17 12:29	1
Perfluorononanoic acid (PFNA)	1.7	U	2.2	0.57	ng/L		05/16/17 19:25	05/19/17 12:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	84		25 - 150				05/16/17 19:25	05/19/17 12:29	1
13C4-PFHpA	64		25 - 150				05/16/17 19:25	05/19/17 12:29	1
13C4 PFOA	70		25 - 150				05/16/17 19:25	05/19/17 12:29	1

Client Sample Results

Client: Tetra Tech, Inc.
 Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
 SDG: 680-138385

Client Sample ID: 06GW06050417

Lab Sample ID: 680-138385-5

Date Collected: 05/04/17 10:25

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C4 PFOS	74		25 - 150	05/16/17 19:25	05/19/17 12:29	1
¹³ C5 PFNA	55		25 - 150	05/16/17 19:25	05/19/17 12:29	1

Client Sample ID: 06GW08050417

Lab Sample ID: 680-138385-6

Date Collected: 05/04/17 11:35

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	3.0	M	2.2	0.80	ng/L		05/16/17 19:25	05/19/17 12:44	1
Perfluorohexanesulfonic acid (PFHxS)	1.7	U M	2.2	0.76	ng/L		05/16/17 19:25	05/19/17 12:44	1
Perfluoroheptanoic acid (PFHpA)	1.7	U	2.2	0.70	ng/L		05/16/17 19:25	05/19/17 12:44	1
Perfluorooctanoic acid (PFOA)	1.7	U	2.2	0.65	ng/L		05/16/17 19:25	05/19/17 12:44	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.5	1.1	ng/L		05/16/17 19:25	05/19/17 12:44	1
Perfluorononanoic acid (PFNA)	1.7	U M	2.2	0.57	ng/L		05/16/17 19:25	05/19/17 12:44	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
¹⁸ O2 PFHxS	88		25 - 150	05/16/17 19:25	05/19/17 12:44	1			
¹³ C4-PFHpA	68		25 - 150	05/16/17 19:25	05/19/17 12:44	1			
¹³ C4 PFOA	74		25 - 150	05/16/17 19:25	05/19/17 12:44	1			
¹³ C4 PFOS	92		25 - 150	05/16/17 19:25	05/19/17 12:44	1			
¹³ C5 PFNA	76		25 - 150	05/16/17 19:25	05/19/17 12:44	1			

Client Sample ID: 06GW15050417

Lab Sample ID: 680-138385-7

Date Collected: 05/04/17 12:10

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.8	U M	2.2	0.81	ng/L		05/16/17 19:25	05/19/17 12:51	1
Perfluorohexanesulfonic acid (PFHxS)	1.8	U	2.2	0.76	ng/L		05/16/17 19:25	05/19/17 12:51	1
Perfluoroheptanoic acid (PFHpA)	1.3	J	2.2	0.70	ng/L		05/16/17 19:25	05/19/17 12:51	1
Perfluorooctanoic acid (PFOA)	3.1		2.2	0.66	ng/L		05/16/17 19:25	05/19/17 12:51	1
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.5	1.1	ng/L		05/16/17 19:25	05/19/17 12:51	1
Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.57	ng/L		05/16/17 19:25	05/19/17 12:51	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
¹⁸ O2 PFHxS	93		25 - 150	05/16/17 19:25	05/19/17 12:51	1			
¹³ C4-PFHpA	81		25 - 150	05/16/17 19:25	05/19/17 12:51	1			
¹³ C4 PFOA	84		25 - 150	05/16/17 19:25	05/19/17 12:51	1			
¹³ C4 PFOS	102		25 - 150	05/16/17 19:25	05/19/17 12:51	1			
¹³ C5 PFNA	80		25 - 150	05/16/17 19:25	05/19/17 12:51	1			

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW16050417

Lab Sample ID: 680-138385-8

Date Collected: 05/04/17 14:45

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.84	J	2.2	0.82	ng/L		05/16/17 19:25	05/19/17 12:59	1
Perfluorohexanesulfonic acid (PFHxS)	1.8	U M	2.2	0.78	ng/L		05/16/17 19:25	05/19/17 12:59	1
Perfluoroheptanoic acid (PFHpA)	1.8	U	2.2	0.72	ng/L		05/16/17 19:25	05/19/17 12:59	1
Perfluorooctanoic acid (PFOA)	1.0	J M	2.2	0.67	ng/L		05/16/17 19:25	05/19/17 12:59	1
Perfluorooctanesulfonic acid (PFOS)	1.6	J M	3.6	1.1	ng/L		05/16/17 19:25	05/19/17 12:59	1
Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.59	ng/L		05/16/17 19:25	05/19/17 12:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	93		25 - 150				05/16/17 19:25	05/19/17 12:59	1
13C4-PFHpA	77		25 - 150				05/16/17 19:25	05/19/17 12:59	1
13C4 PFOA	77		25 - 150				05/16/17 19:25	05/19/17 12:59	1
13C4 PFOS	97		25 - 150				05/16/17 19:25	05/19/17 12:59	1
13C5 PFNA	71		25 - 150				05/16/17 19:25	05/19/17 12:59	1

Client Sample ID: 06GW09050417

Lab Sample ID: 680-138385-9

Date Collected: 05/04/17 15:10

Matrix: Water

Date Received: 05/05/17 09:10

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.3	0.84	ng/L		05/16/17 19:25	05/19/17 13:06	1
Perfluorohexanesulfonic acid (PFHxS)	7.0		2.3	0.79	ng/L		05/16/17 19:25	05/19/17 13:06	1
Perfluoroheptanoic acid (PFHpA)	1.8	U	2.3	0.73	ng/L		05/16/17 19:25	05/19/17 13:06	1
Perfluorooctanoic acid (PFOA)	4.8	M	2.3	0.68	ng/L		05/16/17 19:25	05/19/17 13:06	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.7	1.2	ng/L		05/16/17 19:25	05/19/17 13:06	1
Perfluorononanoic acid (PFNA)	1.8	U	2.3	0.60	ng/L		05/16/17 19:25	05/19/17 13:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	103		25 - 150				05/16/17 19:25	05/19/17 13:06	1
13C4-PFHpA	77		25 - 150				05/16/17 19:25	05/19/17 13:06	1
13C4 PFOA	66		25 - 150				05/16/17 19:25	05/19/17 13:06	1
13C4 PFOS	103		25 - 150				05/16/17 19:25	05/19/17 13:06	1
13C5 PFNA	49		25 - 150				05/16/17 19:25	05/19/17 13:06	1

Default Detection Limits

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Method: 537 (Modified) - Perfluorinated Hydrocarbons Prep: 3535

Analyte	RL	MDL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	2.5	0.92	ng/L	537 (Modified)
Perfluoroheptanoic acid (PFHpA)	2.5	0.80	ng/L	537 (Modified)
Perfluorohexanesulfonic acid (PFHxS)	2.5	0.87	ng/L	537 (Modified)
Perfluorononanoic acid (PFNA)	2.5	0.65	ng/L	537 (Modified)
Perfluorooctanesulfonic acid (PFOS)	4.0	1.3	ng/L	537 (Modified)
Perfluorooctanoic acid (PFOA)	2.5	0.75	ng/L	537 (Modified)

Isotope Dilution Summary

Client: Tetra Tech, Inc.
 Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
 SDG: 680-138385

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFO/ (25-150)	¹³ C4 PFO/ (25-150)	¹³ C5 PFNA/ (25-150)
680-138385-1	06GW14050417	91	73	64	91	38
680-138385-2	06GW03050417	91	73	74	85	64
680-138385-3	06FD01-050417	90	71	72	85	60
680-138385-4	06GW04050417	82	63	66	88	75
680-138385-5	06GW06050417	84	64	70	74	55
680-138385-6	06GW08050417	88	68	74	92	76
680-138385-7	06GW15050417	93	81	84	102	80
680-138385-8	06GW16050417	93	77	77	97	71
680-138385-9	06GW09050417	103	77	66	103	49
680-138385-9 MS	06GW09050417	100	76	63	100	47
680-138385-9 MSD	06GW09050417	99	78	67	101	51
LCS 320-164788/2-A	Lab Control Sample	110	119	126	111	121
MB 320-164788/1-A	Method Blank	116	126	133	112	131

Surrogate Legend

- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS
- ¹³C4-PFHpA = ¹³C4-PFHpA
- ¹³C4 PFOA = ¹³C4 PFOA
- ¹³C4 PFOS = ¹³C4 PFOS
- ¹³C5 PFNA = ¹³C5 PFNA

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-164788/1-A
Matrix: Water
Analysis Batch: 165303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164788

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		05/16/17 19:25	05/19/17 10:44	1
Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	0.87	ng/L		05/16/17 19:25	05/19/17 10:44	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.5	0.80	ng/L		05/16/17 19:25	05/19/17 10:44	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.5	0.75	ng/L		05/16/17 19:25	05/19/17 10:44	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3	ng/L		05/16/17 19:25	05/19/17 10:44	1
Perfluorononanoic acid (PFNA)	2.0	U	2.5	0.65	ng/L		05/16/17 19:25	05/19/17 10:44	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
18O2 PFHxS	116		25 - 150	05/16/17 19:25	05/19/17 10:44	1
13C4-PFHpA	126		25 - 150	05/16/17 19:25	05/19/17 10:44	1
13C4 PFOA	133		25 - 150	05/16/17 19:25	05/19/17 10:44	1
13C4 PFOS	112		25 - 150	05/16/17 19:25	05/19/17 10:44	1
13C5 PFNA	131		25 - 150	05/16/17 19:25	05/19/17 10:44	1

Lab Sample ID: LCS 320-164788/2-A
Matrix: Water
Analysis Batch: 165303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164788

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorobutanesulfonic acid (PFBS)	35.4	35.4		ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.1		ng/L		91	60 - 140
Perfluoroheptanoic acid (PFHpA)	40.0	36.8		ng/L		92	60 - 140
Perfluorooctanoic acid (PFOA)	40.0	35.2		ng/L		88	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	33.1		ng/L		89	60 - 140
Perfluorononanoic acid (PFNA)	40.0	37.3		ng/L		93	60 - 140

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
18O2 PFHxS	110		25 - 150
13C4-PFHpA	119		25 - 150
13C4 PFOA	126		25 - 150
13C4 PFOS	111		25 - 150
13C5 PFNA	121		25 - 150

Lab Sample ID: 680-138385-9 MS
Matrix: Water
Analysis Batch: 165303

Client Sample ID: 06GW09050417
Prep Type: Total/NA
Prep Batch: 164788

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorobutanesulfonic acid (PFBS)	1.1	J	31.9	30.2		ng/L		91	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	7.0		32.9	36.8		ng/L		90	60 - 140
Perfluoroheptanoic acid (PFHpA)	1.8	U	36.1	32.7		ng/L		91	60 - 140
Perfluorooctanoic acid (PFOA)	4.8	M	36.1	36.7		ng/L		88	60 - 140
Perfluorooctanesulfonic acid (PFOS)	2.7	U M	33.5	29.9	M	ng/L		89	60 - 140
Perfluorononanoic acid (PFNA)	1.8	U	36.1	33.8		ng/L		94	60 - 140

TestAmerica Savannah

QC Sample Results

Client: Tetra Tech, Inc.
 Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
 SDG: 680-138385

<i>Isotope Dilution</i>	<i>MS MS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
18O2 PFHxS	100		25 - 150
13C4-PFHpA	76		25 - 150
13C4 PFOA	63		25 - 150
13C4 PFOS	100		25 - 150
13C5 PFNA	47		25 - 150

Lab Sample ID: 680-138385-9 MSD
Matrix: Water
Analysis Batch: 165303

Client Sample ID: 06GW09050417
Prep Type: Total/NA
Prep Batch: 164788

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD MSD</i>		<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. RPD</i>		
				<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Perfluorobutanesulfonic acid (PFBS)	1.1	J	32.3	31.8		ng/L		95	50 - 150	5	30
Perfluorohexanesulfonic acid (PFHxS)	7.0		33.3	37.8		ng/L		92	60 - 140	3	30
Perfluoroheptanoic acid (PFHpA)	1.8	U	36.6	33.3		ng/L		91	60 - 140	2	30
Perfluorooctanoic acid (PFOA)	4.8	M	36.6	37.4		ng/L		89	60 - 140	2	30
Perfluorooctanesulfonic acid (PFOS)	2.7	U M	33.9	31.0	M	ng/L		91	60 - 140	4	30
Perfluorononanoic acid (PFNA)	1.8	U	36.6	33.0		ng/L		90	60 - 140	2	30

<i>Isotope Dilution</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
18O2 PFHxS	99		25 - 150
13C4-PFHpA	78		25 - 150
13C4 PFOA	67		25 - 150
13C4 PFOS	101		25 - 150
13C5 PFNA	51		25 - 150

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

LCMS

Prep Batch: 164788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-138385-1	06GW14050417	Total/NA	Water	3535	
680-138385-2	06GW03050417	Total/NA	Water	3535	
680-138385-3	06FD01-050417	Total/NA	Water	3535	
680-138385-4	06GW04050417	Total/NA	Water	3535	
680-138385-5	06GW06050417	Total/NA	Water	3535	
680-138385-6	06GW08050417	Total/NA	Water	3535	
680-138385-7	06GW15050417	Total/NA	Water	3535	
680-138385-8	06GW16050417	Total/NA	Water	3535	
680-138385-9	06GW09050417	Total/NA	Water	3535	
MB 320-164788/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-164788/2-A	Lab Control Sample	Total/NA	Water	3535	
680-138385-9 MS	06GW09050417	Total/NA	Water	3535	
680-138385-9 MSD	06GW09050417	Total/NA	Water	3535	

Analysis Batch: 165303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-138385-1	06GW14050417	Total/NA	Water	537 (Modified)	164788
680-138385-2	06GW03050417	Total/NA	Water	537 (Modified)	164788
680-138385-3	06FD01-050417	Total/NA	Water	537 (Modified)	164788
680-138385-4	06GW04050417	Total/NA	Water	537 (Modified)	164788
680-138385-5	06GW06050417	Total/NA	Water	537 (Modified)	164788
680-138385-6	06GW08050417	Total/NA	Water	537 (Modified)	164788
680-138385-7	06GW15050417	Total/NA	Water	537 (Modified)	164788
680-138385-8	06GW16050417	Total/NA	Water	537 (Modified)	164788
680-138385-9	06GW09050417	Total/NA	Water	537 (Modified)	164788
MB 320-164788/1-A	Method Blank	Total/NA	Water	537 (Modified)	164788
LCS 320-164788/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	164788
680-138385-9 MS	06GW09050417	Total/NA	Water	537 (Modified)	164788
680-138385-9 MSD	06GW09050417	Total/NA	Water	537 (Modified)	164788

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW14050417

Date Collected: 05/04/17 08:10

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 11:59	CBW	TAL SAC

Client Sample ID: 06GW03050417

Date Collected: 05/04/17 09:10

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:06	CBW	TAL SAC

Client Sample ID: 06FD01-050417

Date Collected: 05/04/17 00:00

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:14	CBW	TAL SAC

Client Sample ID: 06GW04050417

Date Collected: 05/04/17 09:45

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:21	CBW	TAL SAC

Client Sample ID: 06GW06050417

Date Collected: 05/04/17 10:25

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:29	CBW	TAL SAC

Client Sample ID: 06GW08050417

Date Collected: 05/04/17 11:35

Date Received: 05/05/17 09:10

Lab Sample ID: 680-138385-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:44	CBW	TAL SAC

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Client Sample ID: 06GW15050417

Lab Sample ID: 680-138385-7

Date Collected: 05/04/17 12:10

Matrix: Water

Date Received: 05/05/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:51	CBW	TAL SAC

Client Sample ID: 06GW16050417

Lab Sample ID: 680-138385-8

Date Collected: 05/04/17 14:45

Matrix: Water

Date Received: 05/05/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 12:59	CBW	TAL SAC

Client Sample ID: 06GW09050417

Lab Sample ID: 680-138385-9

Date Collected: 05/04/17 15:10

Matrix: Water

Date Received: 05/05/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			164788	05/16/17 19:25	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165303	05/19/17 13:06	CBW	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Laboratory: TestAmerica Savannah

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
L-A-B	DoD ELAP		L2463	09-22-19

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
L-A-B	DoD ELAP		L2468	01-20-18

Analysis Method	Prep Method	Matrix	Analyte
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Method Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Method	Method Description	Protocol	Laboratory
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-138385-1	06GW14050417	Water	05/04/17 08:10	05/05/17 09:10
680-138385-2	06GW03050417	Water	05/04/17 09:10	05/05/17 09:10
680-138385-3	06FD01-050417	Water	05/04/17 00:00	05/05/17 09:10
680-138385-4	06GW04050417	Water	05/04/17 09:45	05/05/17 09:10
680-138385-5	06GW06050417	Water	05/04/17 10:25	05/05/17 09:10
680-138385-6	06GW08050417	Water	05/04/17 11:35	05/05/17 09:10
680-138385-7	06GW15050417	Water	05/04/17 12:10	05/05/17 09:10
680-138385-8	06GW16050417	Water	05/04/17 14:45	05/05/17 09:10
680-138385-9	06GW09050417	Water	05/04/17 15:10	05/05/17 09:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Analysis Batch Number: 165303

Lab Sample ID: 680-138385-1 Client Sample ID: 06GW14050417

Date Analyzed: 05/19/17 11:59 Lab File ID: 2017.05.18G_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.29	Baseline	westendor fc	05/19/17 14:51
Perfluorooctanoic acid (PFOA)	3.40	Isomers	westendor fc	05/19/17 14:54
Perfluorooctanesulfonic acid (PFOS)	3.77	Isomers	westendor fc	05/19/17 14:54

Lab Sample ID: 680-138385-2 Client Sample ID: 06GW03050417

Date Analyzed: 05/19/17 12:06 Lab File ID: 2017.05.18G_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.29	Baseline	westendor fc	05/19/17 14:54
Perfluorohexanesulfonic acid (PFHxS)	3.02	Baseline	westendor fc	05/19/17 14:54
Perfluorooctanoic acid (PFOA)	3.41	Isomers	westendor fc	05/19/17 14:54
Perfluorooctanesulfonic acid (PFOS)	3.66	Isomers	westendor fc	05/19/17 14:55

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Analysis Batch Number: 165303

Lab Sample ID: 680-138385-3 Client Sample ID: 06FD01-050417

Date Analyzed: 05/19/17 12:14 Lab File ID: 2017.05.18G_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.30	Baseline	westendorfc	05/19/17 14:55
Perfluoroheptanoic acid (PFHpA)	3.00	Baseline	westendorfc	05/19/17 14:55
Perfluorohexanesulfonic acid (PFHxS)	3.01	Baseline	westendorfc	05/19/17 14:55
Perfluorooctanoic acid (PFOA)	3.40	Isomers	westendorfc	05/19/17 14:55
Perfluorooctanesulfonic acid (PFOS)	3.65	Isomers	westendorfc	05/22/17 11:14

Lab Sample ID: 680-138385-4 Client Sample ID: 06GW04050417

Date Analyzed: 05/19/17 12:21 Lab File ID: 2017.05.18G_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	2.99	Baseline	westendorfc	05/19/17 14:56
Perfluorooctanoic acid (PFOA)	3.37	Isomers	westendorfc	05/19/17 14:56

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Analysis Batch Number: 165303

Lab Sample ID: 680-138385-5 Client Sample ID: 06GW06050417

Date Analyzed: 05/19/17 12:29 Lab File ID: 2017.05.18G_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.32	Baseline	westendor fc	05/19/17 14:58
Perfluorohexanesulfonic acid (PFHxS)	2.98	Baseline	westendor fc	05/19/17 14:57
Perfluorooctanoic acid (PFOA)	3.38	Baseline	westendor fc	05/19/17 14:57
Perfluorooctanesulfonic acid (PFOS)	3.76	Isomers	westendor fc	05/19/17 14:58

Lab Sample ID: CCV 320-165303/14 Client Sample ID: _____

Date Analyzed: 05/19/17 12:36 Lab File ID: 2017.05.18G_012.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.77	Isomers	westendor fc	05/19/17 15:29

Lab Sample ID: 680-138385-6 Client Sample ID: 06GW08050417

Date Analyzed: 05/19/17 12:44 Lab File ID: 2017.05.18G_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.28	Baseline	westendor fc	05/19/17 15:21
Perfluorohexanesulfonic acid (PFHxS)	2.99	Split Peak	westendor fc	05/19/17 15:21
Perfluorononanoic acid (PFNA)	3.76	Baseline	westendor fc	05/19/17 15:22

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Analysis Batch Number: 165303

Lab Sample ID: 680-138385-7 Client Sample ID: 06GW15050417

Date Analyzed: 05/19/17 12:51 Lab File ID: 2017.05.18G_014.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.29	Baseline	westendor fc	05/19/17 15:22
Perfluorooctanesulfonic acid (PFOS)	3.76	Isomers	westendor fc	05/19/17 15:22

Lab Sample ID: 680-138385-8 Client Sample ID: 06GW16050417

Date Analyzed: 05/19/17 12:59 Lab File ID: 2017.05.18G_015.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	3.02	Baseline	westendor fc	05/19/17 15:23
Perfluorooctanoic acid (PFOA)	3.41	Isomers	westendor fc	05/19/17 15:23
Perfluorooctanesulfonic acid (PFOS)	3.78	Isomers	westendor fc	05/19/17 15:23

Lab Sample ID: 680-138385-9 Client Sample ID: 06GW09050417

Date Analyzed: 05/19/17 13:06 Lab File ID: 2017.05.18G_016.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.41	Isomers	westendor fc	05/19/17 15:23
Perfluorooctanesulfonic acid (PFOS)	3.66	Isomers	westendor fc	05/19/17 15:23

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Analysis Batch Number: 165303

Lab Sample ID: 680-138385-9 MS Client Sample ID: 06GW09050417 MS

Date Analyzed: 05/19/17 13:14 Lab File ID: 2017.05.18G_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.79	Isomers	westendorfc	05/19/17 15:24

Lab Sample ID: 680-138385-9 MSD Client Sample ID: 06GW09050417 MSD

Date Analyzed: 05/19/17 13:21 Lab File ID: 2017.05.18G_018.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.78	Isomers	westendorfc	05/19/17 15:24

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS)
by Method PFC_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHpA #	PFHxS #	PFOA #	PFOS #	PFNA #
06GW14050417	680-138385-1	73	91	64	91	38
06GW03050417	680-138385-2	73	91	74	85	64
06FD01-050417	680-138385-3	71	90	72	85	60
06GW04050417	680-138385-4	63	82	66	88	75
06GW06050417	680-138385-5	64	84	70	74	55
06GW08050417	680-138385-6	68	88	74	92	76
06GW15050417	680-138385-7	81	93	84	102	80
06GW16050417	680-138385-8	77	93	77	97	71
06GW09050417	680-138385-9	77	103	66	103	49
	MB 320-164788/1-A	126	116	133	112	131
	LCS 320-164788/2-A	119	110	126	111	121
06GW09050417 MS	680-138385-9 MS	76	100	63	100	47
06GW09050417 MSD	680-138385-9 MSD	78	99	67	101	51

QC LIMITS

PFHpA = 13C4-PFHpA
 PFHxS = 18O2 PFHxS
 PFOA = 13C4 PFOA
 PFOS = 13C4 PFOS
 PFNA = 13C5 PFNA

25-150
25-150
25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Matrix: Water Level: Low Lab File ID: 2017.05.18G_003.d
 Lab ID: LCS 320-164788/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanesulfonic acid (PFBS)	35.4	35.4	100	50-150	
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.1	91	60-140	
Perfluoroheptanoic acid (PFHpA)	40.0	36.8	92	60-140	
Perfluorooctanoic acid (PFOA)	40.0	35.2	88	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	33.1	89	60-140	
Perfluorononanoic acid (PFNA)	40.0	37.3	93	60-140	
18O2 PFHxS	94.6	104	110	25-150	
13C4-PFHpA	100	119	119	25-150	
13C4 PFOA	100	126	126	25-150	
13C4 PFOS	95.6	107	111	25-150	
13C5 PFNA	100	121	121	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water Level: Low

Lab File ID: 2017.05.18G_017.d

Lab ID: 680-138385-9 MS

Client ID: 06GW09050417 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorobutanesulfonic acid (PFBS)	31.9	1.1 J	30.2	91	50-150	
Perfluorohexanesulfonic acid (PFHxS)	32.9	7.0	36.8	90	60-140	
Perfluoroheptanoic acid (PFHpA)	36.1	1.8 U	32.7	91	60-140	
Perfluorooctanoic acid (PFOA)	36.1	4.8	36.7	88	60-140	
Perfluorooctanesulfonic acid (PFOS)	33.5	2.7 U	29.9	89	60-140	M
Perfluorononanoic acid (PFNA)	36.1	1.8 U	33.8	94	60-140	
18O2 PFHxS	85.4	89	85.0	100	25-150	
13C4-PFHpA	90.3	70	68.4	76	25-150	
13C4 PFOA	90.3	60	56.6	63	25-150	
13C4 PFOS	86.3	90	86.0	100	25-150	
13C5 PFNA	90.3	44	42.2	47	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water Level: Low

Lab File ID: 2017.05.18G_018.d

Lab ID: 680-138385-9 MSD

Client ID: 06GW09050417 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorobutanesulfonic acid (PFBS)	32.3	31.8	95	5	30	50-150	
Perfluorohexanesulfonic acid (PFHxS)	33.3	37.8	92	3	30	60-140	
Perfluoroheptanoic acid (PFHpA)	36.6	33.3	91	2	30	60-140	
Perfluorooctanoic acid (PFOA)	36.6	37.4	89	2	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	33.9	31.0	91	4	30	60-140	M
Perfluorononanoic acid (PFNA)	36.6	33.0	90	2	30	60-140	
18O2 PFHxS	86.5	85.5	99			25-150	
13C4-PFHpA	91.4	71.2	78			25-150	
13C4 PFOA	91.4	60.9	67			25-150	
13C4 PFOS	87.4	88.1	101			25-150	
13C5 PFNA	91.4	46.6	51			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (Modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab File ID: 2017.05.18G_002.d Lab Sample ID: MB 320-164788/1-A
 Matrix: Water Date Extracted: 05/16/2017 19:25
 Instrument ID: A8_N Date Analyzed: 05/19/2017 10:44
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-164788/2-A	2017.05.18G 003.d	05/19/2017 10:51
06GW14050417	680-138385-1	2017.05.18G 007.d	05/19/2017 11:59
06GW03050417	680-138385-2	2017.05.18G 008.d	05/19/2017 12:06
06FD01-050417	680-138385-3	2017.05.18G 009.d	05/19/2017 12:14
06GW04050417	680-138385-4	2017.05.18G 010.d	05/19/2017 12:21
06GW06050417	680-138385-5	2017.05.18G 011.d	05/19/2017 12:29
06GW08050417	680-138385-6	2017.05.18G 013.d	05/19/2017 12:44
06GW15050417	680-138385-7	2017.05.18G 014.d	05/19/2017 12:51
06GW16050417	680-138385-8	2017.05.18G 015.d	05/19/2017 12:59
06GW09050417	680-138385-9	2017.05.18G 016.d	05/19/2017 13:06
06GW09050417 MS	680-138385-9 MS	2017.05.18G 017.d	05/19/2017 13:14
06GW09050417 MSD	680-138385-9 MSD	2017.05.18G 018.d	05/19/2017 13:21

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW14050417</u>	Lab Sample ID: <u>680-138385-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_007.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 08:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>264.1 (mL)</u>	Date Analyzed: <u>05/19/2017 11:59</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.8	M	2.4	0.87
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1		2.4	0.82
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6		2.4	0.76
335-67-1	Perfluorooctanoic acid (PFOA)	160	M	2.4	0.71
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	M	3.8	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.62

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	91		25-150
STL01892	13C4-PFHpA	73		25-150
STL00990	13C4 PFOA	64		25-150
STL00991	13C4 PFOS	91		25-150
STL00995	13C5 PFNA	38		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
 Lims ID: 680-138385-A-1-A
 Client ID: 06GW14050417
 Sample Type: Client
 Inject. Date: 19-May-2017 11:59:16 ALS Bottle#: 6 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:34:50 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 14:43:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.289	2.289	0.0	1.000	1347203	3.06				M
298.90 > 99.00	2.289	2.289	0.0	1.000	370052		3.64(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.008	2.994	0.014	1.000	701102	4.03			45.2	
D 9 13C4-PFHpA										
367.00 > 322.00	3.008	2.994	0.014		7776250	36.7		73.4	54750	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.016	3.009	0.007	1.000	876811	2.70				
D 11 18O2 PFHxS										
403.00 > 84.00	3.016	3.009	0.007		13037292	42.8		90.5	40986	
* 62 13C2-PFOA										
415.00 > 370.00	3.394	3.426	-0.032		17296	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.403	3.396	0.007	1.000	13062605	83.2			736	M
413.00 > 169.00	3.403	3.396	0.007	1.000	8530504		1.53(0.90-1.10)		5935	M
D 14 13C4 PFOA										
417.00 > 372.00	3.403	3.396	0.007		6834669	32.1		64.2	32665	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.772	3.762	0.010	1.000	1504036	6.04			90.0	M
499.00 > 99.00	3.772	3.762	0.010	1.000	237223		6.34(0.90-1.10)		162	M
D 18 13C4 PFOS										
503.00 > 80.00	3.772	3.762	0.010		9973607	43.5		91.0	1621	
D 19 13C5 PFNA										
468.00 > 423.00	3.781	3.770	0.011		3207553	19.1		38.2	12662	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d

Injection Date: 19-May-2017 11:59:16

Instrument ID: A8_N

Lims ID: 680-138385-A-1-A

Lab Sample ID: 320-138385-1

Client ID: 06GW14050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

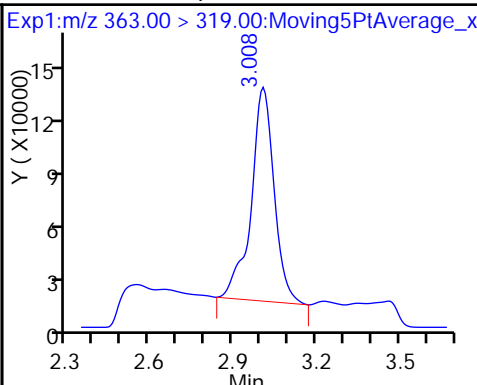
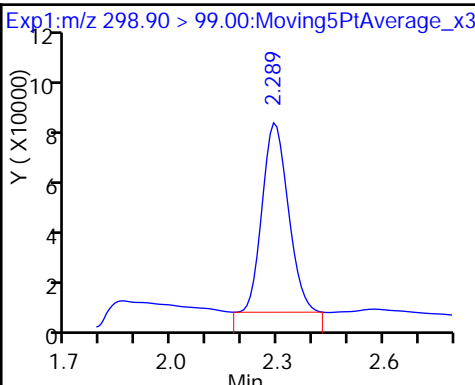
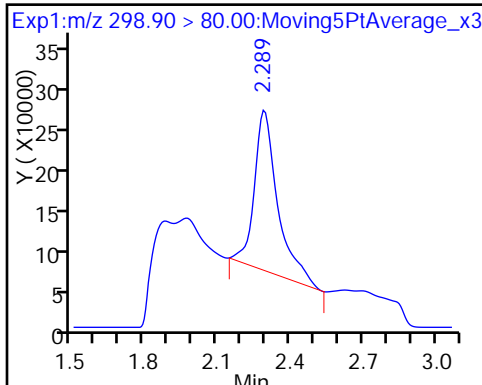
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

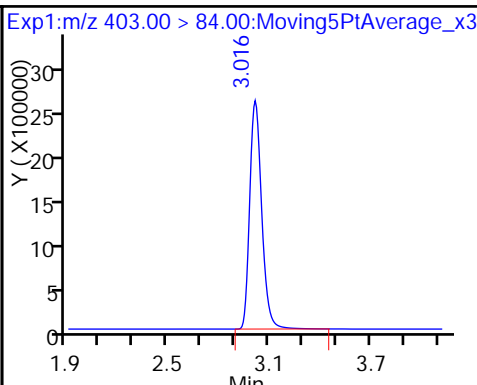
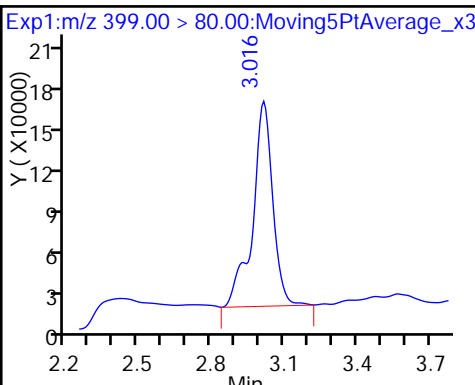
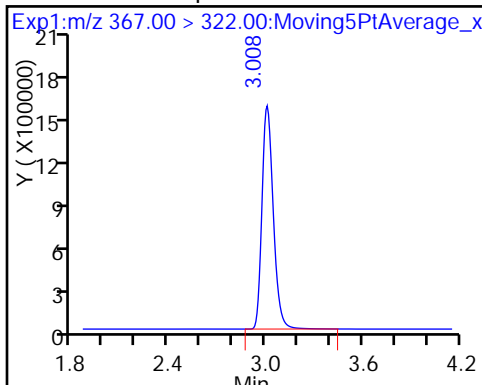
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

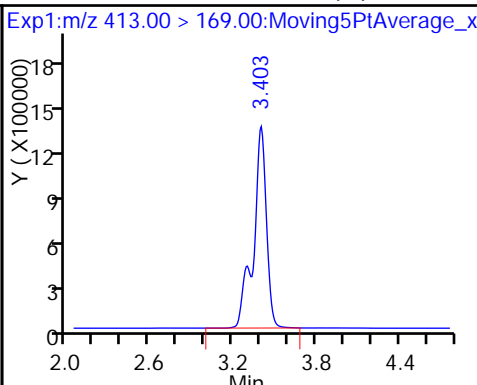
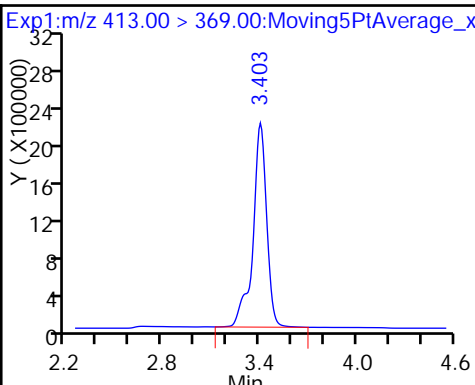
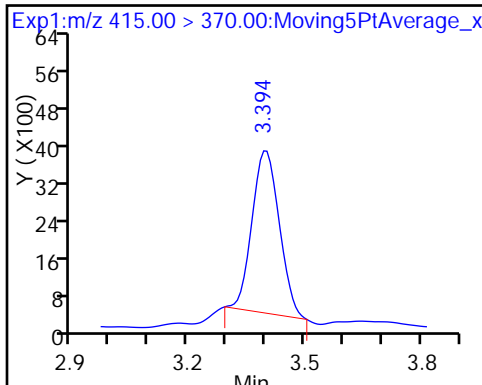
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

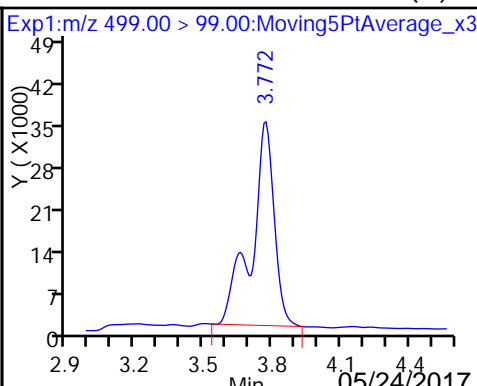
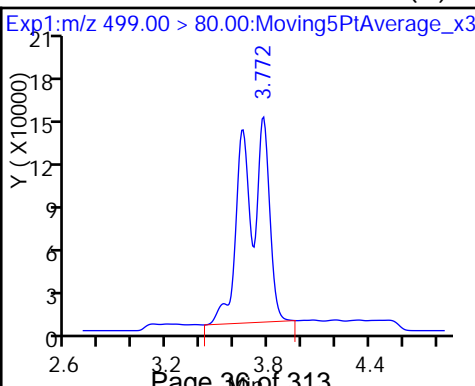
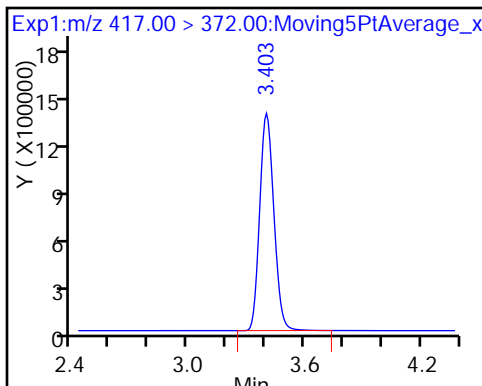
15 Perfluorooctanoic acid (M)



D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (M)

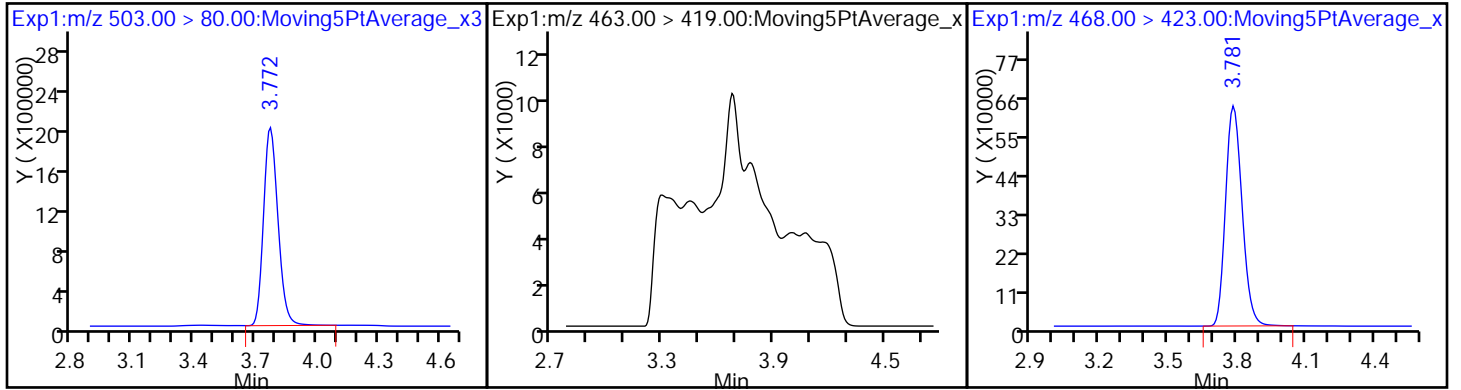
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

20 Perfluorononanoic acid (ND)

D 19 13C5 PFNA



TestAmerica Sacramento

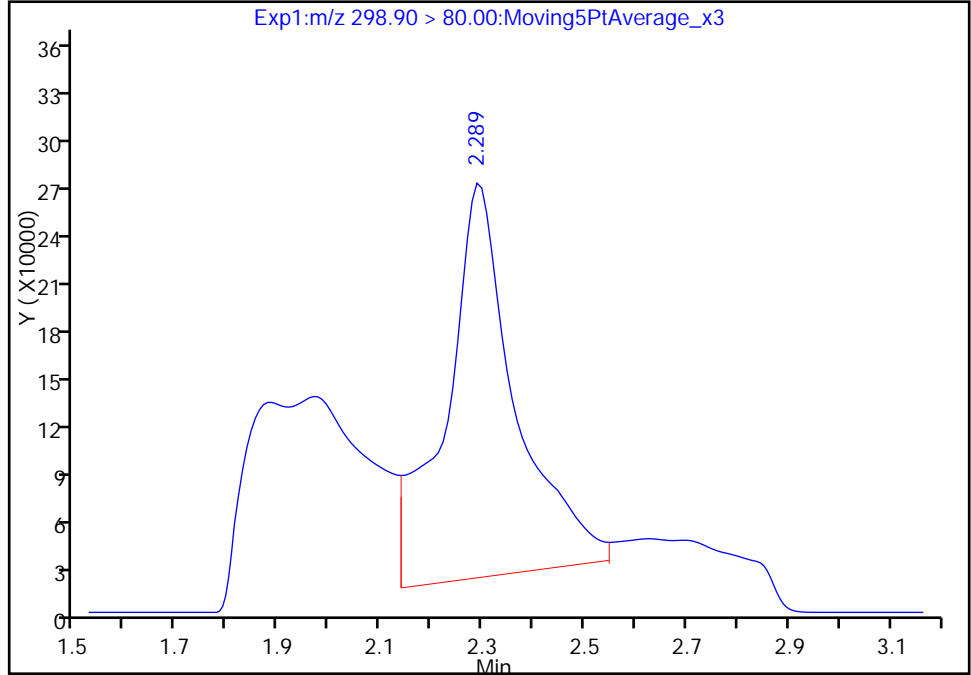
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
Injection Date: 19-May-2017 11:59:16 Instrument ID: A8_N
Lims ID: 680-138385-A-1-A Lab Sample ID: 320-138385-1
Client ID: 06GW14050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

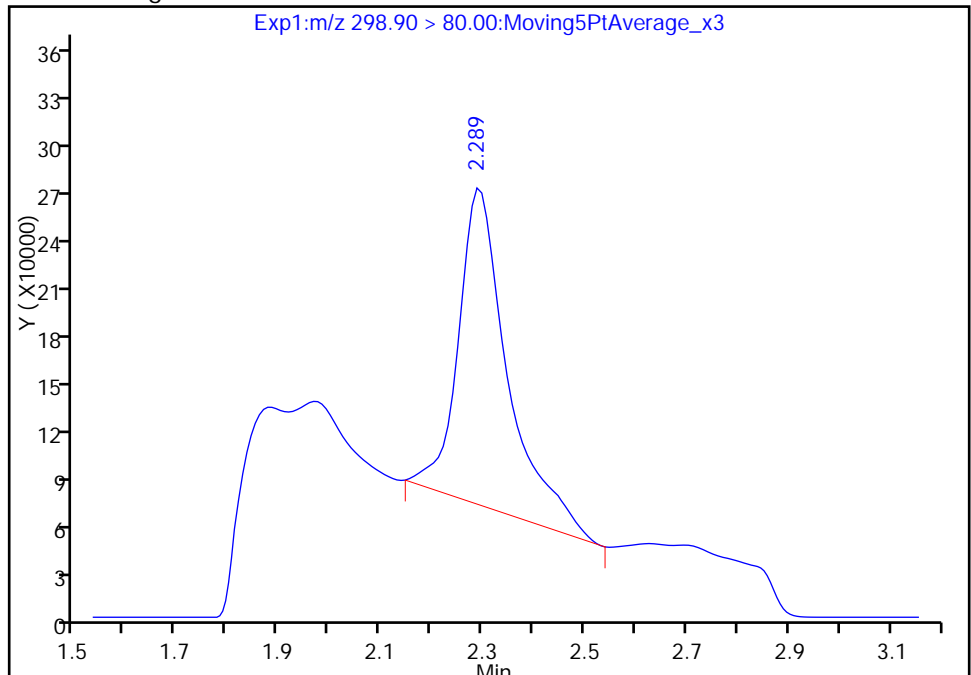
RT: 2.29
Area: 2361735
Amount: 5.370760
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 1347203
Amount: 3.063639
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:51:07
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

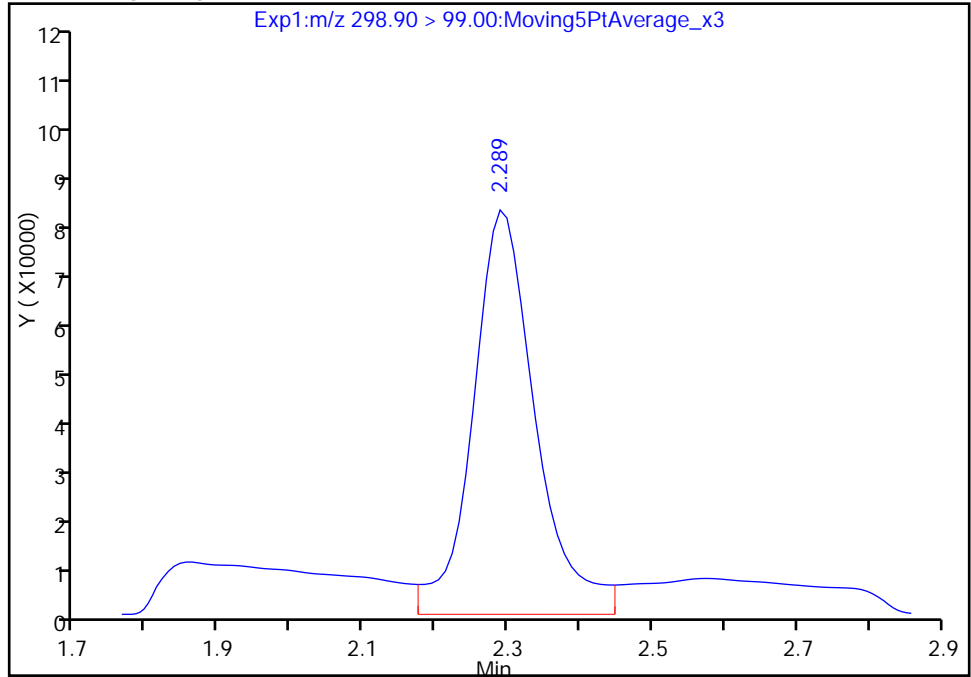
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
Injection Date: 19-May-2017 11:59:16 Instrument ID: A8_N
Lims ID: 680-138385-A-1-A Lab Sample ID: 320-138385-1
Client ID: 06GW14050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

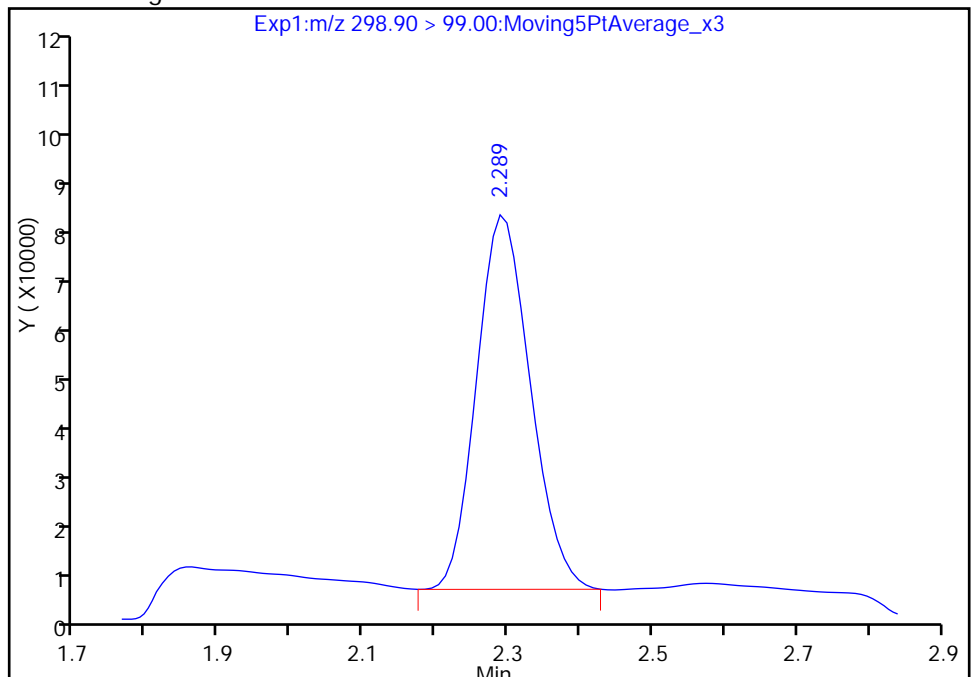
RT: 2.29
Area: 462850
Amount: 5.370760
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 370052
Amount: 3.063639
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:51:09

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

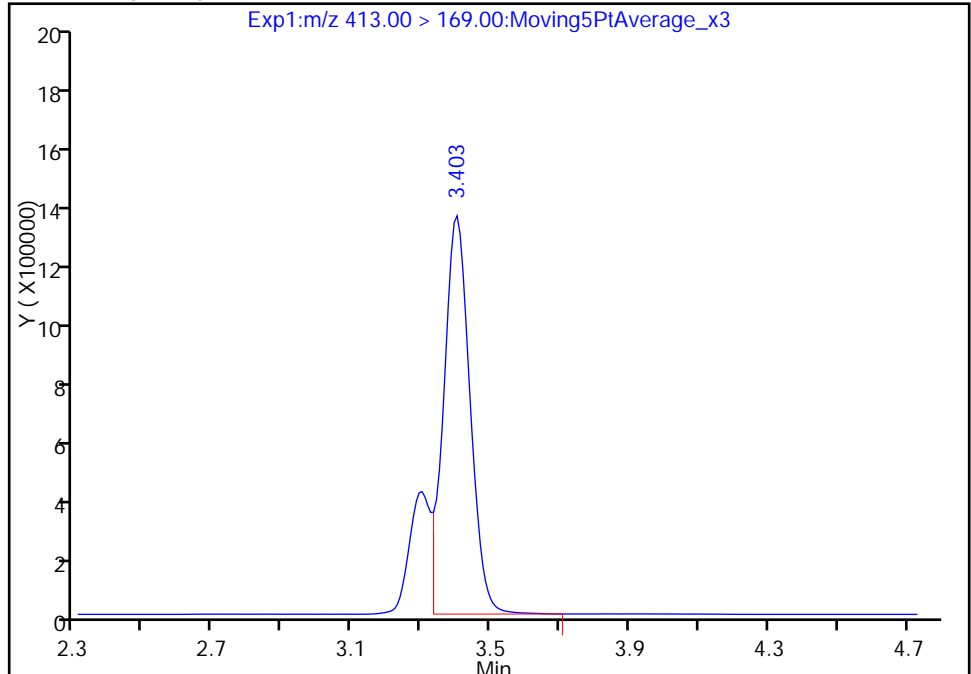
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
Injection Date: 19-May-2017 11:59:16 Instrument ID: A8_N
Lims ID: 680-138385-A-1-A Lab Sample ID: 320-138385-1
Client ID: 06GW14050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

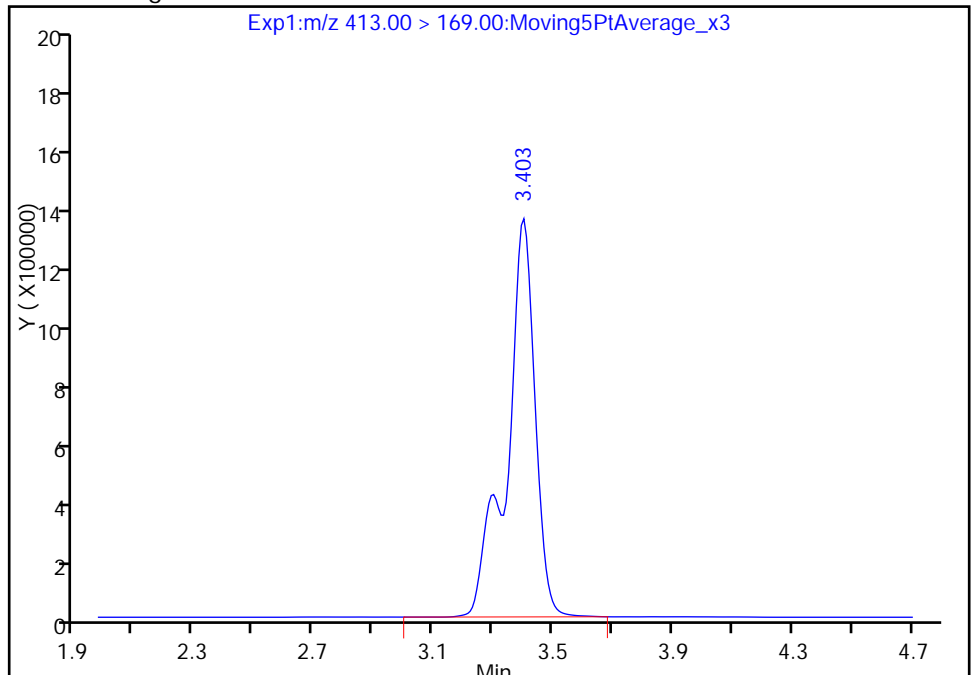
RT: 3.40
Area: 6799893
Amount: 83.169761
Amount Units: ng/ml

Processing Integration Results



RT: 3.40
Area: 8530504
Amount: 83.169761
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:54:17
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

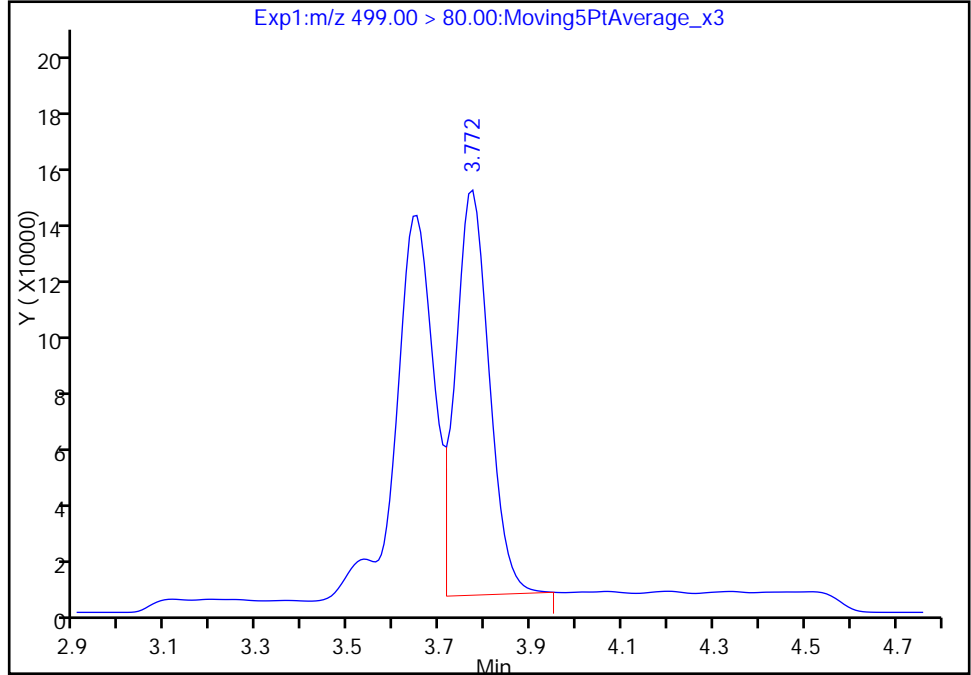
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Injection Date: 19-May-2017 11:59:16 Instrument ID: A8_N
Lims ID: 680-138385-A-1-A Lab Sample ID: 320-138385-1
Client ID: 06GW14050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

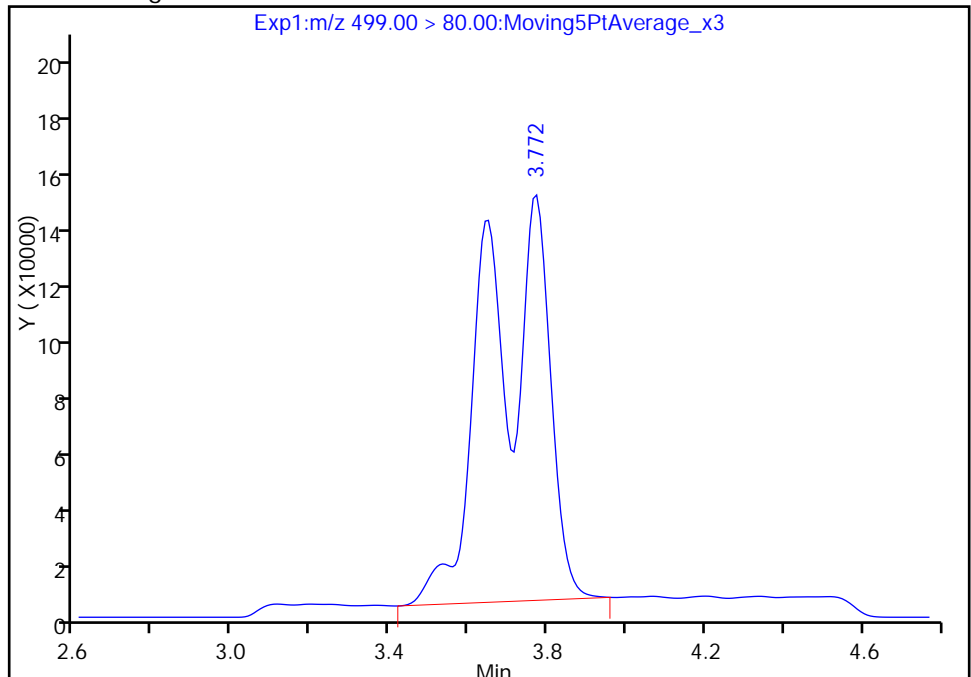
RT: 3.77
Area: 718645
Amount: 2.888197
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 1504036
Amount: 6.044643
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:54:22
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

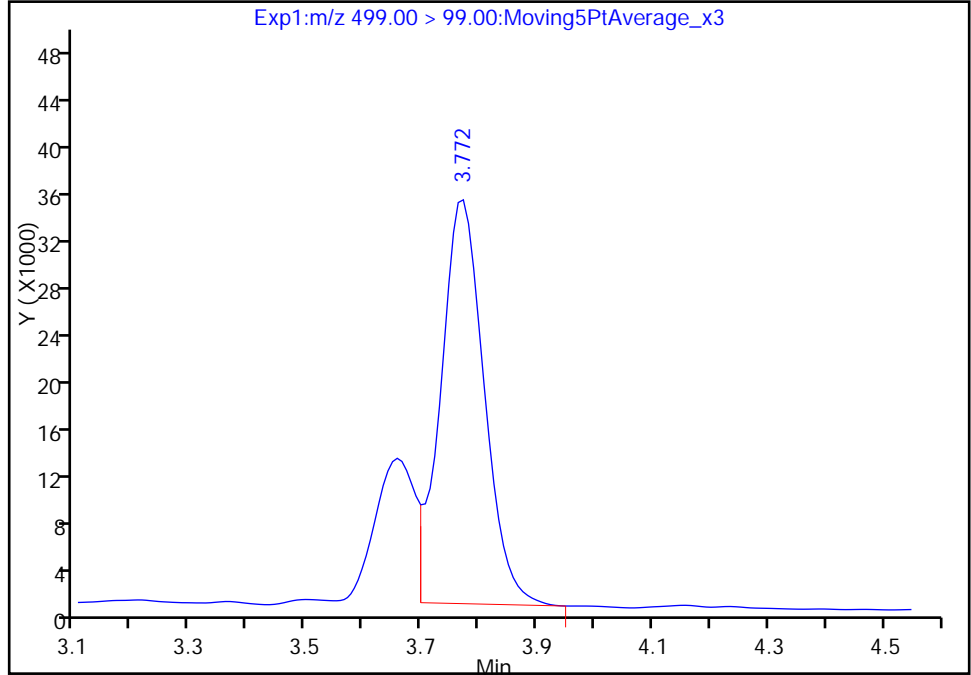
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
Injection Date: 19-May-2017 11:59:16 Instrument ID: A8_N
Lims ID: 680-138385-A-1-A Lab Sample ID: 320-138385-1
Client ID: 06GW14050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

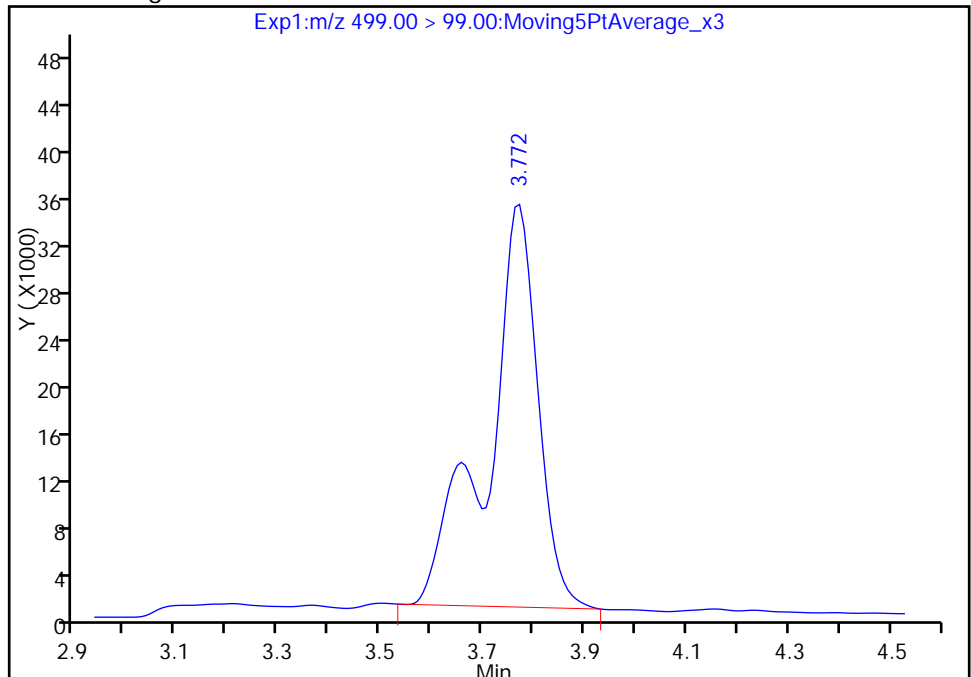
RT: 3.77
Area: 179751
Amount: 2.888197
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 237223
Amount: 6.044643
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:54:24

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW03050417</u>	Lab Sample ID: <u>680-138385-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_008.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>259.3 (mL)</u>	Date Analyzed: <u>05/19/2017 12:06</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.8	M	2.4	0.89
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.3	J M	2.4	0.84
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1		2.4	0.77
335-67-1	Perfluorooctanoic acid (PFOA)	150	M	2.4	0.72
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.3	M	3.9	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.63

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	91		25-150
STL01892	13C4-PFHpA	73		25-150
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	85		25-150
STL00995	13C5 PFNA	64		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_008.d
 Lims ID: 680-138385-A-2-A
 Client ID: 06GW03050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:06:47 ALS Bottle#: 7 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:34:50 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 14:44:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.290	2.289	0.001	1.000	878002	1.98				M
298.90 > 99.00	2.290	2.289	0.001	1.000	165134		5.32(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.005	2.994	0.011	1.000	372806	2.14			18.4	
D 9 13C4-PFHpA										
367.00 > 322.00	3.005	2.994	0.011		7786587	36.7		73.5	39932	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.015	3.009	0.006	1.000	399006	1.22				M
D 11 18O2 PFHxS										
403.00 > 84.00	3.015	3.009	0.006		13170857	43.3		91.5	43250	
* 62 13C2-PFOA										
415.00 > 370.00	3.400	3.426	-0.026		15518	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.409	3.396	0.013	1.000	13951120	77.1			691	M
413.00 > 169.00	3.409	3.396	0.013	1.000	8781724		1.59(0.90-1.10)		5330	M
D 14 13C4 PFOA										
417.00 > 372.00	3.409	3.396	0.013		7870905	37.0		74.0	25046	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.656	3.762	-0.106	1.000	634832	2.74			43.4	M
499.00 > 99.00	3.771	3.762	0.009	1.031	89813		7.07(0.90-1.10)		44.6	M
D 18 13C4 PFOS										
503.00 > 80.00	3.780	3.762	0.018		9301581	40.6		84.9	1416	
20 Perfluorononanoic acid										
463.00 > 419.00	3.789	3.770	0.019	1.000	18398	0.1598			2.1	
D 19 13C5 PFNA										
468.00 > 423.00	3.789	3.770	0.019		5378919	32.0		64.1	13654	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_008.d

Injection Date: 19-May-2017 12:06:47

Instrument ID: A8_N

Lims ID: 680-138385-A-2-A

Lab Sample ID: 320-138385-2

Client ID: 06GW03050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

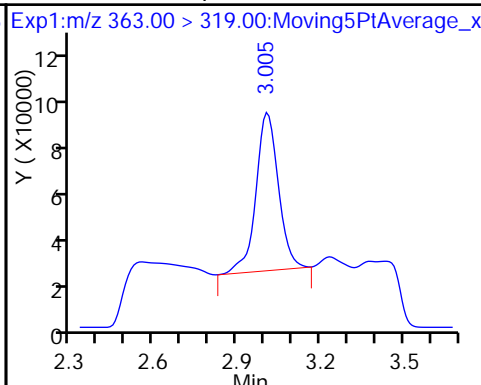
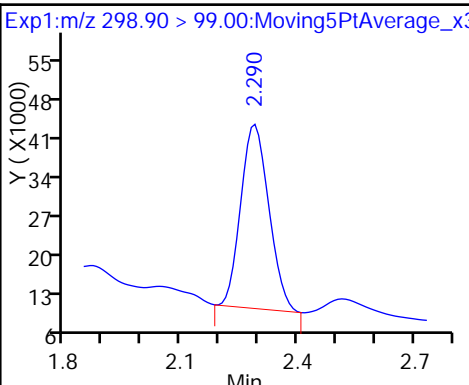
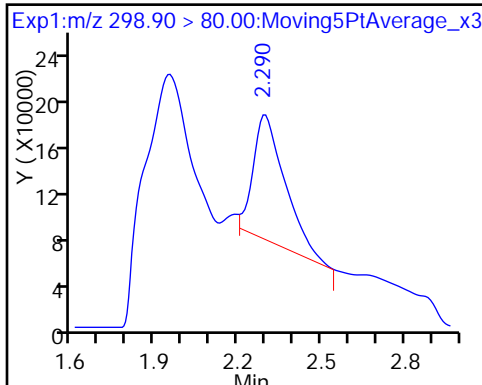
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

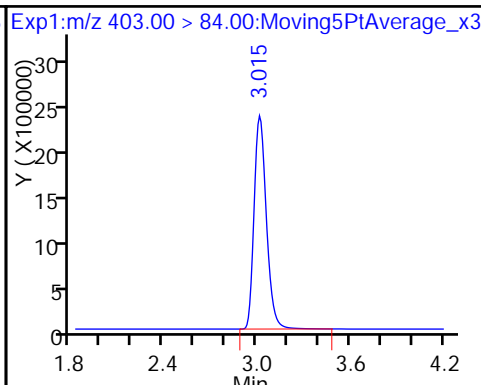
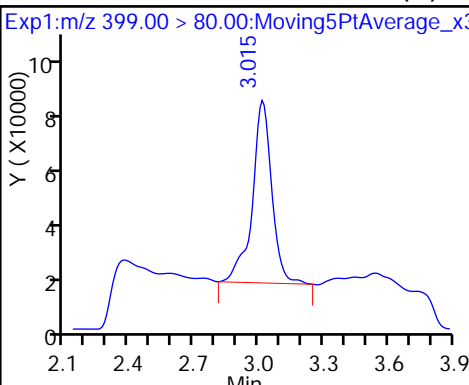
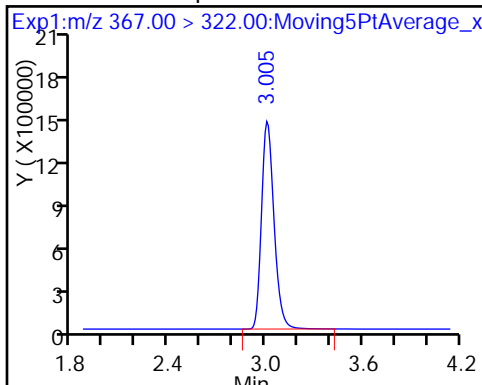
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

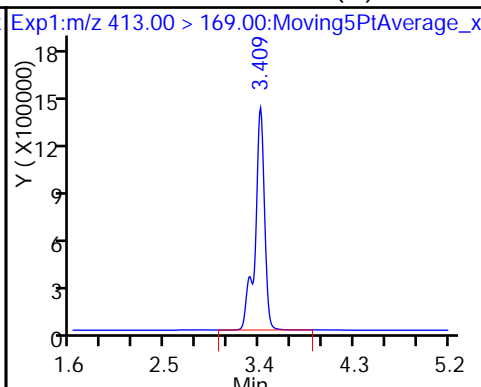
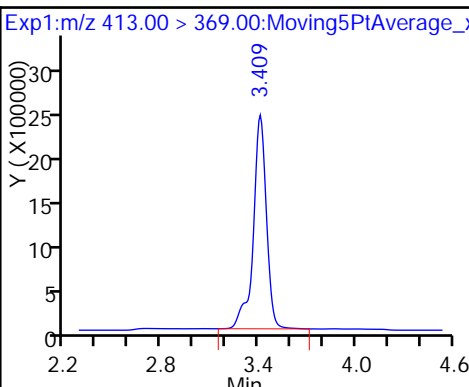
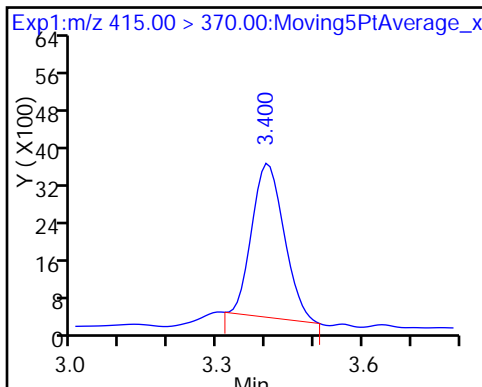
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

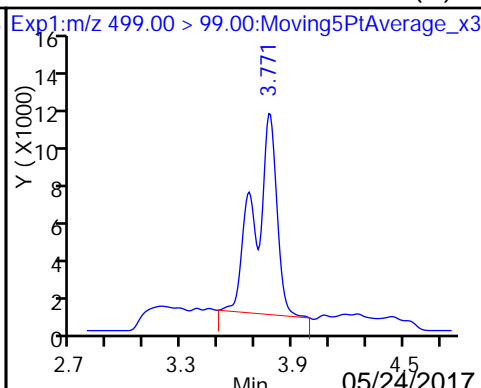
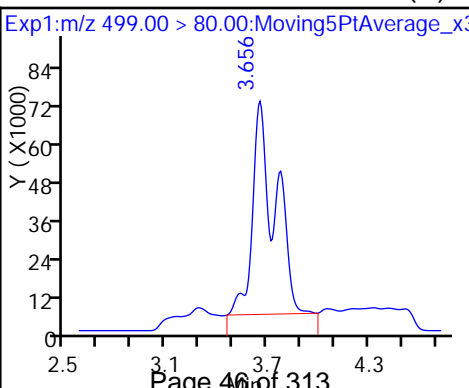
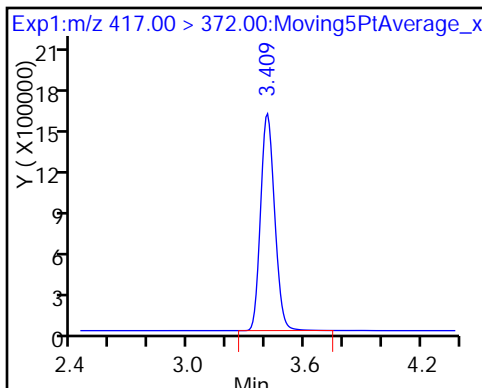
15 Perfluorooctanoic acid (M)



D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (M)

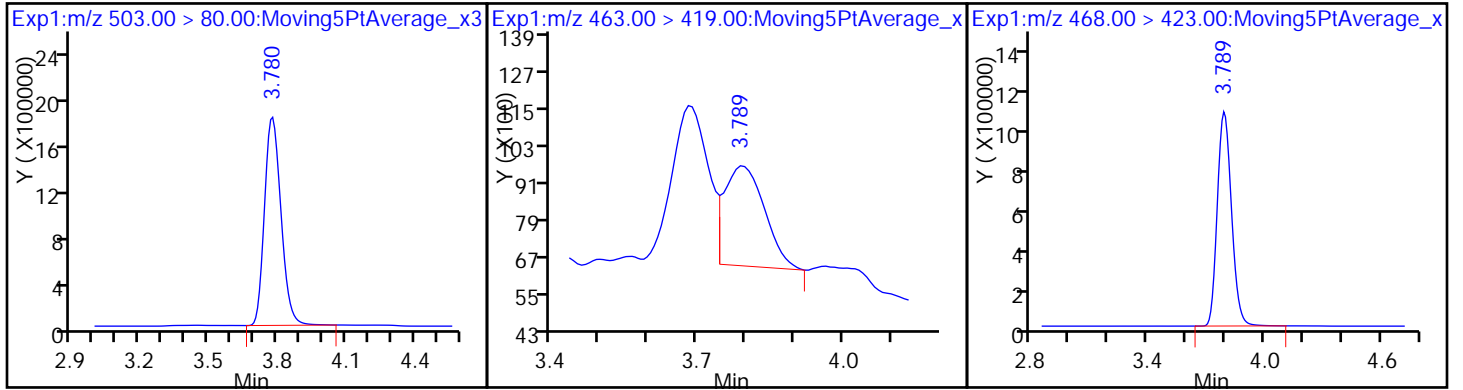
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

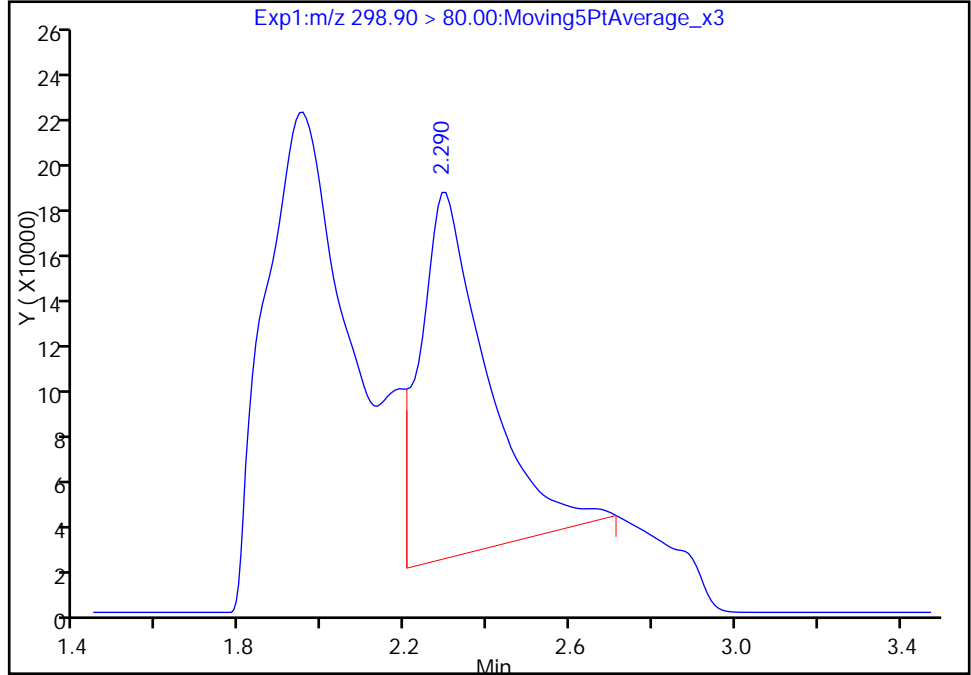
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Injection Date: 19-May-2017 12:06:47 Instrument ID: A8_N
Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

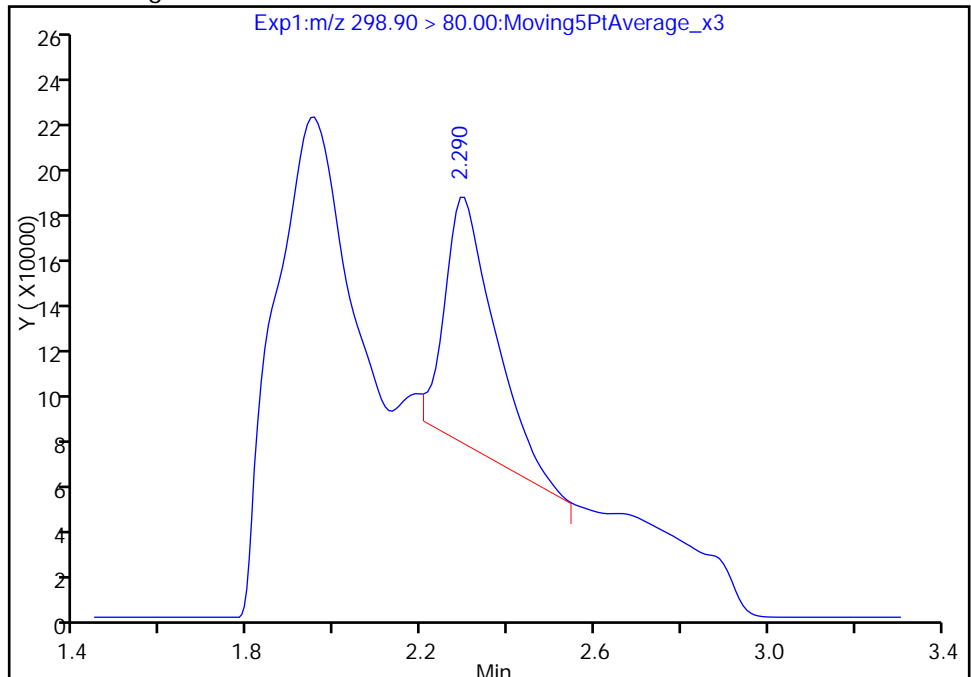
RT: 2.29
Area: 1788660
Amount: 4.026296
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 878002
Amount: 1.976394
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:54:41
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

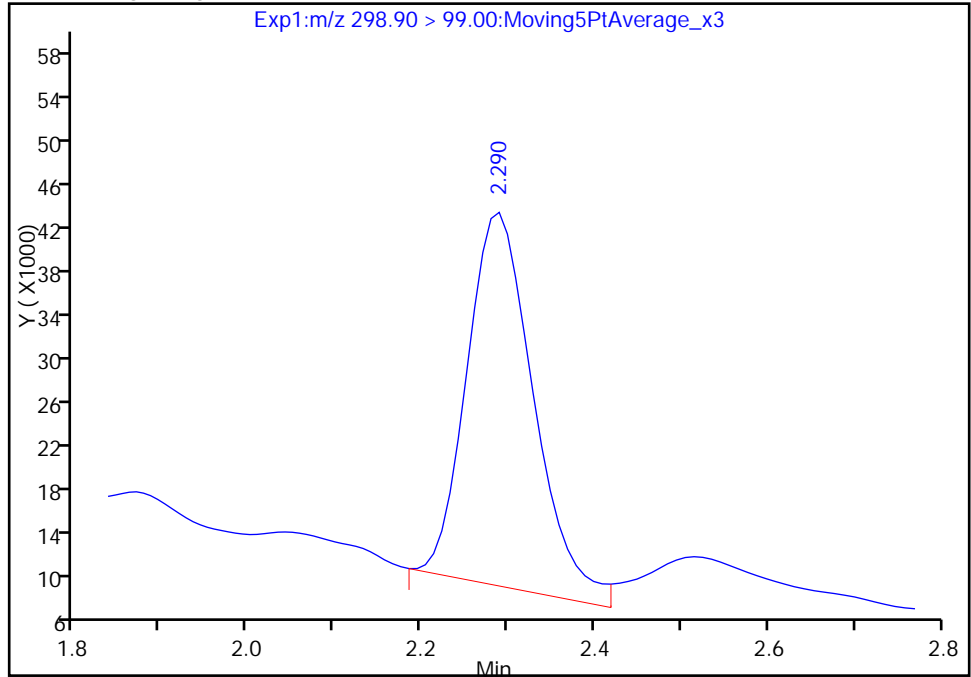
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Injection Date: 19-May-2017 12:06:47 Instrument ID: A8_N
Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

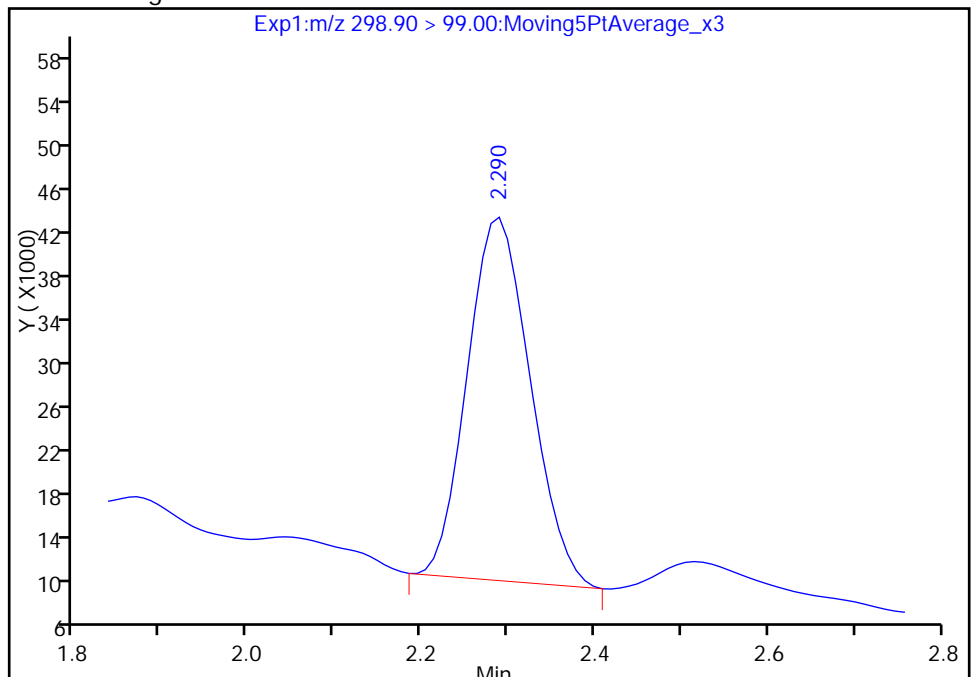
RT: 2.29
Area: 179562
Amount: 4.026296
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
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Amount: 1.976394
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

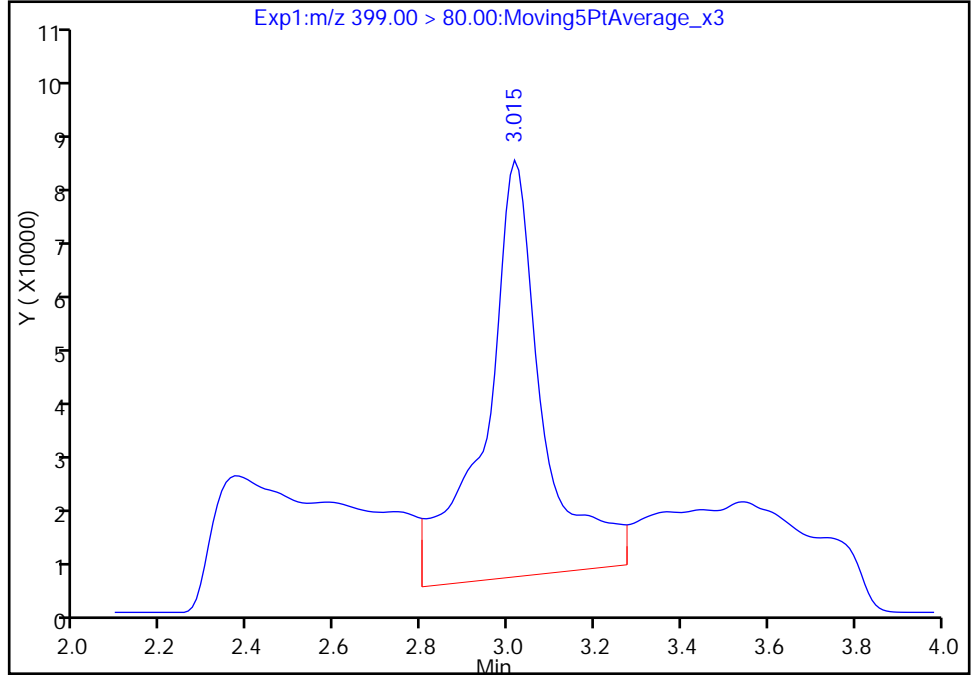
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_008.d
Injection Date: 19-May-2017 12:06:47 Instrument ID: A8_N
Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

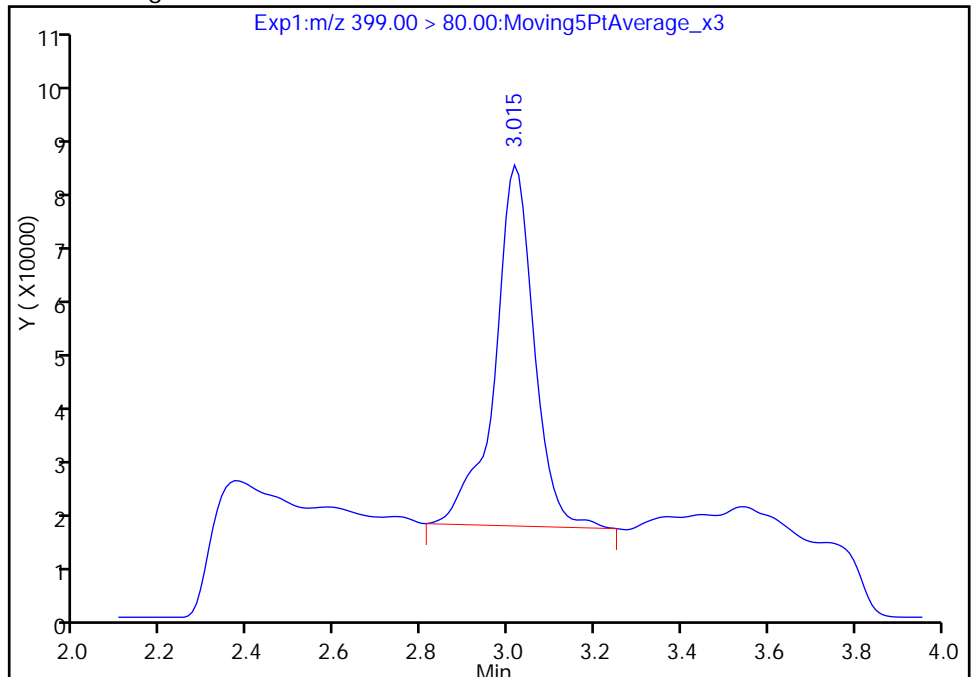
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Area: 670216
Amount: 2.043991
Amount Units: ng/ml

Processing Integration Results



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Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

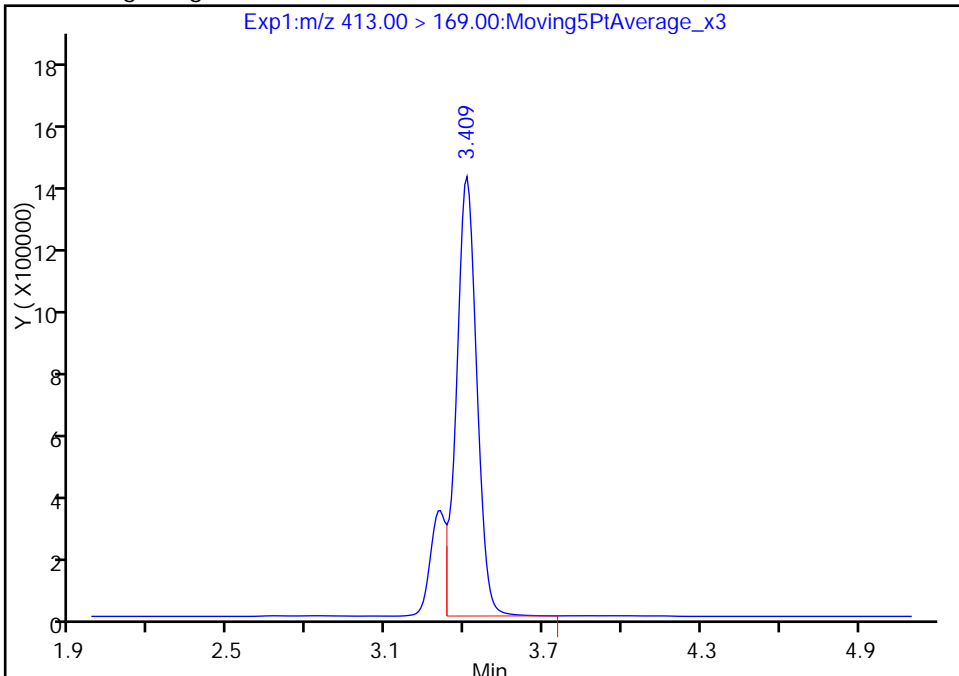
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Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

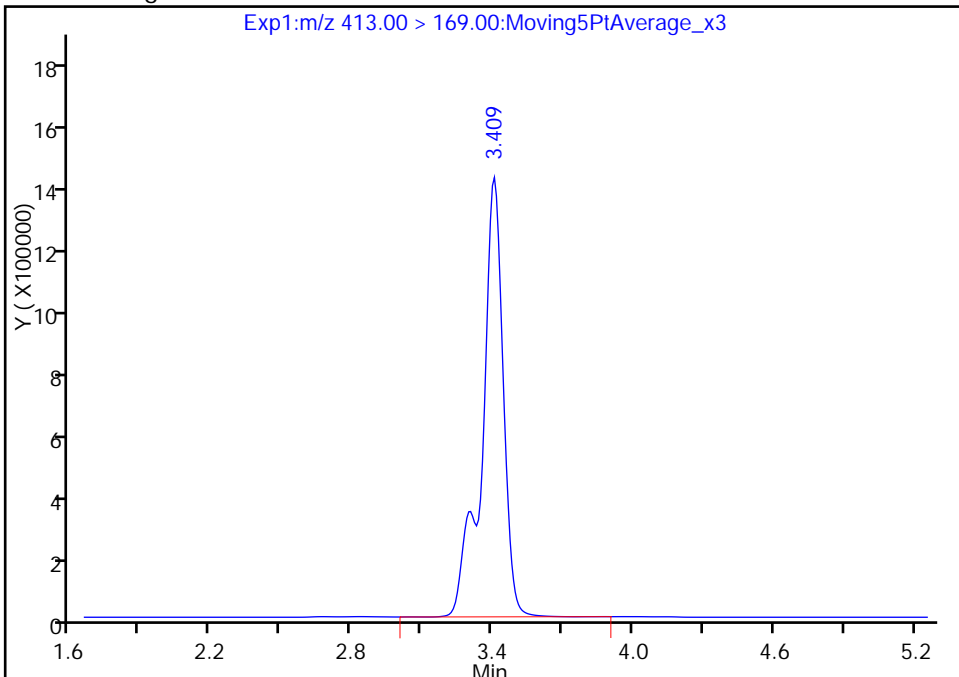
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Amount: 77.132525
Amount Units: ng/ml

Processing Integration Results



RT: 3.41
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Amount: 77.132525
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:54:57
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

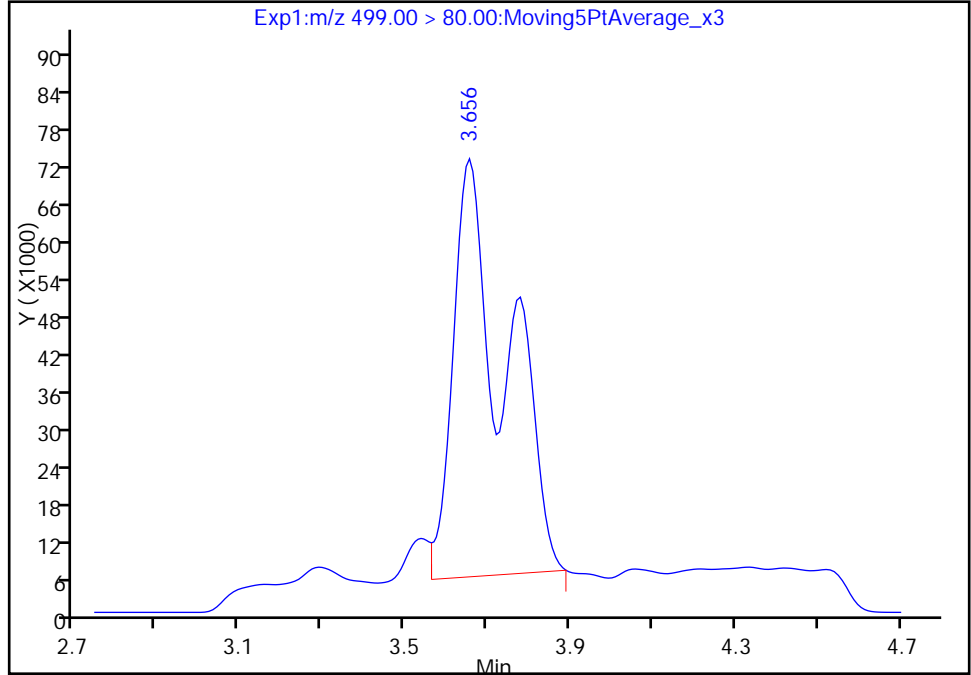
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_008.d
Injection Date: 19-May-2017 12:06:47 Instrument ID: A8_N
Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

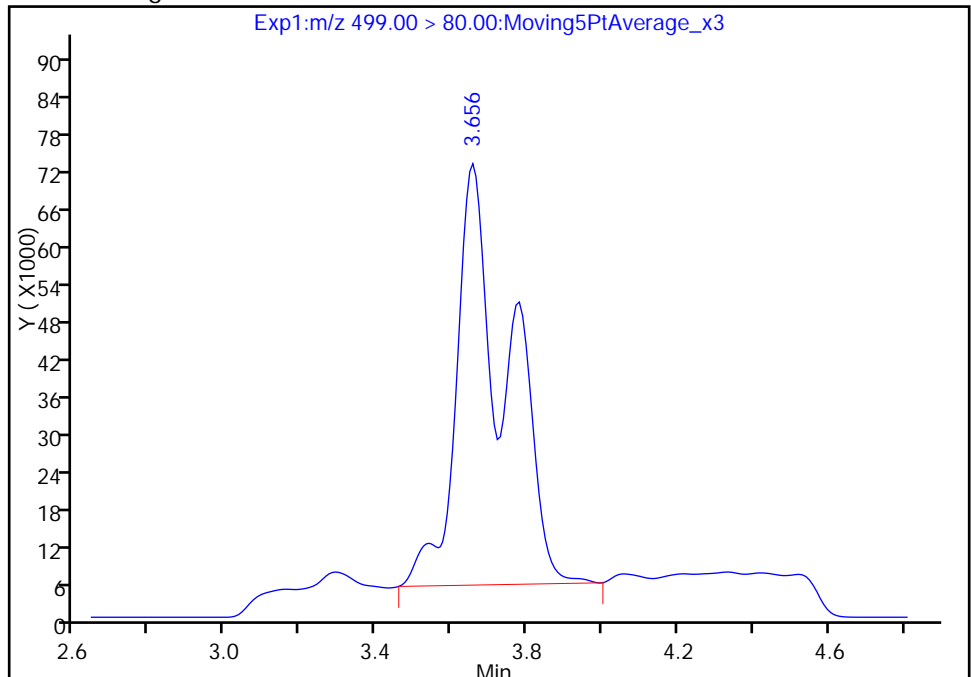
RT: 3.66
Area: 589556
Amount: 2.540580
Amount Units: ng/ml

Processing Integration Results



RT: 3.66
Area: 634832
Amount: 2.735689
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:55:01
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

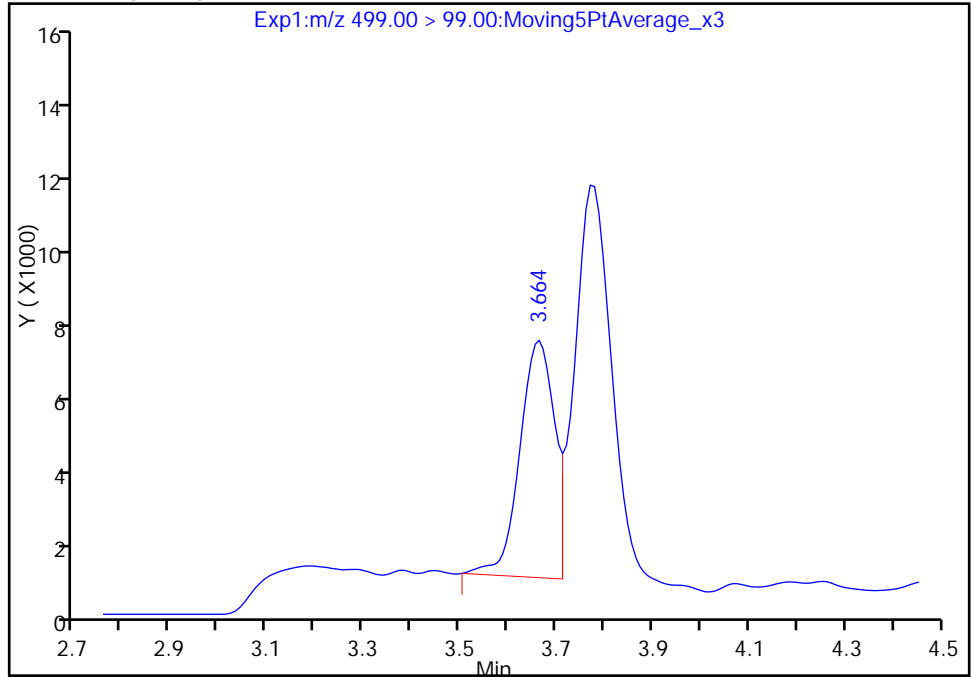
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Injection Date: 19-May-2017 12:06:47 Instrument ID: A8_N
Lims ID: 680-138385-A-2-A Lab Sample ID: 320-138385-2
Client ID: 06GW03050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

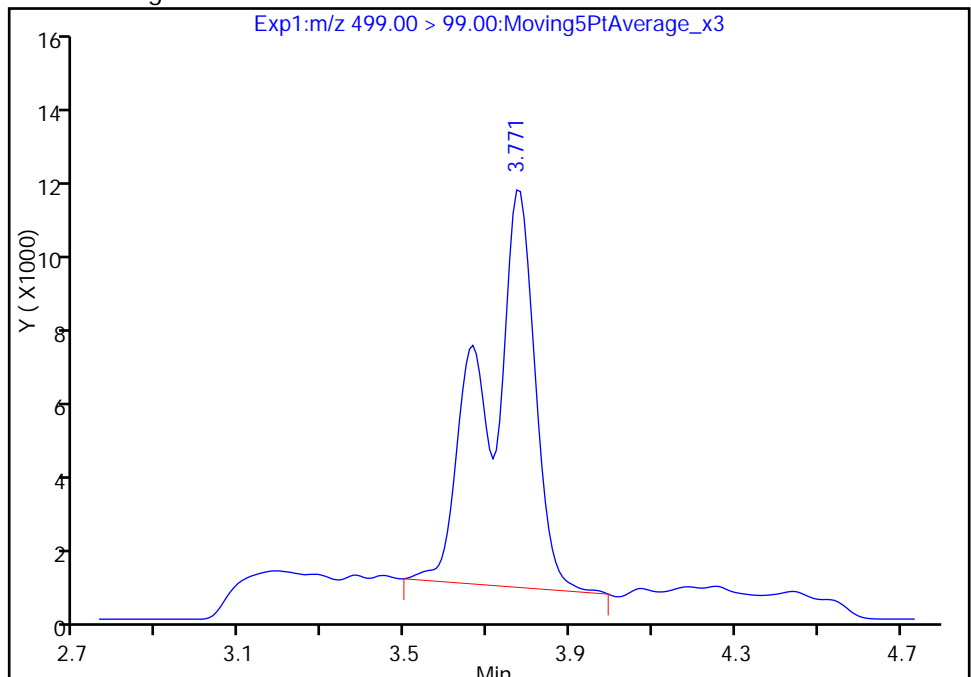
RT: 3.66
Area: 32185
Amount: 2.540580
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 89813
Amount: 2.735689
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06FD01-050417</u>	Lab Sample ID: <u>680-138385-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_009.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 00:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>288.8 (mL)</u>	Date Analyzed: <u>05/19/2017 12:14</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.9	M	2.2	0.79
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.3	M	2.2	0.75
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	M	2.2	0.69
335-67-1	Perfluorooctanoic acid (PFOA)	140	M	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.2	M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	0.71	J	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	90		25-150
STL01892	13C4-PFHpA	71		25-150
STL00990	13C4 PFOA	72		25-150
STL00991	13C4 PFOS	85		25-150
STL00995	13C5 PFNA	60		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_009.d
 Lims ID: 680-138385-A-3-A
 Client ID: 06FD01-050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:14:17 ALS Bottle#: 8 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-3-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 11:15:27 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK014

First Level Reviewer: westendorfc Date: 22-May-2017 11:15:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.299	2.289	0.010	1.000	992401	2.26				M
298.90 > 99.00	2.289	2.289	0.0	0.996	156642		6.34(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.003	2.994	0.009	1.000	414042	2.45			18.3	M
D 9 13C4-PFHpA										
367.00 > 322.00	3.003	2.994	0.009		7565622	35.7		71.4	33940	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.013	3.009	0.004	1.000	424823	1.31				M
D 11 18O2 PFHxS										
403.00 > 84.00	3.013	3.009	0.004		13017886	42.8		90.4	40549	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.398	3.396	0.002	1.000	14792093	83.5			674	
413.00 > 169.00	3.398	3.396	0.002	1.000	9829574		1.50(0.90-1.10)		5593	M
D 14 13C4 PFOA										
417.00 > 372.00	3.398	3.396	0.002		7712949	36.2		72.5	28515	
* 62 13C2-PFOA										
415.00 > 370.00	3.398	3.426	-0.028		16173	49.5				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.645	3.762	-0.117	1.000	697188	3.02			39.0	M
499.00 > 99.00	3.767	3.762	0.005	1.033	101663		6.86(0.90-1.10)		50.2	M
D 18 13C4 PFOS										
503.00 > 80.00	3.767	3.762	0.005		9262539	40.4		84.5	1305	
20 Perfluorononanoic acid										
463.00 > 419.00	3.767	3.770	-0.003	1.000	43997	0.4097			3.6	
D 19 13C5 PFNA										
468.00 > 423.00	3.784	3.770	0.014		5018422	29.9		59.8	17334	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_009.d

Injection Date: 19-May-2017 12:14:17

Instrument ID: A8_N

Lims ID: 680-138385-A-3-A

Lab Sample ID: 320-138385-3

Client ID: 06FD01-050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

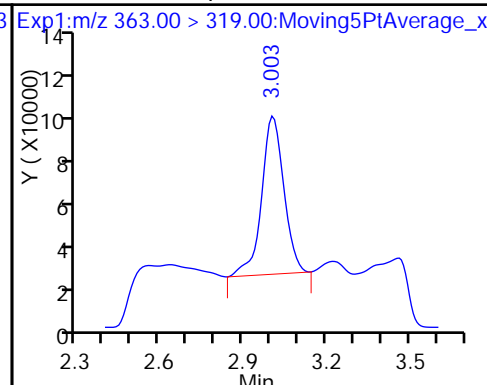
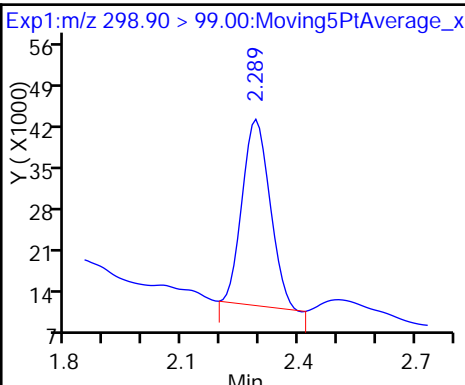
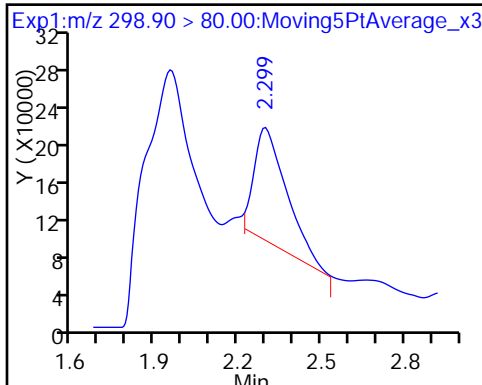
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

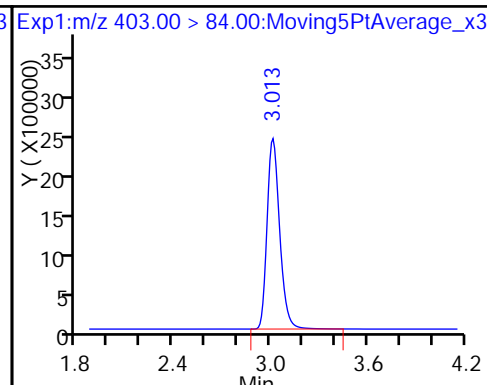
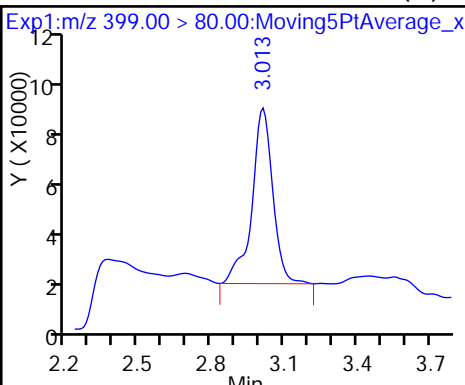
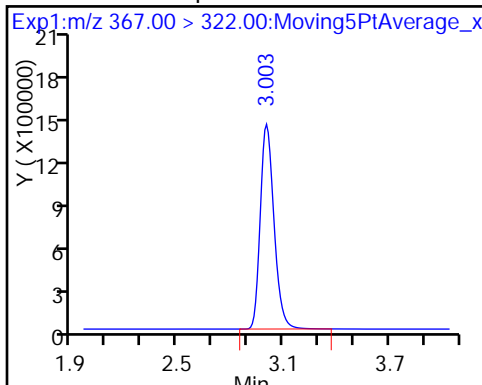
10 Perfluoroheptanoic acid (M)



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

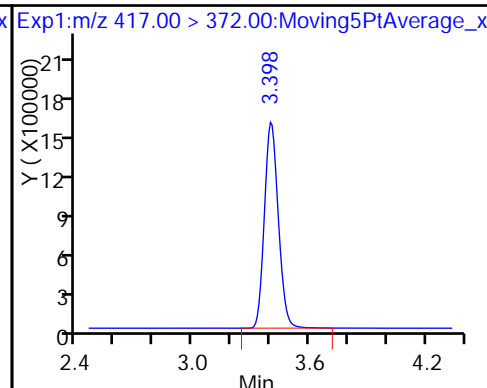
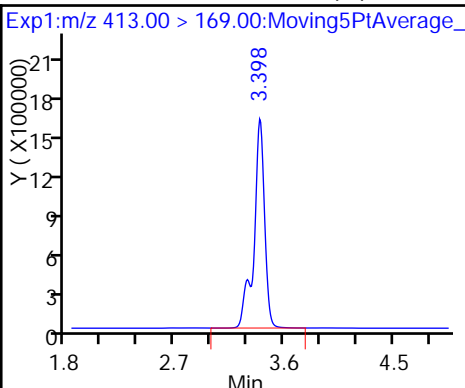
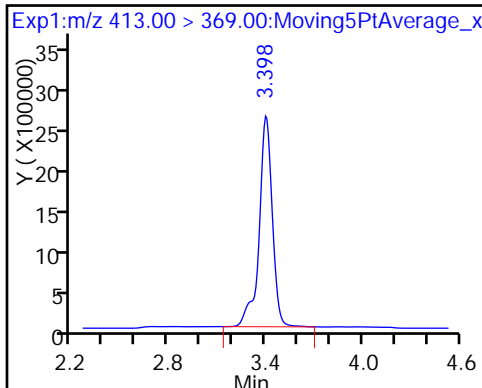
D 11 18O2 PFHxS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid (M)

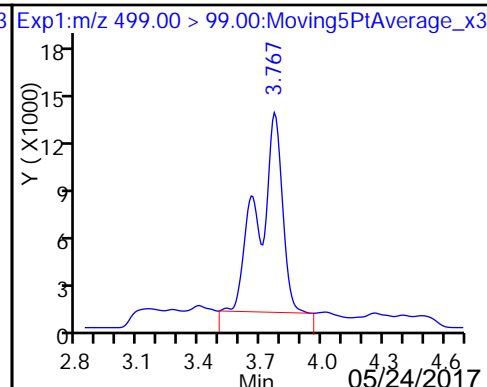
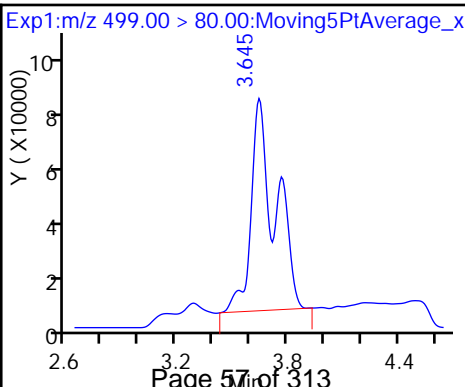
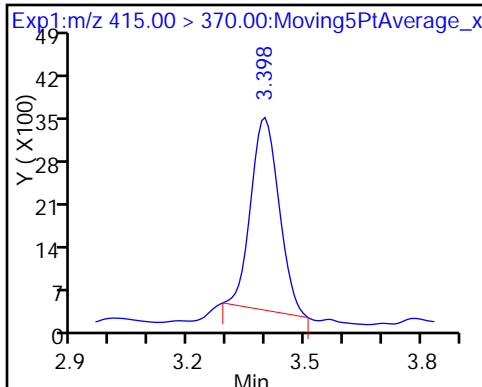
D 14 13C4 PFOA



* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (M)

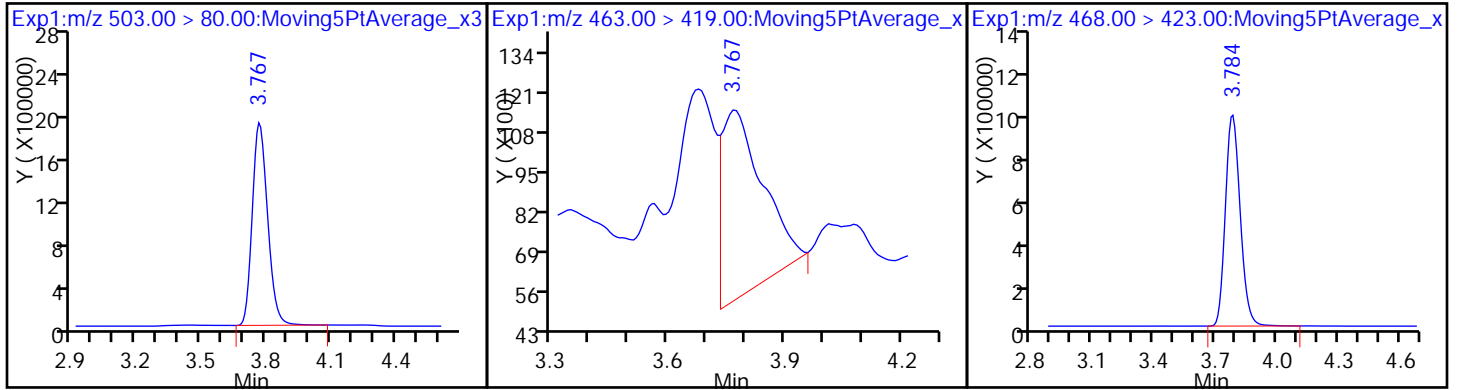
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

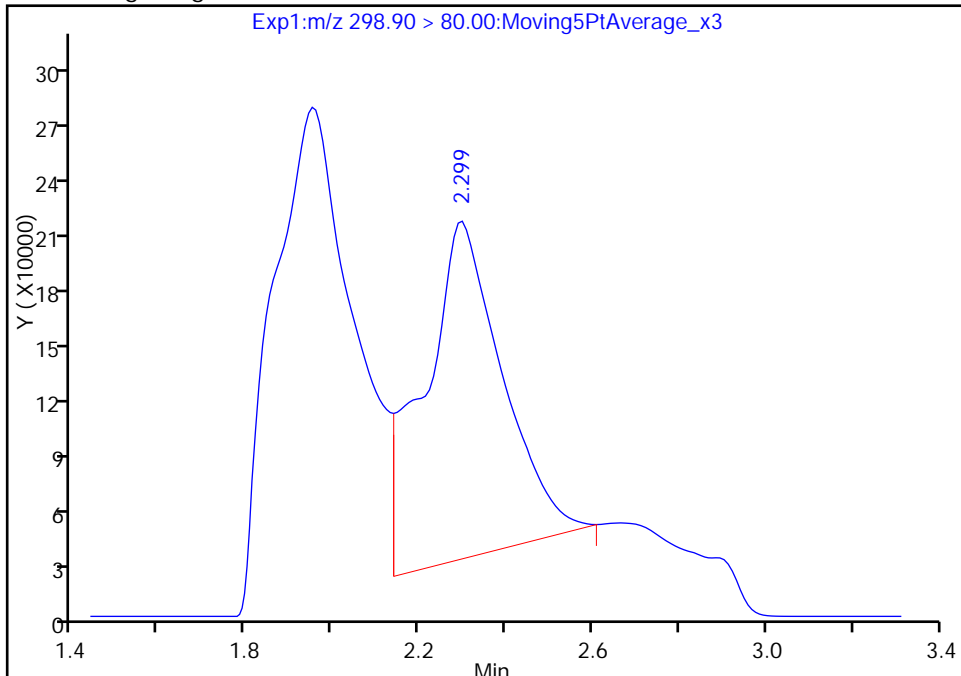
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

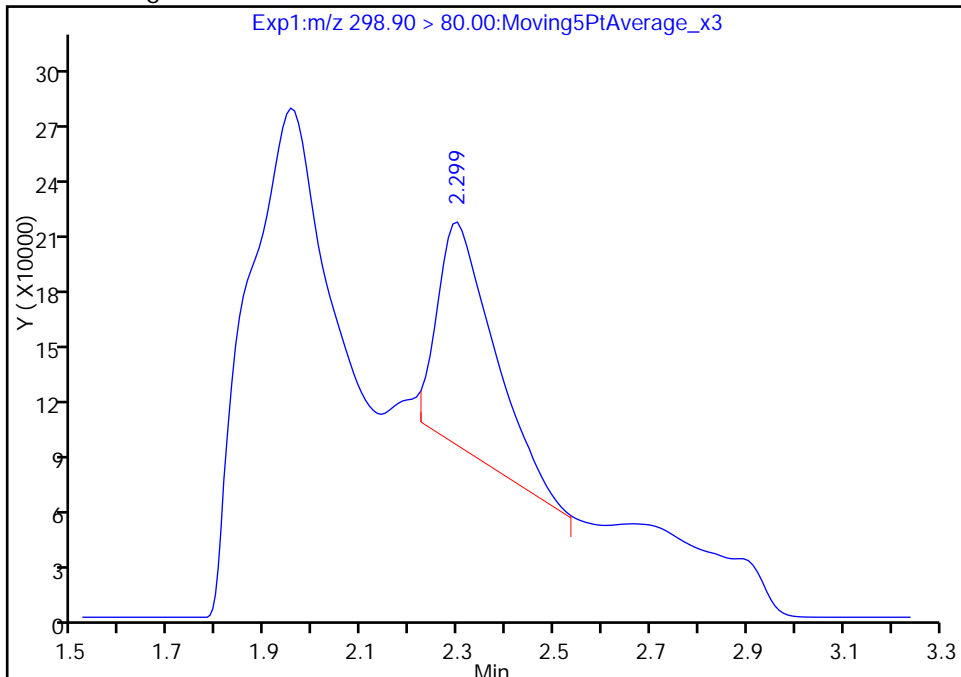
RT: 2.30
Area: 2276429
Amount: 5.184485
Amount Units: ng/ml

Processing Integration Results



RT: 2.30
Area: 992401
Amount: 2.260158
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:55:16
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

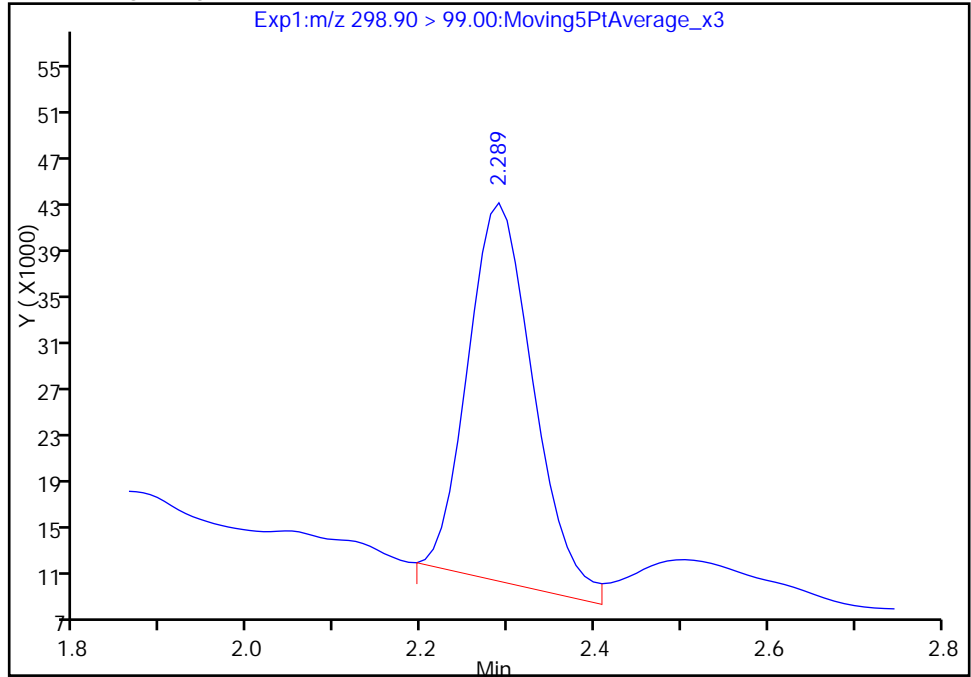
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

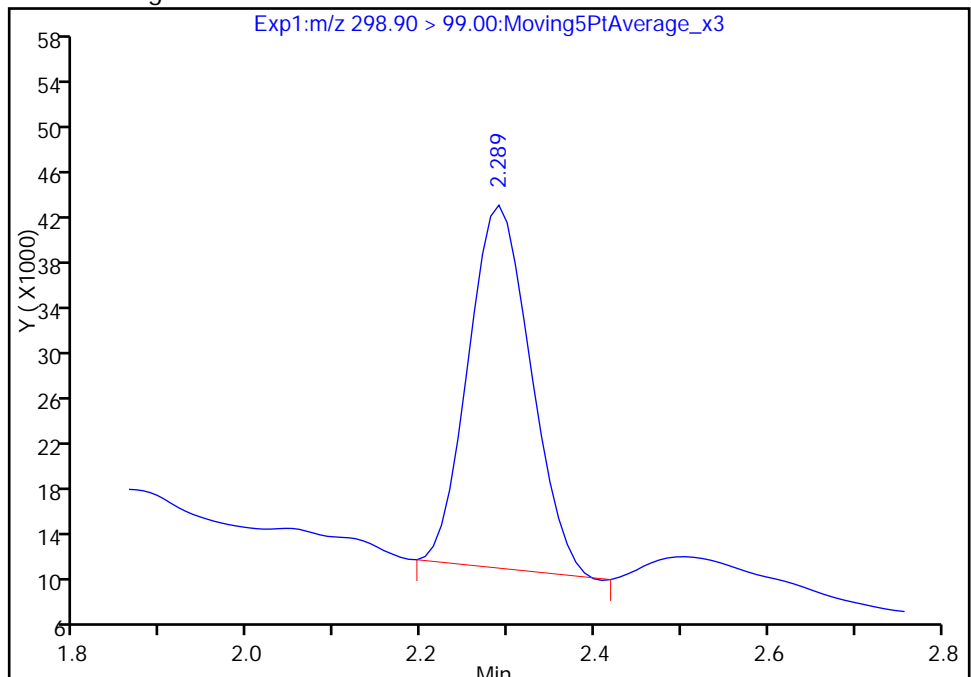
RT: 2.29
Area: 168861
Amount: 5.184485
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 156642
Amount: 2.260158
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

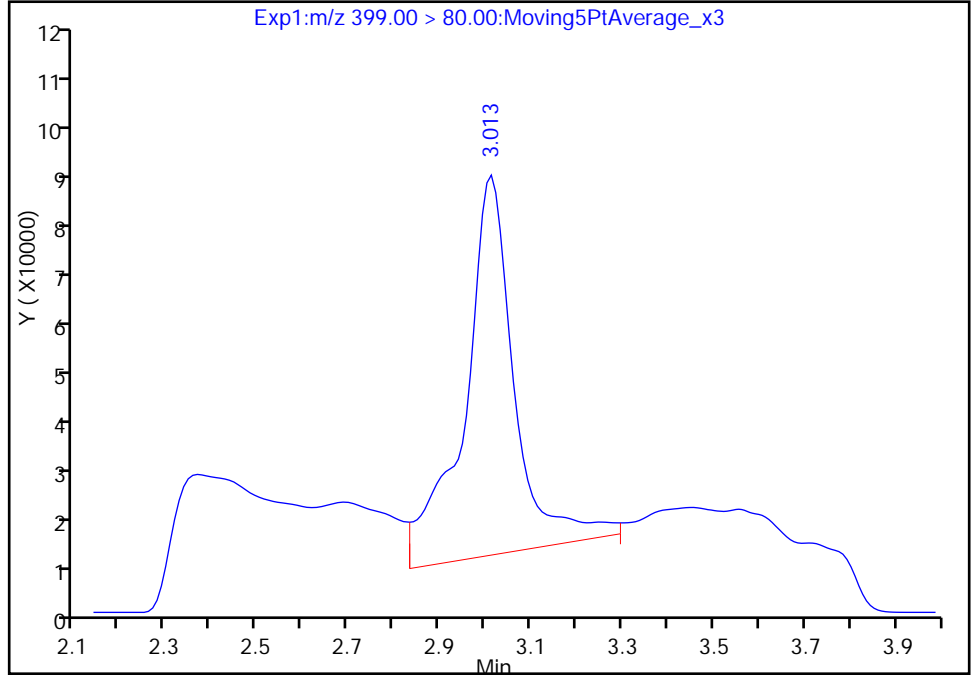
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

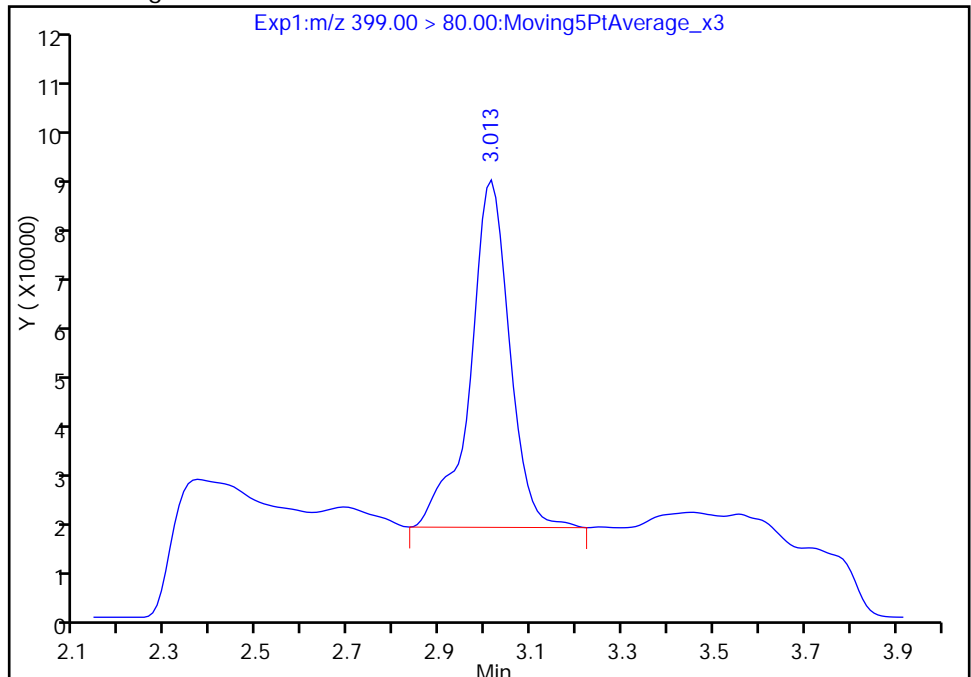
RT: 3.01
Area: 587234
Amount: 1.811962
Amount Units: ng/ml

Processing Integration Results



RT: 3.01
Area: 424823
Amount: 1.310828
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:55:32

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

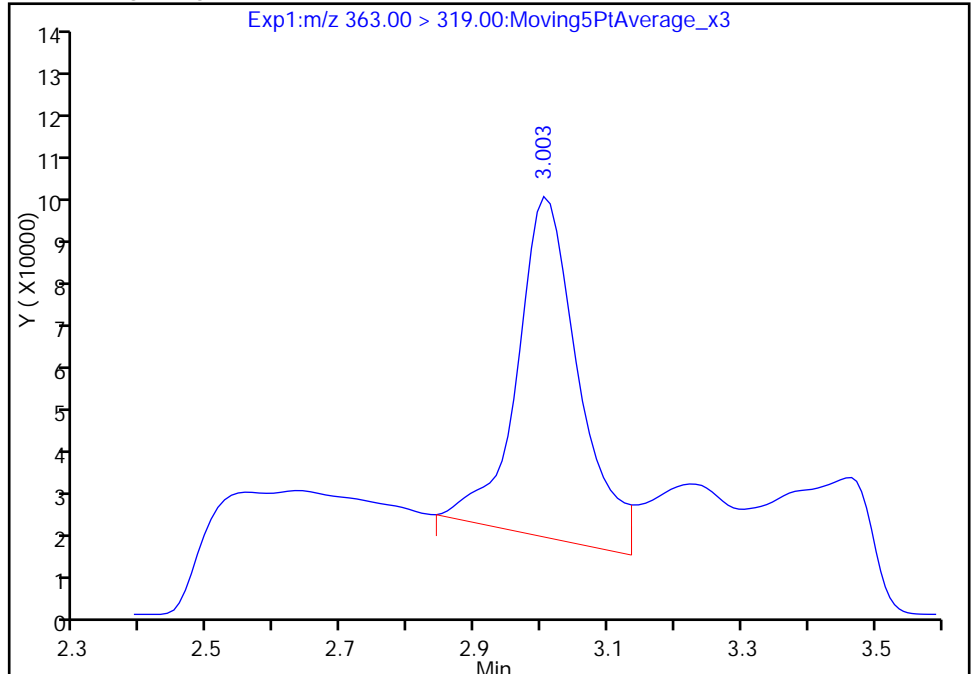
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

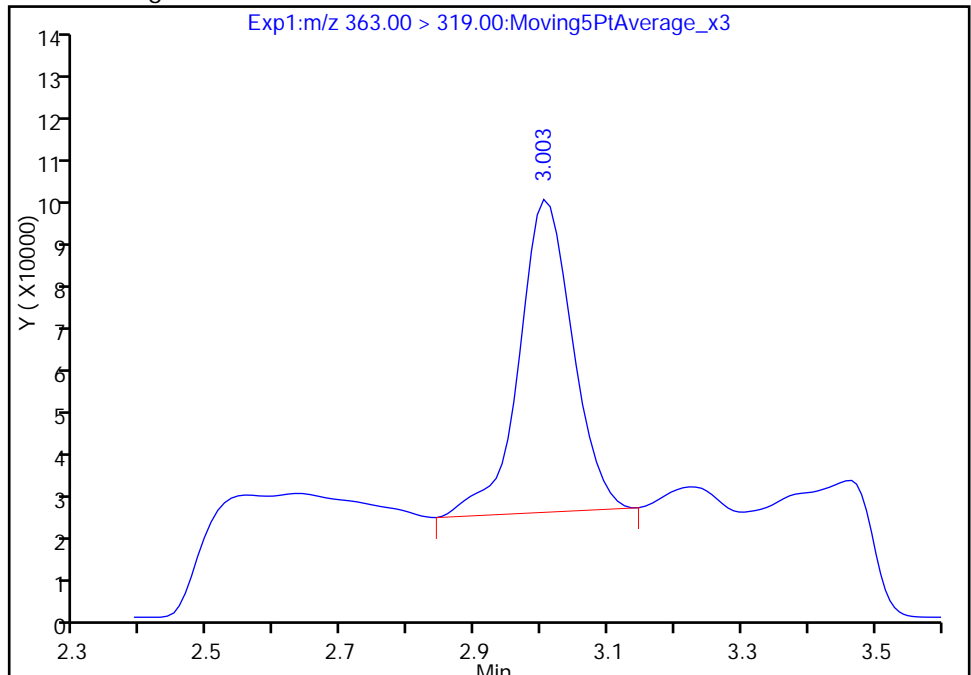
RT: 3.00
Area: 517494
Amount: 3.056501
Amount Units: ng/ml

Processing Integration Results



RT: 3.00
Area: 414042
Amount: 2.445477
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:55:25
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

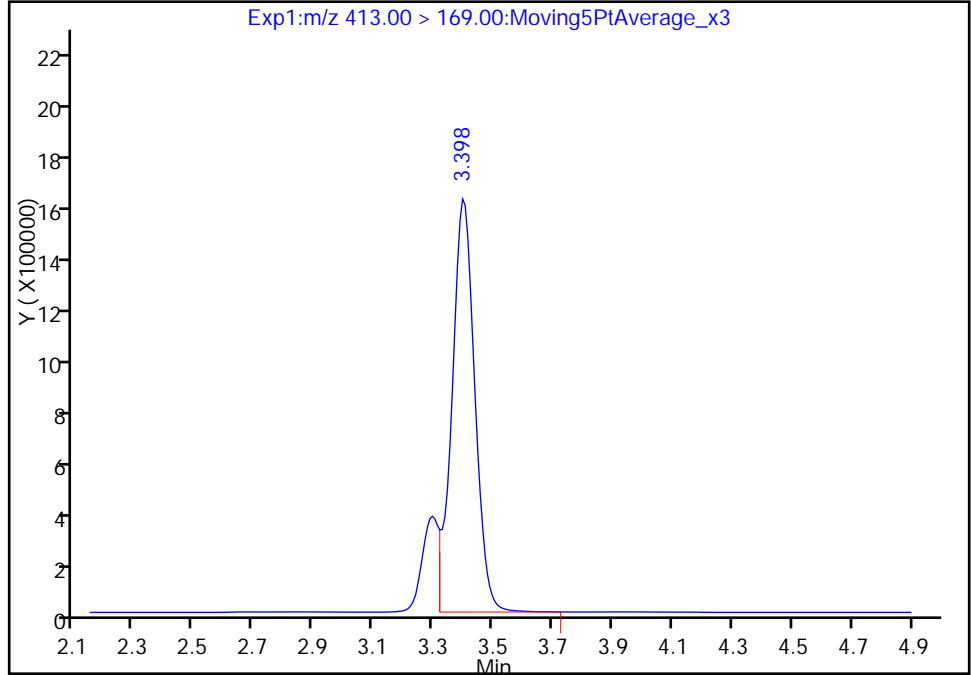
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_009.d
Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

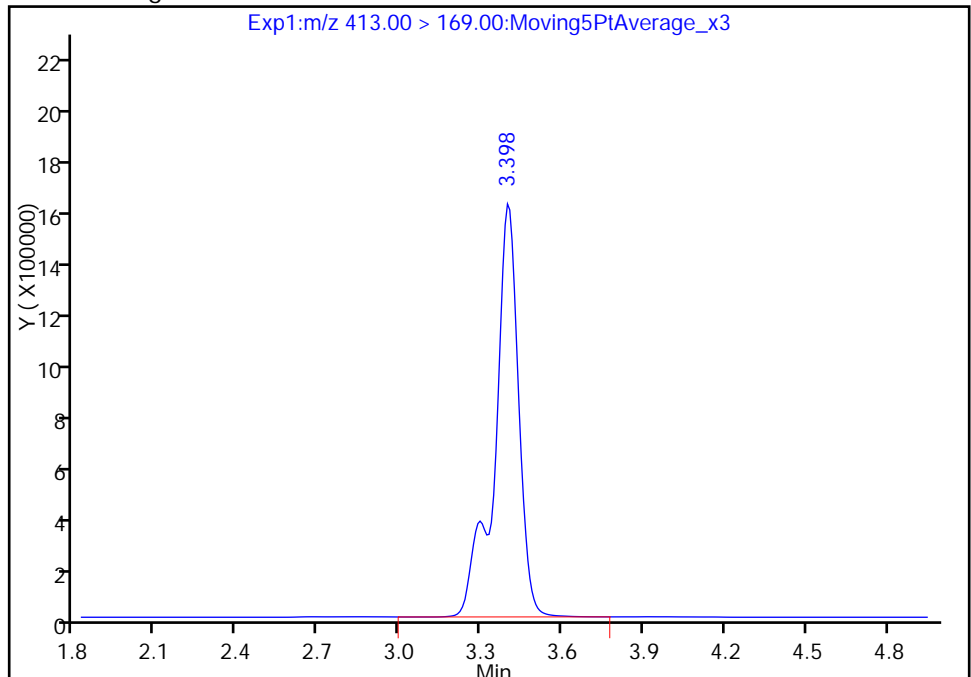
RT: 3.40
Area: 8433913
Amount: 83.456912
Amount Units: ng/ml

Processing Integration Results



RT: 3.40
Area: 9829574
Amount: 83.456912
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:55:37
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

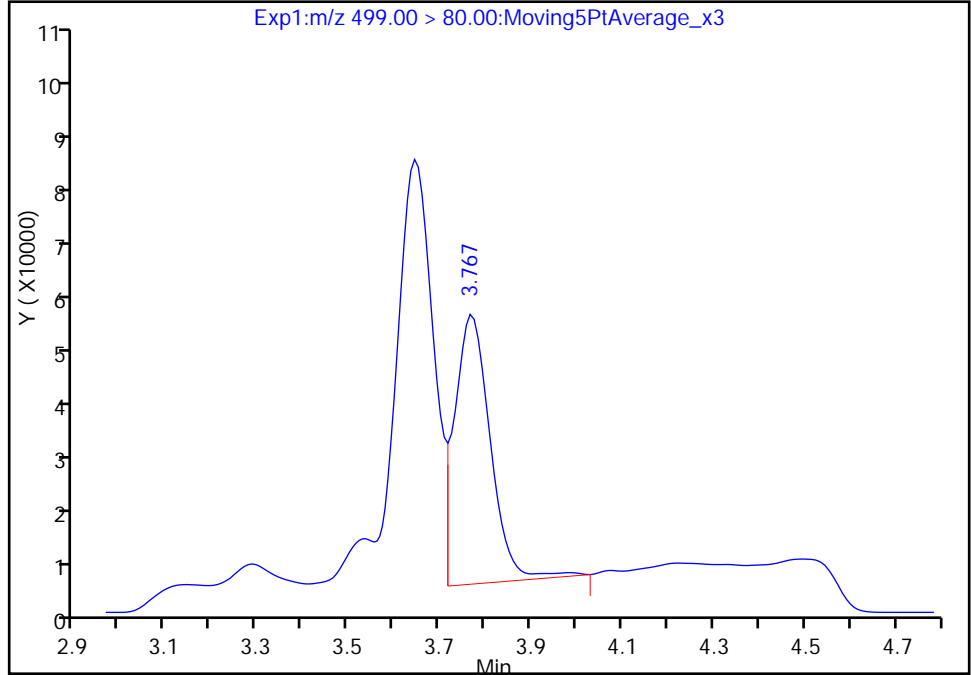
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

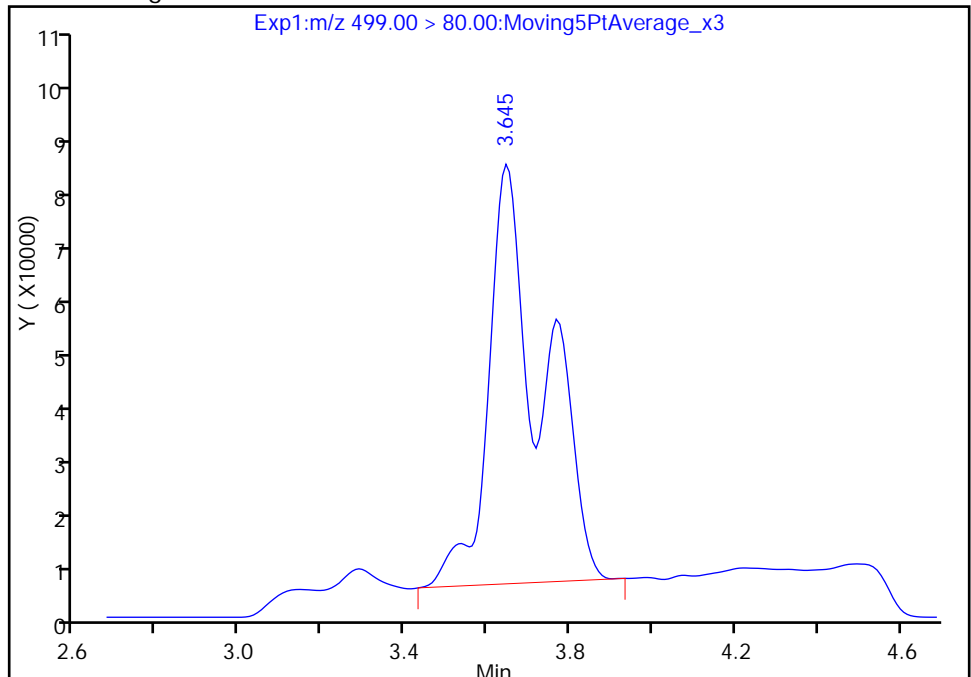
RT: 3.77
Area: 264901
Amount: 1.146353
Amount Units: ng/ml

Processing Integration Results



RT: 3.64
Area: 697188
Amount: 3.017064
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

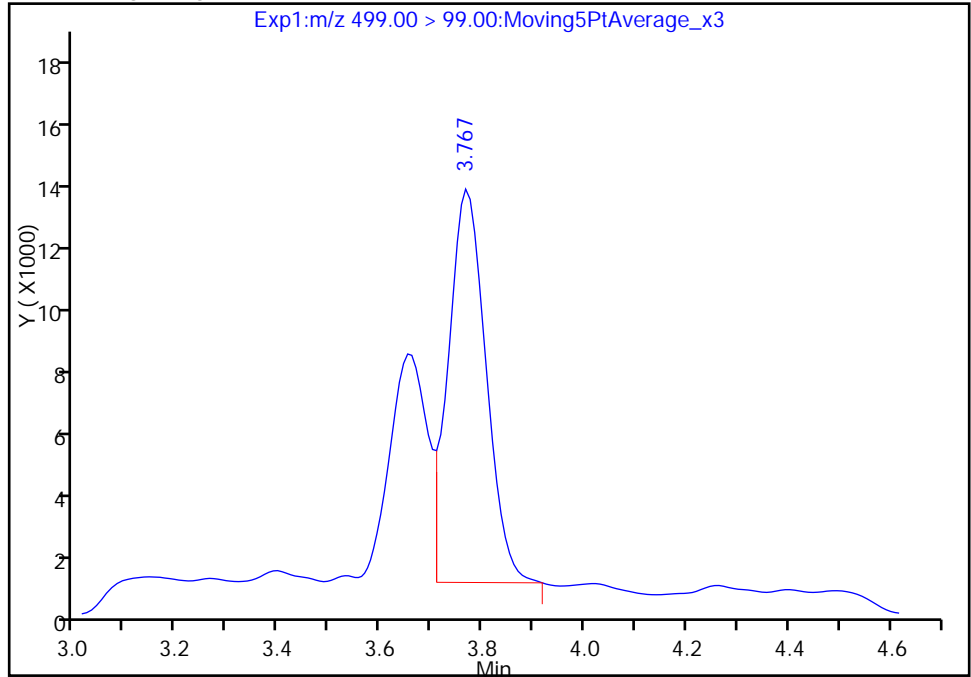
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Injection Date: 19-May-2017 12:14:17 Instrument ID: A8_N
Lims ID: 680-138385-A-3-A Lab Sample ID: 320-138385-3
Client ID: 06FD01-050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

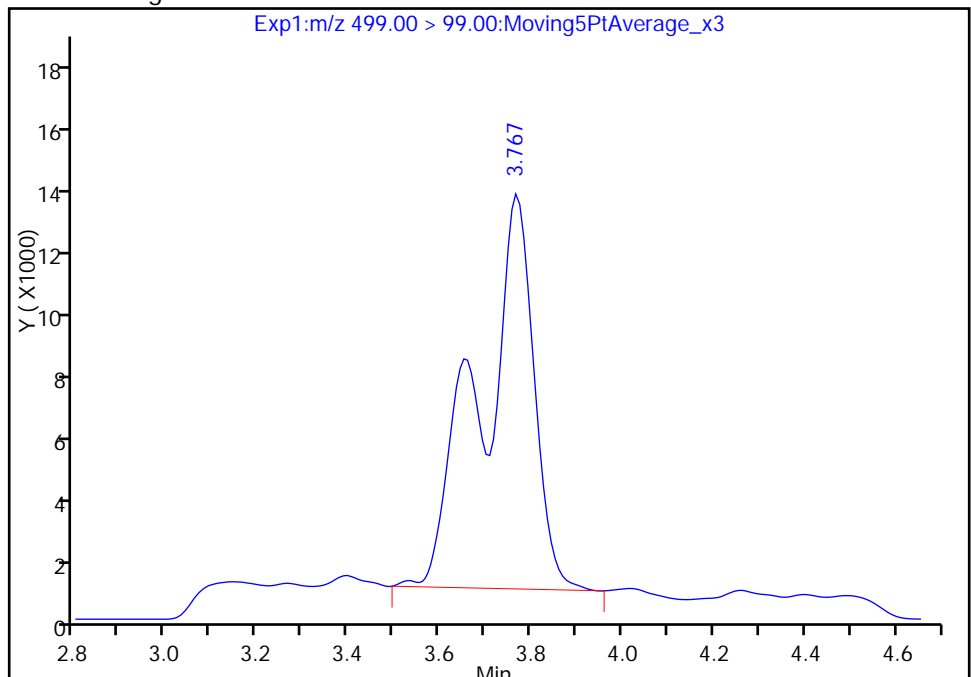
RT: 3.77
Area: 62886
Amount: 1.146353
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 101663
Amount: 3.017064
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW04050417</u>	Lab Sample ID: <u>680-138385-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_010.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 09:45</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>280.5 (mL)</u>	Date Analyzed: <u>05/19/2017 12:21</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.5		2.2	0.82
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1		2.2	0.78
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.80	J M	2.2	0.71
335-67-1	Perfluorooctanoic acid (PFOA)	44	M	2.2	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19		3.6	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.58

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	82		25-150
STL01892	13C4-PFHpA	63		25-150
STL00990	13C4 PFOA	66		25-150
STL00991	13C4 PFOS	88		25-150
STL00995	13C5 PFNA	75		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_010.d
 Lims ID: 680-138385-A-4-A
 Client ID: 06GW04050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:21:49 ALS Bottle#: 9 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-4-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:34:50 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 14:49:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.280	2.289	-0.009	1.000	1231142	3.11				
298.90 > 99.00	2.280	2.289	-0.009	1.000	452443		2.72(0.00-0.00)			
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.991	2.994	-0.003	1.000	66661	0.4466			0.9	M
D 9 13C4-PFHpA										
367.00 > 322.00	2.984	2.994	-0.010		6669948	31.5		63.0	24840	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.984	3.009	-0.025	1.000	836450	2.86				
D 11 18O2 PFHxS										
403.00 > 84.00	2.991	3.009	-0.018		11750888	38.6		81.6	25042	
* 62 13C2-PFOA										
415.00 > 370.00	3.357	3.426	-0.069		6796	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.365	3.396	-0.031	1.000	3951168	24.5			46.3	M
413.00 > 169.00	3.365	3.396	-0.031	1.000	2512807		1.57(0.90-1.10)		1306	M
D 14 13C4 PFOA										
417.00 > 372.00	3.365	3.396	-0.031		7030415	33.0		66.1	15520	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.614	3.762	-0.148	1.000	2612640	10.9			102	
499.00 > 99.00	3.621	3.762	-0.141	1.002	342714		7.62(0.90-1.10)		72.8	
D 18 13C4 PFOS										
503.00 > 80.00	3.734	3.762	-0.028		9608179	41.9		87.7	796	
20 Perfluorononanoic acid										
463.00 > 419.00	3.742	3.770	-0.028	1.000	33124	0.2464			1.0	
D 19 13C5 PFNA										
468.00 > 423.00	3.742	3.770	-0.028		6282905	37.4		74.9	9201	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_010.d

Injection Date: 19-May-2017 12:21:49

Instrument ID: A8_N

Lims ID: 680-138385-A-4-A

Lab Sample ID: 320-138385-4

Client ID: 06GW04050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

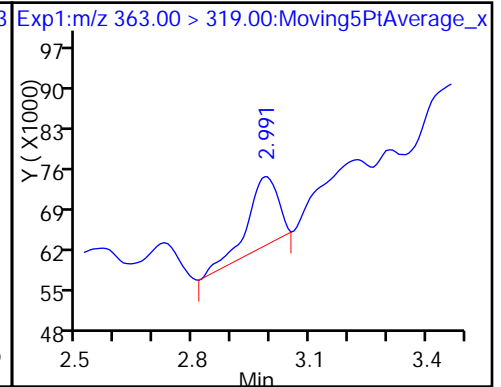
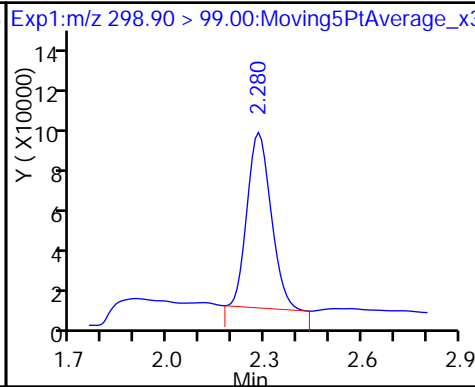
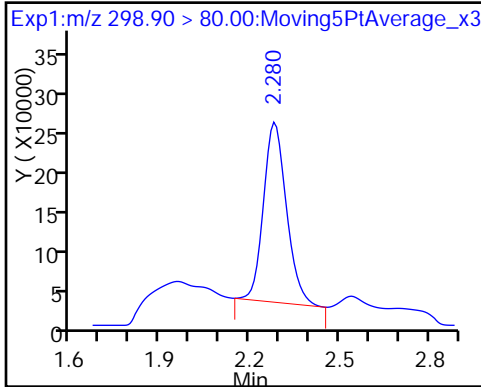
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

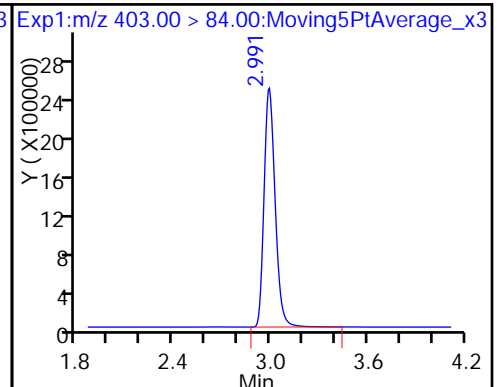
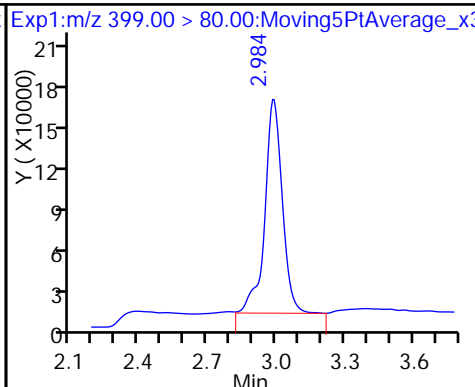
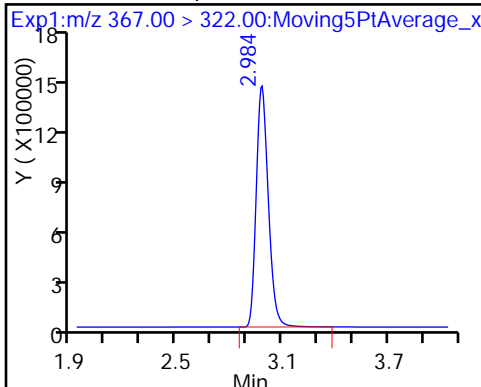
10 Perfluoroheptanoic acid (M)



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

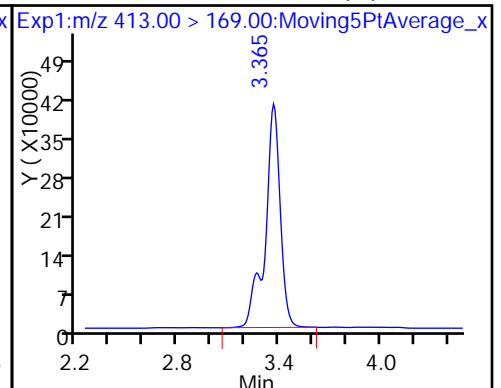
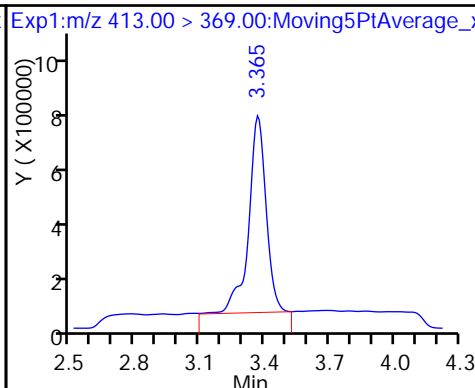
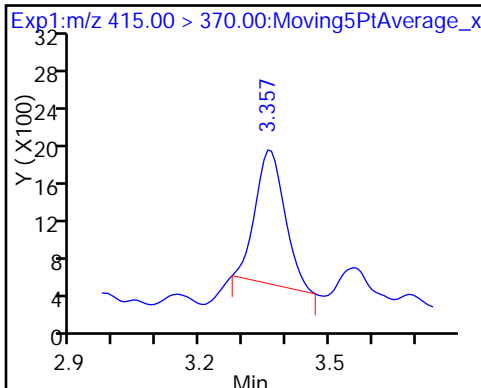
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

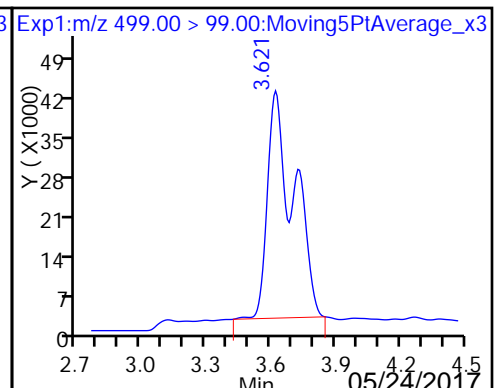
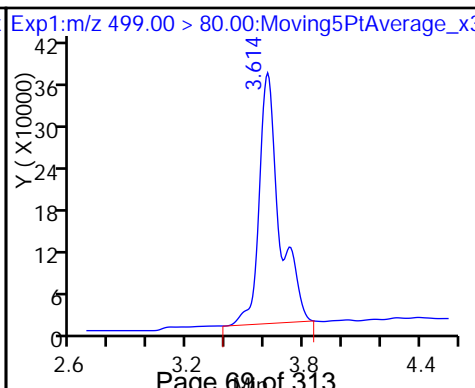
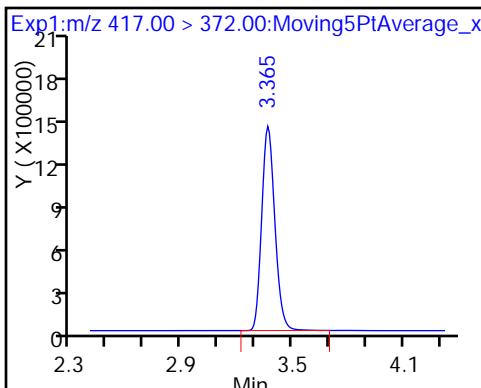
15 Perfluorooctanoic acid (M)



D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid

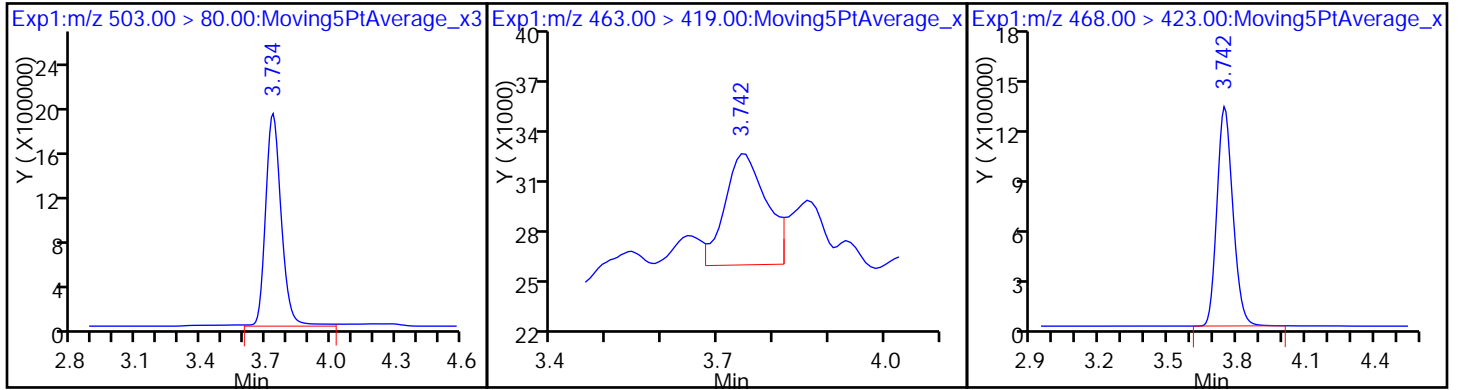
17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

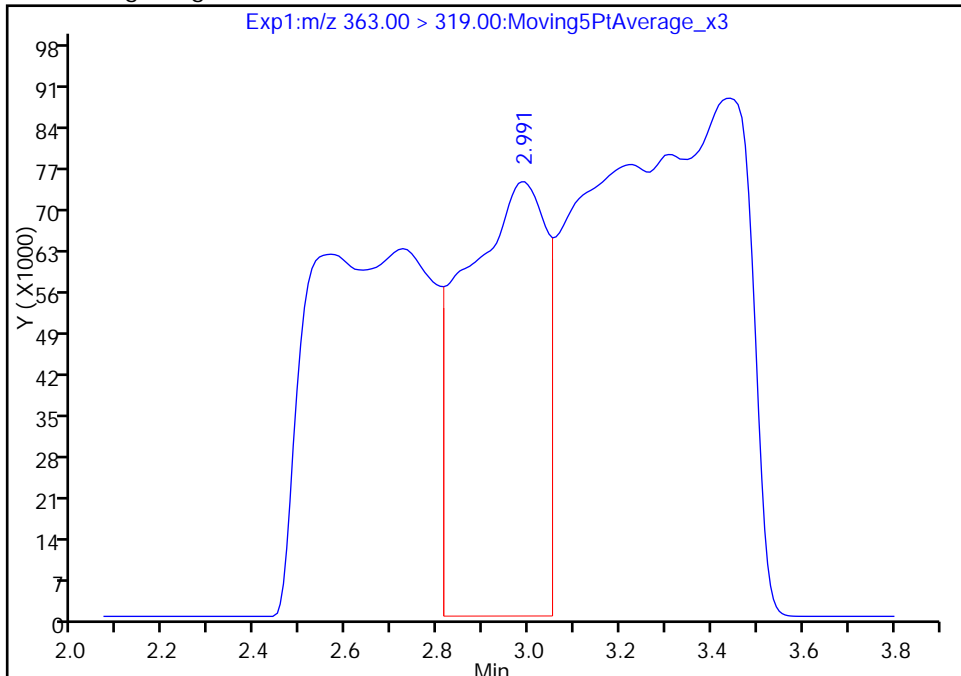
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_010.d
Injection Date: 19-May-2017 12:21:49 Instrument ID: A8_N
Lims ID: 680-138385-A-4-A Lab Sample ID: 320-138385-4
Client ID: 06GW04050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

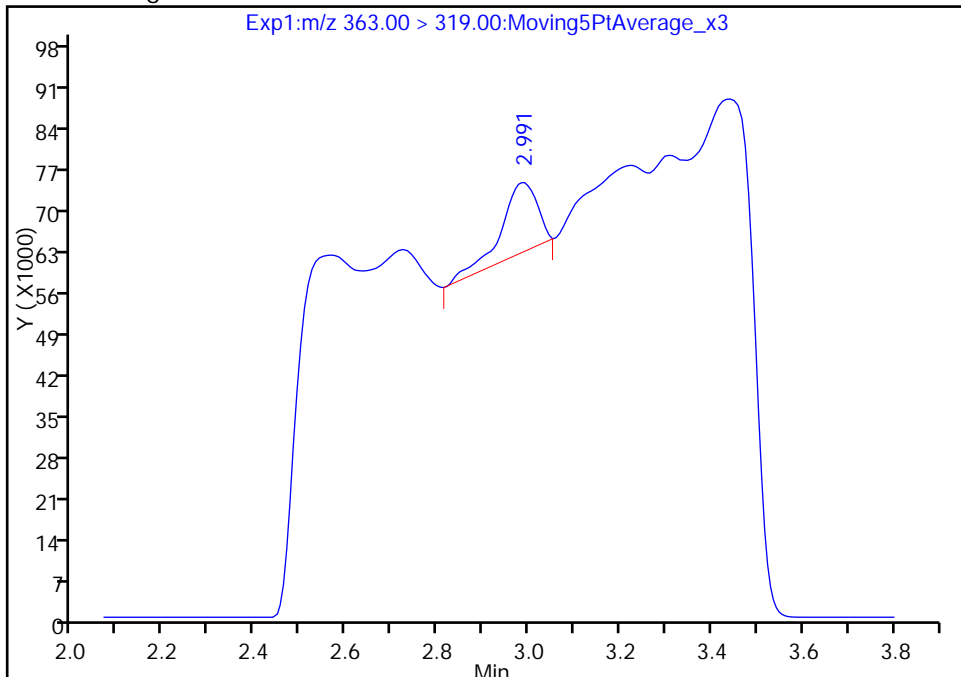
RT: 2.99
Area: 934869
Amount: 6.263140
Amount Units: ng/ml

Processing Integration Results



RT: 2.99
Area: 66661
Amount: 0.446594
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:56:04
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

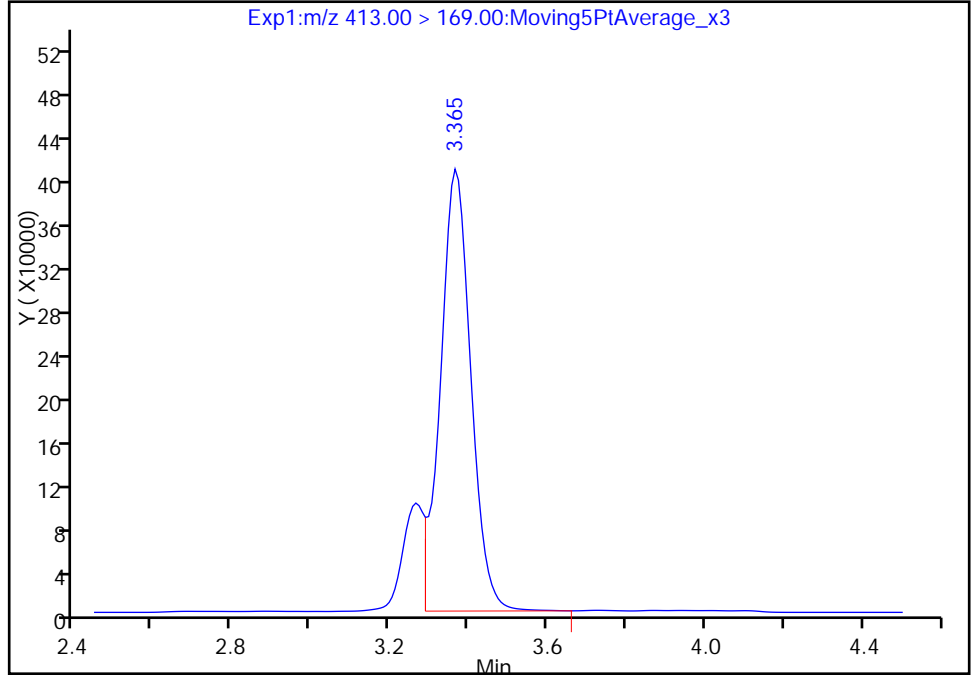
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Injection Date: 19-May-2017 12:21:49 Instrument ID: A8_N
Lims ID: 680-138385-A-4-A Lab Sample ID: 320-138385-4
Client ID: 06GW04050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

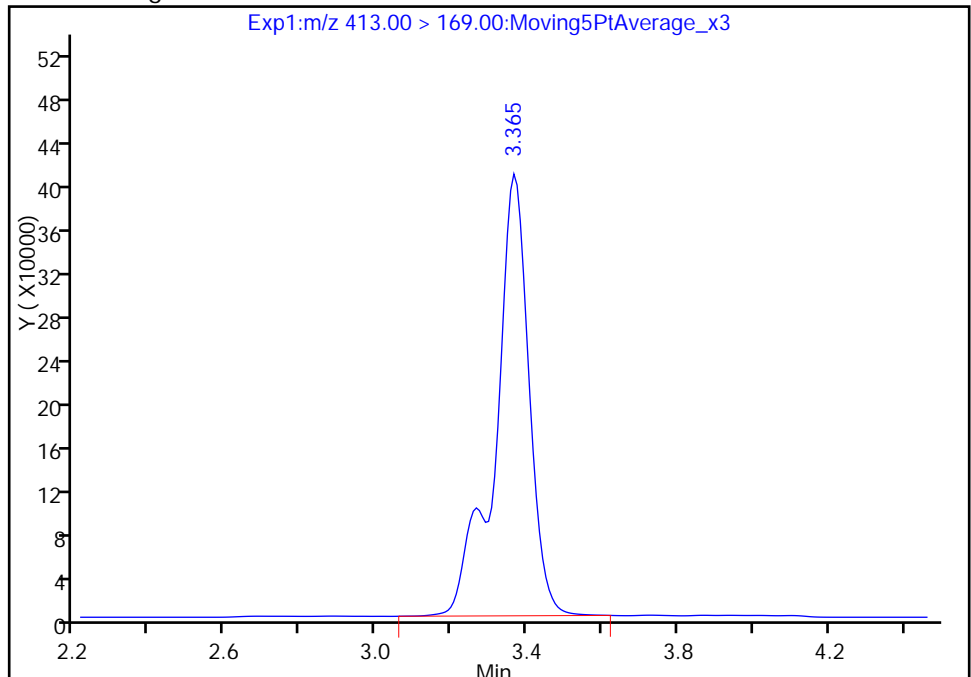
RT: 3.37
Area: 2148797
Amount: 24.456690
Amount Units: ng/ml

Processing Integration Results



RT: 3.37
Area: 2512807
Amount: 24.456690
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:56:13
Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW06050417</u>	Lab Sample ID: <u>680-138385-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_011.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 10:25</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>286.8 (mL)</u>	Date Analyzed: <u>05/19/2017 12:29</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	10	* M	2.2	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	M	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5		2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	58	M	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.7	U	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	84		25-150
STL01892	13C4-PFHpA	64		25-150
STL00990	13C4 PFOA	70		25-150
STL00991	13C4 PFOS	74		25-150
STL00995	13C5 PFNA	55		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d
 Lims ID: 680-138385-A-5-A
 Client ID: 06GW06050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:29:19 ALS Bottle#: 10 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-5-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:34:50 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 14:59:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.318	2.289	0.029	1.000	2360470	5.80				M
298.90 > 99.00	2.261	2.289	-0.028	0.975	179008		13.19(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.982	2.994	-0.012	1.000	563187	3.72			13.3	
D 9 13C4-PFHpA										
367.00 > 322.00	2.982	2.994	-0.012		6768272	31.9		63.9	39992	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.982	3.009	-0.027	1.000	1203574	4.01				M
D 11 18O2 PFHxS										
403.00 > 84.00	2.993	3.009	-0.016		12060803	39.6		83.7	39251	
* 62 13C2-PFOA										
415.00 > 370.00	3.381	3.426	-0.045		8914	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.381	3.396	-0.015	1.000	5651537	33.1			122	M
413.00 > 169.00	3.381	3.396	-0.015	1.000	3612229		1.56(0.90-1.10)		931	
D 14 13C4 PFOA										
417.00 > 372.00	3.381	3.396	-0.015		7432202	34.9		69.9	26801	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.762	3.762	0.0	1.000	1704550	8.39			20.2	M
499.00 > 99.00	3.754	3.762	-0.008	0.998	336960		5.06(0.90-1.10)		103	M
D 18 13C4 PFOS										
503.00 > 80.00	3.762	3.762	0.0		8140140	35.5		74.3	211	
20 Perfluorononanoic acid										
463.00 > 419.00	3.762	3.770	-0.008	1.000	2152	0.0219			0.2	
D 19 13C5 PFNA										
468.00 > 423.00	3.771	3.770	0.001		4587071	27.3		54.7	10515	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d

Injection Date: 19-May-2017 12:29:19

Instrument ID: A8_N

Lims ID: 680-138385-A-5-A

Lab Sample ID: 320-138385-5

Client ID: 06GW06050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

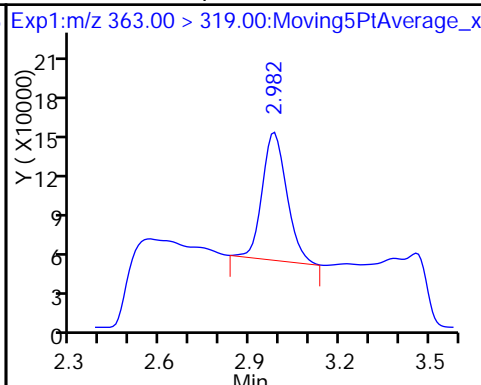
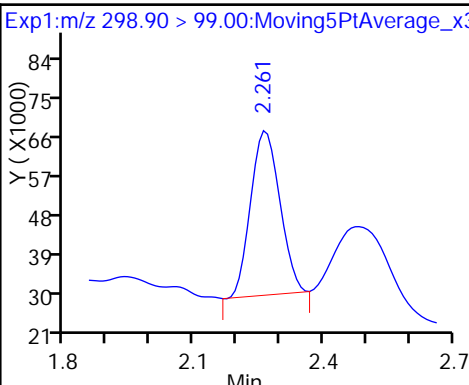
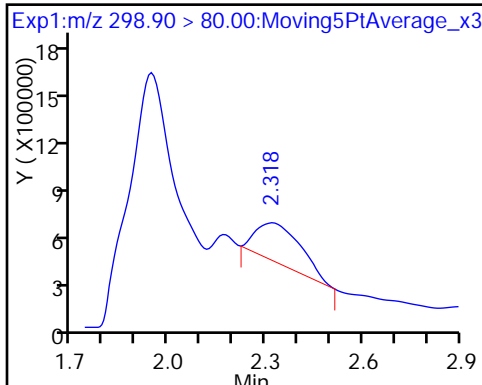
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

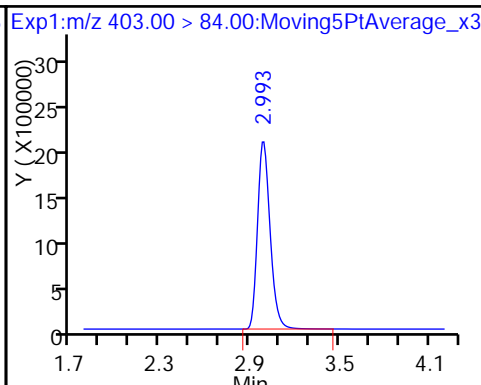
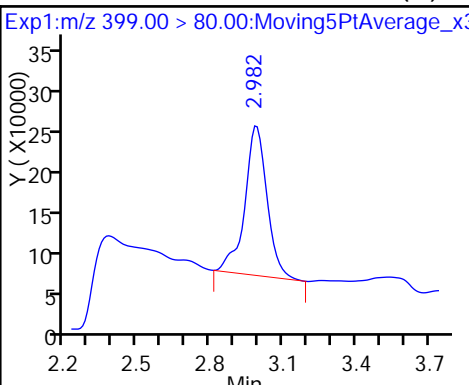
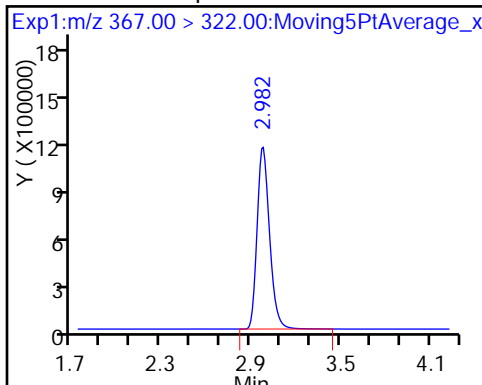
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

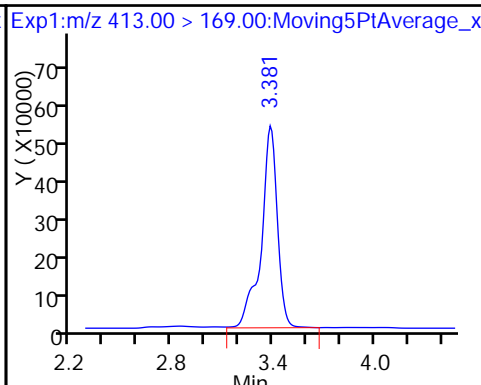
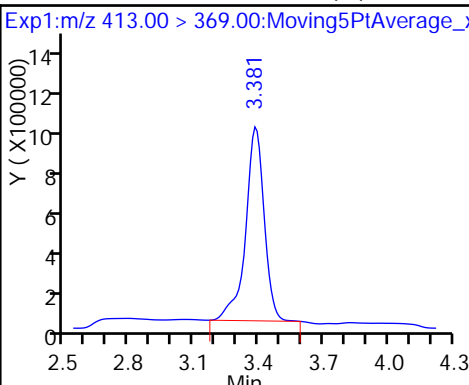
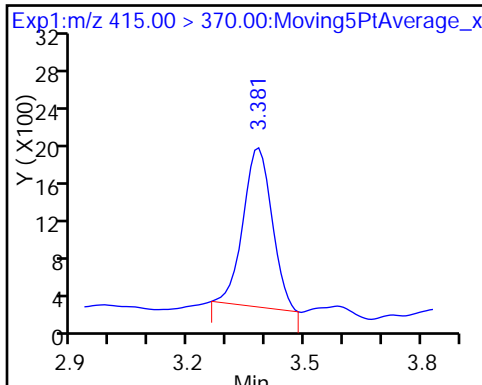
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

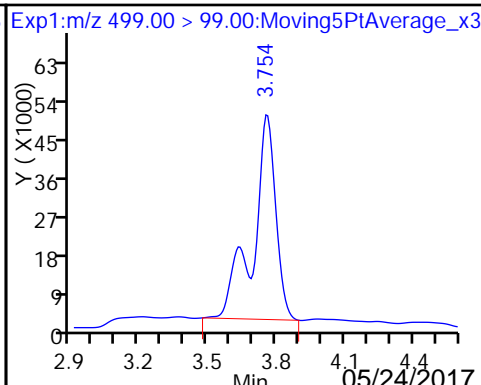
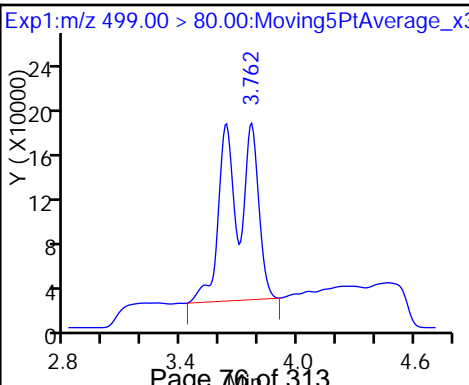
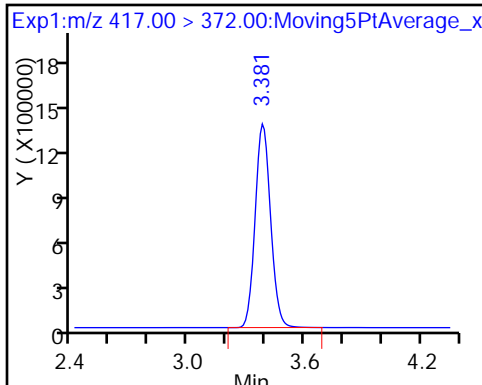
15 Perfluorooctanoic acid



D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (M)

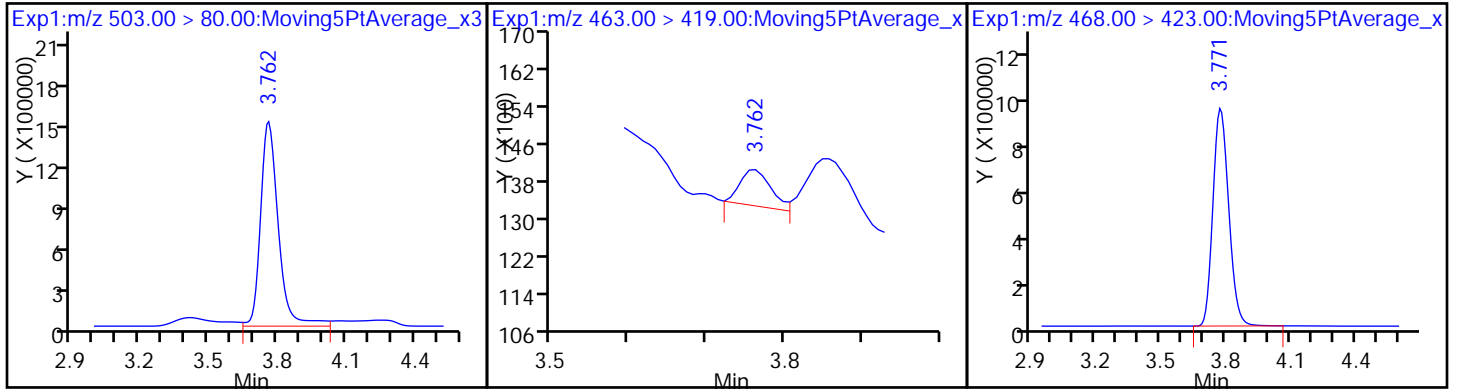
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

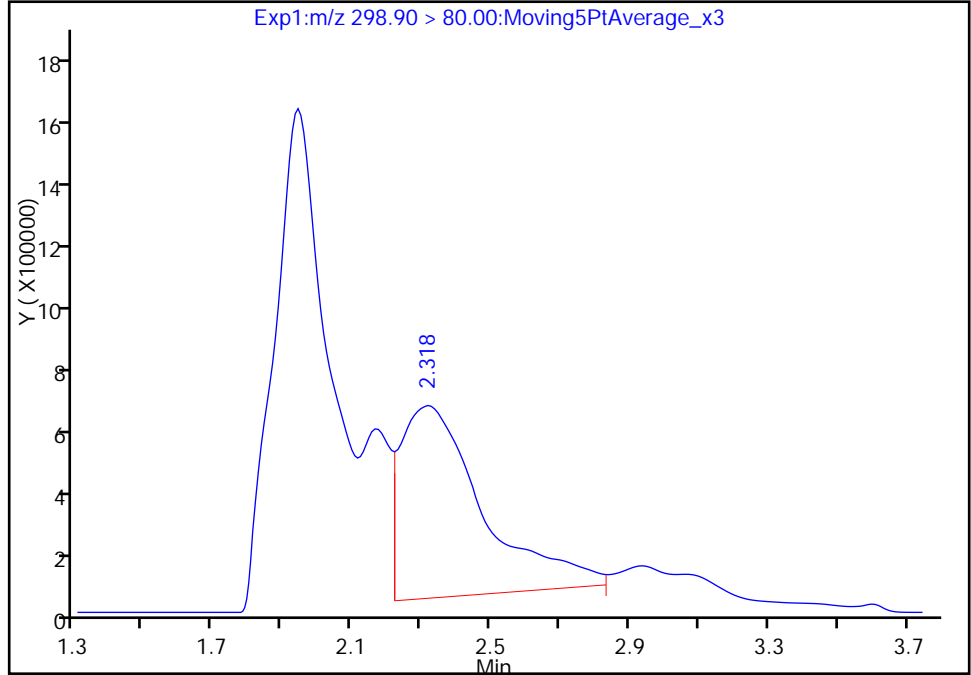
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Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

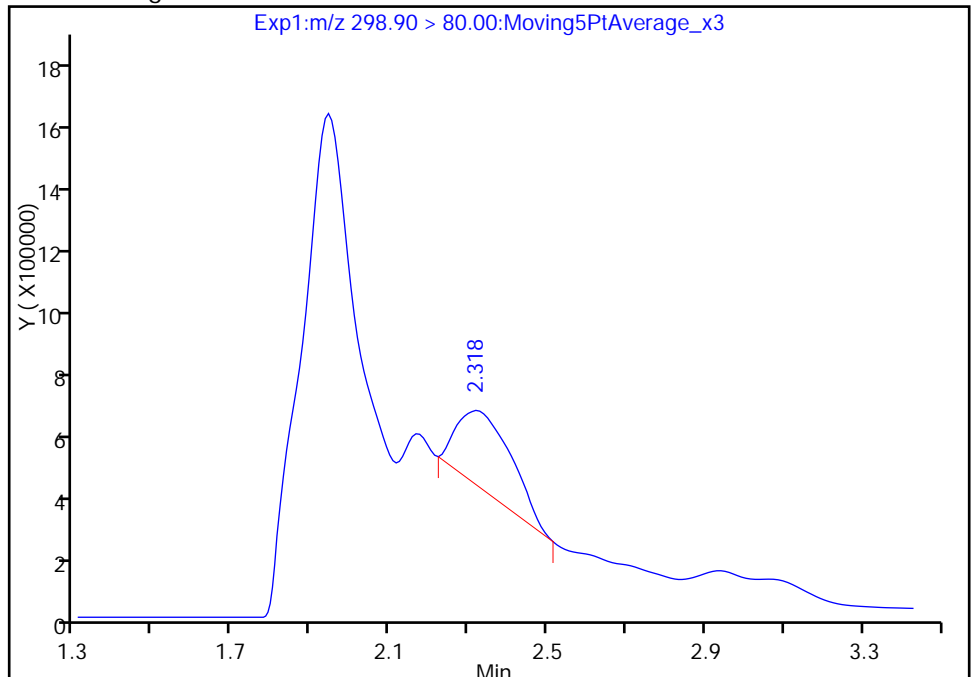
RT: 2.32
Area: 9852165
Amount: 24.218511
Amount Units: ng/ml

Processing Integration Results



RT: 2.32
Area: 2360470
Amount: 5.802488
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:45
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

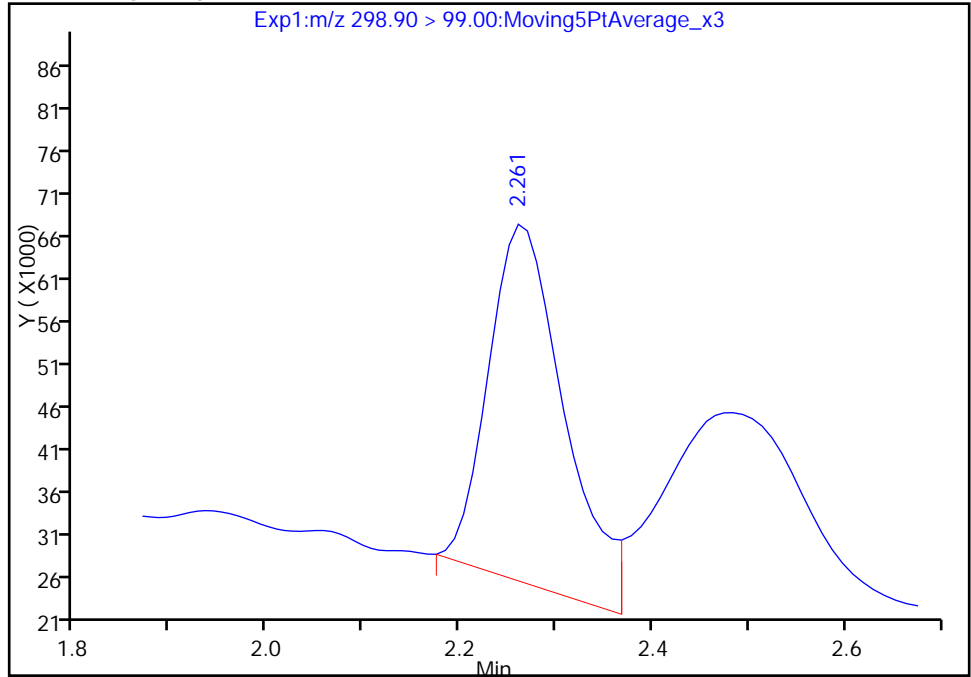
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Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

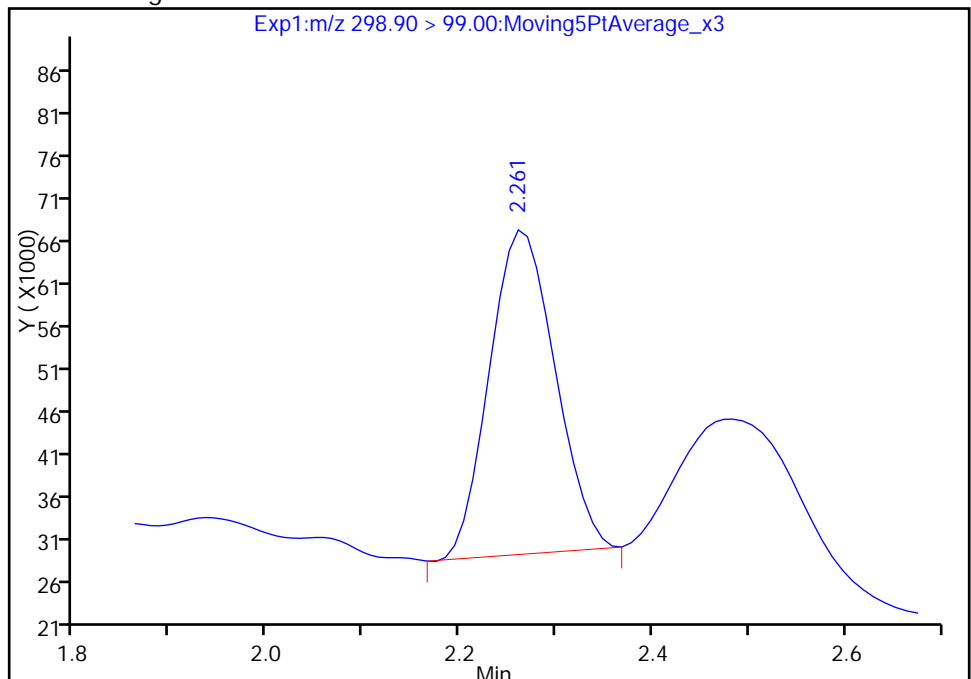
RT: 2.26
Area: 229824
Amount: 24.218511
Amount Units: ng/ml

Processing Integration Results



RT: 2.26
Area: 179008
Amount: 5.802488
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:51

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

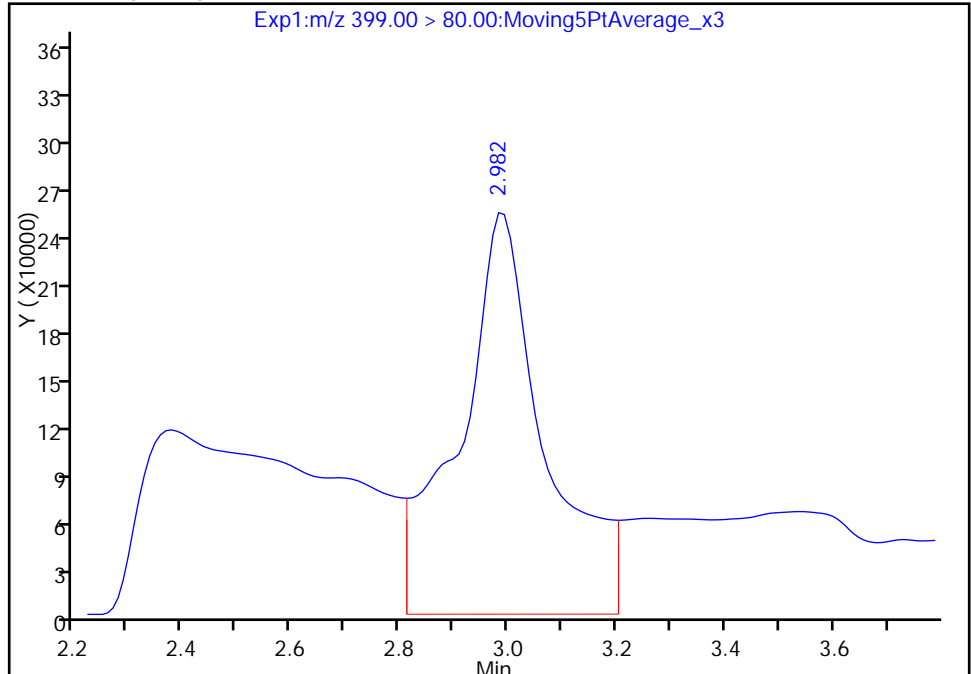
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d
Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

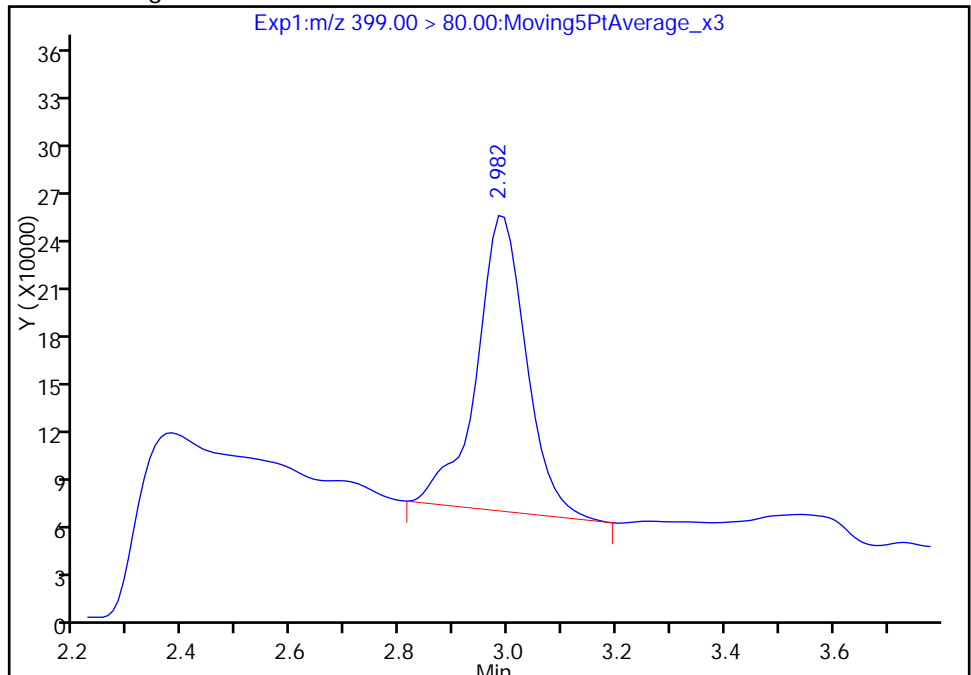
RT: 2.98
Area: 2760093
Amount: 9.192333
Amount Units: ng/ml

Processing Integration Results



RT: 2.98
Area: 1203574
Amount: 4.008435
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:57:50
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

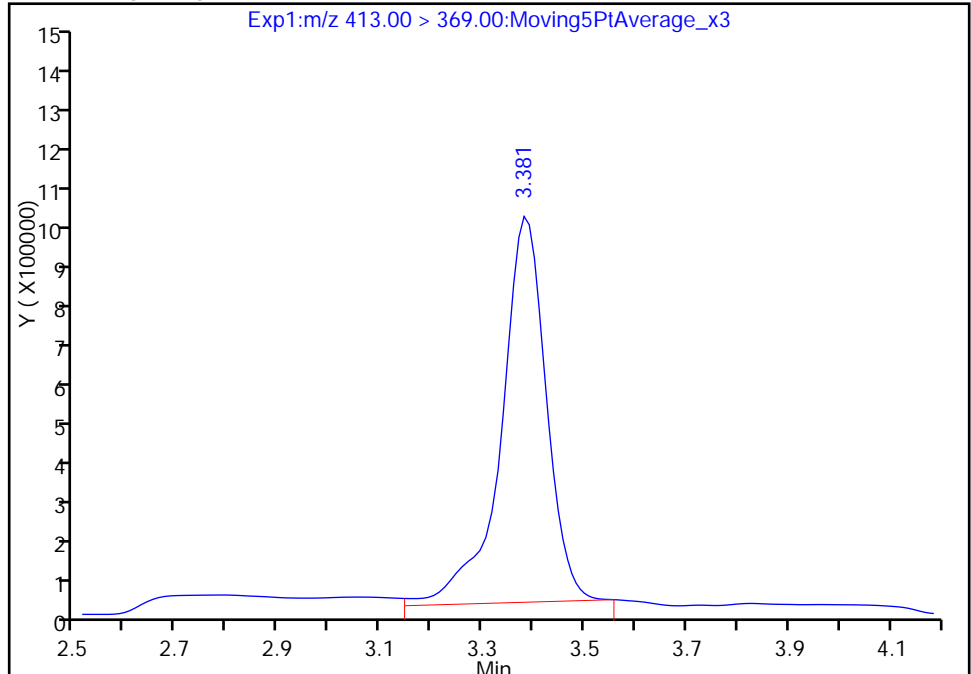
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d
Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

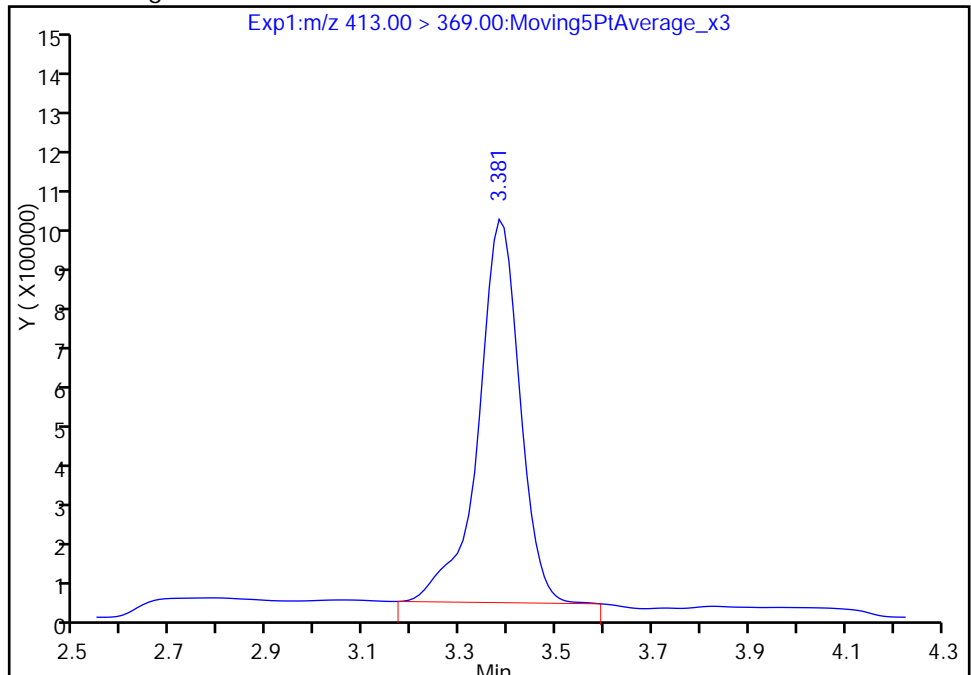
RT: 3.38
Area: 5836160
Amount: 34.171404
Amount Units: ng/ml

Processing Integration Results



RT: 3.38
Area: 5651537
Amount: 33.090415
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:57:55
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

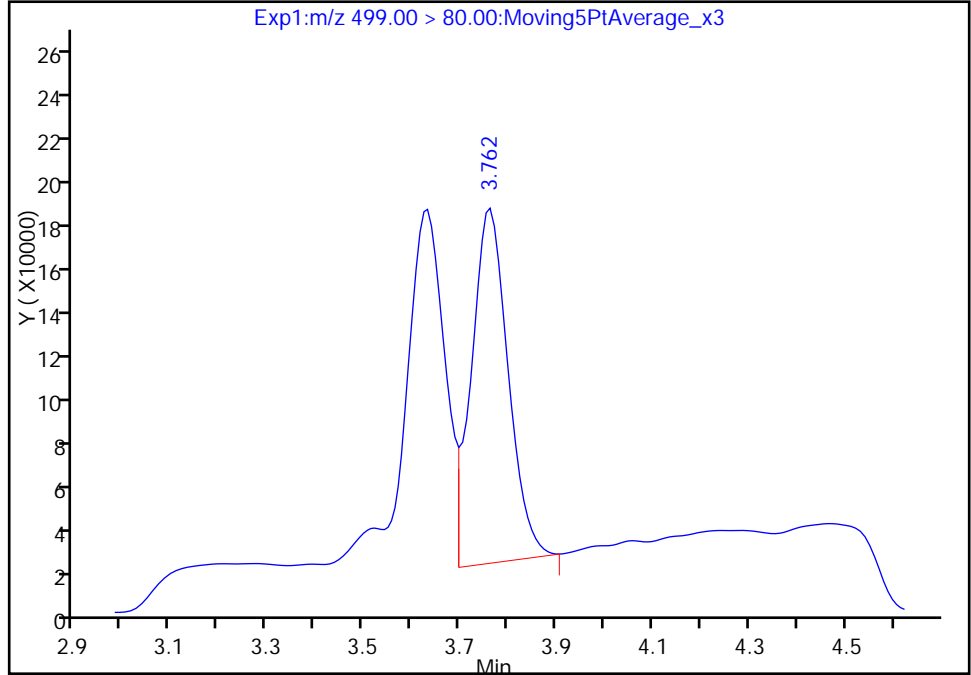
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d
Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

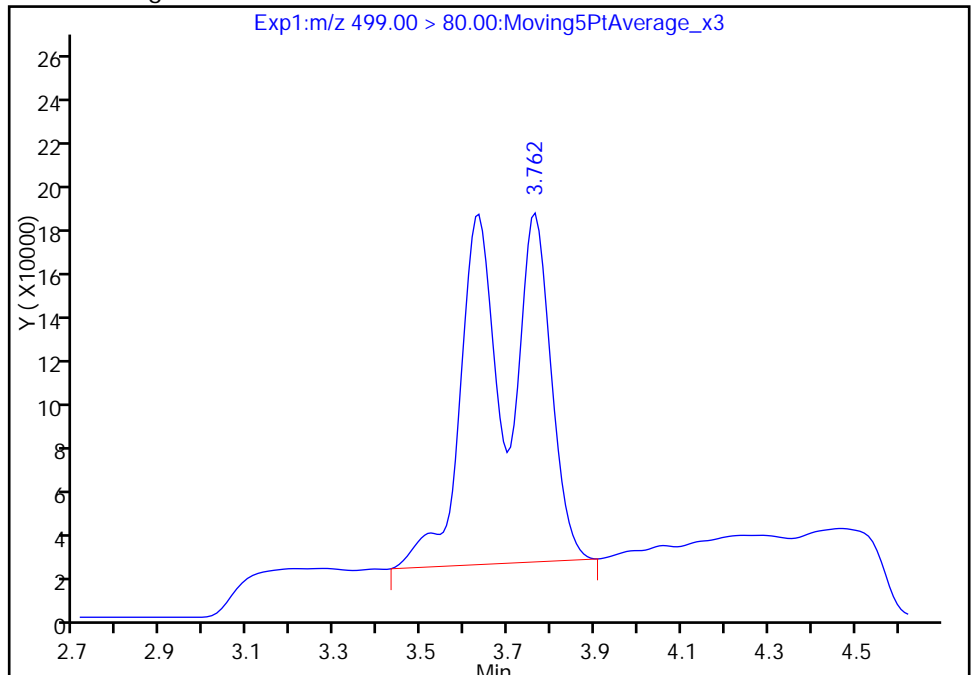
RT: 3.76
Area: 842270
Amount: 4.147478
Amount Units: ng/ml

Processing Integration Results



RT: 3.76
Area: 1704550
Amount: 8.393489
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:02
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

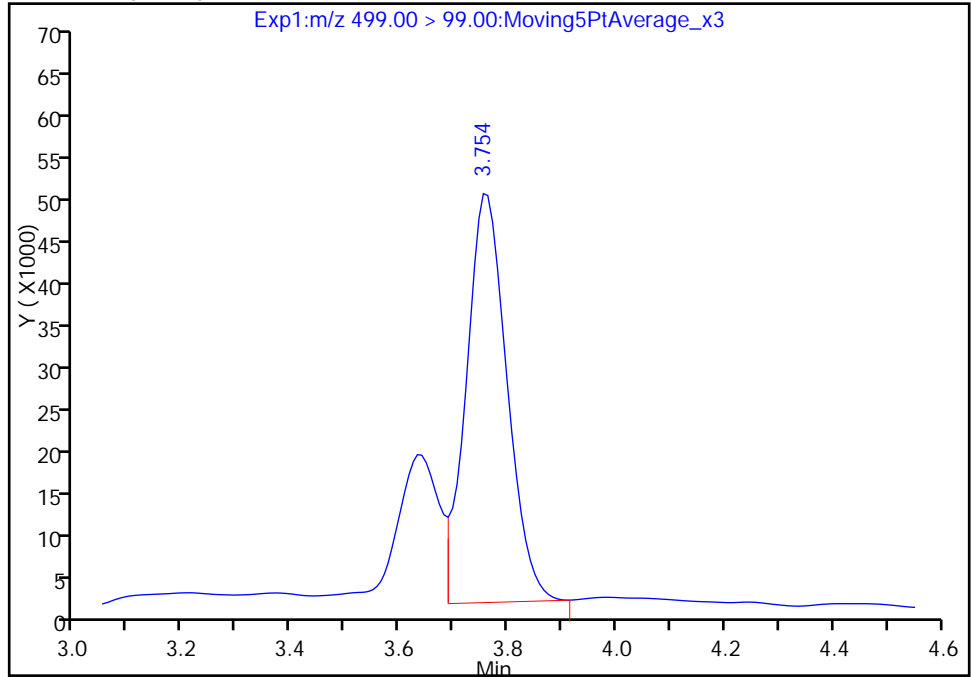
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_011.d
Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

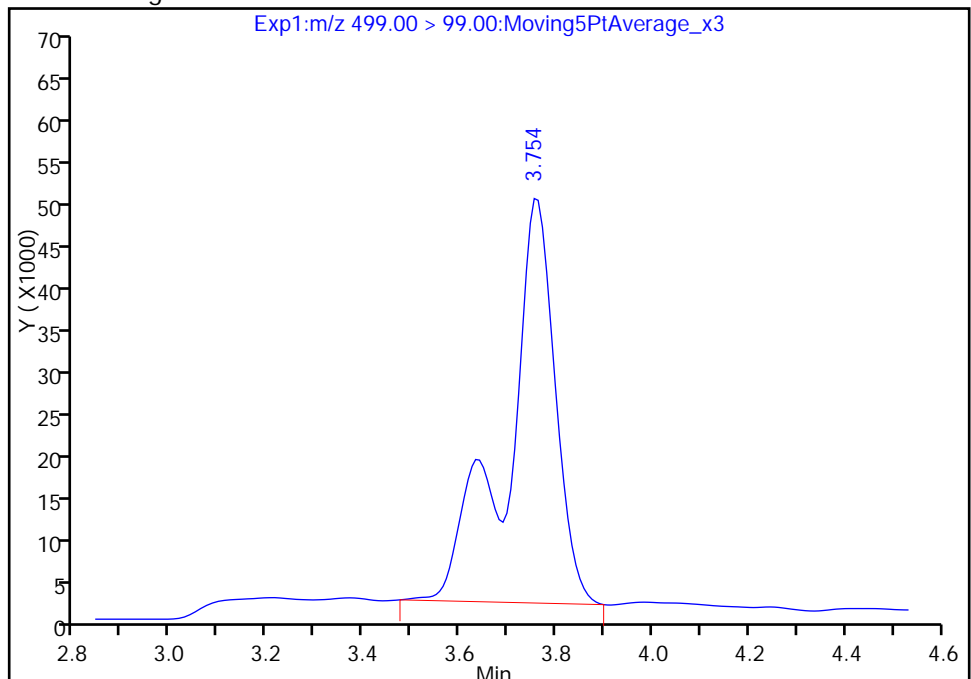
RT: 3.75
Area: 255133
Amount: 4.147478
Amount Units: ng/ml

Processing Integration Results



RT: 3.75
Area: 336960
Amount: 8.393489
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:04

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW08050417</u>	Lab Sample ID: <u>680-138385-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_013.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 11:35</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>286.2 (mL)</u>	Date Analyzed: <u>05/19/2017 12:44</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.0	M	2.2	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.7	U M	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.7	U	2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	1.7	U	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.7	U M	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	88		25-150
STL01892	13C4-PFHpA	68		25-150
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	92		25-150
STL00995	13C5 PFNA	76		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d
 Lims ID: 680-138385-A-6-A
 Client ID: 06GW08050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:44:20 ALS Bottle#: 11 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-6-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:21:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.280	2.289	-0.009	1.000	739629	1.72				M
298.90 > 99.00	2.280	2.289	-0.009	1.000	82706		8.94(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.965	2.994	-0.029	1.000	23846	0.1483			0.5	
D 9 13C4-PFHpA										
367.00 > 322.00	2.983	2.994	-0.011		7183104	33.9		67.8	30570	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.991	3.009	-0.018	1.000	63823	0.2016				M
D 11 18O2 PFHxS										
403.00 > 84.00	2.991	3.009	-0.018		12714538	41.8		88.3	33084	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.369	3.396	-0.027	1.000	51506	0.2845			0.9	
413.00 > 169.00	3.380	3.396	-0.016	1.003	42153		1.22(0.90-1.10)		16.8	
D 14 13C4 PFOA										
417.00 > 372.00	3.380	3.396	-0.016		7877797	37.0		74.0	24344	
* 62 13C2-PFOA										
415.00 > 370.00	3.369	3.426	-0.057		18606	49.5				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.629	3.762	-0.133	1.000	132163	0.5236			4.4	
499.00 > 99.00	3.742	3.762	-0.020	1.031	25781		5.13(0.90-1.10)		7.9	
D 18 13C4 PFOS										
503.00 > 80.00	3.750	3.762	-0.012		10118481	44.1		92.3	1774	
20 Perfluorononanoic acid										
463.00 > 419.00	3.758	3.770	-0.012	1.000	26323	0.1922			1.2	M
D 19 13C5 PFNA										
468.00 > 423.00	3.758	3.770	-0.012		6400029	38.1		76.3	13342	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d

Injection Date: 19-May-2017 12:44:20

Instrument ID: A8_N

Lims ID: 680-138385-A-6-A

Lab Sample ID: 320-138385-6

Client ID: 06GW08050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

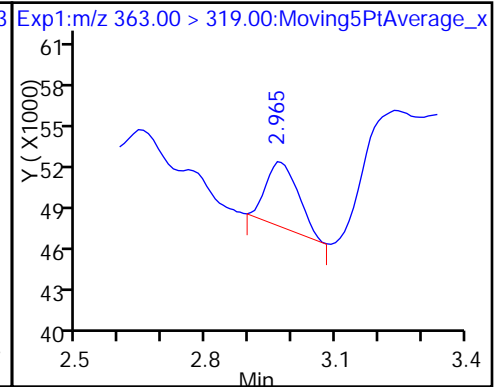
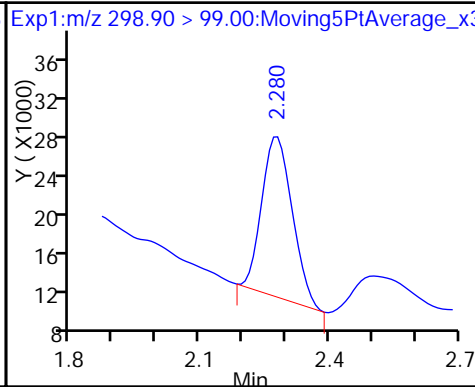
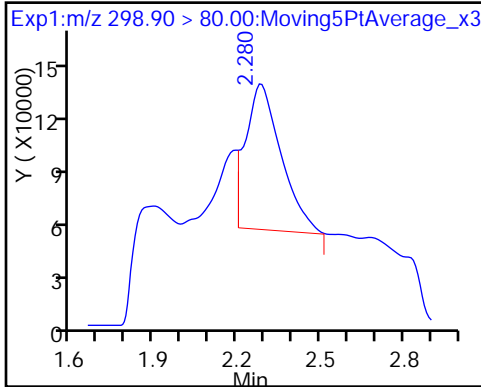
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

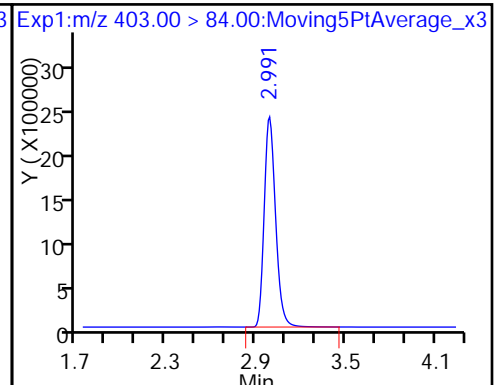
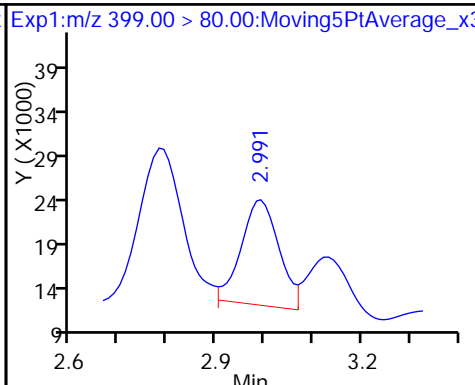
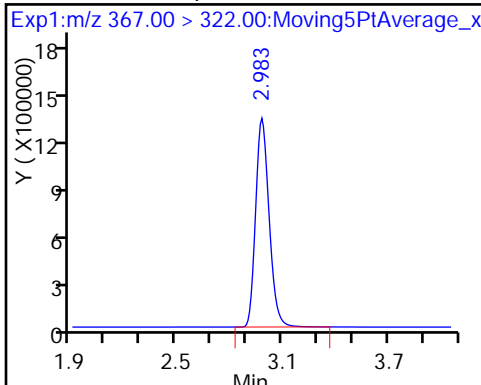
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

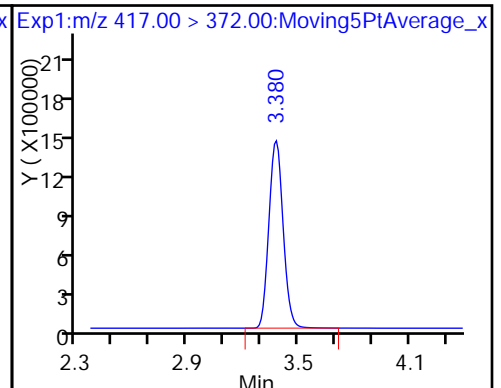
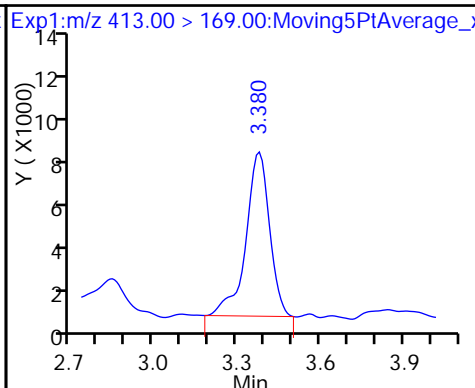
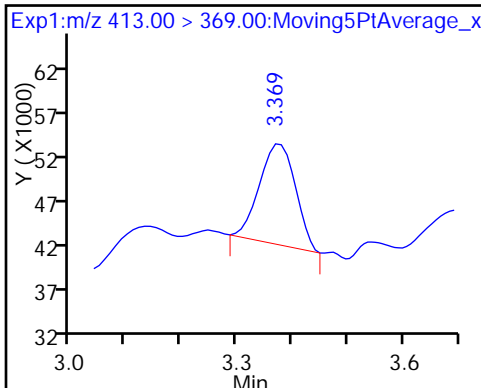
D 11 18O2 PFHxS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

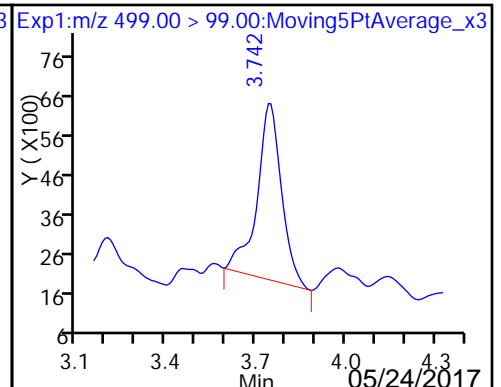
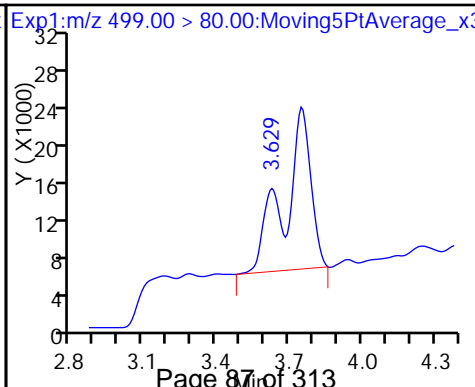
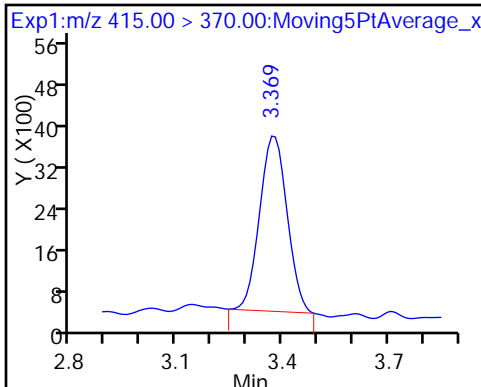
D 14 13C4 PFOA



* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

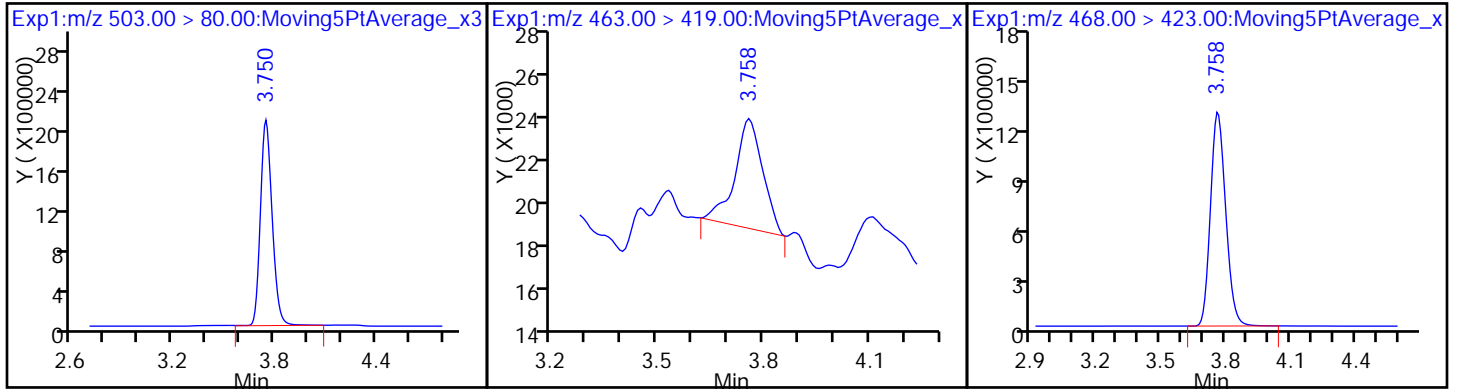
17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid (M)

D 19 13C5 PFNA



TestAmerica Sacramento

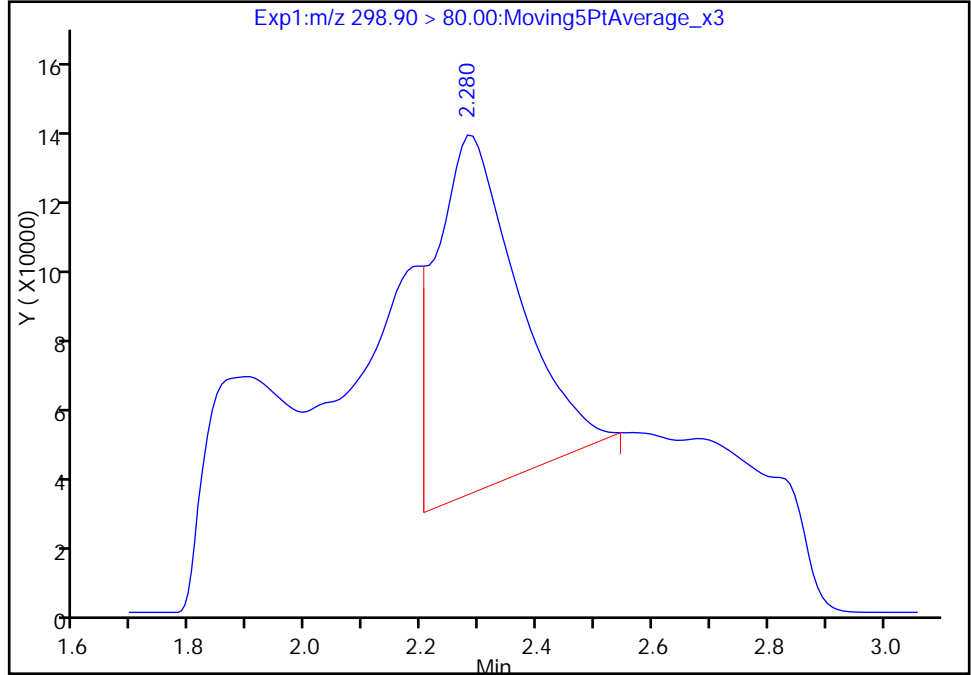
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d
Injection Date: 19-May-2017 12:44:20 Instrument ID: A8_N
Lims ID: 680-138385-A-6-A Lab Sample ID: 320-138385-6
Client ID: 06GW08050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

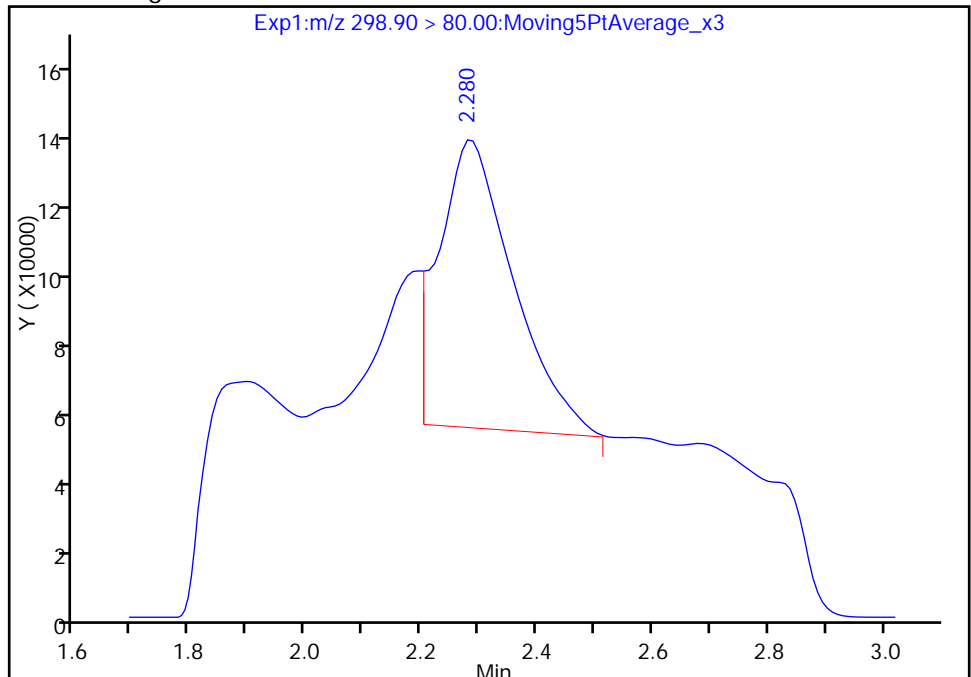
RT: 2.28
Area: 1014630
Amount: 2.365915
Amount Units: ng/ml

Processing Integration Results



RT: 2.28
Area: 739629
Amount: 1.724667
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:21:00
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

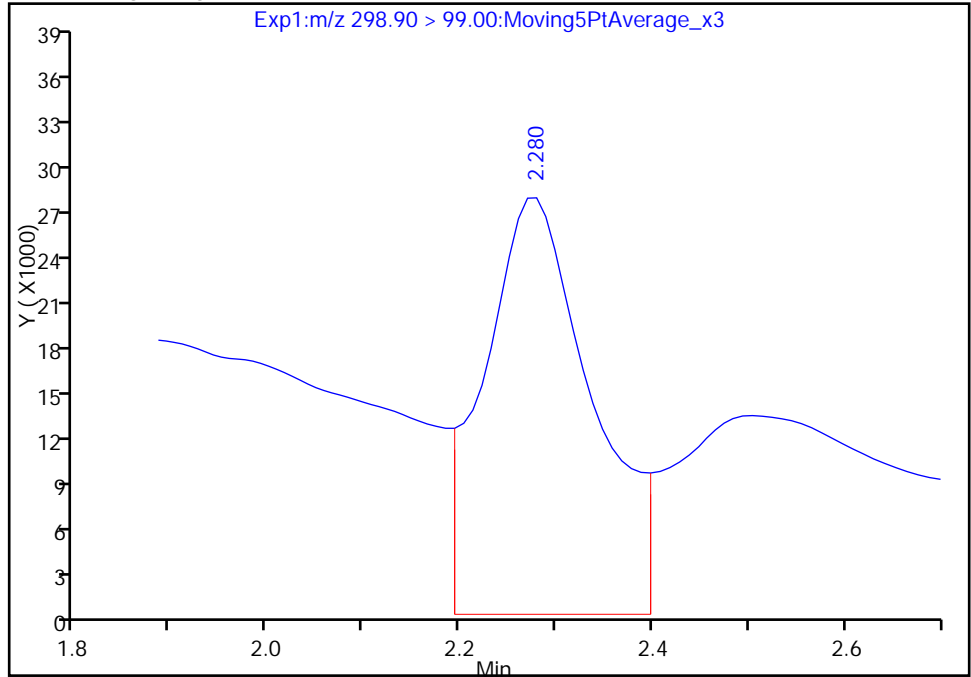
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d
Injection Date: 19-May-2017 12:44:20 Instrument ID: A8_N
Lims ID: 680-138385-A-6-A Lab Sample ID: 320-138385-6
Client ID: 06GW08050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

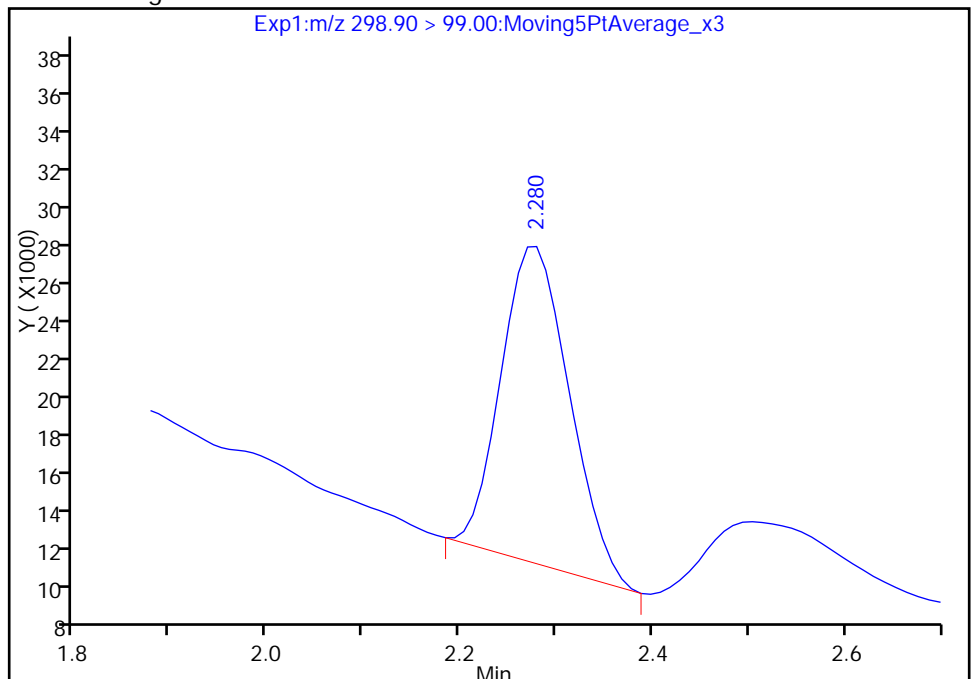
RT: 2.28
Area: 214419
Amount: 2.365915
Amount Units: ng/ml

Processing Integration Results



RT: 2.28
Area: 82706
Amount: 1.724667
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:21:06

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

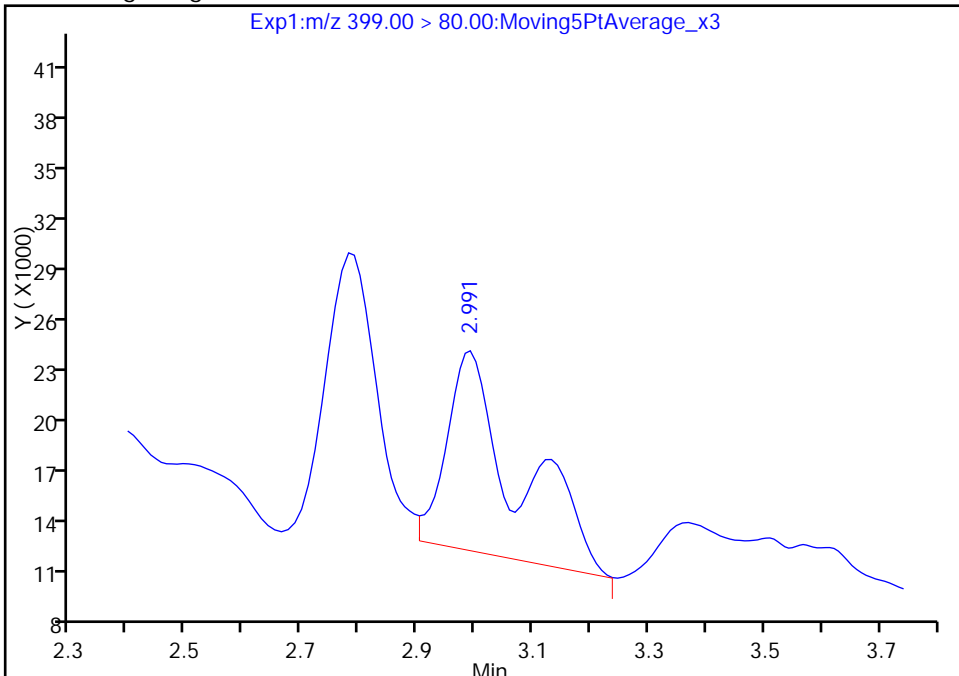
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d
Injection Date: 19-May-2017 12:44:20 Instrument ID: A8_N
Lims ID: 680-138385-A-6-A Lab Sample ID: 320-138385-6
Client ID: 06GW08050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

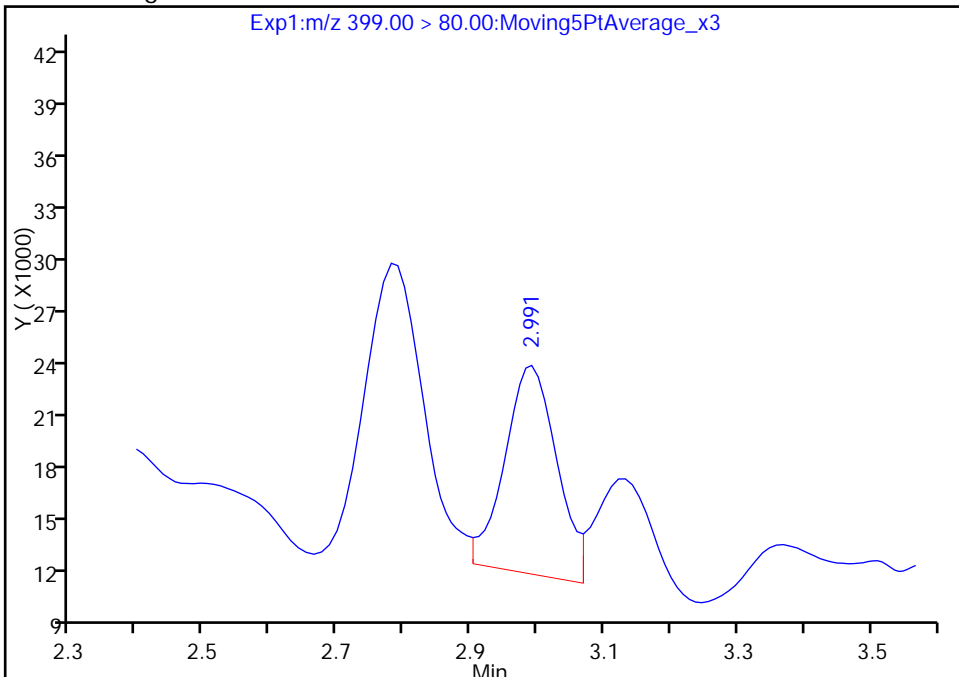
RT: 2.99
Area: 99451
Amount: 0.314186
Amount Units: ng/ml

Processing Integration Results



RT: 2.99
Area: 63823
Amount: 0.201630
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:21:51
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

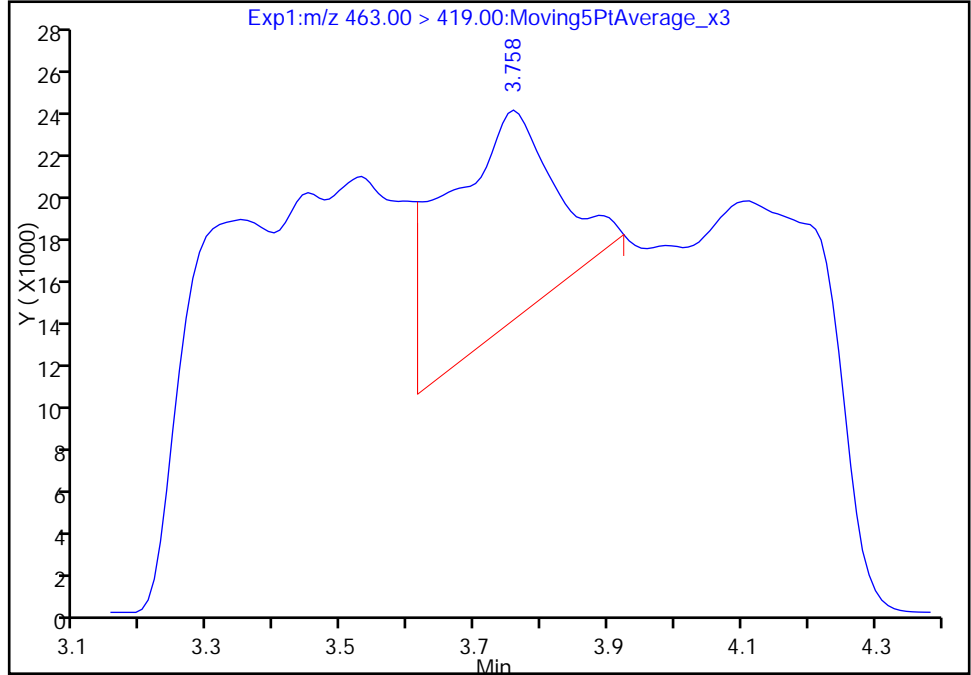
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_013.d
Injection Date: 19-May-2017 12:44:20 Instrument ID: A8_N
Lims ID: 680-138385-A-6-A Lab Sample ID: 320-138385-6
Client ID: 06GW08050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

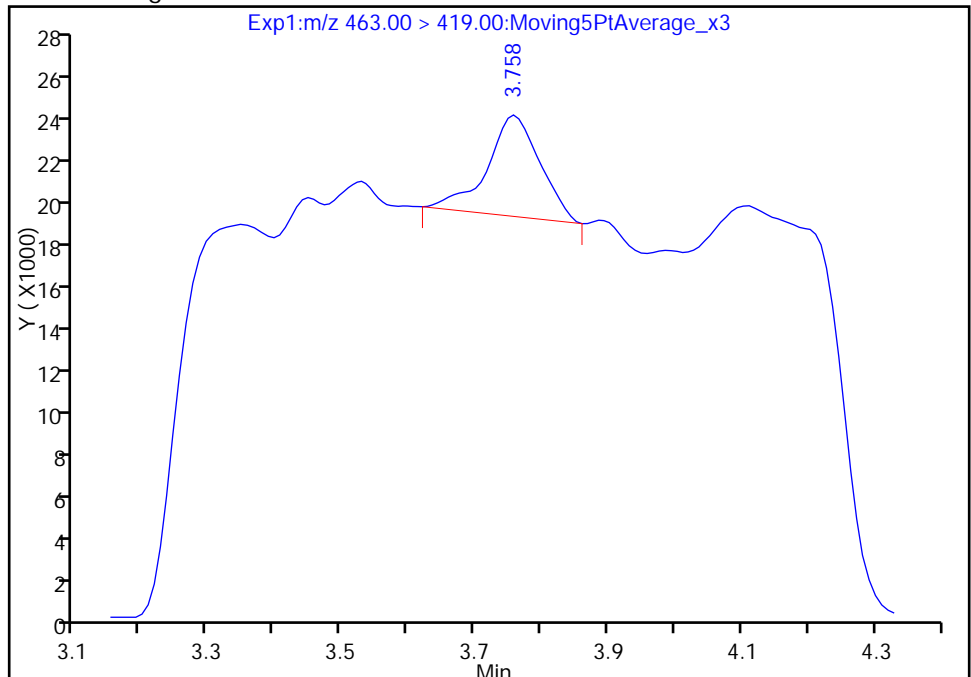
RT: 3.76
Area: 116291
Amount: 0.849068
Amount Units: ng/ml

Processing Integration Results



RT: 3.76
Area: 26323
Amount: 0.192190
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:22:09

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW15050417</u>	Lab Sample ID: <u>680-138385-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_014.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 12:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>285 (mL)</u>	Date Analyzed: <u>05/19/2017 12:51</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U M	2.2	0.81
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.8	U	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.3	J	2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	3.1		2.2	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	93		25-150
STL01892	13C4-PFHpA	81		25-150
STL00990	13C4 PFOA	84		25-150
STL00991	13C4 PFOS	102		25-150
STL00995	13C5 PFNA	80		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_014.d
 Lims ID: 680-138385-A-7-A
 Client ID: 06GW15050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:51:51 ALS Bottle#: 12 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-7
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:22:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.290	2.289	0.001	1.000	206035	0.4542				M
298.90 > 99.00	2.290	2.289	0.001	1.000	78815		2.61(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.000	2.994	0.006	1.000	141217	0.7394			15.3	
D 9 13C4-PFHpA										
367.00 > 322.00	3.000	2.994	0.006		8534011	40.3		80.5	54106	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.016	3.009	0.007	1.000	76814	0.2294				
D 11 18O2 PFHxS										
403.00 > 84.00	3.008	3.009	-0.001		13449566	44.2		93.4	39338	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.403	3.396	0.007	1.000	357453	1.74			29.4	
413.00 > 169.00	3.403	3.396	0.007	1.000	215542		1.66(0.90-1.10)		335	
D 14 13C4 PFOA										
417.00 > 372.00	3.394	3.396	-0.002		8923364	41.9		83.9	35529	
* 62 13C2-PFOA										
415.00 > 370.00	3.394	3.426	-0.032		6151	49.5				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.764	3.762	0.002	1.000	316276	1.13			133	M
499.00 > 99.00	3.764	3.762	0.002	1.000	63691		4.97(0.90-1.10)		14.1	M
D 18 13C4 PFOS										
503.00 > 80.00	3.764	3.762	0.002		11209132	48.9		102	11239	
20 Perfluorononanoic acid										
463.00 > 419.00	3.782	3.770	0.012	1.000	39978	0.2779			10.2	
D 19 13C5 PFNA										
468.00 > 423.00	3.782	3.770	0.012		6723327	40.1		80.1	21421	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_014.d

Injection Date: 19-May-2017 12:51:51

Instrument ID: A8_N

Lims ID: 680-138385-A-7-A

Lab Sample ID: 320-138385-7

Client ID: 06GW15050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

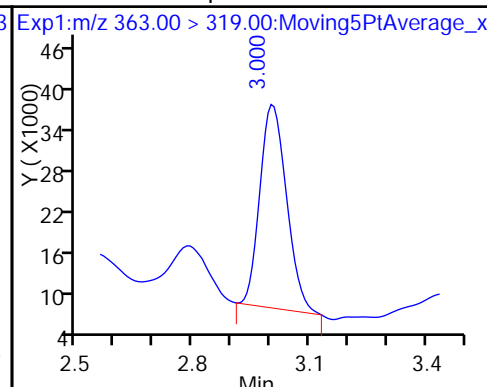
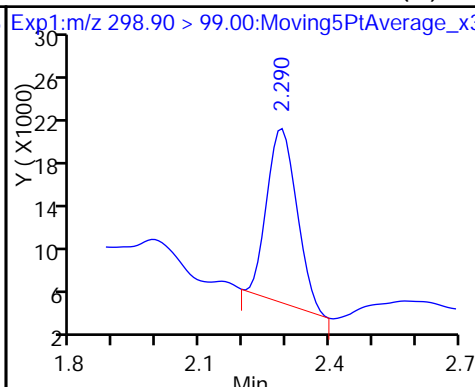
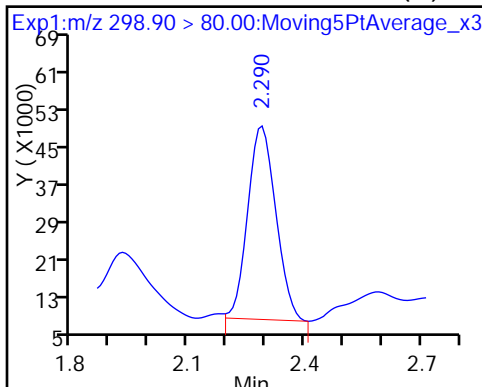
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

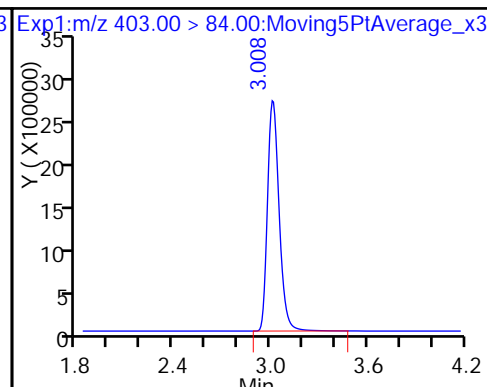
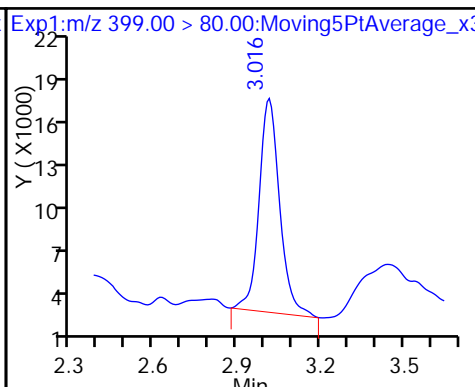
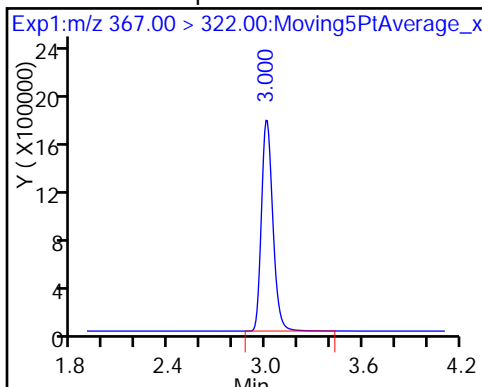
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

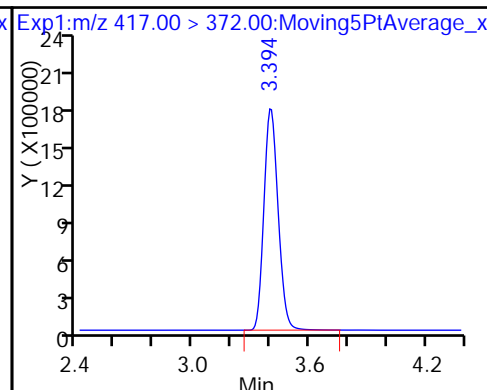
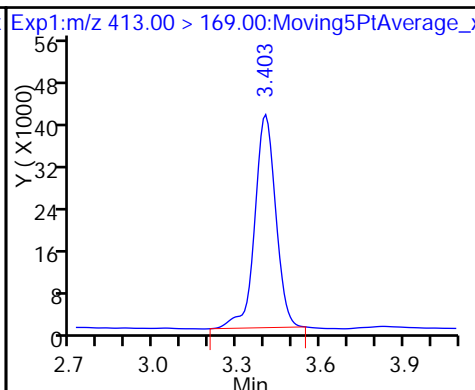
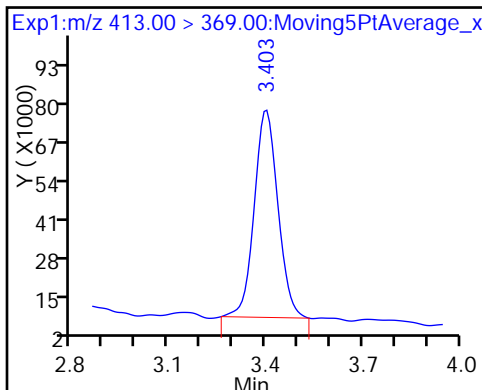
D 11 18O2 PFHxS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

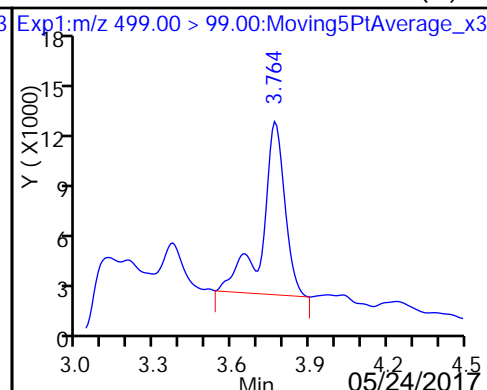
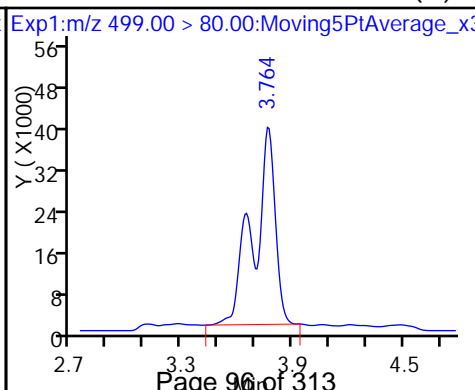
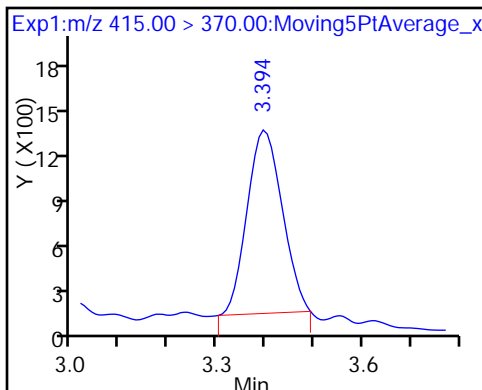
D 14 13C4 PFOA



* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (M)

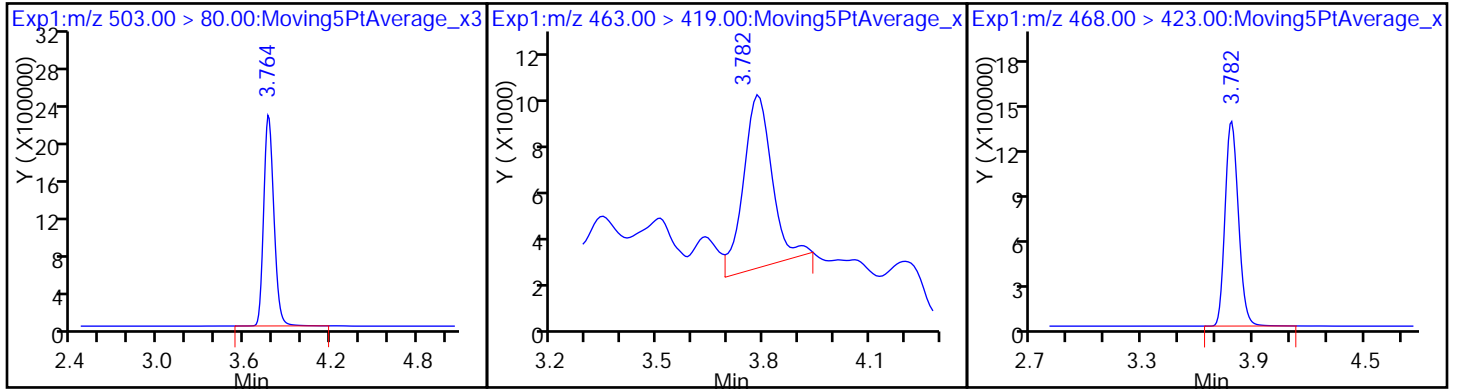
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

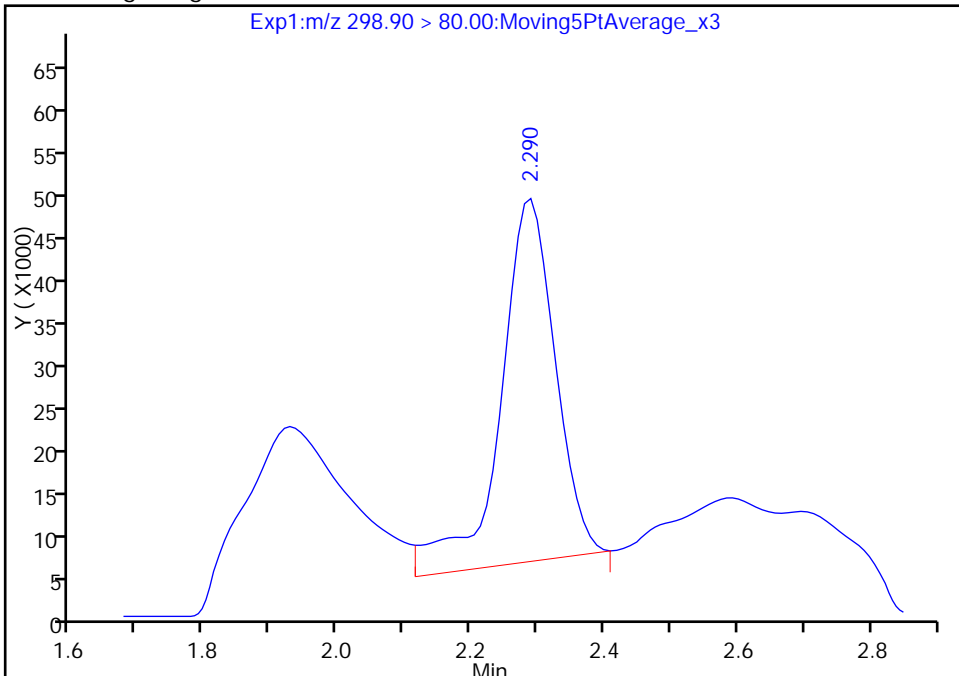
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Injection Date: 19-May-2017 12:51:51 Instrument ID: A8_N
Lims ID: 680-138385-A-7-A Lab Sample ID: 320-138385-7
Client ID: 06GW15050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

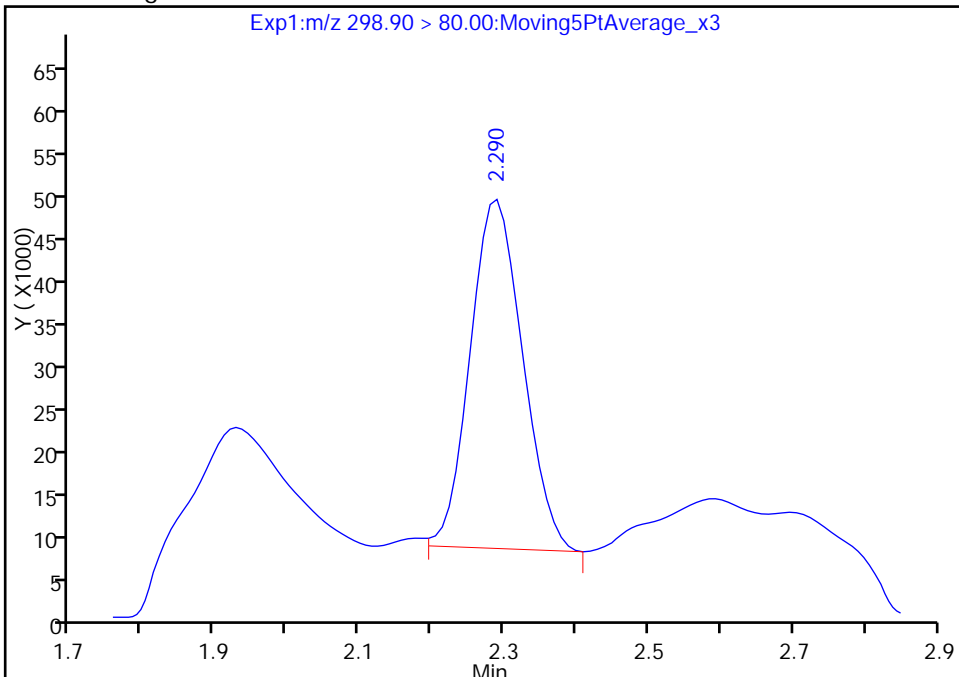
RT: 2.29
Area: 242582
Amount: 0.534740
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 206035
Amount: 0.454177
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:22:23
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

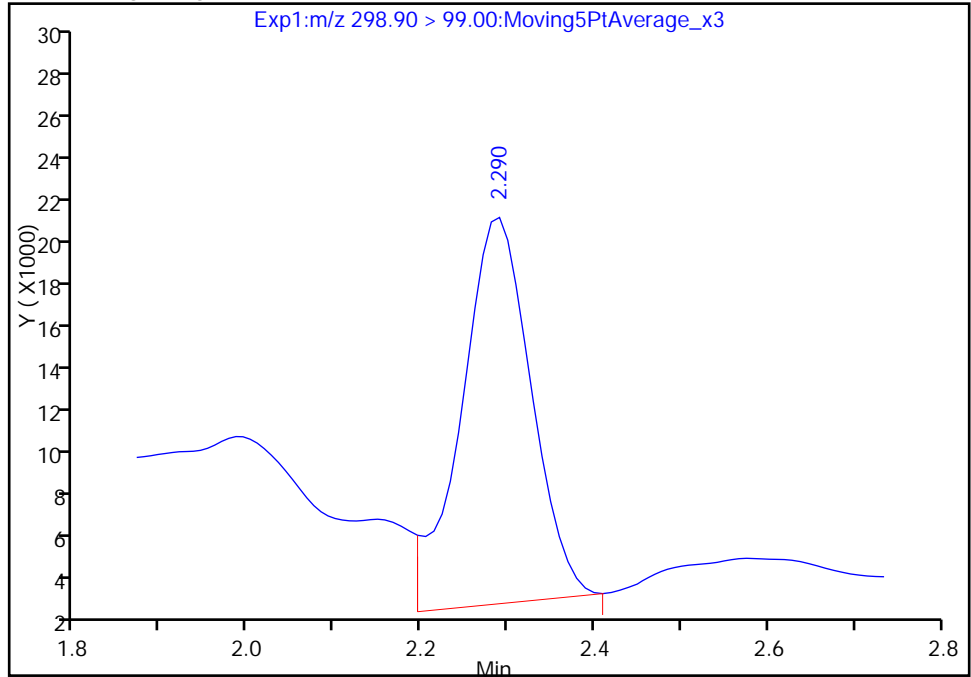
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Injection Date: 19-May-2017 12:51:51 Instrument ID: A8_N
Lims ID: 680-138385-A-7-A Lab Sample ID: 320-138385-7
Client ID: 06GW15050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

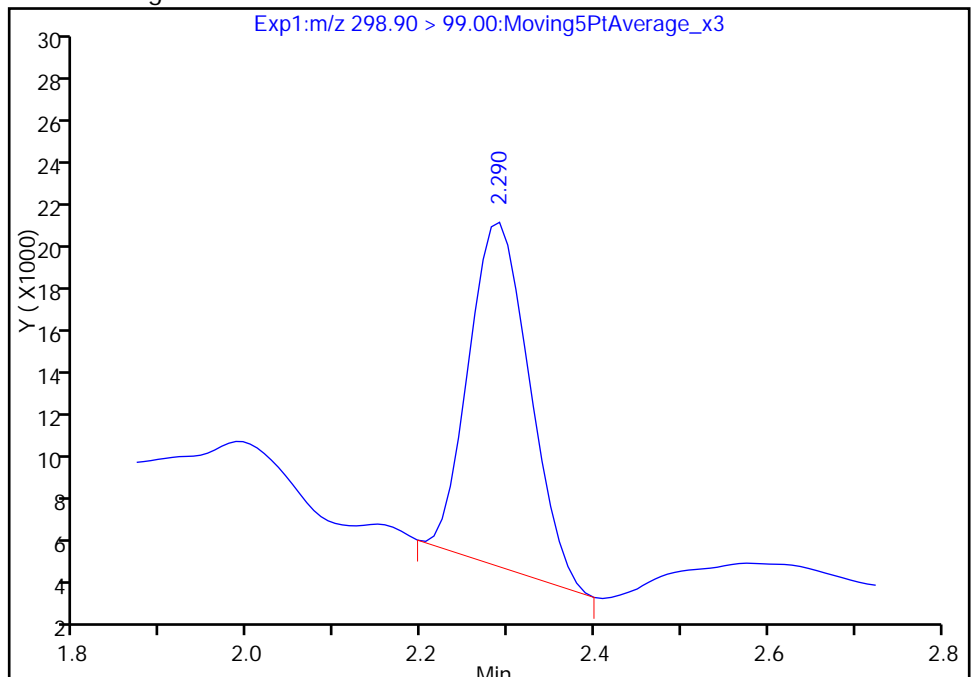
RT: 2.29
Area: 101301
Amount: 0.534740
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 78815
Amount: 0.454177
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:22:26

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

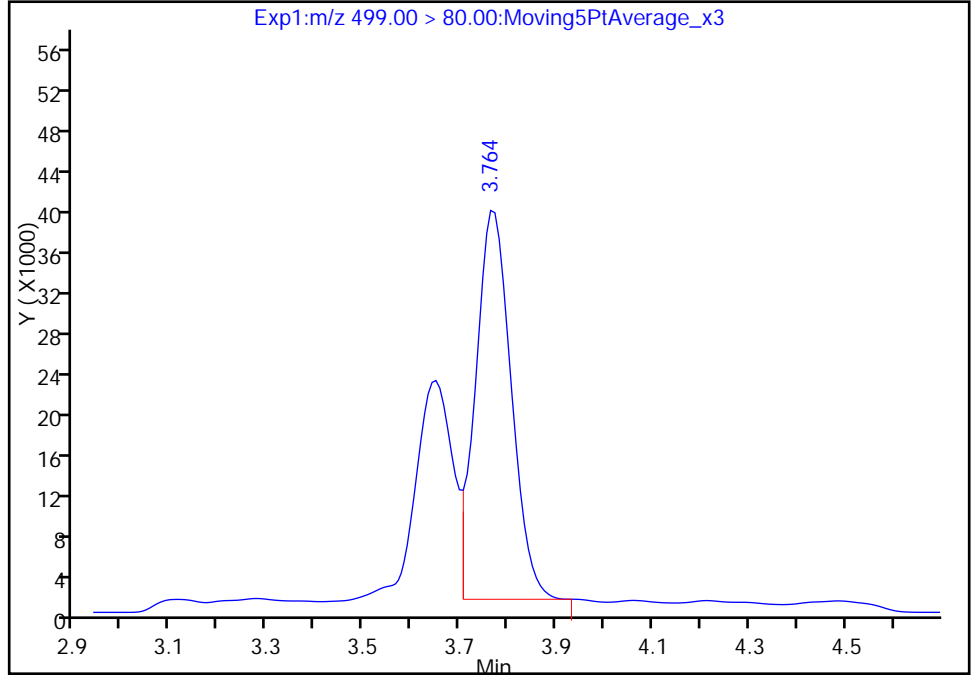
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_014.d
Injection Date: 19-May-2017 12:51:51 Instrument ID: A8_N
Lims ID: 680-138385-A-7-A Lab Sample ID: 320-138385-7
Client ID: 06GW15050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

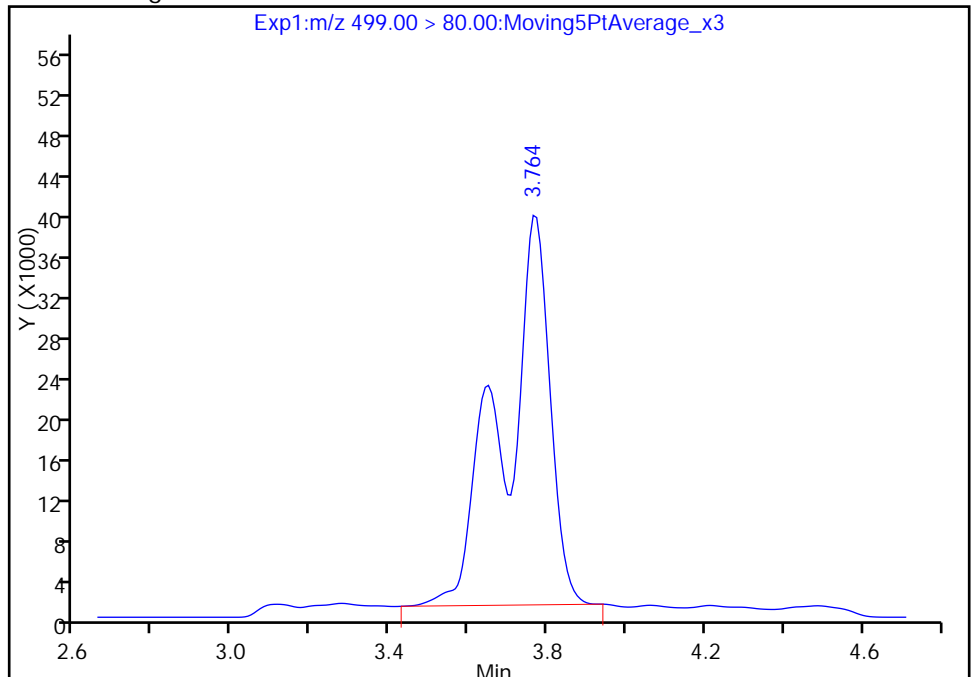
RT: 3.76
Area: 196377
Amount: 0.702236
Amount Units: ng/ml

Processing Integration Results



RT: 3.76
Area: 316276
Amount: 1.130990
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:22:37

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

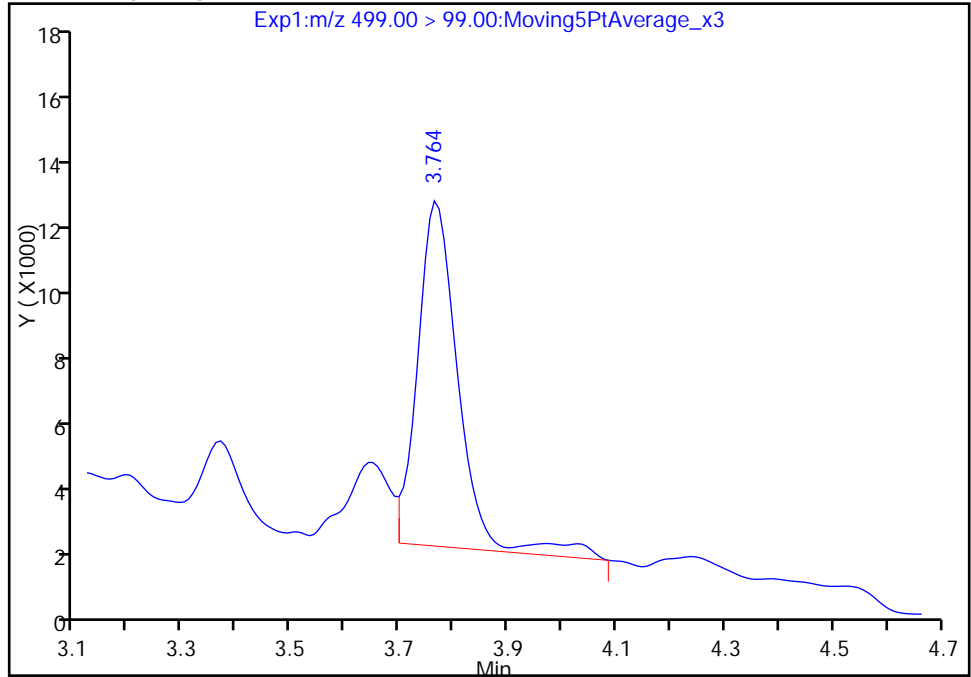
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_014.d
Injection Date: 19-May-2017 12:51:51 Instrument ID: A8_N
Lims ID: 680-138385-A-7-A Lab Sample ID: 320-138385-7
Client ID: 06GW15050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

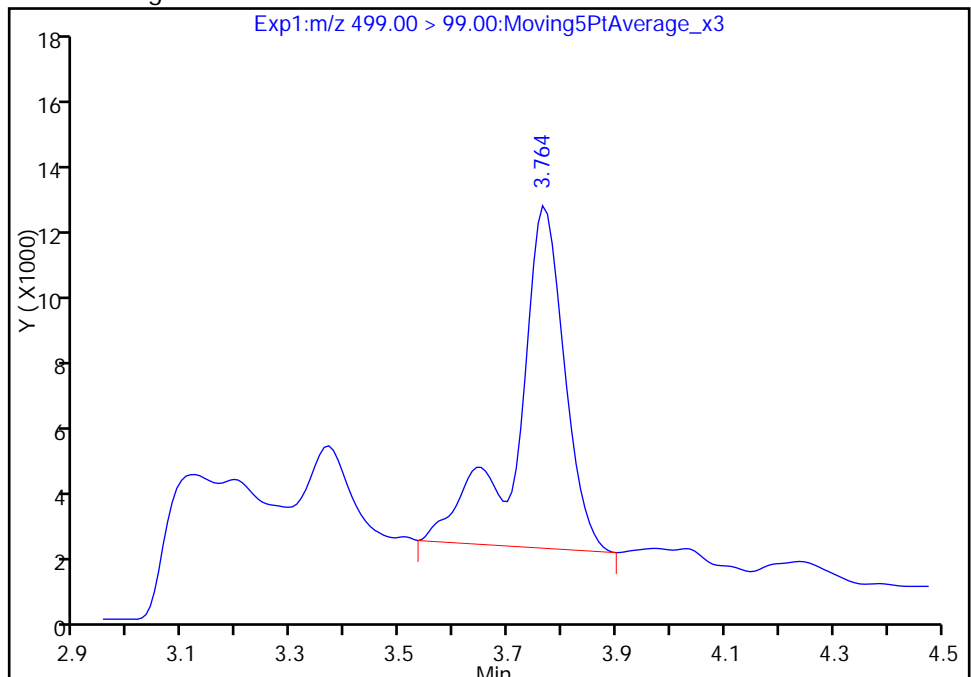
RT: 3.76
Area: 55168
Amount: 0.702236
Amount Units: ng/ml

Processing Integration Results



RT: 3.76
Area: 63691
Amount: 1.130990
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:22:39

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW16050417</u>	Lab Sample ID: <u>680-138385-8</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_015.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 14:45</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>279.3 (mL)</u>	Date Analyzed: <u>05/19/2017 12:59</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.84	J	2.2	0.82
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.8	U M	2.2	0.78
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.8	U	2.2	0.72
335-67-1	Perfluorooctanoic acid (PFOA)	1.0	J M	2.2	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.6	J M	3.6	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.59

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	93		25-150
STL01892	13C4-PFHpA	77		25-150
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	97		25-150
STL00995	13C5 PFNA	71		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_015.d
 Lims ID: 680-138385-A-8-A
 Client ID: 06GW16050417
 Sample Type: Client
 Inject. Date: 19-May-2017 12:59:23 ALS Bottle#: 13 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-8-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:23:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.289	2.289	0.0	1.000	212592	0.4716				
298.90 > 99.00	2.289	2.289	0.0	1.000	63817		3.33(0.00-0.00)			
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.010	2.994	0.016	1.000	37590	0.2057			2.0	
D 9 13C4-PFHpA										
367.00 > 322.00	3.010	2.994	0.016		8167081	38.5		77.1	39226	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.018	3.009	0.009	1.000	105343	0.3166				M
D 11 18O2 PFHxS										
403.00 > 84.00	3.018	3.009	0.009		13365656	43.9		92.8	20975	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.405	3.396	0.009	1.000	108836	0.5809			6.3	
413.00 > 169.00	3.405	3.396	0.009	1.000	54534		2.00(0.90-1.10)		64.1	M
D 14 13C4 PFOA										
417.00 > 372.00	3.405	3.396	0.009		8153785	38.3		76.6	28388	
* 62 13C2-PFOA										
415.00 > 370.00	3.397	3.426	-0.029		5423	49.5				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.775	3.762	0.013	1.000	231122	0.8740			75.7	M
499.00 > 99.00	3.775	3.762	0.013	1.000	37177		6.22(0.90-1.10)		11.6	
D 18 13C4 PFOS										
503.00 > 80.00	3.775	3.762	0.013		10599514	46.2		96.7	6030	
20 Perfluorononanoic acid										
463.00 > 419.00	3.784	3.770	0.014	1.000	18621	0.1453			4.7	
D 19 13C5 PFNA										
468.00 > 423.00	3.784	3.770	0.014		5989254	35.7		71.4	26941	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_015.d

Injection Date: 19-May-2017 12:59:23

Instrument ID: A8_N

Lims ID: 680-138385-A-8-A

Lab Sample ID: 320-138385-8

Client ID: 06GW16050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 17

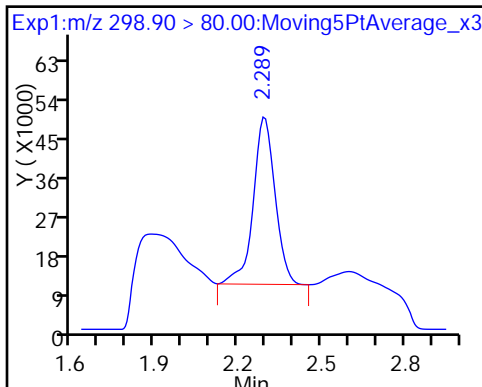
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

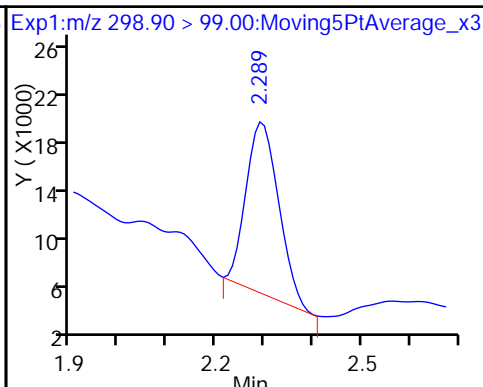
Method: A8_N

Limit Group: LC PFC_DOD ICAL

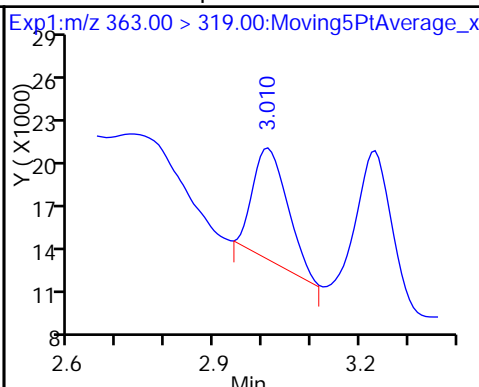
5 Perfluorobutanesulfonic acid



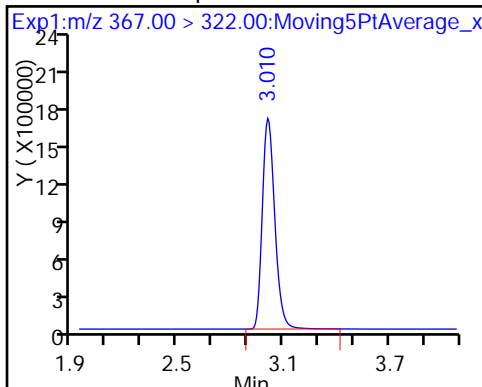
5 Perfluorobutanesulfonic acid



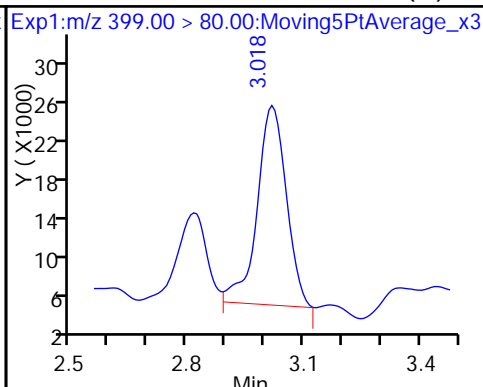
10 Perfluoroheptanoic acid



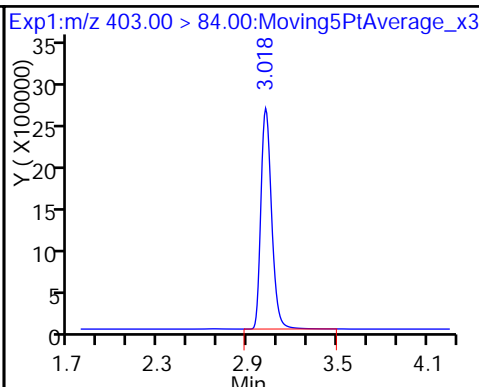
D 9 13C4-PFHpA



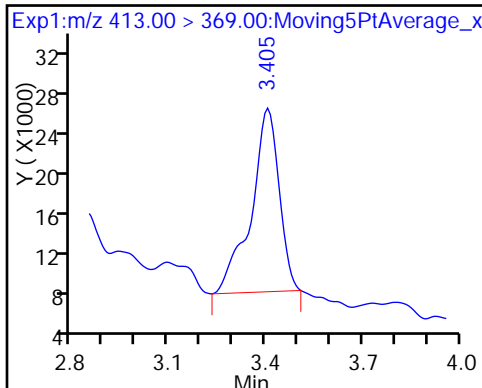
8 Perfluorohexanesulfonic acid (M)



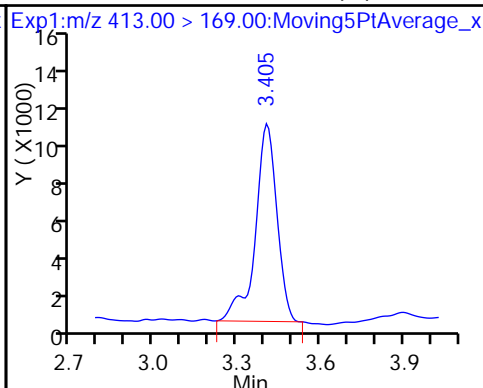
D 11 18O2 PFHxS



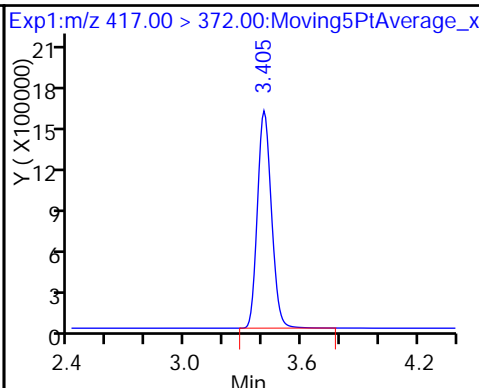
15 Perfluorooctanoic acid



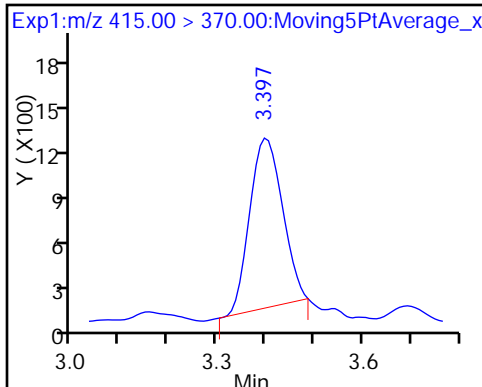
15 Perfluorooctanoic acid (M)



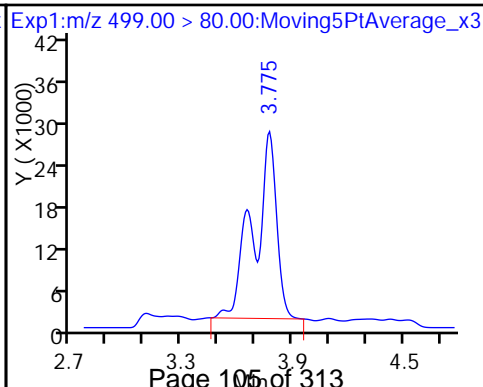
D 14 13C4 PFOA



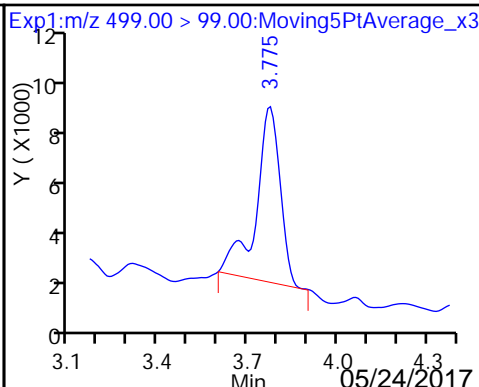
* 62 13C2-PFOA



17 Perfluorooctane sulfonic acid (M)



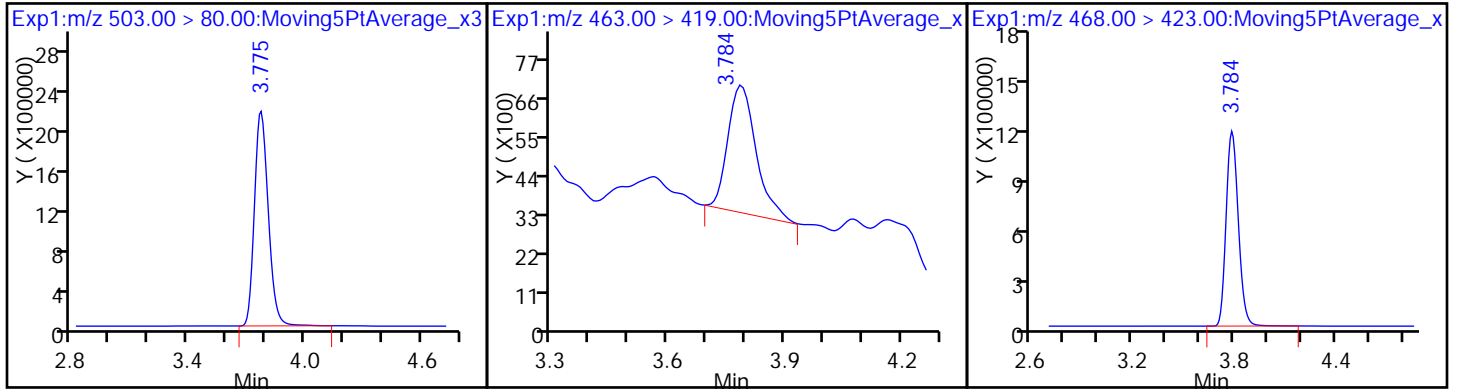
17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

D 19 13C5 PFNA



TestAmerica Sacramento

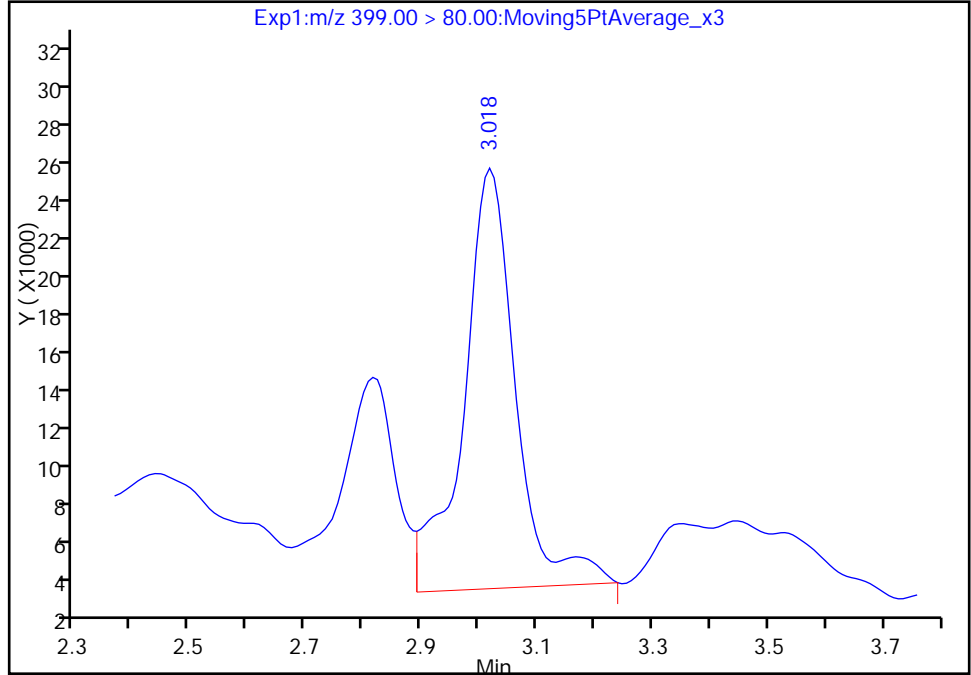
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_015.d
Injection Date: 19-May-2017 12:59:23 Instrument ID: A8_N
Lims ID: 680-138385-A-8-A Lab Sample ID: 320-138385-8
Client ID: 06GW16050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

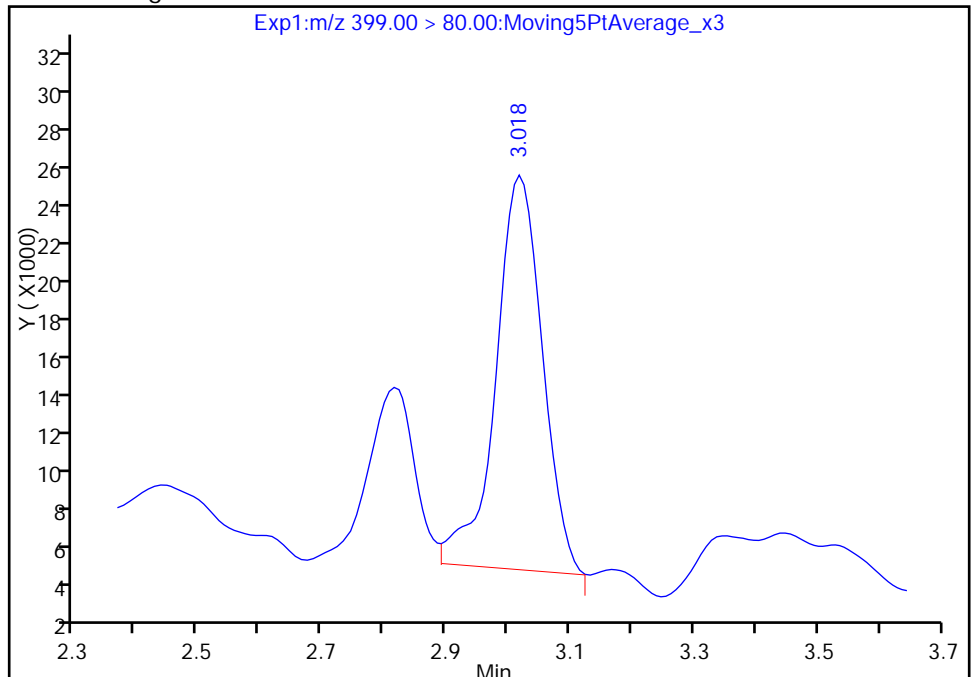
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Area: 135828
Amount: 0.408204
Amount Units: ng/ml

Processing Integration Results



RT: 3.02
Area: 105343
Amount: 0.316587
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:07

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

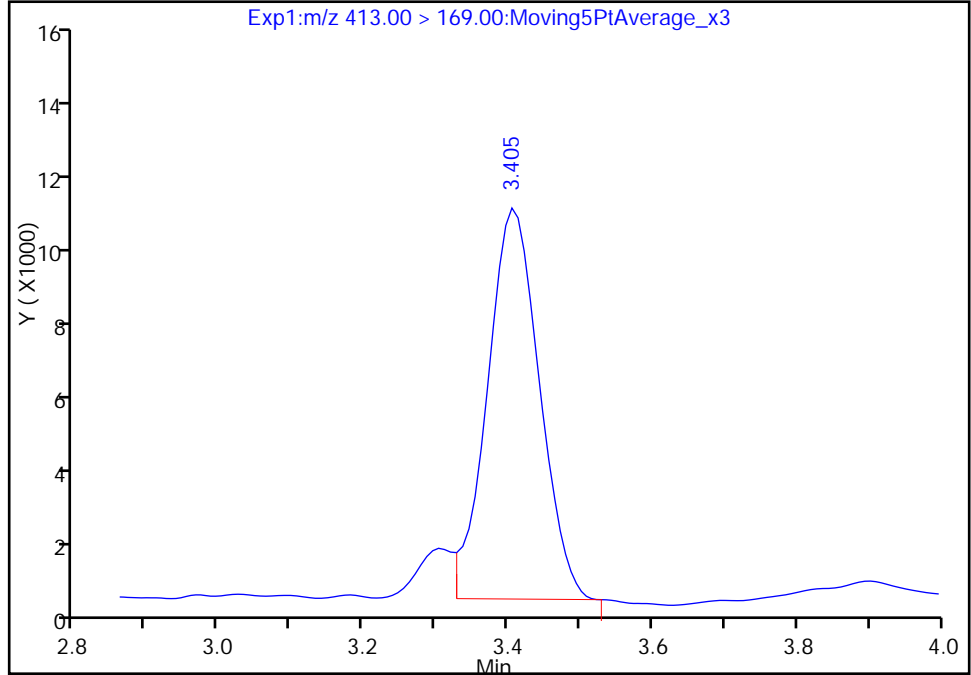
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_015.d
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Lims ID: 680-138385-A-8-A Lab Sample ID: 320-138385-8
Client ID: 06GW16050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

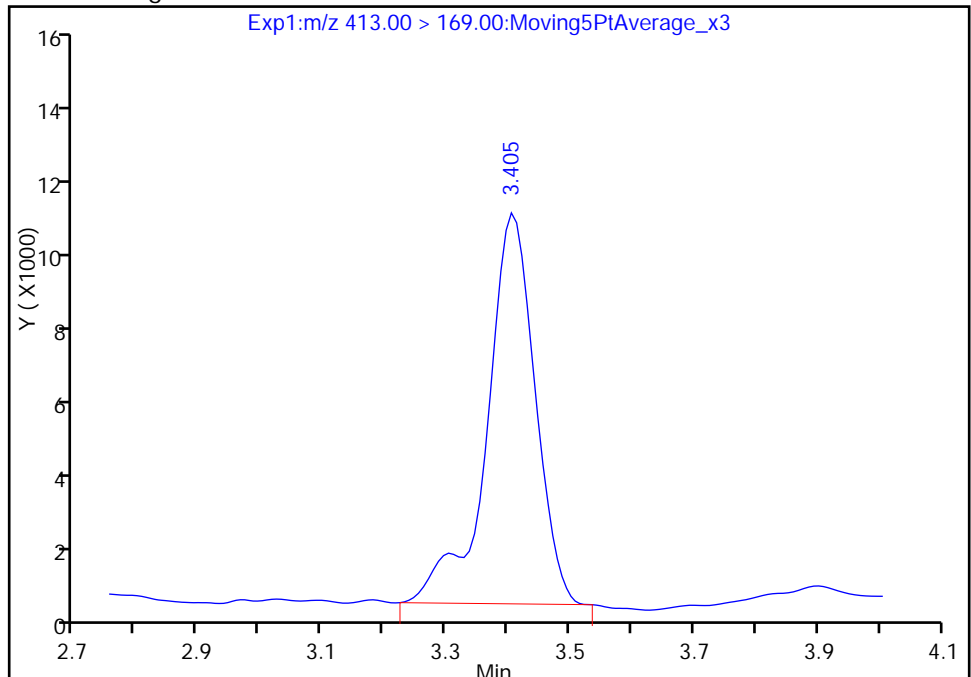
RT: 3.41
Area: 50123
Amount: 0.580853
Amount Units: ng/ml

Processing Integration Results



RT: 3.41
Area: 54534
Amount: 0.580853
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:20
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

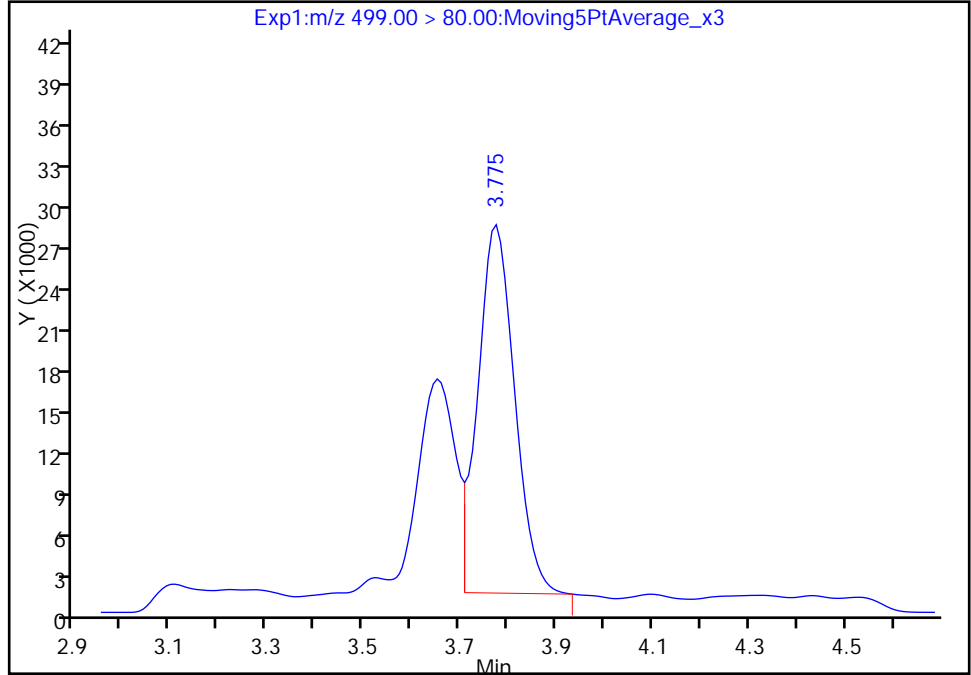
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_015.d
Injection Date: 19-May-2017 12:59:23 Instrument ID: A8_N
Lims ID: 680-138385-A-8-A Lab Sample ID: 320-138385-8
Client ID: 06GW16050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

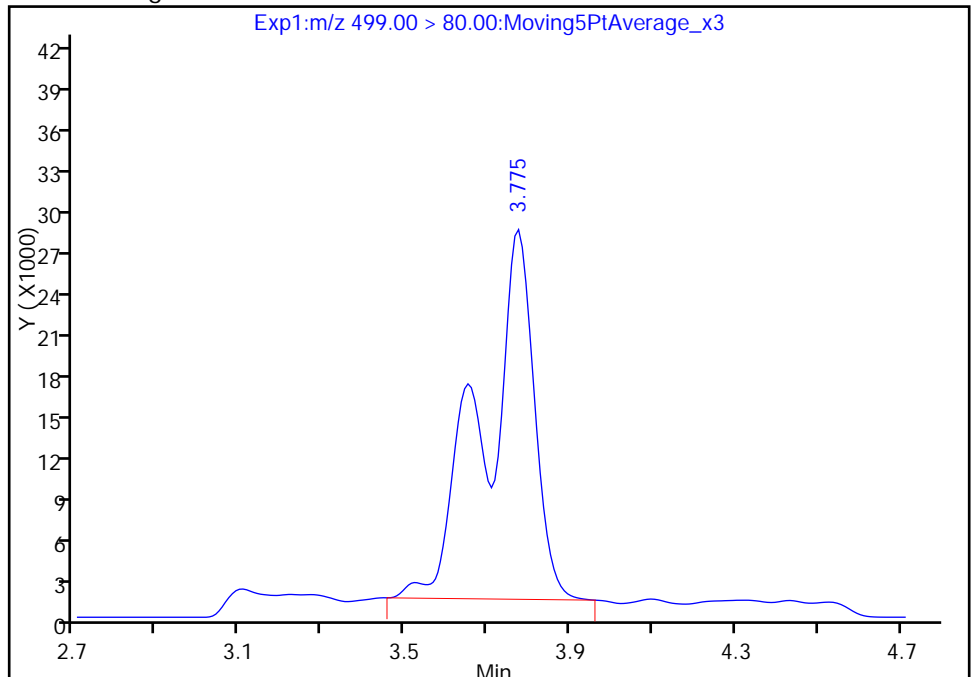
RT: 3.78
Area: 141593
Amount: 0.535452
Amount Units: ng/ml

Processing Integration Results



RT: 3.78
Area: 231122
Amount: 0.874017
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:25
Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW09050417</u>	Lab Sample ID: <u>680-138385-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_016.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>273.9(mL)</u>	Date Analyzed: <u>05/19/2017 13:06</u>
Con. Extract Vol.: <u>0.50(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.3	0.84
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0		2.3	0.79
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.8	U	2.3	0.73
335-67-1	Perfluorooctanoic acid (PFOA)	4.8	M	2.3	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.7	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.3	0.60

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	103		25-150
STL01892	13C4-PFHpA	77		25-150
STL00990	13C4 PFOA	66		25-150
STL00991	13C4 PFOS	103		25-150
STL00995	13C5 PFNA	49		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_016.d
 Lims ID: 680-138385-A-9-A
 Client ID: 06GW09050417
 Sample Type: Client
 Inject. Date: 19-May-2017 13:06:55 ALS Bottle#: 14 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-9-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:24:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.920	1.903	0.017	6878231	19.1		38.2	65104	
2 Perfluorobutyric acid	212.90 > 169.00	1.928	1.903	0.025	210580	1.52			4.8	
D 3 13C5-PFPeA	267.90 > 223.00	2.261	2.242	0.019	8845016	35.6		71.1	36897	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.299	2.289	0.010	302902	0.6073				
	298.90 > 99.00	2.299	2.289	0.010	123991		2.44(0.00-0.00)			
D 47 13C3-PFBS	301.90 > 83.00	2.299	2.309	-0.010	303214	NC				
6 Perfluorohexanoic acid	313.00 > 269.00	2.618	2.608	0.010	61138	0.3508			14.5	
D 7 13C2 PFHxA	315.00 > 270.00	2.627	2.608	0.019	8458894	34.7		69.5	49336	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.016	2.994	0.022	8668	0.0477			2.0	
D 9 13C4-PFHpA	367.00 > 322.00	3.016	2.994	0.022	8118654	38.3		76.6	41723	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.024	3.009	0.015	1419492	3.86				
D 11 18O2 PFHxS	403.00 > 84.00	3.024	3.009	0.015	14787649	48.6		103	105454	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.395	3.370	0.025	21769	0.1959				
D 12 M2-6:2FTS	429.00 > 409.00	3.395	3.370	0.025	5446983	43.2		90.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.412	3.396	0.016	1.000	418800	2.61			60.6	
413.00 > 169.00	3.412	3.396	0.016	1.000	269509		1.55(0.90-1.10)		481	M
D 14 13C4 PFOA										
417.00 > 372.00	3.412	3.396	0.016		6970600	32.8		65.5	33571	
* 62 13C2-PFOA										
415.00 > 370.00	3.412	3.426	-0.014		4219	49.5				
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.660	3.762	-0.102	1.000	77281	0.2739			47.8	M
499.00 > 99.00	3.668	3.762	-0.094	1.002	11872		6.51(0.90-1.10)		10.1	M
D 18 13C4 PFOS										
503.00 > 80.00	3.784	3.762	0.022		11311371	49.3		103	13829	
20 Perfluorononanoic acid										
463.00 > 419.00	3.676	3.770	-0.094	1.000	1962	0.0225			1.3	
D 19 13C5 PFNA										
468.00 > 423.00	3.793	3.770	0.023		4074227	24.3		48.5	18200	
D 21 13C8 FOSA										
506.00 > 78.00	4.123	4.096	0.027		203100	0.5532		1.1	1973	
D 26 M2-8:2FTS										
529.00 > 509.00	4.140	4.114	0.026		5385991	54.4		113		
24 Perfluorodecanoic acid										
513.00 > 469.00	4.140	4.123	0.017	1.000	1950	0.0312			2.7	
D 23 13C2 PFDA										
515.00 > 470.00	4.140	4.123	0.017		3053434	21.1		42.3	8585	
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.299	4.273	0.026		832466	12.8		25.7		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.419	4.405	0.014	1.000	3446	0.0212				
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.447	4.432	0.015	1.000	7222	0.1204			10.7	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.456	4.432	0.024		913330	14.4		28.8		
D 30 13C2 PFUnA										
565.00 > 520.00	4.447	4.432	0.015		2545778	25.0		50.0	8639	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.465	4.442	0.023	1.002	3150	0.1803				
37 Perfluorododecanoic acid										
613.00 > 569.00	4.726	4.703	0.023	1.000	3971	0.0710			4.0	
D 36 13C2 PFDoA										
615.00 > 570.00	4.726	4.703	0.023		2757122	27.5		55.0	3545	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.977	4.959	0.018	1.000	3140	0.0558			3.0	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.191	5.178	0.013	1.000	58838	0.3563			5.5	
713.00 > 169.00	5.201	5.178	0.023	1.002	5851		10.06(0.00-0.00)		63.4	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.201	5.178	0.023		9408173	45.9		91.8	6019	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.605	5.588	0.017	1.000	67601	0.1980		12.1	
D 44 13C2-PFHxDA	815.00 > 770.00	5.605	5.588	0.017		5049257	42.7	85.3	4991	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.746	5.976	-0.230	1.000	1100	-4.02		1.2	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_016.d

Injection Date: 19-May-2017 13:06:55

Instrument ID: A8_N

Lims ID: 680-138385-A-9-A

Lab Sample ID: 320-138385-9

Client ID: 06GW09050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

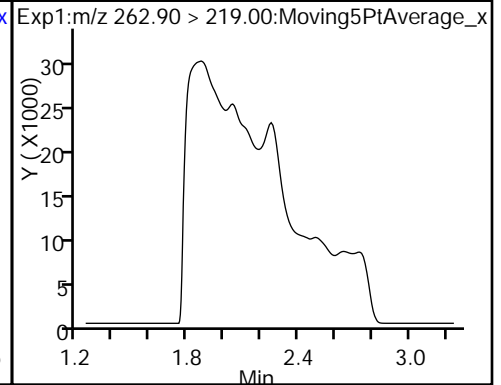
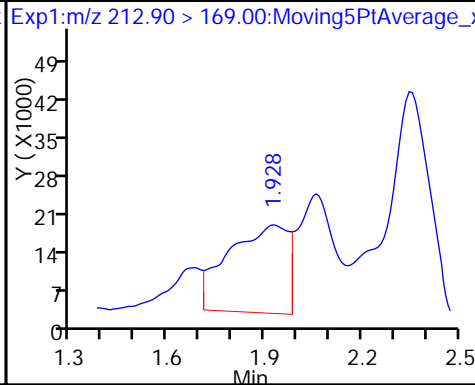
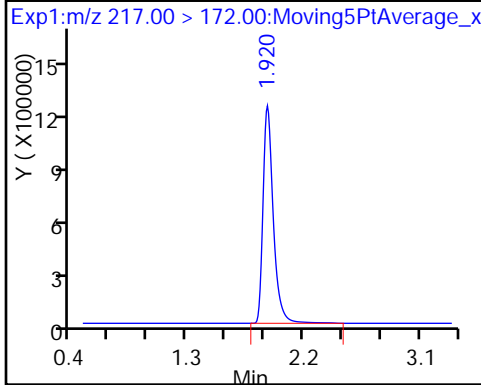
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

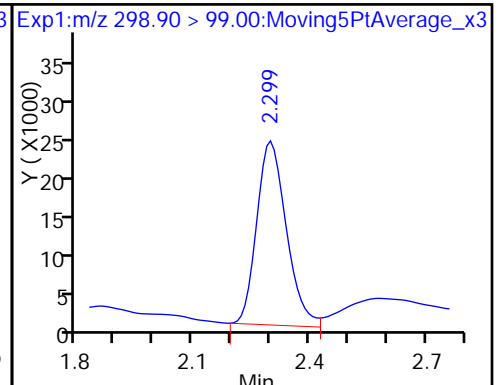
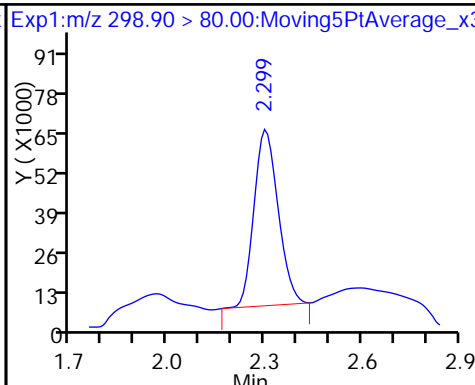
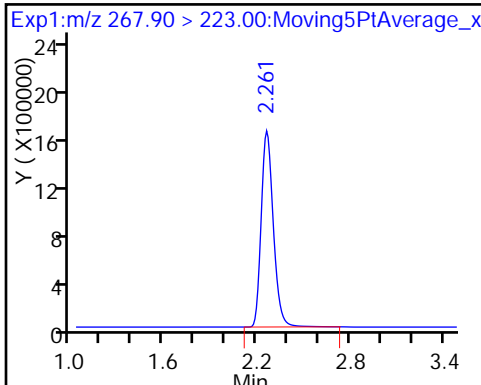
4 Perfluoropentanoic acid (ND)



D 3 13C5-PFPeA

5 Perfluorobutanesulfonic acid

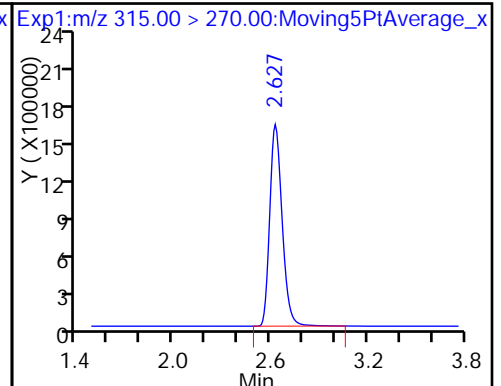
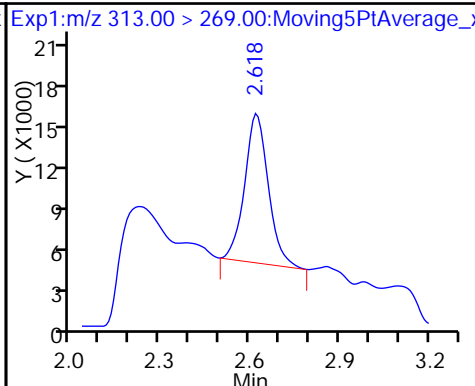
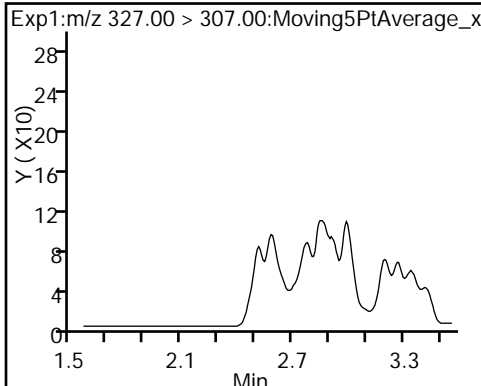
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (ND)

6 Perfluorohexanoic acid

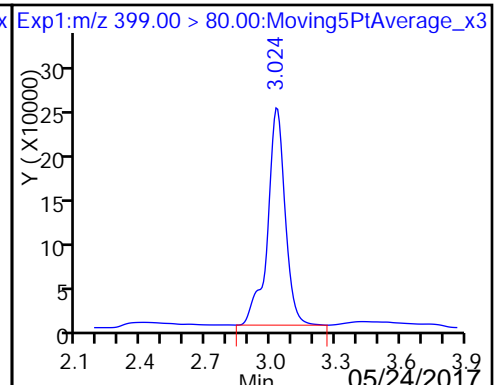
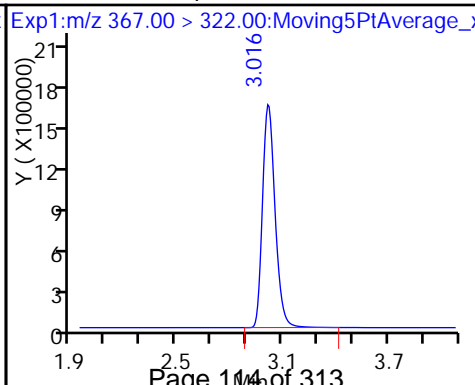
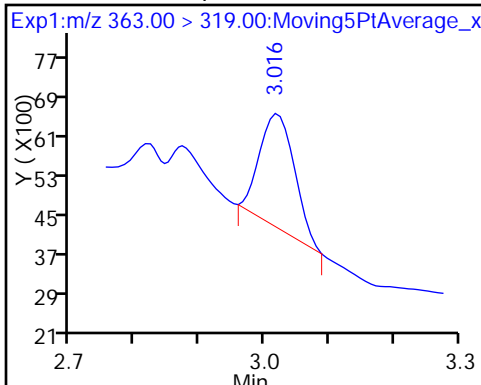
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

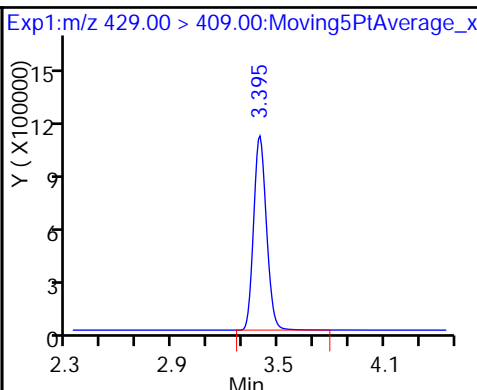
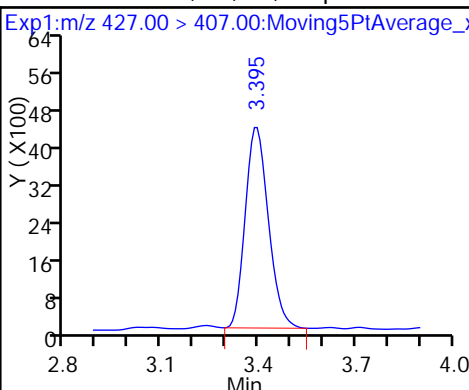
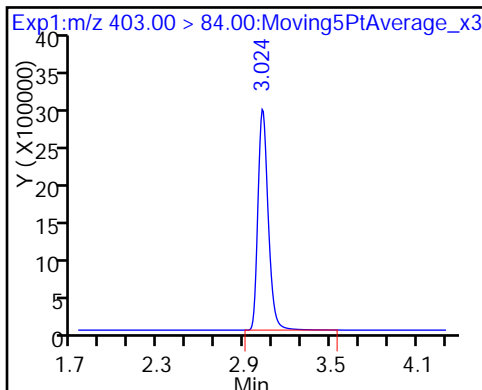
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

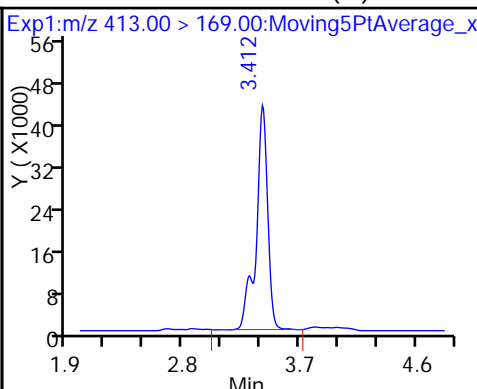
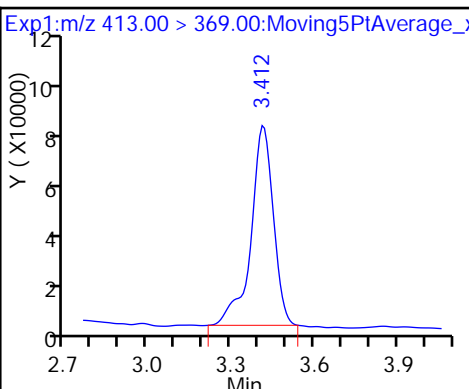
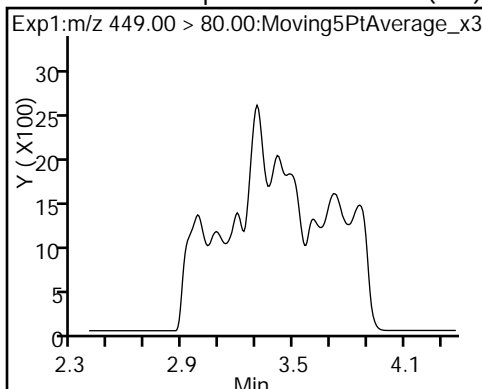
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid (ND)

15 Perfluorooctanoic acid

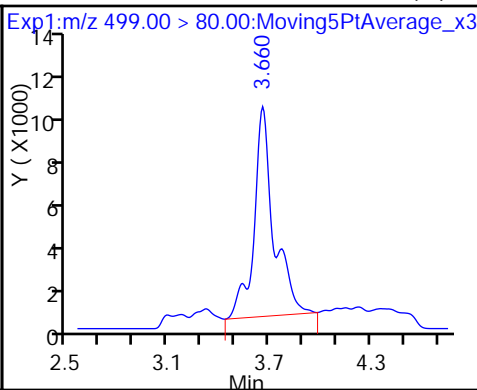
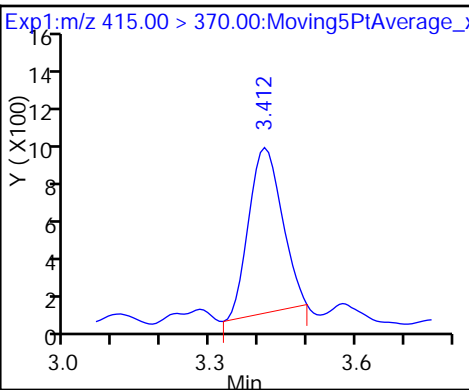
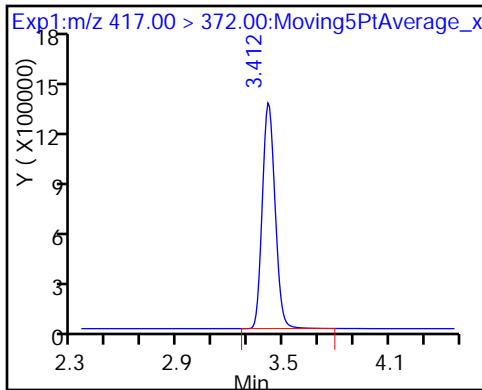
15 Perfluorooctanoic acid (M)



D 14 13C4 PFOA

* 62 13C2-PFOA

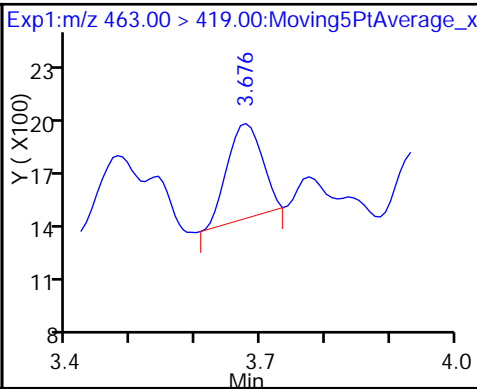
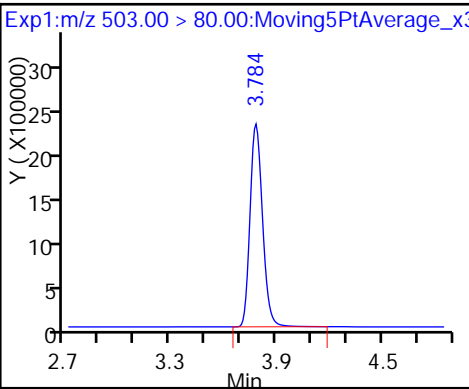
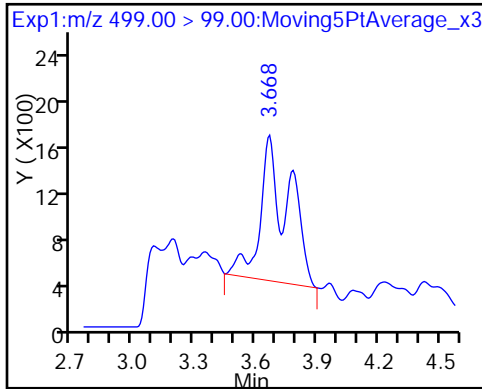
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS

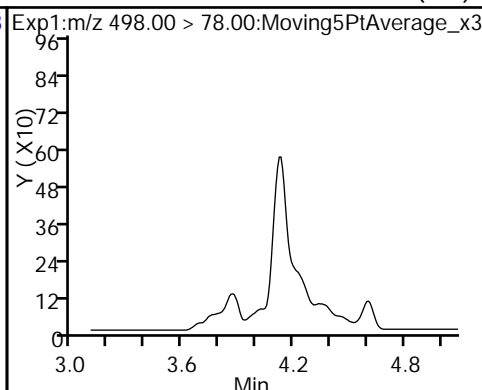
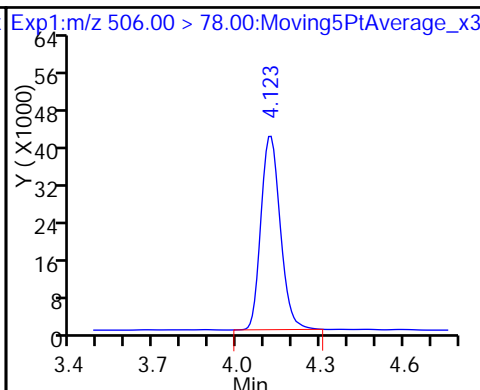
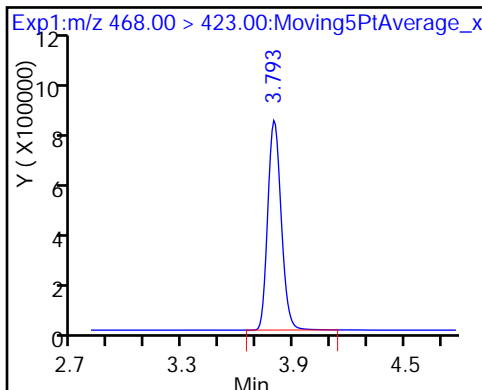
20 Perfluorononanoic acid



D 19 13C5 PFNA

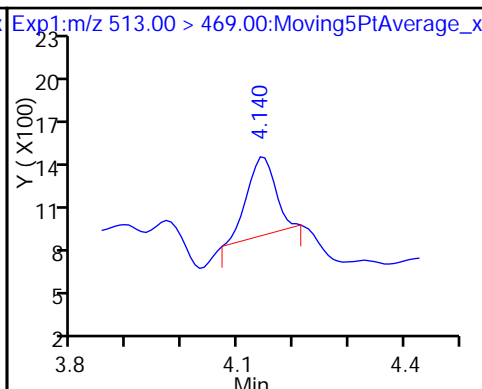
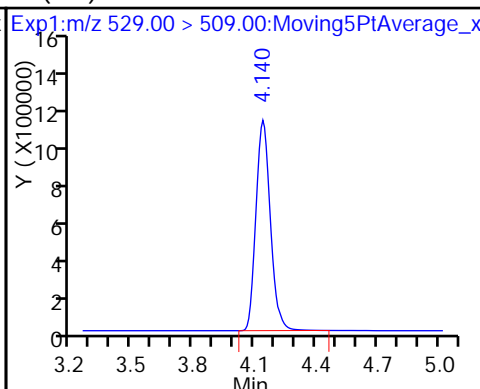
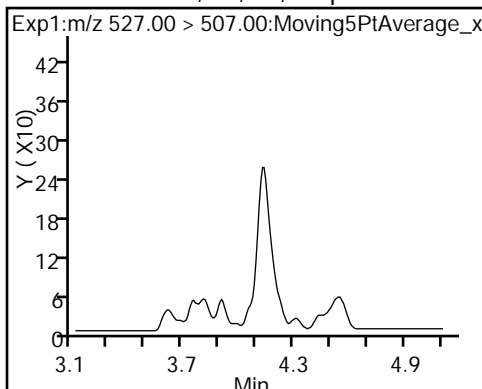
D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide (ND)



25 Sodium 1H,1H,2H,2H-perfluorooctane Sulfonate (ND)

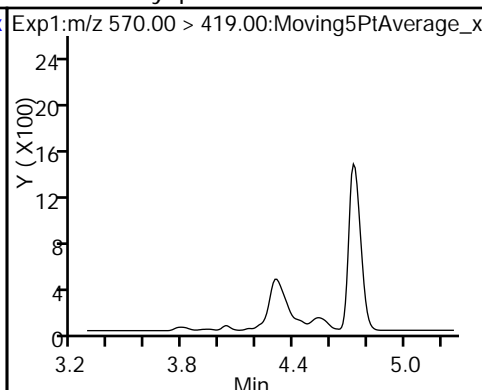
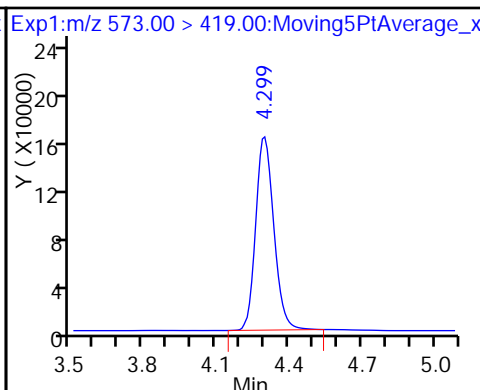
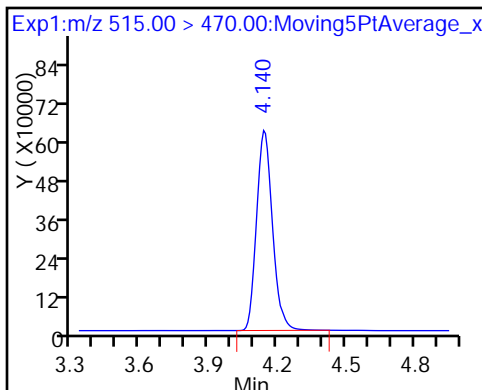
24 Perfluorodecanoic acid



D 23 13C2 PFDA

D 27 d3-NMeFOSAA

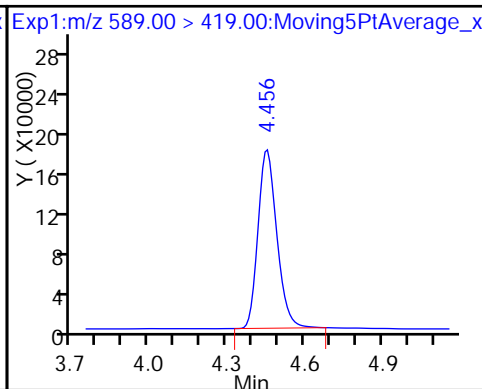
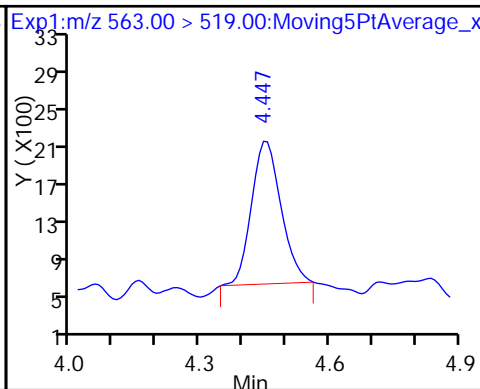
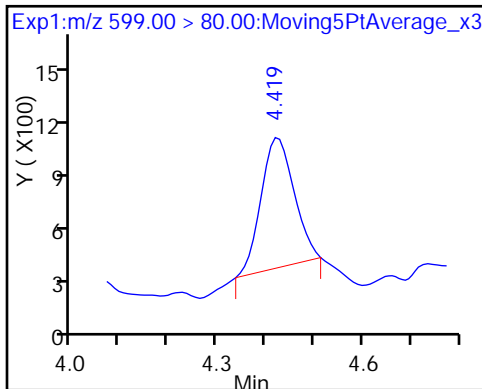
28 N-methyl perfluorooctane sulfonami (ND)



29 Perfluorodecane Sulfonic acid

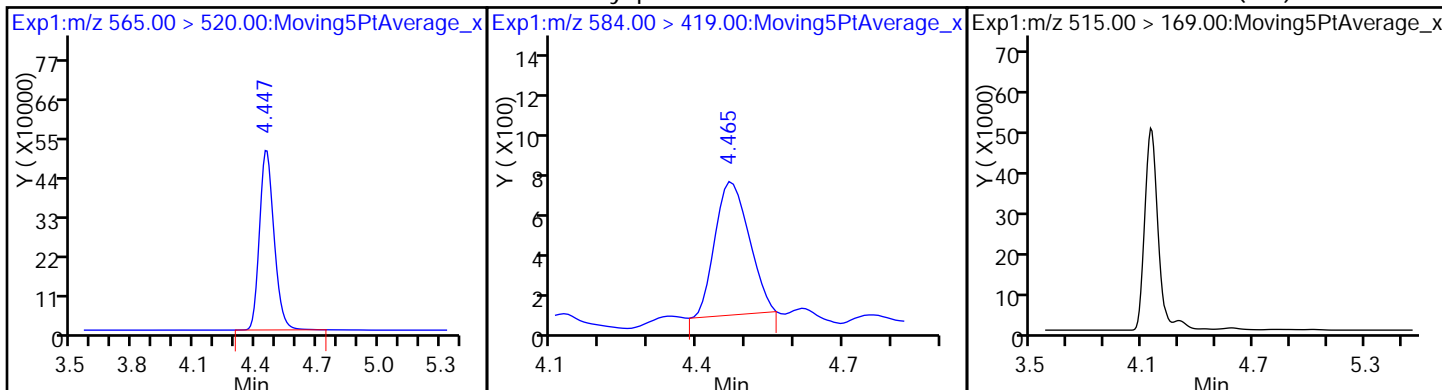
31 Perfluoroundecanoic acid

D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

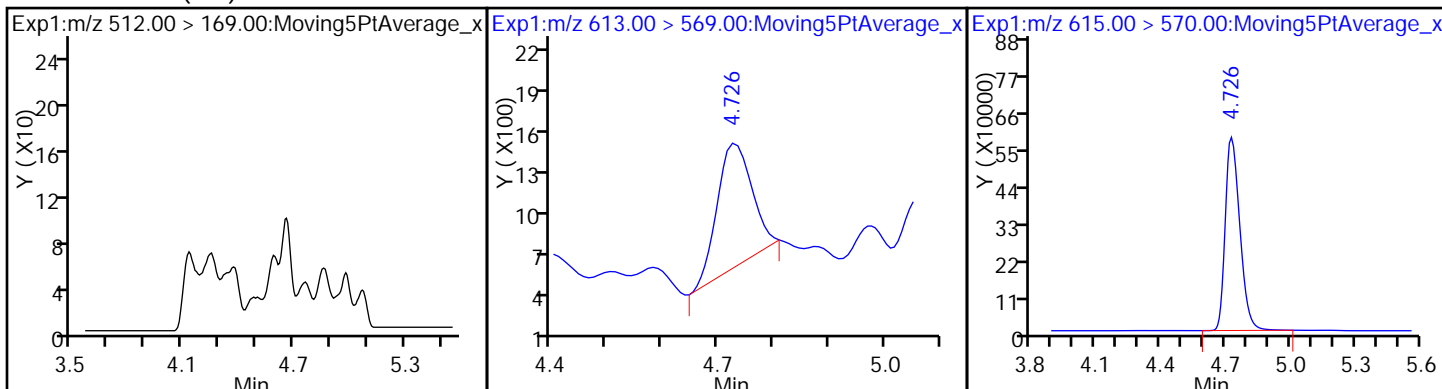
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

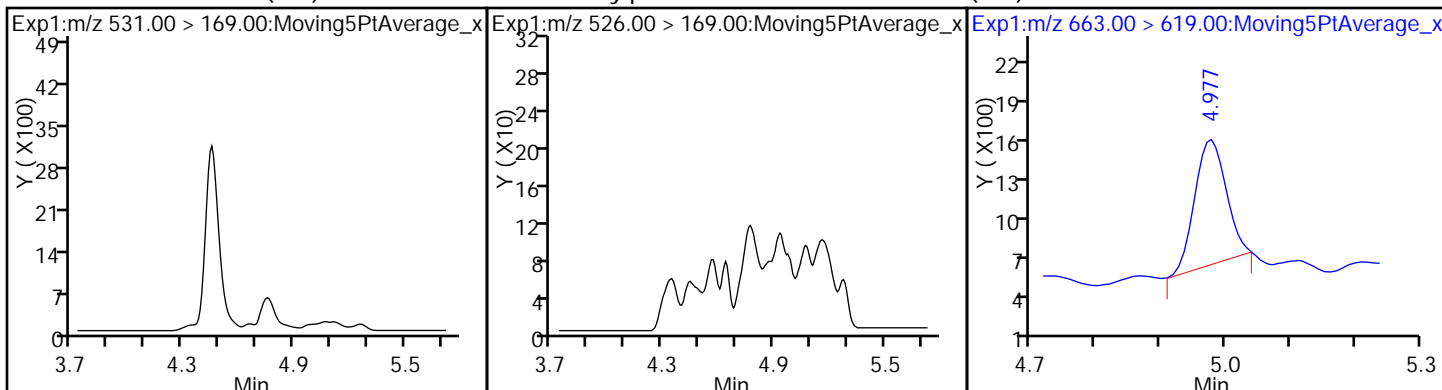
37 Perfluorododecanoic acid

D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M (ND)

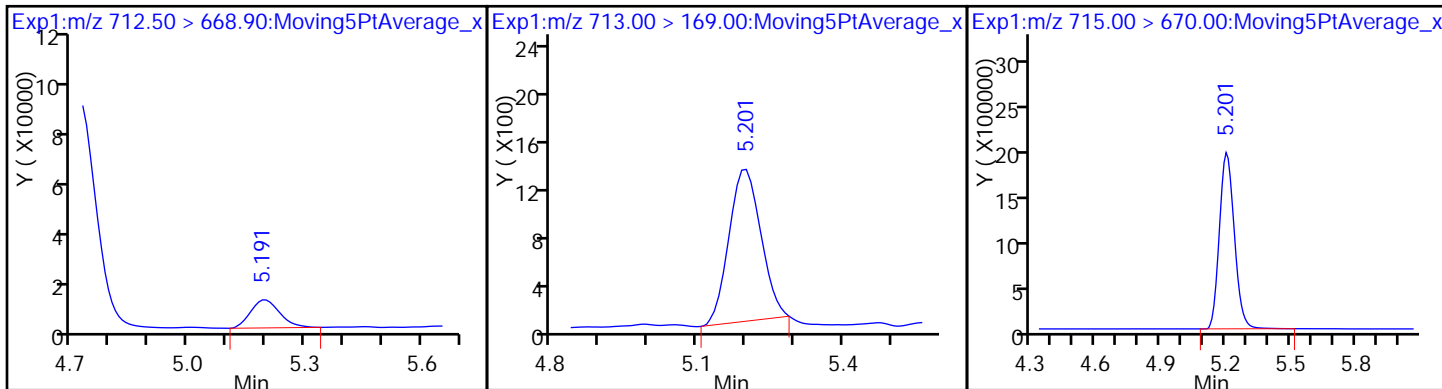
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

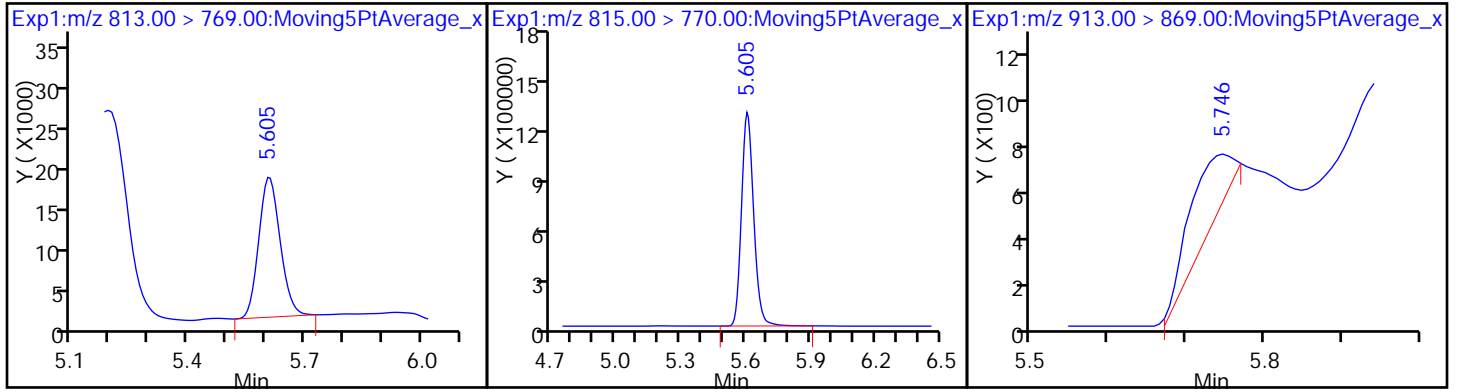
D 43 13C2-PFTeDa



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



TestAmerica Sacramento

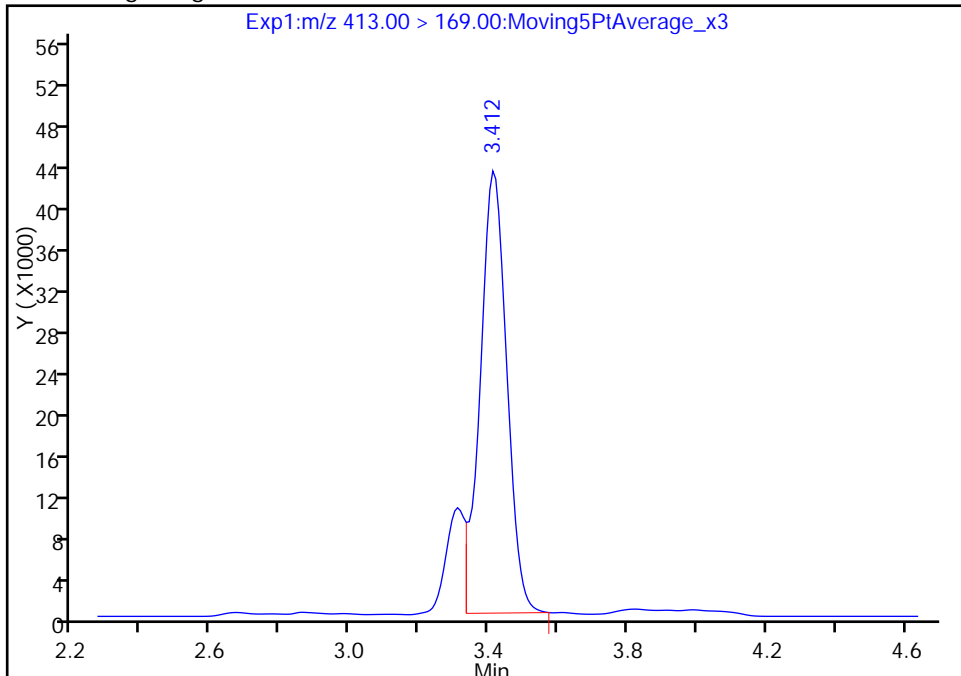
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Injection Date: 19-May-2017 13:06:55 Instrument ID: A8_N
Lims ID: 680-138385-A-9-A Lab Sample ID: 320-138385-9
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

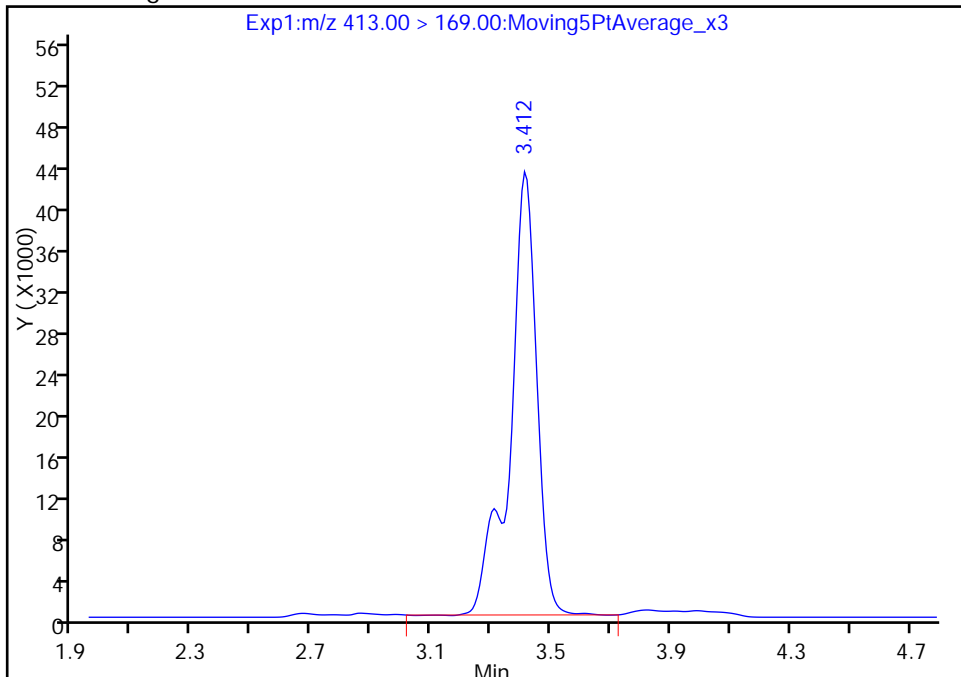
RT: 3.41
Area: 229011
Amount: 2.614506
Amount Units: ng/ml

Processing Integration Results



RT: 3.41
Area: 269509
Amount: 2.614506
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:49
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

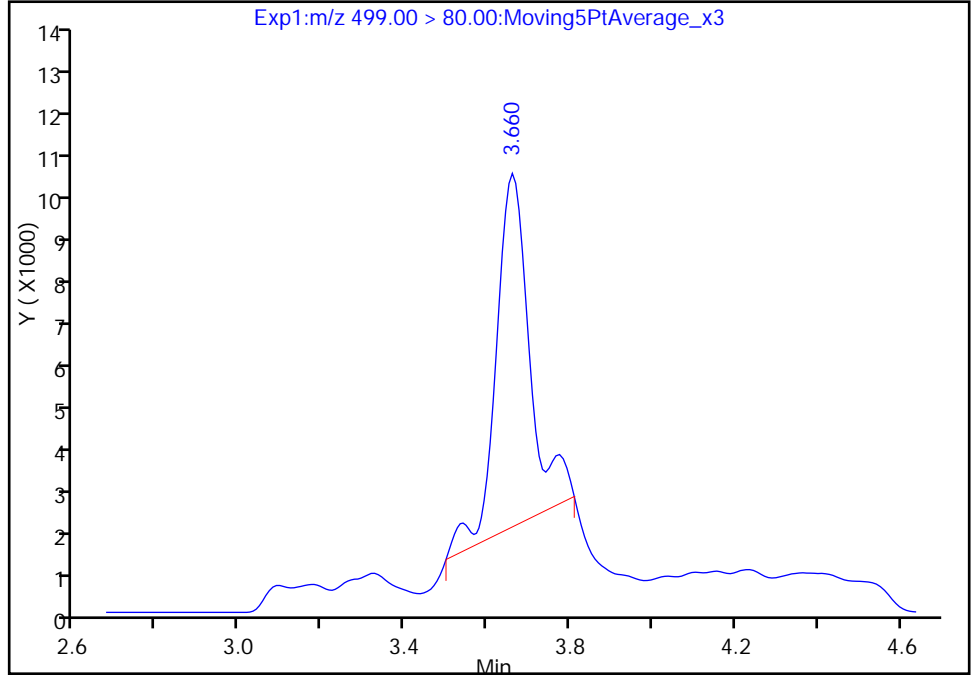
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_016.d
Injection Date: 19-May-2017 13:06:55 Instrument ID: A8_N
Lims ID: 680-138385-A-9-A Lab Sample ID: 320-138385-9
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

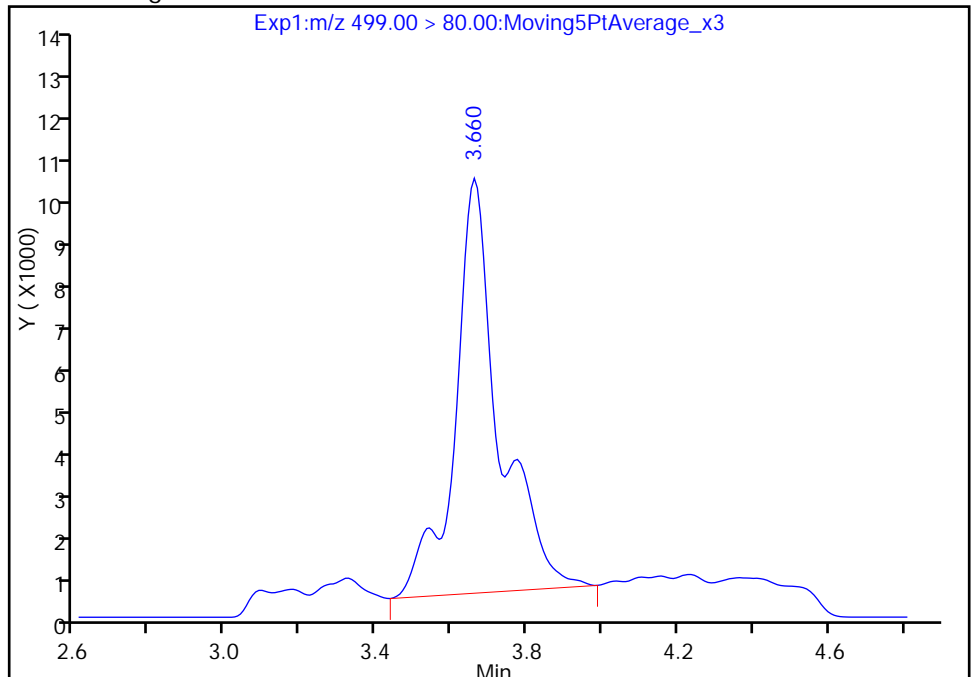
RT: 3.66
Area: 45756
Amount: 0.162143
Amount Units: ng/ml

Processing Integration Results



RT: 3.66
Area: 77281
Amount: 0.273856
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:55
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

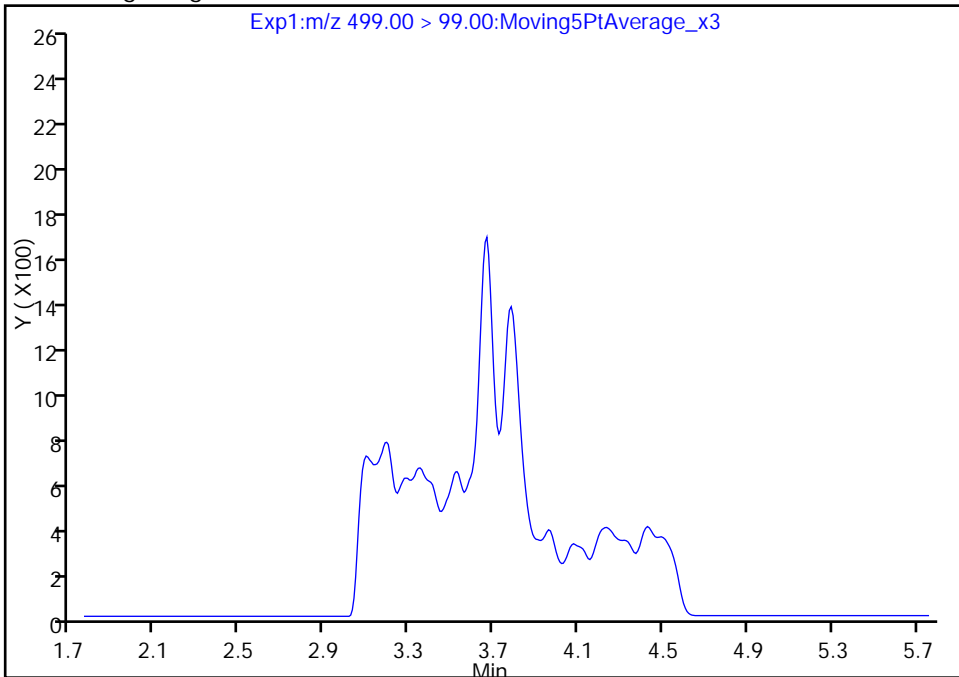
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_016.d
Injection Date: 19-May-2017 13:06:55 Instrument ID: A8_N
Lims ID: 680-138385-A-9-A Lab Sample ID: 320-138385-9
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

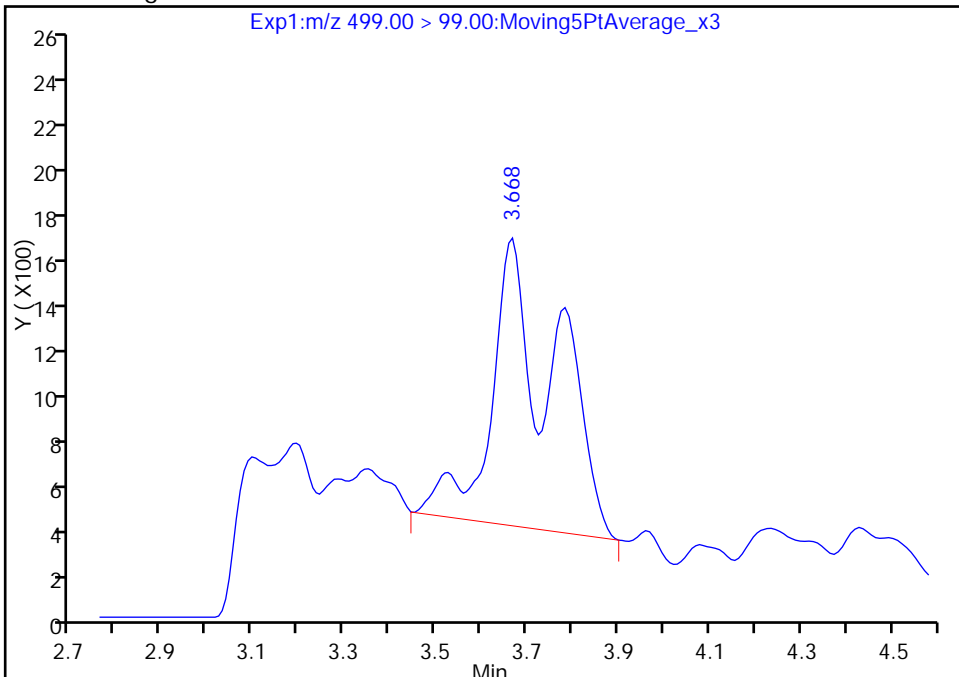
RT: 3.76
Area: 0
Amount: 0.162143
Amount Units: ng/ml

Processing Integration Results



RT: 3.67
Area: 11872
Amount: 0.273856
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:23:58

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49

Calibration End Date: 05/18/2017 18:35

Calibration ID: 30447

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165218/2	2017.05.18AA_003.d
Level 2	IC 320-165218/3	2017.05.18AA_004.d
Level 3	IC 320-165218/4	2017.05.18AA_005.d
Level 4	IC 320-165218/5	2017.05.18AA_006.d
Level 5	IC 320-165218/6	2017.05.18AA_007.d
Level 6	IC 320-165218/7	2017.05.18AA_008.d
Level 7	IC 320-165218/8	2017.05.18AA_009.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.943	1.936	1.961	1.969	1.976	1.976	1.976				1.712 - 2.212	1.962
Perfluoropentanoic acid (PFPeA)	2.288	2.299	2.309	2.329	2.338	2.328	2.328				2.067 - 2.567	2.317
Perfluorobutanesulfonic acid (PFBS)	2.327	2.339	2.349	2.369	2.378	2.368	2.368				2.177 - 2.537	2.357
4:2 FTS	2.620	2.631	2.645	2.664	2.662	2.659	2.652				2.398 - 2.898	2.648
Perfluorohexanoic acid (PFHxA)	2.658	2.680	2.684	2.712	2.711	2.707	2.700				2.443 - 2.943	2.693
Perfluoroheptanoic acid (PFHpA)	3.056	3.079	3.083	3.113	3.117	3.112	3.105				2.845 - 3.345	3.095
Perfluorohexanesulfonic acid (PFHxS)	++++	3.087	3.092	3.121	3.117	3.121	3.105				2.851 - 3.351	3.107
6:2 FTS	++++	3.459	3.463	3.504	3.494	3.483	3.469				3.222 - 3.722	3.479
Perfluoroheptanesulfonic Acid (PFHpS)	3.452	3.475	3.485	3.512	3.509	3.506	3.499				3.241 - 3.741	3.491
Perfluorooctanoic acid (PFOA)	++++	3.483	3.485	3.519	3.516	3.513	3.499				3.246 - 3.746	3.503
Perfluorooctanesulfonic acid (PFOS)	3.824	3.852	3.857	3.887	3.877	3.882	3.864				3.613 - 4.113	3.863
Perfluorononanoic acid (PFNA)	3.841	3.860	3.866	3.905	3.895	3.891	3.882				3.627 - 4.127	3.877
Perfluorooctane Sulfonamide (FOSA)	4.146	4.165	4.171	4.208	4.204	4.200	4.187				3.933 - 4.433	4.183
8:2 FTS	4.187	4.206	4.212	4.245	4.232	4.237	4.224				3.970 - 4.470	4.220
Perfluorodecanoic acid (PFDA)	4.187	4.206	4.212	4.245	4.243	4.237	4.224				3.972 - 4.472	4.222
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	4.351	4.365	4.372	4.412	4.398	4.394	4.380				4.132 - 4.632	4.382
Perfluorodecanesulfonic acid (PFDS)	4.471	4.496	4.494	4.526	4.524	4.520	4.505				4.255 - 4.755	4.505
Perfluoroundecanoic acid (PFUnA)	4.499	4.516	4.523	4.556	4.543	4.550	4.535				4.282 - 4.782	4.532
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	4.499	4.526	4.533	4.566	4.553	4.560	4.544				4.290 - 4.790	4.540
MeFOSA	4.605	4.626	4.632	4.668	4.658	4.658	4.652				4.393 - 4.893	4.643
Perfluorododecanoic acid (PFDoA)	4.774	4.792	4.799	4.836	4.824	4.828	4.810				4.559 - 5.059	4.809
N-EtFOSA-M	4.774	4.792	4.799	4.836	4.824	4.828	4.819				4.560 - 5.060	4.810
Perfluorotridecanoic Acid (PFTriA)	5.023	5.045	5.048	5.081	5.069	5.076	5.059				4.807 - 5.307	5.057
Perfluorotetradecanoic acid (PFTeA)	5.257	5.275	5.273	5.309	5.300	5.300	5.290				5.036 - 5.536	5.286
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++	5.675	5.681	5.713	5.693	5.695	5.687				5.437 - 5.937	5.691
Perfluoro-n-octadecanoic acid (PFODA)	5.703	5.706	5.705	5.713	5.714	5.717	5.704				5.459 - 5.959	5.709
13C4 PFBA	1.935	1.936	1.953	1.961	1.976	1.976	1.968				1.708 - 2.208	1.958
13C5-PFPeA	2.288	2.290	2.309	2.329	2.328	2.328	2.318				2.063 - 2.563	2.313
13C2 PFHxA	2.658	2.680	2.693	2.712	2.711	2.707	2.700				2.444 - 2.944	2.694
13C4-PFHpA	3.056	3.079	3.083	3.113	3.117	3.112	3.105				2.845 - 3.345	3.095
18O2 PFHxS	3.063	3.087	3.092	3.121	3.117	3.121	3.105				2.851 - 3.351	3.101
M2-6:2 FTS	3.435	3.459	3.463	3.504	3.494	3.483	3.469				3.222 - 3.722	3.472

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
13C4 PFOA	3.460	3.483	3.485	3.519	3.509	3.513	3.499				3.245 - 3.745	3.495
13C4 PFOS	3.824	3.852	3.857	3.887	3.877	3.882	3.864				3.613 - 4.113	3.863
13C5 PFNA	3.841	3.860	3.866	3.905	3.895	3.891	3.882				3.627 - 4.127	3.877
13C8 FOSA	4.146	4.165	4.171	4.208	4.195	4.200	4.187				3.932 - 4.432	4.182
13C2 PFDA	4.187	4.206	4.212	4.245	4.232	4.237	4.224				3.970 - 4.470	4.220
M2-8:2FTS	4.187	4.206	4.212	4.245	4.232	4.237	4.224				3.970 - 4.470	4.220
d3-NMeFOSAA	4.341	4.365	4.372	4.402	4.388	4.394	4.380				4.127 - 4.627	4.377
13C2 PFUnA	4.499	4.516	4.523	4.556	4.543	4.550	4.535				4.282 - 4.782	4.532
d5-NEtFOSAA	4.499	4.516	4.523	4.556	4.553	4.550	4.535				4.283 - 4.783	4.533
d-N-MeFOSA-M	4.596	4.618	4.624	4.660	4.648	4.658	4.643				4.385 - 4.885	4.635
d-N-EtFOSA-M	4.764	4.792	4.790	4.827	4.815	4.818	4.810				4.552 - 5.052	4.802
13C2 PFDoA	4.774	4.792	4.799	4.836	4.824	4.828	4.810				4.559 - 5.059	4.809
13C2-PFTEdA	5.257	5.275	5.273	5.309	5.300	5.300	5.290				5.036 - 5.536	5.286
13C2-PFHxDA	5.659	5.675	5.674	5.703	5.693	5.695	5.687				5.434 - 5.934	5.684

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165218/2	2017.05.18AA_003.d
Level 2	IC 320-165218/3	2017.05.18AA_004.d
Level 3	IC 320-165218/4	2017.05.18AA_005.d
Level 4	IC 320-165218/5	2017.05.18AA_006.d
Level 5	IC 320-165218/6	2017.05.18AA_007.d
Level 6	IC 320-165218/7	2017.05.18AA_008.d
Level 7	IC 320-165218/8	2017.05.18AA_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C4 PFBA	393100 360068	383476 344701	369564 320492	347032	Ave		359775.926			6.9		50.0				
13C5-PFPeA	281993 240788	276441 226106	268234 207537	239722	Ave		248688.771			11.1		50.0				
13C2 PFHxA	273594 243153	266746 222849	255660 206095	236938	Ave		243576.428			9.9		50.0				
13C4-PFHpA	238952 202910	238938 195016	236311 163127	208073	Ave		211903.890			13.4		50.0				
18O2 PFHxS	328655 303865	332347 290012	324507 254911	296958	Ave		304465.150			9.0		50.0				
M2-6:2FTS	128901 152676	125609 105933	117684 96850	155261	Ave		126130.553			17.4		50.0				
13C4 PFOA	228960 228215	231767 185911	225643 156014	233029	Ave		212791.218			14.1		50.0				
13C4 PFOS	242352 230834	248589 222444	239433 191405	229903	Ave		229279.985			8.2		50.0				
13C5 PFNA	183079 164074	186638 154741	182512 132459	171456	Ave		167851.231			11.5		50.0				
13C8 FOSA	393052 376063	398827 348864	390425 293165	369469	Ave		367123.648			10.0		50.0				
13C2 PFDA	160037 137914	162067 138639	159436 114776	138655	Ave		144503.332			11.9		50.0				
M2-8:2FTS	103498 96125	108379 97614	102427 87348	98244	Ave		99090.7084			6.7		50.0				
d3-NMeFOSAA	65403 66128	70421 65506	67133 57067	62560	Ave		64888.2782			6.4		50.0				
13C2 PFUnA	115343 99979	116061 92303	107399 79716	101393	Ave		101741.816			12.7		50.0				

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

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
d5-NEtFOSAA	68015 66704	70132 57760	67177 53049	61844	Ave		63525.8863			9.8			50.0			
d-N-MeFOSA-M	98447 101662	104565 102626	99219 94323	96003	Ave		99549.4207			3.7			50.0			
d-N-EtFOSA-M	90409 93501	99209 94139	94275 87437	93790	Ave		93251.3695			3.9			50.0			
13C2 PFDoA	106916 98427	110095 96172	105584 86047	98411	Ave		100235.822			8.1			50.0			
13C2-PFTeDA	212017 199106	228222 198111	217492 174394	205257	Ave		204942.739			8.4			50.0			
13C2-PFHxDA	118816 116027	132749 116592	125213 103555	115388	Ave		118334.379			7.6			50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49

Calibration End Date: 05/18/2017 18:35

Calibration ID: 30447

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	1.0327 0.9705	1.0635 0.7983	1.0638	1.0725	1.0384	AveID		1.0057			9.7		35.0				
Perfluoropentanoic acid (PFPeA)	1.2288 1.0534	1.1477 0.9334	1.1137	1.1361	1.0880	AveID		1.1001			8.3		35.0				
Perfluorobutanesulfonic acid (PFBS)	1.7703 1.4207	1.7034 1.2400	1.6515	1.7732	1.6087	AveID		1.5954			12.4		50.0				
4:2 FTS	0.7592 0.8162	0.8344 0.8326	0.8836	0.6672	0.6105	AveID		0.7720			12.9		35.0				
Perfluorohexanoic acid (PFHxA)	1.0957 0.9983	1.1085 0.8889	1.0369	1.0571	1.0253	AveID		1.0301			7.1		35.0				
Perfluoroheptanoic acid (PFHpA)	1.1941 1.0579	1.1623 0.9949	1.1065	1.1692	1.1478	AveID		1.1189			6.3		35.0				
Perfluorohexanesulfonic acid (PFHxS)	++++ 1.1563	1.3183 1.0470	1.1857	1.1855	1.1724	AveID		1.1776			7.4		35.0				
6:2FTS	++++ 0.9169	1.0145 0.8312	1.1222	1.0071	0.9227	AveID		0.9691			10.4		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	1.3271 1.2396	1.3738 1.1039	1.3809	1.2965	1.3202	AveID		1.2917			7.4		50.0				
Perfluorooctanoic acid (PFOA)	++++ 1.0857	1.3408 1.0105	1.1715	1.1552	1.1303	AveID		1.1490			9.6		35.0				
Perfluorooctanesulfonic acid (PFOS)	1.2297 1.2003	1.2122 1.1479	1.2070	1.1578	1.1928	AveID		1.1925			2.5		35.0				
Perfluorononanoic acid (PFNA)	1.1009 1.0403	1.0954 0.9684	1.0854	1.0974	1.1023	AveID		1.0700			4.6		35.0				
Perfluorooctane Sulfonamide (FOSA)	1.1491 0.9760	1.1659 0.8626	1.1010	1.1183	1.0284	AveID		1.0573			10.3		35.0				
8:2FTS	1.0555 0.8991	1.0478 0.8378	1.0314	1.0328	0.9248	AveID		0.9756			8.9		35.0				
Perfluorodecanoic acid (PFDA)	1.1103 0.9595	1.0383 0.9523	1.0251	1.0529	1.0263	AveID		1.0235			5.3		35.0				
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0391 1.0144	1.0696 1.0717	1.0387	1.0952	1.0028	AveID		1.0474			3.2		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.7108 0.6475	0.7332 0.6188	0.6899	0.6997	0.7067	AveID		0.6867			5.8		50.0				
Perfluoroundecanoic acid (PFUnA)	1.4002 1.1053	1.2995 1.0241	1.1676	1.1314	1.1163	AveID		1.1778			10.9		35.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.9921 0.9666	0.9712 0.9402	0.9456	0.9608	0.9193	AveID		0.9565			2.5		35.0				

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
MeFOSA	0.9493 0.9405	0.9282 0.9712	0.9917	0.9988	0.9692	AveID		0.9641			2.7		35.0				
Perfluorododecanoic acid (PFDoA)	1.0449 0.9794	1.0777 0.9133	1.0189	1.0380	1.0274	AveID		1.0142			5.3		35.0				
N-EtFOSA-M	0.9804 1.0018	1.0392 1.0299	1.0122	1.0258	1.0264	AveID		1.0165			2.0		35.0				
Perfluorotridecanoic Acid (PFTriA)	1.0753 0.9880	1.0649 0.9062	1.0209	1.0618	1.0284	AveID		1.0208			5.8		50.0				
Perfluorotetradecanoic acid (PFTeA)	2.7521 2.2154	2.5784 1.9353	2.4612	2.4220	2.3952	L2ID	0.2575	2.2722						0.9930		0.9900	
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 1.1318	2.0992 1.0106	1.3225	1.1306	1.1262	L2ID	1.0111	1.0847						0.9980		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	0.6309 0.0186	0.6118 0.0069	0.1327	0.1641	0.0491	L2ID	0.3258	0.0762						0.2920	*	0.9900	

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

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165218/2	2017.05.18AA_003.d
Level 2	IC 320-165218/3	2017.05.18AA_004.d
Level 3	IC 320-165218/4	2017.05.18AA_005.d
Level 4	IC 320-165218/5	2017.05.18AA_006.d
Level 5	IC 320-165218/6	2017.05.18AA_007.d
Level 6	IC 320-165218/7	2017.05.18AA_008.d
Level 7	IC 320-165218/8	2017.05.18AA_009.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C4 PFBA	Ave	19460393 17064389	18983941 15865924	18295237	17179781	17825161	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C5-PFPeA	Ave	13960064 11193387	13685196 10274111	13278899	11867435	11920185	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFHxA	Ave	13544264 11032136	13205265 10202707	12656413	11729614	12037274	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4-PFHpA	Ave	11829297 9654269	11828598 8075596	11698570	10300646	10045065	49.5 49.5	49.5 49.5	49.5	49.5	49.5
18O2 PFHxS	Ave	15391459 13581773	15564361 11937927	15197212	13907066	14230510	46.8 46.8	46.8 46.8	46.8	46.8	46.8
M2-6:2FTS	Ave	6062194 4982011	5907344 4554829	5534640	7301861	7180298	47.0 47.0	47.0 47.0	47.0	47.0	47.0
13C4 PFOA	Ave	11334637 9203508	11473611 7723448	11170443	11536109	11297775	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4 PFOS	Ave	11469706 10527539	11764908 9058593	11331600	10880543	10924619	47.3 47.3	47.3 47.3	47.3	47.3	47.3
13C5 PFNA	Ave	9063299 7660430	9239520 6557386	9035259	8487921	8122453	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C8 FOSA	Ave	19458019 17270518	19743900 14513103	19327989	18290567	18616970	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFDA	Ave	7922611 6863317	8023100 5682004	7892857	6864090	6827433	49.5 49.5	49.5 49.5	49.5	49.5	49.5
M2-8:2FTS	Ave	4908486 4629417	5139932 4142554	4857693	4659279	4558792	47.4 47.4	47.4 47.4	47.4	47.4	47.4
d3-NMeFOSAA	Ave	3237773 3242876	3486202 2825084	3323408	3097034	3273660	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFUnA	Ave	5710025 4569476	5745570 3946328	5316780	5019435	4949451	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d5-NETfOSAA	Ave	3367090 2859386	3471904 2626173	3325605	3061569	3302194	49.5 49.5	49.5 49.5	49.5	49.5	49.5

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
d-N-MeFOSA-M	Ave	4873619 5080484	5176509 4669475	4911826	4752638	5032773	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d-N-EtFOSA-M	Ave	4475705 4660325	4911341 4328547	4667081	4643081	4628751	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFDoA	Ave	5292864 4760977	5450224 4259744	5226925	4871840	4872612	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFTeDA	Ave	10495881 9807456	11298135 8633362	10766952	10161237	9856738	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFHxDA	Ave	5881987 5771864	6571750 5126466	6198682	5712281	5743933	49.5 49.5	49.5 49.5	49.5	49.5	49.5

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165218/2	2017.05.18AA_003.d
Level 2	IC 320-165218/3	2017.05.18AA_004.d
Level 3	IC 320-165218/4	2017.05.18AA_005.d
Level 4	IC 320-165218/5	2017.05.18AA_006.d
Level 5	IC 320-165218/6	2017.05.18AA_007.d
Level 6	IC 320-165218/7	2017.05.18AA_008.d
Level 7	IC 320-165218/8	2017.05.18AA_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Perfluorobutanoic acid (PFBA)		AveID	200968 33120926	403784 50665081	1946323	7370440	18509390	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoropentanoic acid (PFPeA)		AveID	171541 23581452	314123 38359854	1478826	5392820	12969293	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorobutanesulfonic acid (PFBS)		AveID	254618 36061602	495499 55329474	2345385	9217599	21391921	0.438 87.5	0.875 175	4.38	17.5	43.8
4:2 FTS		AveID	45251 7995350	96918 14914612	480816	1915946	4309687	0.462 92.5	0.925 185	4.62	18.5	46.2
Perfluorohexanoic acid (PFHxA)		AveID	148406 22027127	292769 36277529	1312340	4959979	12342228	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoroheptanoic acid (PFHpA)		AveID	141259 20425928	274962 32136426	1294392	4817415	11529318	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorohexanesulfonic acid (PFHxS)		AveID	++++ 30214382	394765 48095406	1733346	6343995	16049307	++++ 90.1	0.901 180	4.50	18.0	45.0
6:2FTS		AveID	++++ 9116988	119611 15111443	619778	2935423	6611247	++++ 93.9	0.939 188	4.69	18.8	46.9
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	151582 25989763	321908 39830651	1558288	5619108	14362385	0.471 94.3	0.943 189	4.71	18.9	47.1
Perfluorooctanoic acid (PFOA)		AveID	++++ 19983699	307665 31219676	1308572	5330646	12770167	++++ 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctanesulfonic acid (PFOS)		AveID	136916 24532278	276864 40374788	1327664	4891254	12648705	0.459 91.9	0.919 184	4.59	18.4	45.9
Perfluorononanoic acid (PFNA)		AveID	99777 15938669	202422 25400960	980669	3725769	8953756	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctane Sulfonamide (FOSA)		AveID	223601 33710607	460375 50073779	2127951	8181893	19145797	0.495 99.0	0.990 198	4.95	19.8	49.5
8:2FTS		AveID	51809 8324445	107715 13881724	501022	1924859	4216009	0.474 94.9	0.949 190	4.74	19.0	47.4
Perfluorodecanoic acid (PFDA)		AveID	87964 13171385	166611 21643754	809095	2891007	7006930	0.495 99.0	0.990 198	4.95	19.8	49.5

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	33643 6578893	74579 12110986	345219	1356715	3282771	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorodecanesulfonic acid (PFDS)		AveID	82207 13747432	173961 22610222	788282	3070644	7785353	0.477 95.4	0.954 191	4.77	19.1	47.7
Perfluoroundecanoic acid (PFUnA)		AveID	79954 10101592	149330 16166231	620793	2271604	5524902	0.495 99.0	0.990 198	4.95	19.8	49.5
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	33405 5527550	67436 9876739	314485	1176636	3035592	0.495 99.0	0.990 198	4.95	19.8	49.5
MeFOSA		AveID	46266 9556465	96095 18140541	487115	1898682	4877524	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorododecanoic acid (PFDoA)		AveID	55305 9326044	117474 15560936	532575	2022773	5005911	0.495 99.0	0.990 198	4.95	19.8	49.5
N-EtFOSA-M		AveID	43882 9337435	102079 17831319	472415	1905108	4751037	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotridecanoic Acid (PFTriA)		AveID	56912 9408129	116074 15441316	533601	2069185	5011159	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotetradecanoic acid (PFTeA)		L2ID	145663 21094582	281059 32976107	1286450	4719782	11670758	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	++++ 10776803	228818 17218840	691271	2203215	5487449	++++ 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-octadecanoic acid (PFODA)		L2ID	33391 176654	66686 117189	69370	319700	239292	0.495 99.0	0.990 198	4.95	19.8	49.5

Curve Type Legend:

AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_003.d
 Lims ID: IC L1 Full
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 18-May-2017 17:49:55 ALS Bottle#: 28 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:20 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 08:15:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.935	1.958	-0.023	19460393	54.1		109	80622	
2 Perfluorobutyric acid	212.90 > 169.00	1.943	1.962	-0.019	1.000	200968	0.5084	103	62.3	
D 3 13C5-PFPeA	267.90 > 223.00	2.288	2.313	-0.025	13960064	56.1		113	193592	
4 Perfluoropentanoic acid	262.90 > 219.00	2.288	2.317	-0.029	1.000	171541	0.5529	112	46.5	
D 47 13C3-PFBS	301.90 > 83.00	2.327	2.352	-0.025	315057	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.327	2.357	-0.030	1.000	254618	0.4856	111		
	298.90 > 99.00	2.327	2.357	-0.030	1.000	102662	2.48(0.00-0.00)	111		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.620	2.648	-0.028	1.000	45251	0.4548	98.4		
6 Perfluorohexanoic acid	313.00 > 269.00	2.658	2.693	-0.035	1.000	148406	0.5266	106	423	
D 7 13C2 PFHxA	315.00 > 270.00	2.658	2.694	-0.036	13544264	55.6		112	122265	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.056	3.095	-0.039	1.000	141259	0.5283	107	128	
D 9 13C4-PFHpA	367.00 > 322.00	3.056	3.095	-0.039	11829297	55.8		113	42312	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.063	3.101	-0.038	1.000	219923	0.5683	126		
D 11 18O2 PFHxS	403.00 > 84.00	3.063	3.101	-0.038	15391459	50.6		108	41844	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.435	3.472	-0.037	1.000	124690	1.00	213	
D 12 M2-6:2FTS	429.00	> 409.00	3.435	3.472	-0.037		6062194	48.1	102	
* 62 13C2-PFOA	415.00	> 370.00	3.452	3.491	-0.039		10580851	49.5		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.452	3.491	-0.039	1.000	151582	0.4842	103	
D 14 13C4 PFOA	417.00	> 372.00	3.460	3.495	-0.035		11334637	53.3	108	34532
15 Perfluorooctanoic acid	413.00	> 369.00	3.460	3.496	-0.036	1.000	170144	0.6468	131	14.7
	413.00	> 169.00	3.460	3.496	-0.036	1.000	84338		2.02(0.90-1.10)	131 378
D 18 13C4 PFOS	503.00	> 80.00	3.824	3.863	-0.039		11469706	50.0	106	28180
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.824	3.863	-0.039	1.000	136916	0.4737	103	627
	499.00	> 99.00	3.824	3.863	-0.039	1.000	30448		4.50(0.90-1.10)	103 269
20 Perfluorononanoic acid	463.00	> 419.00	3.841	3.877	-0.036	1.000	99777	0.5093	103	131
D 19 13C5 PFNA	468.00	> 423.00	3.841	3.877	-0.036		9063299	54.0	109	26148
D 21 13C8 FOSA	506.00	> 78.00	4.146	4.182	-0.036		19458019	53.0	107	17923
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.146	4.183	-0.037	1.000	223601	0.5380	109	2734
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.187	4.220	-0.033	1.000	51809	0.5131	108	
D 26 M2-8:2FTS	529.00	> 509.00	4.187	4.220	-0.033		4908486	49.5	104	
D 23 13C2 PFDA	515.00	> 470.00	4.187	4.220	-0.033		7922611	54.8	111	8787
24 Perfluorodecanoic acid	513.00	> 469.00	4.187	4.222	-0.035	1.000	87964	0.5370	108	225
D 27 d3-NMeFOSAA	573.00	> 419.00	4.341	4.377	-0.036		3237773	49.9	101	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.351	4.382	-0.031	1.002	33643	0.4911	99.2	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.471	4.505	-0.034	1.000	82207	0.4940	104	
D 30 13C2 PFUnA	565.00	> 520.00	4.499	4.532	-0.033		5710025	56.1	113	14956
31 Perfluoroundecanoic acid	563.00	> 519.00	4.499	4.532	-0.033	1.000	79954	0.5886	119	186
D 32 d5-NEtFOSAA	589.00	> 419.00	4.499	4.533	-0.034		3367090	53.0	107	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.499	4.540	-0.041	1.000	33405	0.5135	104	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.596	4.635	-0.039	4873619	49.0	98.9		
35 MeFOSA	512.00	> 169.00	4.605	4.643	-0.038	1.000	46266	0.4874	98.5	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.764	4.802	-0.038	4475705	48.0	97.0		
D 36 13C2 PFDaA	615.00	> 570.00	4.774	4.809	-0.035	5292864	52.8	107	6201	
37 Perfluorododecanoic acid	613.00	> 569.00	4.774	4.809	-0.035	1.000	55305	0.5100	103	14.2
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.774	4.810	-0.036	1.000	43882	0.4775	96.4	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.023	5.057	-0.034	1.000	56912	0.5215	105	4.7
D 43 13C2-PFTeDA	715.00	> 670.00	5.257	5.286	-0.029	10495881	51.2	103	4201	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.257	5.286	-0.029	1.000	145663	0.4863	98.2	1.9
	713.00	> 169.00	5.248	5.286	-0.038	0.998	22205	6.56(0.00-0.00)	98.2	85.6
D 44 13C2-PFHxDA	815.00	> 770.00	5.659	5.684	-0.025	5881987	49.7	100	2009	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.666	5.687	-0.021	1.000	149318	0.3553	71.8	6.1
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.703	5.709	-0.006	1.000	33391	-0.1767		118

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L1_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_003.d

Injection Date: 18-May-2017 17:49:55

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

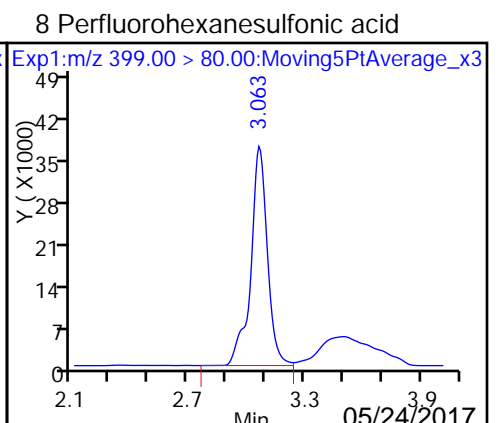
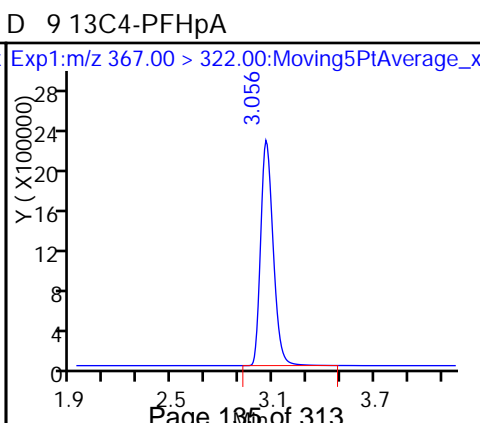
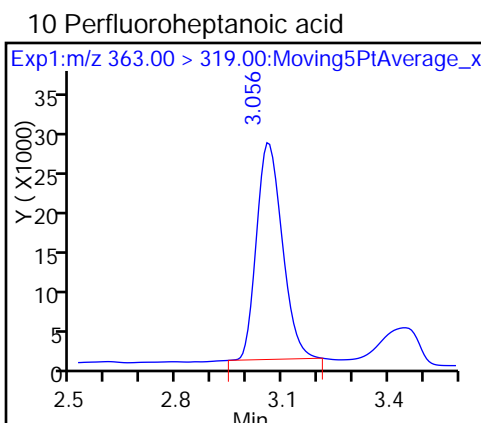
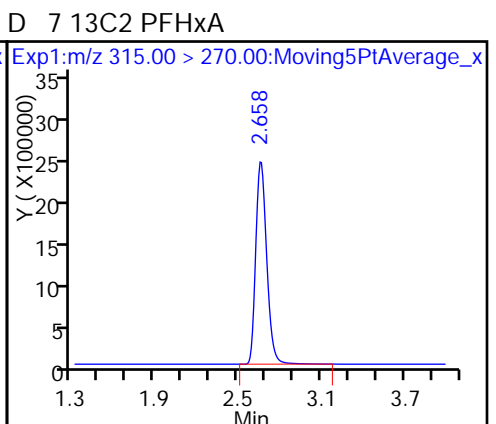
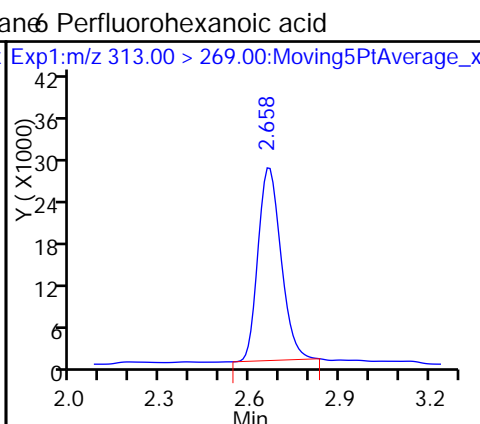
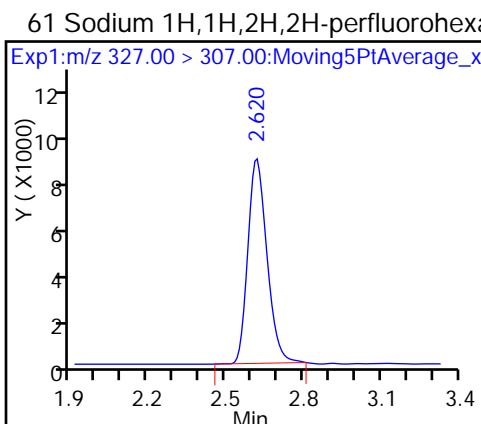
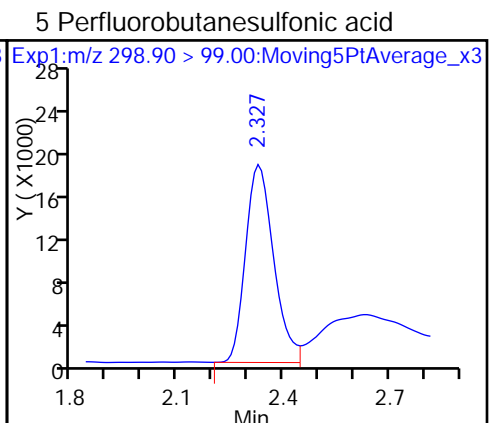
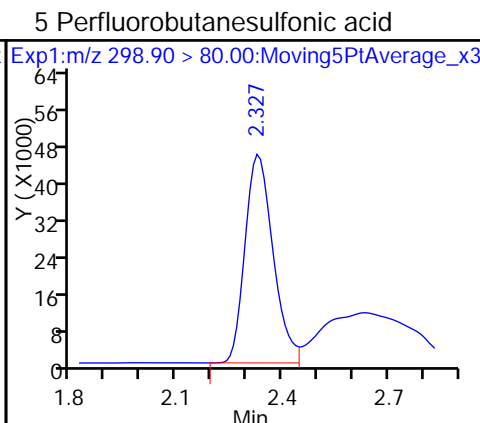
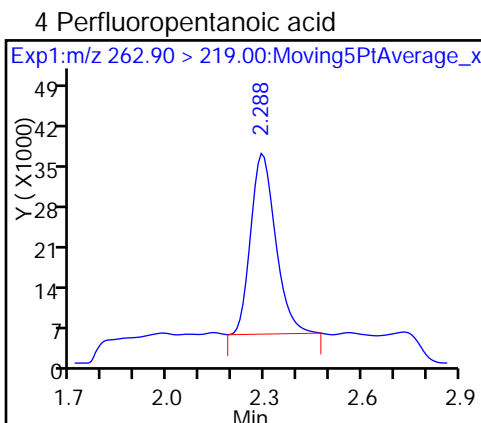
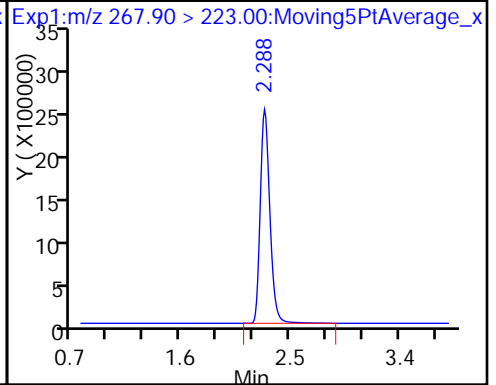
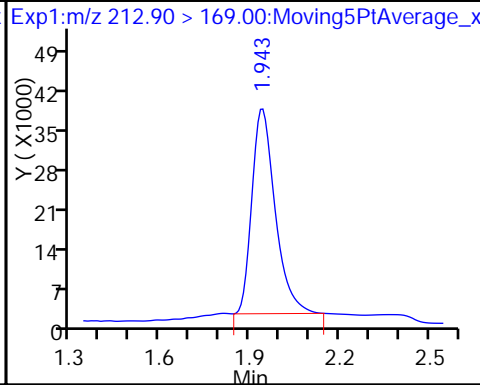
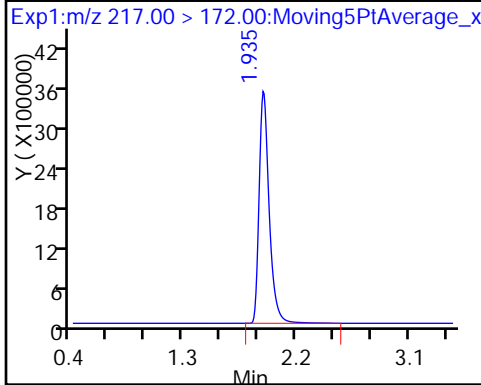
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

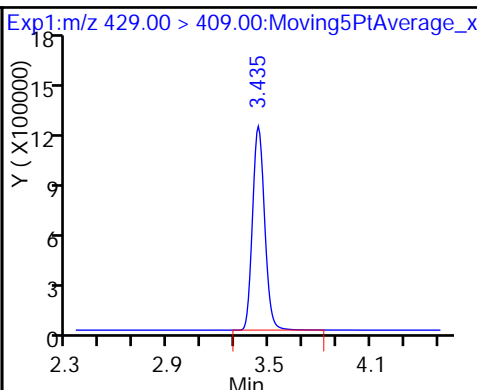
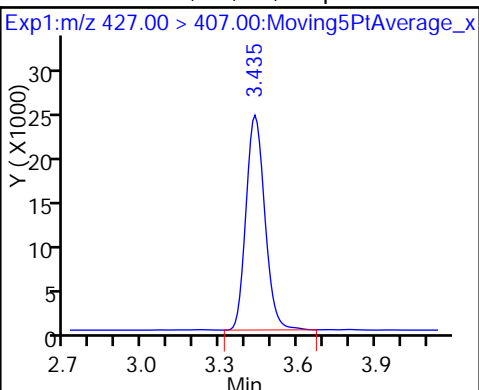
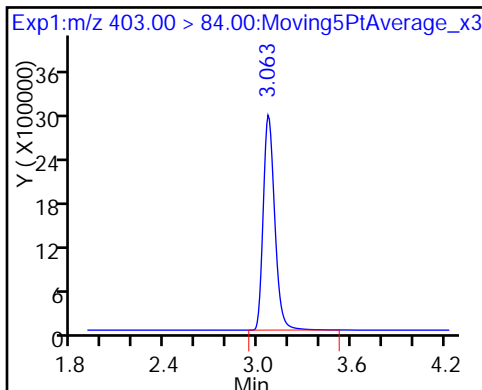
D 3 13C5-PFPeA



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

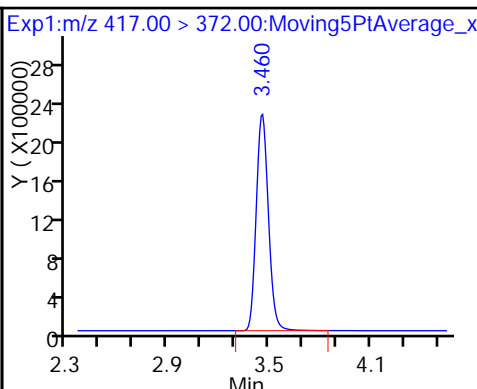
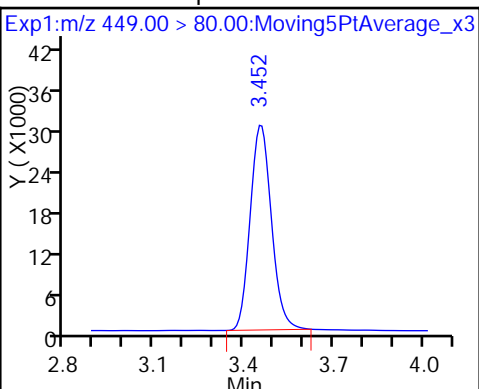
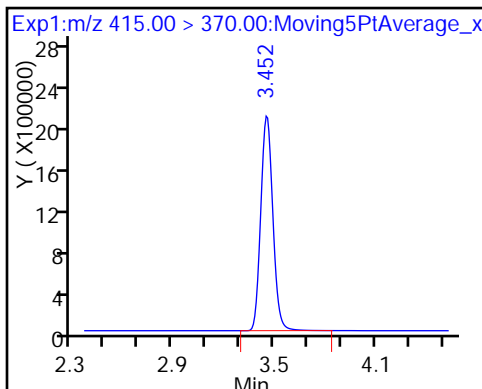
D 12 M2-6:2FTS



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

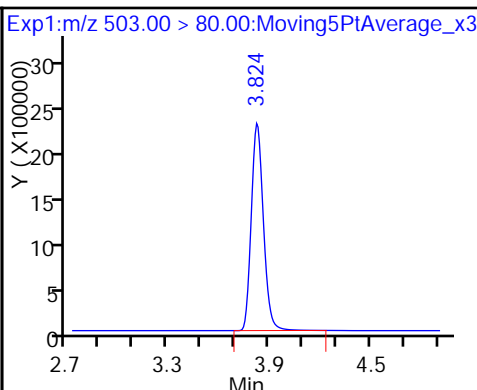
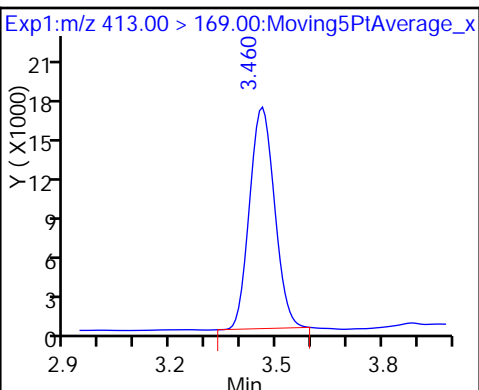
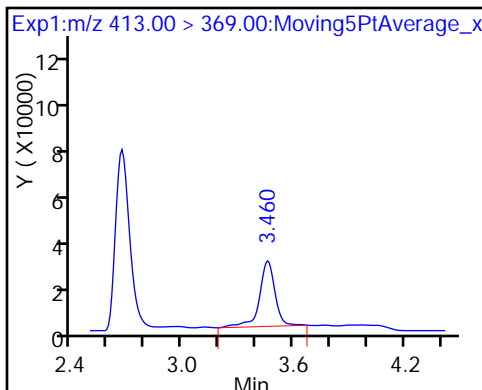
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

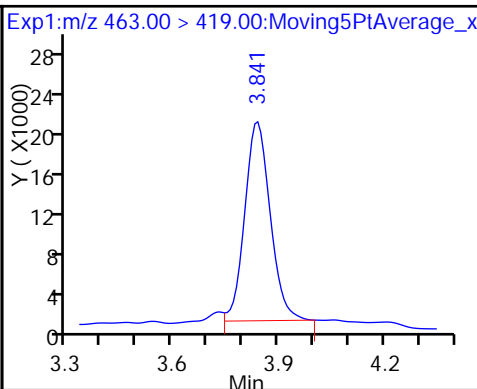
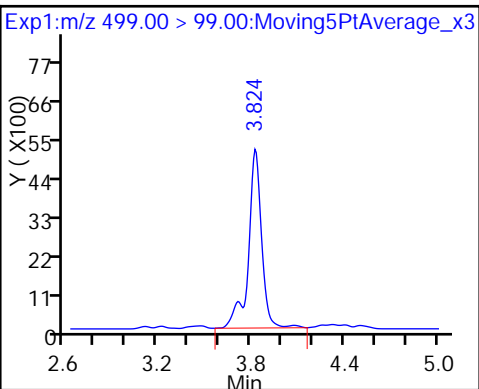
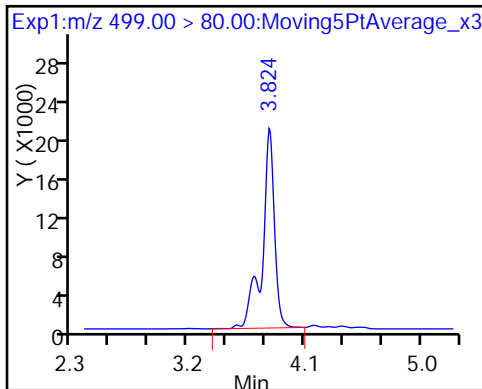
D 18 13C4 PFOS



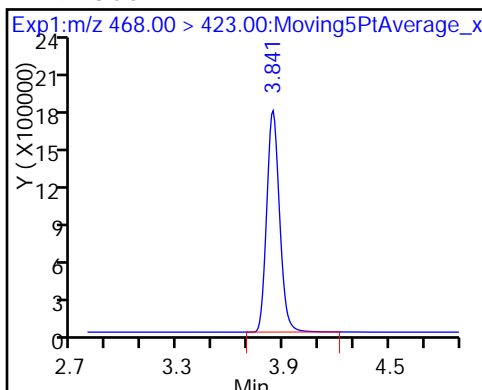
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

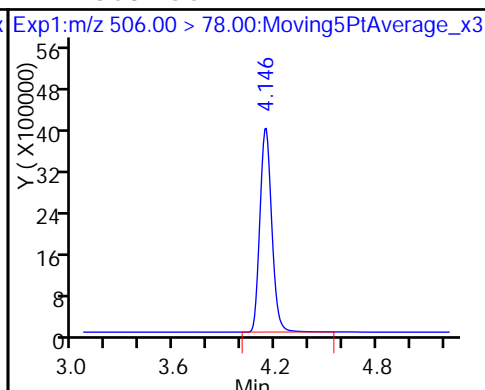
20 Perfluorononanoic acid



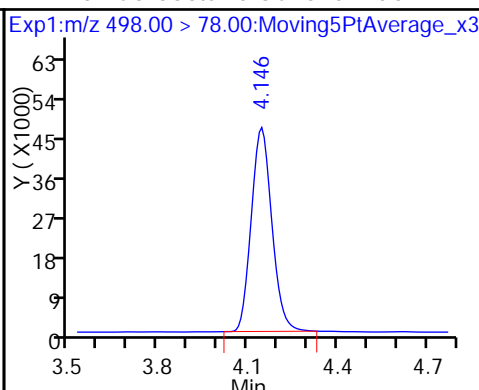
D 19 13C5 PFNA



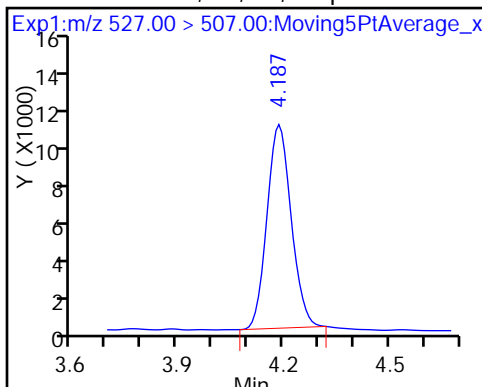
D 21 13C8 FOSA



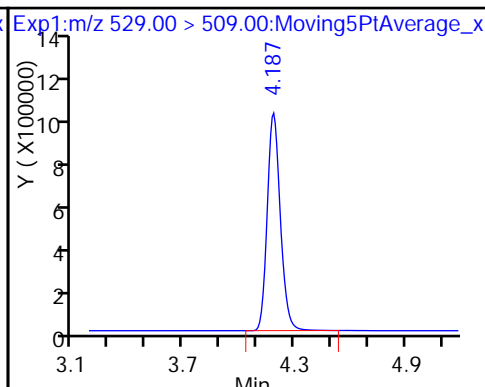
22 Perfluorooctane Sulfonamide



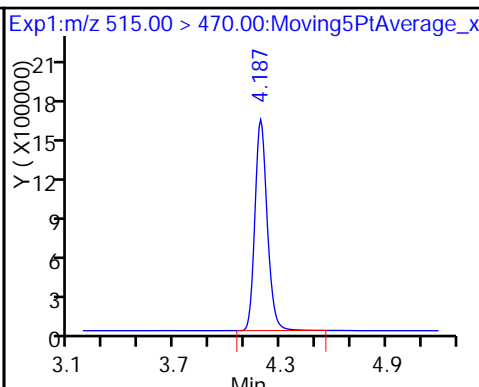
25 Sodium 1H,1H,2H,2H-perfluorooctane



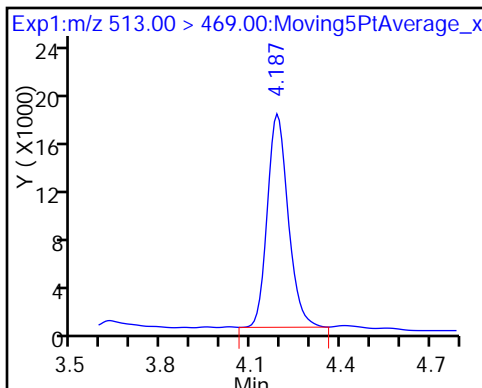
D 26 M2-8:2FTS



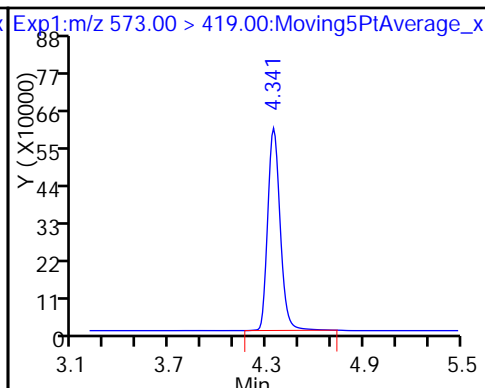
D 23 13C2 PFDA



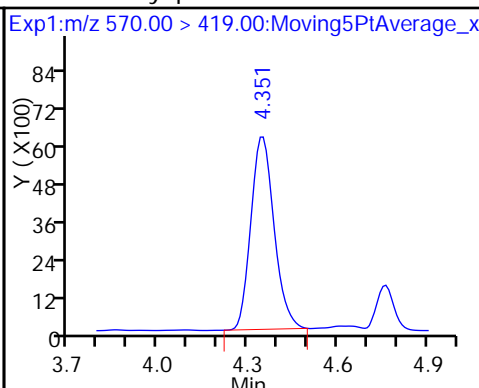
24 Perfluorodecanoic acid



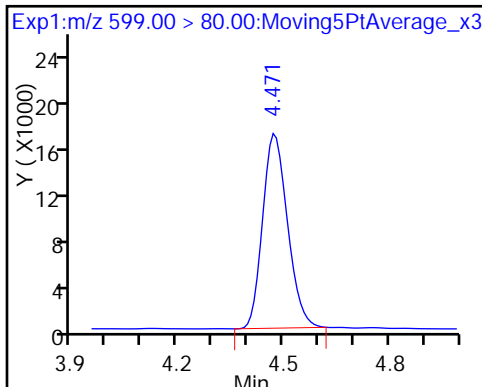
D 27 d3-NMeFOSAA



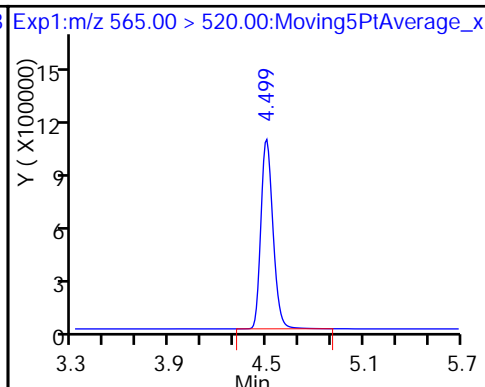
28 N-methyl perfluorooctane sulfonamide



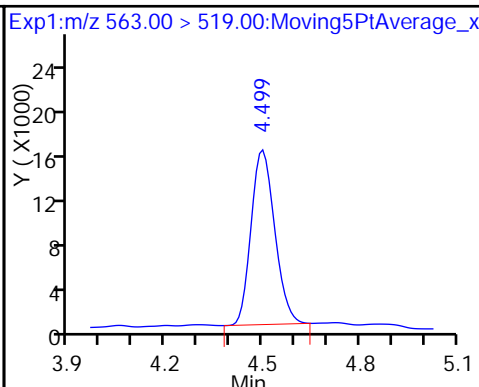
29 Perfluorodecane Sulfonic acid



D 30 13C2 PFUnA



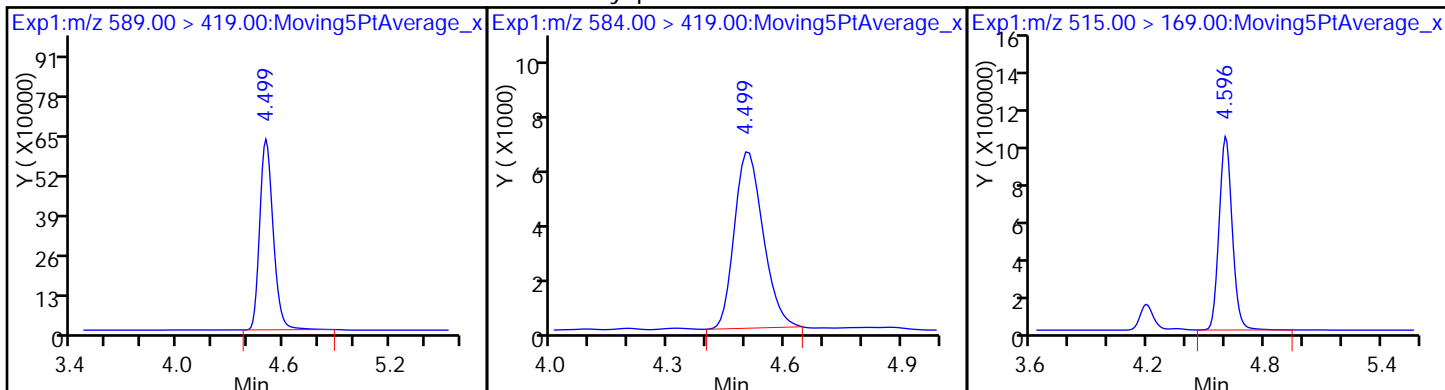
31 Perfluoroundecanoic acid



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

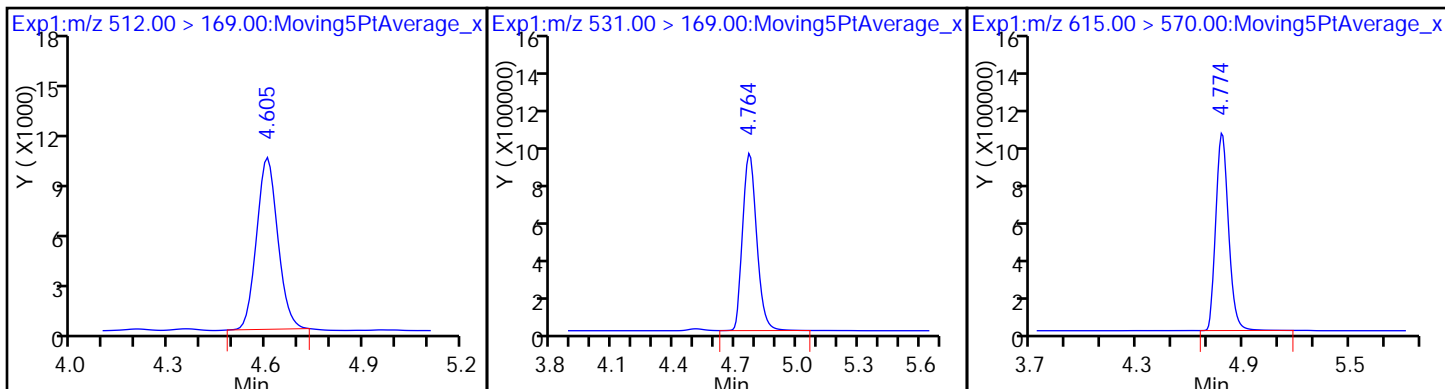
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

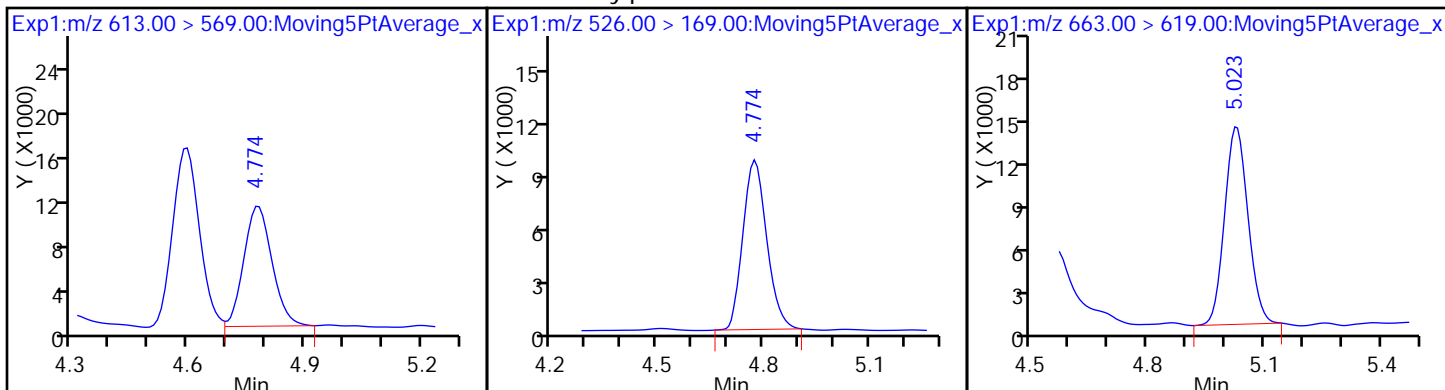
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

39 N-ethylperfluoro-1-octanesulfonami

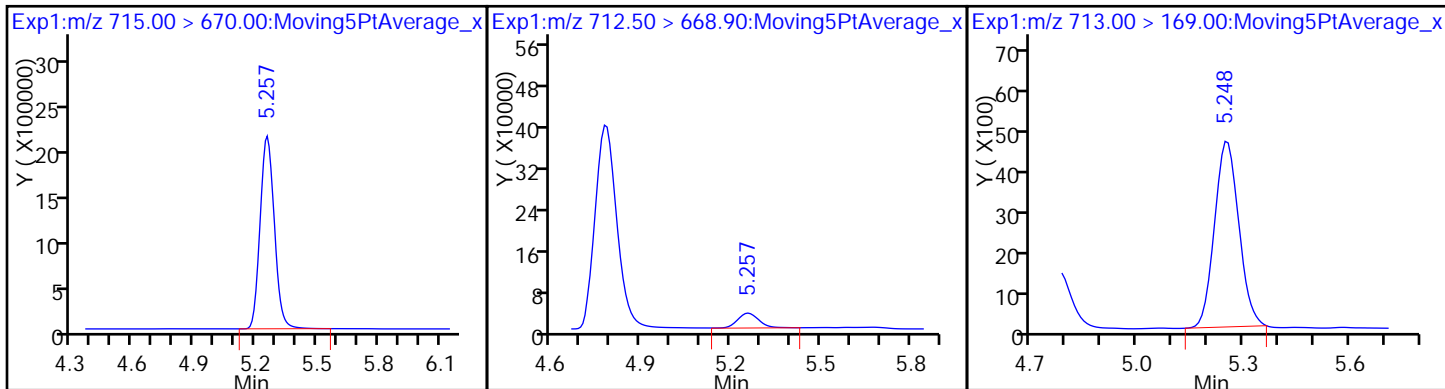
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

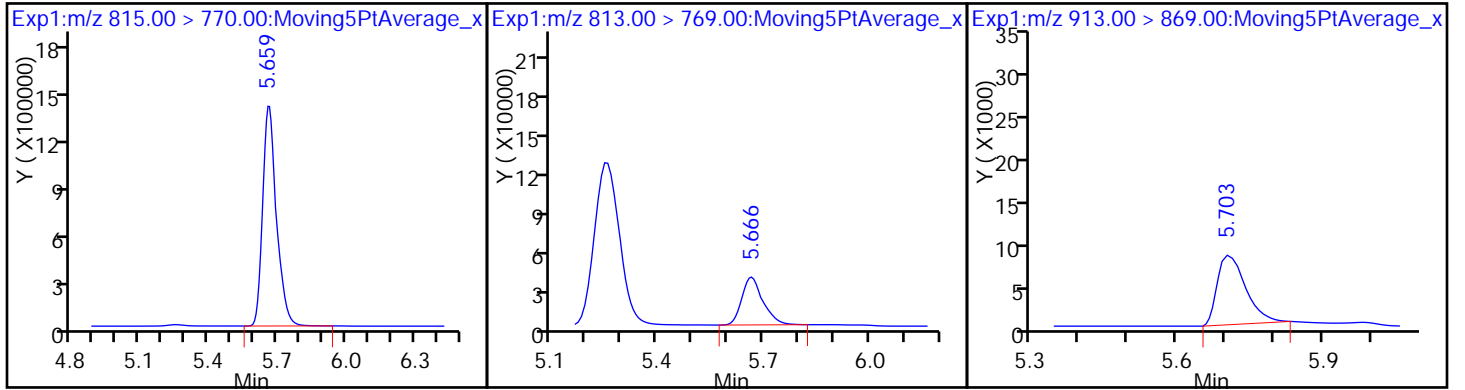
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_004.d
 Lims ID: IC L2 Full
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 18-May-2017 17:57:25 ALS Bottle#: 29 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:24 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 08:19:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.936	1.958	-0.022	18983941	52.8		107	220590	
2 Perfluorobutyric acid	212.90 > 169.00	1.936	1.962	-0.026	403784	1.05		106	124	
D 3 13C5-PFPeA	267.90 > 223.00	2.290	2.313	-0.023	13685196	55.0		111	405902	
4 Perfluoropentanoic acid	262.90 > 219.00	2.299	2.317	-0.018	314123	1.03		104	86.5	
D 47 13C3-PFBS	301.90 > 83.00	2.329	2.352	-0.023	321372	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.339	2.357	-0.018	495499	0.9345		107		
	298.90 > 99.00	2.329	2.357	-0.028	199983		2.48(0.00-0.00)	107		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.631	2.648	-0.017	96918	1.00		108		
6 Perfluorohexanoic acid	313.00 > 269.00	2.680	2.693	-0.013	292769	1.07		108	872	
D 7 13C2 PFHxA	315.00 > 270.00	2.680	2.694	-0.014	13205265	54.2		110	335645	
D 9 13C4-PFHpA	367.00 > 322.00	3.079	3.095	-0.016	11828598	55.8		113	53704	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.079	3.095	-0.016	274962	1.03		104	256	
D 11 18O2 PFHxS	403.00 > 84.00	3.087	3.101	-0.014	15564361	51.1		109	75139	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.087	3.101	-0.014	394765	1.01		112		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.459	3.472	-0.013	5907344	46.8	99.6		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.459	3.472	-0.013	1.000	119611	0.9826	105	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.475	3.491	-0.016	1.000	321908	1.00	106	
* 62 13C2-PFOA	415.00	> 370.00	3.475	3.491	-0.016		11135712	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.483	3.495	-0.012		11473611	53.9	109	48252
15 Perfluorooctanoic acid	413.00	> 369.00	3.483	3.496	-0.013	1.000	307665	1.16	117	27.7
	413.00	> 169.00	3.483	3.496	-0.013	1.000	158423	1.94(0.90-1.10)	117	695
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.852	3.863	-0.011	1.000	276864	0.9339	102	1591
	499.00	> 99.00	3.852	3.863	-0.011	1.000	60086	4.61(0.90-1.10)	102	752
D 18 13C4 PFOS	503.00	> 80.00	3.852	3.863	-0.011		11764908	51.3	108	51902
D 19 13C5 PFNA	468.00	> 423.00	3.860	3.877	-0.017		9239520	55.0	111	42798
20 Perfluorononanoic acid	463.00	> 419.00	3.860	3.877	-0.017	1.000	202422	1.01	102	304
D 21 13C8 FOSA	506.00	> 78.00	4.165	4.182	-0.017		19743900	53.8	109	33956
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.165	4.183	-0.018	1.000	460375	1.09	110	4393
D 23 13C2 PFDA	515.00	> 470.00	4.206	4.220	-0.014		8023100	55.5	112	12197
D 26 M2-8:2FTS	529.00	> 509.00	4.206	4.220	-0.014		5139932	51.9	109	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.206	4.220	-0.014	1.000	107715	1.02	107	
24 Perfluorodecanoic acid	513.00	> 469.00	4.206	4.222	-0.016	1.000	166611	1.00	101	340
D 27 d3-NMeFOSAA	573.00	> 419.00	4.365	4.377	-0.012		3486202	53.7	109	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.365	4.382	-0.017	1.000	74579	1.01	102	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.496	4.505	-0.009	1.000	173961	1.02	107	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.516	4.532	-0.016	1.000	149330	1.09	110	434
D 30 13C2 PFUnA	565.00	> 520.00	4.516	4.532	-0.016		5745570	56.5	114	11411
D 32 d5-NEtFOSAA	589.00	> 419.00	4.516	4.533	-0.017		3471904	54.7	110	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.526	4.540	-0.014	1.002	67436	1.01	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.618	4.635	-0.017		5176509	52.0	105		
35 MeFOSA	512.00 > 169.00	4.626	4.643	-0.017	1.000	96095	0.9532	96.3		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.792	4.802	-0.010		4911341	52.7	106		
37 Perfluorododecanoic acid	613.00 > 569.00	4.792	4.809	-0.017	1.000	117474	1.05	106	13.3	
D 36 13C2 PFDaA	615.00 > 570.00	4.792	4.809	-0.017		5450224	54.4	110	5771	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.792	4.810	-0.018	1.000	102079	1.01	102		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.045	5.057	-0.012	1.000	116074	1.03	104	7.3	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.275	5.286	-0.011	1.000	281059	1.01	102	3.6	
	713.00 > 169.00	5.266	5.286	-0.020	0.998	42732	6.58(0.00-0.00)	102	183	
D 43 13C2-PFTeDA	715.00 > 670.00	5.275	5.286	-0.011		11298135	55.1	111	5753	
D 44 13C2-PFHxDA	815.00 > 770.00	5.675	5.684	-0.009		6571750	55.5	112	2513	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.675	5.687	-0.012	1.000	228818	0.9839	99.4	8.5	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.706	5.709	-0.003	1.000	66686	3.68	371	266	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L2_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_004.d

Injection Date: 18-May-2017 17:57:25

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

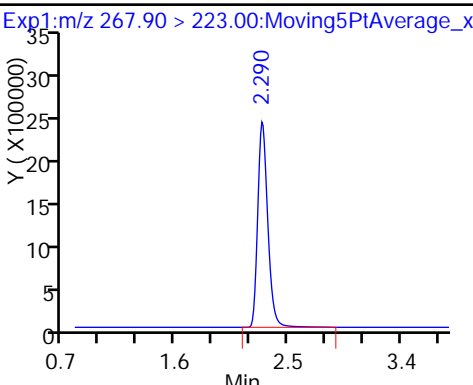
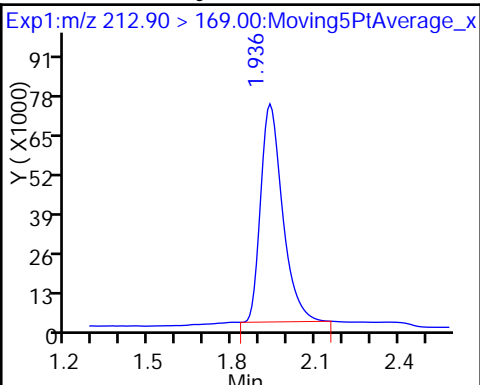
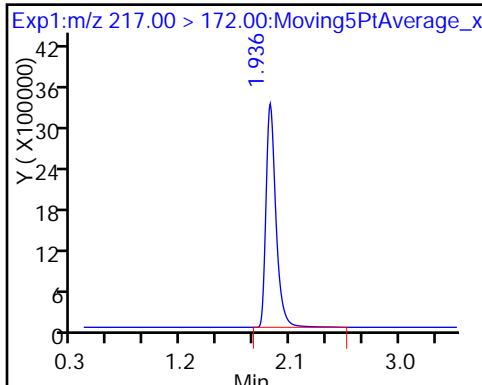
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

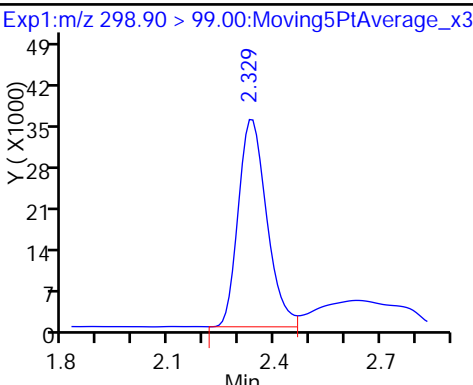
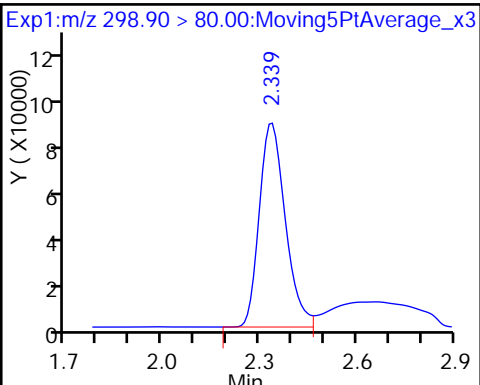
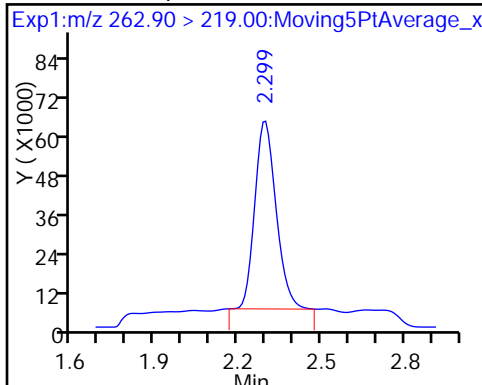
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

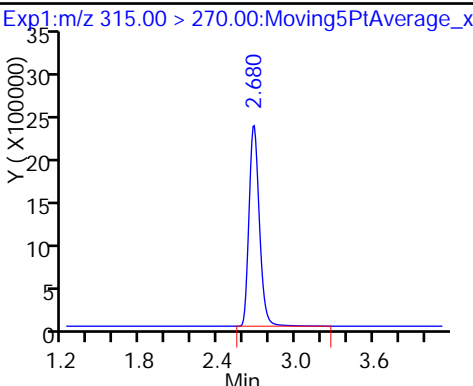
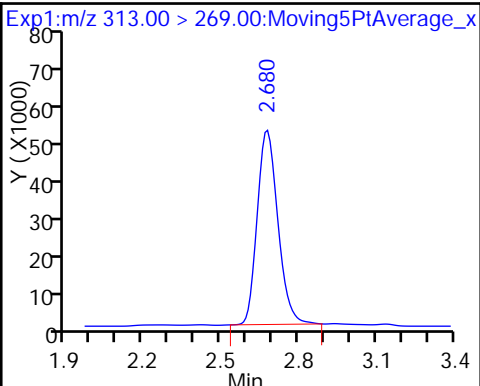
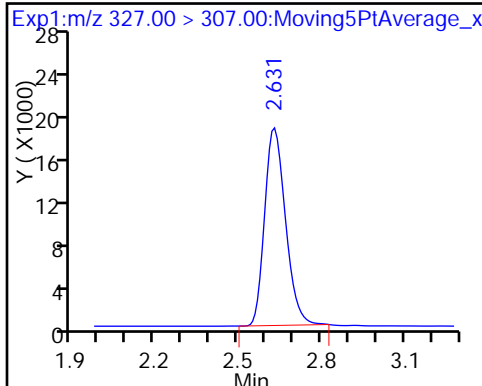
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

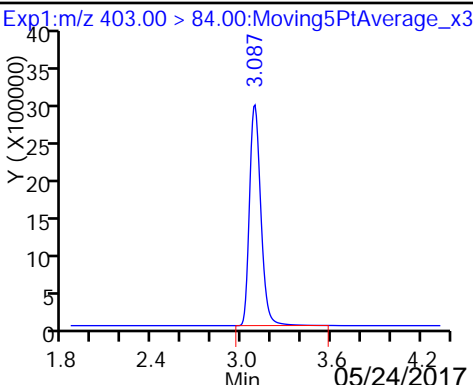
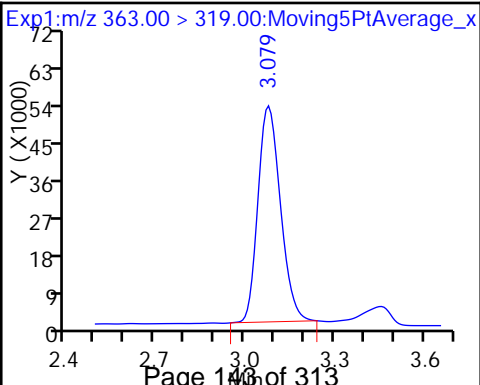
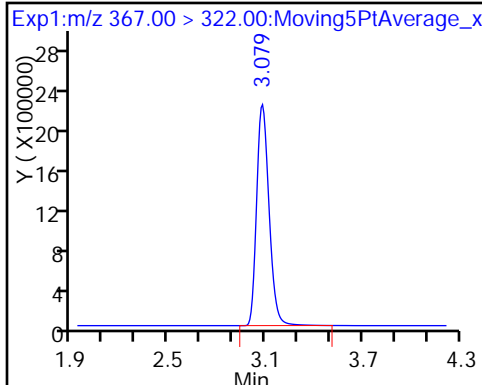
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

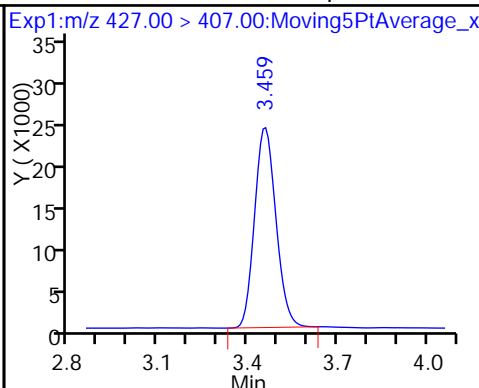
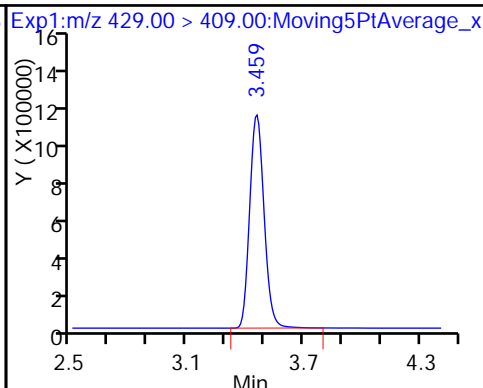
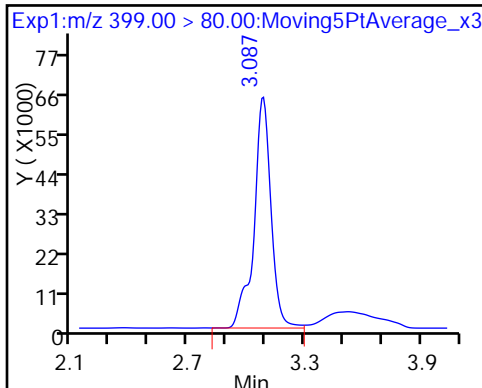
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

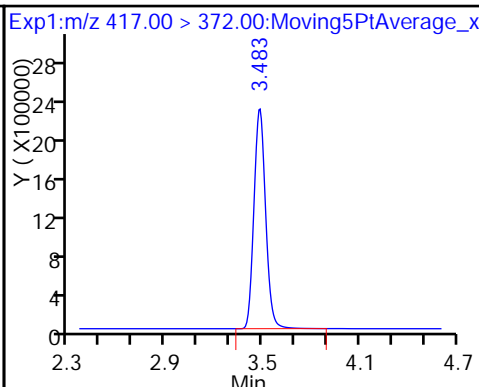
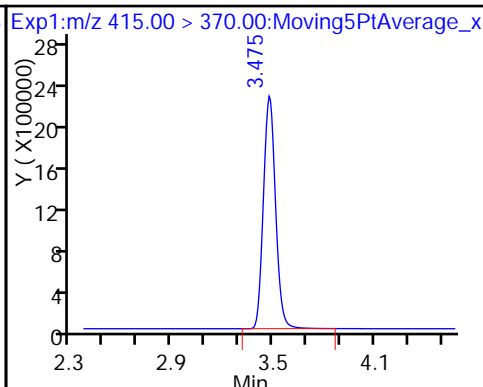
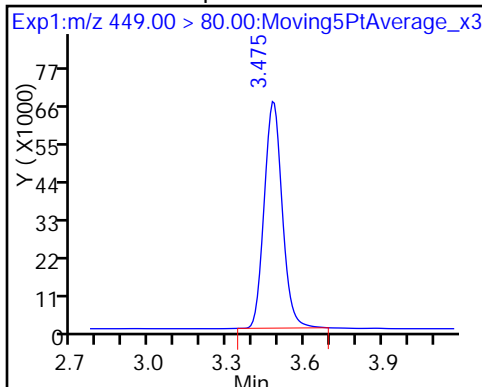
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

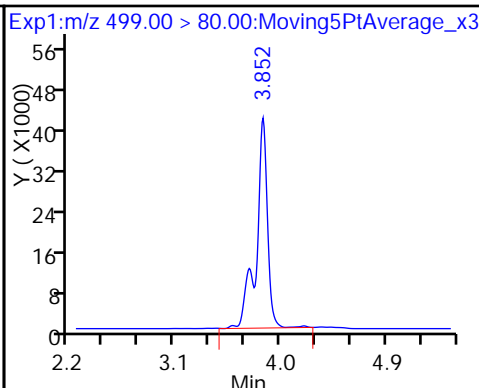
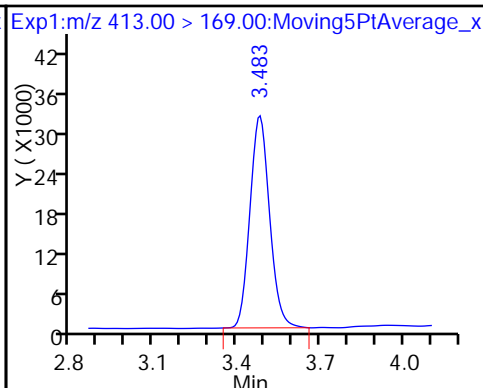
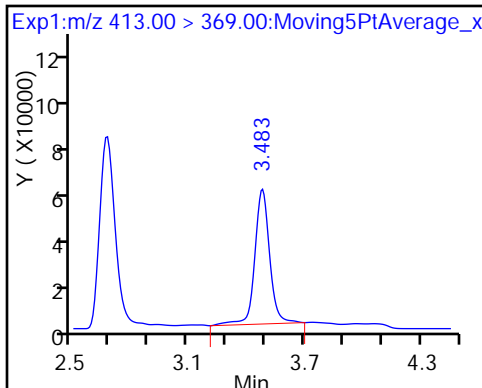
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

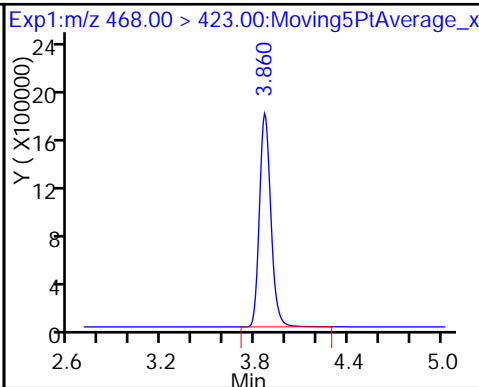
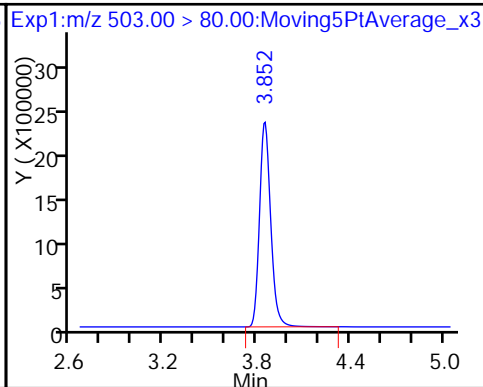
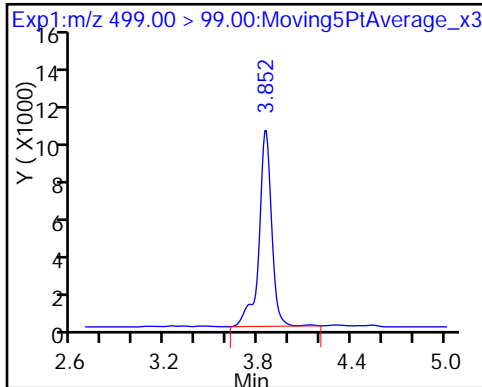
17 Perfluorooctane sulfonic acid

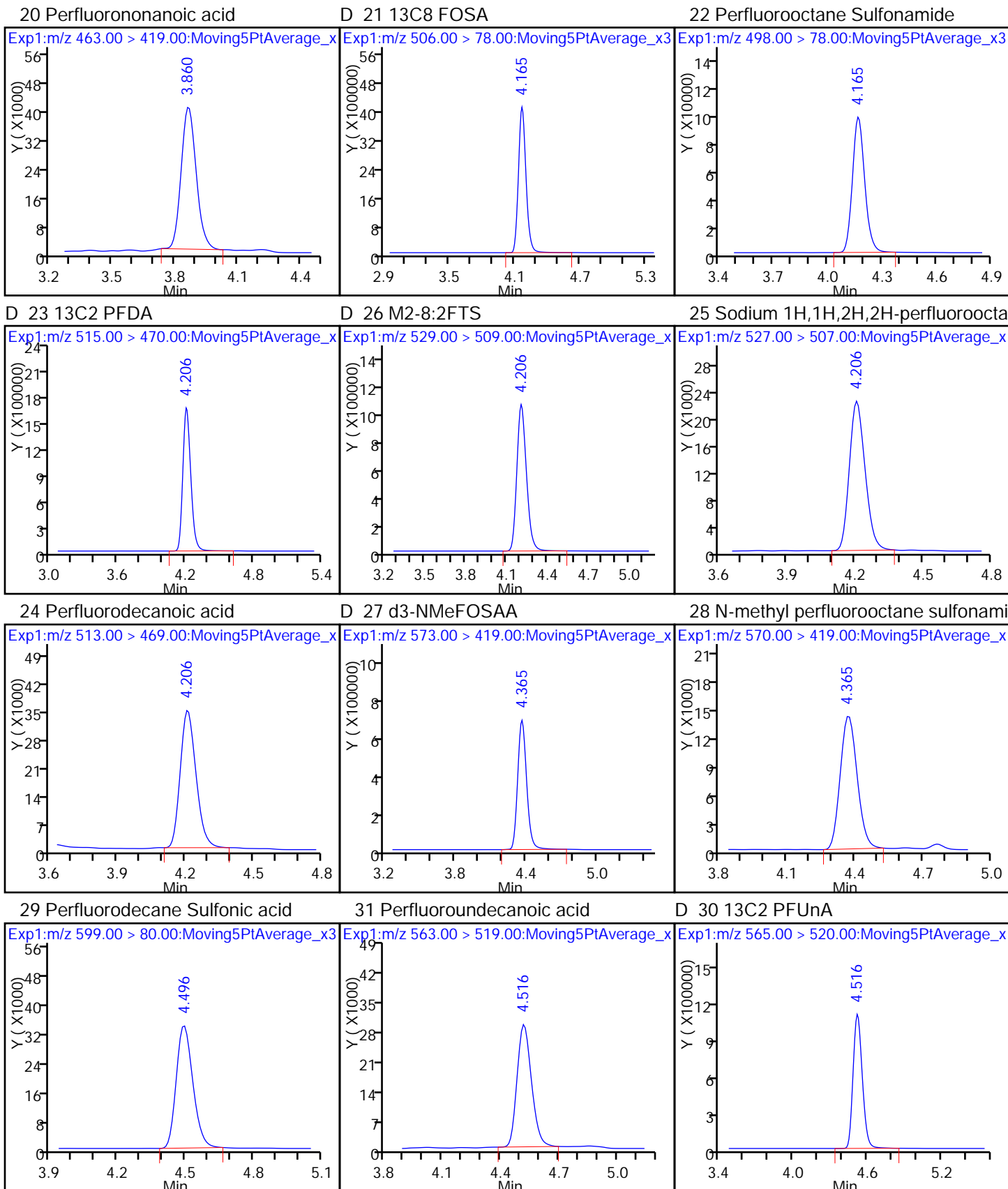


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

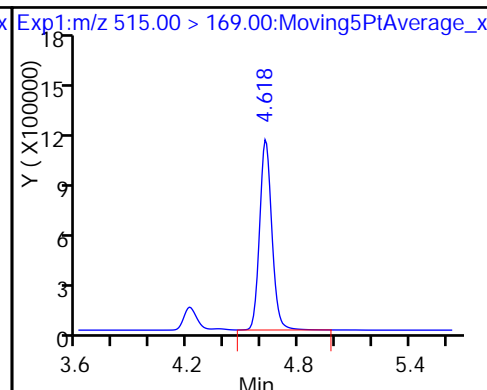
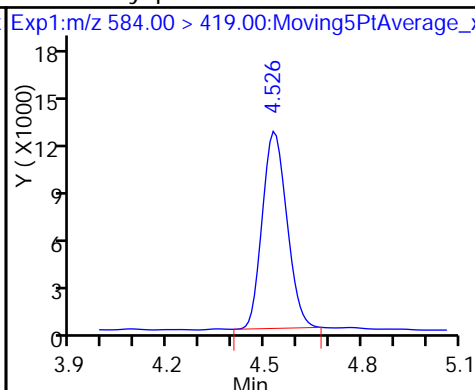
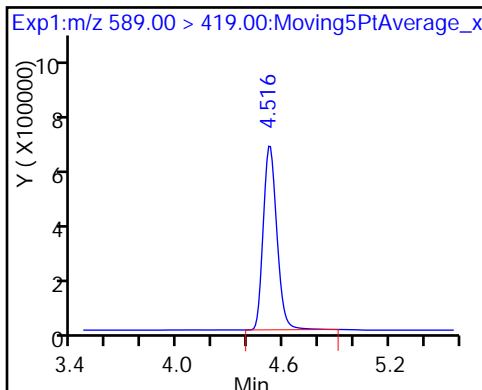




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

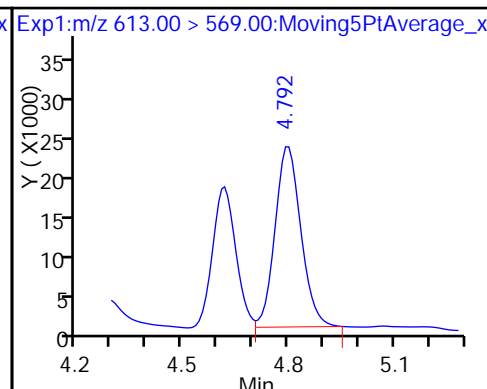
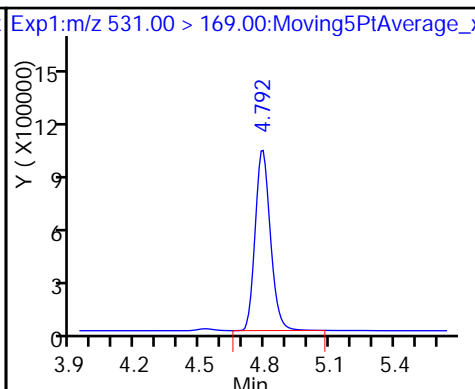
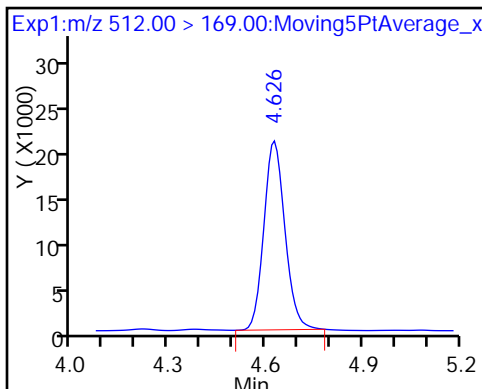
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

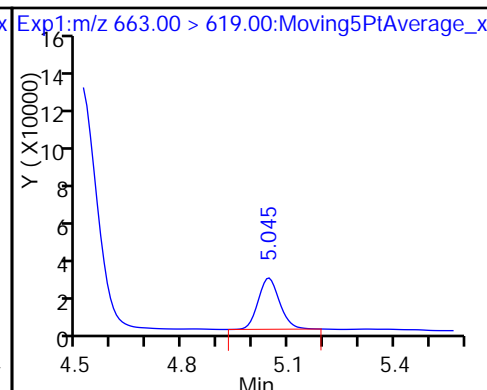
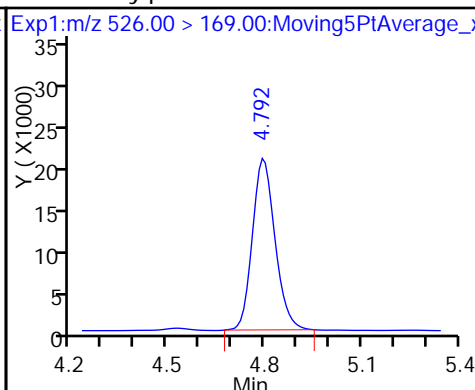
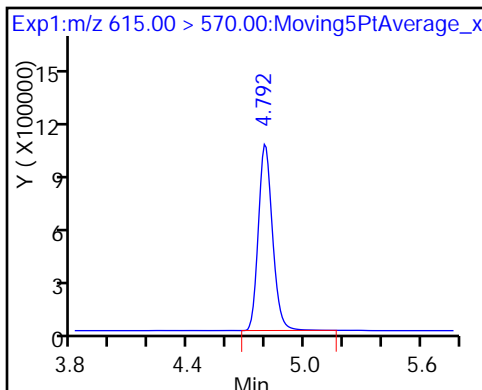
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

39 N-ethylperfluoro-1-octanesulfonami

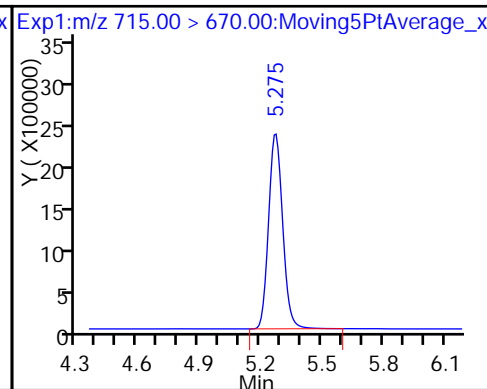
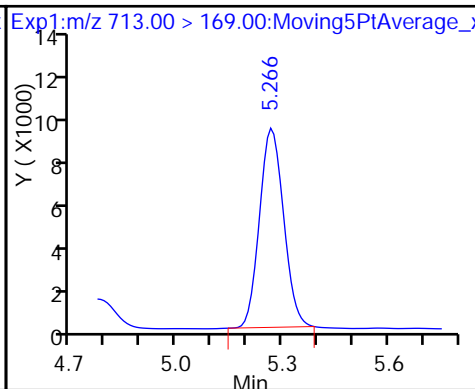
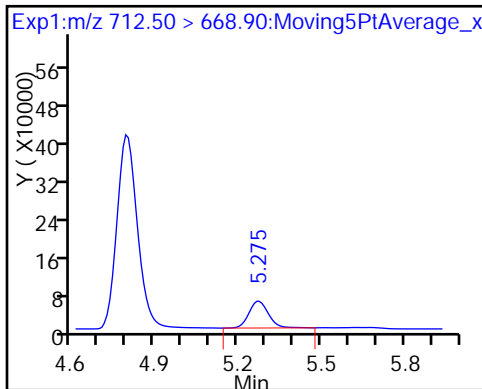
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

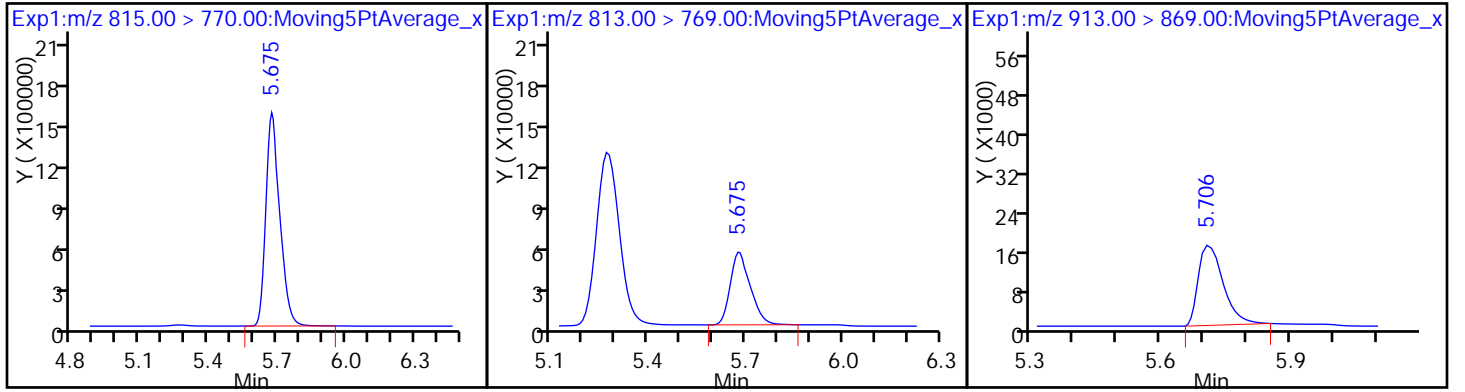
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_005.d
 Lims ID: IC L3 Full
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 18-May-2017 18:04:55 ALS Bottle#: 30 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:28 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 08:20:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.953	1.958	-0.005	18295237	50.9		103	227320	
2 Perfluorobutyric acid	212.90 > 169.00	1.961	1.962	-0.001	1946323	5.24		106	621	
D 3 13C5-PFPeA	267.90 > 223.00	2.309	2.313	-0.004	13278899	53.4		108	391650	
4 Perfluoropentanoic acid	262.90 > 219.00	2.309	2.317	-0.008	1478826	5.01		101	414	
D 47 13C3-PFBS	301.90 > 83.00	2.349	2.352	-0.003	313260	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.349	2.357	-0.008	2345385	4.53		104		
	298.90 > 99.00	2.349	2.357	-0.008	949795		2.47(0.00-0.00)	104		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.645	2.648	-0.003	480816	5.29		114		
6 Perfluorohexanoic acid	313.00 > 269.00	2.684	2.693	-0.009	1312340	4.98		101	3162	
D 7 13C2 PFHxA	315.00 > 270.00	2.693	2.694	-0.001	12656413	52.0		105	105755	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.083	3.095	-0.012	1294392	4.90		98.9	1187	
D 9 13C4-PFHpA	367.00 > 322.00	3.083	3.095	-0.012	11698570	55.2		112	49687	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.092	3.101	-0.009	1733346	4.54		101		
D 11 18O2 PFHxS	403.00 > 84.00	3.092	3.101	-0.009	15197212	49.9		107	65501	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.463	3.472	-0.009	1.000	619778	5.43	116		
D 12 M2-6:2FTS	429.00	> 409.00	3.463	3.472	-0.009		5534640	43.9	93.3		
* 62 13C2-PFOA	415.00	> 370.00	3.485	3.491	-0.006		10624459	49.5			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.485	3.491	-0.006	1.000	1558288	5.04	107		
D 14 13C4 PFOA	417.00	> 372.00	3.485	3.495	-0.010		11170443	52.5	106	41540	
15 Perfluorooctanoic acid	413.00	> 369.00	3.485	3.496	-0.011	1.000	1308572	5.05	102	128	
	413.00	> 169.00	3.485	3.496	-0.011	1.000	749474		1.75(0.90-1.10)	102	2957
D 18 13C4 PFOS	503.00	> 80.00	3.857	3.863	-0.006		11331600	49.4	104	37700	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.857	3.863	-0.006	1.000	1327664	4.65	101	39271	
	499.00	> 99.00	3.857	3.863	-0.006	1.000	278393		4.77(0.90-1.10)	101	2366
20 Perfluorononanoic acid	463.00	> 419.00	3.866	3.877	-0.011	1.000	980669	5.02	101	1439	
D 19 13C5 PFNA	468.00	> 423.00	3.866	3.877	-0.011		9035259	53.8	109	20219	
D 21 13C8 FOSA	506.00	> 78.00	4.171	4.182	-0.011		19327989	52.6	106	49343	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.171	4.183	-0.012	1.000	2127951	5.15	104	11618	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.212	4.220	-0.008	1.000	501022	5.01	106		
D 26 M2-8:2FTS	529.00	> 509.00	4.212	4.220	-0.008		4857693	49.0	103		
D 23 13C2 PFDA	515.00	> 470.00	4.212	4.220	-0.008		7892857	54.6	110	9442	
24 Perfluorodecanoic acid	513.00	> 469.00	4.212	4.222	-0.010	1.000	809095	4.96	100	1702	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.372	4.377	-0.005		3323408	51.2	103		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.372	4.382	-0.010	1.000	345219	4.91	99.2		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.494	4.505	-0.011	1.000	788282	4.79	100		
D 30 13C2 PFUnA	565.00	> 520.00	4.523	4.532	-0.009		5316780	52.3	106	10182	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.523	4.532	-0.009	1.000	620793	4.91	99.1	1520	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.523	4.533	-0.010		3325605	52.4	106		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.533	4.540	-0.007	1.002	314485	4.89	98.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.624	4.635	-0.011		4911826	49.3	99.7		
35 MeFOSA	512.00 > 169.00	4.632	4.643	-0.011	1.000	487115	5.09	103		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.790	4.802	-0.012		4667081	50.0	101		
D 36 13C2 PFDaA	615.00 > 570.00	4.799	4.809	-0.010		5226925	52.1	105	4642	
37 Perfluorododecanoic acid	613.00 > 569.00	4.799	4.809	-0.010	1.000	532575	4.97	100	62.2	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.799	4.810	-0.011	1.000	472415	4.93	99.6		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.048	5.057	-0.009	1.000	533601	4.95	100	30.8	
D 43 13C2-PFTeDA	715.00 > 670.00	5.273	5.286	-0.013		10766952	52.5	106	6003	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.273	5.286	-0.013	1.000	1286450	5.25	106	16.8	
	713.00 > 169.00	5.273	5.286	-0.013	1.000	170605	7.54(0.00-0.00)	106	523	
D 44 13C2-PFHxDA	815.00 > 770.00	5.674	5.684	-0.010		6198682	52.4	106	2395	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.681	5.687	-0.006	1.000	691271	5.10	103	25.5	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.705	5.709	-0.004	1.000	69370	4.35	87.9	259	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L3_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_005.d

Injection Date: 18-May-2017 18:04:55

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

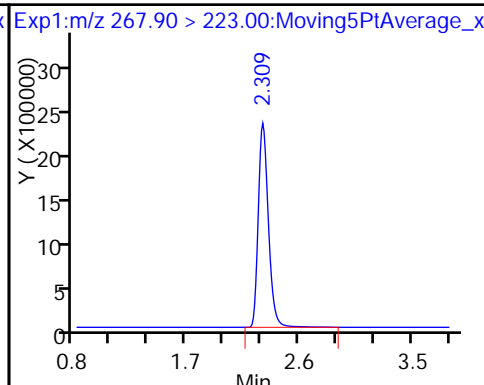
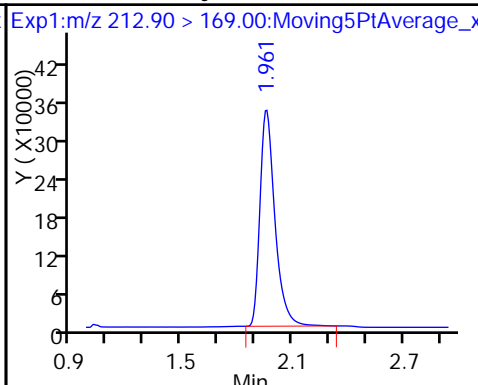
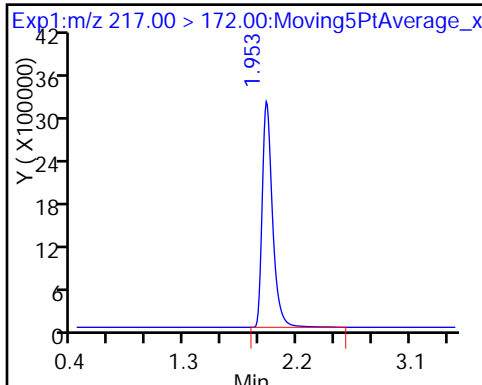
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

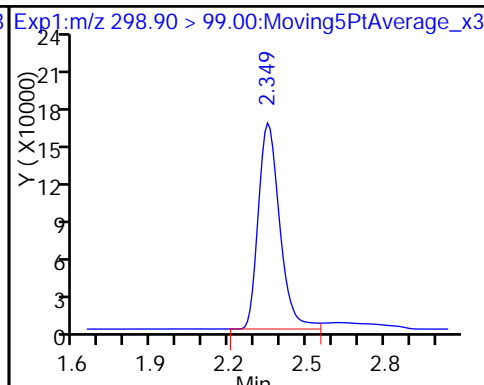
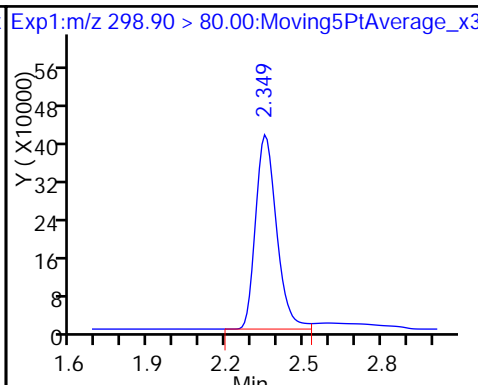
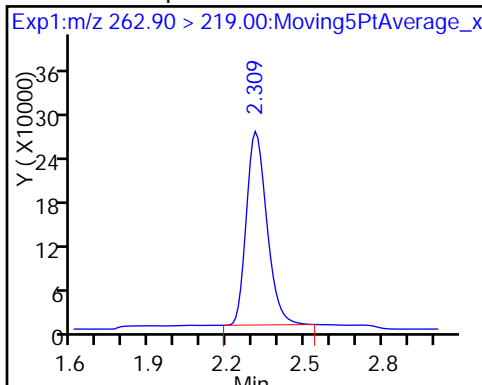
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

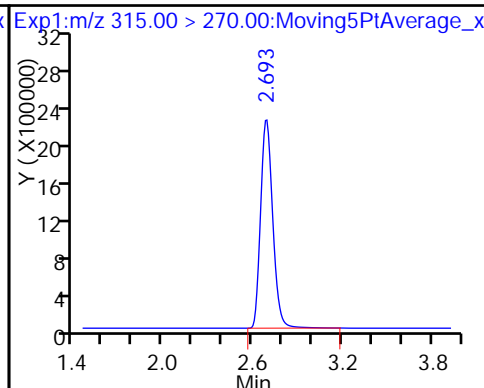
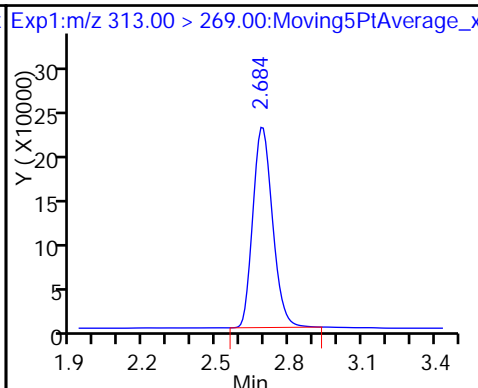
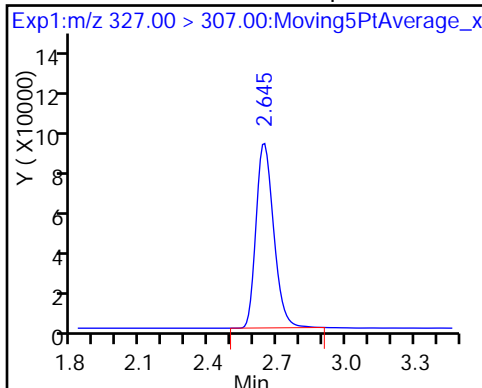
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

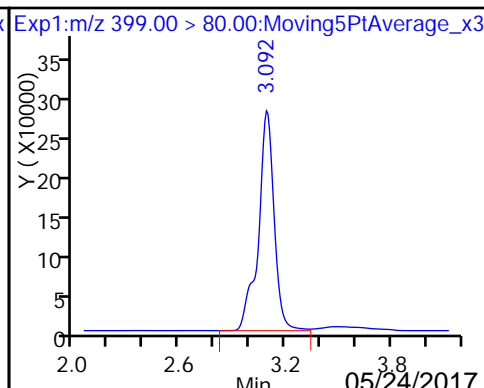
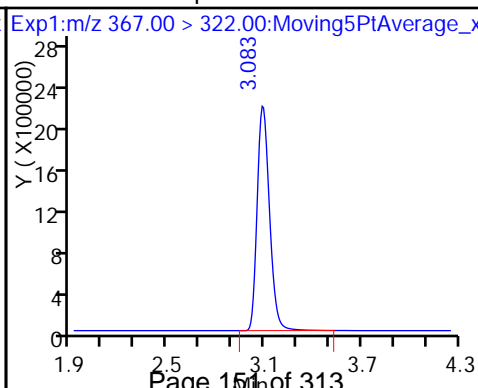
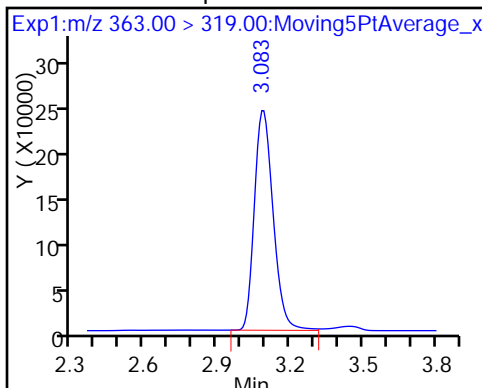
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

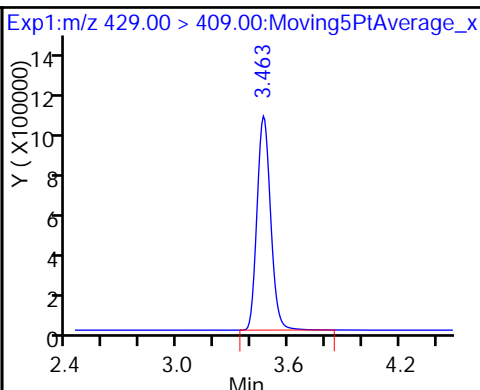
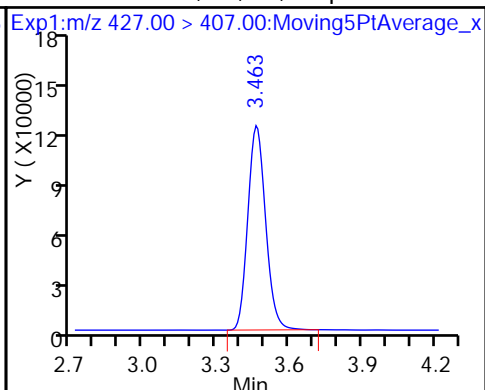
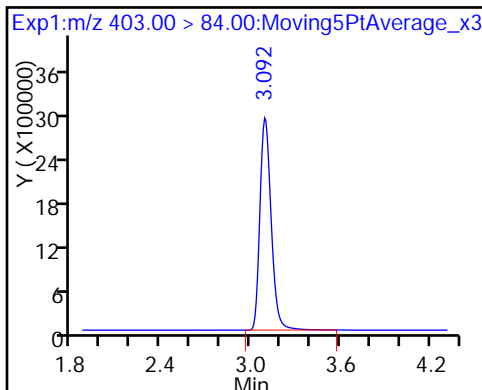
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

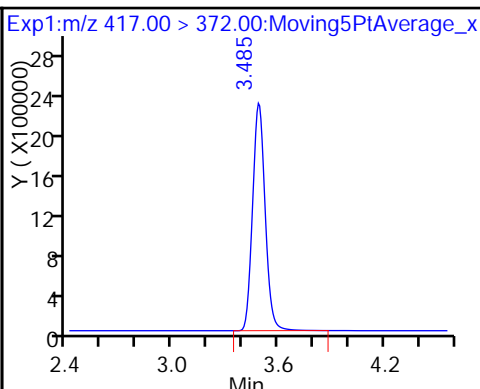
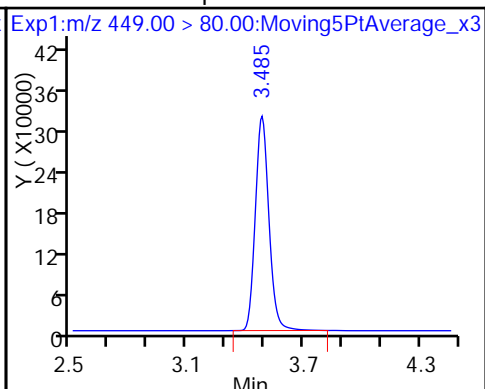
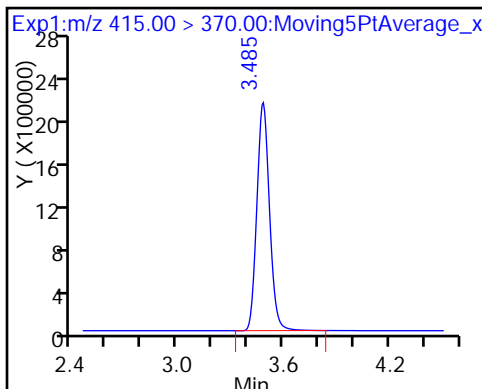
D 12 M2-6:2FTS



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

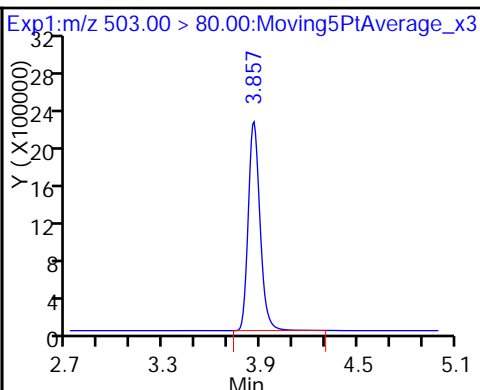
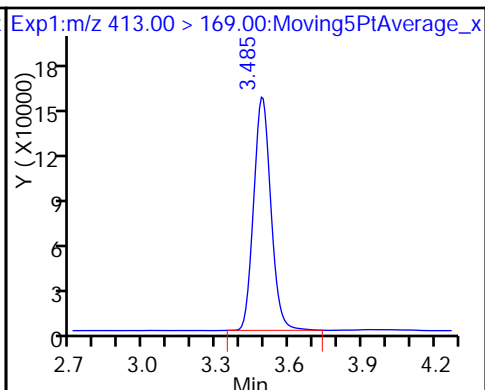
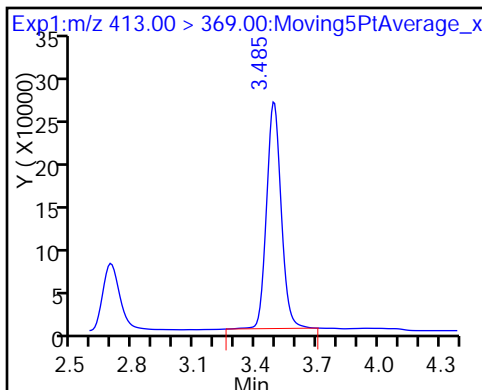
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

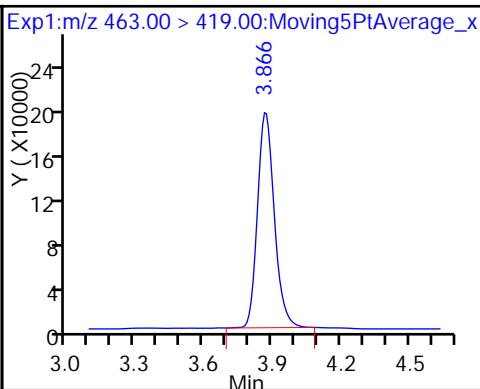
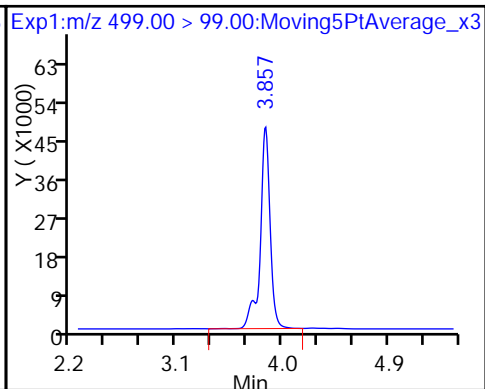
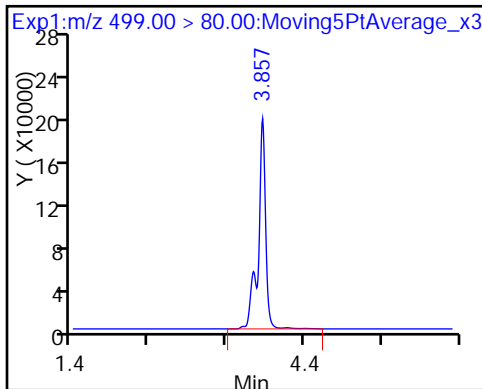
D 18 13C4 PFOS



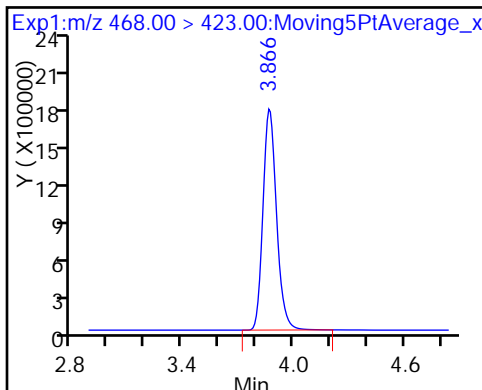
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

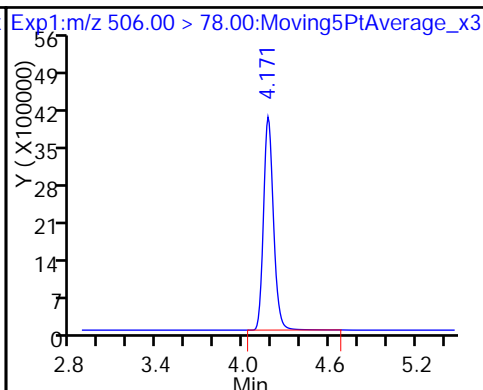
20 Perfluorononanoic acid



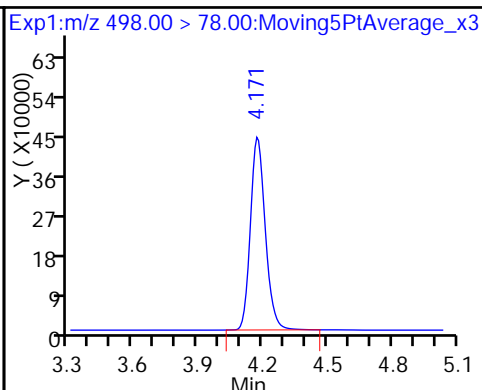
D 19 13C5 PFNA



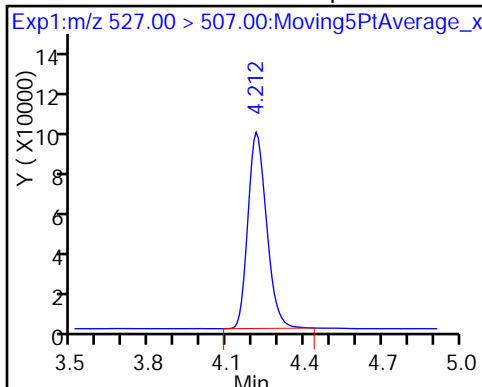
D 21 13C8 FOSA



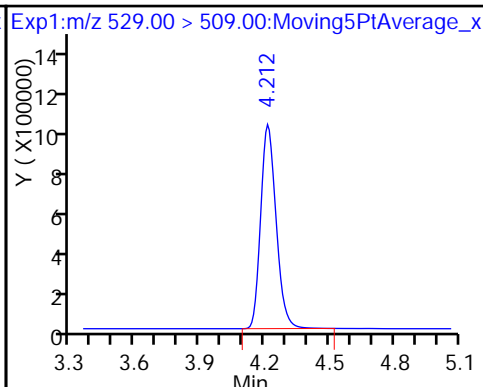
22 Perfluorooctane Sulfonamide



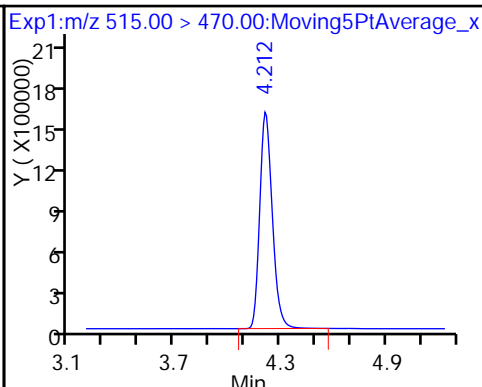
25 Sodium 1H,1H,2H,2H-perfluorooctane



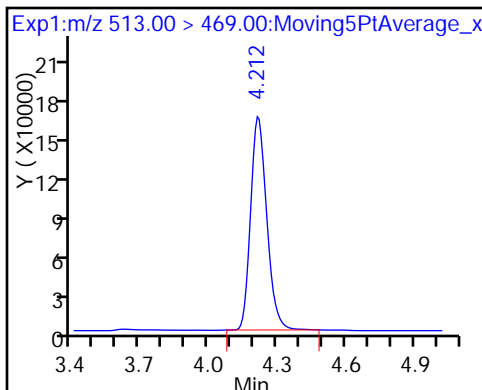
De 26 M2-8:2FTS



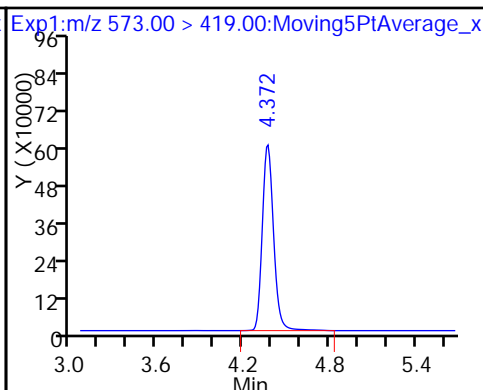
D 23 13C2 PFDA



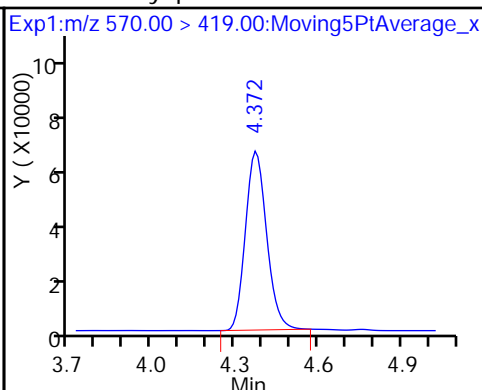
24 Perfluorodecanoic acid



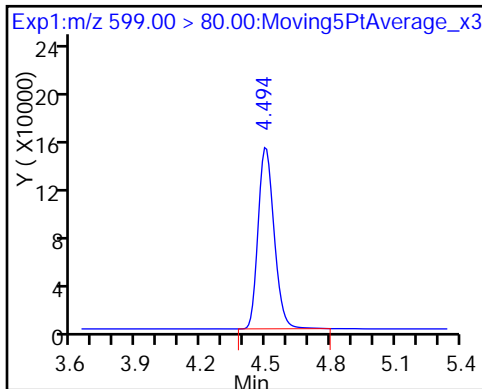
D 27 d3-NMeFOSAA



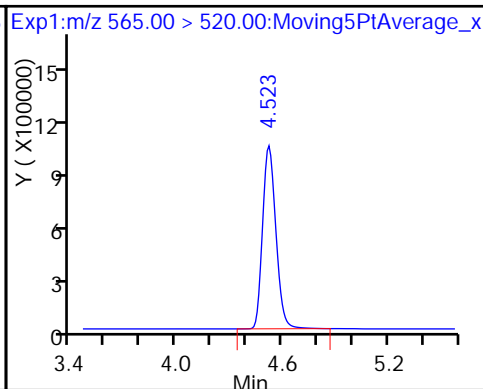
28 N-methyl perfluorooctane sulfonami



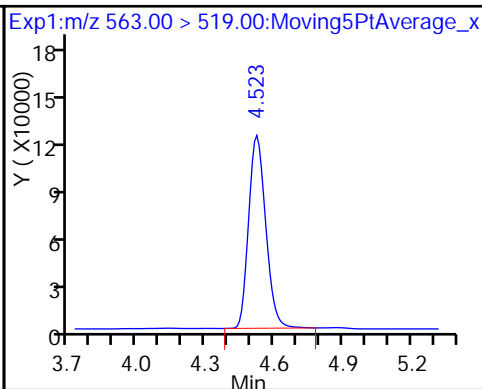
29 Perfluorodecane Sulfonic acid



D 30 13C2 PFUnA

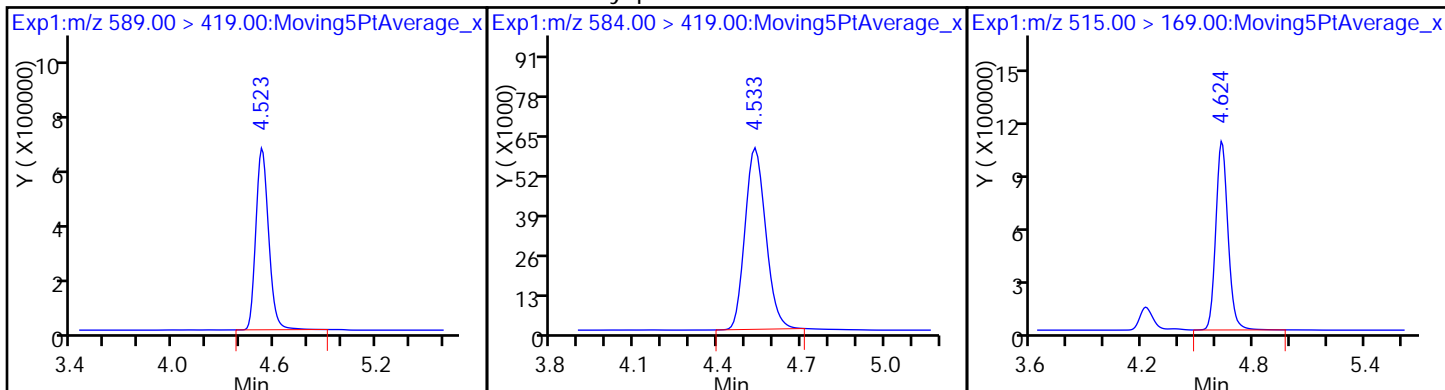


31 Perfluoroundecanoic acid



D 32 d5-NEtFOSAA

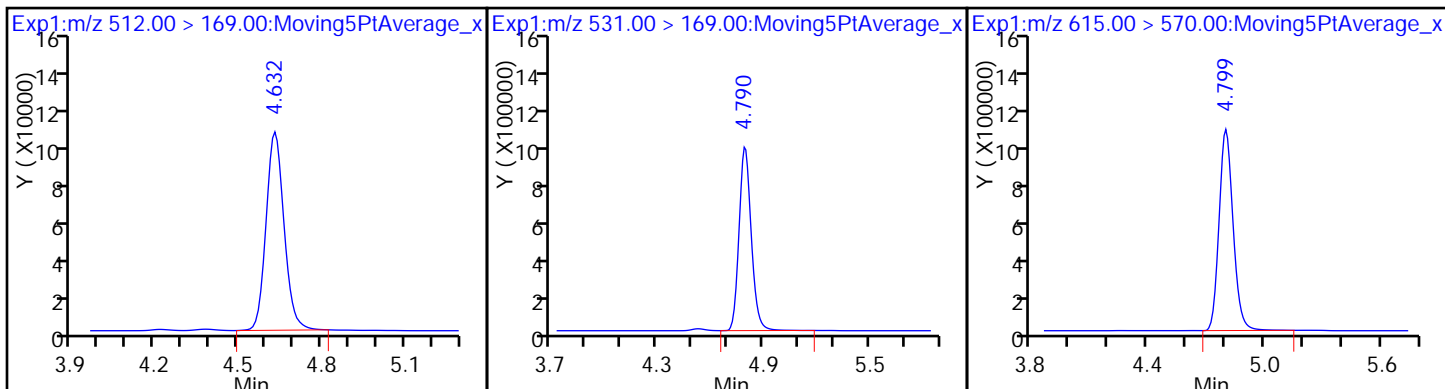
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

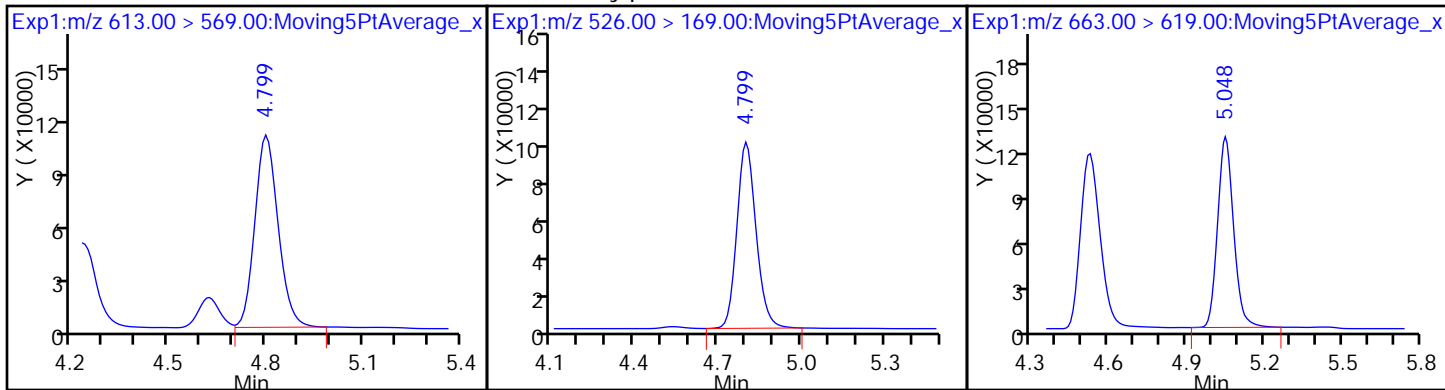
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

39 N-ethylperfluoro-1-octanesulfonami

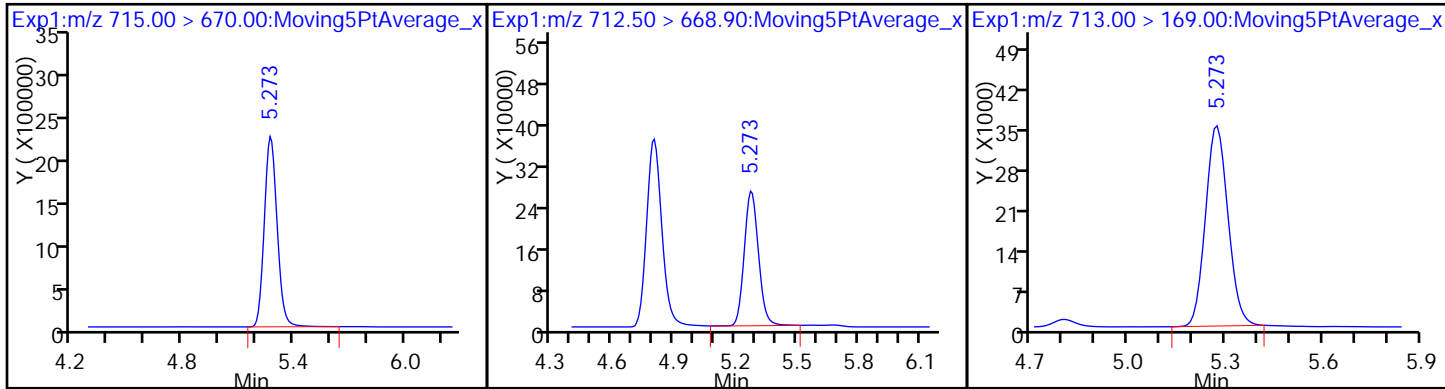
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

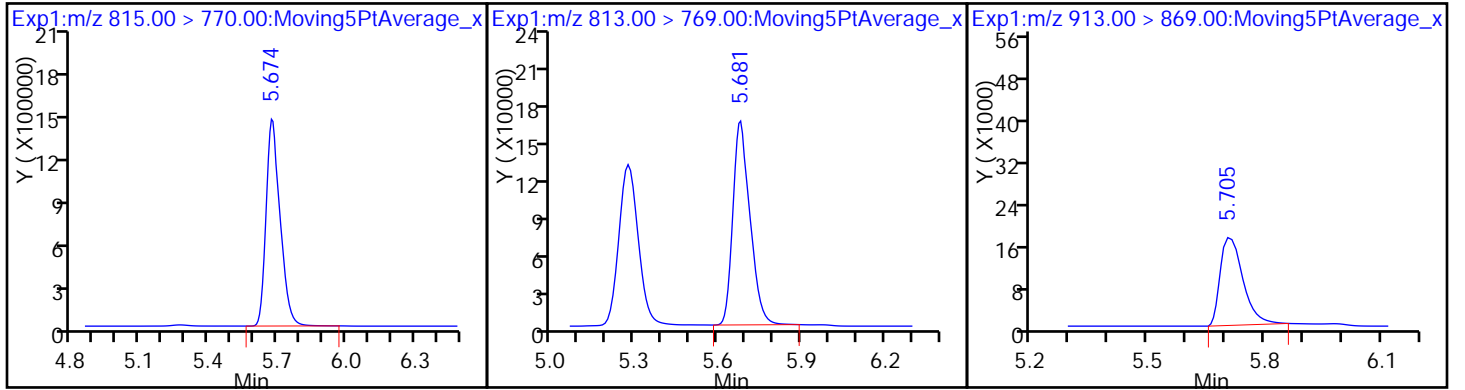
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 18-May-2017 18:12:27 ALS Bottle#: 31 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:32 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 08:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.961	1.958	0.003	17179781	47.8		96.5	112573	
2 Perfluorobutyric acid	212.90 > 169.00	1.969	1.962	0.007	7370440	21.1		107	1881	
D 3 13C5-PFPeA	267.90 > 223.00	2.329	2.313	0.016	11867435	47.7		96.4	201397	
4 Perfluoropentanoic acid	262.90 > 219.00	2.329	2.317	0.012	5392820	20.4		103	1333	
D 47 13C3-PFBS	301.90 > 83.00	2.369	2.352	0.017	287640	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.369	2.357	0.012	9217599	19.5		111		
	298.90 > 99.00	2.369	2.357	0.012	3633329		2.54(0.00-0.00)	111		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.664	2.648	0.016	1915946	16.0		86.4		
6 Perfluorohexanoic acid	313.00 > 269.00	2.712	2.693	0.019	4959979	20.3		103	15192	
D 7 13C2 PFHxA	315.00 > 270.00	2.712	2.694	0.018	11729614	48.2		97.3	34221	
D 9 13C4-PFHpA	367.00 > 322.00	3.113	3.095	0.018	10300646	48.6		98.2	52163	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.113	3.095	0.018	4817415	20.7		104	2094	
D 11 18O2 PFHxS	403.00 > 84.00	3.121	3.101	0.020	13907066	45.7		97.5	256671	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.121	3.101	0.020	6343995	18.1		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
D 12 M2-6:2FTS	429.00	> 409.00	3.504	3.472	0.032	7301861	57.9	123			
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.504	3.472	0.032	1.000	2935423	19.5	104		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.512	3.491	0.021	1.000	5619108	18.9	100		
* 62 13C2-PFOA	415.00	> 370.00	3.519	3.491	0.028		11157364	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.519	3.495	0.024		11536109	54.2	110	33173	
15 Perfluorooctanoic acid	413.00	> 369.00	3.519	3.496	0.023	1.000	5330646	19.9	101	515	
	413.00	> 169.00	3.519	3.496	0.023	1.000	3023425		1.76(0.90-1.10)	101	10022
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.887	3.863	0.024	1.000	4891254	17.8	97.1	97278	
	499.00	> 99.00	3.887	3.863	0.024	1.000	1072590		4.56(0.90-1.10)	97.1	6795
D 18 13C4 PFOS	503.00	> 80.00	3.887	3.863	0.024		10880543	47.5	100	18985	
D 19 13C5 PFNA	468.00	> 423.00	3.905	3.877	0.028		8487921	50.6	102	57554	
20 Perfluorononanoic acid	463.00	> 419.00	3.905	3.877	0.028	1.000	3725769	20.3	103	7723	
D 21 13C8 FOSA	506.00	> 78.00	4.208	4.182	0.026		18290567	49.8	101	18358	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.208	4.183	0.025	1.000	8181893	20.9	106	14052	
D 23 13C2 PFDA	515.00	> 470.00	4.245	4.220	0.025		6864090	47.5	96.0	6549	
D 26 M2-8:2FTS	529.00	> 509.00	4.245	4.220	0.025		4659279	47.0	99.1		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.245	4.220	0.025	1.000	1924859	20.1	106		
24 Perfluorodecanoic acid	513.00	> 469.00	4.245	4.222	0.023	1.000	2891007	20.4	103	4680	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.402	4.377	0.025		3097034	47.7	96.4		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.412	4.382	0.030	1.002	1356715	20.7	105		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.526	4.505	0.021	1.000	3070644	19.5	102		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.556	4.532	0.024	1.000	2271604	19.0	96.1	5146	
D 30 13C2 PFUnA	565.00	> 520.00	4.556	4.532	0.024		5019435	49.3	99.7	6595	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.556	4.533	0.023		3061569	48.2	97.4		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.566	4.540	0.026	1.002	1176636	19.9	100		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.660	4.635	0.025	4752638	47.7		96.4		
35 MeFOSA	512.00 > 169.00	4.668	4.643	0.025	1898682	20.5		104		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.827	4.802	0.025	4643081	49.8		101		
37 Perfluorododecanoic acid	613.00 > 569.00	4.836	4.809	0.027	2022773	20.3		102	101	
D 36 13C2 PFDa	615.00 > 570.00	4.836	4.809	0.027	4871840	48.6		98.2	4159	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.836	4.810	0.026	1905108	20.0		101		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.081	5.057	0.024	2069185	20.6		104	113	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.309	5.286	0.023	4719782	21.0		106	58.9	
	713.00 > 169.00	5.300	5.286	0.014	624354		7.56(0.00-0.00)	106	1539	
D 43 13C2-PFTeDA	715.00 > 670.00	5.309	5.286	0.023	10161237	49.6		100	5703	
D 44 13C2-PFHxDA	815.00 > 770.00	5.703	5.684	0.019	5712281	48.3		97.5	1908	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.713	5.687	0.026	2203215	19.7		99.5	69.7	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.713	5.709	0.004	319700	38.4		194	1068	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_006.d

Injection Date: 18-May-2017 18:12:27

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

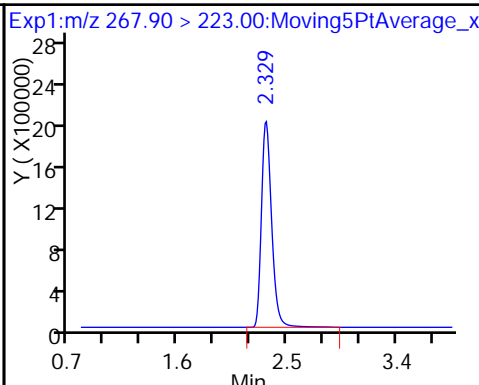
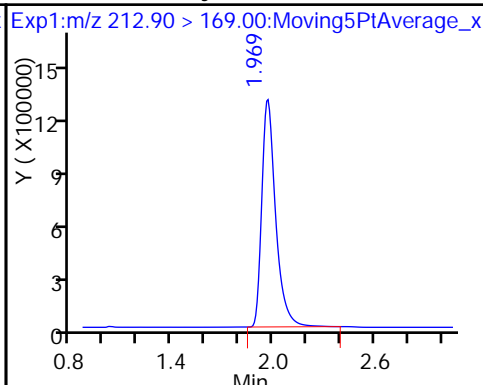
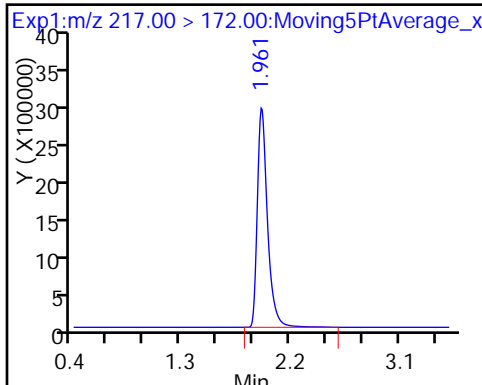
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

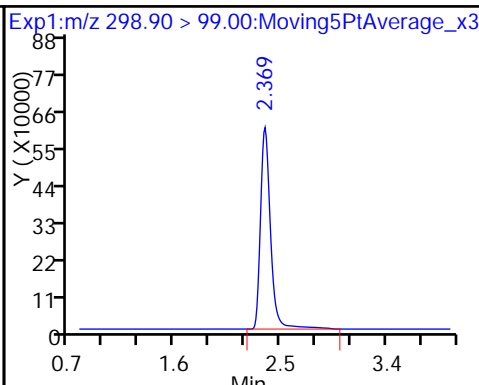
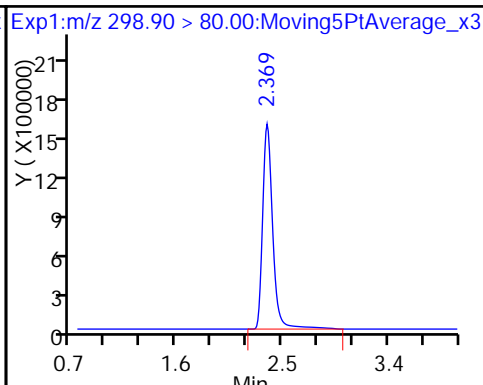
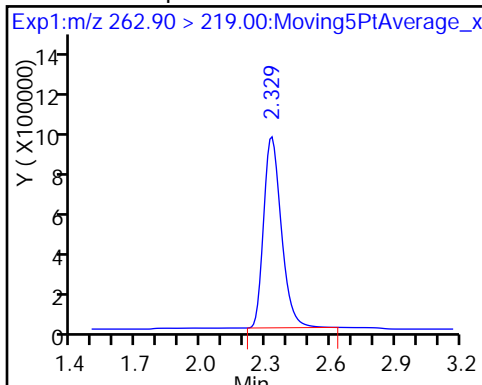
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

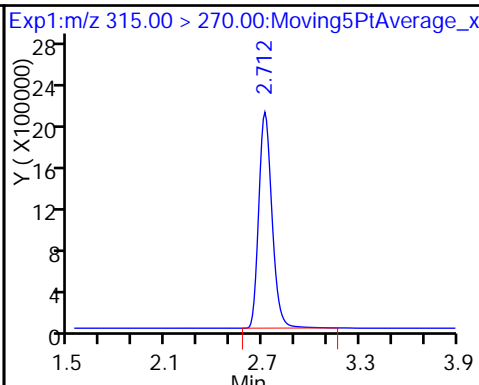
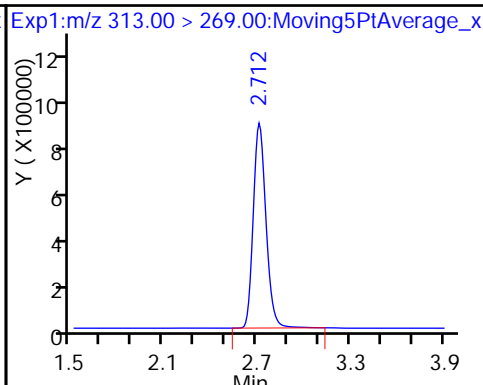
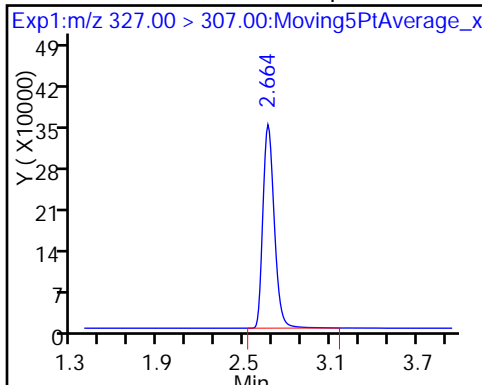
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

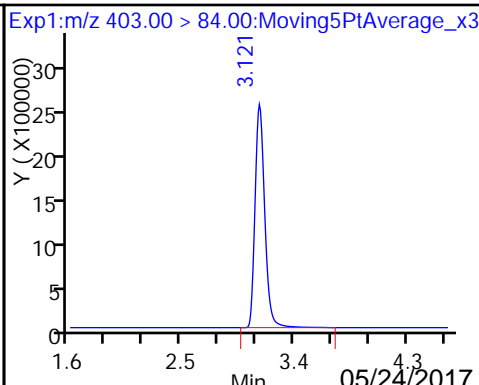
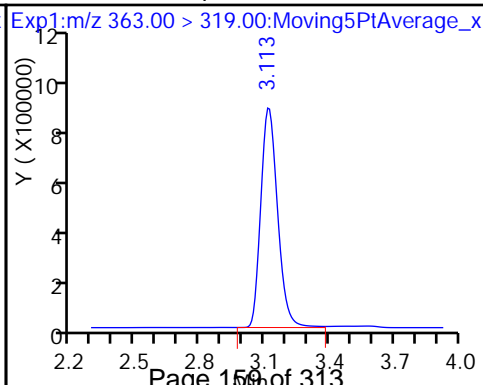
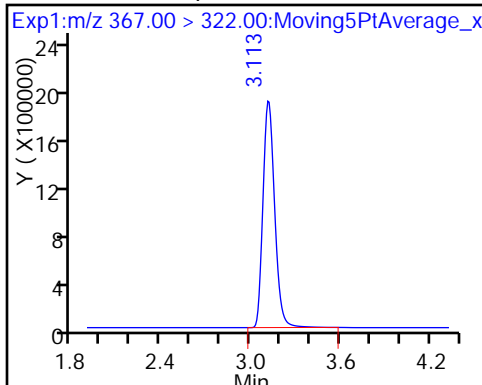
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

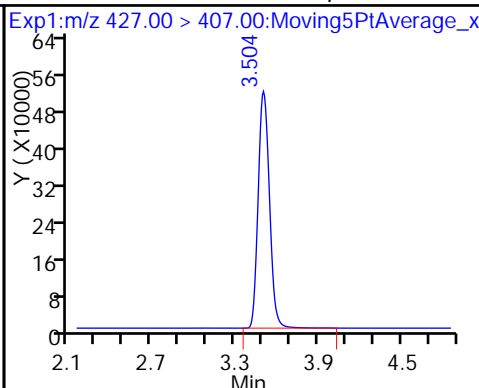
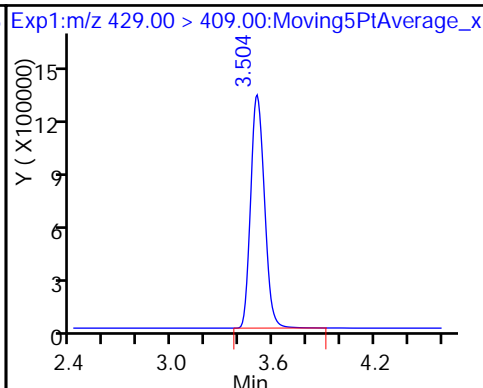
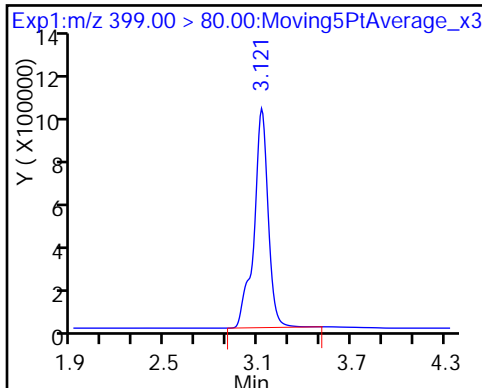
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

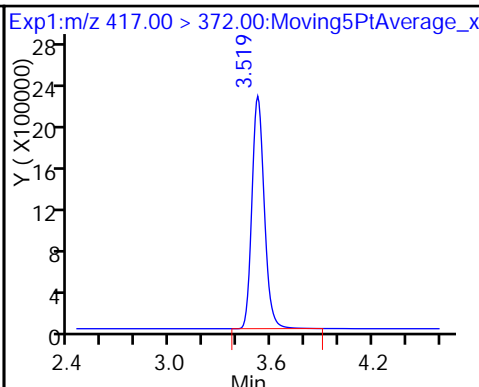
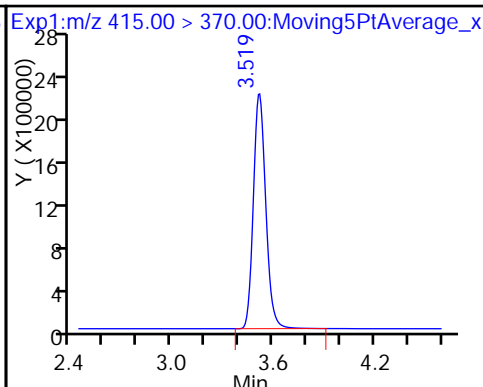
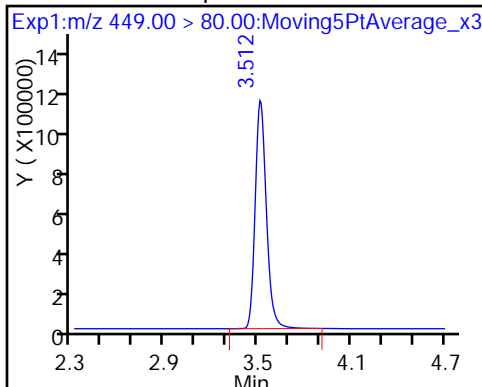
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

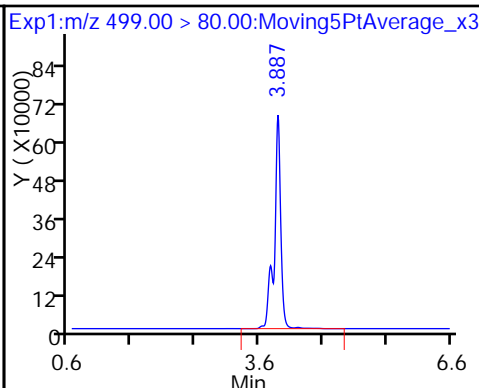
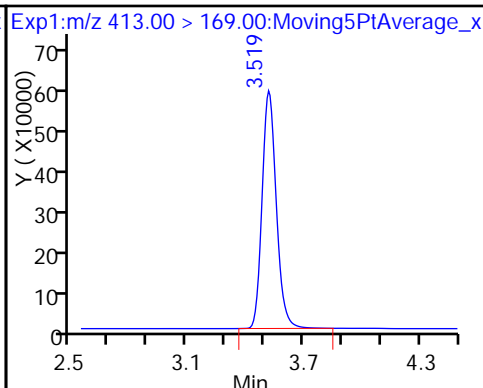
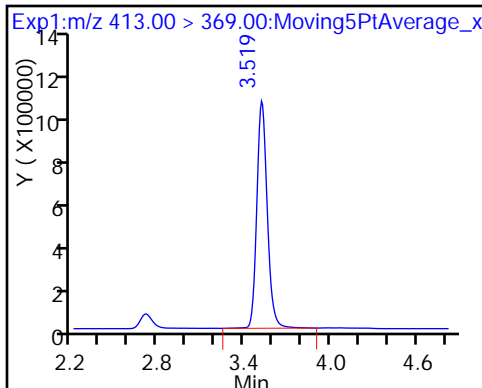
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

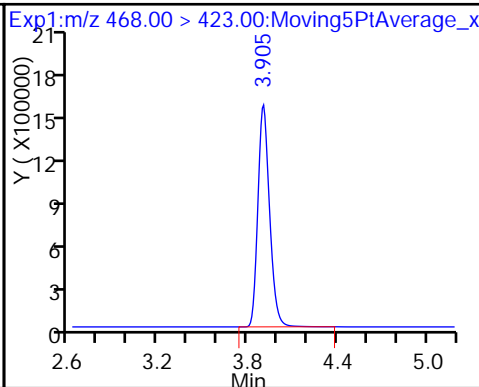
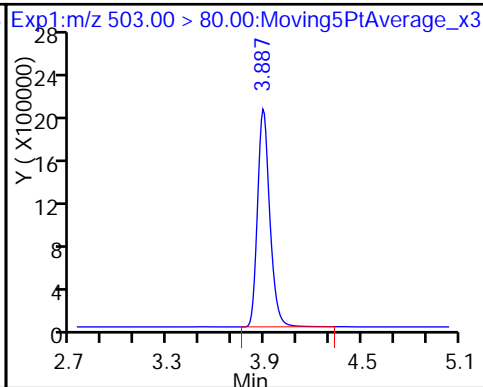
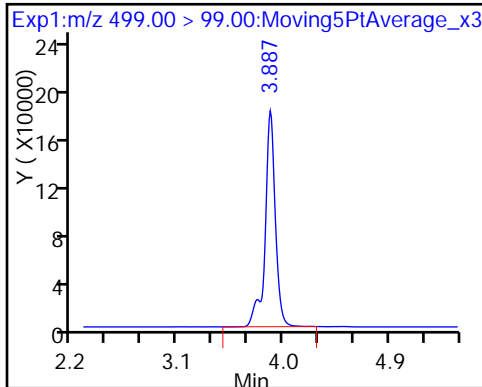
17 Perfluorooctane sulfonic acid

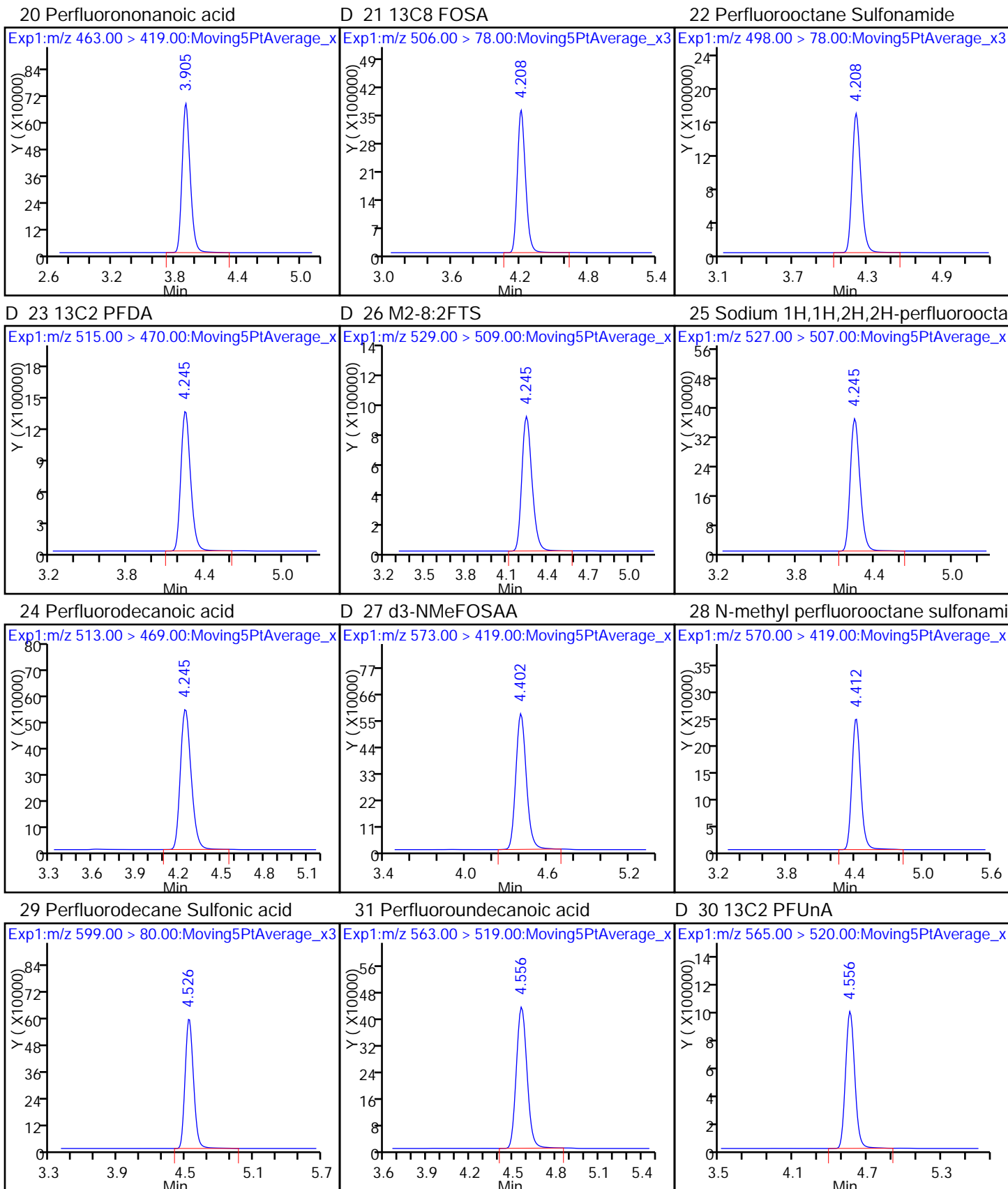


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

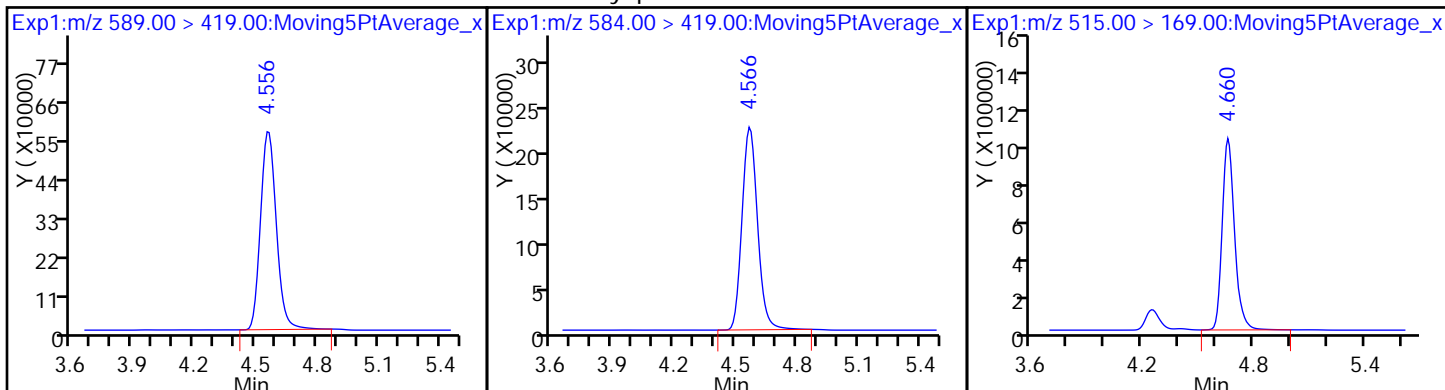




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

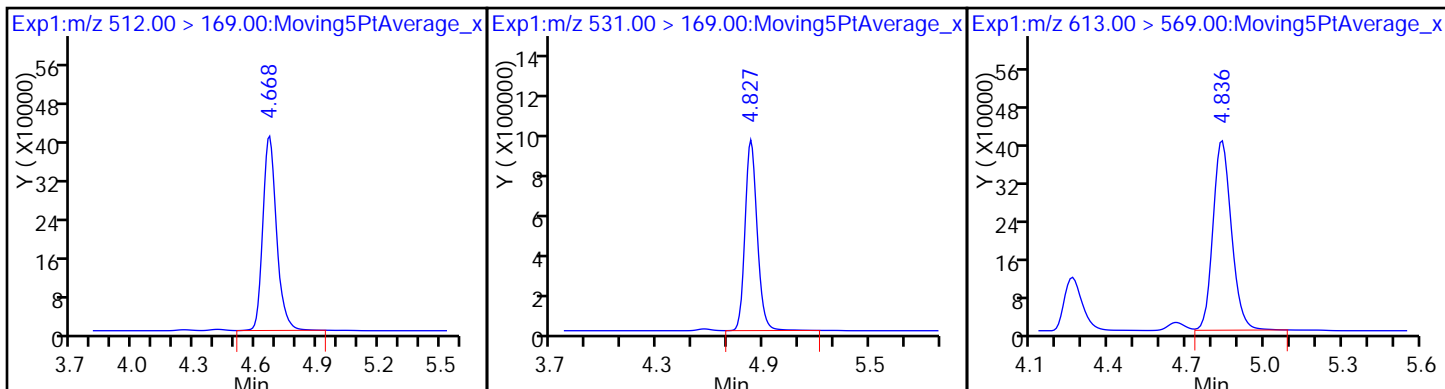
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

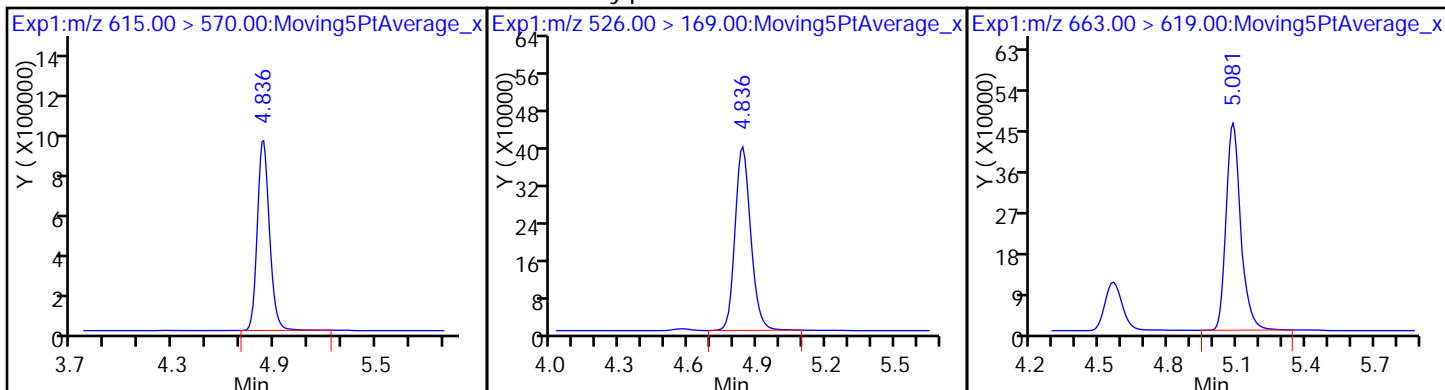
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

39 N-ethylperfluoro-1-octanesulfonami

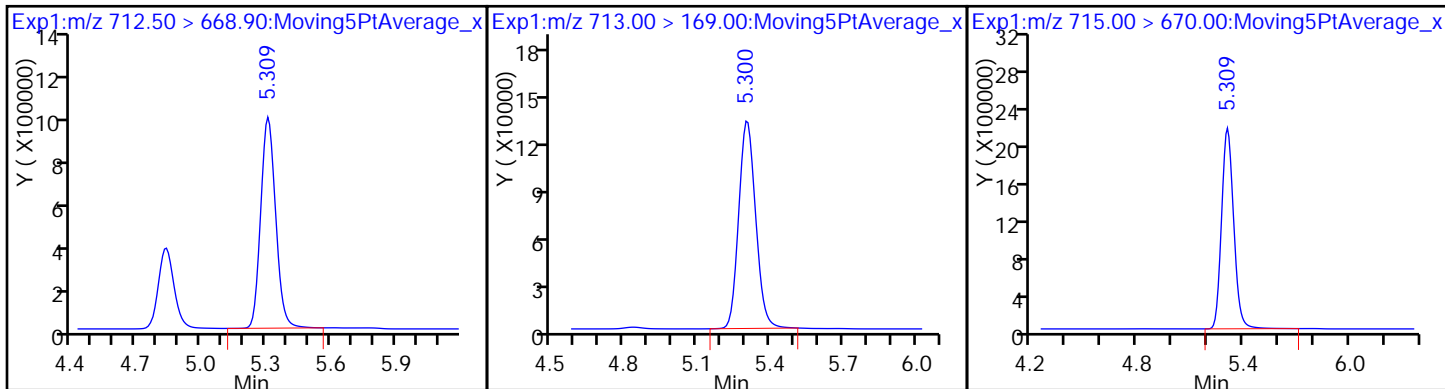
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

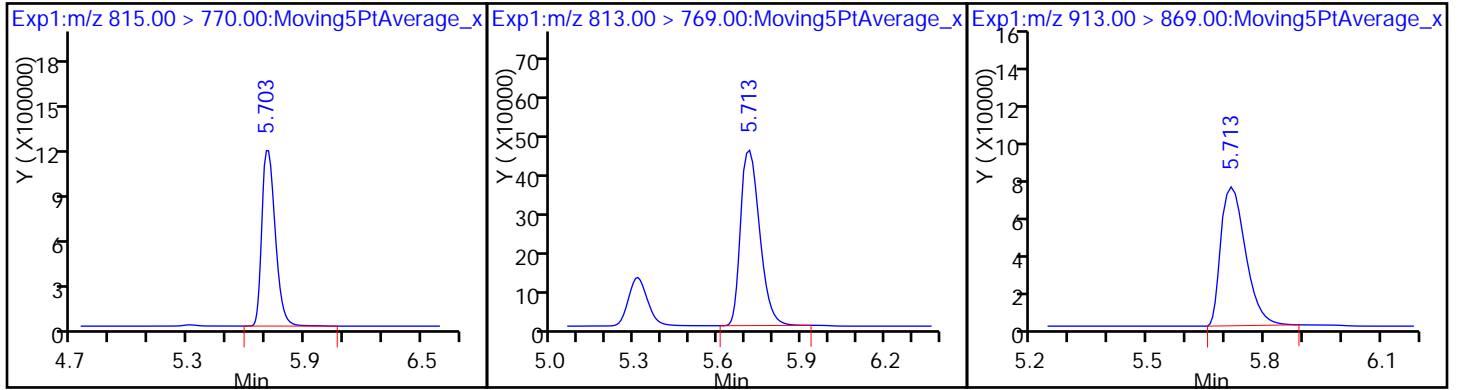
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_007.d
 Lims ID: IC L5 Full
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 18-May-2017 18:19:59 ALS Bottle#: 32 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:35 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.976	1.958	0.018	17825161	49.5		100	83323	
2 Perfluorobutyric acid	212.90 > 169.00	1.976	1.962	0.014	18509390	51.1		103	5418	
D 3 13C5-PFPeA	267.90 > 223.00	2.328	2.313	0.015	11920185	47.9		96.8	169427	
4 Perfluoropentanoic acid	262.90 > 219.00	2.338	2.317	0.021	12969293	49.0		98.9	3388	
D 47 13C3-PFBS	301.90 > 83.00	2.368	2.352	0.016	294815	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.378	2.357	0.021	21391921	44.1		101		
	298.90 > 99.00	2.378	2.357	0.021	8900150		2.40(0.00-0.00)	101		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.662	2.648	0.014	4309687	36.6		79.1		
6 Perfluorohexanoic acid	313.00 > 269.00	2.711	2.693	0.018	12342228	49.3		99.5	23212	
D 7 13C2 PFHxA	315.00 > 270.00	2.711	2.694	0.017	12037274	49.4		99.8	61196	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.117	3.095	0.022	11529318	50.8		103	5838	
D 9 13C4-PFHpA	367.00 > 322.00	3.117	3.095	0.022	10045065	47.4		95.8	44014	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.117	3.101	0.016	16049307	44.9		99.6		
D 11 18O2 PFHxS	403.00 > 84.00	3.117	3.101	0.016	14230510	46.7		99.8	37824	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.494	3.472	0.022	6611247	44.7		95.2		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.494	3.472	0.022	7180298	56.9	121		
* 62 13C2-PFOA	415.00	> 370.00	3.509	3.491	0.018	10675674	49.5			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.509	3.491	0.018	1.000	14362385	48.2	102	
D 14 13C4 PFOA	417.00	> 372.00	3.509	3.495	0.014	11297775	53.1	107	44423	
15 Perfluorooctanoic acid	413.00	> 369.00	3.516	3.496	0.020	1.000	12770167	48.7	98.4	1210
	413.00	> 169.00	3.509	3.496	0.013	0.998	7412579	1.72(0.90-1.10)	98.4	15835
D 18 13C4 PFOS	503.00	> 80.00	3.877	3.863	0.014	10924619	47.6	101	17540	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.877	3.863	0.014	1.000	12648705	45.9	100	118173
	499.00	> 99.00	3.877	3.863	0.014	1.000	2751683	4.60(0.90-1.10)	100	13639
20 Perfluorononanoic acid	463.00	> 419.00	3.895	3.877	0.018	1.000	8953756	51.0	103	12142
D 19 13C5 PFNA	468.00	> 423.00	3.895	3.877	0.018	8122453	48.4	97.7	23724	
D 21 13C8 FOSA	506.00	> 78.00	4.195	4.182	0.013	18616970	50.7	102	32237	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.204	4.183	0.021	1.000	19145797	48.2	97.3	22917
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.232	4.220	0.012	1.000	4216009	45.0	94.8	
D 26 M2-8:2FTS	529.00	> 509.00	4.232	4.220	0.012	4558792	46.0	97.0		
D 23 13C2 PFDA	515.00	> 470.00	4.232	4.220	0.012	6827433	47.2	95.4	6903	
24 Perfluorodecanoic acid	513.00	> 469.00	4.243	4.222	0.021	1.000	7006930	49.6	100	5953
D 27 d3-NMeFOSAA	573.00	> 419.00	4.388	4.377	0.011	3273660	50.5	102		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.398	4.382	0.016	1.002	3282771	47.4	95.7	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.524	4.505	0.019	1.000	7785353	49.1	103	
D 30 13C2 PFUnA	565.00	> 520.00	4.543	4.532	0.011	4949451	48.6	98.3	23094	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.543	4.532	0.011	1.000	5524902	46.9	94.8	5774
D 32 d5-NEtFOSAA	589.00	> 419.00	4.553	4.533	0.020	3302194	52.0	105		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.553	4.540	0.013	1.000	3035592	47.6	96.1	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.648	4.635	0.013	5032773	50.6	102		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.658	4.643	0.015	1.000	4877524	49.8	101		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.815	4.802	0.013		4628751	49.6	100		
D 36 13C2 PFDaA	615.00 > 570.00	4.824	4.809	0.015		4872612	48.6	98.2	4988	
37 Perfluorododecanoic acid	613.00 > 569.00	4.824	4.809	0.015	1.000	5005911	50.1	101	312	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.824	4.810	0.014	1.000	4751037	50.0	101		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.069	5.057	0.012	1.000	5011159	49.9	101	297	
D 43 13C2-PFTeDA	715.00 > 670.00	5.300	5.286	0.014		9856738	48.1	97.2	6867	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.300	5.286	0.014	1.000	11670758	52.1	105	137	
	713.00 > 169.00	5.291	5.286	0.005	0.998	1528945		7.63(0.00-0.00)	105	2990
D 44 13C2-PFHxDA	815.00 > 770.00	5.693	5.684	0.009		5743933	48.5	98.1	1975	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.693	5.687	0.006	1.000	5487449	50.5	102	157	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.714	5.709	0.005	1.000	239292	27.6	55.8	616	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_007.d

Injection Date: 18-May-2017 18:19:59

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

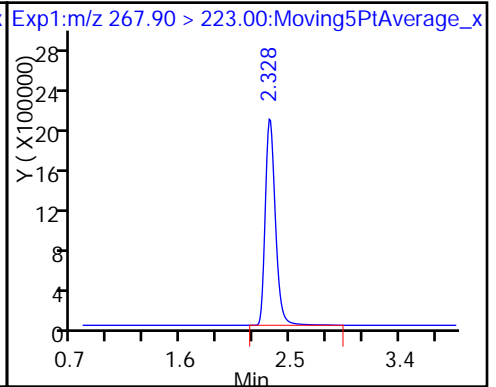
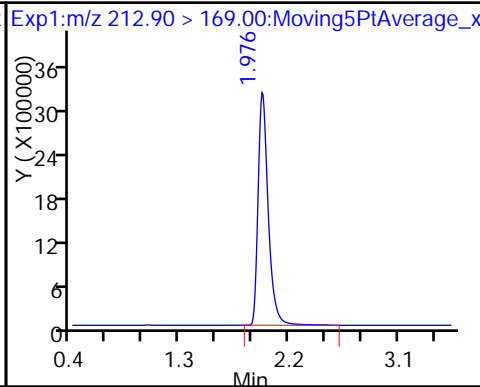
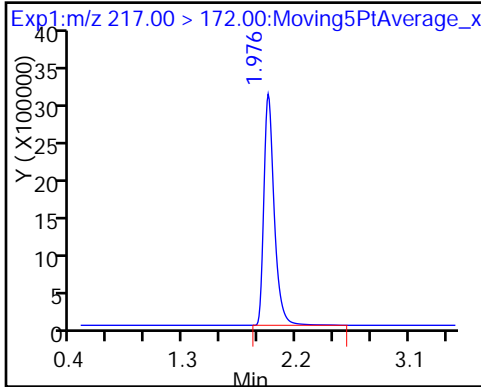
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

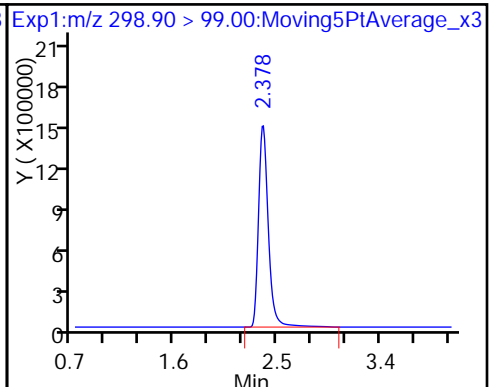
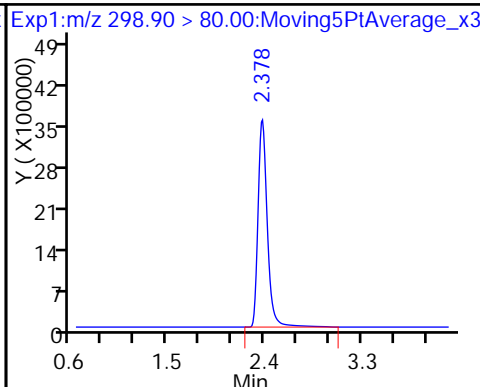
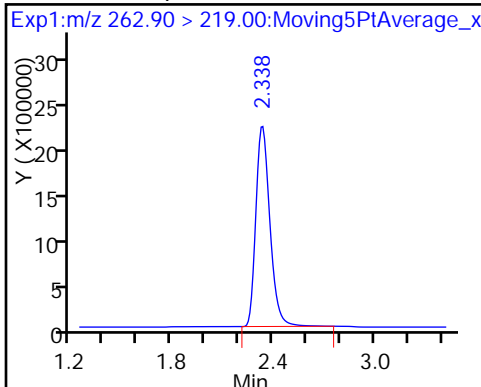
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

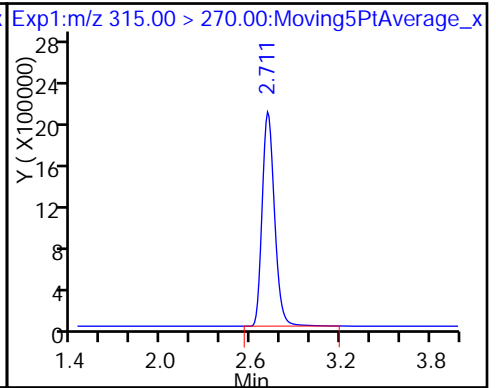
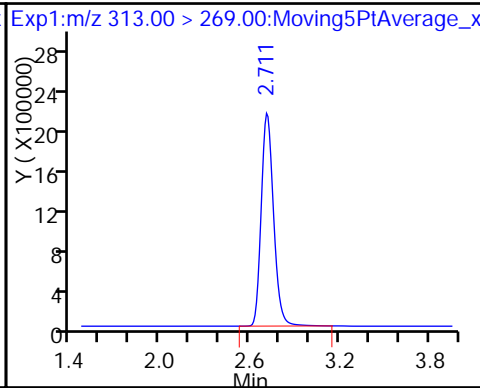
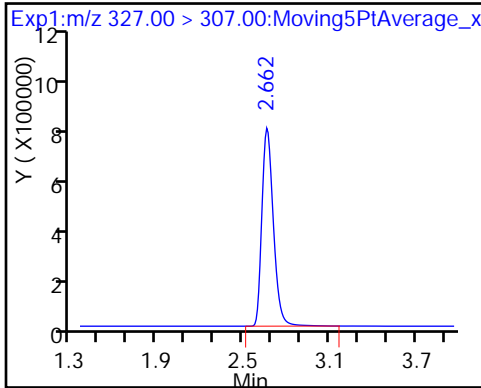
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

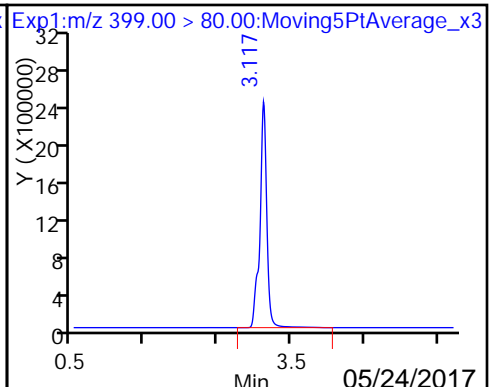
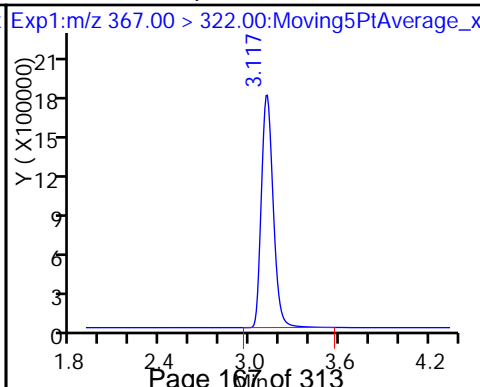
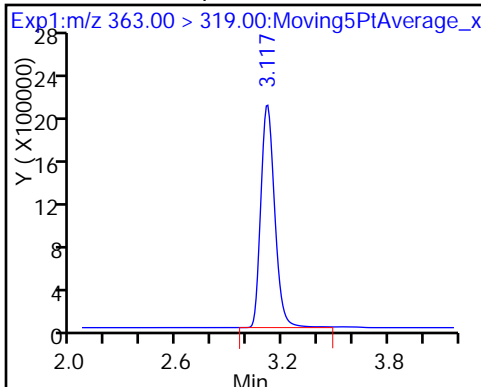
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

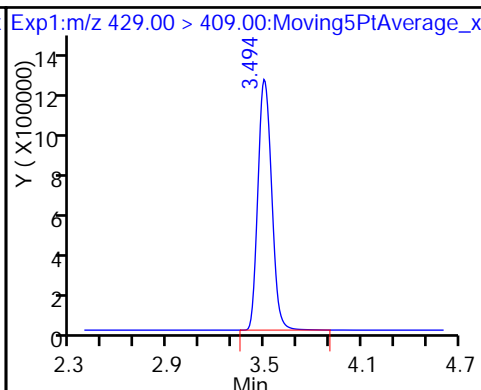
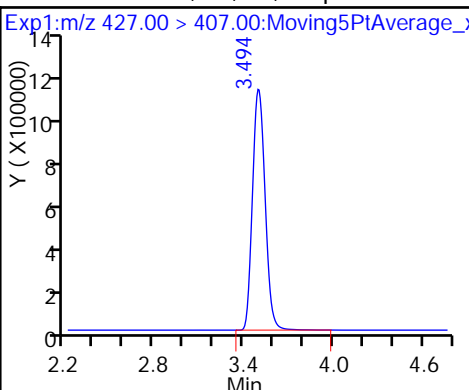
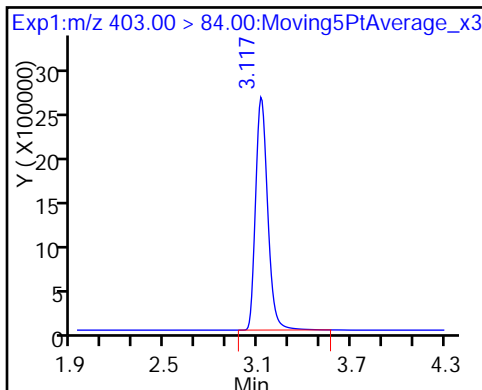
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecane

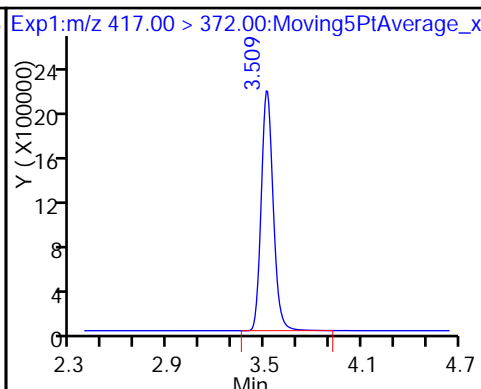
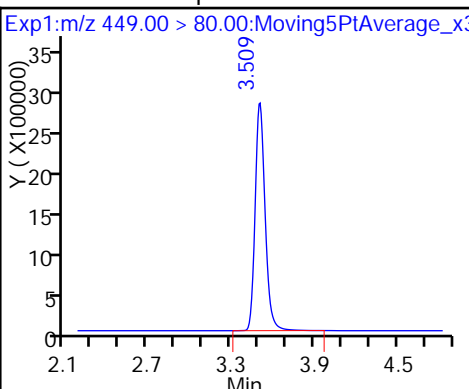
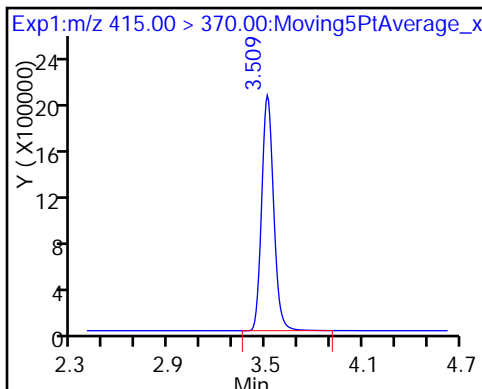
D 12 M2-6:2F7S



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

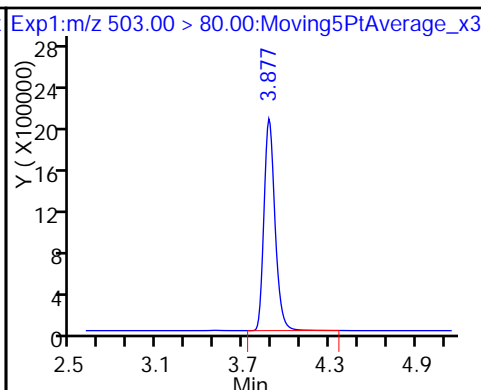
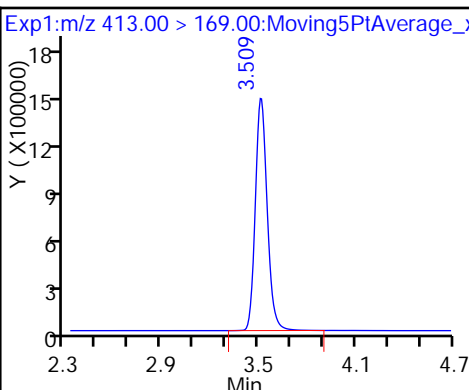
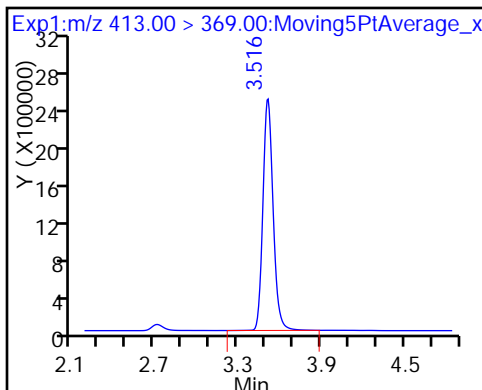
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

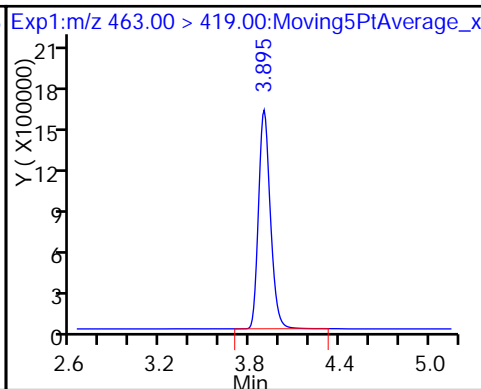
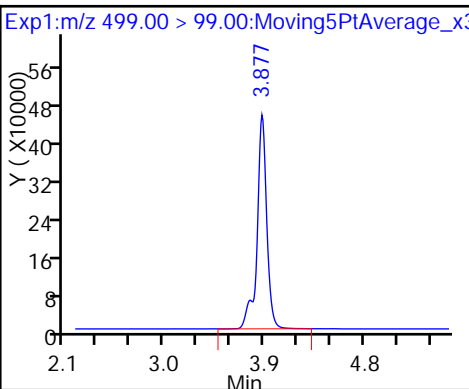
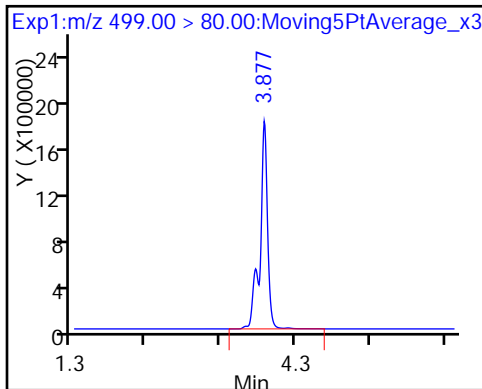
D 18 13C4 PFOS



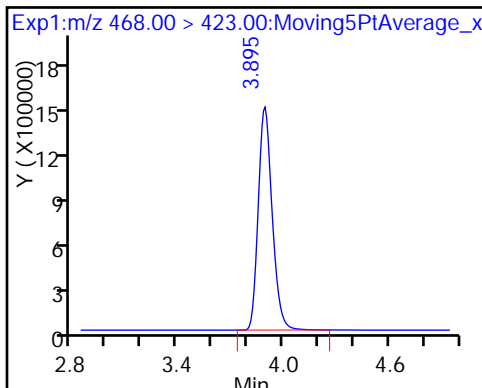
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

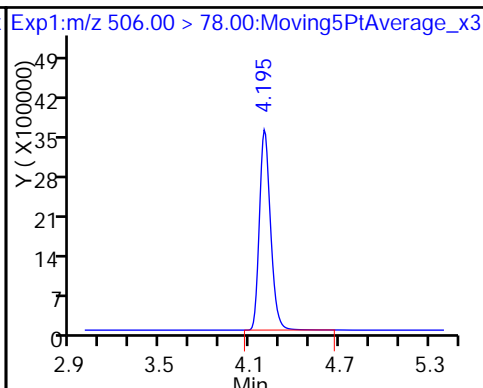
20 Perfluorononanoic acid



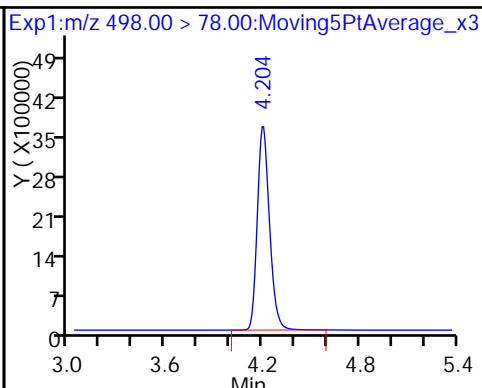
D 19 13C5 PFNA



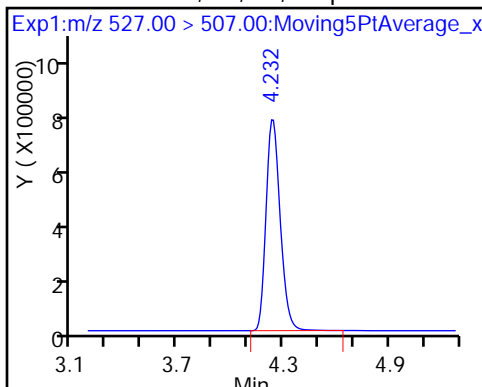
D 21 13C8 FOSA



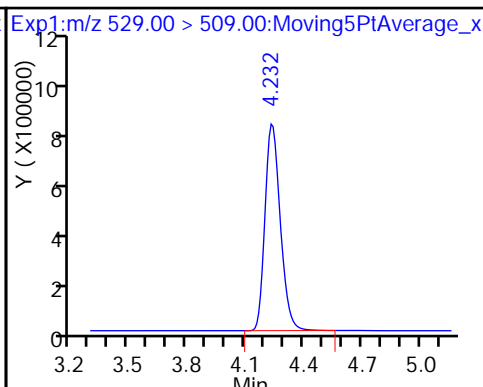
22 Perfluorooctane Sulfonamide



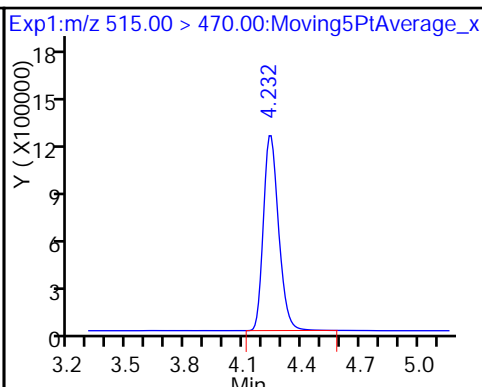
25 Sodium 1H,1H,2H,2H-perfluorooctane



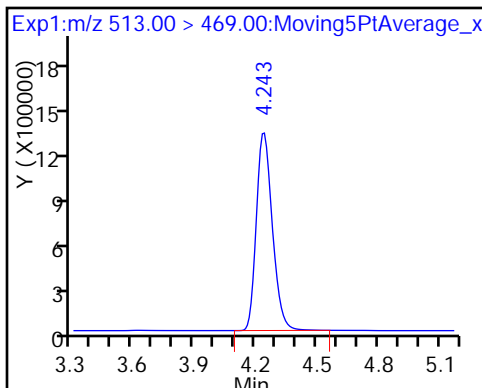
D 26 M2-8:2FTS



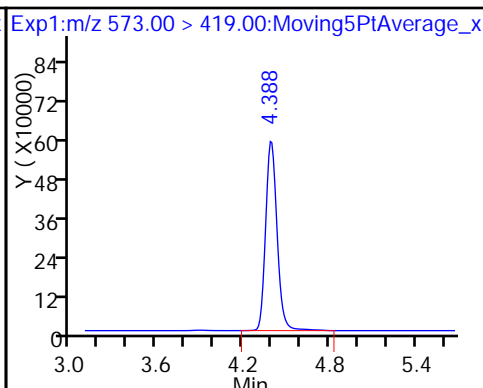
D 23 13C2 PFDA



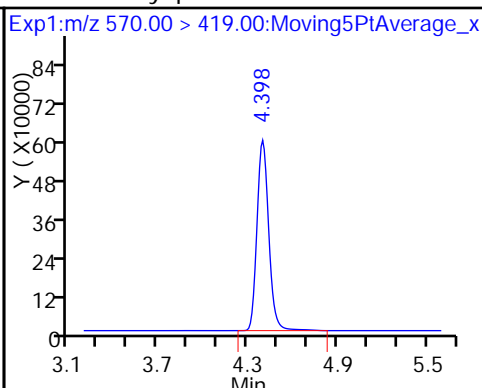
24 Perfluorodecanoic acid



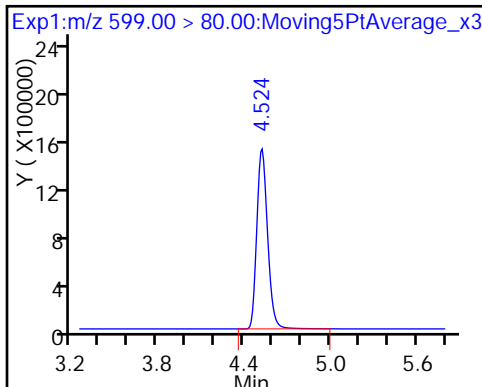
D 27 d3-NMeFOSAA



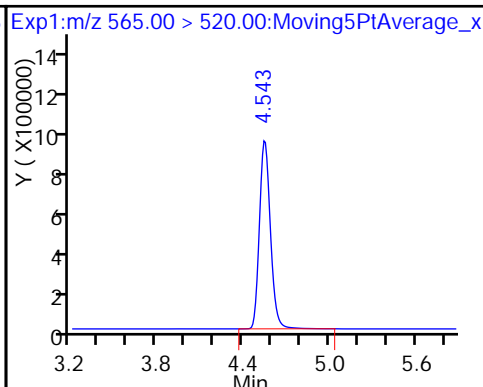
28 N-methyl perfluorooctane sulfonamide



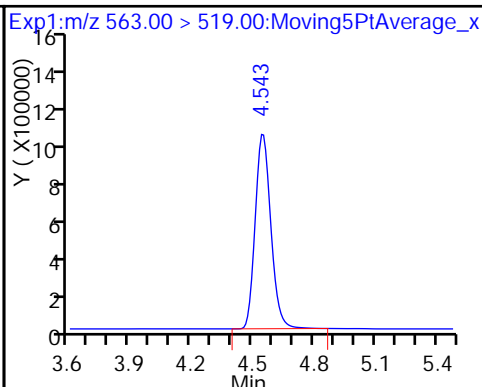
29 Perfluorodecane Sulfonic acid



D 30 13C2 PFUnA

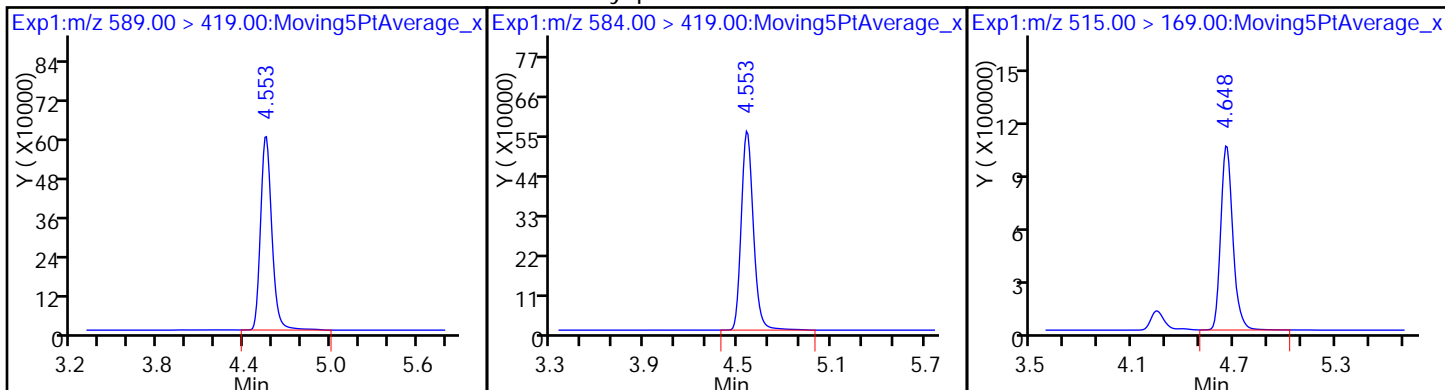


31 Perfluoroundecanoic acid



D 32 d5-NEtFOSAA

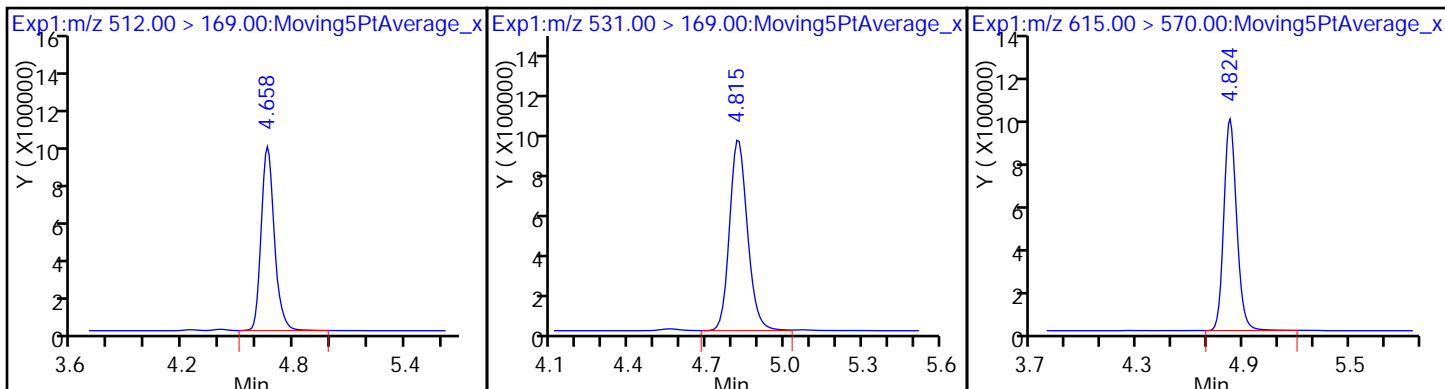
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

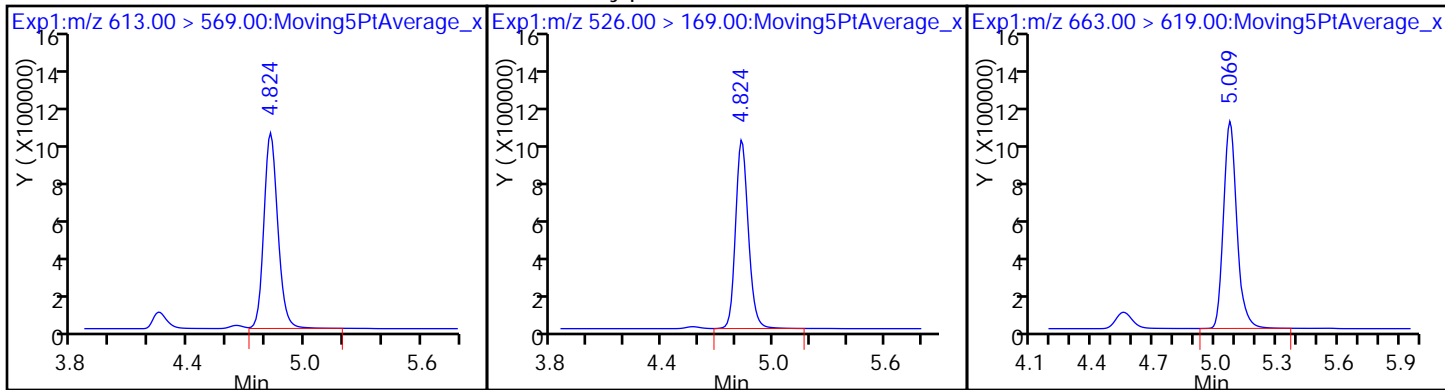
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

39 N-ethylperfluoro-1-octanesulfonami

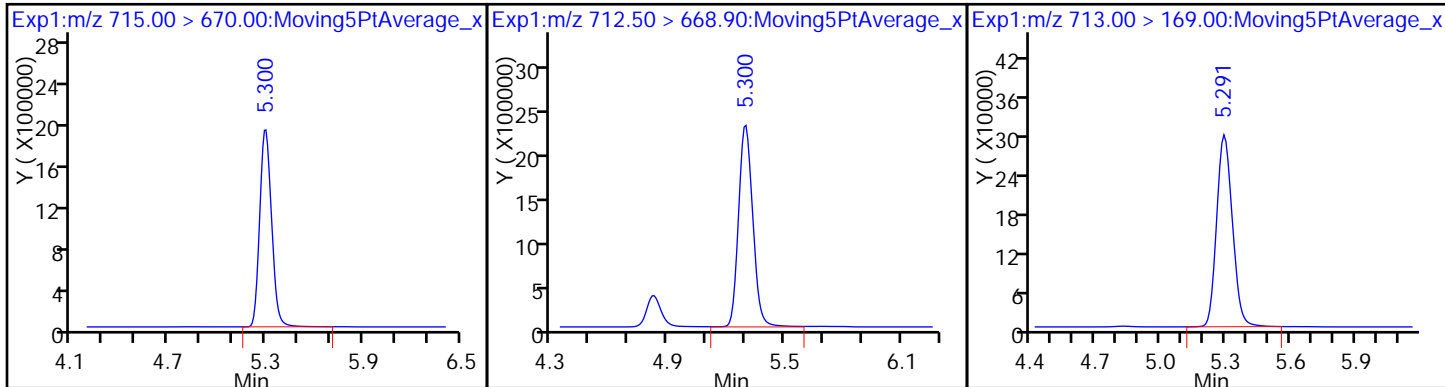
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

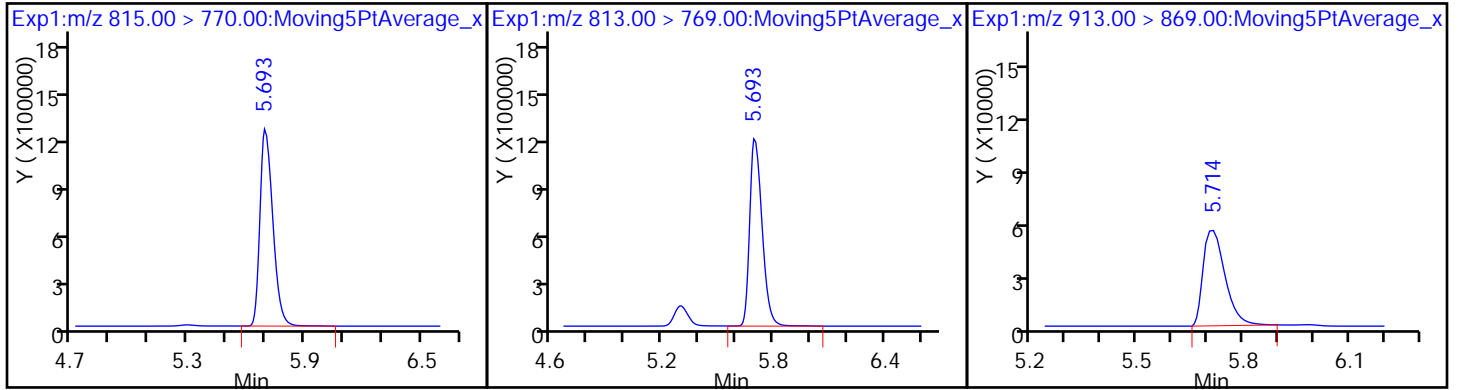
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 18-May-2017 18:27:31 ALS Bottle#: 33 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:40 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.976	1.958	0.018	17064389	47.4		95.8	32755	
2 Perfluorobutyric acid	212.90 > 169.00	1.976	1.962	0.014	33120926	95.5		96.5	9406	
D 3 13C5-PFPeA	267.90 > 223.00	2.328	2.313	0.015	11193387	45.0		90.9	25958	
4 Perfluoropentanoic acid	262.90 > 219.00	2.328	2.317	0.011	23581452	94.8		95.7	5089	
D 47 13C3-PFBS	301.90 > 83.00	2.368	2.352	0.016	284423	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.368	2.357	0.011	36061602	77.9		89.0		
	298.90 > 99.00	2.368	2.357	0.011	15936884		2.26(0.00-0.00)	89.0		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.659	2.648	0.011	7995350	97.8		106		
6 Perfluorohexanoic acid	313.00 > 269.00	2.707	2.693	0.014	22027127	96.0		96.9	30468	
D 7 13C2 PFHxA	315.00 > 270.00	2.707	2.694	0.013	11032136	45.3		91.5	42142	
D 9 13C4-PFHpA	367.00 > 322.00	3.112	3.095	0.017	9654269	45.6		92.0	37282	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.112	3.095	0.017	20425928	93.6		94.5	10520	
D 11 18O2 PFHxS	403.00 > 84.00	3.121	3.101	0.020	13581773	44.6		95.3	33761	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.121	3.101	0.020	30214382	88.5		98.2		
D 12 M2-6:2FTS	429.00 > 409.00	3.483	3.472	0.011	4982011	39.5		84.0		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.483	3.472	0.011	1.000	9116988	88.8	94.6		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.506	3.491	0.015	1.000	25989763	90.5	96.0		
* 62 13C2-PFOA	415.00	> 370.00	3.506	3.491	0.015		9163047	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.513	3.495	0.018		9203508	43.3	87.4	36064	
15 Perfluorooctanoic acid	413.00	> 369.00	3.513	3.496	0.017	1.000	19983699	93.6	94.5	1825	
	413.00	> 169.00	3.513	3.496	0.017	1.000	12037086		1.66(0.90-1.10)	94.5	13562
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.882	3.863	0.019	1.000	24532278	92.5	101	167110	
	499.00	> 99.00	3.882	3.863	0.019	1.000	5350572		4.58(0.90-1.10)	101	15623
D 18 13C4 PFOS	503.00	> 80.00	3.882	3.863	0.019		10527539	45.9	97.0	8060	
D 19 13C5 PFNA	468.00	> 423.00	3.891	3.877	0.014		7660430	45.6	92.2	21874	
20 Perfluorononanoic acid	463.00	> 419.00	3.891	3.877	0.014	1.000	15938669	96.3	97.2	13067	
D 21 13C8 FOSA	506.00	> 78.00	4.200	4.182	0.018		17270518	47.0	95.0	17529	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.200	4.183	0.017	1.000	33710607	91.4	92.3	20554	
D 23 13C2 PFDA	515.00	> 470.00	4.237	4.220	0.017		6863317	47.5	95.9	7960	
D 26 M2-8:2FTS	529.00	> 509.00	4.237	4.220	0.017		4629417	46.7	98.5		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.237	4.220	0.017	1.000	8324445	87.4	92.2		
24 Perfluorodecanoic acid	513.00	> 469.00	4.237	4.222	0.015	1.000	13171385	92.8	93.7	6918	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.394	4.377	0.017		3242876	50.0	101		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.394	4.382	0.012	1.000	6578893	95.9	96.8		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.520	4.505	0.015	1.000	13747432	90.0	94.3		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.550	4.532	0.018	1.000	10101592	92.9	93.8	16023	
D 30 13C2 PFUnA	565.00	> 520.00	4.550	4.532	0.018		4569476	44.9	90.7	27309	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.550	4.533	0.017		2859386	45.0	90.9		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.560	4.540	0.020	1.002	5527550	100.0	101		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.658	4.635	0.023		5080484	51.0	103		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.658	4.643	0.015	1.000	9556465	96.6	97.6		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.818	4.802	0.016		4660325	50.0	101		
37 Perfluorododecanoic acid	613.00 > 569.00	4.828	4.809	0.019	1.000	9326044	95.6	96.6	572	
D 36 13C2 PFDaA	615.00 > 570.00	4.828	4.809	0.019		4760977	47.5	95.9	4714	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.828	4.810	0.018	1.000	9337435	97.6	98.6		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.076	5.057	0.019	1.000	9408129	95.8	96.8	548	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.300	5.286	0.014	1.000	21094582	96.4	97.4	266	
	713.00 > 169.00	5.291	5.286	0.005	0.998	2982643		7.07(0.00-0.00)	97.4	4075
D 43 13C2-PFTeDA	715.00 > 670.00	5.300	5.286	0.014		9807456	47.9	96.7	7314	
D 44 13C2-PFHxDA	815.00 > 770.00	5.695	5.684	0.011		5771864	48.8	98.5	2357	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.695	5.687	0.008	1.000	10776803	102.4	103	327	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.717	5.709	0.008	1.000	176654	19.8	20.0	294	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L6_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_008.d

Injection Date: 18-May-2017 18:27:31

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

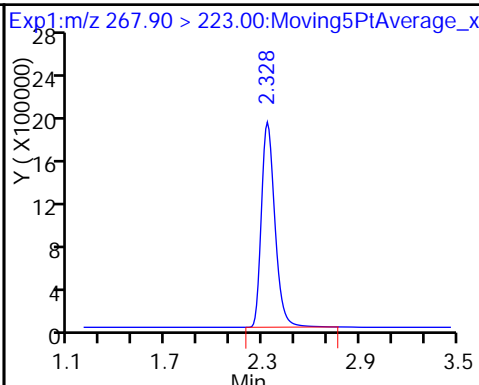
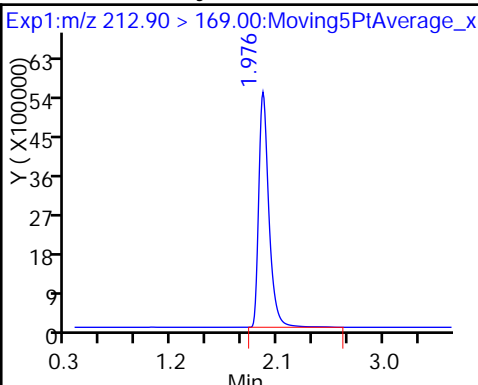
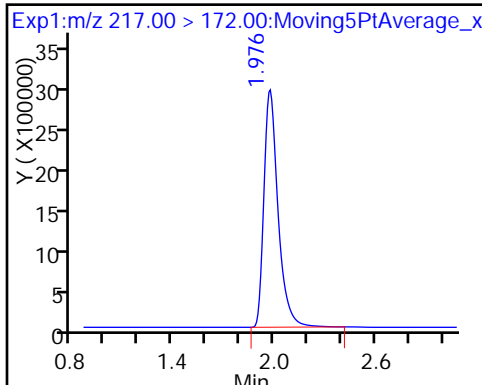
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

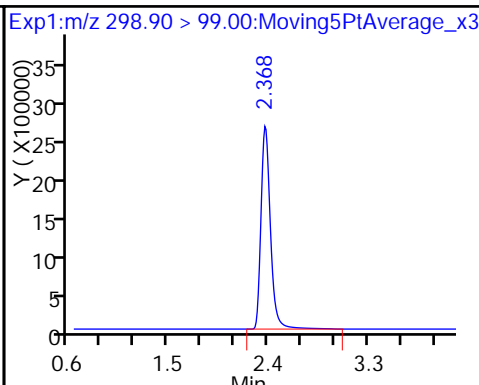
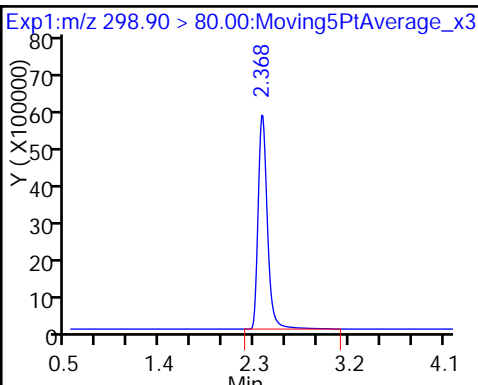
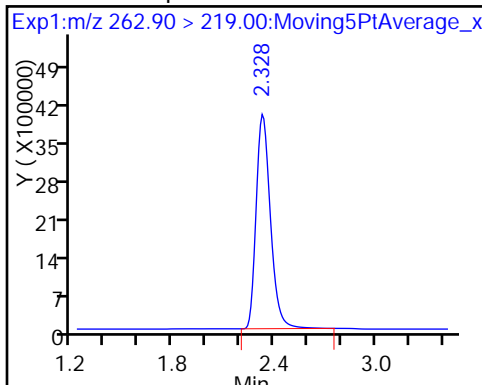
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

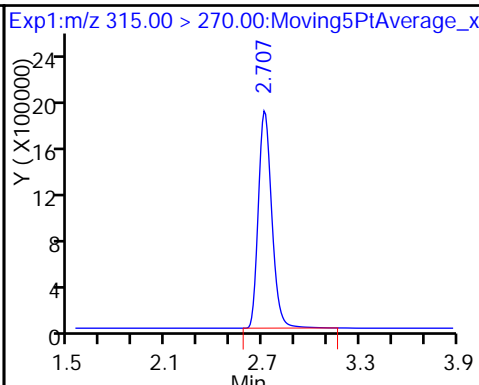
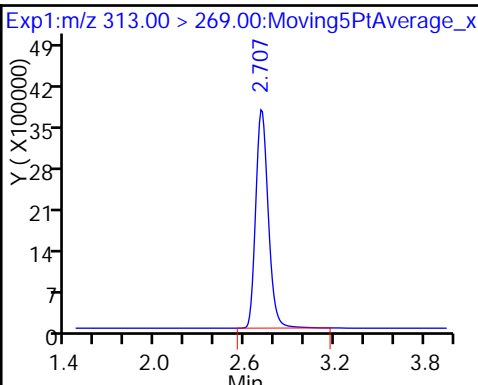
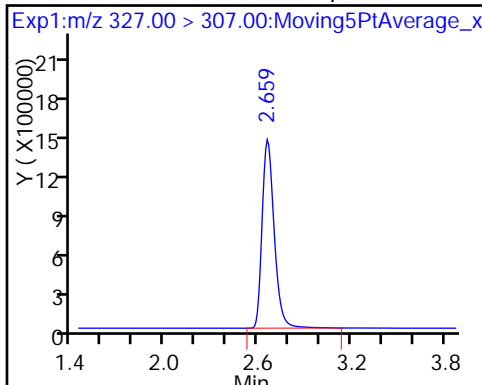
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

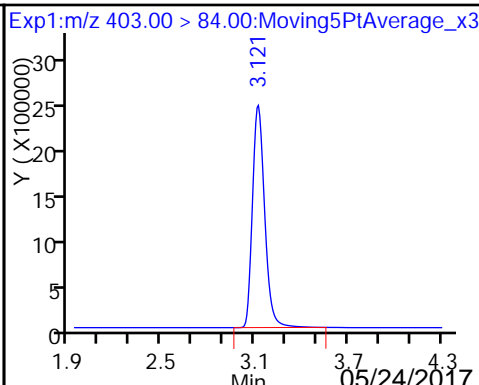
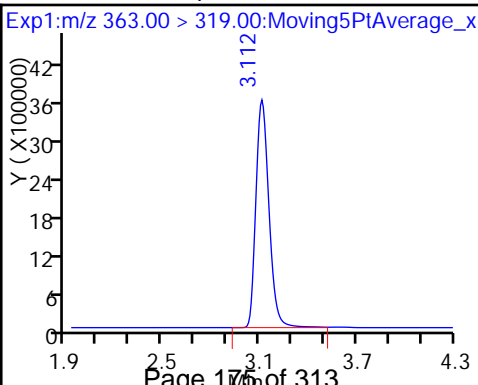
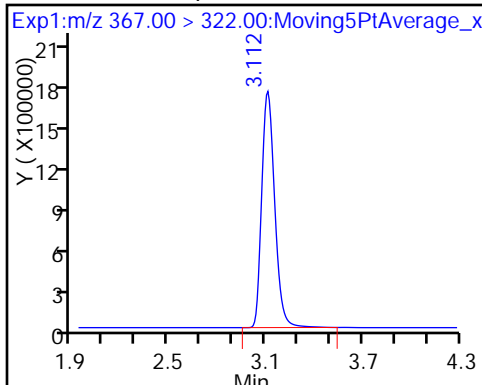
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

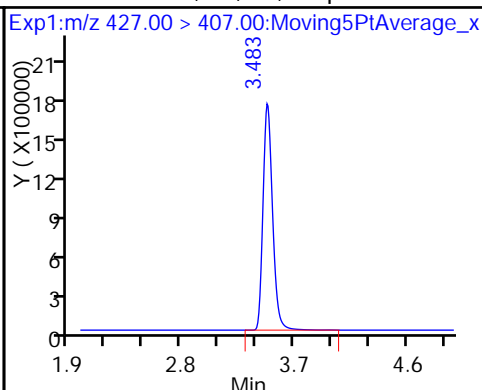
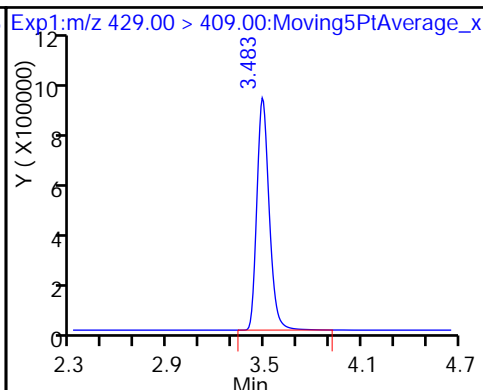
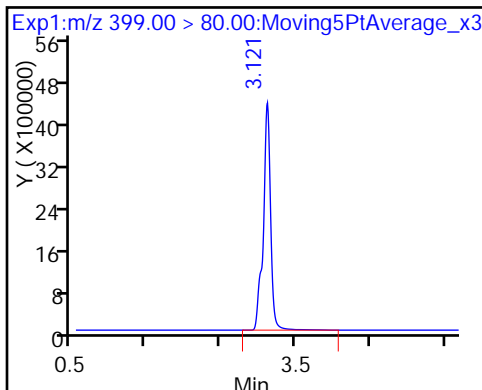
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

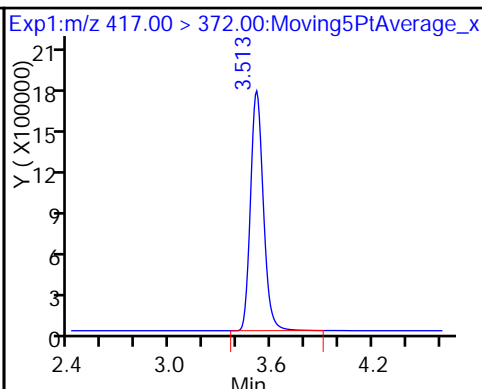
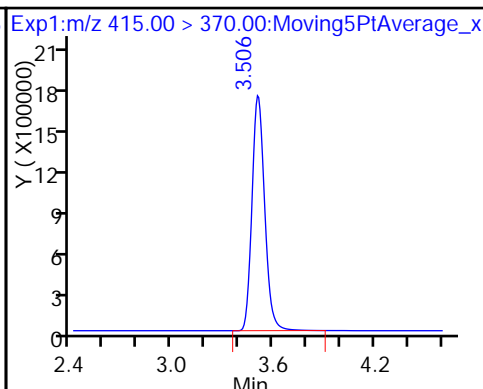
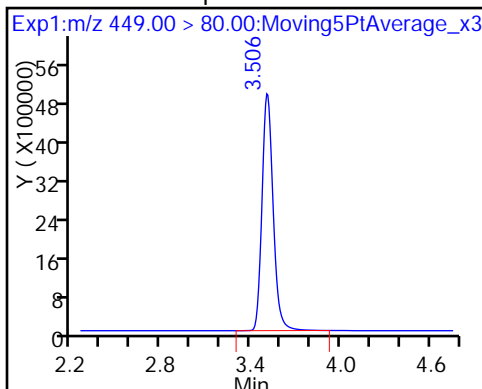
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

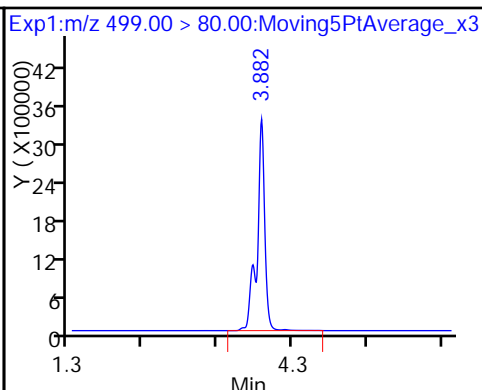
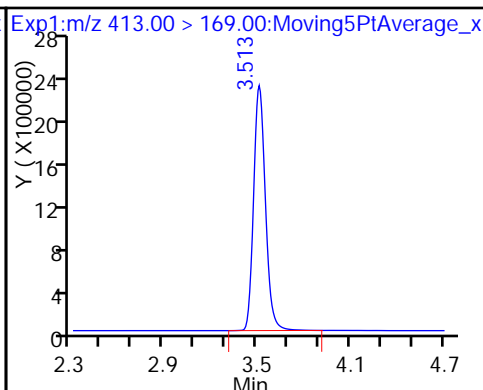
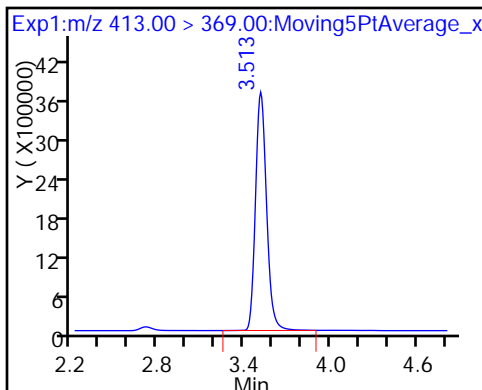
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

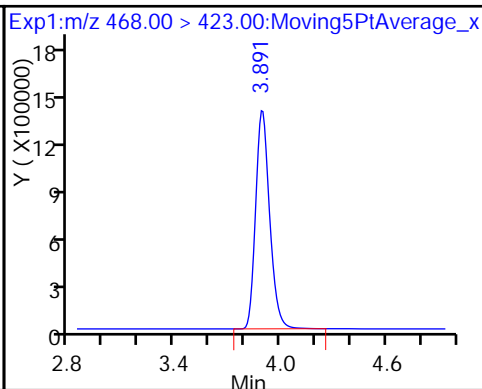
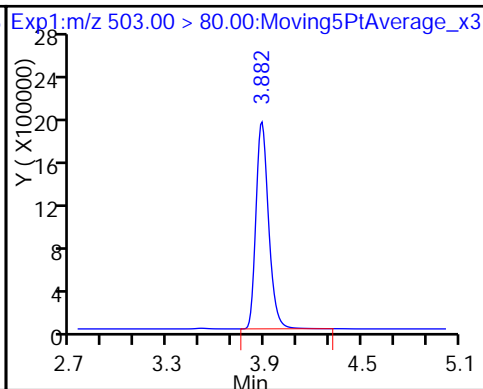
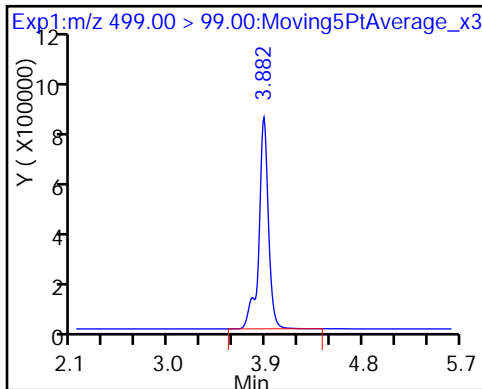
17 Perfluorooctane sulfonic acid

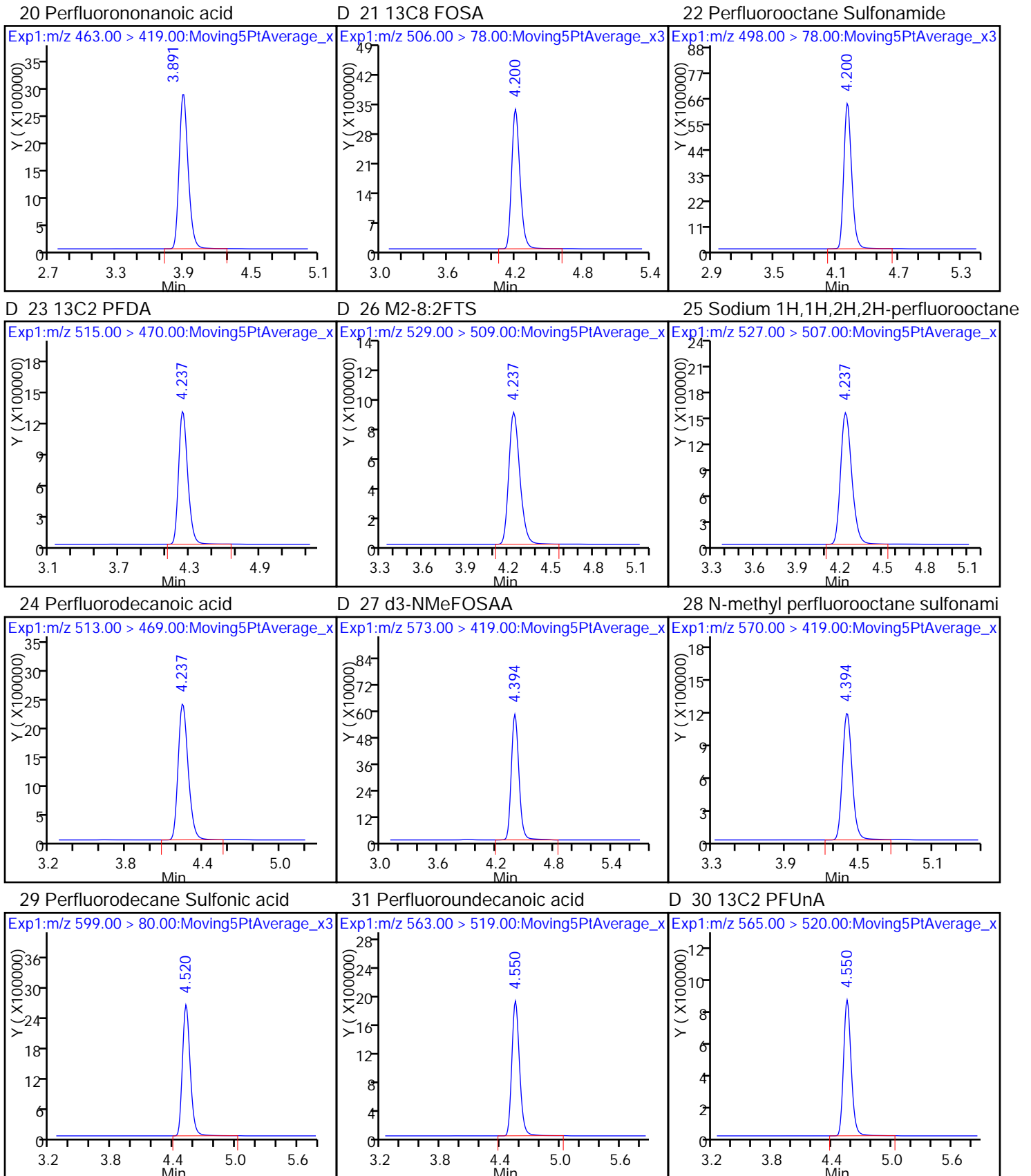


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

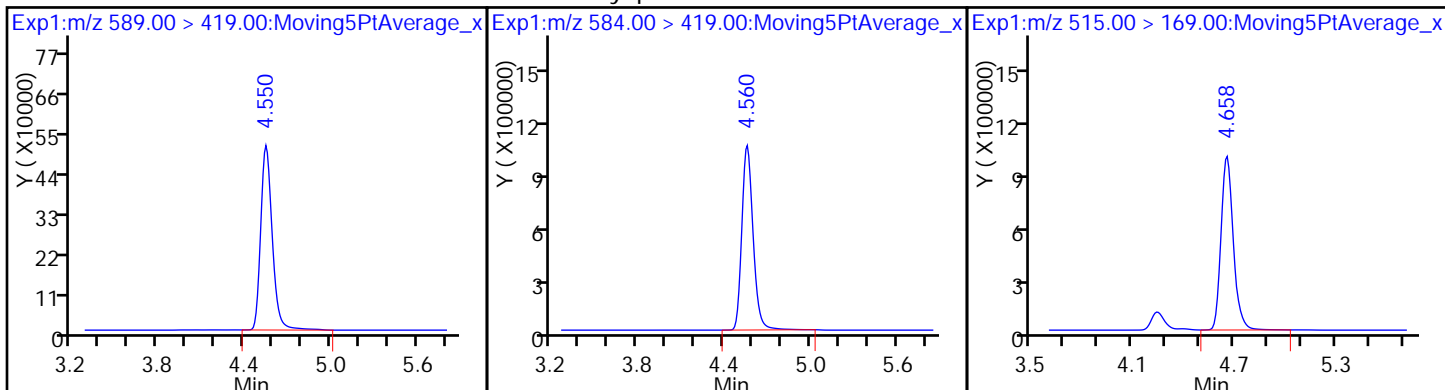




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

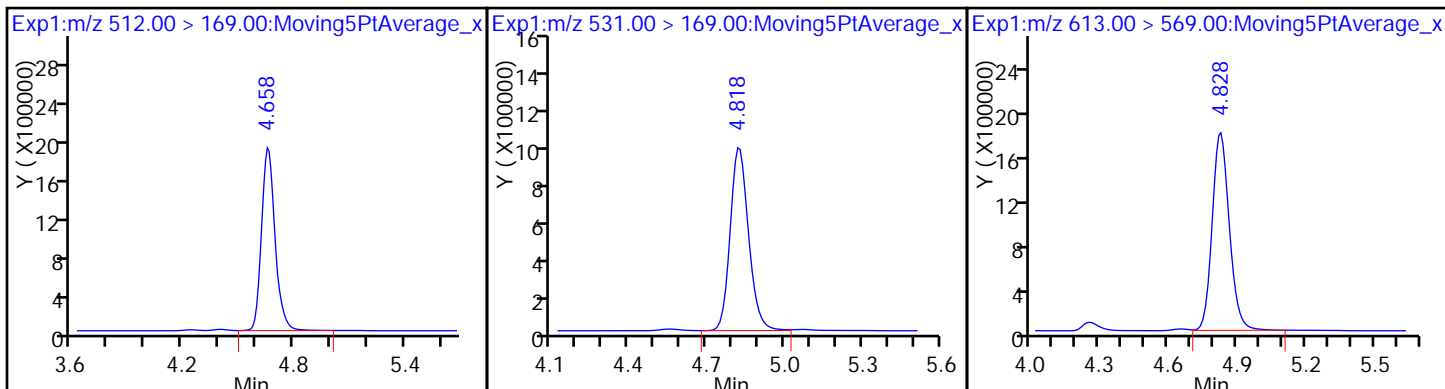
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

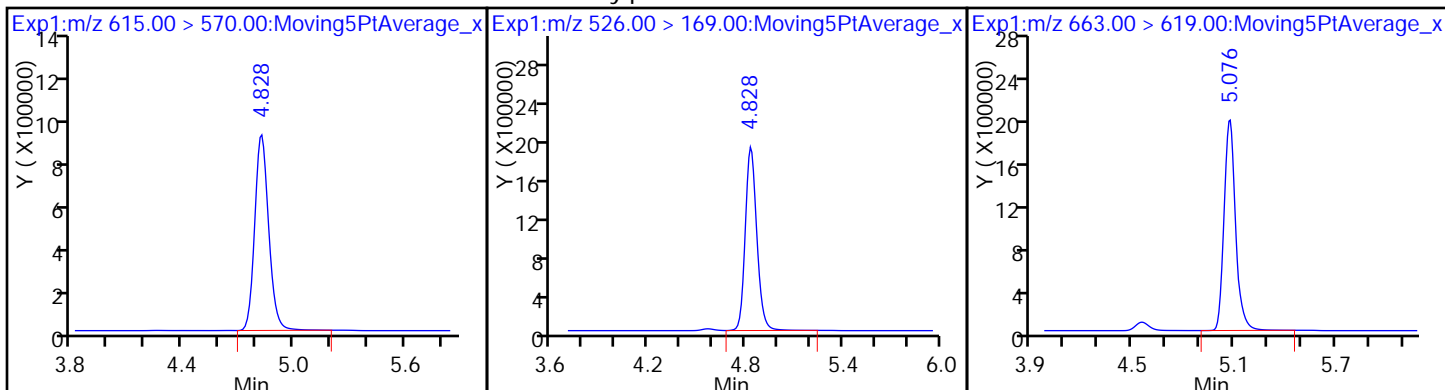
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

39 N-ethylperfluoro-1-octanesulfonami

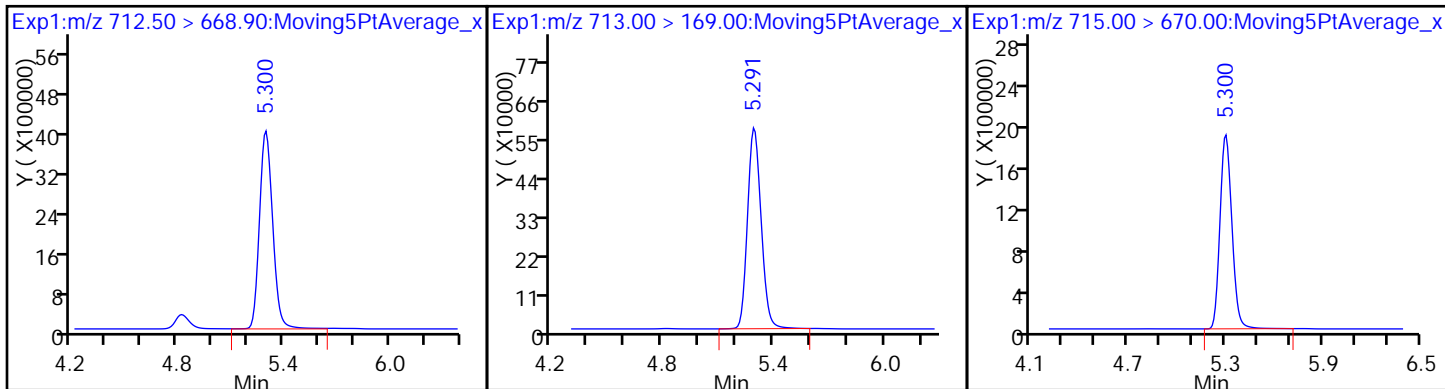
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

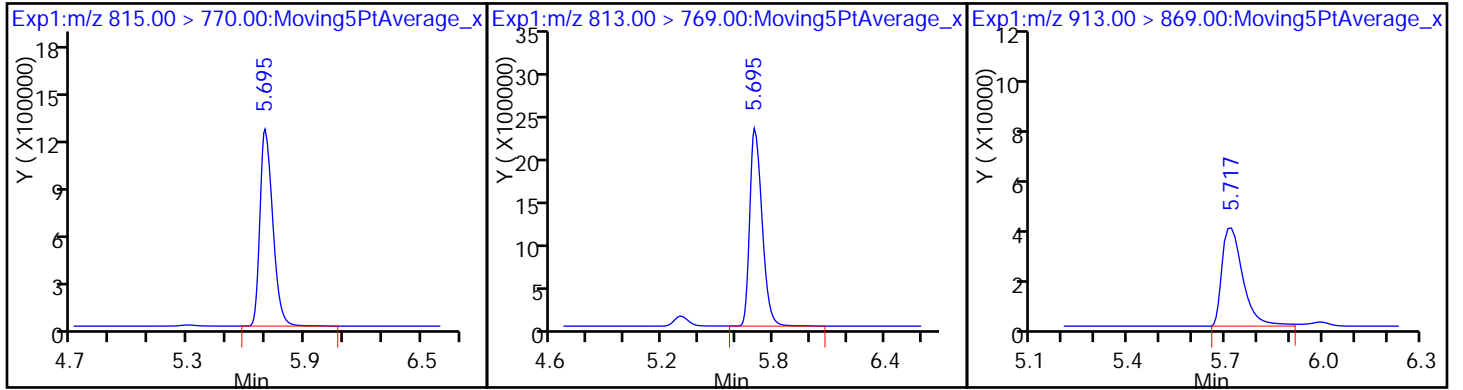
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_009.d
 Lims ID: IC L7 Full
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 18-May-2017 18:35:04 ALS Bottle#: 34 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L7-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:09:44 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.968	1.958	0.010	15865924	44.1		89.1	24381	
2 Perfluorobutyric acid	212.90 > 169.00	1.976	1.962	0.014	50665081	157.2		79.4	6635	
D 3 13C5-PFPeA	267.90 > 223.00	2.318	2.313	0.005	10274111	41.3		83.5	157970	
4 Perfluoropentanoic acid	262.90 > 219.00	2.328	2.317	0.011	38359854	168.0		84.8	14503	
D 47 13C3-PFBS	301.90 > 83.00	2.358	2.352	0.006	254897	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.368	2.357	0.011	55329474	136.0		77.7		
	298.90 > 99.00	2.368	2.357	0.011	26963013		2.05(0.00-0.00)	77.7		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.652	2.648	0.004	14914612	199.5		108		
6 Perfluorohexanoic acid	313.00 > 269.00	2.700	2.693	0.007	36277529	170.9		86.3	20966	
D 7 13C2 PFHxA	315.00 > 270.00	2.700	2.694	0.006	10202707	41.9		84.6	32751	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.105	3.095	0.010	32136426	176.1		88.9	12074	
D 9 13C4-PFHpA	367.00 > 322.00	3.105	3.095	0.010	8075596	38.1		77.0	26286	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.105	3.101	0.004	48095406	160.2		88.9		
D 11 18O2 PFHxS	403.00 > 84.00	3.105	3.101	0.004	11937927	39.2		83.7	21190	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.469	3.472	-0.003	15111443	161.0		85.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.469	3.472	-0.003	4554829	36.1	76.8		
* 62 13C2-PFOA	415.00	> 370.00	3.492	3.491	0.001	7475213	49.5			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.499	3.491	0.008	1.000	39830651	161.1	85.5	
D 14 13C4 PFOA	417.00	> 372.00	3.499	3.495	0.004	7723448	36.3	73.3	23958	
15 Perfluorooctanoic acid	413.00	> 369.00	3.499	3.496	0.003	1.000	31219676	174.2	88.0	2711
	413.00	> 169.00	3.499	3.496	0.003	1.000	19067263	1.64(0.90-1.10)	88.0	11151
D 18 13C4 PFOS	503.00	> 80.00	3.864	3.863	0.001	9058593	39.5	83.5	4414	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.864	3.863	0.001	1.000	40374788	176.9	96.3	174779
	499.00	> 99.00	3.864	3.863	0.001	1.000	9098785	4.44(0.90-1.10)	96.3	12551
20 Perfluorononanoic acid	463.00	> 419.00	3.882	3.877	0.005	1.000	25400960	179.2	90.5	11325
D 19 13C5 PFNA	468.00	> 423.00	3.882	3.877	0.005	6557386	39.1	78.9	16575	
D 21 13C8 FOSA	506.00	> 78.00	4.187	4.182	0.005	14513103	39.5	79.9	10382	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.187	4.183	0.004	1.000	50073779	161.5	81.6	7992
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.224	4.220	0.004	1.000	13881724	162.9	85.9	
D 26 M2-8:2FTS	529.00	> 509.00	4.224	4.220	0.004	4142554	41.8	88.1		
D 23 13C2 PFDA	515.00	> 470.00	4.224	4.220	0.004	5682004	39.3	79.4	4566	
24 Perfluorodecanoic acid	513.00	> 469.00	4.224	4.222	0.002	1.000	21643754	184.2	93.0	7415
D 27 d3-NMeFOSAA	573.00	> 419.00	4.380	4.377	0.003	2825084	43.5	87.9		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.380	4.382	-0.002	1.000	12110986	202.6	102	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.505	4.505	0.0	1.000	22610222	172.0	90.1	
D 30 13C2 PFUnA	565.00	> 520.00	4.535	4.532	0.003	3946328	38.8	78.4	7221	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.535	4.532	0.003	1.000	16166231	172.2	87.0	35878
D 32 d5-NEtFOSAA	589.00	> 419.00	4.535	4.533	0.002	2626173	41.3	83.5		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.544	4.540	0.004	1.002	9876739	194.6	98.3	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.643	4.635	0.008	4669475	46.9	94.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.652	4.643	0.009	1.000	18140541	199.5	101		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.810	4.802	0.008		4328547	46.4	93.8		
D 36 13C2 PFDaA	615.00 > 570.00	4.810	4.809	0.001		4259744	42.5	85.8	2826	
37 Perfluorododecanoic acid	613.00 > 569.00	4.810	4.809	0.001	1.000	15560936	178.3	90.0	1636	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.819	4.810	0.009	1.000	17831319	200.6	101		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.059	5.057	0.002	1.000	15441316	175.8	88.8	1123	
D 43 13C2-PFTeDA	715.00 > 670.00	5.290	5.286	0.004		8633362	42.1	85.1	4724	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.290	5.286	0.004	1.000	32976107	168.6	85.1	457	
	713.00 > 169.00	5.280	5.286	-0.006	0.998	5074516		6.50(0.00-0.00)	85.1	3479
D 44 13C2-PFHxDA	815.00 > 770.00	5.687	5.684	0.003		5126466	43.3	87.5	2254	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.687	5.687	0.0	1.000	17218840	183.5	92.7	603	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.704	5.709	-0.005	1.000	117189	13.6	6.9	76.2	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L7_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_009.d

Injection Date: 18-May-2017 18:35:04

Instrument ID: A8_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

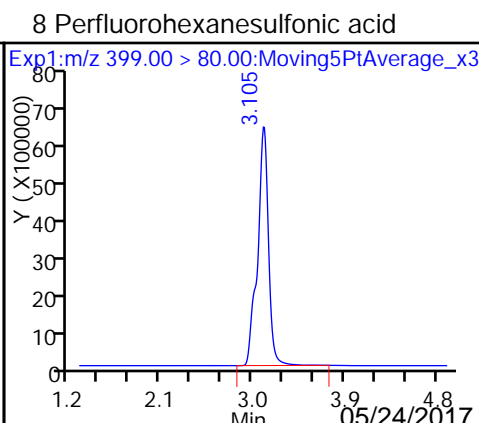
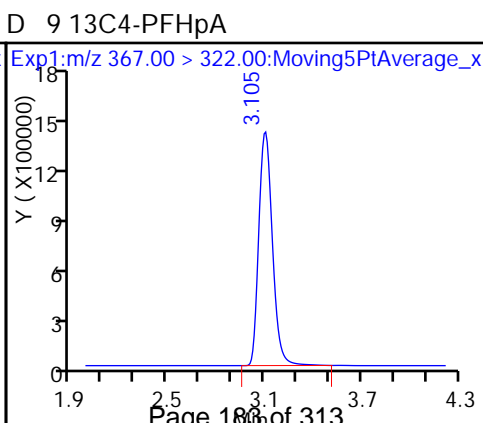
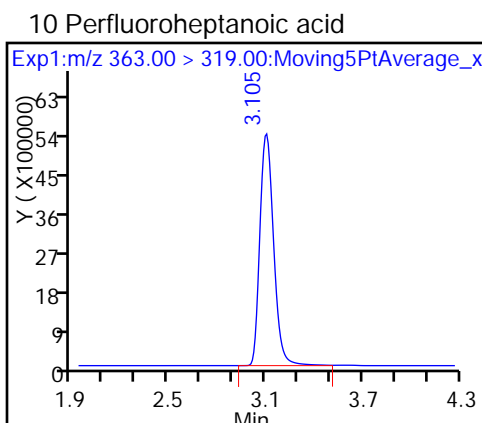
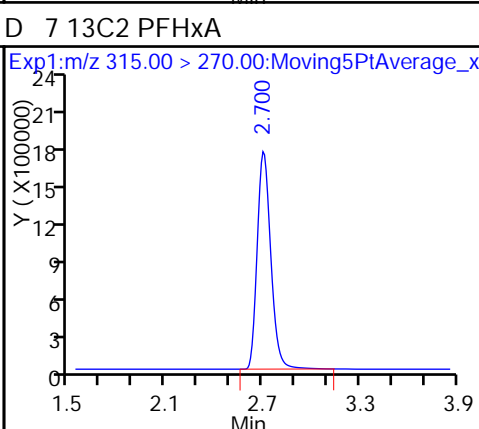
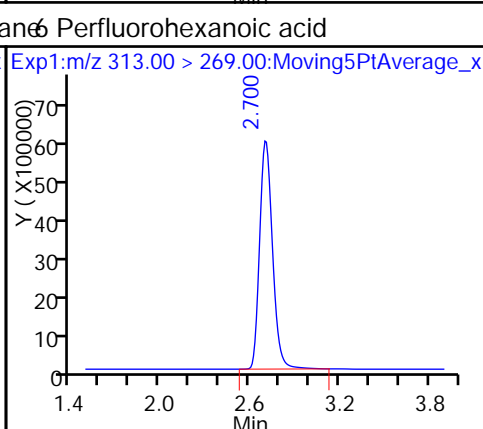
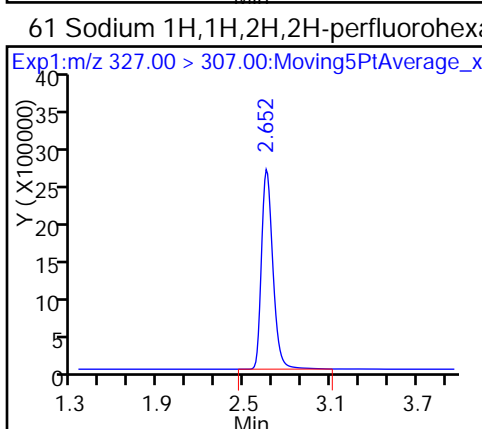
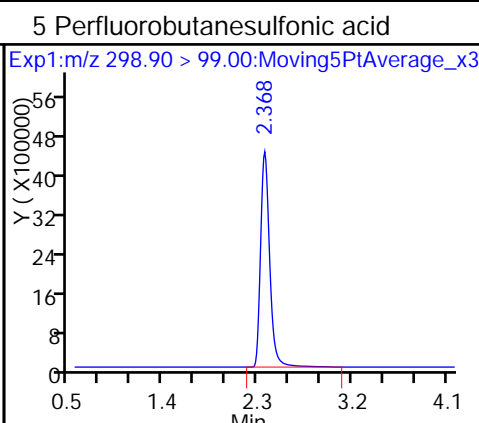
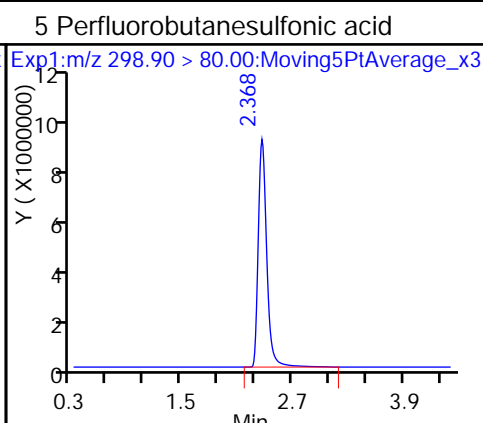
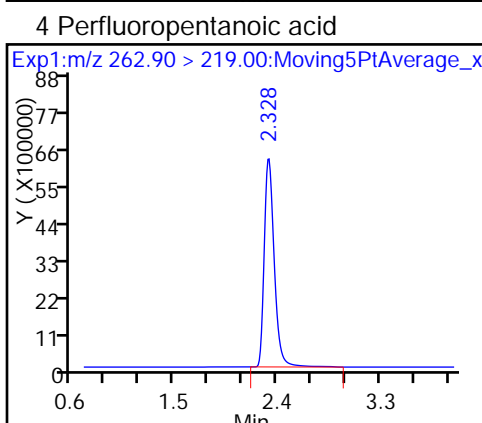
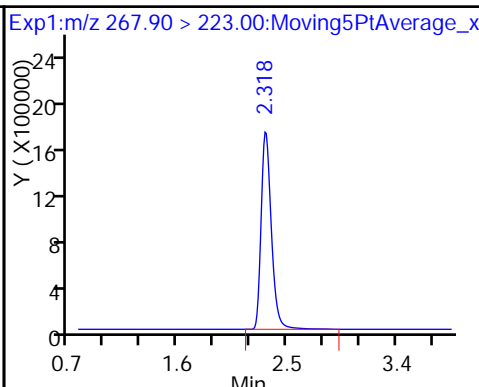
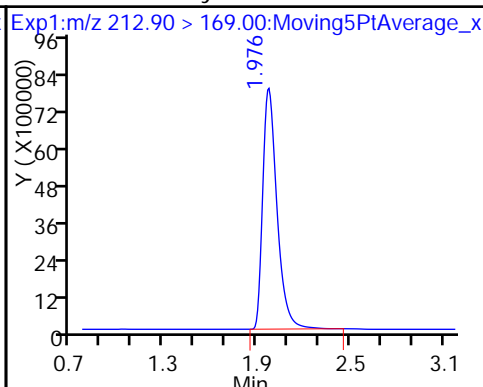
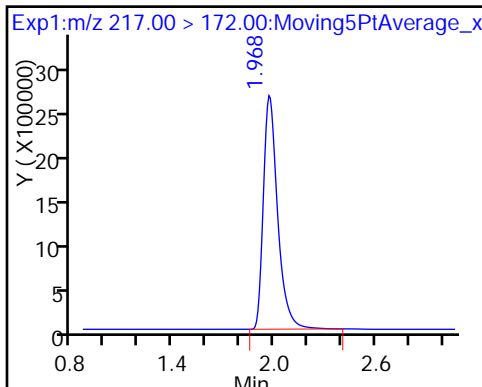
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

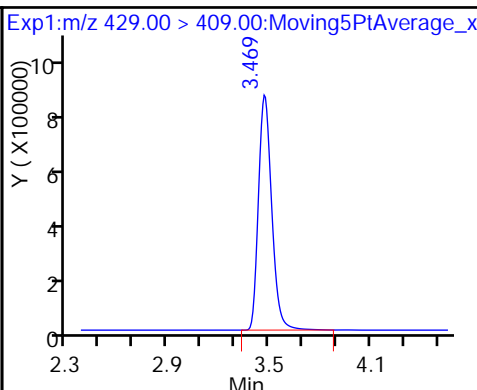
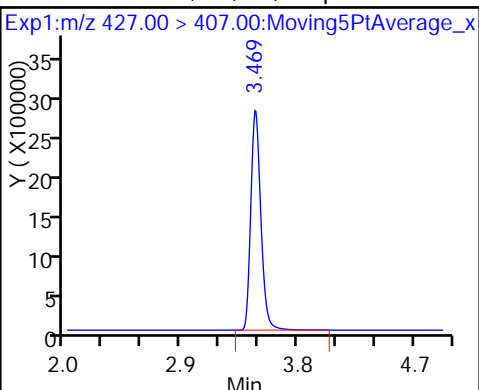
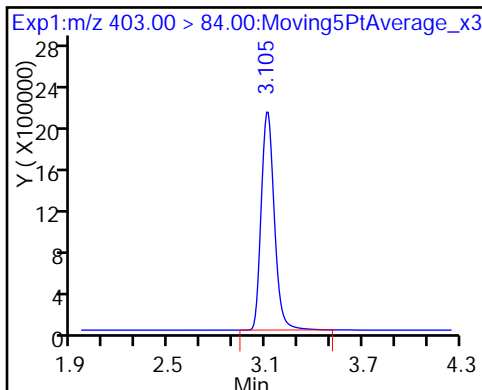
D 3 13C5-PFPeA



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

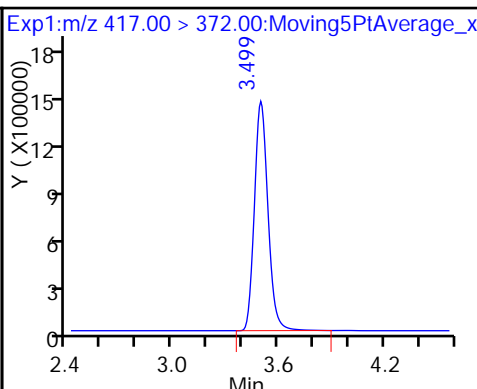
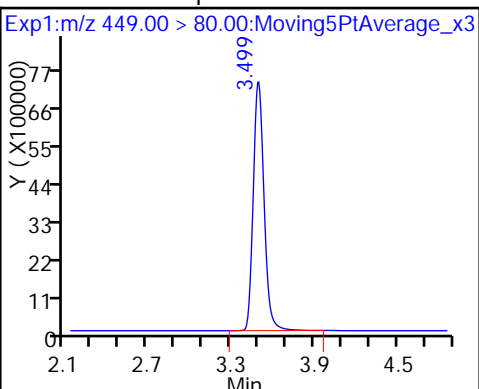
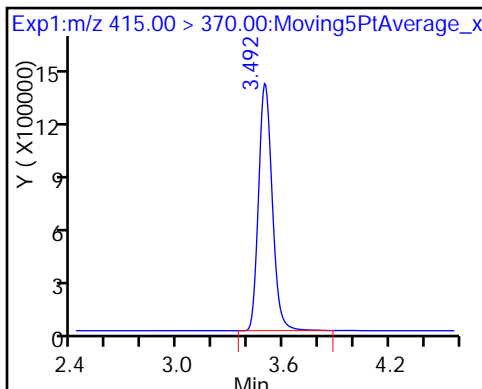
D 12 M2-6:2FTS



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

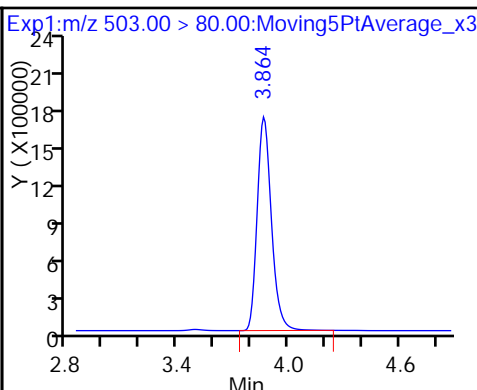
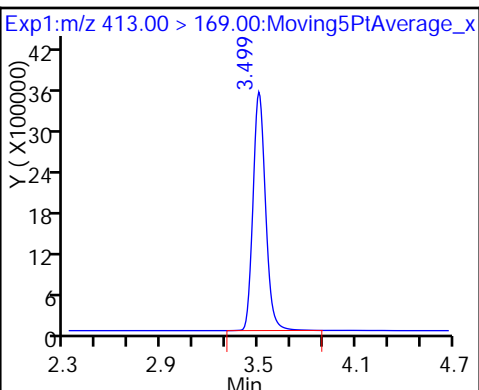
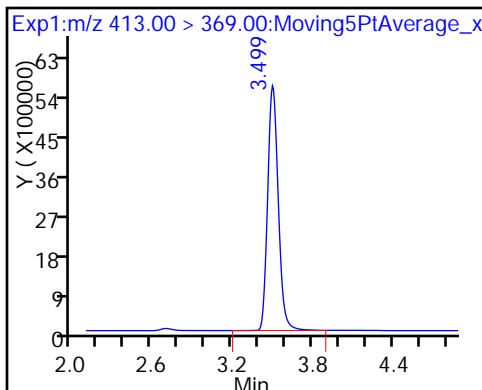
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

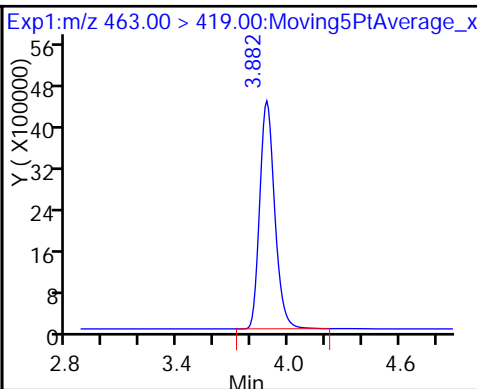
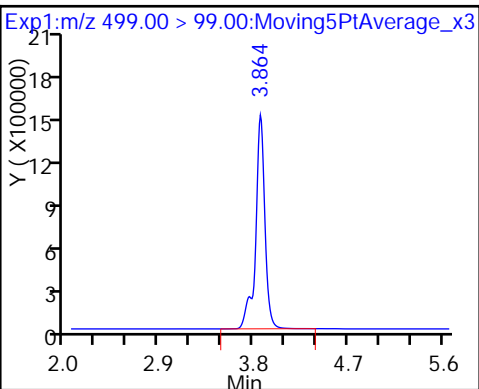
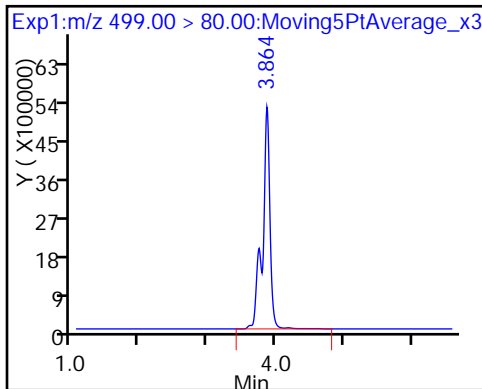
D 18 13C4 PFOS



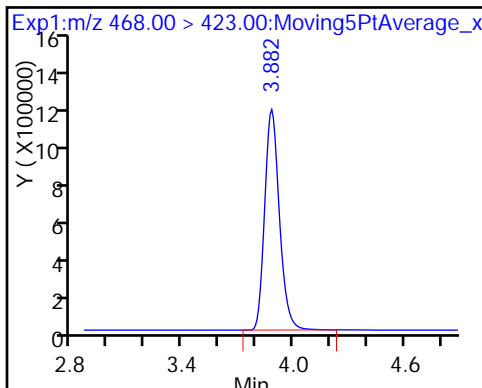
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

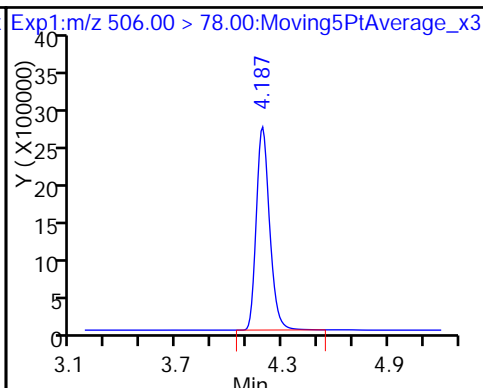
20 Perfluorononanoic acid



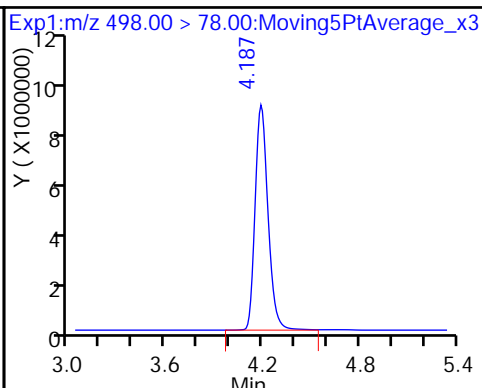
D 19 13C5 PFNA



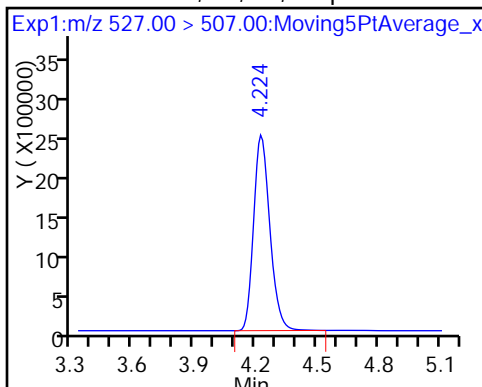
D 21 13C8 FOSA



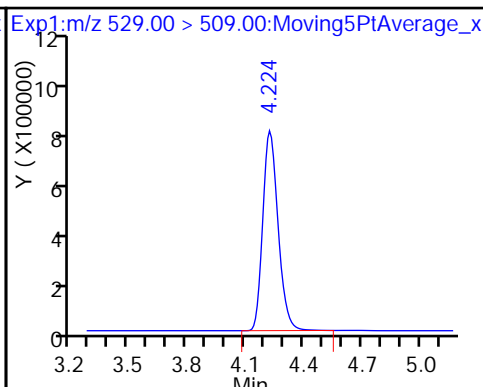
22 Perfluorooctane Sulfonamide



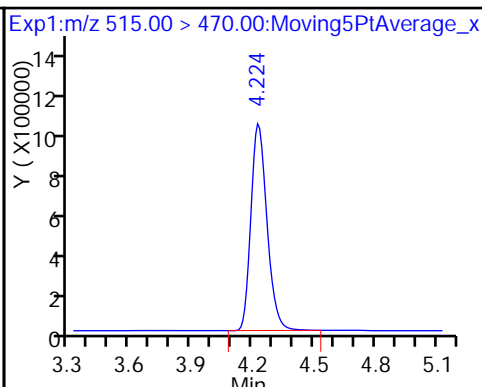
25 Sodium 1H,1H,2H,2H-perfluorooctane



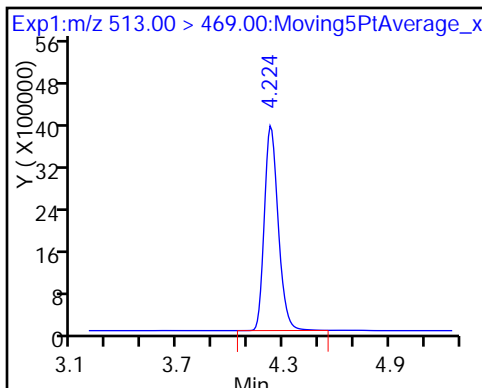
D 26 M2-8:2FTS



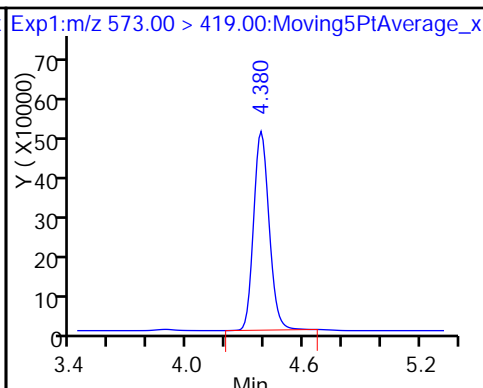
D 23 13C2 PFDA



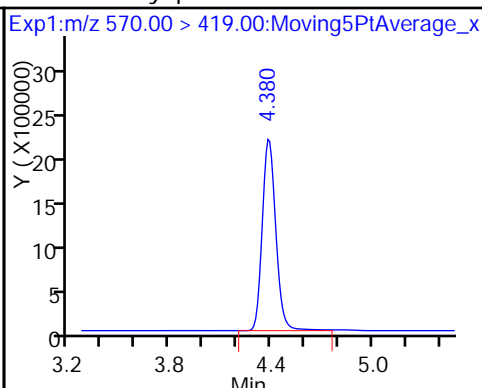
24 Perfluorodecanoic acid



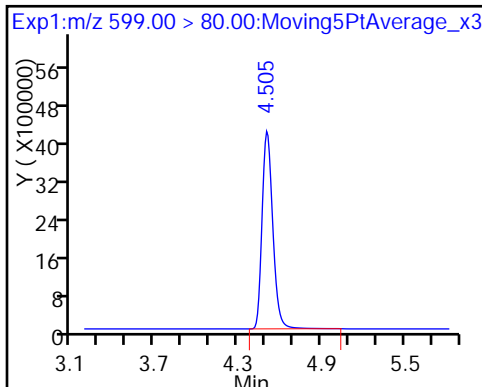
D 27 d3-NMeFOSAA



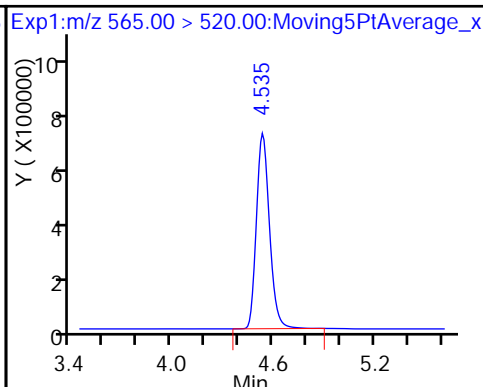
28 N-methyl perfluorooctane sulfonamide



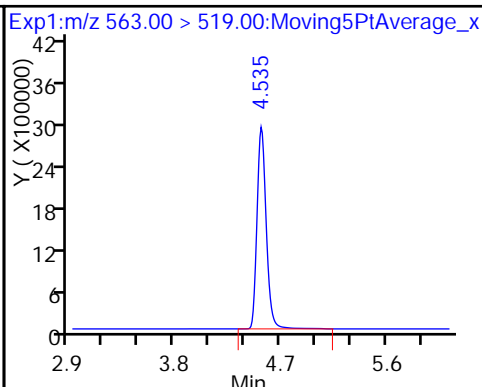
29 Perfluorodecane Sulfonic acid



D 30 13C2 PFUnA



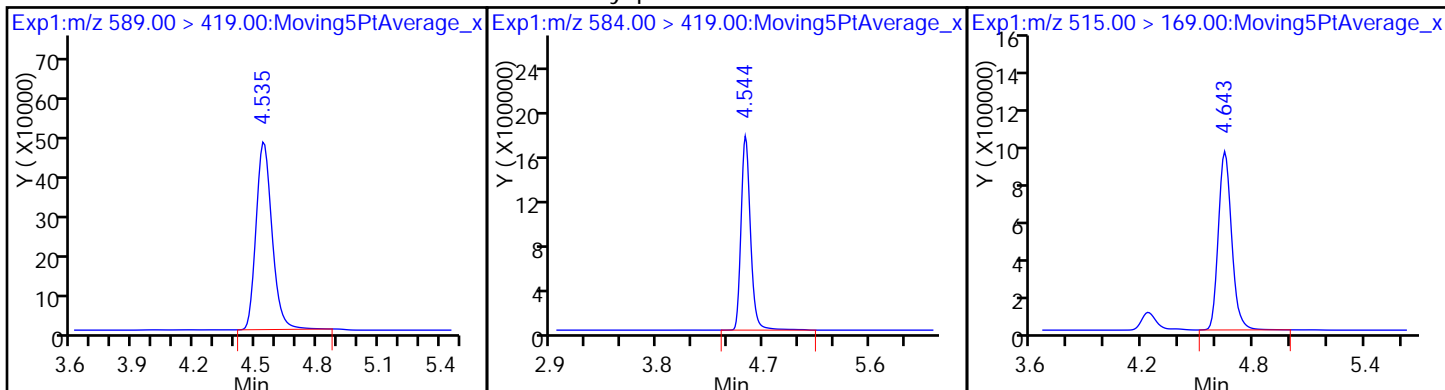
31 Perfluoroundecanoic acid



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

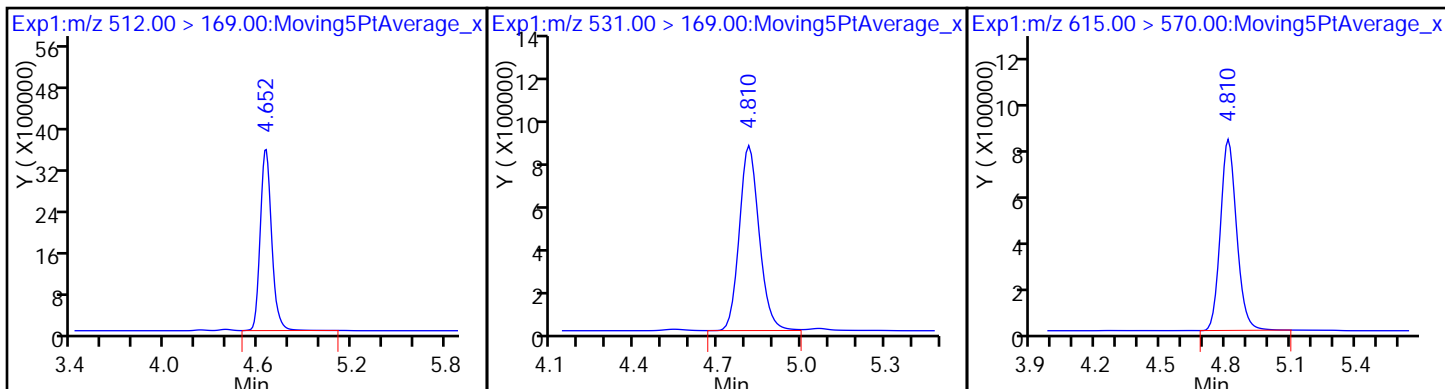
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

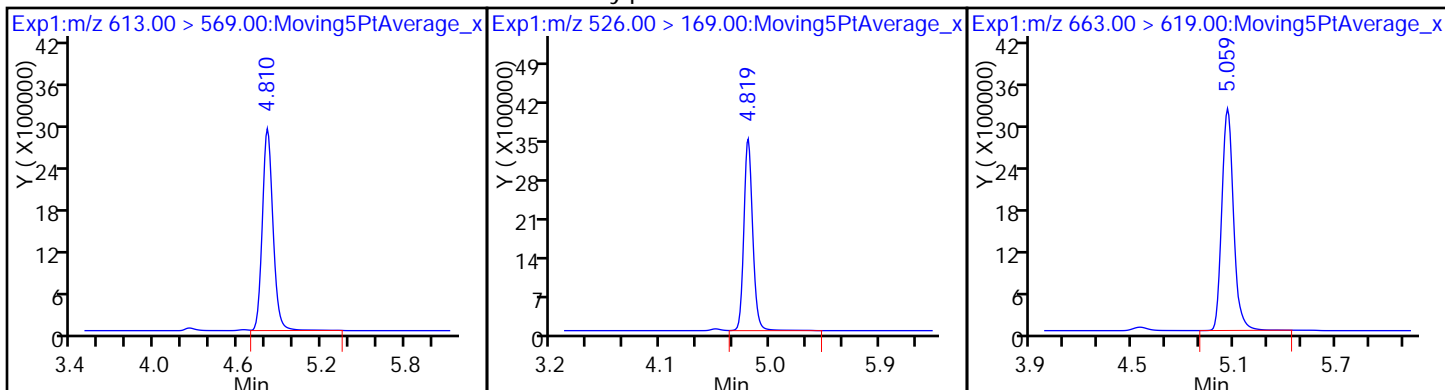
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

39 N-ethylperfluoro-1-octanesulfonami

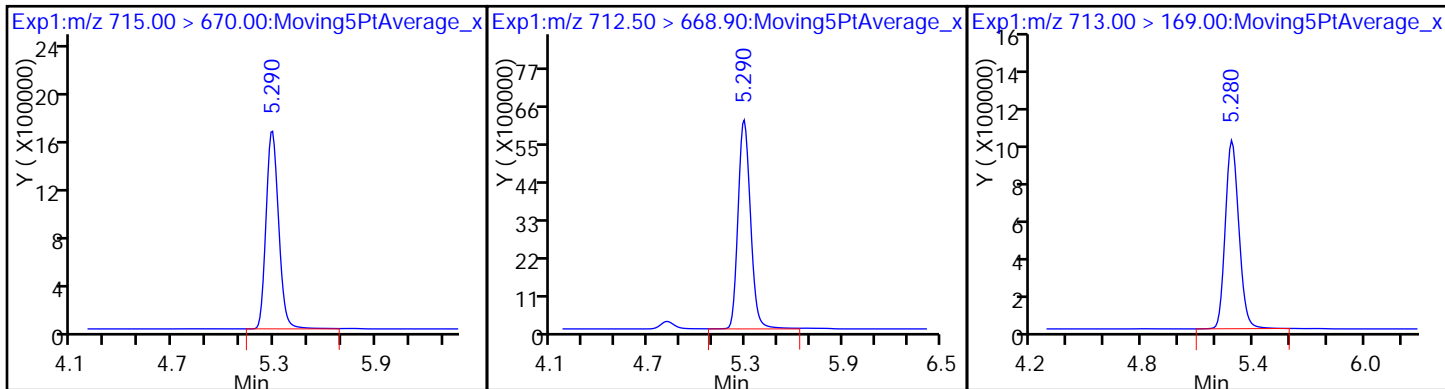
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

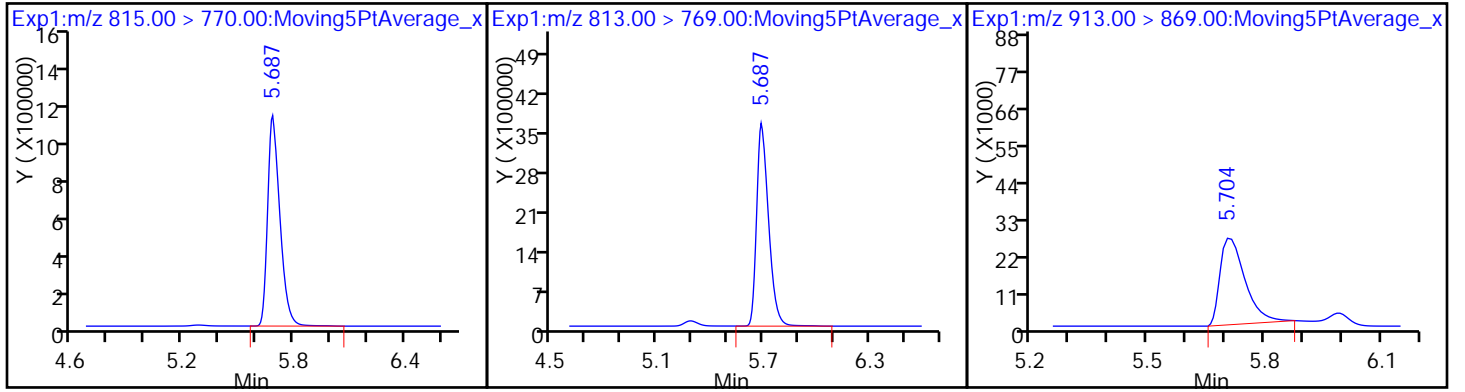
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: ICV 320-165218/11 Calibration Date: 05/18/2017 18:57
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18AA_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	0.8997		44.3	49.5	-10.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	0.9850		44.3	49.5	-10.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.457		40.0	43.8	-8.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9319		44.8	49.5	-9.5	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	0.9787		43.3	49.5	-12.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	0.9857		39.2	46.8	-16.3	25.0
6:2FTS	AveID	0.9691	0.9709		47.0	46.9	0.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.185		43.2	47.1	-8.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.043		44.9	49.5	-9.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	0.9494		37.6	47.3	-20.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	0.9523		44.1	49.5	-11.0	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	0.9543		44.7	49.5	-9.7	25.0
8:2FTS	AveID	0.9756	1.002		48.7	47.4	2.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	0.8777		42.4	49.5	-14.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	0.9778		46.2	49.5	-6.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.6122		42.6	47.8	-10.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	0.997		41.9	49.5	-15.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9379		48.5	49.5	-1.9	25.0
MeFOSA	AveID	0.9641	0.9916		50.9	49.5	2.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	0.8966		43.8	49.5	-11.6	25.0
N-EtFOSA-M	AveID	1.017	1.031		50.2	49.5	1.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.8988		43.6	49.5	-11.9	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.030		44.1	49.5	-10.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9375		41.9	49.5	-15.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0362		19.2	49.5	-61.1*	25.0
13C4 PFBA	Ave	359776	362709		49.9	49.5	0.8	50.0
13C5-PFPeA	Ave	248689	248296		49.4	49.5	-0.2	50.0
13C2 PFHxA	Ave	243576	242738		49.3	49.5	-0.3	50.0
13C4-PFHpA	Ave	211904	213072		49.8	49.5	0.6	50.0
18O2 PFHxS	Ave	304465	305217		46.9	46.8	0.2	50.0
M2-6:2FTS	Ave	126131	112214		41.8	47.0	-11.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: ICV 320-165218/11 Calibration Date: 05/18/2017 18:57
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18AA_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	207673		48.3	49.5	-2.4	50.0
13C4 PFOS	Ave	229280	226141		46.7	47.3	-1.4	50.0
13C5 PFNA	Ave	167851	166552		49.1	49.5	-0.8	50.0
13C8 FOSA	Ave	367124	361803		48.8	49.5	-1.4	50.0
13C2 PFDA	Ave	144503	147064		50.4	49.5	1.8	50.0
M2-8:2FTS	Ave	99091	90784		43.5	47.4	-8.4	50.0
d3-NMeFOSAA	Ave	64888	64716		49.4	49.5	-0.3	50.0
13C2 PFUnA	Ave	101742	101086		49.2	49.5	-0.6	50.0
d5-NEtFOSAA	Ave	63526	63470		49.5	49.5	-0.0	50.0
d-N-MeFOSA-M	Ave	99549	98727		49.1	49.5	-0.8	50.0
13C2 PFDoA	Ave	100236	99680		49.2	49.5	-0.6	50.0
d-N-EtFOSA-M	Ave	93251	94261		50.0	49.5	1.1	50.0
13C2-PFTeDA	Ave	204943	201241		48.6	49.5	-1.8	50.0
13C2-PFHxDA	Ave	118334	107420		44.9	49.5	-9.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_012.d
 Lims ID: ICV Full
 Client ID:
 Sample Type: ICV
 Inject. Date: 18-May-2017 18:57:39 ALS Bottle#: 36 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:11:06 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 08:36:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
--------	----	--------	--------	--------	----------	--------------	---------------	------	-----	-------

D 1 13C4 PFBA	217.00 > 172.00	1.976	1.958	0.018	17955910	49.9		101	103657	
2 Perfluorobutyric acid	212.90 > 169.00	1.976	1.962	0.014	16154618	44.3			5724	
D 3 13C5-PFPeA	267.90 > 223.00	2.328	2.313	0.015	12291864	49.4		99.8	191966	
4 Perfluoropentanoic acid	262.90 > 219.00	2.328	2.317	0.011	12107712	44.3			3891	
D 47 13C3-PFBS	301.90 > 83.00	2.368	2.352	0.016	296039	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.378	2.357	0.021	19488670	40.0				
	298.90 > 99.00	2.368	2.357	0.011	8108033		2.40(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.661	2.648	0.012	4615859	53.3				
6 Perfluorohexanoic acid	313.00 > 269.00	2.709	2.693	0.016	11198696	44.8			26976	
D 7 13C2 PFHxA	315.00 > 270.00	2.709	2.694	0.015	12016746	49.3		99.7	35556	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.110	3.095	0.015	10323547	43.3			3989	
D 9 13C4-PFHpA	367.00 > 322.00	3.110	3.095	0.015	10548128	49.8		101	43381	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.119	3.101	0.018	14074327	39.2				
D 11 18O2 PFHxS	403.00 > 84.00	3.119	3.101	0.018	14293823	46.9		100	203424	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.481	3.472	0.009	1.000	5113014	47.0		
D 12 M2-6:2FTS	429.00	> 409.00	3.481	3.472	0.009		5277374	41.8	89.0	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.503	3.491	0.012	1.000	12631185	43.2		
D 14 13C4 PFOA	417.00	> 372.00	3.511	3.495	0.016		10280829	48.3	97.6	49410
15 Perfluorooctanoic acid	413.00	> 369.00	3.511	3.496	0.015	1.000	10720937	44.9		992
	413.00	> 169.00	3.511	3.496	0.015	1.000	6220150		1.72(0.90-1.10)	13521
D 18 13C4 PFOS	503.00	> 80.00	3.878	3.863	0.015		10702499	46.7	98.6	15045
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.878	3.863	0.015	1.000	10150689	37.6		209582
	499.00	> 99.00	3.878	3.863	0.015	1.000	2399777		4.23(0.90-1.10)	12082
20 Perfluorononanoic acid	463.00	> 419.00	3.887	3.877	0.010	1.000	7852029	44.1		8232
D 19 13C5 PFNA	468.00	> 423.00	3.887	3.877	0.010		8245126	49.1	99.2	24706
D 21 13C8 FOSA	506.00	> 78.00	4.201	4.182	0.019		17911062	48.8	98.6	38687
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.201	4.183	0.018	1.000	17092559	44.7		42458
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.228	4.220	0.008	1.000	4312948	48.7		
D 26 M2-8:2FTS	529.00	> 509.00	4.228	4.220	0.008		4305518	43.5	91.6	
D 23 13C2 PFDA	515.00	> 470.00	4.228	4.220	0.008		7280377	50.4	102	6999
24 Perfluorodecanoic acid	513.00	> 469.00	4.238	4.222	0.016	1.000	6389773	42.4		7028
D 27 d3-NMeFOSAA	573.00	> 419.00	4.382	4.377	0.005		3203747	49.4	99.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.393	4.382	0.011	1.002	3132667	46.2		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.517	4.505	0.012	1.000	6613295	42.6		
D 30 13C2 PFUnA	565.00	> 520.00	4.537	4.532	0.005		5004247	49.2	99.4	18211
31 Perfluoroundecanoic acid	563.00	> 519.00	4.537	4.532	0.005	1.000	4989720	41.9		7519
D 32 d5-NEtFOSAA	589.00	> 419.00	4.547	4.533	0.014		3142076	49.5	99.9	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.547	4.540	0.007	1.000	2947077	48.5		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.657	4.635	0.022		4887485	49.1	99.2	05/24/2017

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.657	4.643	0.014	1.000	4846557	50.9			
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.820	4.802	0.018		4666373	50.0	101		
D 36 13C2 PFDaA	615.00 > 570.00	4.820	4.809	0.011		4934630	49.2	99.4	3992	
37 Perfluorododecanoic acid	613.00 > 569.00	4.820	4.809	0.011	1.000	4424549	43.8		332	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.829	4.810	0.019	1.000	4808702	50.2			
41 Perfluorotridecanoic acid	663.00 > 619.00	5.065	5.057	0.008	1.000	4435428	43.6		283	
D 43 13C2-PFTeDA	715.00 > 670.00	5.293	5.286	0.007		9962422	48.6	98.2	5327	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.293	5.286	0.007	1.000	10016795	44.1		115	
	713.00 > 169.00	5.283	5.286	-0.003	0.998	1317919		7.60(0.00-0.00)	2572	
D 44 13C2-PFHxDA	815.00 > 770.00	5.685	5.684	0.001		5317800	44.9	90.8	2033	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.685	5.687	-0.002	1.000	4626223	41.9		166	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.703	5.709	-0.007	1.000	178545	19.2		381	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_012.d

Injection Date: 18-May-2017 18:57:39

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

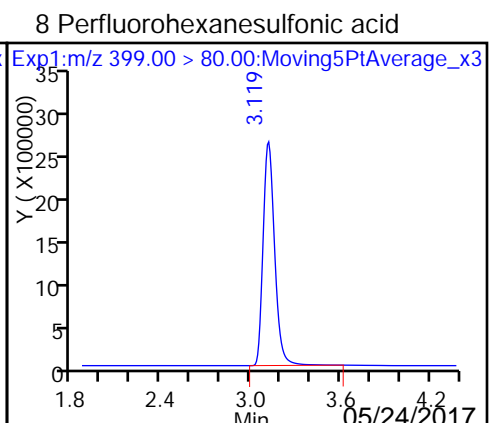
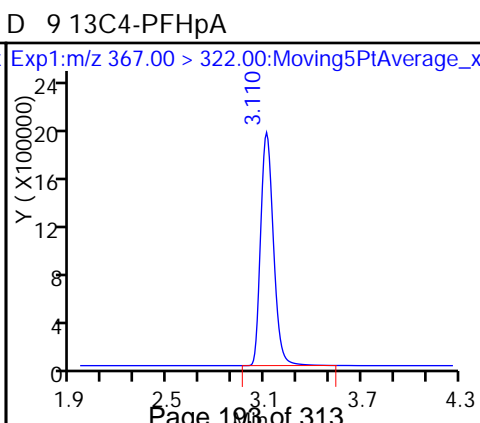
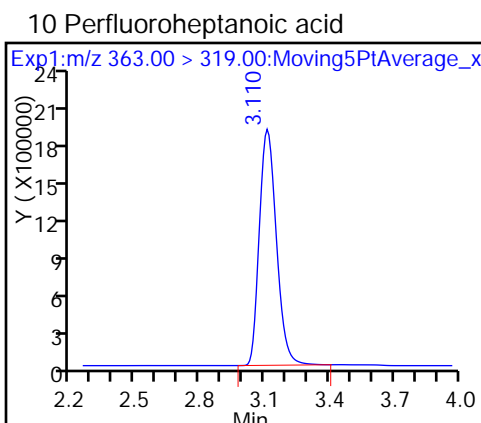
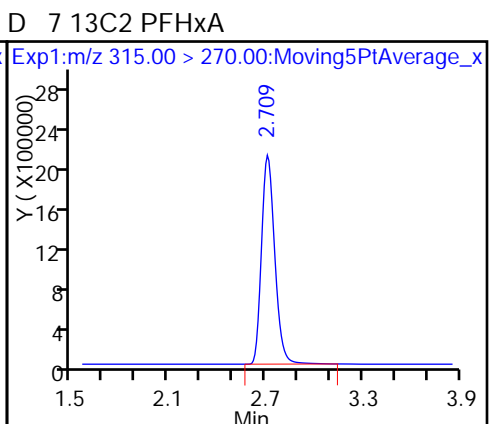
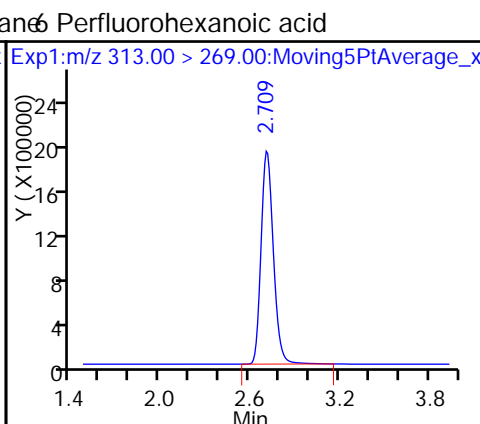
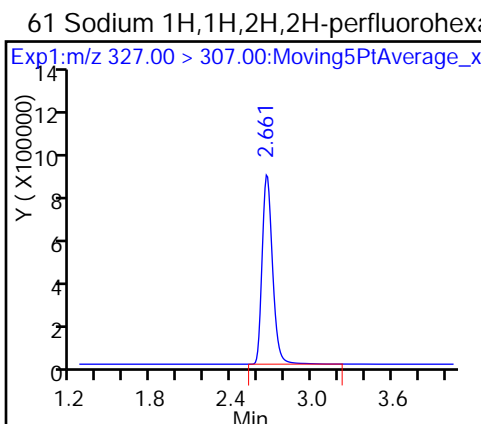
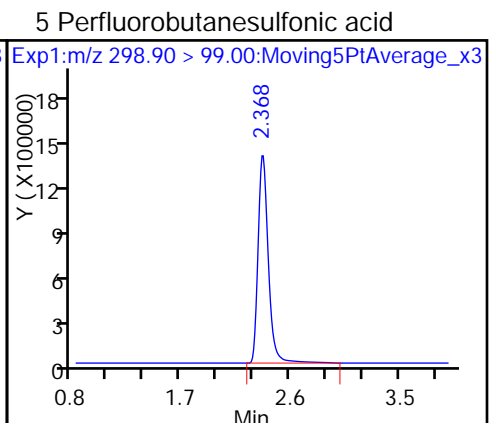
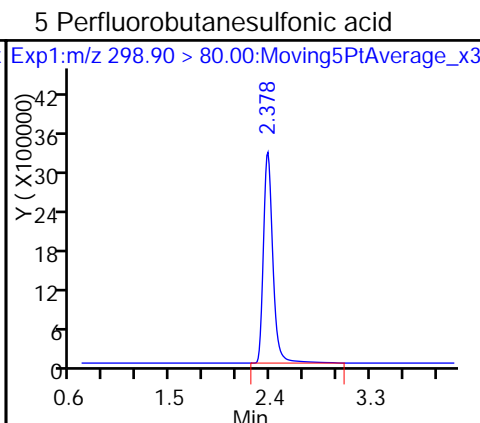
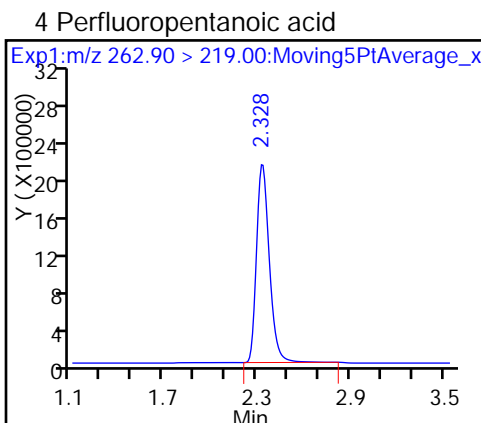
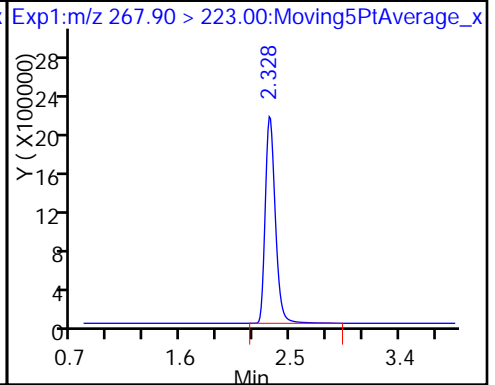
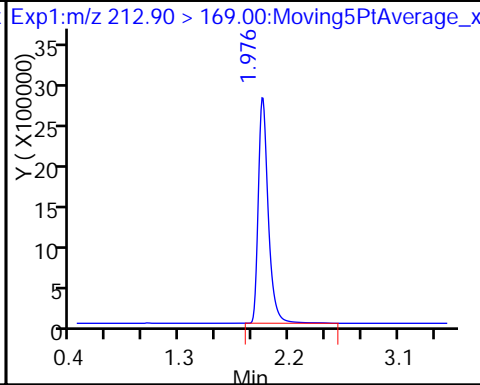
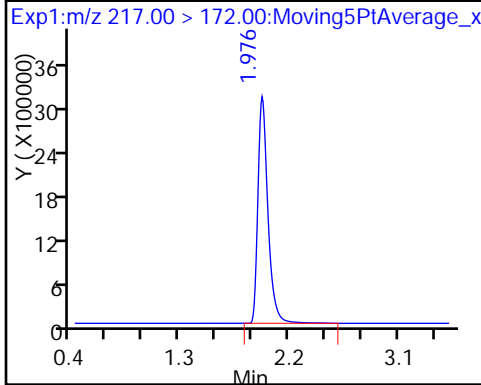
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

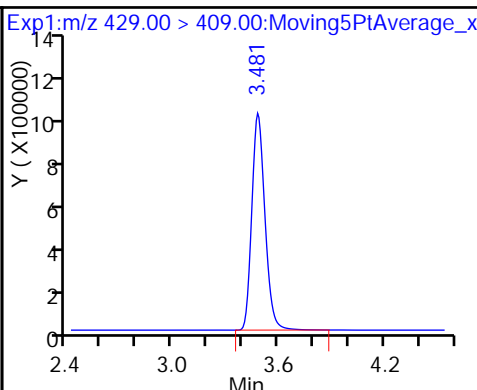
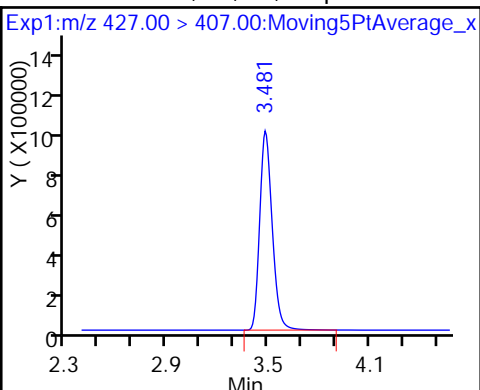
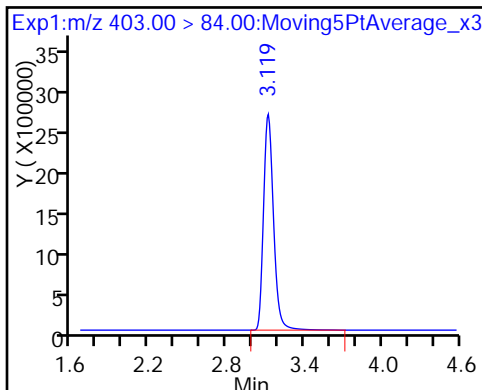
D 3 13C5-PFPeA



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

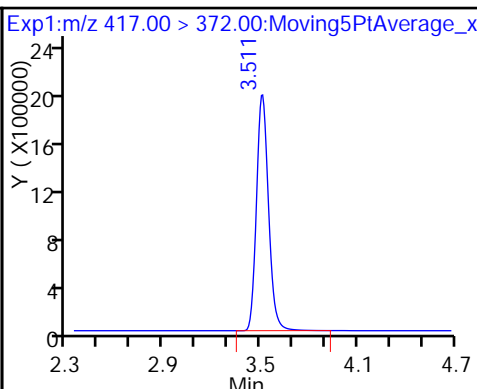
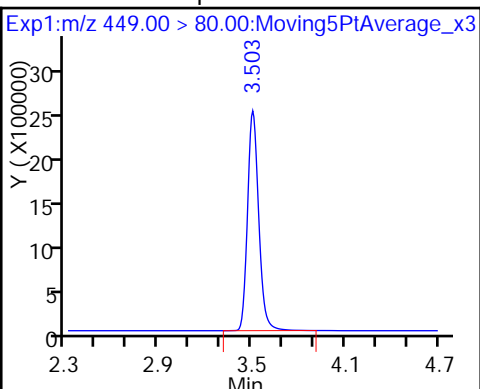
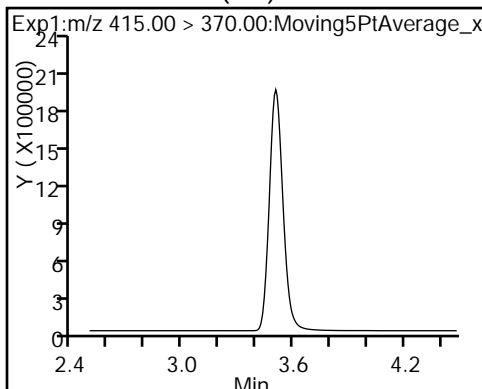
D 12 M2-6:2FTS



* 62 13C2-PFOA (ND)

16 Perfluoroheptanesulfonic Acid

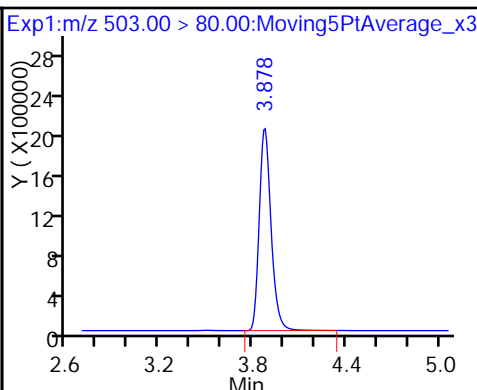
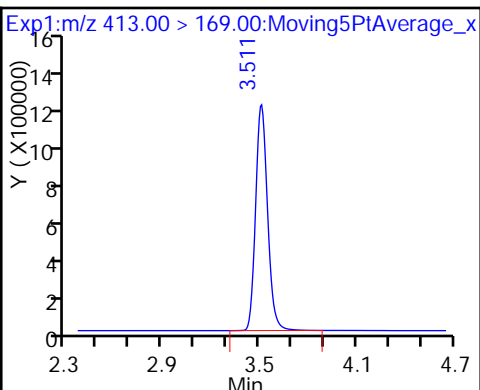
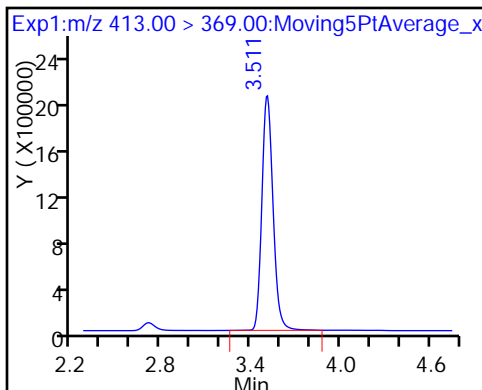
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

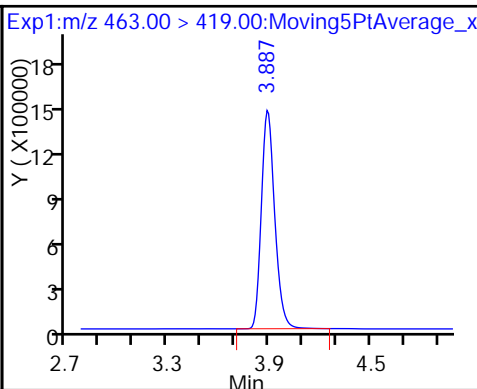
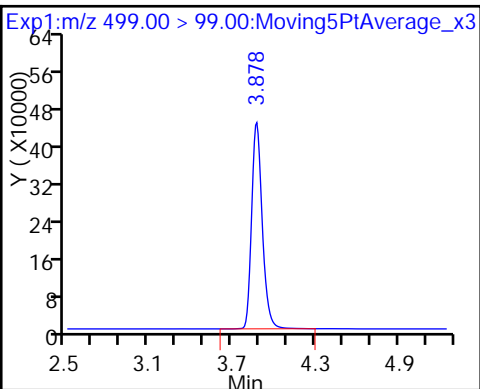
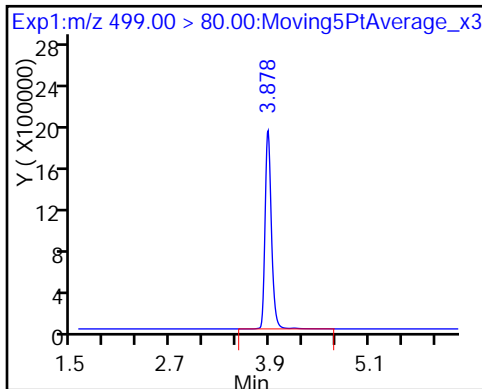
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

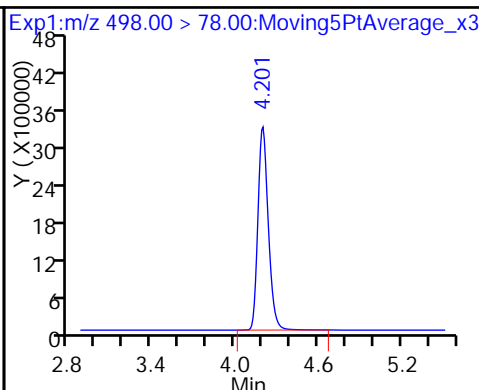
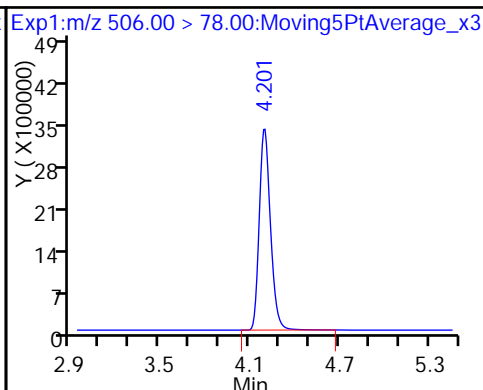
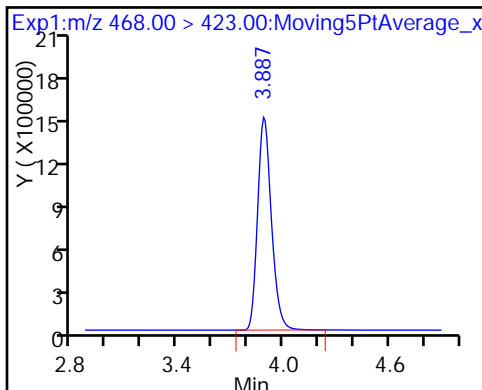
20 Perfluorononanoic acid



D 19 13C5 PFNA

D 21 13C8 FOSA

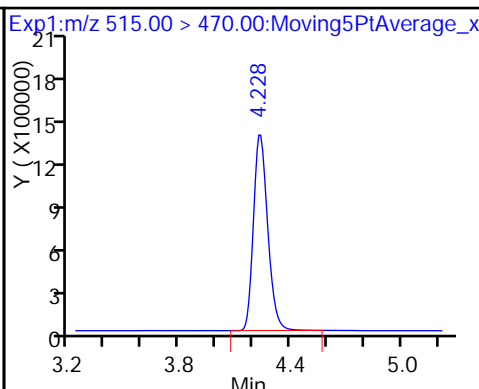
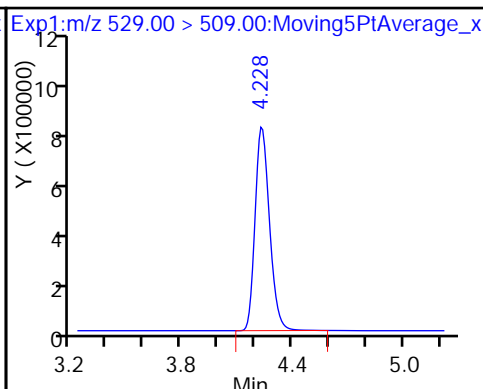
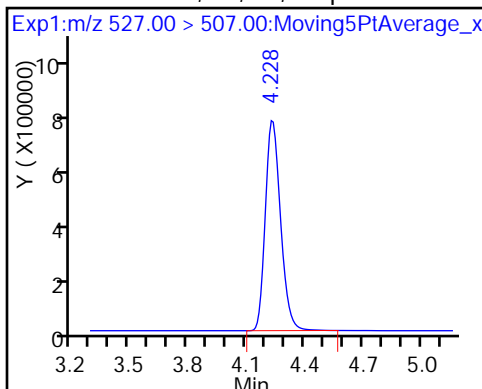
22 Perfluorooctane Sulfonamide



25 Sodium 1H,1H,2H,2H-perfluorooctane

D 26 M2-8:2FTS

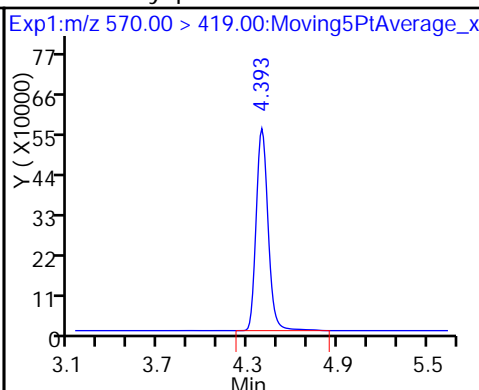
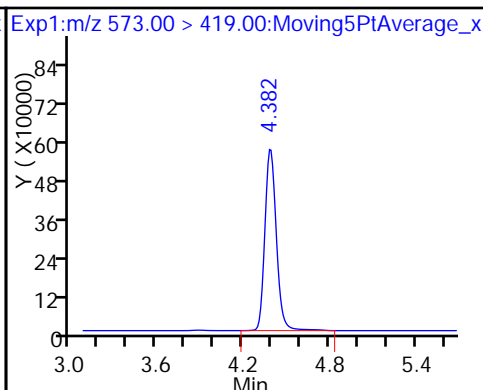
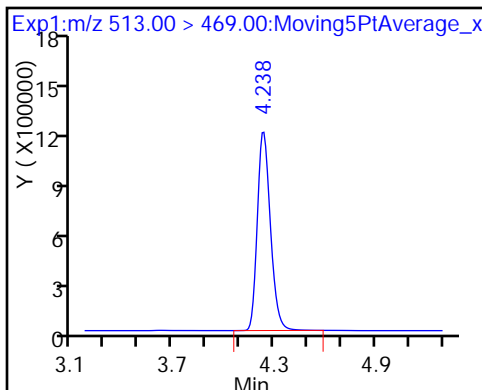
D 23 13C2 PFDA



24 Perfluorodecanoic acid

D 27 d3-NMeFOSAA

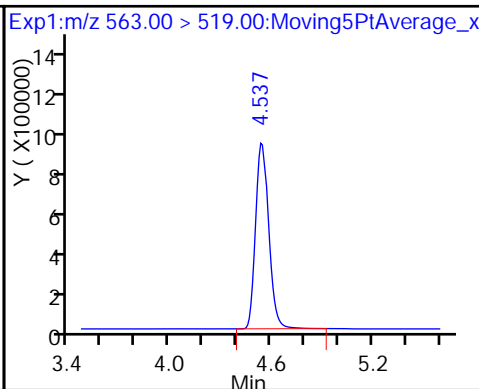
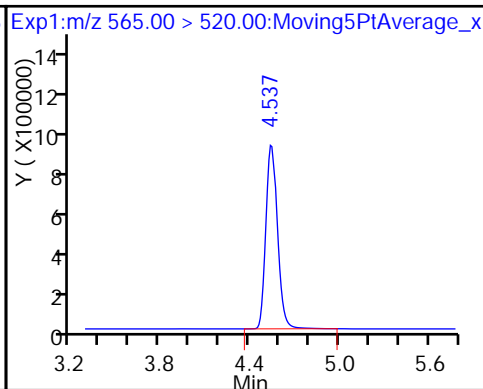
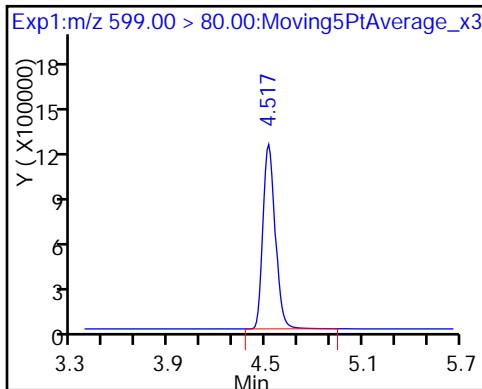
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

D 30 13C2 PFUnA

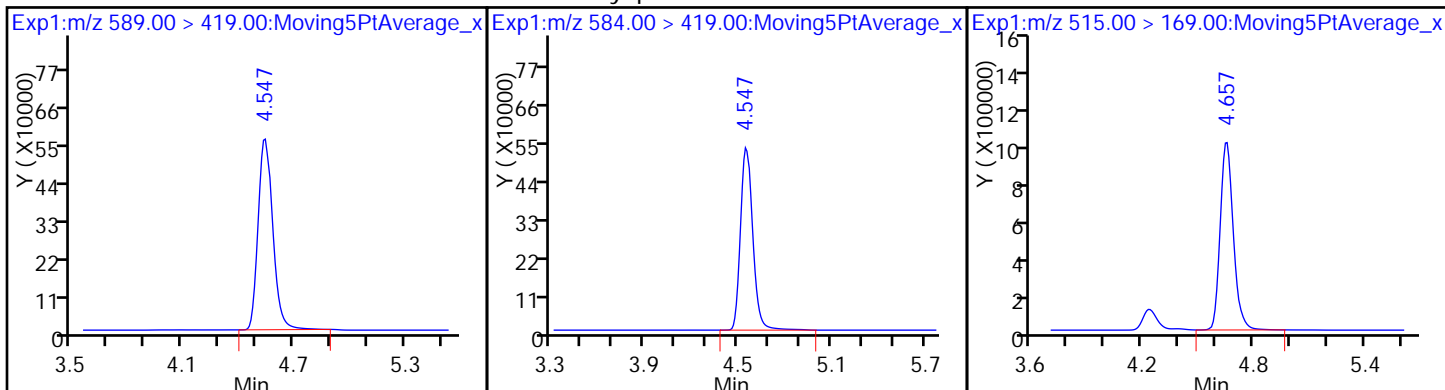
31 Perfluoroundecanoic acid



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

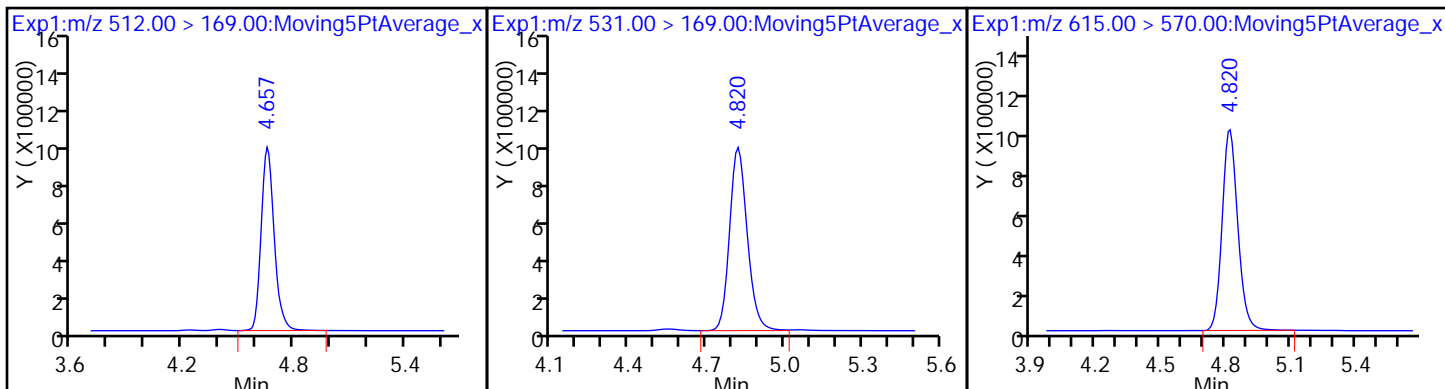
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

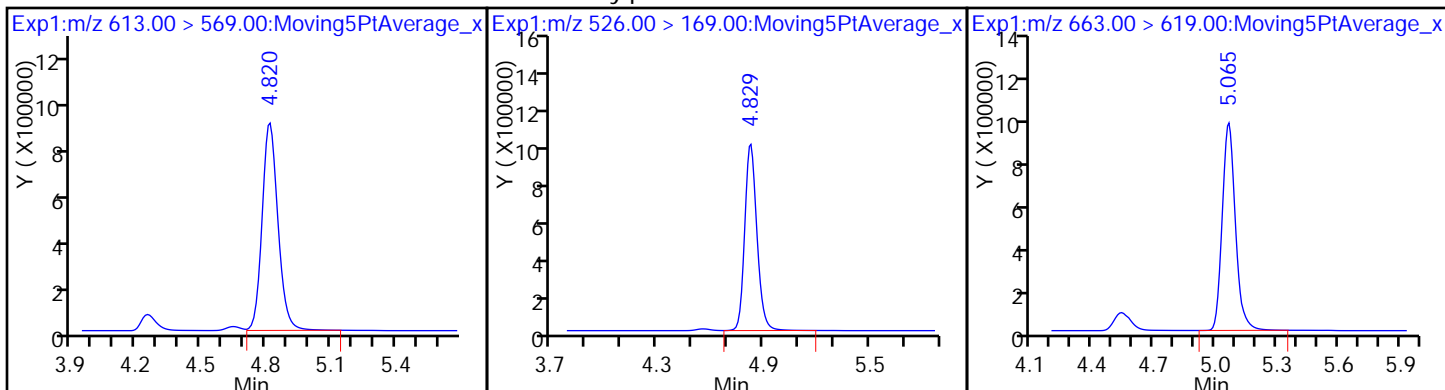
D 36 13C2 PFDa



37 Perfluorododecanoic acid

39 N-ethylperfluoro-1-octanesulfonami

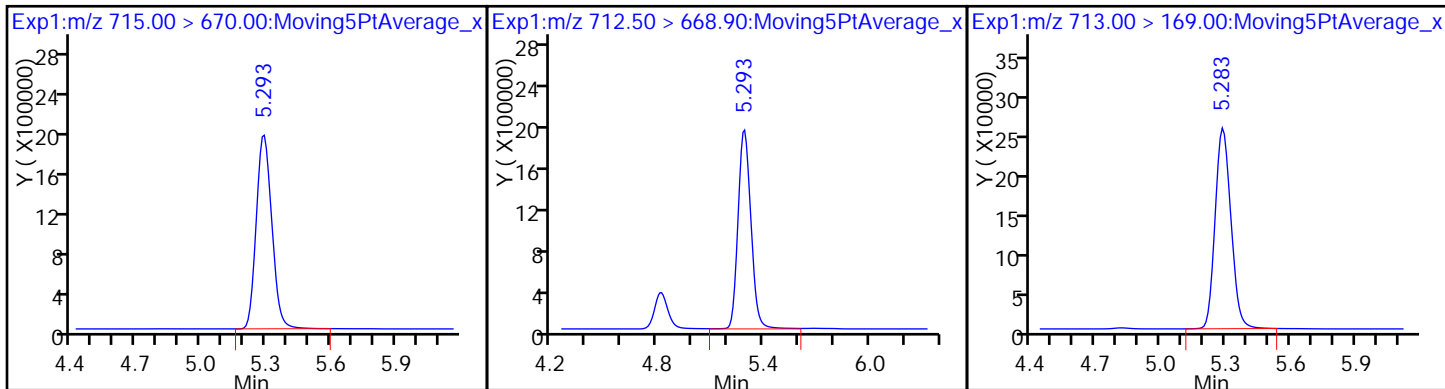
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

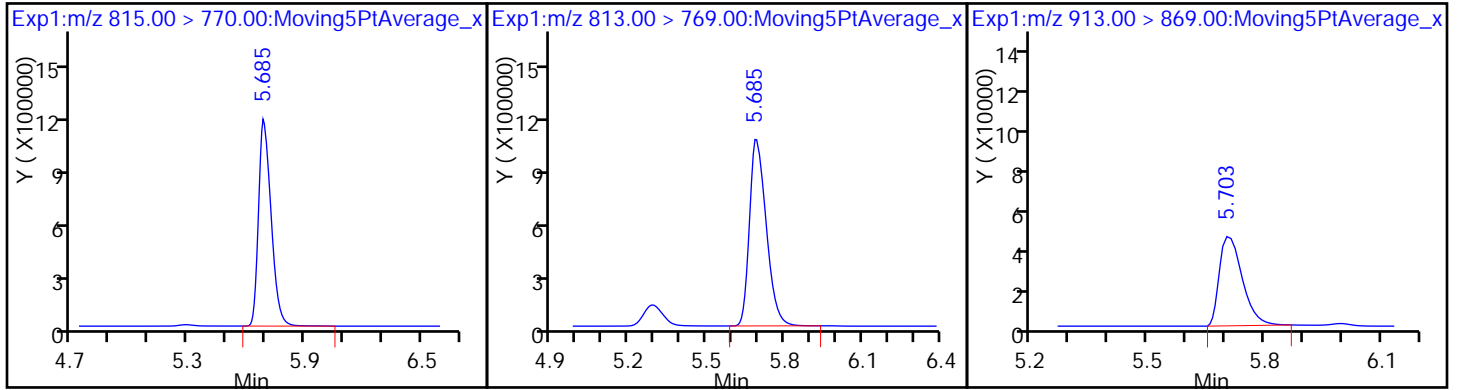
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/1 Calibration Date: 05/19/2017 10:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.077		21.2	19.8	7.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.110		20.0	19.8	0.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.788		19.6	17.5	12.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.049		20.2	19.8	1.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.117		19.8	19.8	-0.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.212		18.5	18.0	2.9	25.0
6:2FTS	AveID	0.9691	0.9563		18.5	18.8	-1.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.345		19.6	18.9	4.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.109		19.1	19.8	-3.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.175		18.1	18.4	-1.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.128		20.9	19.8	5.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.116		20.9	19.8	5.5	25.0
8:2FTS	AveID	0.9756	0.9903		19.3	19.0	1.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.099		21.3	19.8	7.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.060		20.0	19.8	1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.6851		19.0	19.1	-0.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.173		19.7	19.8	-0.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9761		20.2	19.8	2.0	25.0
MeFOSA	AveID	0.9641	0.9930		20.4	19.8	3.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.057		20.6	19.8	4.2	25.0
N-EtFOSA-M	AveID	1.017	1.034		20.1	19.8	1.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.095		21.2	19.8	7.3	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.365		20.5	19.8	3.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.146		20.0	19.8	0.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.1488		34.4	19.8	73.8*	25.0
13C4 PFBA	Ave	359776	372444		51.2	49.5	3.5	50.0
13C5-PFPeA	Ave	248689	255260		50.8	49.5	2.6	50.0
13C2 PFHxA	Ave	243576	257189		52.3	49.5	5.6	50.0
13C4-PFHpA	Ave	211904	230514		53.9	49.5	8.8	50.0
18O2 PFHxS	Ave	304465	320991		49.4	46.8	5.4	50.0
M2-6:2FTS	Ave	126131	161809		60.3	47.0	28.3	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/1 Calibration Date: 05/19/2017 10:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	252383		58.7	49.5	18.6	50.0
13C4 PFOS	Ave	229280	248029		51.2	47.3	8.2	50.0
13C5 PFNA	Ave	167851	186469		55.0	49.5	11.1	50.0
13C8 FOSA	Ave	367124	377949		51.0	49.5	2.9	50.0
13C2 PFDA	Ave	144503	154718		53.0	49.5	7.1	50.0
M2-8:2FTS	Ave	99091	107475		51.4	47.4	8.5	50.0
d3-NMeFOSAA	Ave	64888	70893		54.1	49.5	9.3	50.0
13C2 PFUnA	Ave	101742	115046		56.0	49.5	13.1	50.0
d5-NEtFOSAA	Ave	63526	71501		55.7	49.5	12.6	50.0
d-N-MeFOSA-M	Ave	99549	108469		53.9	49.5	9.0	50.0
13C2 PFDoA	Ave	100236	110516		54.6	49.5	10.3	50.0
d-N-EtFOSA-M	Ave	93251	99346		52.7	49.5	6.5	50.0
13C2-PFTeDA	Ave	204943	233487		56.4	49.5	13.9	50.0
13C2-PFHxDA	Ave	118334	127509		53.3	49.5	7.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_001.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-May-2017 10:36:45 ALS Bottle#: 31 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:36:14 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.016	1.903	0.113	18437836	51.2		104	241795	
2 Perfluorobutyric acid	212.90 > 169.00	2.016	1.903	0.113	7945679	21.2		107	2194	
4 Perfluoropentanoic acid	262.90 > 219.00	2.377	2.242	0.135	5609805	20.0		101	1472	
D 3 13C5-PFPeA	267.90 > 223.00	2.367	2.242	0.125	12636612	50.8		103	263217	
D 47 13C3-PFBS	301.90 > 83.00	2.407	2.309	0.098	316970	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.407	2.289	0.118	10047491	19.6		112		
	298.90 > 99.00	2.407	2.289	0.118	3996271		2.51(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.703	2.564	0.139	2094831	16.8		90.7		
6 Perfluorohexanoic acid	313.00 > 269.00	2.751	2.608	0.143	5344338	20.2		102	11422	
D 7 13C2 PFHxA	315.00 > 270.00	2.751	2.608	0.143	12732142	52.3		106	41542	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.150	2.994	0.156	5097810	19.8		99.8	1877	
D 9 13C4-PFHpA	367.00 > 322.00	3.150	2.994	0.156	11411560	53.9		109	40390	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.150	3.009	0.141	7010574	18.5		103		
D 11 18O2 PFHxS	403.00 > 84.00	3.150	3.009	0.141	15032526	49.4		105	684740	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.519	3.370	0.149	2904808	18.5		98.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.519	3.370	0.149	7609833	60.3	128		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.534	3.387	0.147	1.000	6287642	19.6	104	
* 62 13C2-PFOA	415.00	> 370.00	3.541	3.426	0.115		11948027	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.541	3.396	0.145	1.000	5541437	19.1	96.5	424
	413.00	> 169.00	3.541	3.396	0.145	1.000	3288832	1.68(0.90-1.10)		10506
D 14 13C4 PFOA	417.00	> 372.00	3.541	3.396	0.145		12494206	58.7	119	73400
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.910	3.762	0.148	1.000	5355873	18.1	98.5	21883
	499.00	> 99.00	3.910	3.762	0.148	1.000	1176217	4.55(0.90-1.10)		6243
D 18 13C4 PFOS	503.00	> 80.00	3.902	3.762	0.140		11738419	51.2	108	19293
20 Perfluorononanoic acid	463.00	> 419.00	3.919	3.770	0.149	1.000	4165570	20.9	105	7513
D 19 13C5 PFNA	468.00	> 423.00	3.919	3.770	0.149		9231141	55.0	111	39988
D 21 13C8 FOSA	506.00	> 78.00	4.237	4.096	0.141		18710359	51.0	103	36806
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.237	4.096	0.141	1.000	8349956	20.9	106	16096
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.265	4.114	0.151	1.000	2019059	19.3	102	
D 26 M2-8:2FTS	529.00	> 509.00	4.265	4.114	0.151		5097089	51.4	108	
24 Perfluorodecanoic acid	513.00	> 469.00	4.265	4.123	0.142	1.000	3367795	21.3	107	3555
D 23 13C2 PFDA	515.00	> 470.00	4.265	4.123	0.142		7659312	53.0	107	8388
D 27 d3-NMeFOSAA	573.00	> 419.00	4.414	4.273	0.141		3509556	54.1	109	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.424	4.273	0.151	1.002	1487423	20.0	101	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.541	4.405	0.136	1.000	3243857	19.0	99.8	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.571	4.432	0.139	1.000	2671482	19.7	99.6	4306
D 32 d5-NEtFOSAA	589.00	> 419.00	4.571	4.432	0.139		3539666	55.7	113	
D 30 13C2 PFUnA	565.00	> 520.00	4.571	4.432	0.139		5695358	56.0	113	10448
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.580	4.442	0.138	1.002	1382045	20.2	102	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.694	4.566	0.128		5369768	53.9	109	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.702	4.566	0.136	1.000	2132886	20.4	103		
37 Perfluorododecanoic acid	613.00 > 569.00	4.848	4.703	0.145	1.000	2313755	20.6	104	109	
D 36 13C2 PFDaA	615.00 > 570.00	4.848	4.703	0.145		5471104	54.6	110	5449	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.866	4.726	0.140		4918125	52.7	107		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.866	4.736	0.130	1.000	2033817	20.1	102		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.092	4.959	0.133	1.000	2396543	21.2	107	126	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.313	5.178	0.135	1.000	5175502	20.5	104	72.1	
	713.00 > 169.00	5.305	5.178	0.127	0.998	722989	7.16(0.00-0.00)		1506	
D 43 13C2-PFTeDA	715.00 > 670.00	5.313	5.178	0.135		11558787	56.4	114	9901	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.702	5.588	0.114	1.000	2507573	20.0	101	78.8	
D 44 13C2-PFHxDA	815.00 > 770.00	5.702	5.588	0.114		6312322	53.3	108	2782	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.713	5.976	-0.263	1.000	325635	34.4	174	902	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_001.d

Injection Date: 19-May-2017 10:36:45

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

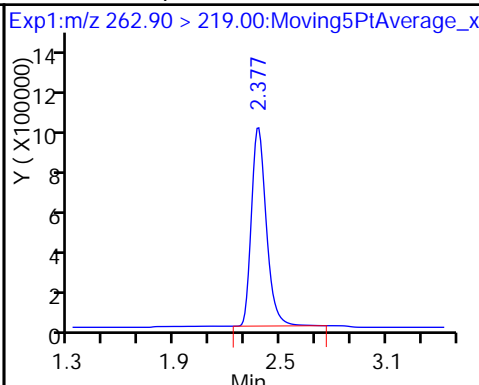
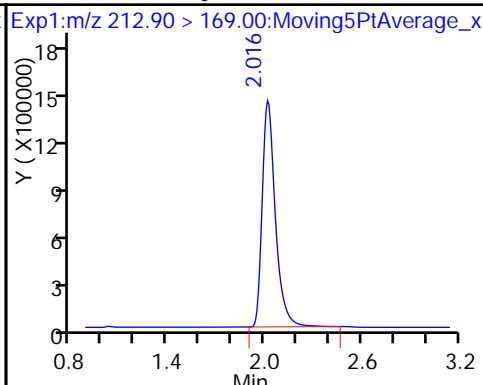
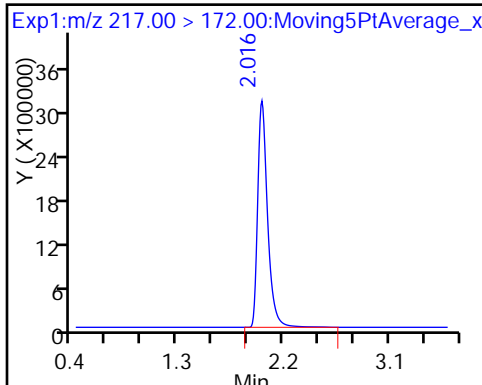
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

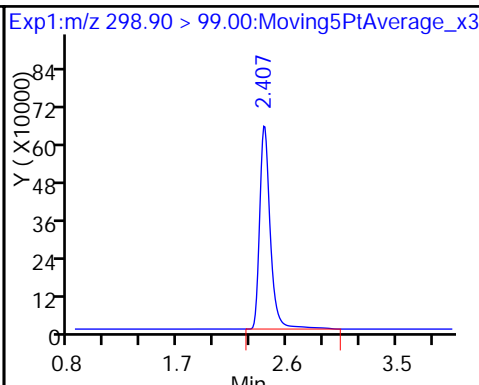
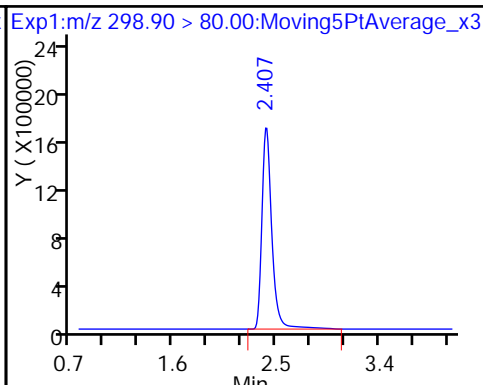
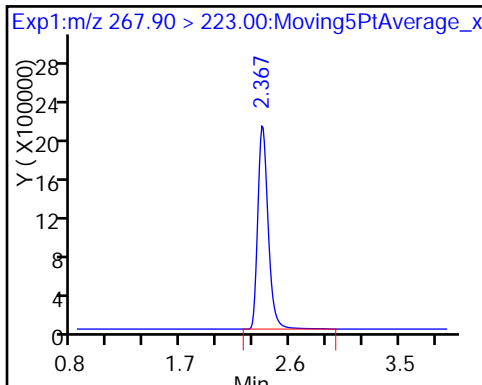
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

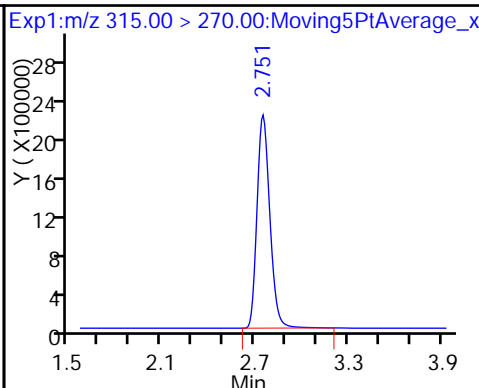
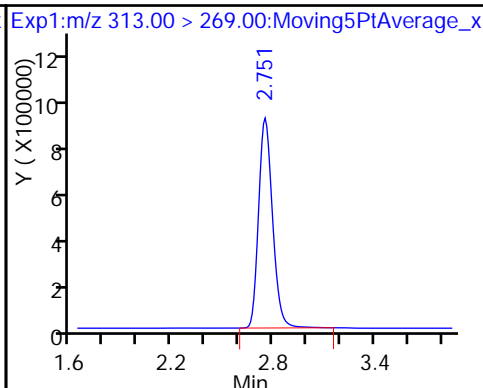
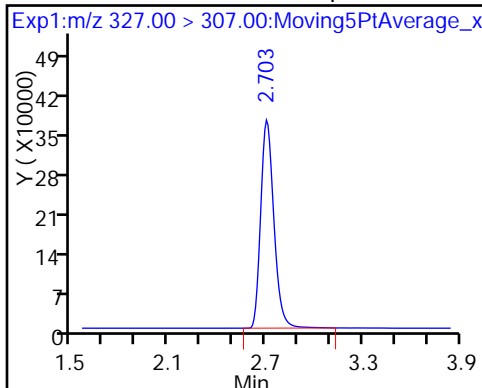
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorhexanoic acid

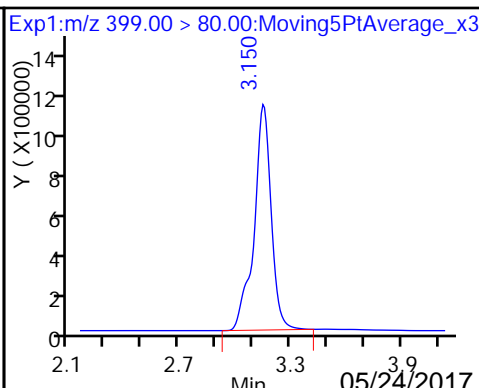
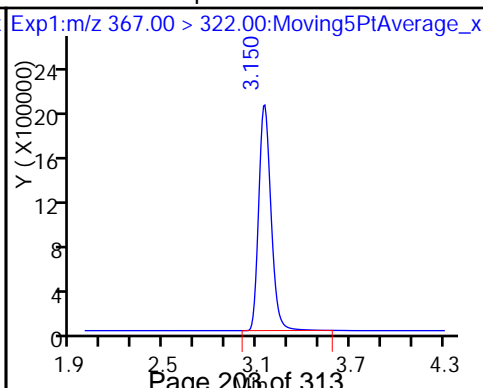
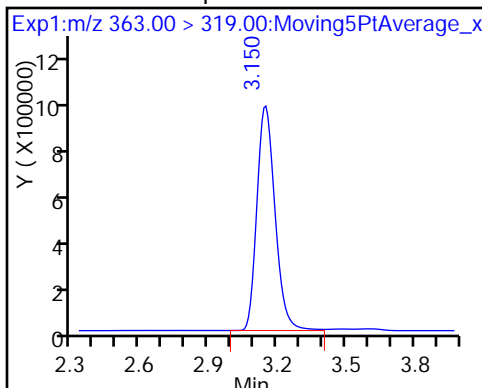
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

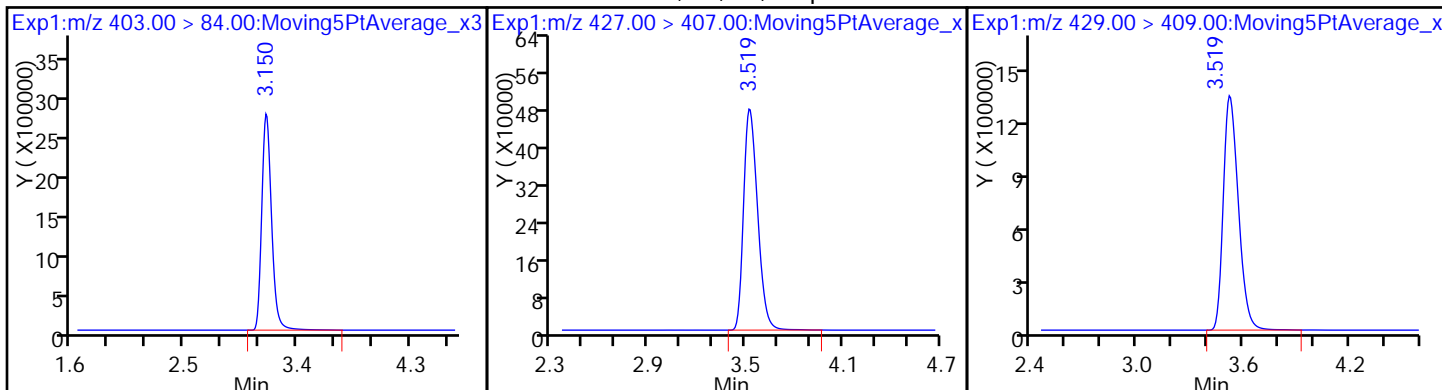
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

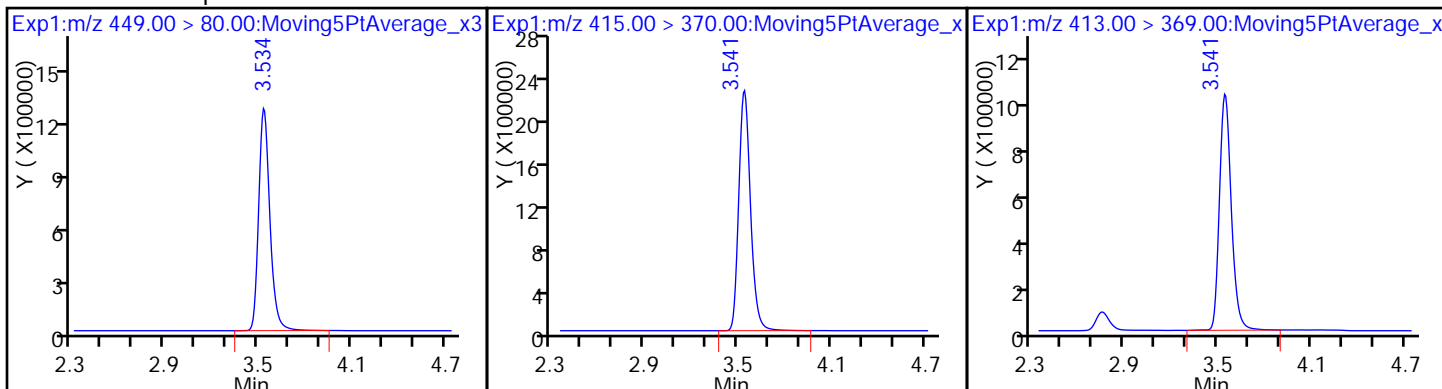
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

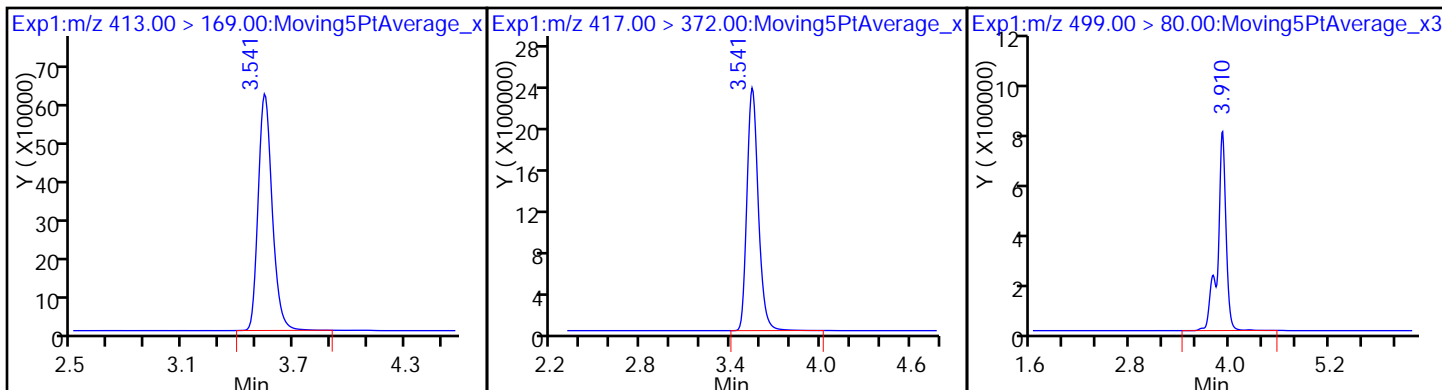
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

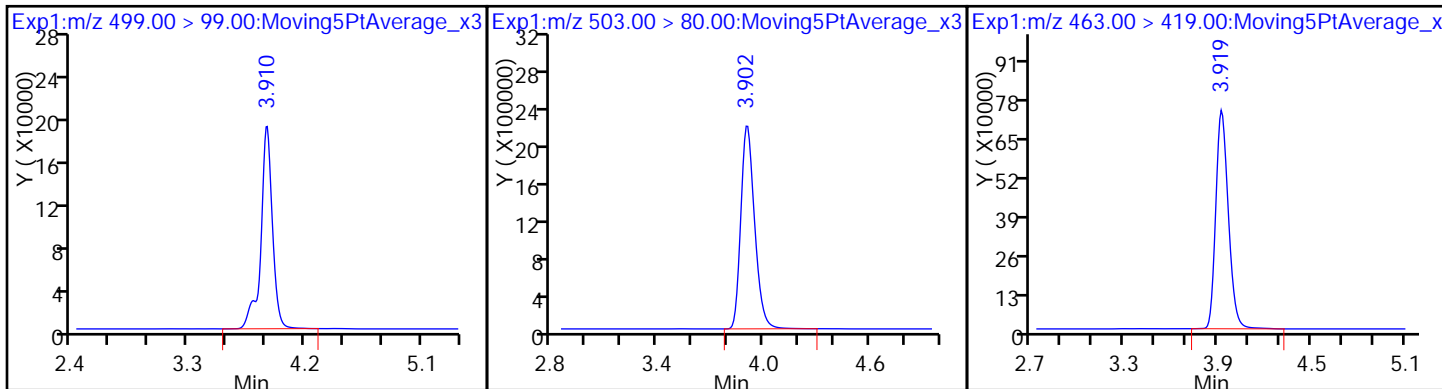
17 Perfluorooctane sulfonic acid



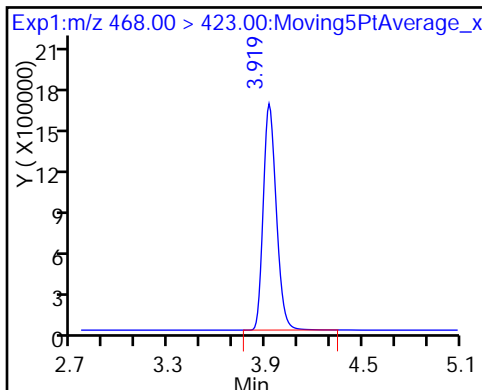
17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

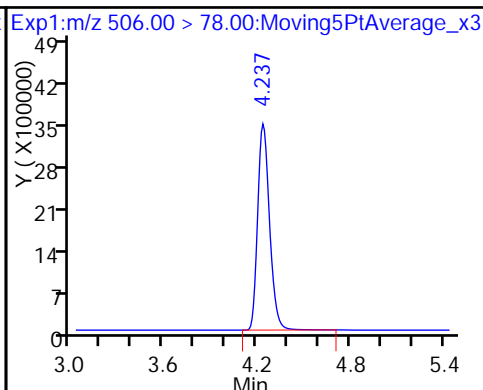
20 Perfluorononanoic acid



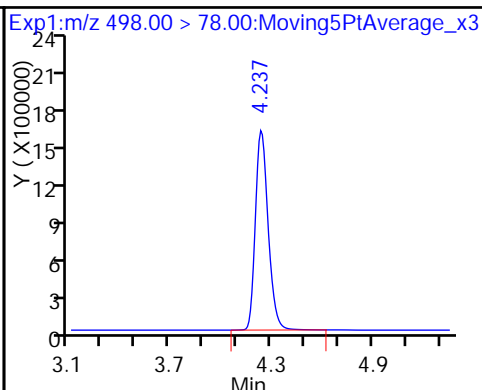
D 19 13C5 PFNA



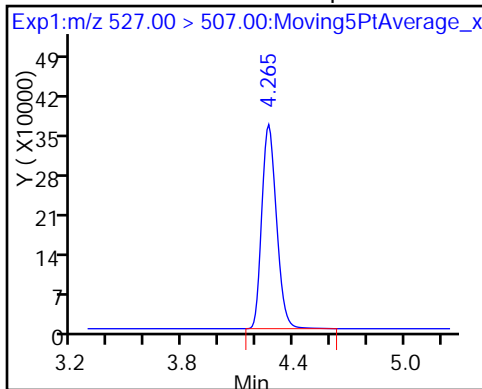
D 21 13C8 FOSA



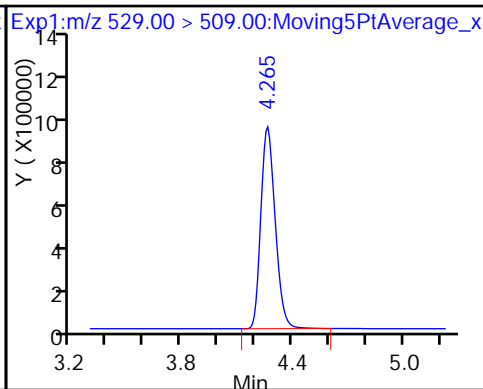
22 Perfluorooctane Sulfonamide



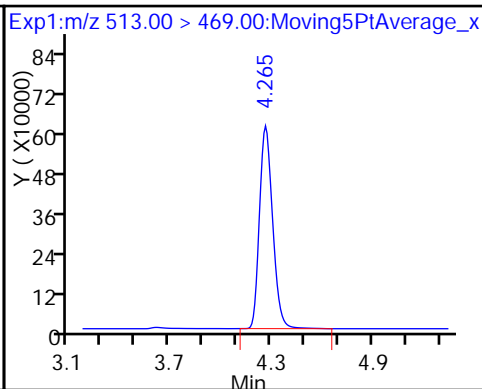
25 Sodium 1H,1H,2H,2H-perfluorooctane



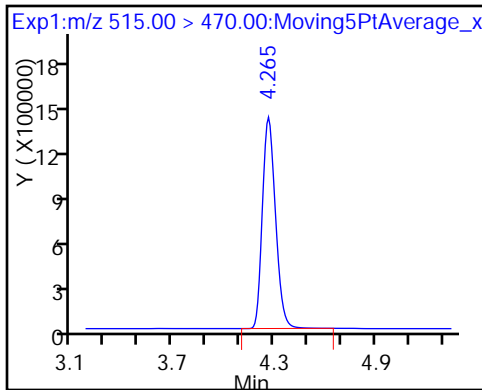
D 26 M2-8:2FTS



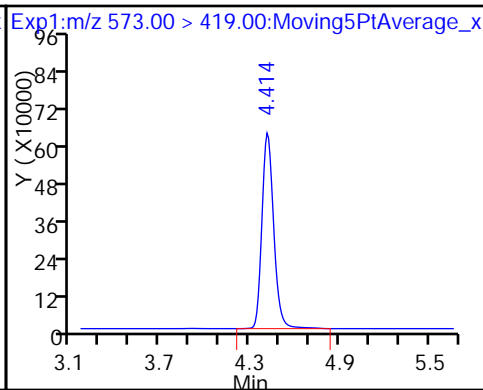
24 Perfluorodecanoic acid



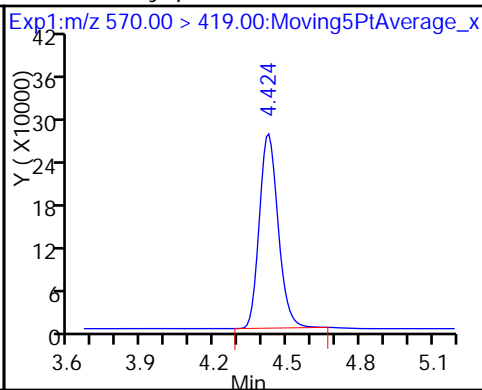
D 23 13C2 PFDA



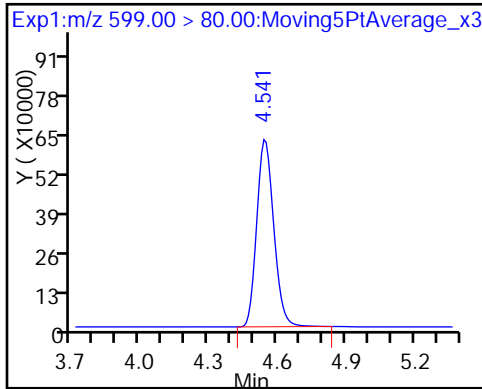
D 27 d3-NMeFOSAA



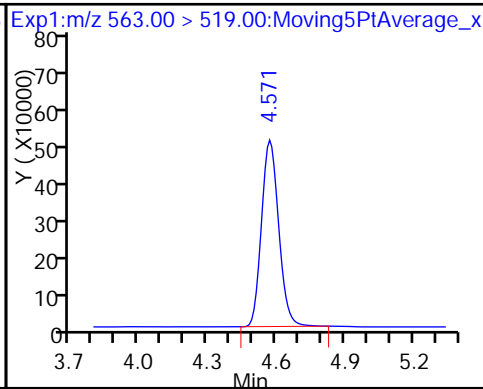
28 N-methyl perfluorooctane sulfonamide



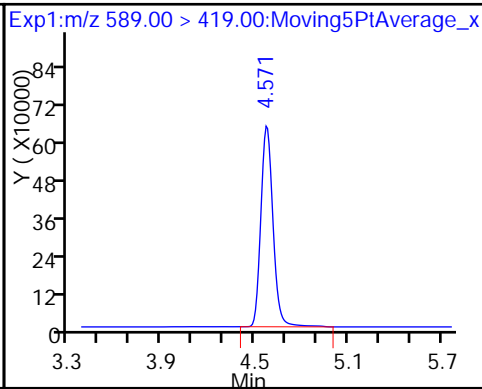
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid

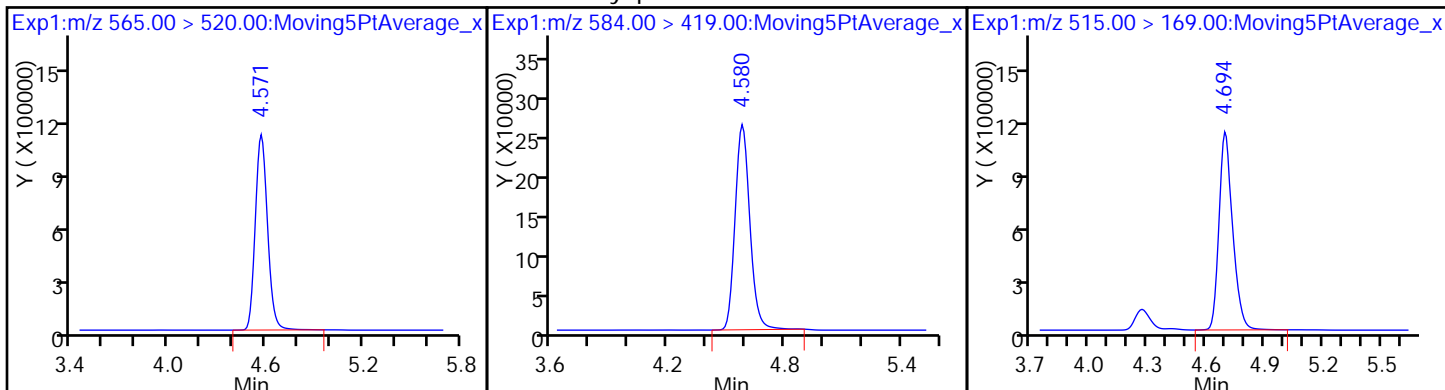


D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

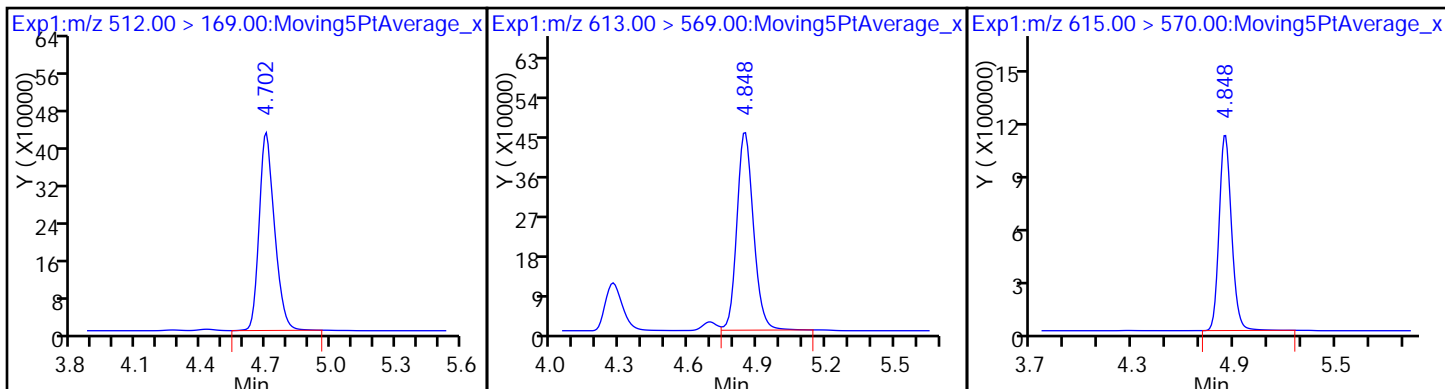
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

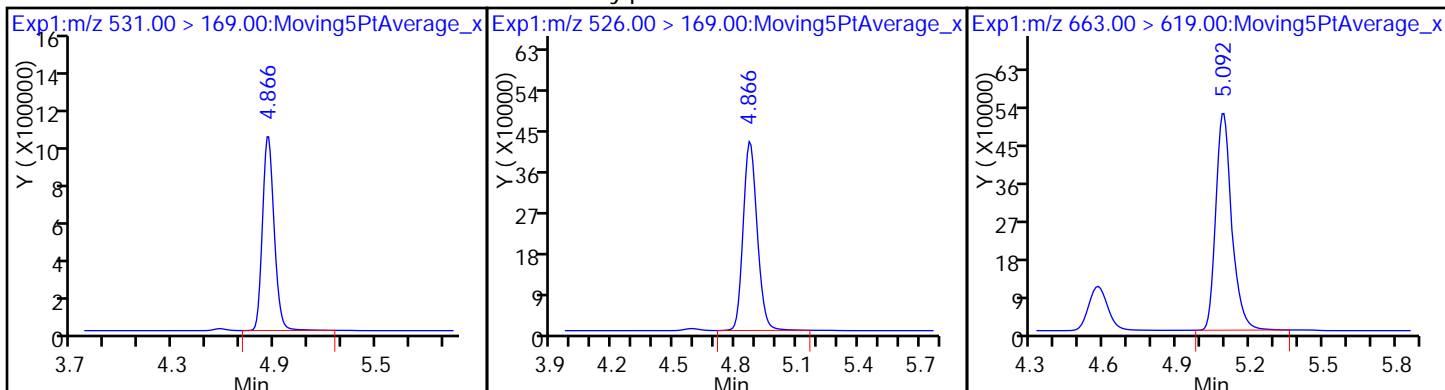
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

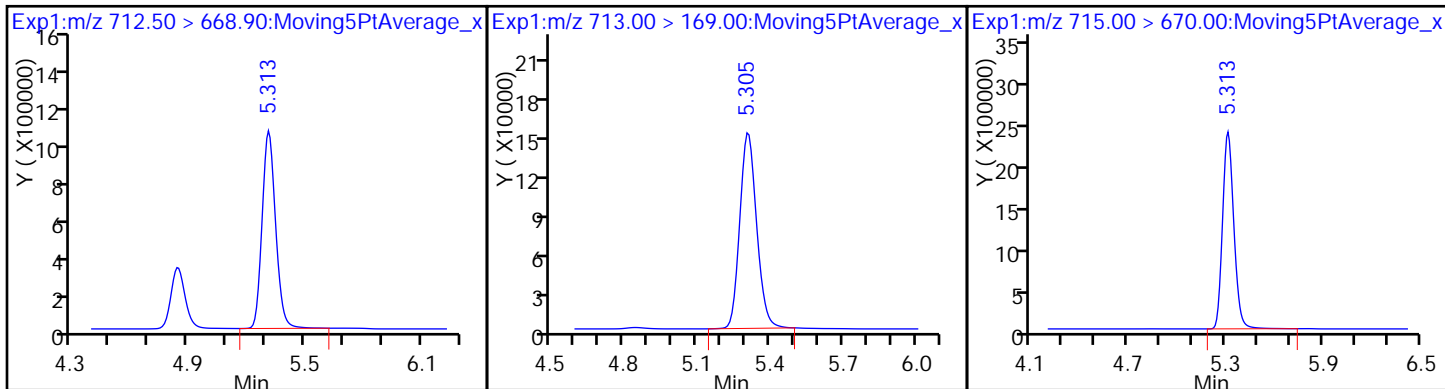
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

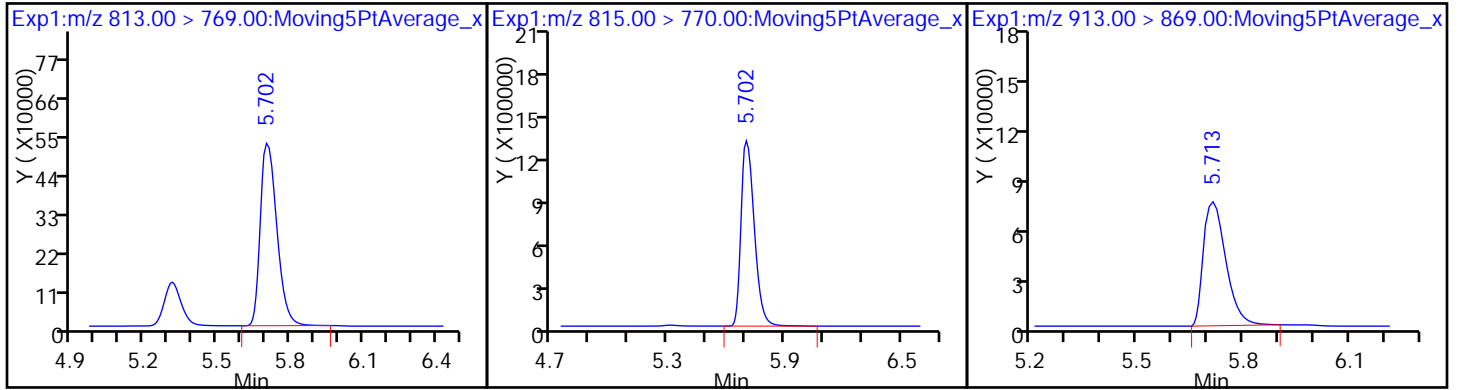
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/5 Calibration Date: 05/19/2017 11:06
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_003C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.028		50.6	49.5	2.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.109		49.9	49.5	0.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.863		51.1	43.8	16.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.039		49.9	49.5	0.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.136		50.3	49.5	1.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.184		45.3	45.0	0.6	25.0
6:2FTS	AveID	0.9691	0.9273		44.9	46.9	-4.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.333		48.6	47.1	3.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.105		47.6	49.5	-3.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.214		46.8	45.9	1.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.106		51.2	49.5	3.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.039		48.7	49.5	-1.7	25.0
8:2FTS	AveID	0.9756	0.9182		44.6	47.4	-5.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.061		51.3	49.5	3.6	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.029		48.6	49.5	-1.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7096		49.3	47.7	3.3	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.120		47.1	49.5	-4.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9678		50.1	49.5	1.2	25.0
MeFOSA	AveID	0.9641	0.9724		49.9	49.5	0.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	0.998		48.7	49.5	-1.6	25.0
N-EtFOSA-M	AveID	1.017	0.9921		48.3	49.5	-2.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.9812		47.6	49.5	-3.9	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.094		45.5	49.5	-8.1	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.066		47.7	49.5	-3.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0008		0.200	49.5	-100.0*	25.0
13C4 PFBA	Ave	359776	351263		48.3	49.5	-2.4	50.0
13C5-PFPeA	Ave	248689	259495		51.7	49.5	4.3	50.0
13C2 PFHxA	Ave	243576	238434		48.5	49.5	-2.1	50.0
13C4-PFHpA	Ave	211904	208001		48.6	49.5	-1.8	50.0
18O2 PFHxS	Ave	304465	295803		45.5	46.8	-2.8	50.0
M2-6:2FTS	Ave	126131	139016		51.8	47.0	10.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/5 Calibration Date: 05/19/2017 11:06
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_003C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	216309		50.3	49.5	1.7	50.0
13C4 PFOS	Ave	229280	219823		45.4	47.3	-4.1	50.0
13C5 PFNA	Ave	167851	171738		50.7	49.5	2.3	50.0
13C8 FOSA	Ave	367124	354569		47.8	49.5	-3.4	50.0
M2-8:2FTS	Ave	99091	110965		53.1	47.4	12.0	50.0
13C2 PFDA	Ave	144503	147000		50.4	49.5	1.7	50.0
d3-NMeFOSAA	Ave	64888	68893		52.6	49.5	6.2	50.0
13C2 PFUnA	Ave	101742	113553		55.3	49.5	11.6	50.0
d5-NEtFOSAA	Ave	63526	65824		51.3	49.5	3.6	50.0
d-N-MeFOSA-M	Ave	99549	94961		47.2	49.5	-4.6	50.0
13C2 PFDoA	Ave	100236	121367		59.9	49.5	21.1	50.0
d-N-EtFOSA-M	Ave	93251	92978		49.4	49.5	-0.3	50.0
13C2-PFTeDA	Ave	204943	230826		55.8	49.5	12.6	50.0
13C2-PFHxDA	Ave	118334	135180		56.6	49.5	14.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_003C.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-May-2017 11:06:47 ALS Bottle#: 32 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:39:34 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 11:30:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid	212.90 > 169.00	1.903	1.903	0.0	1.000	17884286	50.6	102	1147	
D 1 13C4 PFBA	217.00 > 172.00	1.903	1.903	0.0		17389236	48.3	97.6	181130	
4 Perfluoropentanoic acid	262.90 > 219.00	2.242	2.242	0.0	1.000	14247846	49.9	101	3073	
D 3 13C5-PFPeA	267.90 > 223.00	2.242	2.242	0.0		12846291	51.7	104	288685	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.289	2.289	0.0	1.000	24111367	51.1	117		
	298.90 > 99.00	2.280	2.289	-0.009	0.996	10198719		2.36(0.00-0.00)		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.564	2.564	0.0	1.000	4768755	44.4	96.1		
6 Perfluorohexanoic acid	313.00 > 269.00	2.608	2.608	0.0	1.000	12259335	49.9	101	14775	
D 7 13C2 PFHxA	315.00 > 270.00	2.608	2.608	0.0		11803657	48.5	97.9	54763	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.994	2.994	0.0	1.000	11698528	50.3	102	4786	
D 9 13C4-PFHpA	367.00 > 322.00	2.994	2.994	0.0		10297087	48.6	98.2	39533	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.009	3.009	0.0	1.000	15782852	45.3	101		
D 11 18O2 PFHxS	403.00 > 84.00	3.009	3.009	0.0		13852950	45.5	97.2	35681	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.370	3.370	0.0	1.000	6049645	44.9	95.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.370	3.370	0.0		6537877	51.8		110		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.387	3.387	0.0	1.000	13806180	48.6		103		
15 Perfluorooctanoic acid										
413.00 > 369.00	3.396	3.396	0.0	1.000	11835679	47.6		96.2	2194	
413.00 > 169.00	3.396	3.396	0.0	1.000	6957061		1.70(0.90-1.10)		8490	
D 14 13C4 PFOA										
417.00 > 372.00	3.396	3.396	0.0		10708386	50.3		102	33231	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.762	3.762	0.0	1.000	12257202	46.8		102	608076	
499.00 > 99.00	3.762	3.762	0.0	1.000	2666538		4.60(0.90-1.10)		8144	
D 18 13C4 PFOS										
503.00 > 80.00	3.762	3.762	0.0		10403493	45.4		95.9	10499	
20 Perfluorononanoic acid										
463.00 > 419.00	3.770	3.770	0.0	1.000	9403939	51.2		103	7895	
D 19 13C5 PFNA										
468.00 > 423.00	3.770	3.770	0.0		8501859	50.7		102	19827	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.096	4.096	0.0	1.000	18243589	48.7		98.3	21255	
D 21 13C8 FOSA										
506.00 > 78.00	4.096	4.096	0.0		17552945	47.8		96.6	19205	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.114	4.114	0.0	1.000	4832112	44.6		94.1		
D 26 M2-8:2FTS										
529.00 > 509.00	4.114	4.114	0.0		5262612	53.1		112		
24 Perfluorodecanoic acid										
513.00 > 469.00	4.123	4.123	0.0	1.000	7717810	51.3		104	7084	
D 23 13C2 PFDA										
515.00 > 470.00	4.123	4.123	0.0		7277211	50.4		102	8383	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.273	4.273	0.0	1.000	3508111	48.6		98.2		
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.273	4.273	0.0		3410562	52.6		106		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.405	4.405	0.0	1.000	7444119	49.3		103		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.432	4.432	0.0	1.000	6294607	47.1		95.1	6823	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.432	4.432	0.0		3258595	51.3		104		
D 30 13C2 PFUnA										
565.00 > 520.00	4.432	4.432	0.0		5621443	55.3		112	13081	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.442	4.442	0.0	1.002	3153622	50.1		101		
35 MeFOSA										
512.00 > 169.00	4.566	4.566	0.0	1.000	4571086	49.9		101		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.566	4.566	0.0		4701059	47.2		95.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00	> 569.00	4.703	4.703	0.0	1.000	5998915	48.7	98.4	1536
D 36 13C2 PFDaA	615.00	> 570.00	4.703	4.703	0.0		6008243	59.9	121	7471
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.726	4.726	0.0		4602889	49.4	99.7	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.736	4.736	0.0	1.000	4566295	48.3	97.6	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.959	4.959	0.0	1.000	5895401	47.6	96.1	2328
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.178	5.178	0.0	1.000	12582126	45.5	91.9	771
	713.00	> 169.00	5.178	5.178	0.0	1.000	1779894		7.07(0.00-0.00)	2558
D 43 13C2-PFTeDA	715.00	> 670.00	5.178	5.178	0.0		11427040	55.8	113	6651
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.588	5.588	0.0	1.000	6406568	47.7	96.4	353
D 44 13C2-PFHxDA	815.00	> 770.00	5.588	5.588	0.0		6692091	56.6	114	4898
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.765	5.765	0.0	1.000	4625	-3.78	-7.6	0.0

Reagents:

LCPFC_FULLL-L5_00002

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_003C.d

Injection Date: 19-May-2017 11:06:47

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

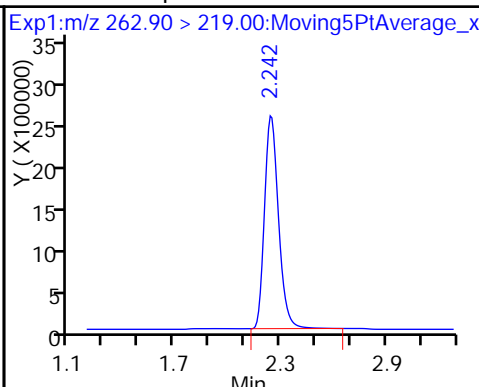
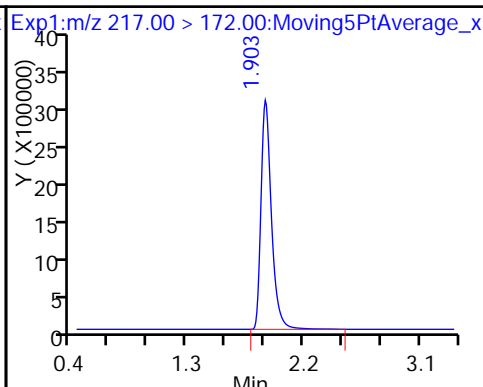
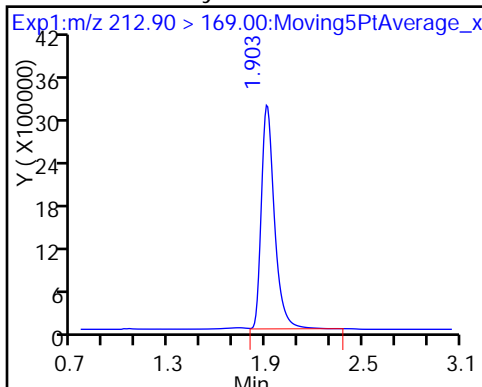
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

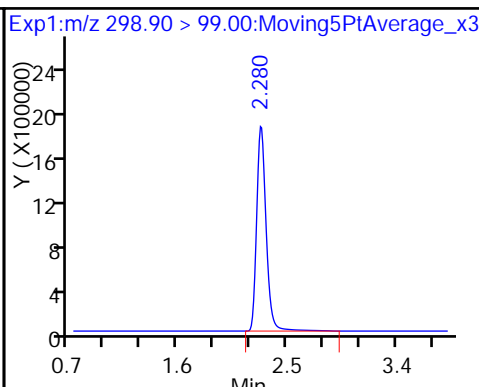
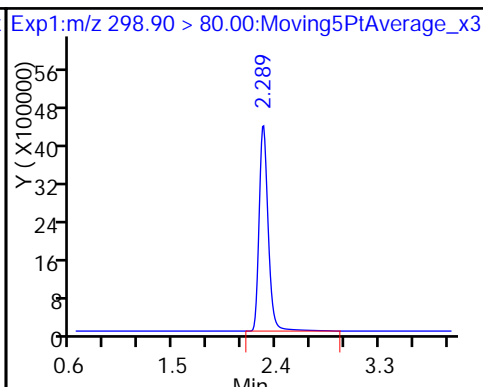
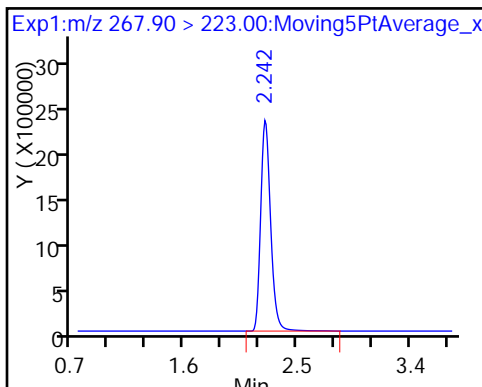
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

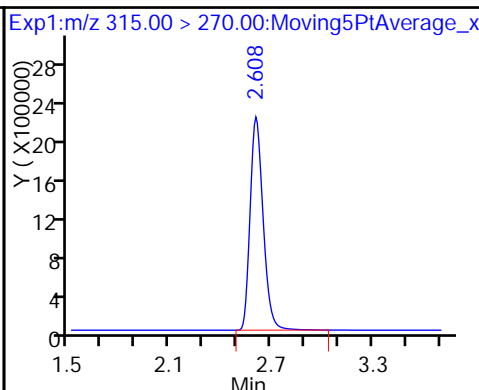
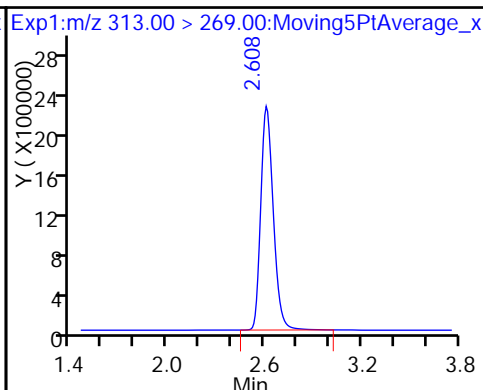
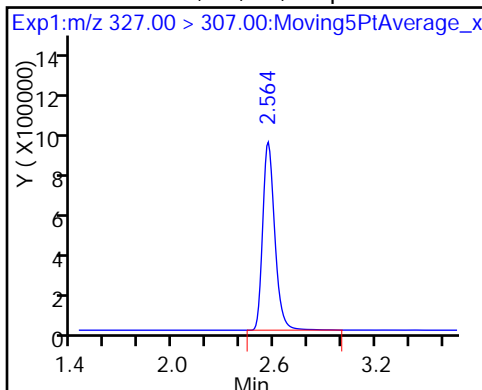
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

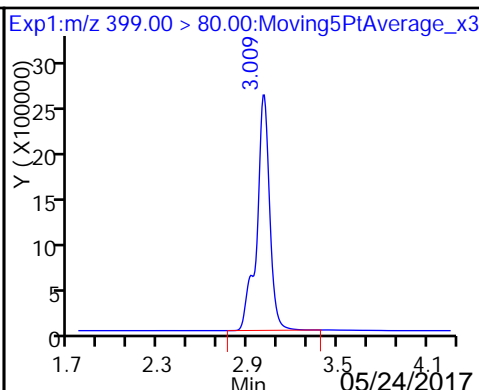
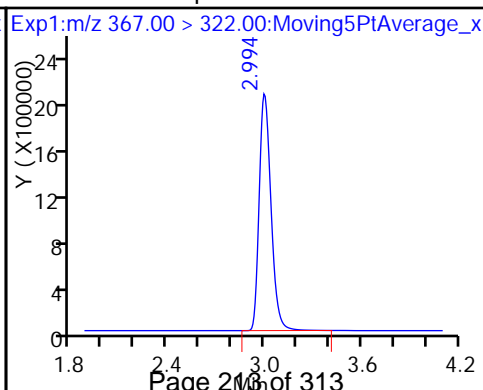
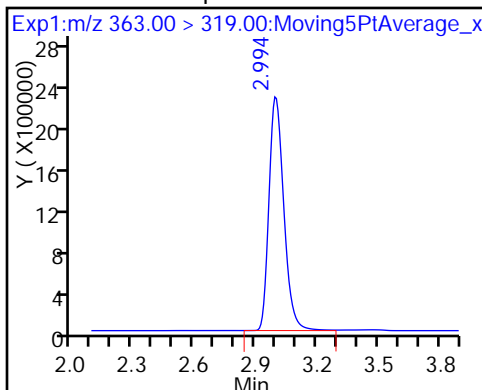
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

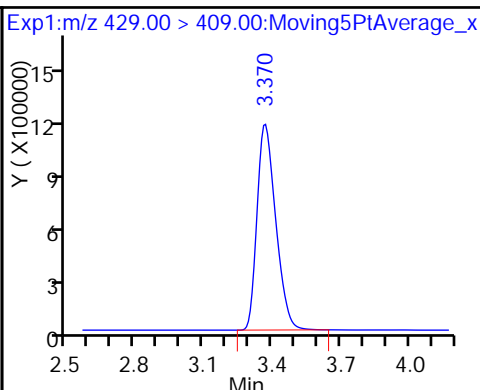
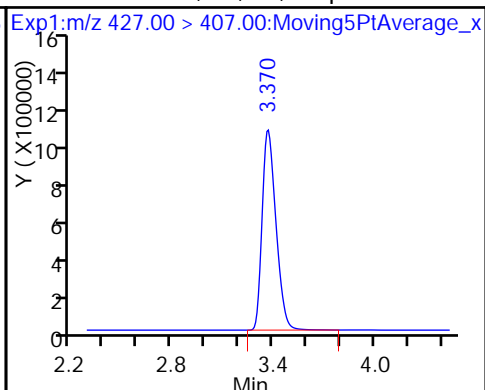
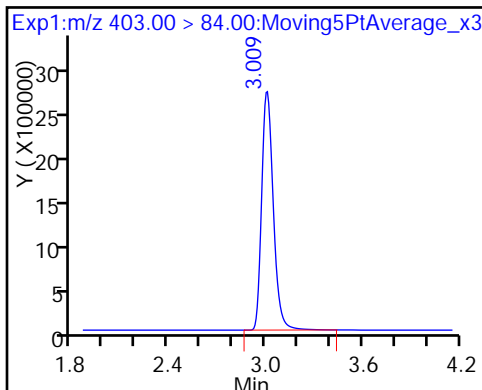
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

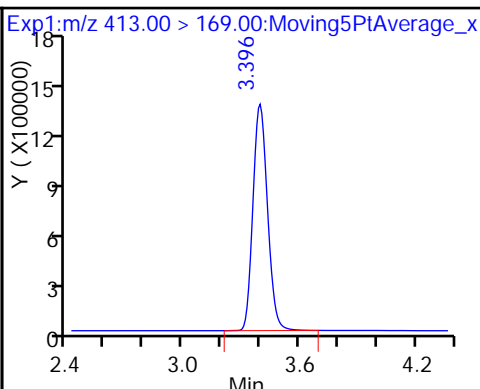
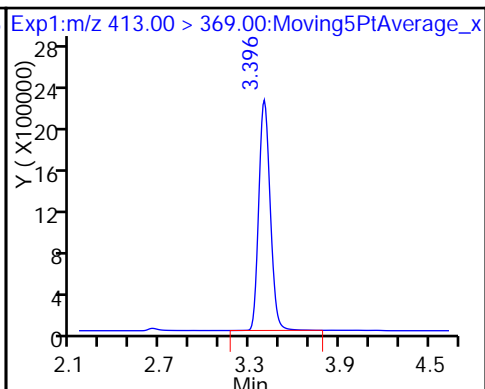
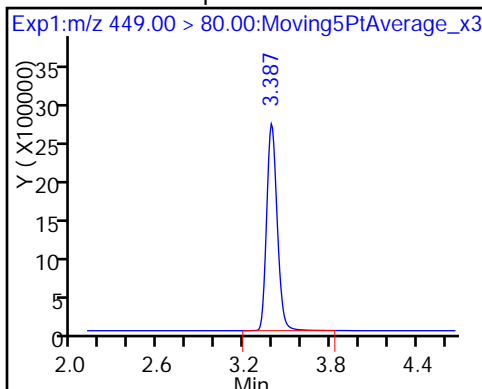
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

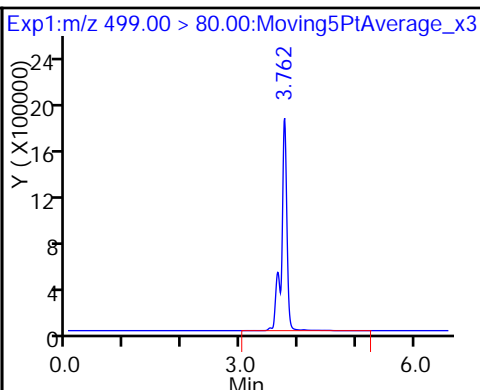
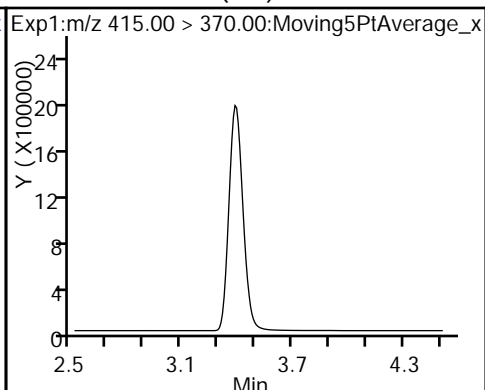
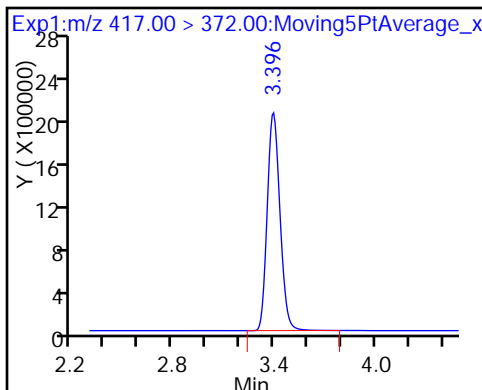
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA (ND)

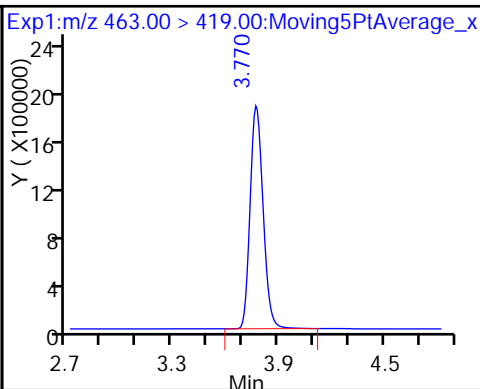
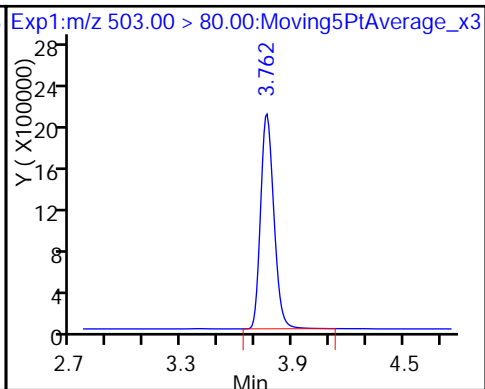
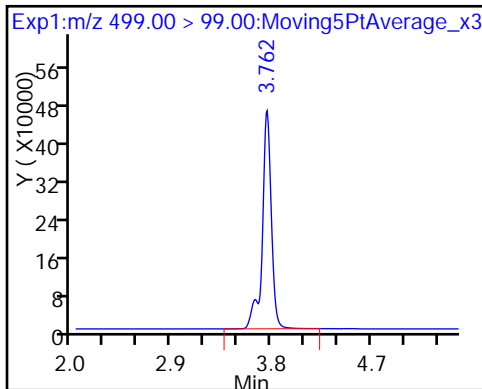
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

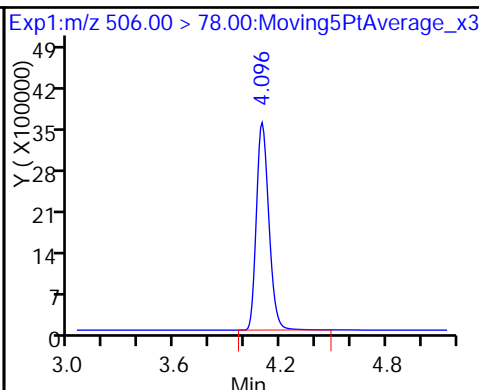
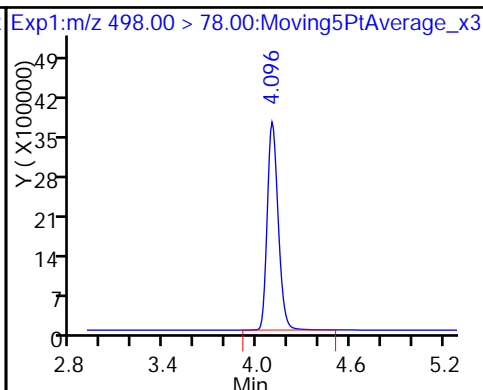
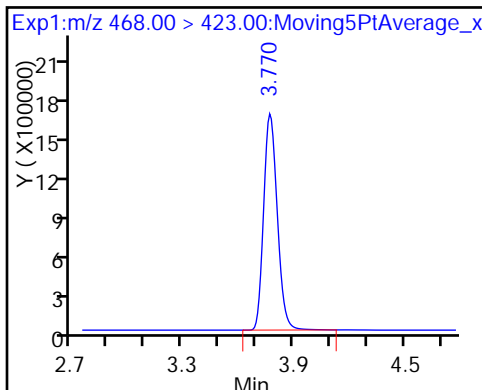
20 Perfluorononanoic acid



D 19 13C5 PFNA

22 Perfluorooctane Sulfonamide

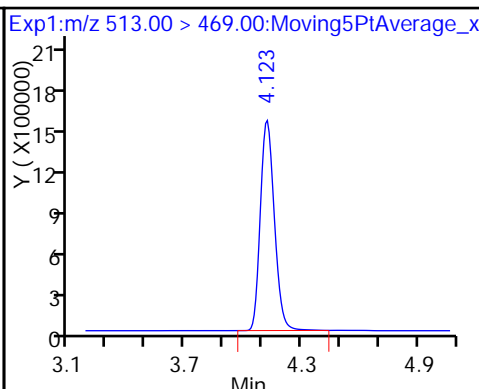
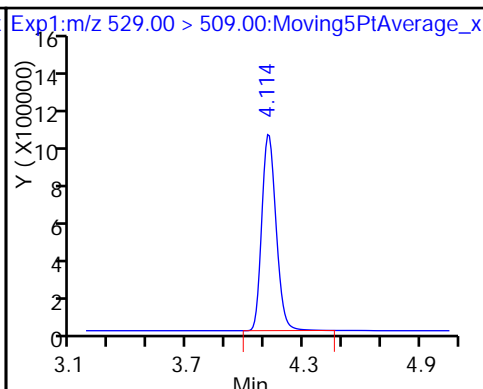
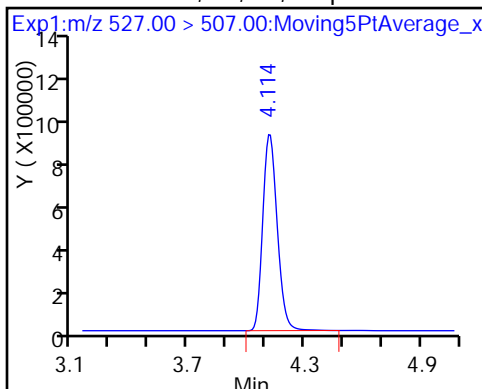
D 21 13C8 FOSA



25 Sodium 1H,1H,2H,2H-perfluorooctane

D 26 M2-8:2FTS

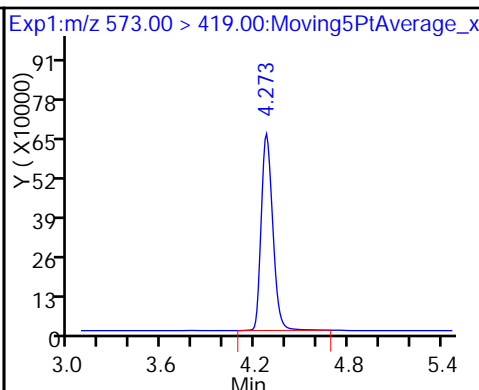
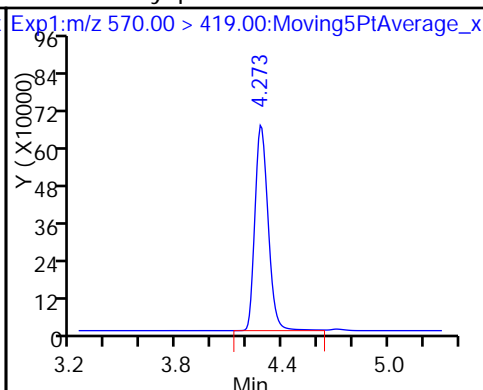
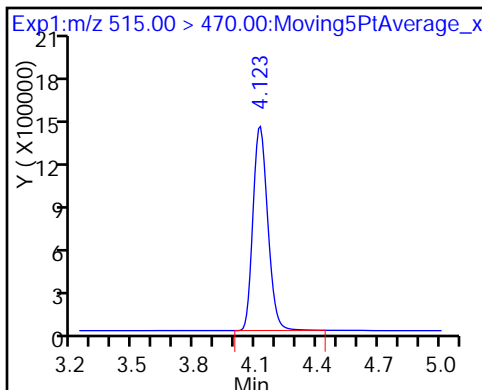
24 Perfluorodecanoic acid



D 23 13C2 PFDA

28 N-methyl perfluorooctane sulfonamide

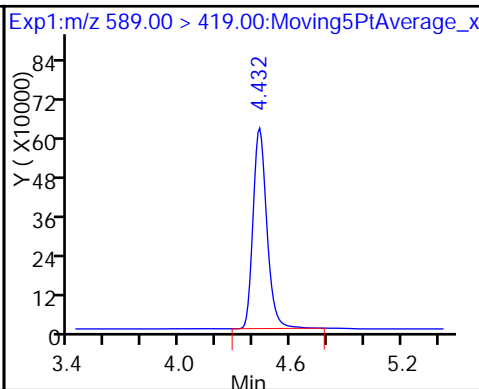
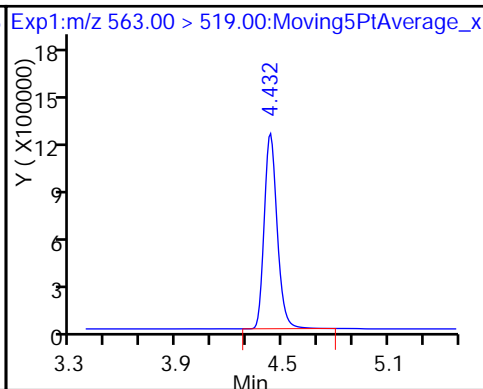
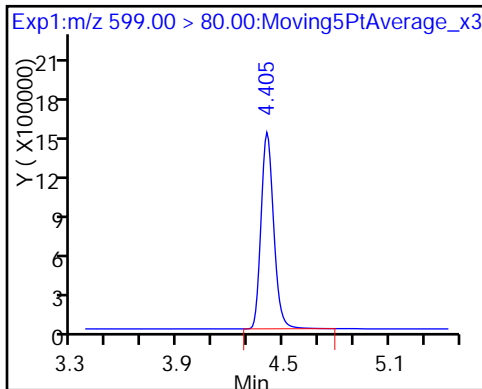
D 27 d3-NMeFOSAA



29 Perfluorodecane Sulfonic acid

31 Perfluoroundecanoic acid

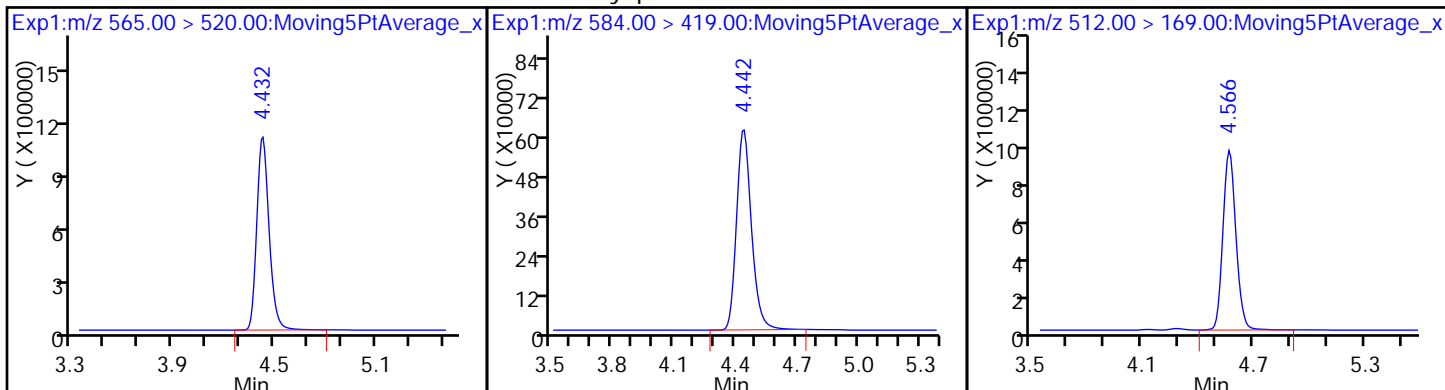
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

33 N-ethyl perfluorooctane sulfonamid

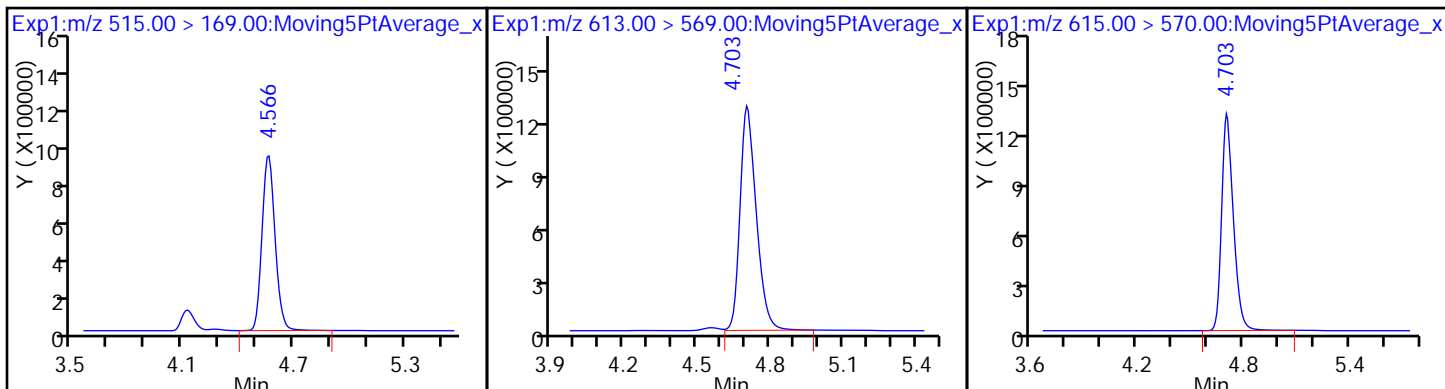
35 MeFOSA



D 34 d-N-MeFOSA-M

37 Perfluorododecanoic acid

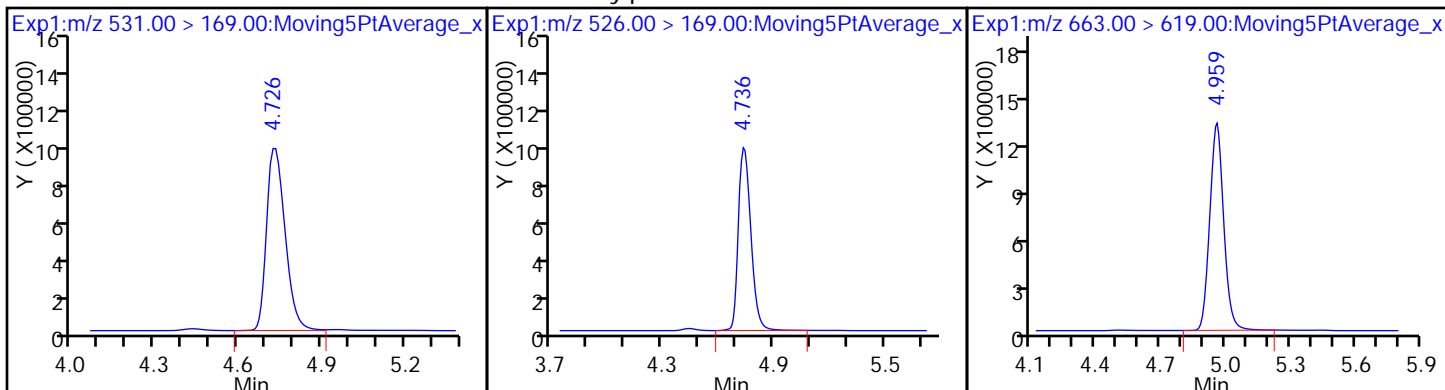
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

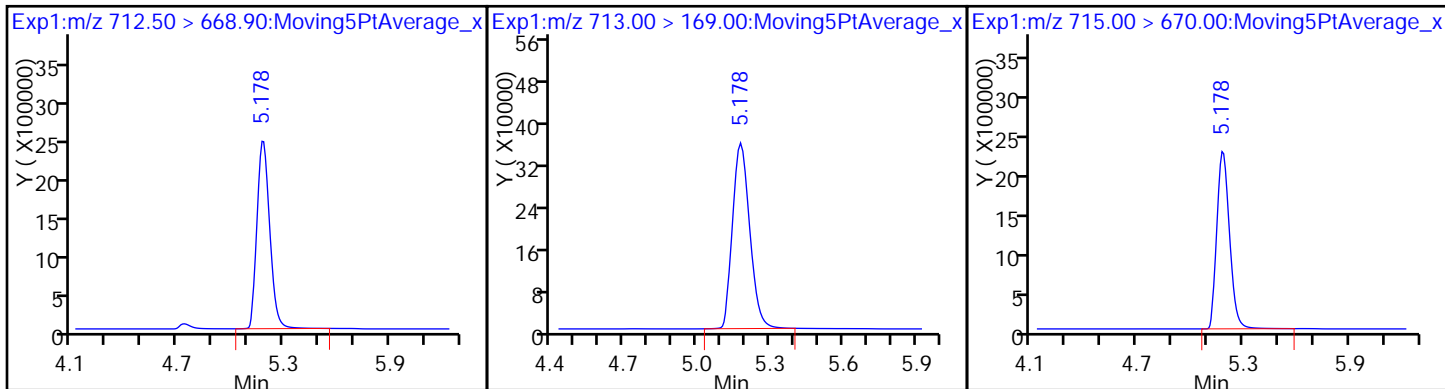
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

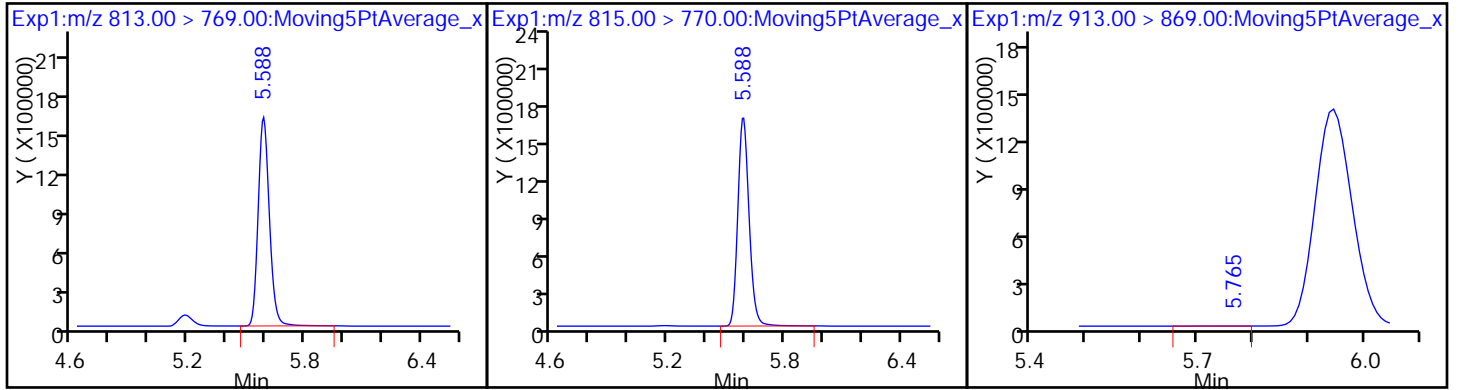
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/34 Calibration Date: 05/19/2017 11:51
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_006C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.057		20.8	19.8	5.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.141		20.5	19.8	3.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.947		21.4	17.5	22.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.069		20.6	19.8	3.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.149		20.3	19.8	2.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.213		18.6	18.0	3.0	25.0
6:2FTS	AveID	0.9691	0.998		19.3	18.8	3.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.372		20.0	18.9	6.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.151		19.8	19.8	0.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.183		18.2	18.4	-0.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.099		20.3	19.8	2.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.080		20.2	19.8	2.2	25.0
8:2FTS	AveID	0.9756	1.017		19.8	19.0	4.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.067		20.7	19.8	4.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.040		19.7	19.8	-0.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7151		19.9	19.1	4.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.145		19.2	19.8	-2.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	1.001		20.7	19.8	4.6	25.0
MeFOSA	AveID	0.9641	1.005		20.7	19.8	4.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.031		20.1	19.8	1.6	25.0
N-EtFOSA-M	AveID	1.017	1.024		19.9	19.8	0.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.023		19.8	19.8	0.2	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.266		19.6	19.8	-0.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.102		19.2	19.8	-3.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		1.156		296	19.8	1396.4*	25.0
13C4 PFBA	Ave	359776	357723		49.2	49.5	-0.6	50.0
13C5-PFPeA	Ave	248689	261146		52.0	49.5	5.0	50.0
13C2 PFHxA	Ave	243576	249695		50.7	49.5	2.5	50.0
13C4-PFHpA	Ave	211904	218767		51.1	49.5	3.2	50.0
18O2 PFHxS	Ave	304465	311258		47.9	46.8	2.2	50.0
M2-6:2FTS	Ave	126131	142758		53.2	47.0	13.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/34 Calibration Date: 05/19/2017 11:51
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_006C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	232692		54.1	49.5	9.4	50.0
13C4 PFOS	Ave	229280	226284		46.7	47.3	-1.3	50.0
13C5 PFNA	Ave	167851	176668		52.1	49.5	5.3	50.0
13C8 FOSA	Ave	367124	355178		47.9	49.5	-3.3	50.0
13C2 PFDA	Ave	144503	149902		51.4	49.5	3.7	50.0
M2-8:2FTS	Ave	99091	106746		51.1	47.4	7.7	50.0
d3-NMeFOSAA	Ave	64888	66999		51.1	49.5	3.3	50.0
13C2 PFUnA	Ave	101742	118633		57.7	49.5	16.6	50.0
d5-NEtFOSAA	Ave	63526	66828		52.1	49.5	5.2	50.0
d-N-MeFOSA-M	Ave	99549	94111		46.8	49.5	-5.5	50.0
13C2 PFDoA	Ave	100236	121105		59.8	49.5	20.8	50.0
d-N-EtFOSA-M	Ave	93251	93202		49.5	49.5	-0.0	50.0
13C2-PFTeDA	Ave	204943	234914		56.7	49.5	14.6	50.0
13C2-PFHxDA	Ave	118334	135116		56.5	49.5	14.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_006C.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-May-2017 11:51:47 ALS Bottle#: 31 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 12:05:09 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 12:05:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid	212.90 > 169.00	1.911	1.903	0.008	1.000	7485842	20.8	105	1064	
D 1 13C4 PFBA	217.00 > 172.00	1.911	1.903	0.008		17709072	49.2	99.4	175251	
4 Perfluoropentanoic acid	262.90 > 219.00	2.251	2.242	0.009	1.000	5901759	20.5	104	1635	
D 3 13C5-PFPeA	267.90 > 223.00	2.251	2.242	0.009		12928043	52.0	105	288580	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.289	2.289	0.0	1.000	10606665	21.4	122		
	298.90 > 99.00	2.289	2.289	0.0	1.000	4326170		2.45(0.00-0.00)		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.567	2.564	0.003	1.000	2015040	18.3	98.9		
6 Perfluorohexanoic acid	313.00 > 269.00	2.611	2.608	0.003	1.000	5287225	20.6	104	9887	
D 7 13C2 PFHxA	315.00 > 270.00	2.611	2.608	0.003		12361161	50.7	103	67677	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.999	2.994	0.005	1.000	4978600	20.3	103	2447	
D 9 13C4-PFHpA	367.00 > 322.00	2.999	2.994	0.005		10830072	51.1	103	56434	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.007	3.009	-0.002	1.000	6806072	18.6	103		
D 11 18O2 PFHxS	403.00 > 84.00	3.007	3.009	-0.002		14576728	47.9	102	70110	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.376	3.370	0.006	1.000	2674004	19.3	103		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.368	3.370	-0.002		6713872	53.2		113		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.393	3.387	0.006	1.000	5851174	20.0		106		
15 Perfluorooctanoic acid										
413.00 > 369.00	3.393	3.396	-0.003	1.000	5302278	19.8		100	1137	
413.00 > 169.00	3.393	3.396	-0.003	1.000	2945568		1.80(0.90-1.10)		6814	
D 14 13C4 PFOA										
417.00 > 372.00	3.393	3.396	-0.003		11519400	54.1		109	45997	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.764	3.762	0.002	1.000	4917947	18.2		99.2	66325	
499.00 > 99.00	3.756	3.762	-0.006	0.998	1100864		4.47(0.90-1.10)		4783	
D 18 13C4 PFOS										
503.00 > 80.00	3.764	3.762	0.002		10709278	46.7		98.7	17024	
20 Perfluorononanoic acid										
463.00 > 419.00	3.773	3.770	0.003	1.000	3845500	20.3		103	5376	
D 19 13C5 PFNA										
468.00 > 423.00	3.773	3.770	0.003		8745965	52.1		105	26720	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.099	4.096	0.003	1.000	7597351	20.2		102	33501	
D 21 13C8 FOSA										
506.00 > 78.00	4.099	4.096	0.003		17583052	47.9		96.7	68179	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.117	4.114	0.003	1.000	2060044	19.8		104		
D 26 M2-8:2FTS										
529.00 > 509.00	4.117	4.114	0.003		5062498	51.1		108		
24 Perfluorodecanoic acid										
513.00 > 469.00	4.117	4.123	-0.006	1.000	3168646	20.7		104	6903	
D 23 13C2 PFDA										
515.00 > 470.00	4.117	4.123	-0.006		7420887	51.4		104	14259	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.282	4.273	0.009	1.002	1380231	19.7		99.3		
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.272	4.273	-0.001		3316773	51.1		103		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.402	4.405	-0.003	1.000	3088700	19.9		104		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.430	4.432	-0.002	1.000	2689086	19.2		97.2	4619	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.430	4.432	-0.002		3308337	52.1		105		
D 30 13C2 PFUnA										
565.00 > 520.00	4.430	4.432	-0.002		5872942	57.7		117	12378	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.439	4.442	-0.003	1.002	1324515	20.7		105		
35 MeFOSA										
512.00 > 169.00	4.564	4.566	-0.002	1.000	1873769	20.7		104		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.564	4.566	-0.002		4658953	46.8		94.5		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00 > 569.00	4.703	4.703	0.0	1.000	2472224	20.1	102	809	
D 36 13C2 PFDaA	615.00 > 570.00	4.703	4.703	0.0		5995302	59.8	121	9534	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.736	4.726	0.010		4613940	49.5	99.9		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.736	4.736	0.0	1.000	1889831	19.9	101		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.958	4.959	-0.001	1.000	2452870	19.8	100	1377	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.184	5.178	0.006	1.000	5433058	19.6	99.1	258	
	713.00 > 169.00	5.174	5.178	-0.004	0.998	717293		7.57(0.00-0.00)	3187	
D 43 13C2-PFTeDA	715.00 > 670.00	5.184	5.178	0.006		11629392	56.7	115	10028	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.585	5.588	-0.003	1.000	2641902	19.2	96.9	136	
D 44 13C2-PFHxDA	815.00 > 770.00	5.585	5.588	-0.003		6688933	56.5	114	4211	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.941	5.765	0.176	1.000	2772469	296.3	1496	14240	E

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

LCPFC_FULL-L4_00002

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_006C.d

Injection Date: 19-May-2017 11:51:47

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

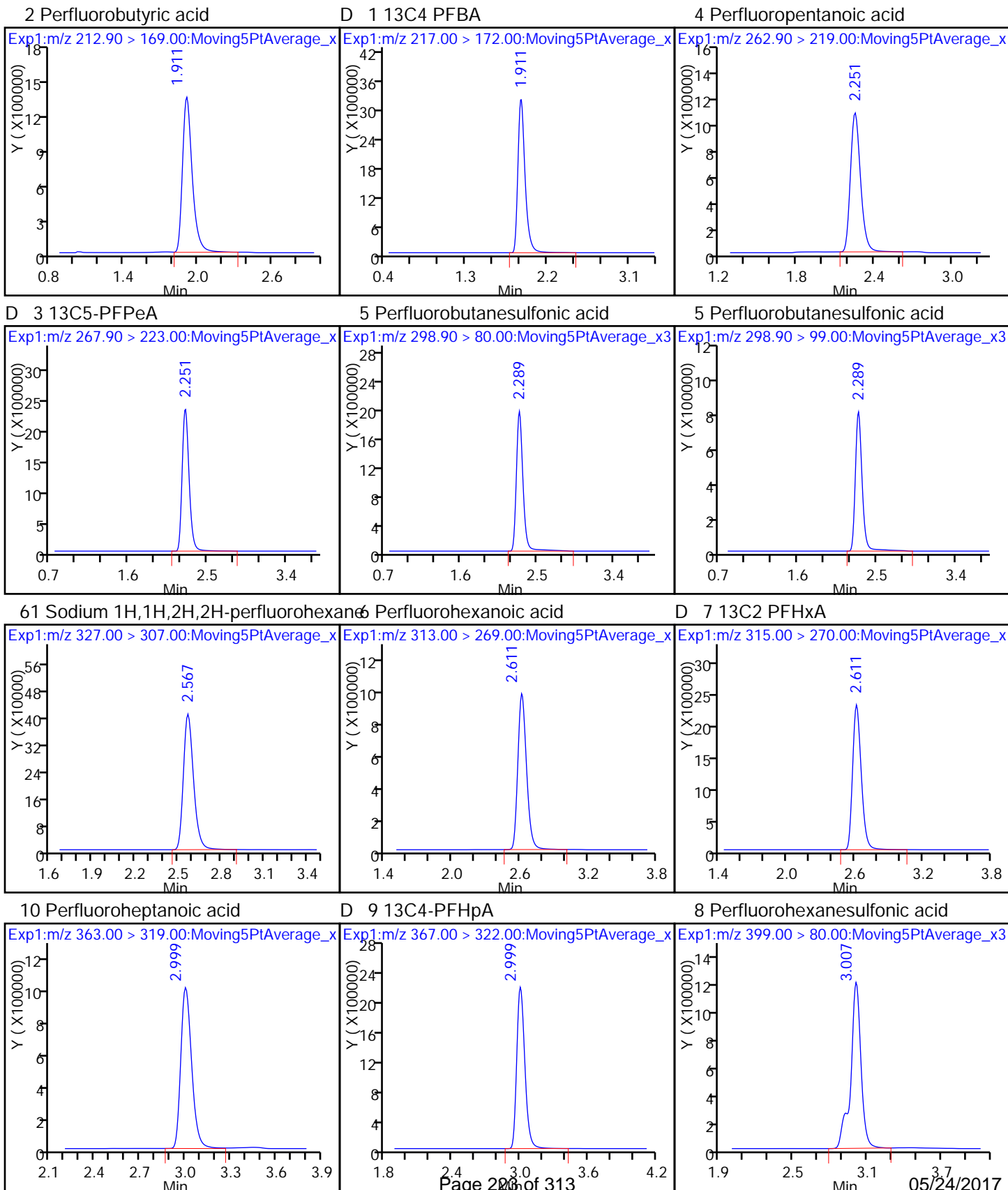
Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

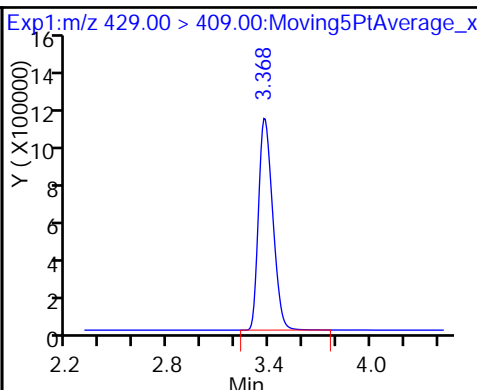
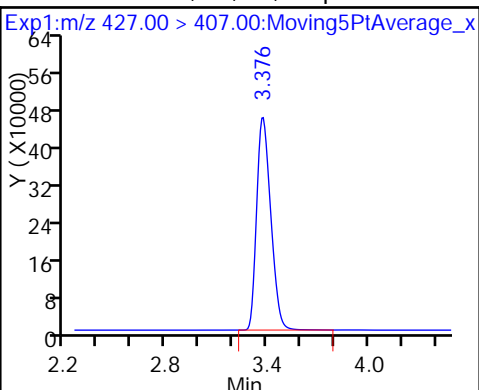
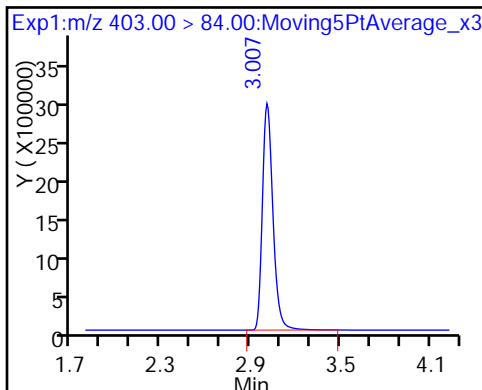
Limit Group: LC PFC_DOD ICAL



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

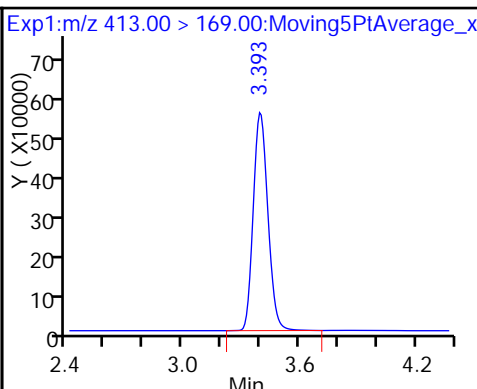
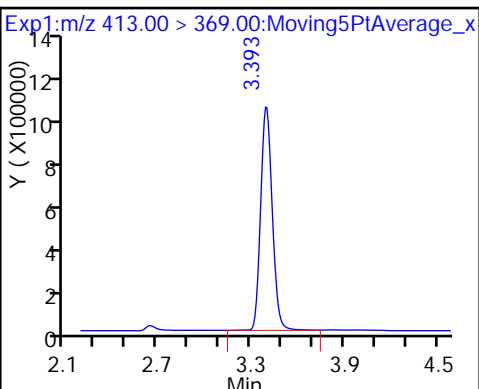
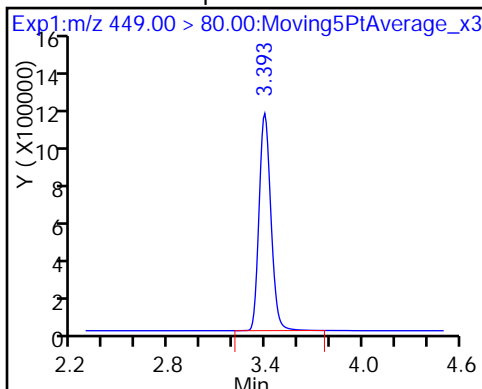
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

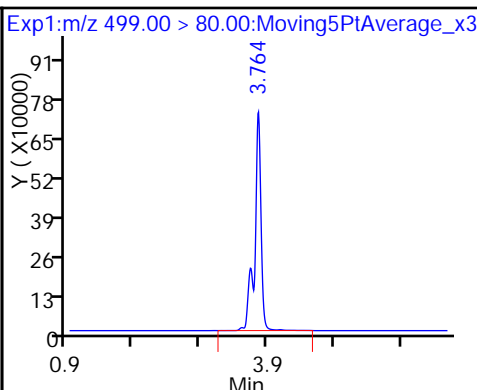
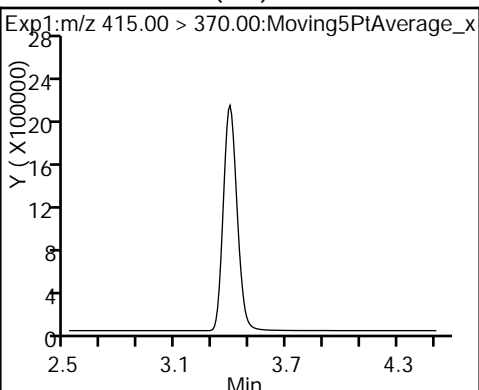
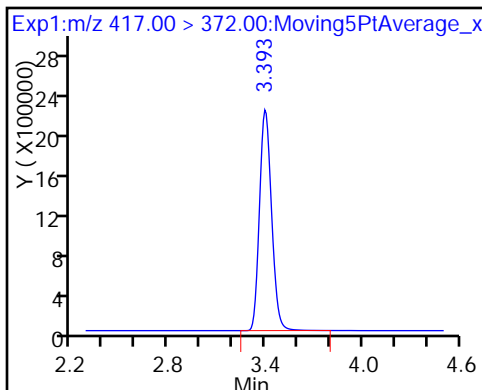
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA (ND)

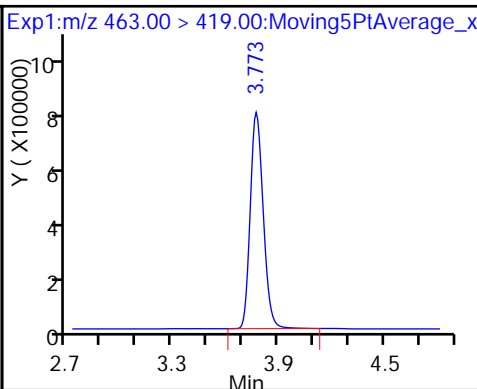
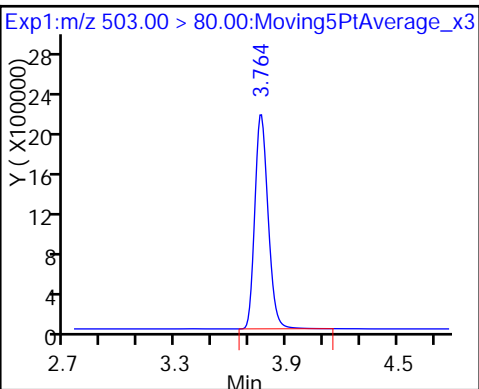
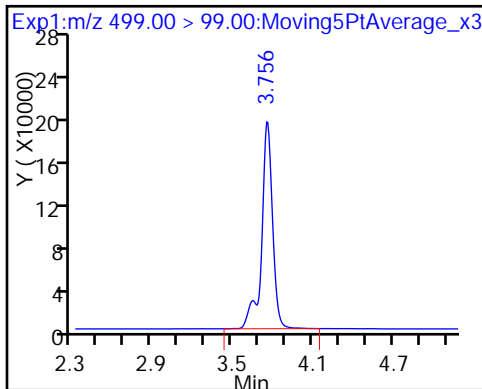
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

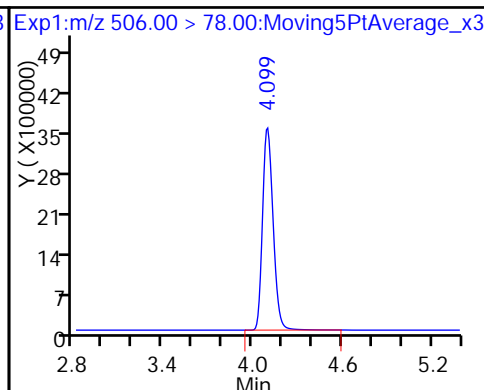
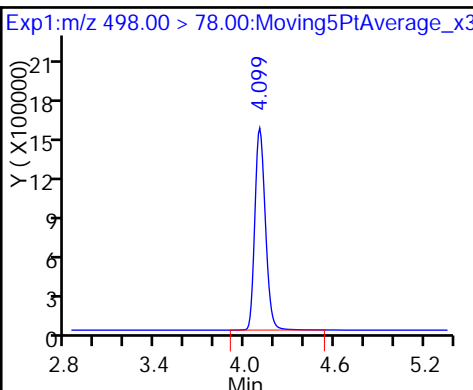
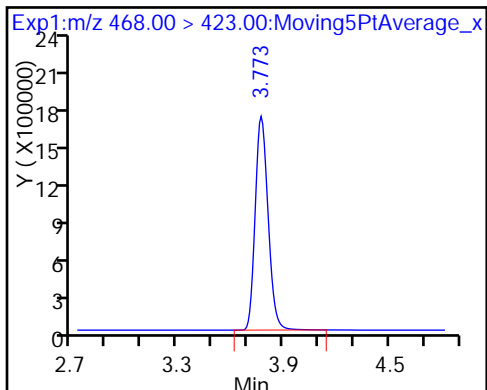
20 Perfluorononanoic acid



D 19 13C5 PFNA

22 Perfluorooctane Sulfonamide

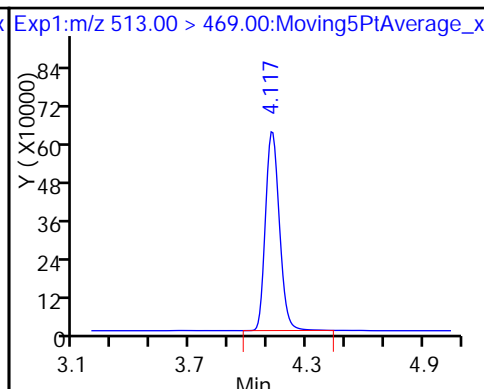
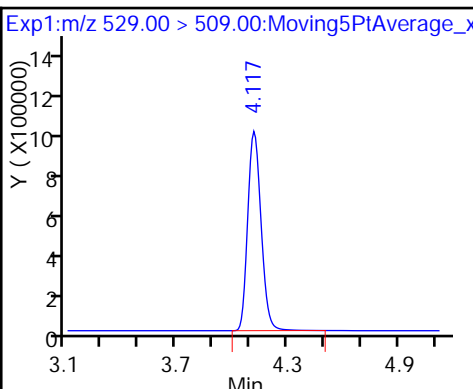
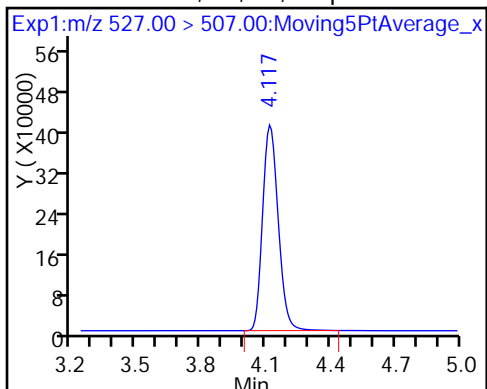
D 21 13C8 FOSA



25 Sodium 1H,1H,2H,2H-perfluorooctane

D 26 M2-8:2FTS

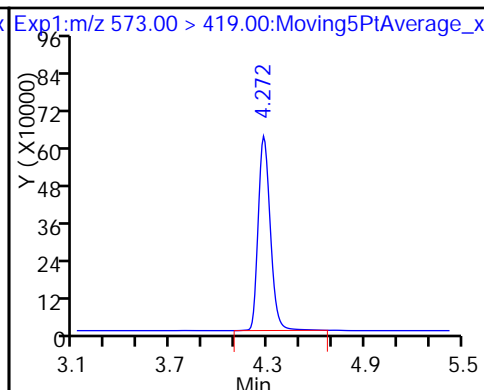
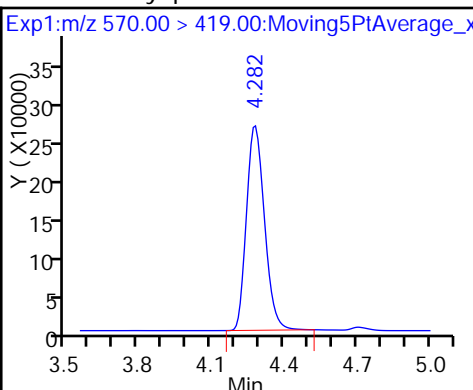
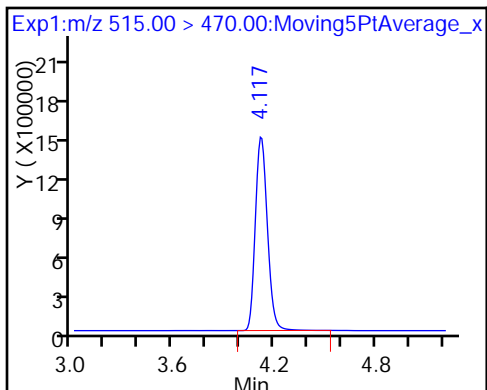
24 Perfluorodecanoic acid



D 23 13C2 PFDA

28 N-methyl perfluorooctane sulfonamide

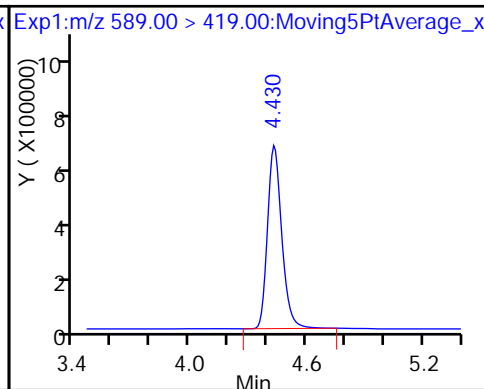
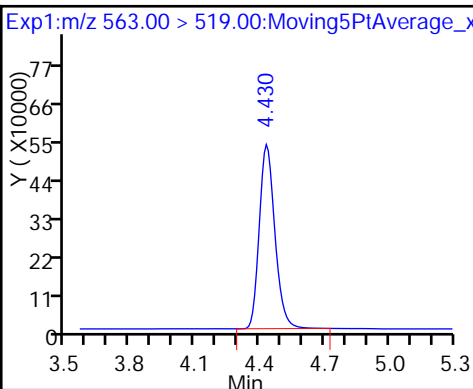
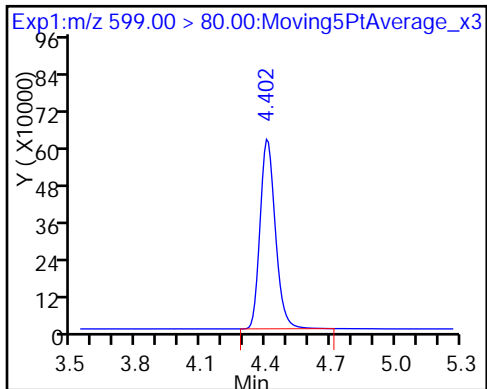
D 27 d3-NMeFOSAA



29 Perfluorodecane Sulfonic acid

31 Perfluoroundecanoic acid

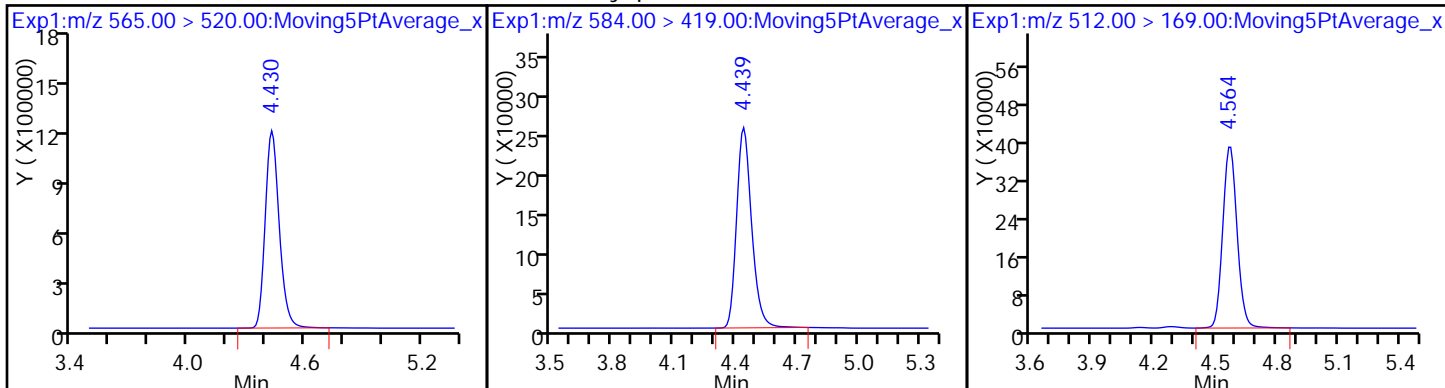
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

33 N-ethyl perfluorooctane sulfonamid

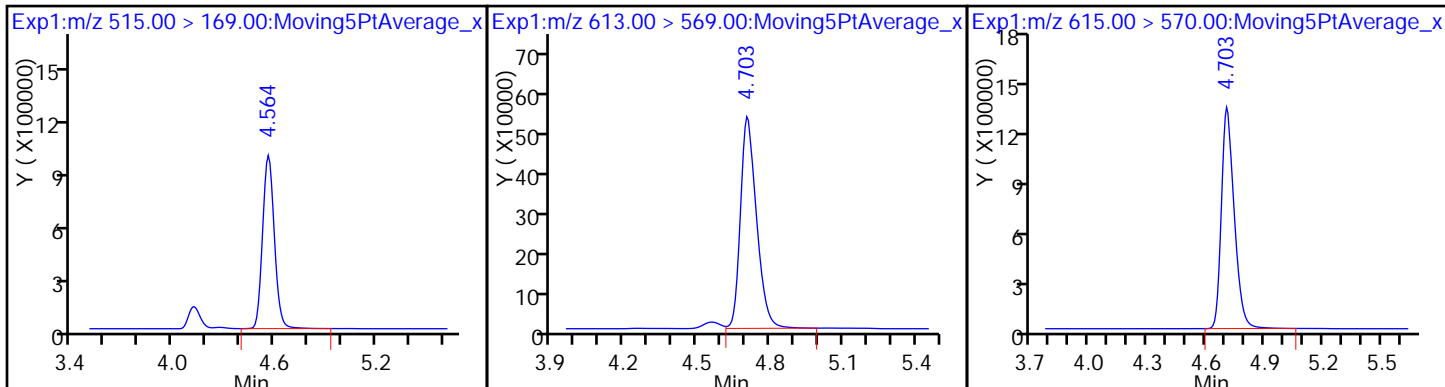
35 MeFOSA



D 34 d-N-MeFOSA-M

37 Perfluorododecanoic acid

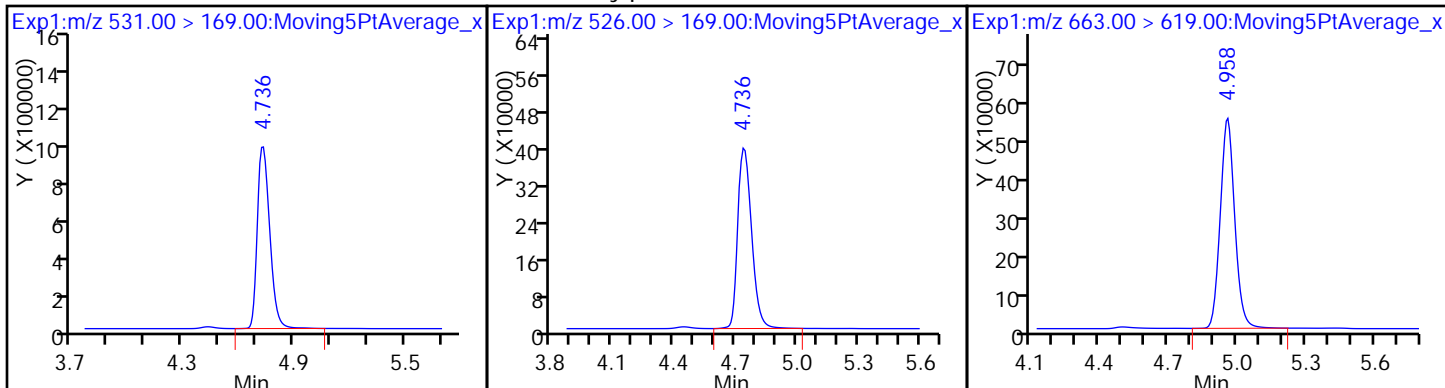
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

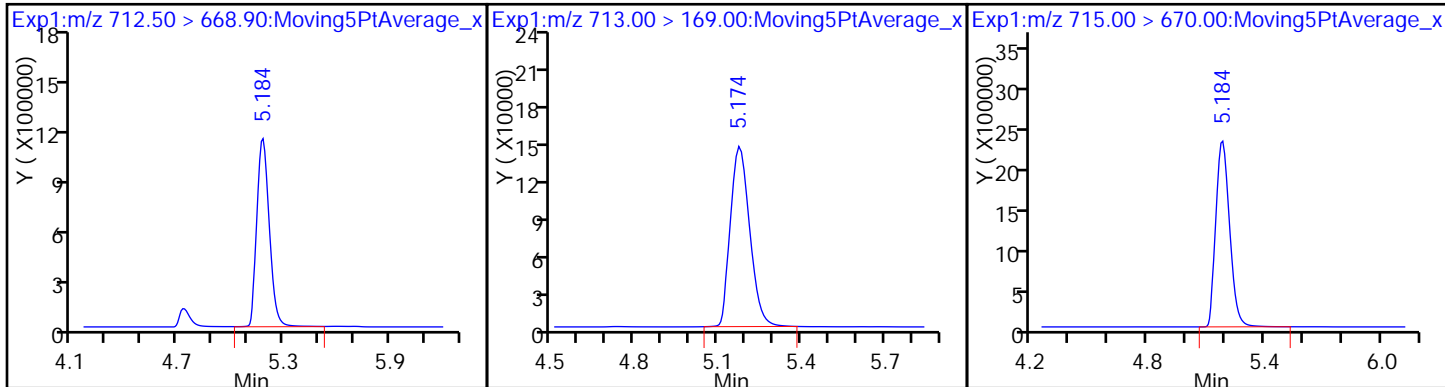
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

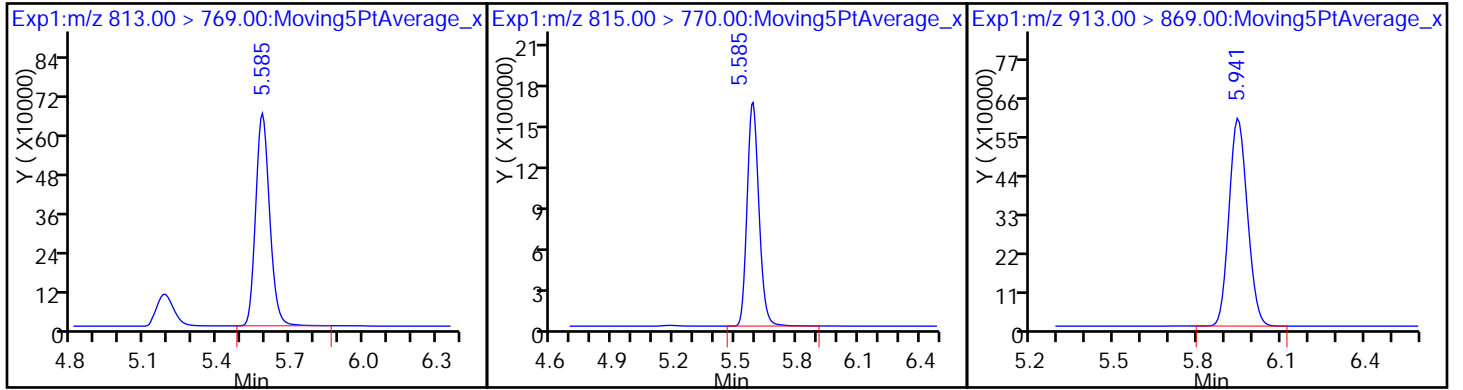
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/14 Calibration Date: 05/19/2017 12:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.058		52.1	49.5	5.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.100		49.5	49.5	-0.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.918		52.6	43.8	20.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.020		49.0	49.5	-0.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.112		49.2	49.5	-0.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.181		45.2	45.0	0.3	25.0
6:2FTS	AveID	0.9691	0.9438		45.7	46.9	-2.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.346		49.1	47.1	4.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.104		47.6	49.5	-3.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.198		46.1	45.9	0.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.068		49.4	49.5	-0.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.041		48.7	49.5	-1.5	25.0
8:2FTS	AveID	0.9756	0.9675		47.0	47.4	-0.8	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.077		52.1	49.5	5.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	0.9918		46.9	49.5	-5.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7412		51.5	47.7	7.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9195		47.6	49.5	-3.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.142		48.0	49.5	-3.0	25.0
MeFOSA	AveID	0.9641	0.9747		50.0	49.5	1.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.000		48.8	49.5	-1.4	25.0
N-EtFOSA-M	AveID	1.017	1.001		48.7	49.5	-1.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.9734		47.2	49.5	-4.6	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.157		46.9	49.5	-5.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.009		45.1	49.5	-8.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0015		0.200	49.5	-100.0*	25.0
13C4 PFBA	Ave	359776	359949		49.5	49.5	0.0	50.0
13C5-PFPeA	Ave	248689	270721		53.9	49.5	8.9	50.0
13C2 PFHxA	Ave	243576	241982		49.2	49.5	-0.7	50.0
13C4-PFHpA	Ave	211904	203949		47.6	49.5	-3.8	50.0
18O2 PFHxS	Ave	304465	295358		45.4	46.8	-3.0	50.0
M2-6:2FTS	Ave	126131	133241		49.7	47.0	5.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/14 Calibration Date: 05/19/2017 12:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	215209		50.1	49.5	1.1	50.0
13C4 PFOS	Ave	229280	221680		45.8	47.3	-3.3	50.0
13C5 PFNA	Ave	167851	167255		49.3	49.5	-0.4	50.0
13C8 FOSA	Ave	367124	351641		47.4	49.5	-4.2	50.0
M2-8:2FTS	Ave	99091	109513		52.4	47.4	10.5	50.0
13C2 PFDA	Ave	144503	141205		48.4	49.5	-2.3	50.0
d3-NMeFOSAA	Ave	64888	69095		52.7	49.5	6.5	50.0
13C2 PFUnA	Ave	101742	113322		55.1	49.5	11.4	50.0
d5-NEtFOSAA	Ave	63526	68749		53.6	49.5	8.2	50.0
d-N-MeFOSA-M	Ave	99549	97301		48.4	49.5	-2.3	50.0
13C2 PFDoA	Ave	100236	117852		58.2	49.5	17.6	50.0
d-N-EtFOSA-M	Ave	93251	90073		47.8	49.5	-3.4	50.0
13C2-PFTeDA	Ave	204943	237392		57.3	49.5	15.8	50.0
13C2-PFHxDA	Ave	118334	125300		52.4	49.5	5.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_012.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-May-2017 12:36:51 ALS Bottle#: 32 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:38:57 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:38:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.912	1.903	0.009	17819282	49.5		100	197783	
2 Perfluorobutyric acid	212.90 > 169.00	1.920	1.903	0.017	18854161	52.1		105	846	
4 Perfluoropentanoic acid	262.90 > 219.00	2.252	2.242	0.010	14741502	49.5		100.0	2182	
D 3 13C5-PFPeA	267.90 > 223.00	2.252	2.242	0.010	13402033	53.9		109	268377	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.299	2.289	0.010	24793880	52.6		120		
	298.90 > 99.00	2.289	2.289	0.0	10802061		2.30(0.00-0.00)			
D 47 13C3-PFBS	301.90 > 83.00	2.289	2.309	-0.020	327756	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.575	2.564	0.011	4314188	41.9		90.7		
6 Perfluorohexanoic acid	313.00 > 269.00	2.619	2.608	0.011	12224304	49.0		99.1	12227	
D 7 13C2 PFHxA	315.00 > 270.00	2.619	2.608	0.011	11979311	49.2		99.3	54191	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.009	2.994	0.015	11222774	49.2		99.3	3942	
D 9 13C4-PFHpA	367.00 > 322.00	3.009	2.994	0.015	10096480	47.6		96.2	65823	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.017	3.009	0.008	15712463	45.2		100		
D 11 18O2 PFHxS	403.00 > 84.00	3.017	3.009	0.008	13832130	45.4		97.0	37819	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.378	3.370	0.008	1.000	5901810	45.7	97.4	
D 12 M2-6:2FTS	429.00	> 409.00	3.378	3.370	0.008		6266272	49.7	106	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.395	3.387	0.008	1.000	14067418	49.1	104	
15 Perfluorooctanoic acid	413.00	> 369.00	3.404	3.396	0.008	1.000	11760380	47.6	96.1	1730
	413.00	> 169.00	3.404	3.396	0.008	1.000	7027839		1.67(0.90-1.10)	11744
D 14 13C4 PFOA	417.00	> 372.00	3.404	3.396	0.008		10653927	50.1	101	45911
* 62 13C2-PFOA	415.00	> 370.00	3.404	3.426	-0.022		10384005	49.5	100	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.771	3.762	0.009	1.000	12198853	46.1	100	8080 M
	499.00	> 99.00	3.771	3.762	0.009	1.000	2622620		4.65(0.90-1.10)	6223 M
D 18 13C4 PFOS	503.00	> 80.00	3.771	3.762	0.009		10491409	45.8	96.7	6969
20 Perfluorononanoic acid	463.00	> 419.00	3.780	3.770	0.010	1.000	8843804	49.4	99.8	7162
D 19 13C5 PFNA	468.00	> 423.00	3.780	3.770	0.010		8279939	49.3	99.6	27177
D 21 13C8 FOSA	506.00	> 78.00	4.108	4.096	0.012		17407992	47.4	95.8	21781
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.108	4.096	0.012	1.000	18121660	48.7	98.5	16595
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.126	4.114	0.012	1.000	5024970	47.0	99.2	
D 26 M2-8:2FTS	529.00	> 509.00	4.126	4.114	0.012		5193726	52.4	111	
24 Perfluorodecanoic acid	513.00	> 469.00	4.126	4.123	0.003	1.000	7530730	52.1	105	2511
D 23 13C2 PFDA	515.00	> 470.00	4.135	4.123	0.012		6990359	48.4	97.7	11945
D 27 d3-NMeFOSAA	573.00	> 419.00	4.286	4.273	0.013		3420559	52.7	106	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.286	4.273	0.013	1.000	3392357	46.9	94.7	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.418	4.405	0.013	1.000	7841439	51.5	108	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.445	4.432	0.013	1.000	6406276	48.0	97.0	2610
D 32 d5-NEtFOSAA	589.00	> 419.00	4.445	4.432	0.013		3403406	53.6	108	
D 30 13C2 PFUnA	565.00	> 520.00	4.436	4.432	0.004		5609982	55.1	111	15547
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.445	4.442	0.003	1.000	3129256	47.6	96.1	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.571	4.566	0.005		4816877	48.4	97.7		
35 MeFOSA	512.00 > 169.00	4.580	4.566	0.014	1.000	4695135	50.0	101		
37 Perfluorododecanoic acid	613.00 > 569.00	4.714	4.703	0.011	1.000	5836253	48.8	98.6	1006	
D 36 13C2 PFDaA	615.00 > 570.00	4.714	4.703	0.011		5834241	58.2	118	6981	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.743	4.726	0.017		4459055	47.8	96.6		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.753	4.736	0.017	1.000	4462174	48.7	98.4		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.967	4.959	0.008	1.000	5679123	47.2	95.4	1691	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.198	5.178	0.020	1.000	12581753	46.9	94.7	569	
	713.00 > 169.00	5.188	5.178	0.010	0.998	1747828		7.20(0.00-0.00)	2843	
D 43 13C2-PFTeDA	715.00 > 670.00	5.188	5.178	0.010		11752062	57.3	116	7891	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.597	5.588	0.009	1.000	5885010	45.1	91.1	415	
D 44 13C2-PFHxDA	815.00 > 770.00	5.597	5.588	0.009		6202990	52.4	106	6218	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.775	5.976	-0.201	1.000	8479	-3.33	-6.7	0.0	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_012.d

Injection Date: 19-May-2017 12:36:51

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

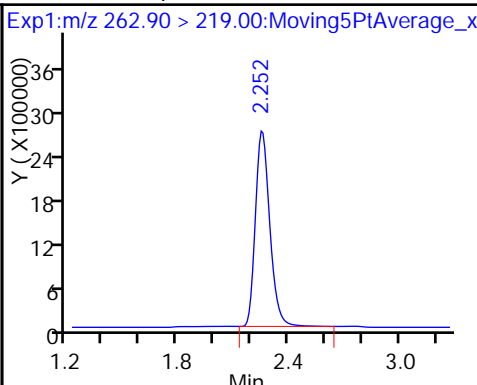
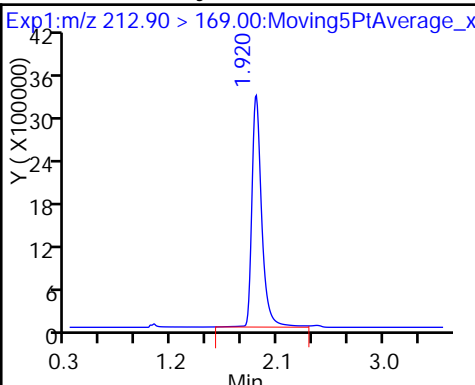
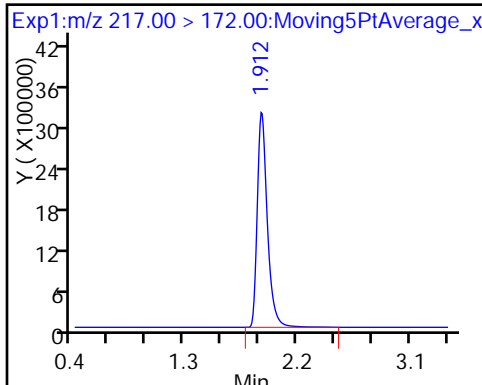
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

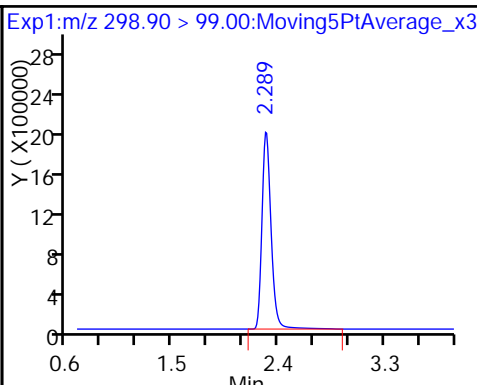
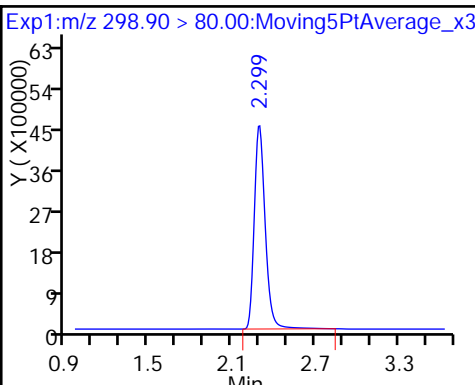
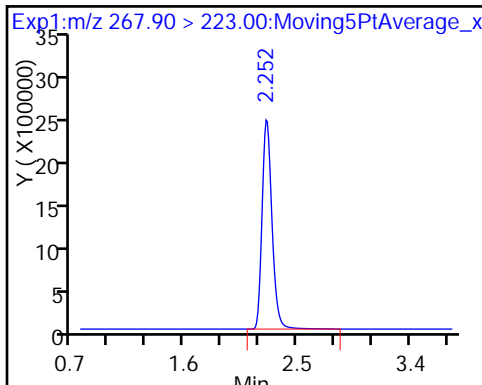
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

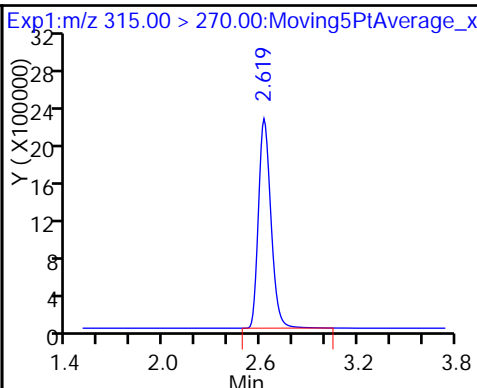
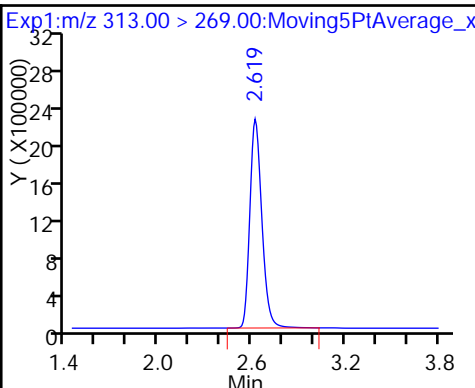
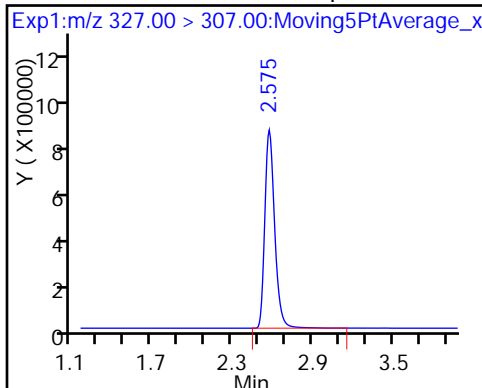
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

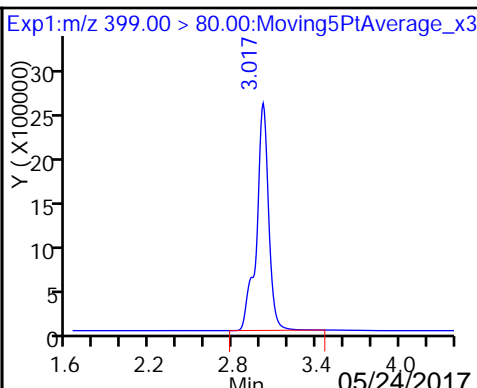
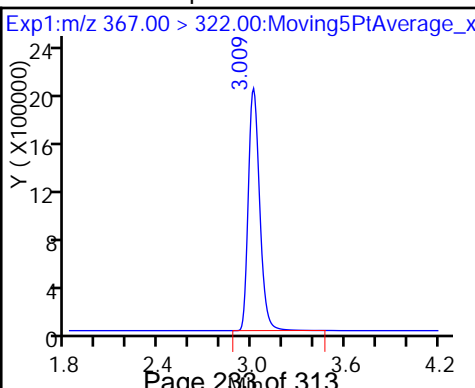
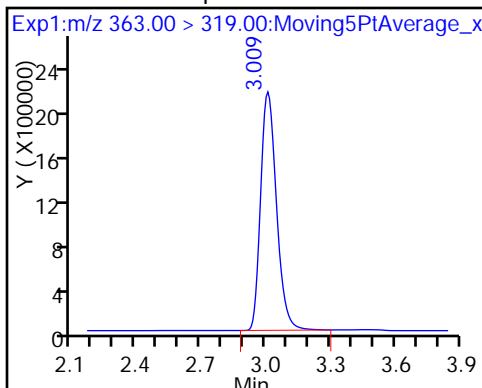
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

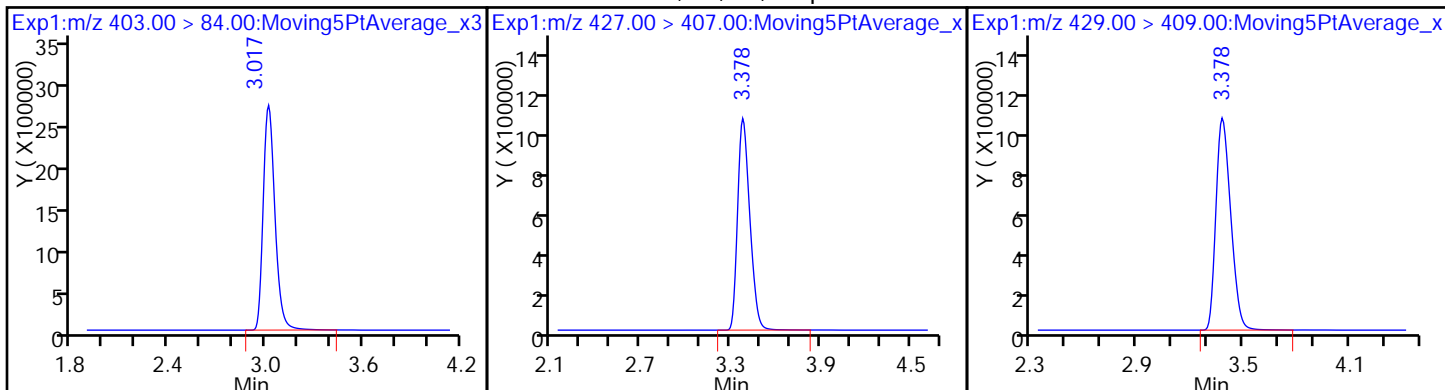
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

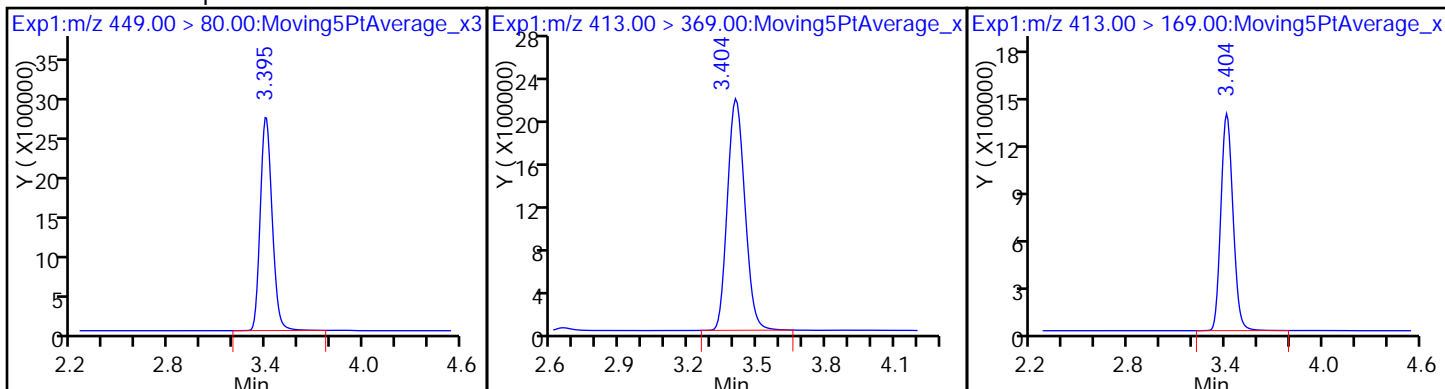
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

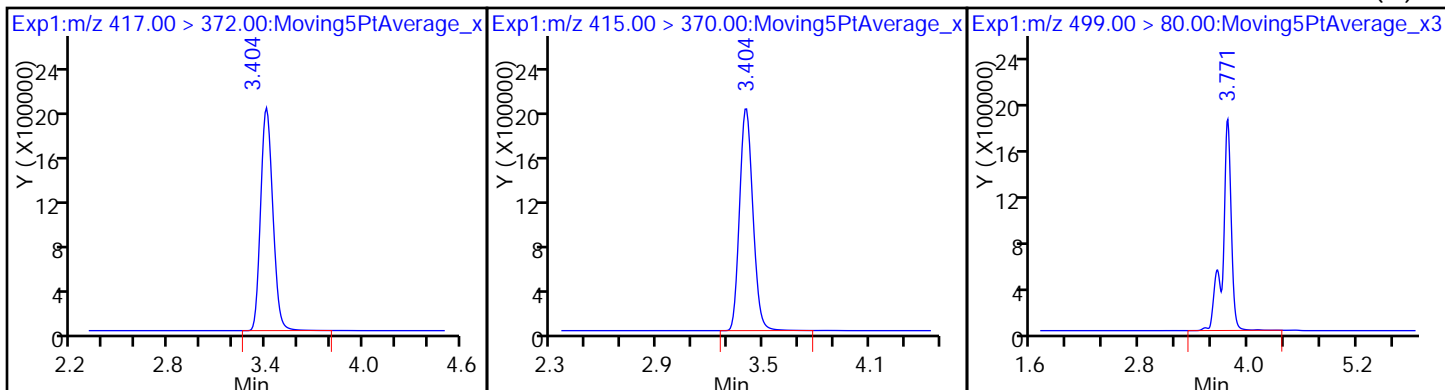
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA

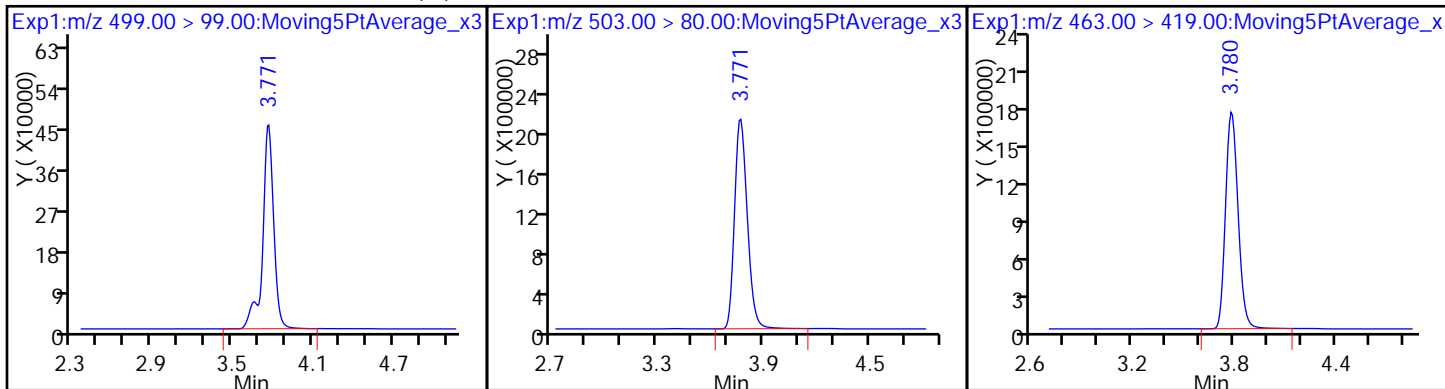
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS

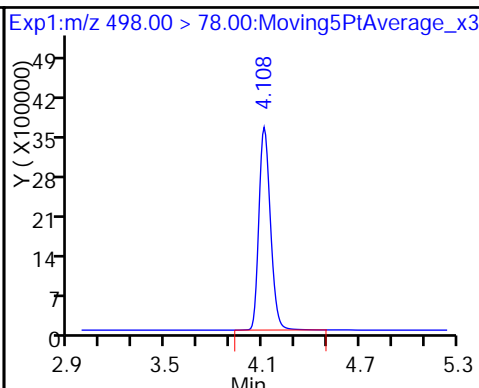
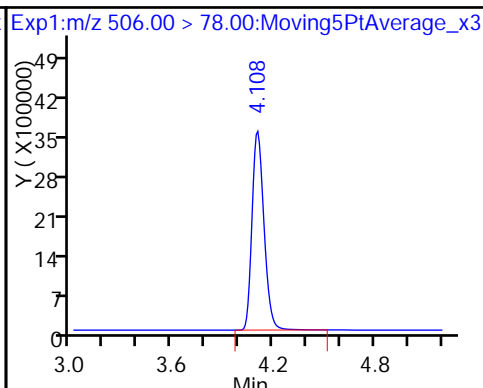
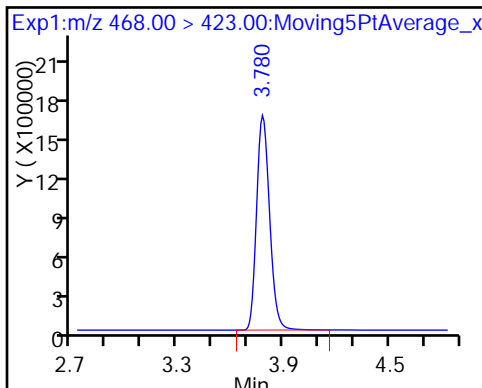
20 Perfluorononanoic acid



D 19 13C5 PFNA

D 21 13C8 FOSA

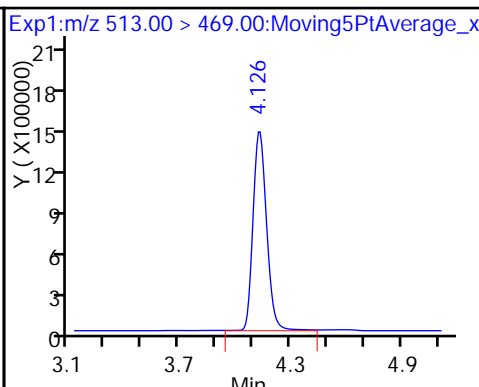
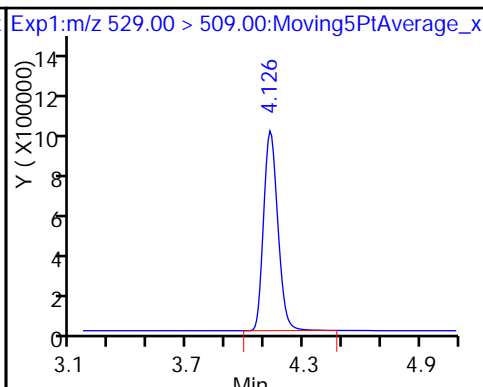
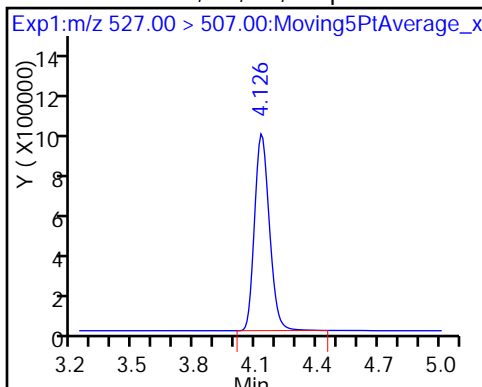
22 Perfluorooctane Sulfonamide



25 Sodium 1H,1H,2H,2H-perfluorooctane

D 26 M2-8:2FTS

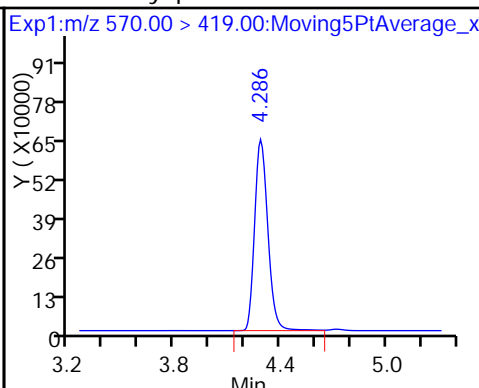
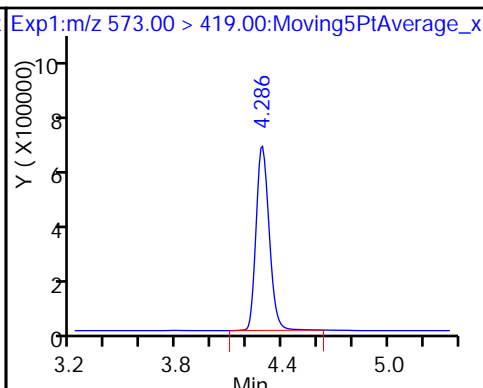
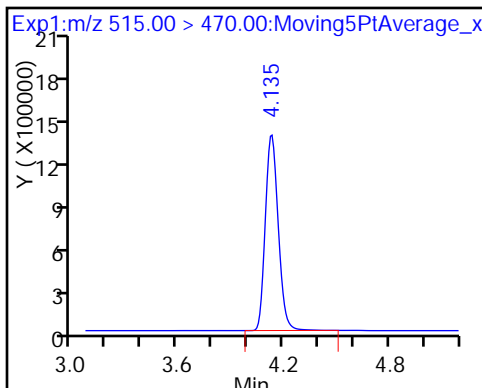
24 Perfluorodecanoic acid



D 23 13C2 PFDA

D 27 d3-NMeFOSAA

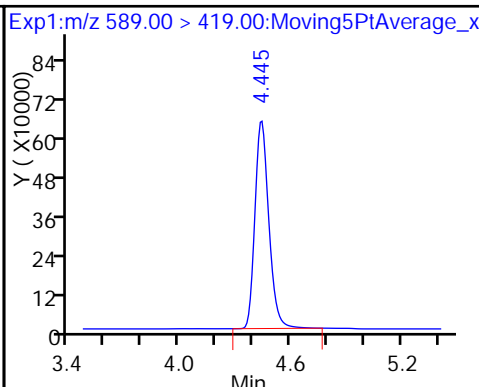
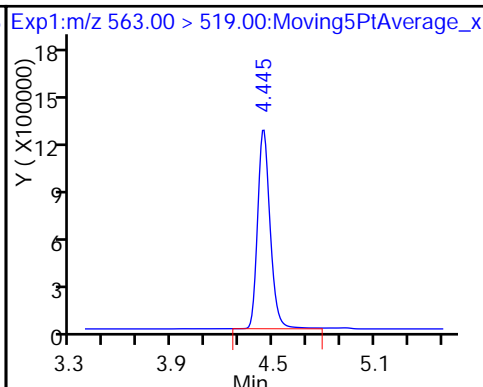
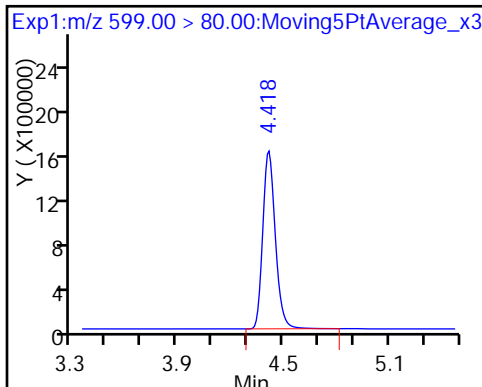
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

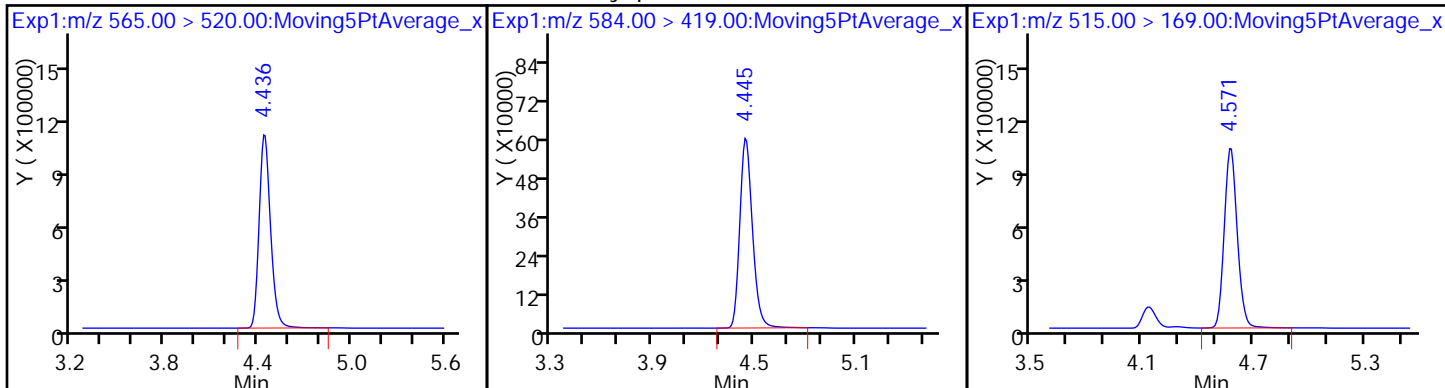
31 Perfluoroundecanoic acid

D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

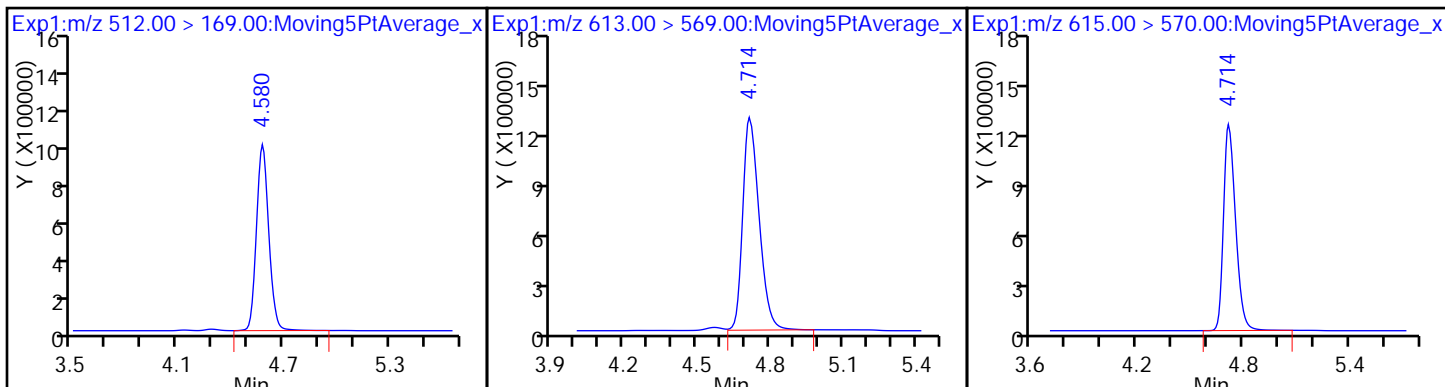
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

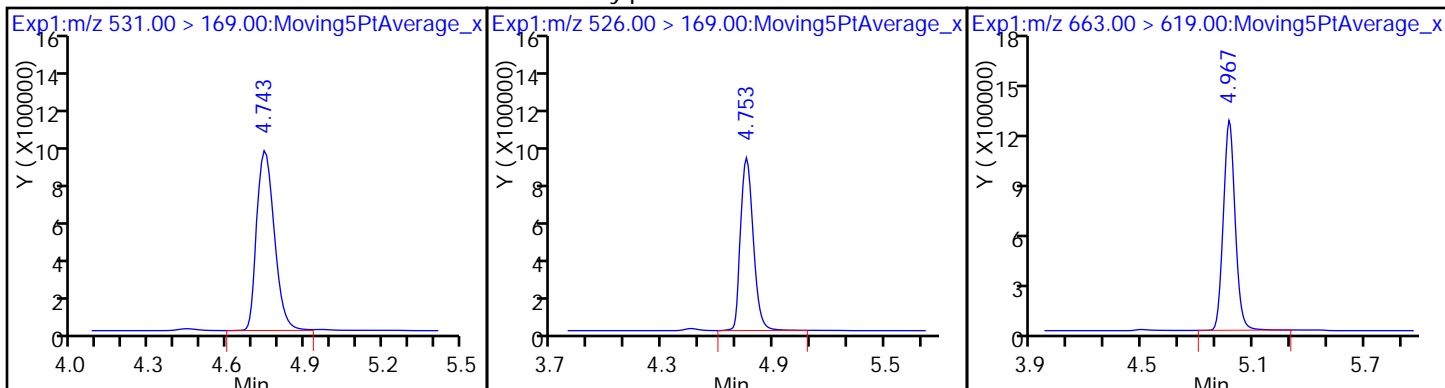
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

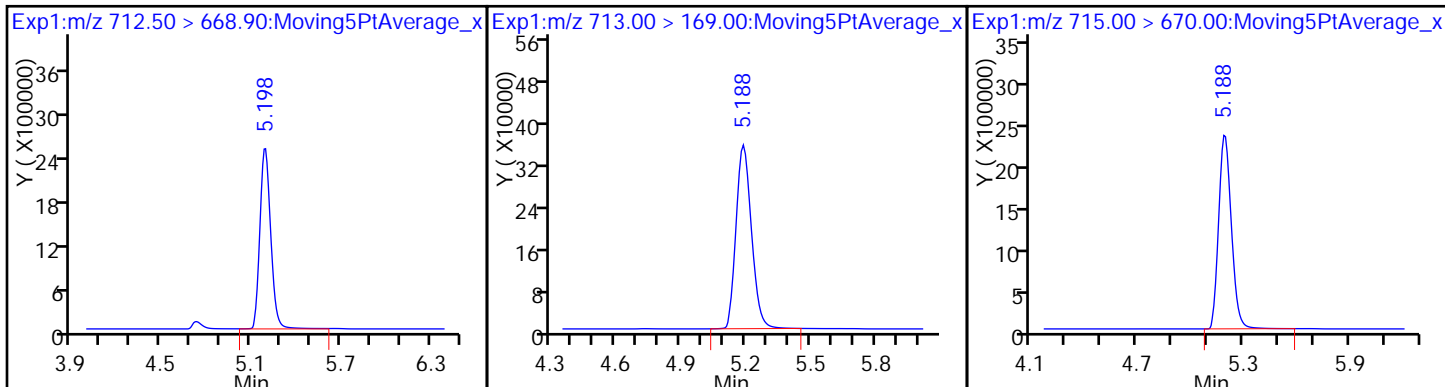
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

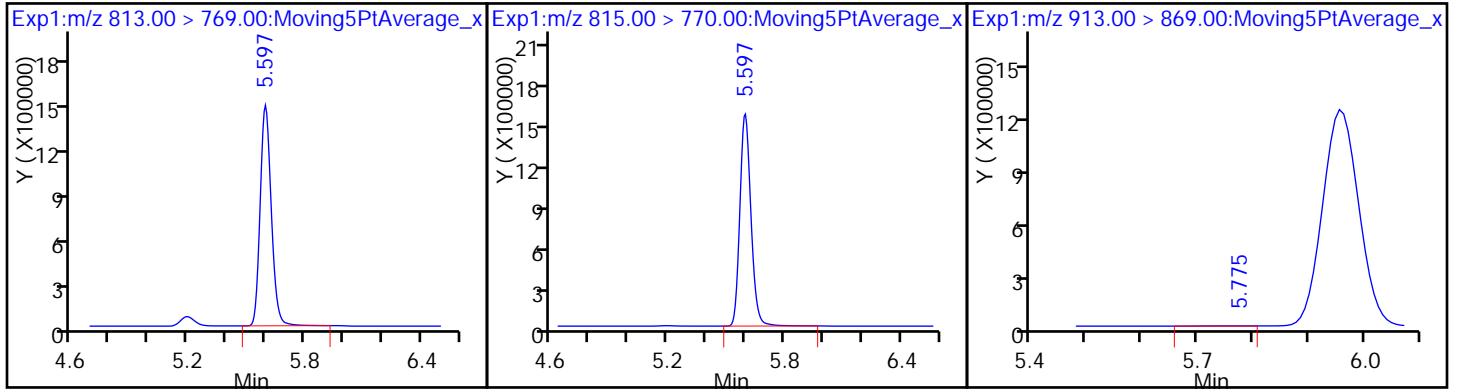
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



TestAmerica Sacramento

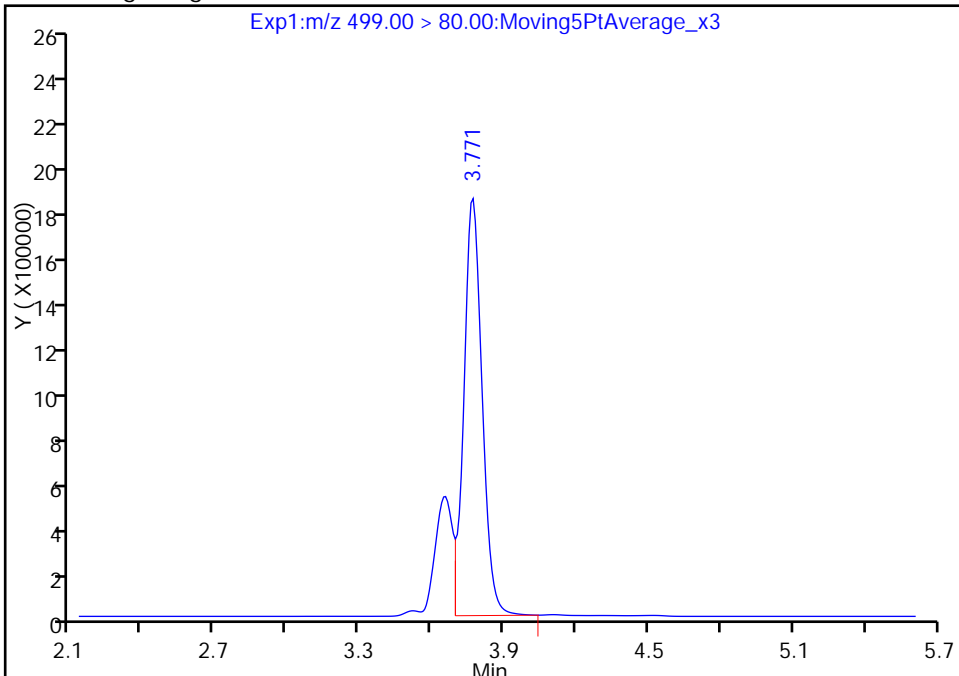
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_012.d
Injection Date: 19-May-2017 12:36:51 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

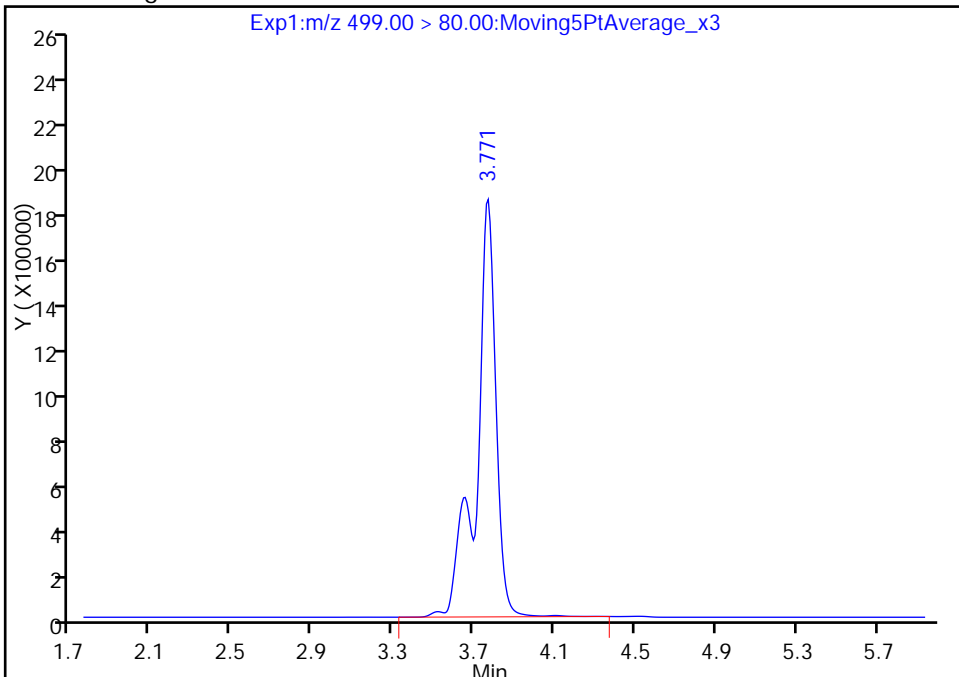
RT: 3.77
Area: 9440901
Amount: 35.712718
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 12198853
Amount: 46.145405
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:29:01
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

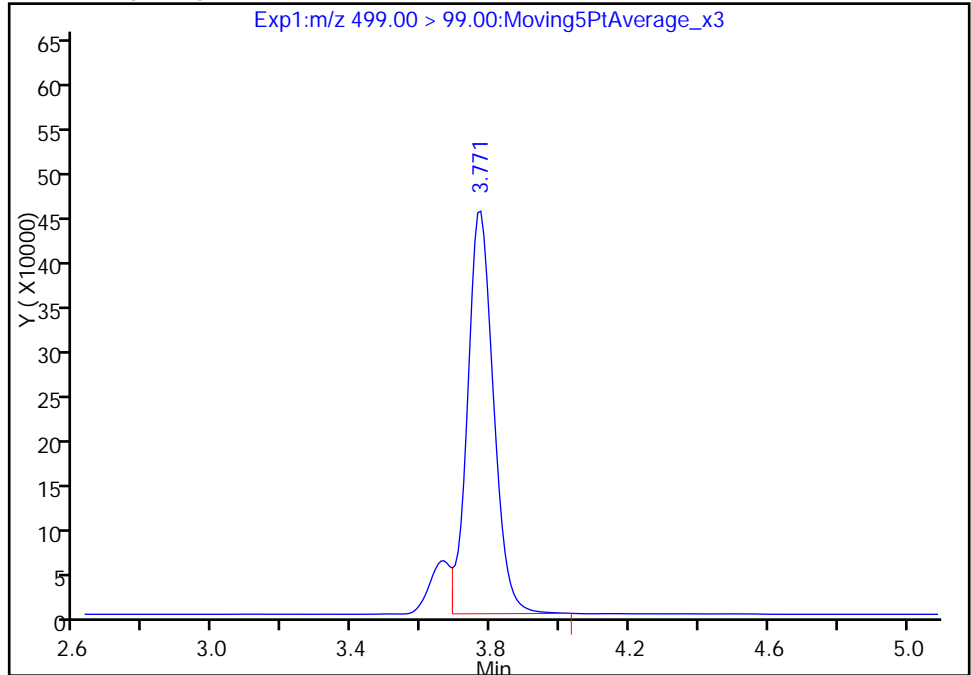
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Injection Date: 19-May-2017 12:36:51 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

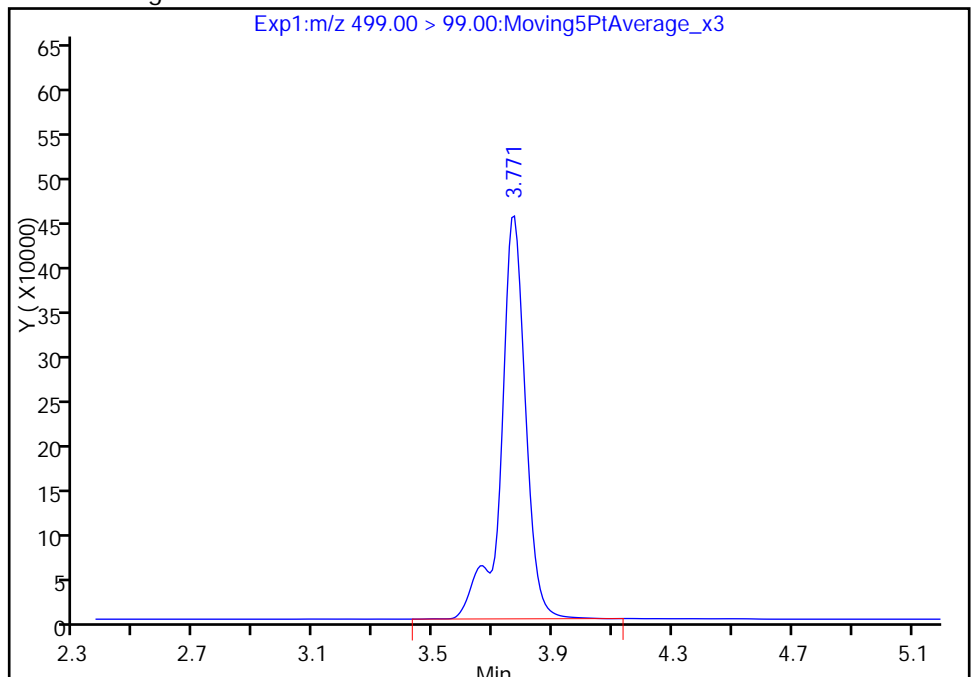
RT: 3.77
Area: 2361287
Amount: 35.712718
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 2622620
Amount: 46.145405
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:29:03

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/25 Calibration Date: 05/19/2017 13:59
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.060		20.9	19.8	5.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.174		21.1	19.8	6.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.783		19.6	17.5	11.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.054		20.3	19.8	2.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.140		20.2	19.8	1.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.193		18.3	18.0	1.3	25.0
6:2FTS	AveID	0.9691	1.053		20.4	18.8	8.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.344		19.6	18.9	4.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.157		19.9	19.8	0.7	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.176		18.1	18.4	-1.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.085		20.1	19.8	1.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.118		20.9	19.8	5.8	25.0
8:2FTS	AveID	0.9756	1.037		20.2	19.0	6.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.066		20.6	19.8	4.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.045		19.8	19.8	-0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7483		20.8	19.1	9.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.116		18.8	19.8	-5.2	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9510		19.7	19.8	-0.6	25.0
MeFOSA	AveID	0.9641	0.9839		20.2	19.8	2.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.049		20.5	19.8	3.4	25.0
N-EtFOSA-M	AveID	1.017	1.059		20.6	19.8	4.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.073		20.8	19.8	5.1	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.425		21.0	19.8	6.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.142		19.9	19.8	0.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		1.206		309	19.8	1462.5*	25.0
13C4 PFBA	Ave	359776	354954		48.8	49.5	-1.3	50.0
13C5-PFPeA	Ave	248689	258942		51.5	49.5	4.1	50.0
13C2 PFHxA	Ave	243576	245288		49.9	49.5	0.7	50.0
13C4-PFHpA	Ave	211904	221414		51.7	49.5	4.5	50.0
18O2 PFHxS	Ave	304465	314384		48.4	46.8	3.3	50.0
M2-6:2FTS	Ave	126131	133485		49.8	47.0	5.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/25 Calibration Date: 05/19/2017 13:59
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	229540		53.4	49.5	7.9	50.0
13C4 PFOS	Ave	229280	227475		47.0	47.3	-0.8	50.0
13C5 PFNA	Ave	167851	177305		52.3	49.5	5.6	50.0
13C8 FOSA	Ave	367124	359394		48.5	49.5	-2.1	50.0
13C2 PFDA	Ave	144503	152808		52.4	49.5	5.7	50.0
M2-8:2FTS	Ave	99091	106370		50.9	47.4	7.3	50.0
d3-NMeFOSAA	Ave	64888	67224		51.3	49.5	3.6	50.0
13C2 PFUnA	Ave	101742	117869		57.4	49.5	15.9	50.0
d5-NEtFOSAA	Ave	63526	71035		55.4	49.5	11.8	50.0
d-N-MeFOSA-M	Ave	99549	99023		49.2	49.5	-0.5	50.0
13C2 PFDoA	Ave	100236	111260		54.9	49.5	11.0	50.0
d-N-EtFOSA-M	Ave	93251	92097		48.9	49.5	-1.2	50.0
13C2-PFTeDA	Ave	204943	239576		57.9	49.5	16.9	50.0
13C2-PFHxDA	Ave	118334	131645		55.1	49.5	11.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_023.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-May-2017 13:59:34 ALS Bottle#: 31 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:24 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:34:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 1 13C4 PFBA	217.00 > 172.00	1.928	1.928	0.0		17571966	48.8	98.7	96381	
2 Perfluorobutyric acid	212.90 > 169.00	1.936	1.936	0.0	1.000	7447420	20.9	105	1549	
4 Perfluoropentanoic acid	262.90 > 219.00	2.280	2.280	0.0	1.000	6021154	21.1	107	1868	
D 3 13C5-PFPeA	267.90 > 223.00	2.280	2.280	0.0		12818901	51.5	104	207795	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.319	2.319	0.0	1.000	9811145	19.6	112		
	298.90 > 99.00	2.309	2.319	-0.010	0.996	4020676		2.44(0.00-0.00)		
D 47 13C3-PFBS	301.90 > 83.00	2.309	2.309	0.0		310226	NC			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.596	2.596	0.0	1.000	1965079	19.1	103		
6 Perfluorohexanoic acid	313.00 > 269.00	2.641	2.641	0.0	1.000	5117144	20.3	102	13450	
D 7 13C2 PFHxA	315.00 > 270.00	2.641	2.641	0.0		12142971	49.9	101	313832	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.036	3.036	0.0	1.000	5000183	20.2	102	2501	
D 9 13C4-PFHpA	367.00 > 322.00	3.036	3.036	0.0		10961102	51.7	104	35024	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.044	3.044	0.0	1.000	6758214	18.3	101		
D 11 18O2 PFHxS	403.00 > 84.00	3.044	3.044	0.0		14723124	48.4	103	55051	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.409	3.409	0.0	1.000	2638993	20.4	109	
D 12 M2-6:2FTS	429.00	> 409.00	3.409	3.409	0.0		6277762	49.8	106	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.426	3.426	0.0	1.000	5764675	19.6	104	
15 Perfluorooctanoic acid	413.00	> 369.00	3.435	3.435	0.0	1.000	5258733	19.9	101	607
	413.00	> 169.00	3.435	3.435	0.0	1.000	2992462	1.76(0.90-1.10)		7011
D 14 13C4 PFOA	417.00	> 372.00	3.435	3.435	0.0		11363345	53.4	108	37643
* 62 13C2-PFOA	415.00	> 370.00	3.426	3.426	0.0		11128826	49.5	100	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.757	3.757	0.0	1.000	4916562	18.1	98.6	1832
	499.00	> 99.00	3.801	3.757	0.044	1.012	1080641	4.55(0.90-1.10)		4299
D 18 13C4 PFOS	503.00	> 80.00	3.801	3.801	0.0		10765668	47.0	99.2	20919
20 Perfluorononanoic acid	463.00	> 419.00	3.810	3.810	0.0	1.000	3809715	20.1	101	4867
D 19 13C5 PFNA	468.00	> 423.00	3.810	3.810	0.0		8777466	52.3	106	40387
D 21 13C8 FOSA	506.00	> 78.00	4.130	4.130	0.0		17791803	48.5	97.9	37713
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.139	4.139	0.0	1.000	7958394	20.9	106	25066
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.156	4.156	0.0	1.000	2093373	20.2	106	
D 26 M2-8:2FTS	529.00	> 509.00	4.156	4.156	0.0		5044658	50.9	107	
24 Perfluorodecanoic acid	513.00	> 469.00	4.156	4.156	0.0	1.000	3225763	20.6	104	8220
D 23 13C2 PFDA	515.00	> 470.00	4.156	4.156	0.0		7564777	52.4	106	11987
D 27 d3-NMeFOSAA	573.00	> 419.00	4.309	4.309	0.0		3327928	51.3	104	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.320	4.320	0.0	1.002	1390890	19.8	99.8	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.440	4.440	0.0	1.000	3249116	20.8	109	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.467	4.467	0.0	1.000	2605720	18.8	94.8	3732
D 32 d5-NEtFOSAA	589.00	> 419.00	4.467	4.467	0.0		3516579	55.4	112	
D 30 13C2 PFUnA	565.00	> 520.00	4.467	4.467	0.0		5835116	57.4	116	15338
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.477	4.477	0.0	1.002	1337735	19.7	99.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.593	4.593	0.0	4902126	49.2	99.5		
35 MeFOSA	512.00	> 169.00	4.602	4.602	0.0	1929258	20.2	102		
37 Perfluorododecanoic acid	613.00	> 569.00	4.736	4.736	0.0	2311090	20.5	103	623	
D 36 13C2 PFDaA	615.00	> 570.00	4.736	4.736	0.0	5507929	54.9	111	6378	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.765	4.765	0.0	4559281	48.9	98.8		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.775	4.775	0.0	1930613	20.6	104		
41 Perfluorotridecanoic acid	663.00	> 619.00	4.990	4.990	0.0	2362982	20.8	105	437	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.211	5.211	0.0	5342661	21.0	106	97.3	
	713.00	> 169.00	5.211	5.211	0.0	726092	7.36(0.00-0.00)		1799	
D 43 13C2-PFTeDA	715.00	> 670.00	5.211	5.211	0.0	11860216	57.9	117	6857	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.618	5.618	0.0	2515047	19.9	101	111	
D 44 13C2-PFHxDA	815.00	> 770.00	5.618	5.618	0.0	6517078	55.1	111	3008	
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.976	5.976	0.0	2658029	309.4	1563	4708	E

QC Flag Legend

Processing Flags

NC - Not Calibrated

E - Exceeded Maximum Amount

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_023.d

Injection Date: 19-May-2017 13:59:34

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

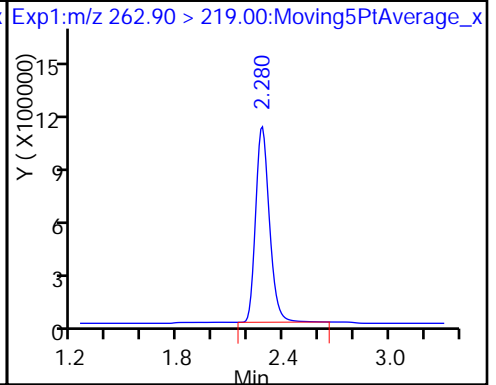
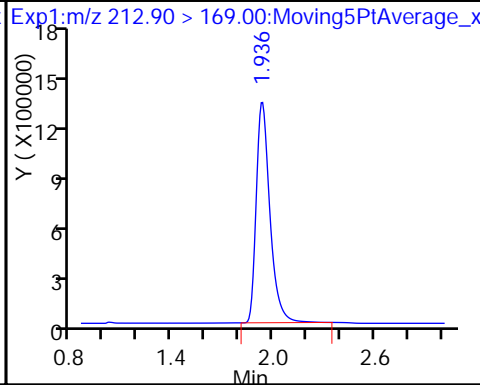
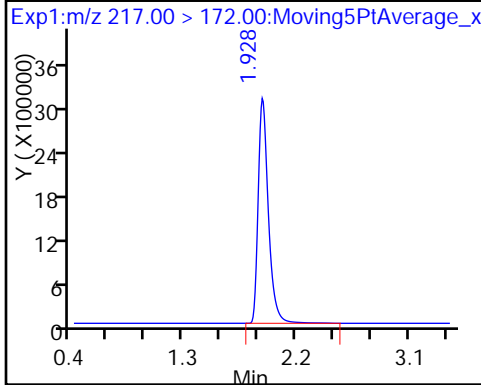
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

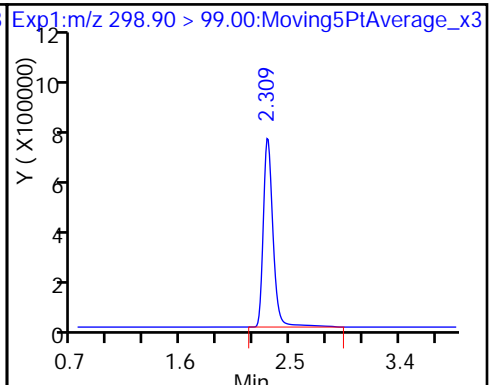
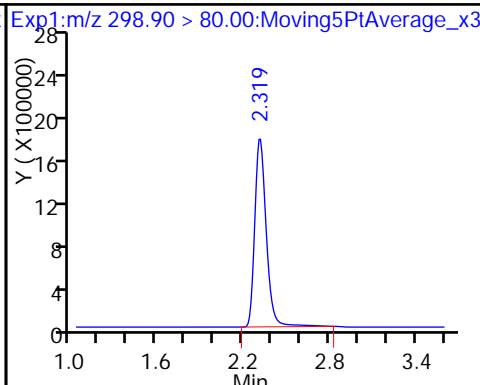
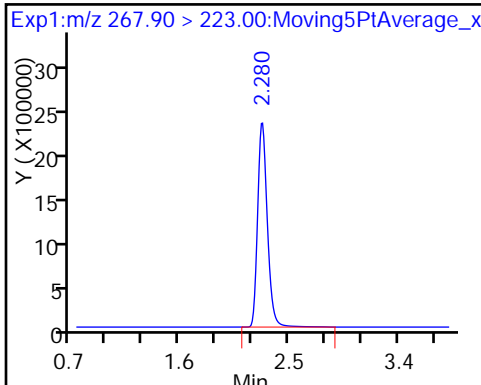
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

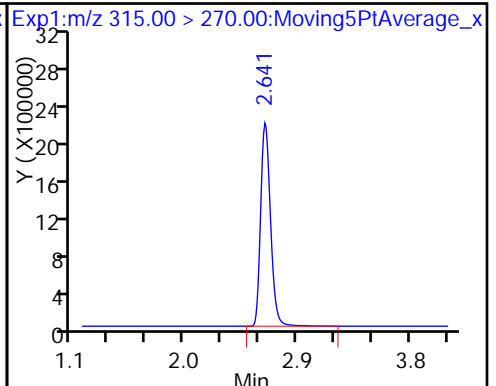
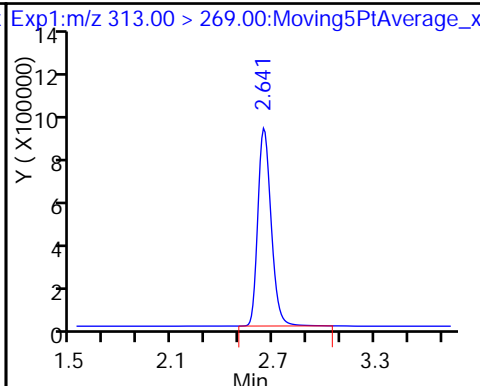
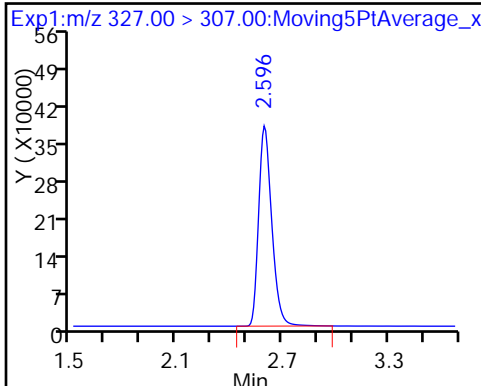
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

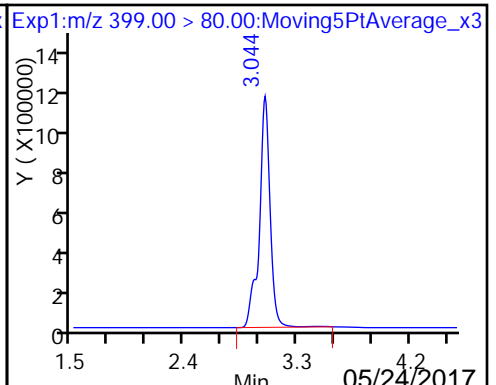
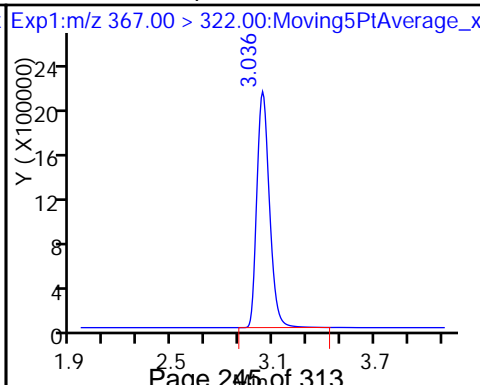
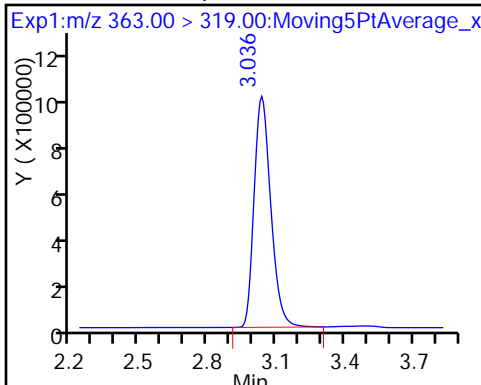
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

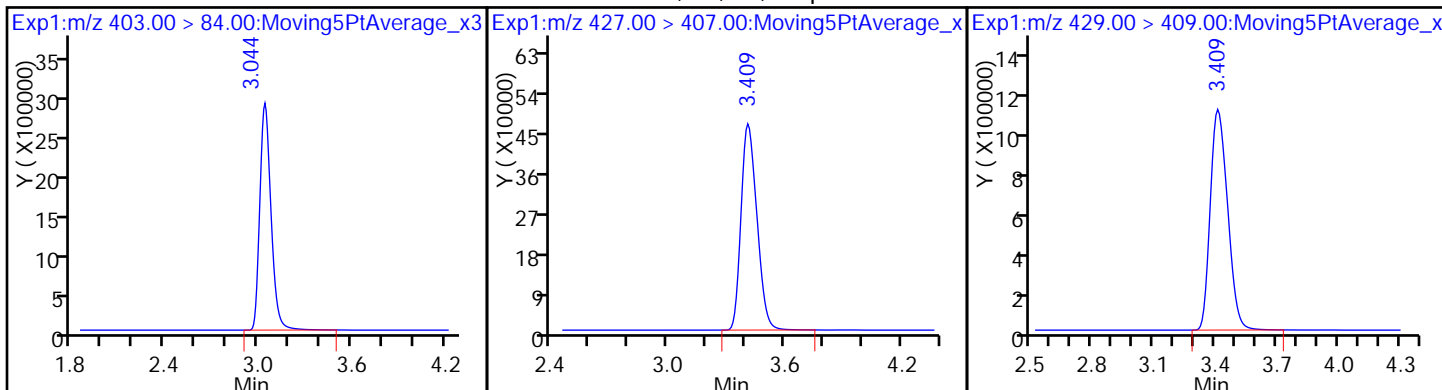
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

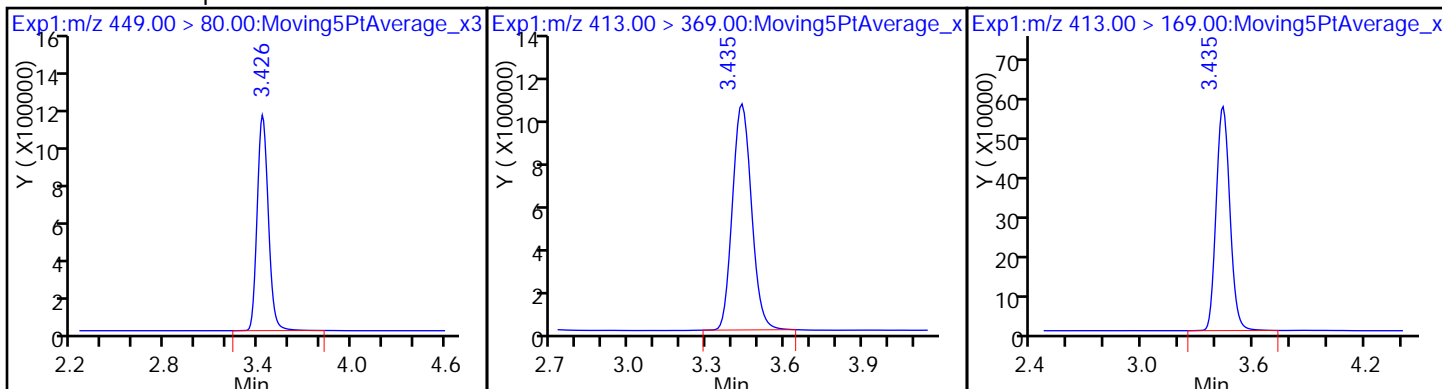
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

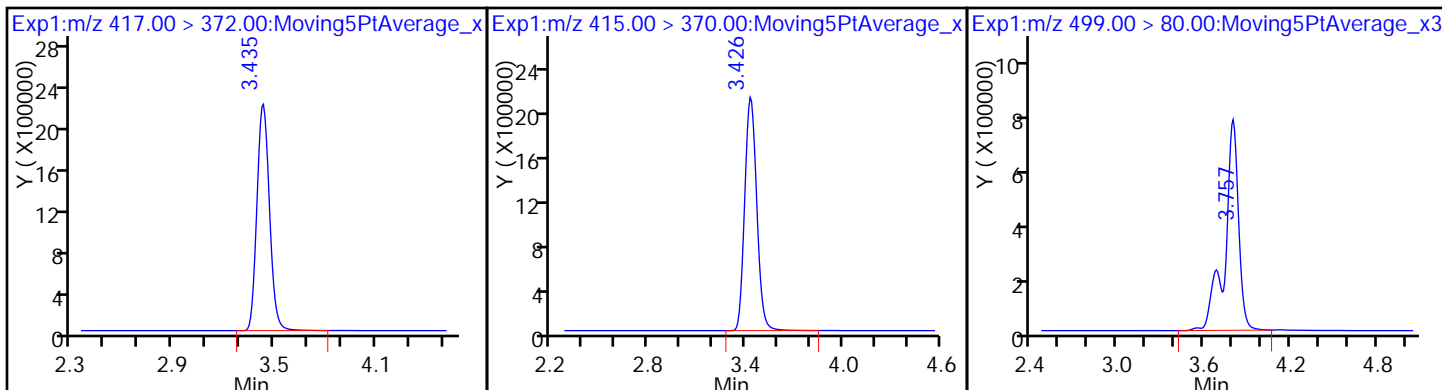
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA

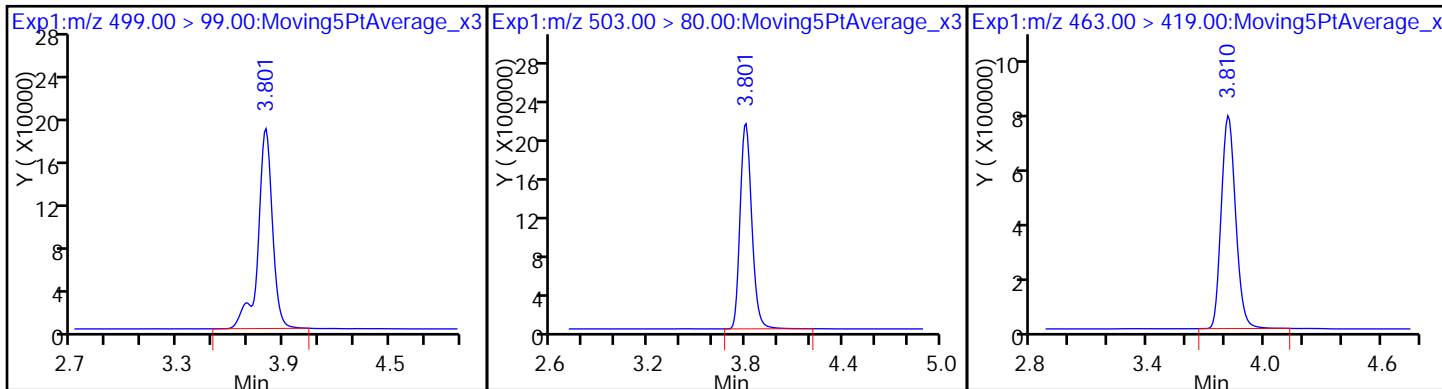
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

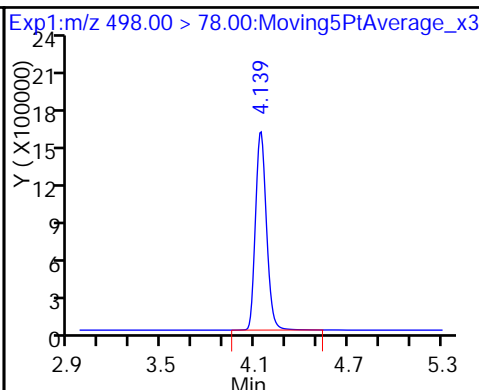
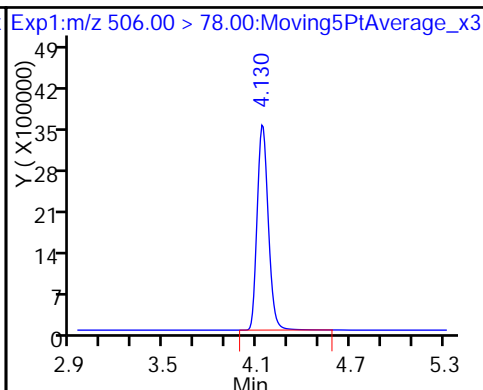
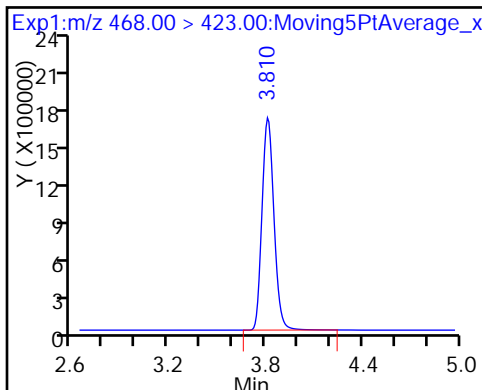
20 Perfluorononanoic acid



D 19 13C5 PFNA

D 21 13C8 FOSA

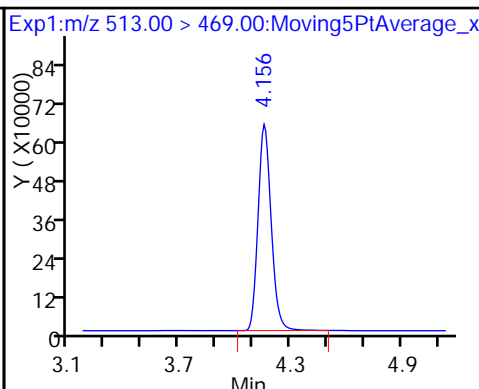
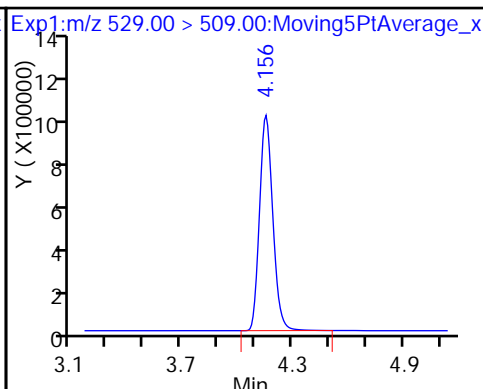
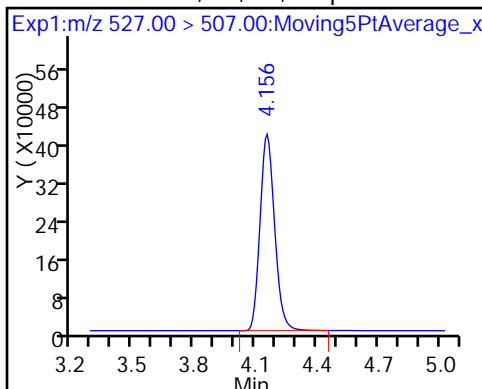
22 Perfluorooctane Sulfonamide



25 Sodium 1H,1H,2H,2H-perfluorooctane

D 26 M2-8:2FTS

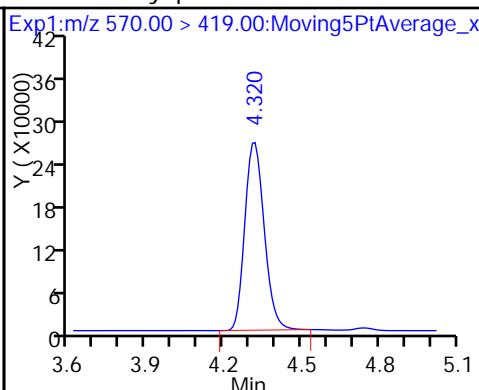
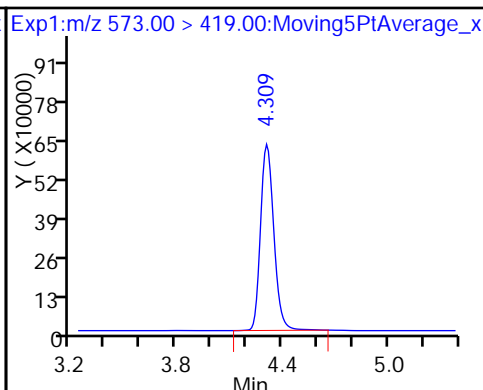
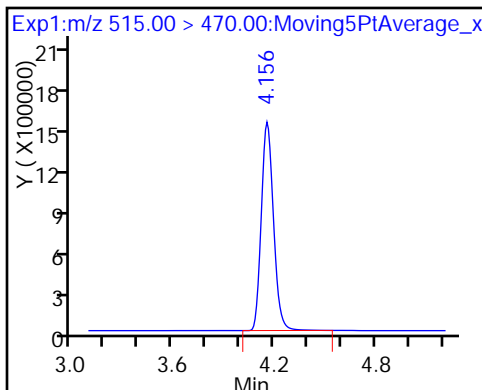
24 Perfluorodecanoic acid



D 23 13C2 PFDA

D 27 d3-NMeFOSAA

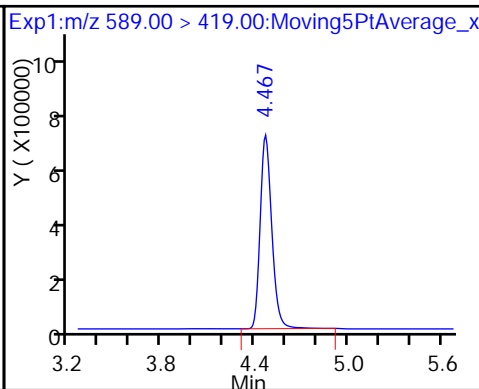
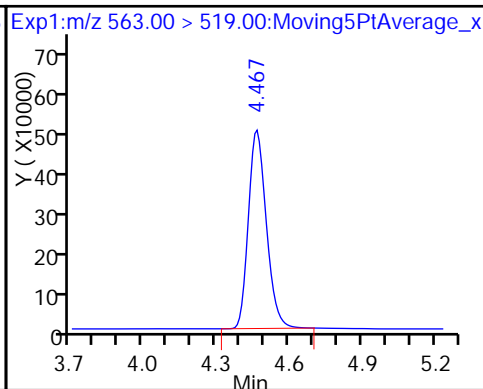
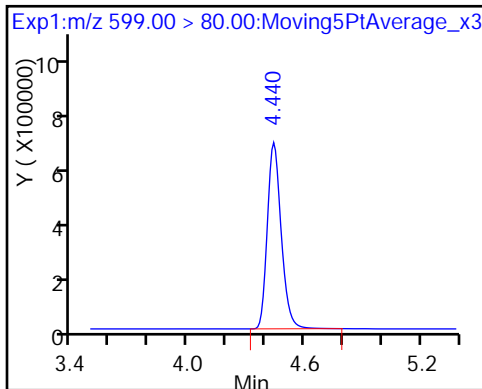
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

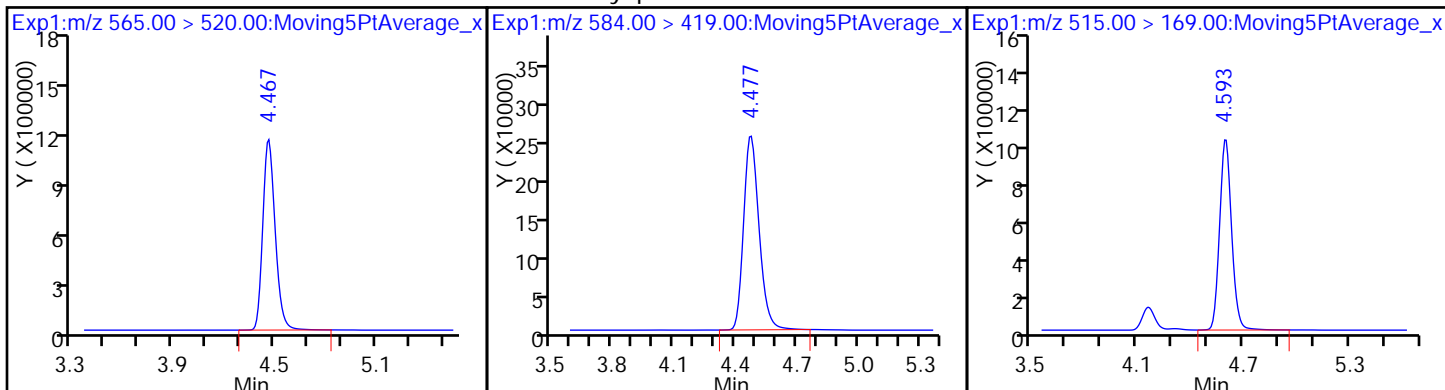
31 Perfluoroundecanoic acid

D 32 d5-NEtFOSAA



D 30 13C2 PFUa

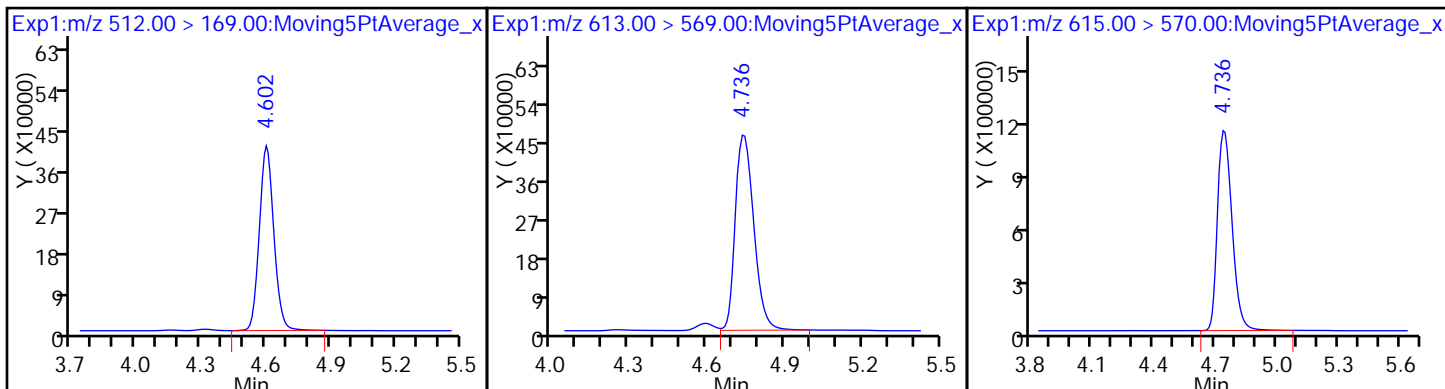
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

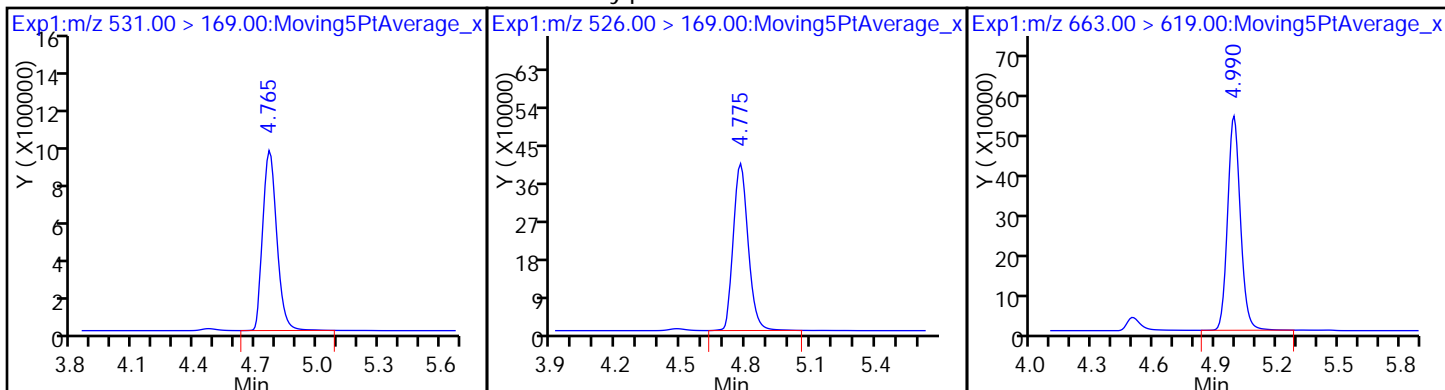
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

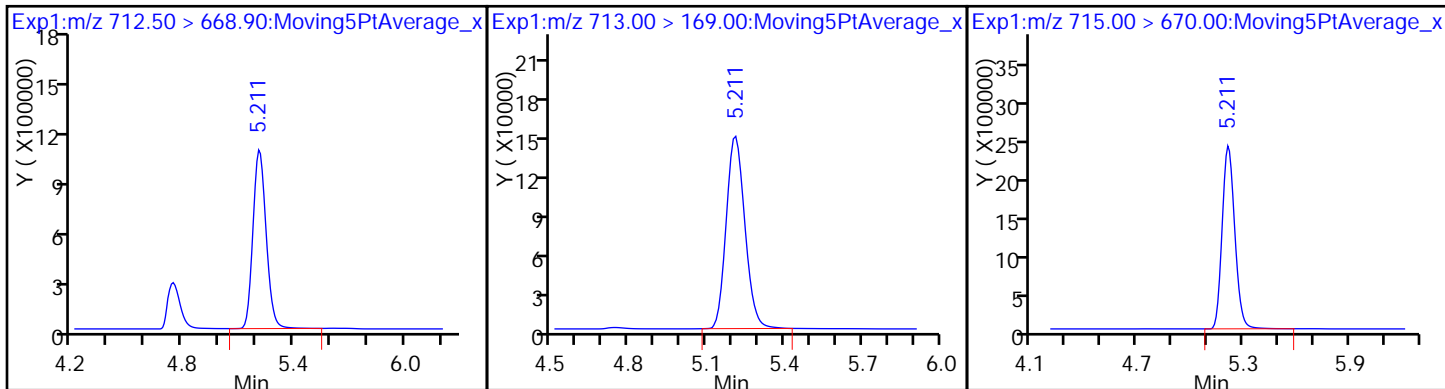
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

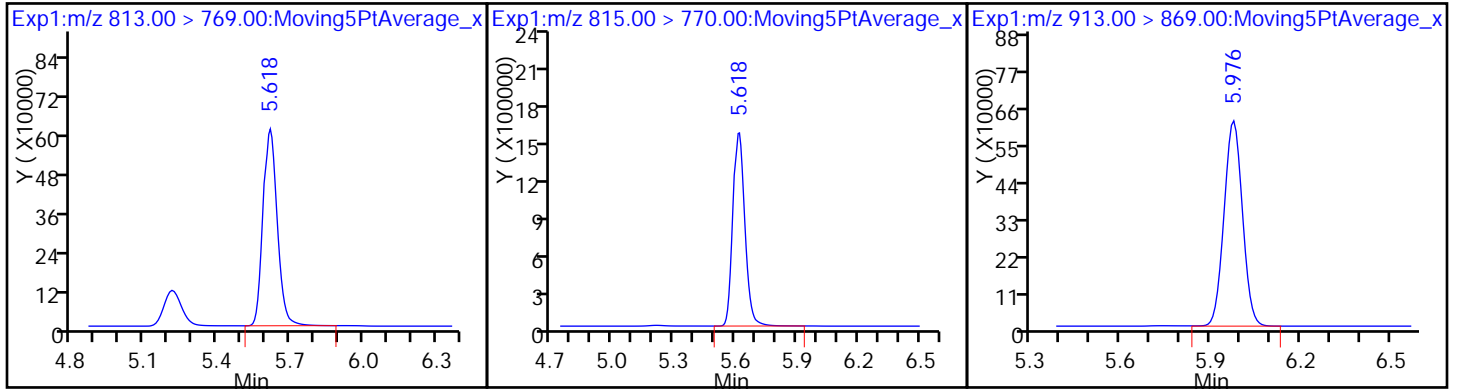
D 43 13C2-PFTeDa



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Client Sample ID: _____ Lab Sample ID: MB 320-164788/1-A
 Matrix: Water Lab File ID: 2017.05.18G_002.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/16/2017 19:25
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/19/2017 10:44
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165303 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.5	0.80
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	116		25-150
STL01892	13C4-PFHpA	126		25-150
STL00990	13C4 PFOA	133		25-150
STL00991	13C4 PFOS	112		25-150
STL00995	13C5 PFNA	131		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_002.d
 Lims ID: MB 320-164788/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 19-May-2017 10:44:14 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-164788/1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:41:04 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.018	1.903	0.115	21252759	59.1		118	125568	
2 Perfluorobutyric acid	212.90 > 169.00	2.018	1.903	0.115	109542	0.2563			18.4	
D 3 13C5-PFPeA	267.90 > 223.00	2.369	2.242	0.127	14900704	59.9		120	149553	
D 47 13C3-PFBS	301.90 > 83.00	2.409	2.309	0.100	336048	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.409	2.289	0.120	182241	0.3224				
	298.90 > 99.00	2.409	2.289	0.120	73549		2.48(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.697	2.564	0.133	2434	0.0190				
6 Perfluorohexanoic acid	313.00 > 269.00	2.745	2.608	0.137	19874	0.0689			25.9	
D 7 13C2 PFHxA	315.00 > 270.00	2.745	2.608	0.137	14000533	57.5		115	246187	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.139	2.994	0.145	13142	0.0439			12.1	
D 9 13C4-PFHpA	367.00 > 322.00	3.148	2.994	0.154	13366227	63.1		126	54413	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.148	3.009	0.139	63777	0.1529				
D 11 18O2 PFHxS	403.00 > 84.00	3.148	3.009	0.139	16758179	55.0		116	314582	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.516	3.370	0.146	29239	0.1815				
D 12 M2-6:2FTS	429.00 > 409.00	3.516	3.370	0.146	7897720	62.6		132		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.530	3.387	0.143	1.000	10492	0.0315		
* 62 13C2-PFOA	415.00	> 370.00	3.530	3.426	0.104		27410	49.5		
15 Perfluorooctanoic acid	413.00	> 369.00	3.530	3.396	0.134	1.000	37688	0.1158		3.6
	413.00	> 169.00	3.530	3.396	0.134	1.000	22247		1.69(0.90-1.10)	73.2
D 14 13C4 PFOA	417.00	> 372.00	3.537	3.396	0.141		14159122	66.5	133	48067
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.899	3.762	0.137	1.000	39640	0.1289		273
	499.00	> 99.00	3.889	3.762	0.127	0.997	0		0.00(0.90-1.10)	
D 18 13C4 PFOS	503.00	> 80.00	3.899	3.762	0.137		12329097	53.8	112	35409
20 Perfluorononanoic acid	463.00	> 419.00	3.915	3.770	0.145	1.000	9137	0.0388		12.3
D 19 13C5 PFNA	468.00	> 423.00	3.915	3.770	0.145		11000650	65.5	131	30728
D 21 13C8 FOSA	506.00	> 78.00	4.231	4.096	0.135		9802786	26.7	53.4	12205
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.231	4.096	0.135	1.000	34342	0.1657		171
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.249	4.114	0.135	0.998	4619	0.0367		
D 26 M2-8:2FTS	529.00	> 509.00	4.258	4.114	0.144		6174488	62.3	130	
24 Perfluorodecanoic acid	513.00	> 469.00	4.258	4.123	0.135	1.000	11682	0.0625		31.1
D 23 13C2 PFDA	515.00	> 470.00	4.258	4.123	0.135		9123712	63.1	126	9150
D 27 d3-NMeFOSAA	573.00	> 419.00	4.414	4.273	0.141		3677791	56.7	113	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.414	4.273	0.141	1.000	21833	0.2834		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.540	4.405	0.135	1.000	6978	0.0394		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.560	4.432	0.128	1.000	29561	0.1804		60.2
D 32 d5-NEtFOSAA	589.00	> 419.00	4.570	4.432	0.138		3634006	57.2	114	
D 30 13C2 PFUnA	565.00	> 520.00	4.560	4.432	0.128		6956660	68.4	137	10702
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.570	4.442	0.128	1.000	21990	0.3163		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.687	4.566	0.121		10720	0.1077	0.2	
35 MeFOSA	512.00	> 169.00	4.695	4.566	0.129	1.000	4531	21.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
37 Perfluorododecanoic acid	613.00	> 569.00	4.839	4.703	0.136	1.000	16631	0.1236		0.9	
D 36 13C2 PFDaA	615.00	> 570.00	4.839	4.703	0.136		6636022	66.2	132	5385	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.858	4.726	0.132		11925	0.1279	0.3		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.867	4.736	0.131	1.000	4034	16.6			
41 Perfluorotridecanoic acid	663.00	> 619.00	5.078	4.959	0.119	1.000	13445	0.0992		0.9	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.299	5.178	0.121	1.000	97334	0.2094		1.5	
	713.00	> 169.00	5.299	5.178	0.121	1.000	11578		8.41(0.00-0.00)	56.4	
D 43 13C2-PFTeDA	715.00	> 670.00	5.307	5.178	0.129		15514907	75.7	151	6357	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.696	5.588	0.108	1.000	109555	-0.1712		6.5	
D 44 13C2-PFHxDA	815.00	> 770.00	5.696	5.588	0.108		7146176	60.4	121	3978	
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.717	5.976	-0.259	1.000	217271	17.2		740	

QC Flag Legend

Processing Flags

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_002.d

Injection Date: 19-May-2017 10:44:14

Instrument ID: A8_N

Lims ID: MB 320-164788/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

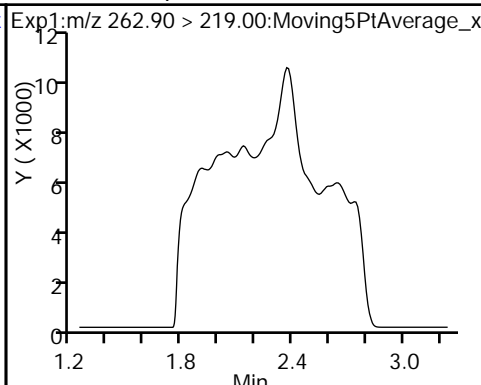
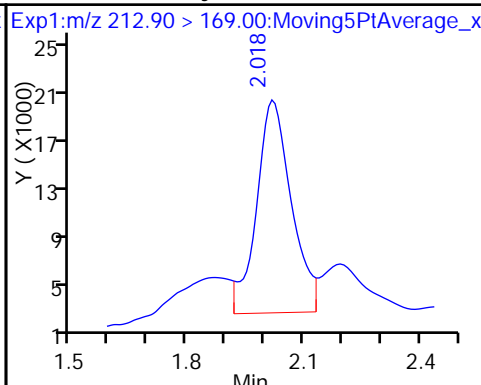
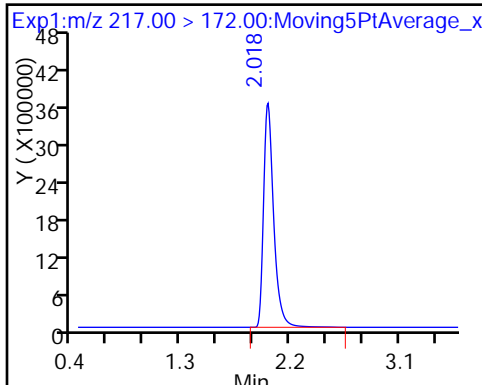
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

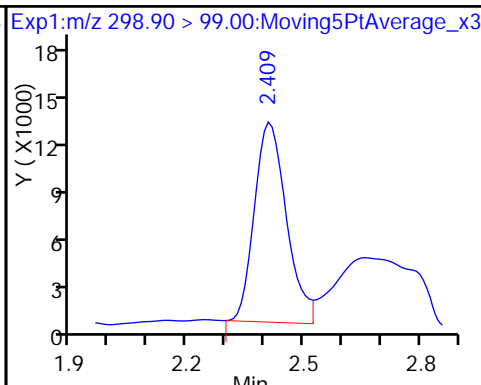
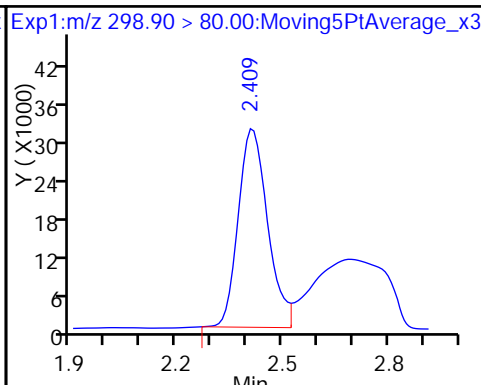
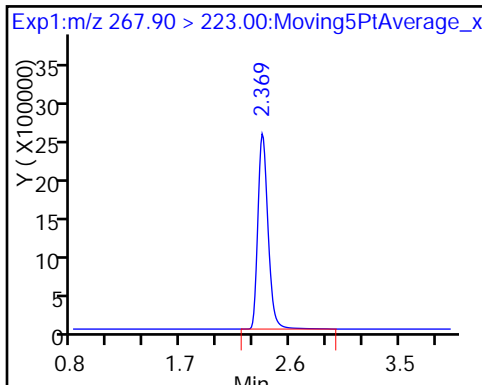
4 Perfluoropentanoic acid (ND)



D 3 13C5-PFPeA

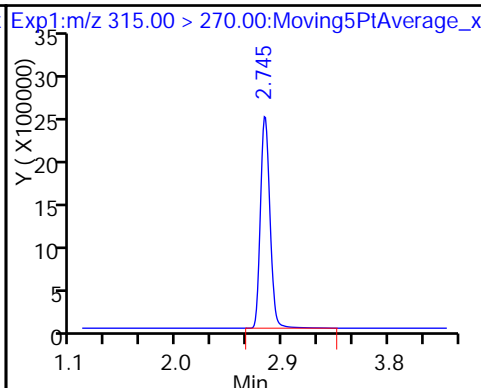
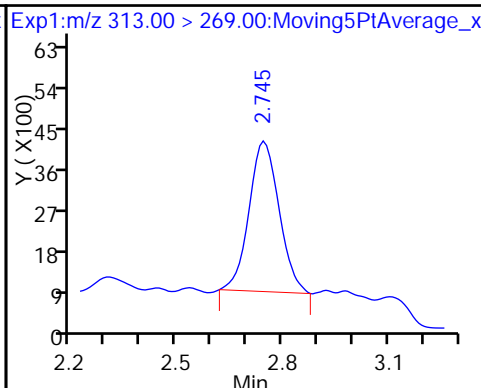
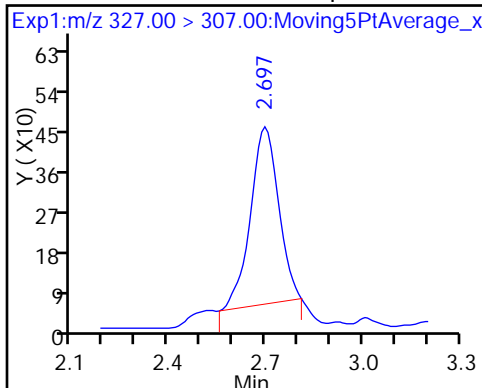
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

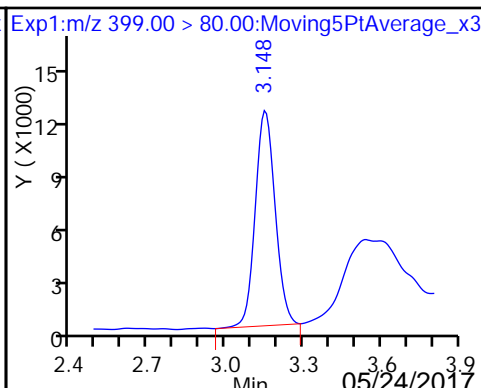
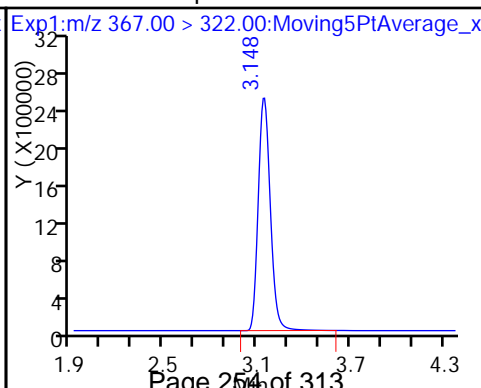
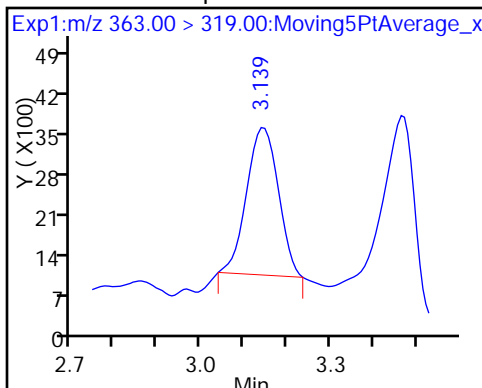
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

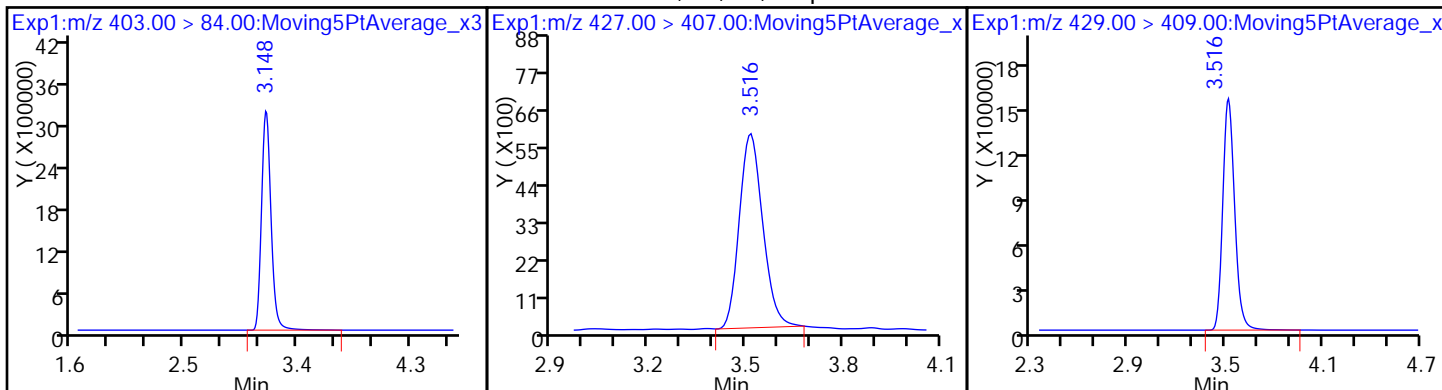
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

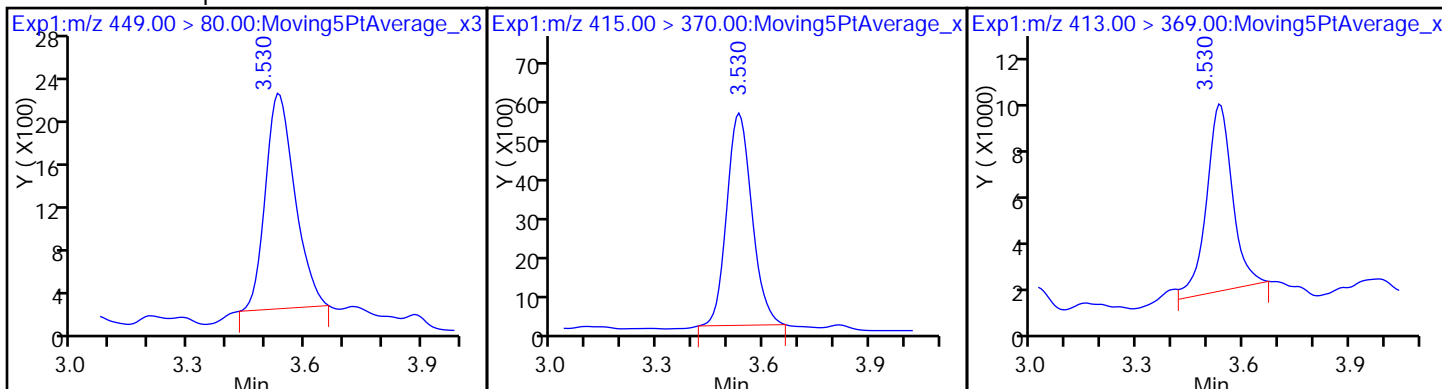
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

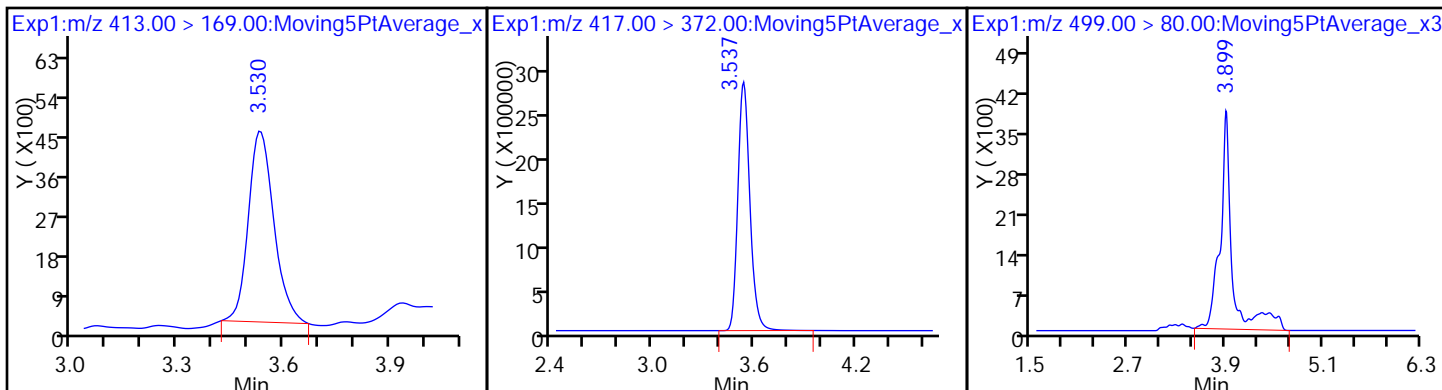
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

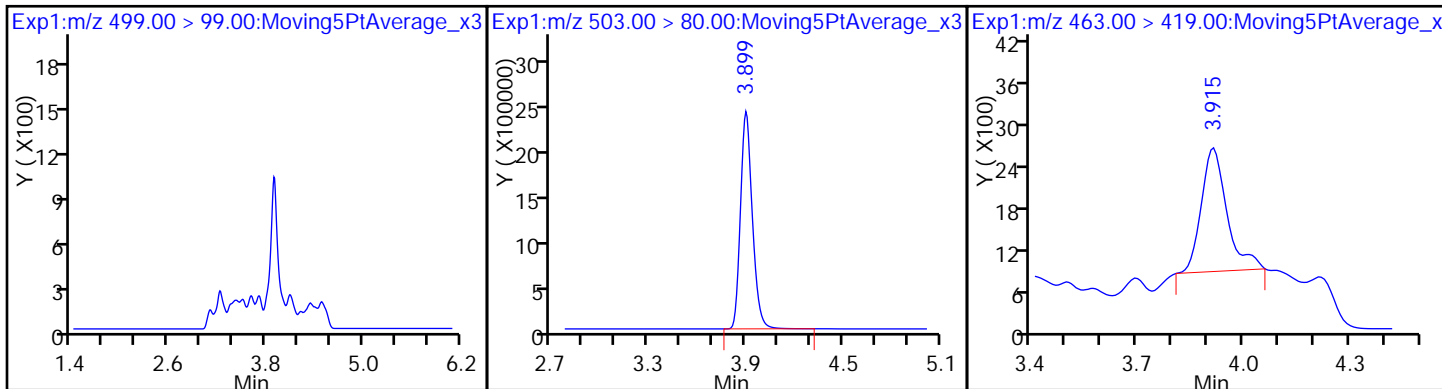
17 Perfluorooctane sulfonic acid



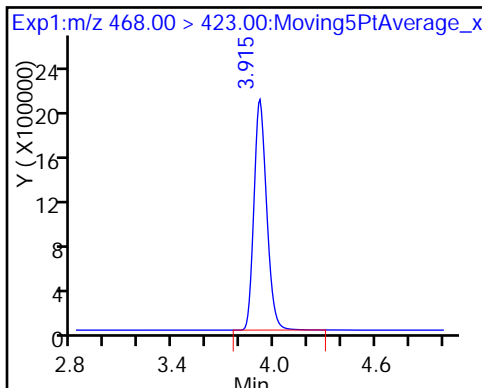
17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

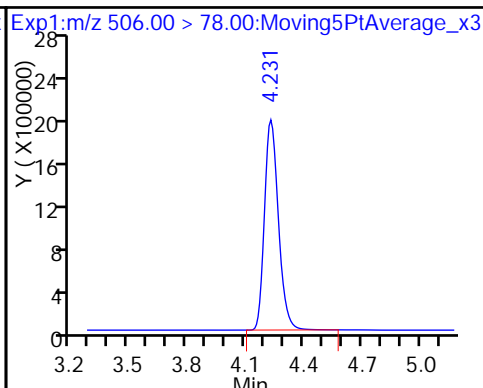
20 Perfluorononanoic acid



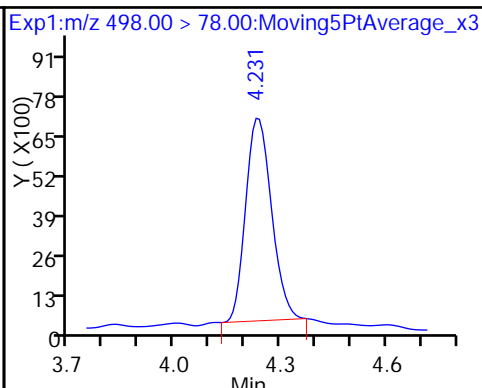
D 19 13C5 PFNA



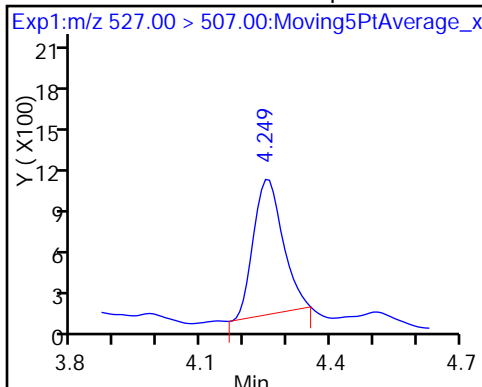
D 21 13C8 FOSA



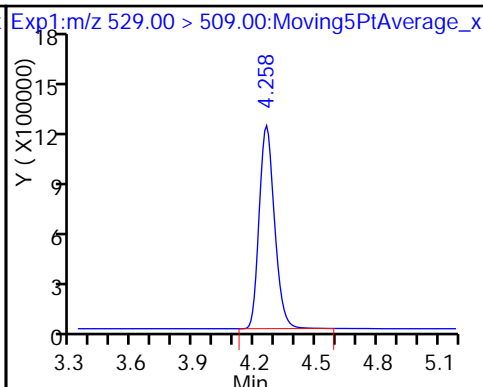
22 Perfluorooctane Sulfonamide



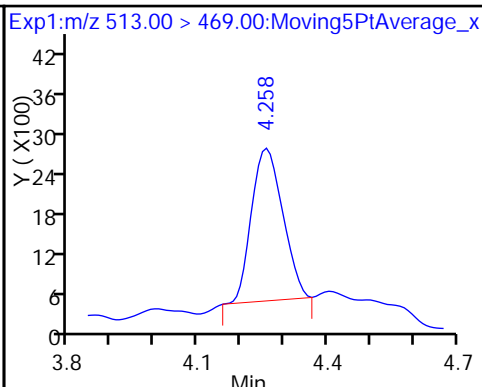
25 Sodium 1H,1H,2H,2H-perfluorooctane



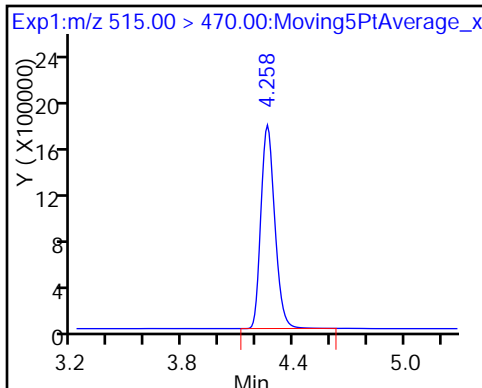
D 26 M2-8:2FTS



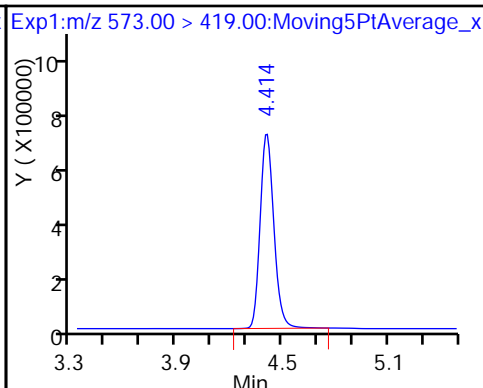
24 Perfluorodecanoic acid



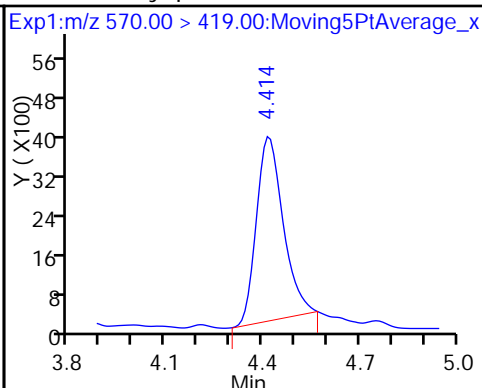
D 23 13C2 PFDA



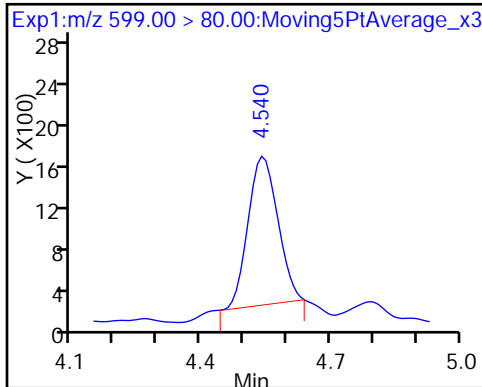
D 27 d3-NMeFOSAA



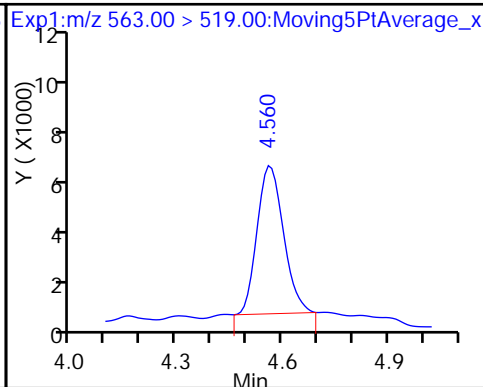
28 N-methyl perfluorooctane sulfonamide



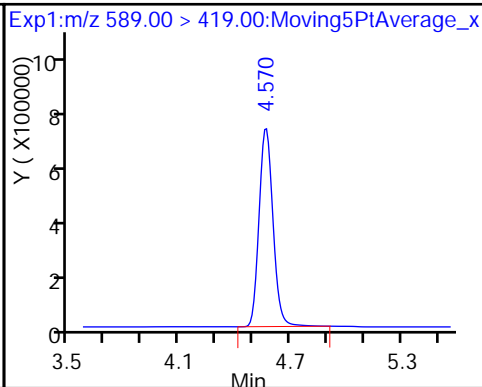
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid

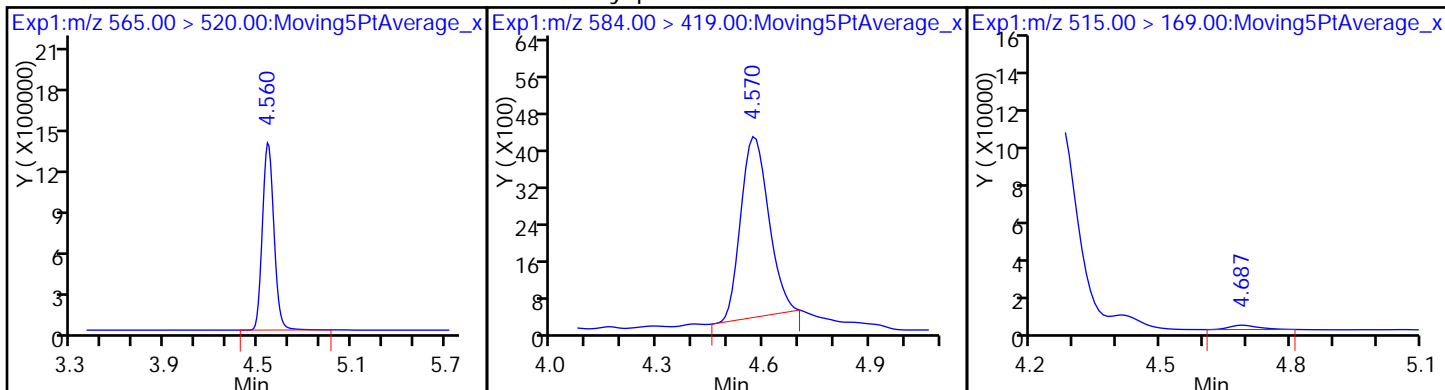


D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

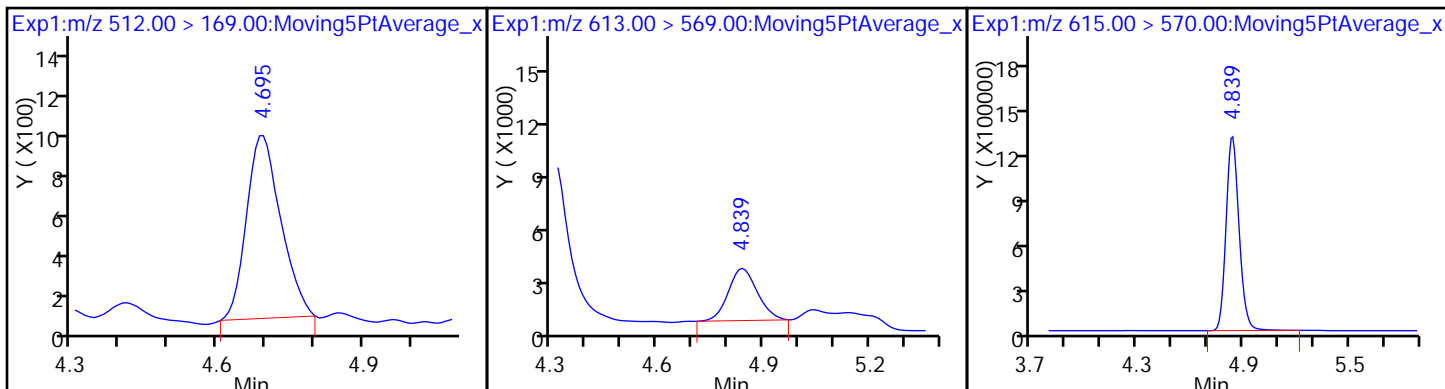
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

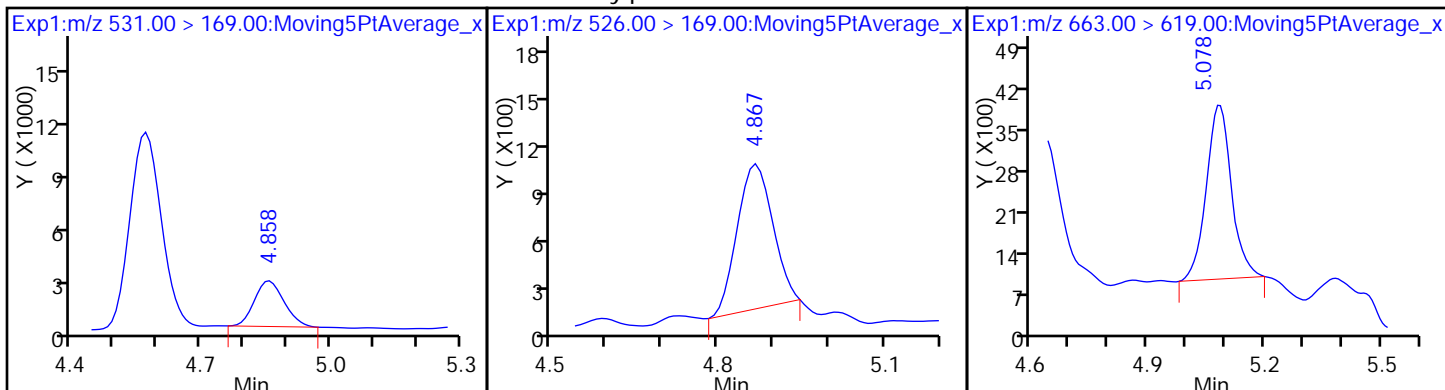
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

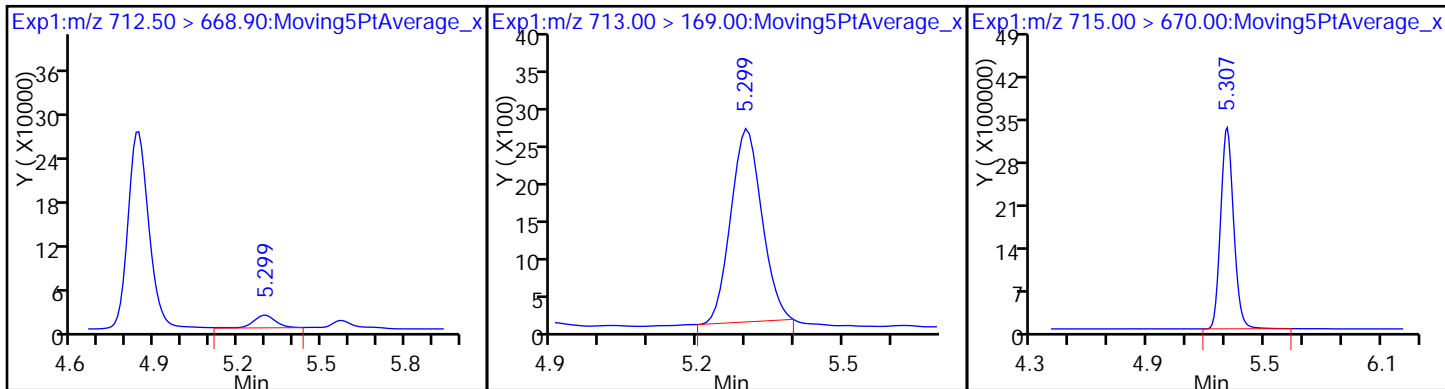
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

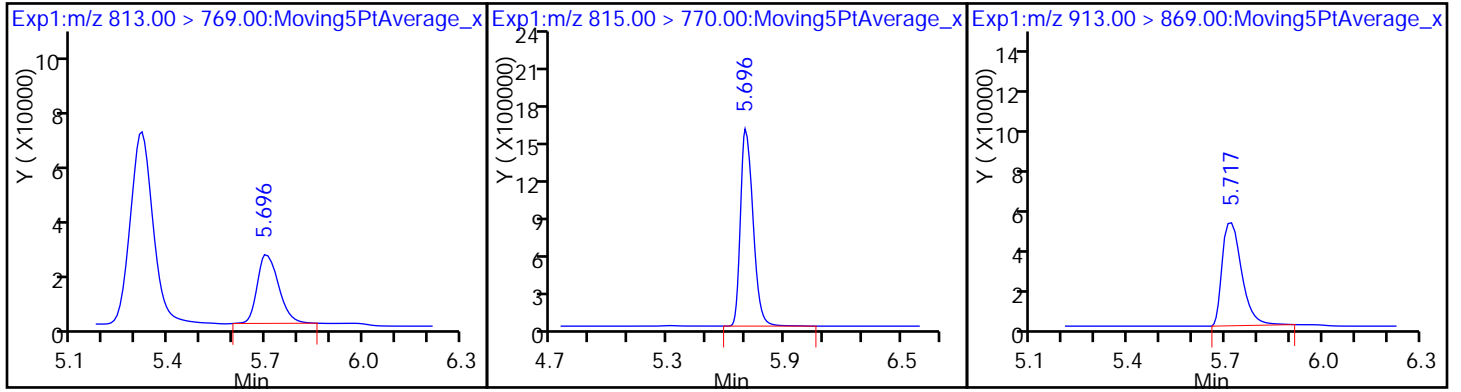
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Client Sample ID: _____ Lab Sample ID: LCS 320-164788/2-A
 Matrix: Water Lab File ID: 2017.05.18G_003.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/16/2017 19:25
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/19/2017 10:51
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165303 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35.4		2.5	0.92
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	33.1		2.5	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	36.8		2.5	0.80
335-67-1	Perfluorooctanoic acid (PFOA)	35.2		2.5	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33.1		4.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	37.3		2.5	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	110		25-150
STL01892	13C4-PFHpA	119		25-150
STL00990	13C4 PFOA	126		25-150
STL00991	13C4 PFOS	111		25-150
STL00995	13C5 PFNA	121		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_003.d
 Lims ID: LCS 320-164788/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 19-May-2017 10:51:45 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-164788/2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 11:39:24 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 11:14:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	2.018	1.903	0.115	1.000	7821142	19.2		96.2	1685	
D 1 13C4 PFBA										
217.00 > 172.00	2.010	1.903	0.107		20213713	56.2		112	101131	
4 Perfluoropentanoic acid										
262.90 > 219.00	2.368	2.242	0.126	1.000	5539334	17.7		88.7	1147	
D 3 13C5-PFPeA										
267.90 > 223.00	2.368	2.242	0.126		14197659	57.1		114	133790	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.409	2.289	0.119	1.000	9479708	17.7		100		
298.90 > 99.00	2.409	2.289	0.119	1.000	3681872		2.57(0.00-0.00)			
D 47 13C3-PFBS										
301.90 > 83.00	2.409	2.388	0.020		334756	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	2.705	2.564	0.141	1.000	2638654	20.7		111		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.743	2.608	0.135	1.000	5034577	18.2		91.1	8324	
D 7 13C2 PFHxA										
315.00 > 270.00	2.743	2.608	0.135		13410308	55.1		110	207992	
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.141	2.994	0.147	1.000	5213969	18.4		92.0	2128	
D 9 13C4-PFHpA										
367.00 > 322.00	3.141	2.994	0.147		12661123	59.7		119	55308	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.150	3.009	0.141	1.000	6534611	16.5		90.8		
D 11 18O2 PFHxS										
403.00 > 84.00	3.150	3.009	0.141		15875705	52.1		110	291449	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.512	3.370	0.142	1.000	2310604	20.7		109		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.512	3.370	0.142		7842597	62.2		131		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.534	3.387	0.147	1.000	6446839	19.5		103		
15 Perfluorooctanoic acid										
413.00 > 369.00	3.542	3.396	0.146	1.000	5421941	17.6		88.1	534	
413.00 > 169.00	3.542	3.396	0.146	1.000	3054346		1.78(0.90-1.10)		8231	
D 14 13C4 PFOA										
417.00 > 372.00	3.534	3.396	0.138		13391021	62.9		126	49558	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.901	3.762	0.139	1.000	5039092	16.5		89.1	33079	
499.00 > 99.00	3.901	3.762	0.139	1.000	1141901		4.41(0.90-1.10)		4842	
D 18 13C4 PFOS										
503.00 > 80.00	3.901	3.762	0.139		12212164	53.3		111	19967	
20 Perfluorononanoic acid										
463.00 > 419.00	3.917	3.770	0.147	1.000	4034039	18.6		93.2	6831	
D 19 13C5 PFNA										
468.00 > 423.00	3.917	3.770	0.147		10113044	60.3		121	31691	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.236	4.096	0.140	1.000	788677	18.4		92.2	4268	
D 21 13C8 FOSA										
506.00 > 78.00	4.236	4.096	0.140		2021940	5.51		11.0	6843	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.265	4.114	0.151	1.000	2620813	20.7		108		
D 26 M2-8:2FTS										
529.00 > 509.00	4.265	4.114	0.151		6207908	62.6		131		
24 Perfluorodecanoic acid										
513.00 > 469.00	4.265	4.123	0.142	1.000	3408286	18.5		92.3	13727	
D 23 13C2 PFDA										
515.00 > 470.00	4.265	4.123	0.142		9022100	62.4		125	8161	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.414	4.273	0.141	1.000	1540818	20.5		103		
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.414	4.273	0.141		3586304	55.3		111		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.541	4.405	0.136	1.000	2895666	16.5		85.6		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.571	4.432	0.139	1.000	2590273	17.2		86.2	6519	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.571	4.432	0.139		3171291	49.9		99.8		
D 30 13C2 PFUnA										
565.00 > 520.00	4.571	4.432	0.139		6375354	62.7		125	7346	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.580	4.442	0.138	1.002	1263894	20.8		104		
35 MeFOSA										E
512.00 > 169.00	4.424	4.566	-0.142	1.000	16239	214.5		1073		E
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.689	4.566	0.123		3926	0.0394		0.1		

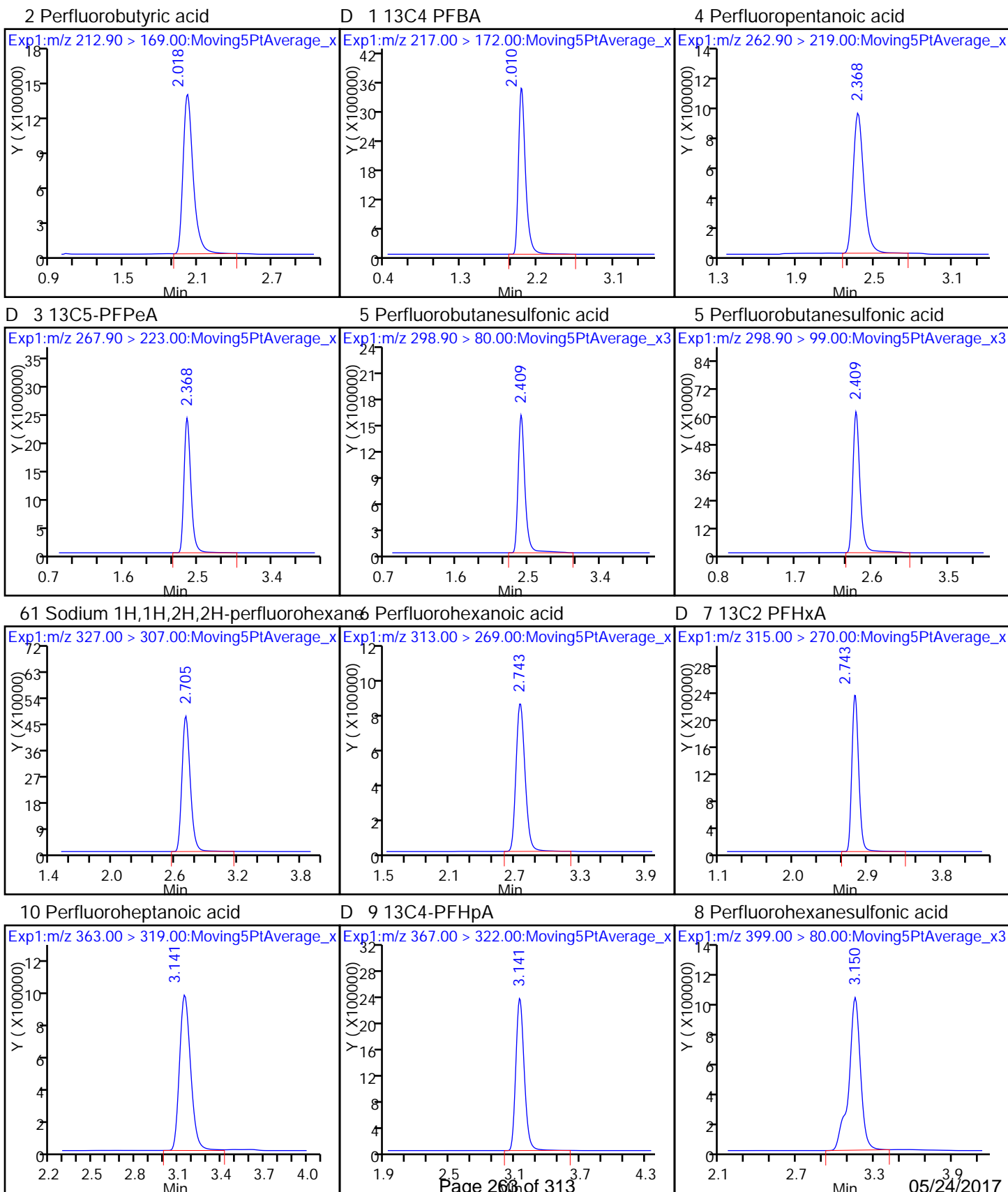
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00	> 569.00	4.838	4.703	0.135	1.000	2253373	18.2	90.8	158
D 36 13C2 PFDoA	615.00	> 570.00	4.838	4.703	0.135		6116364	61.0	122	5261
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.865	4.726	0.139		3296	0.0353	0.1	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.083	4.959	0.124	1.000	2420531	19.4	96.9	190
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.306	5.178	0.128	1.000	6285931	22.5	113	138
	713.00	> 169.00	5.306	5.178	0.128	1.000	884686		7.11(0.00-0.00)	2943
D 43 13C2-PFTeDA	715.00	> 670.00	5.306	5.178	0.128		15524162	75.7	151	6856
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.695	5.588	0.107	1.000	2621409	18.8	94.1	158
D 44 13C2-PFHxDA	815.00	> 770.00	5.695	5.588	0.107		7030429	59.4	119	3870
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.717	5.765	-0.048	1.000	223355	19.7	98.5	689

QC Flag Legend

Processing Flags

NC - Not Calibrated

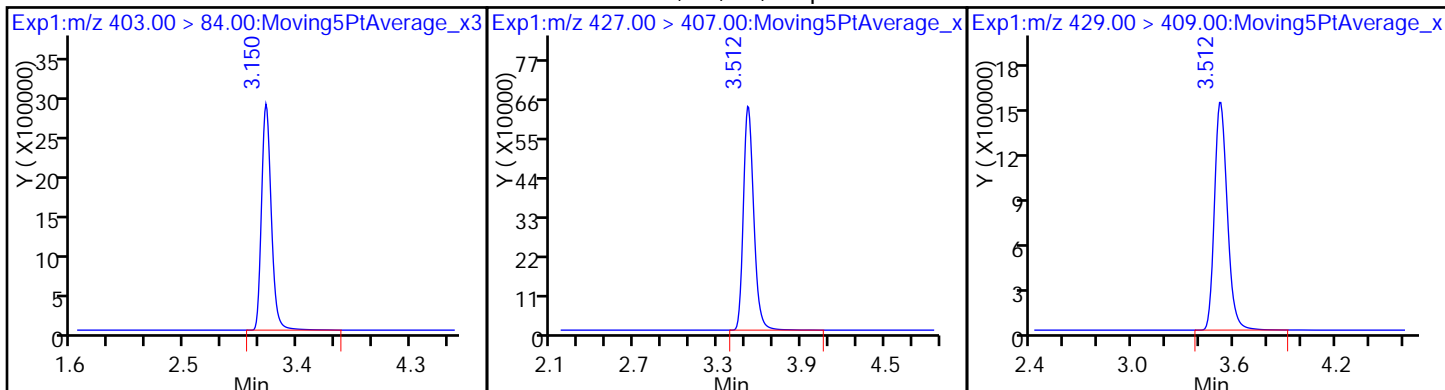
E - Exceeded Maximum Amount



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

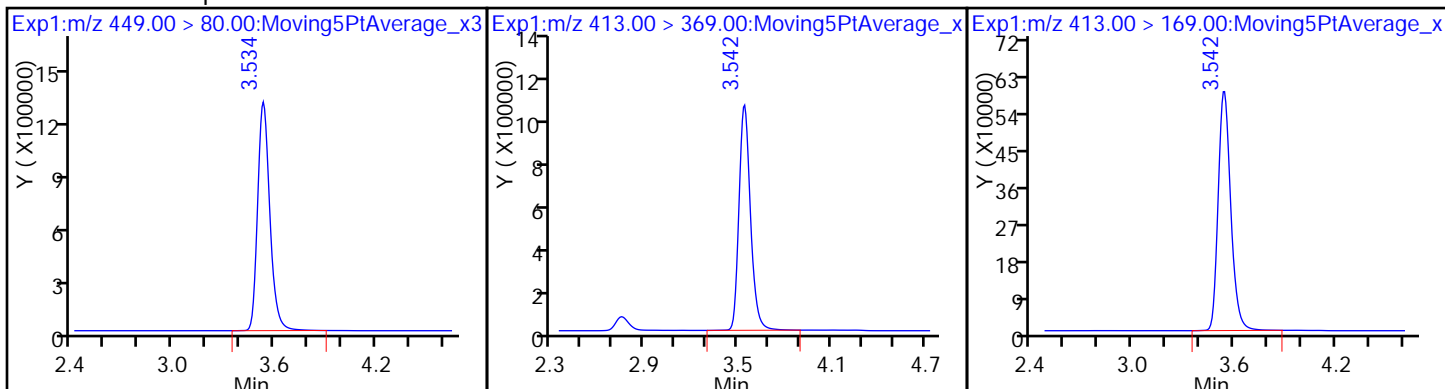
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

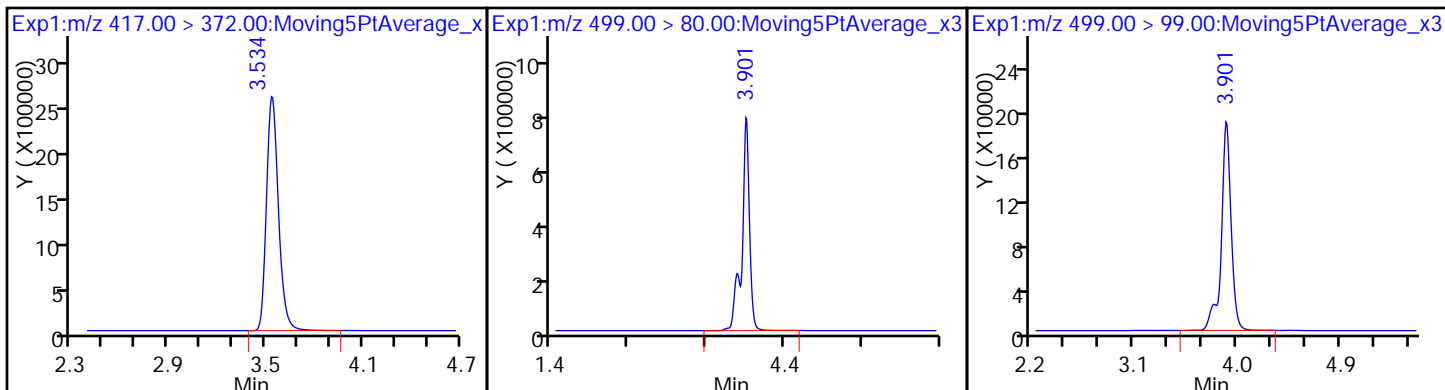
15 Perfluorooctanoic acid



D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid

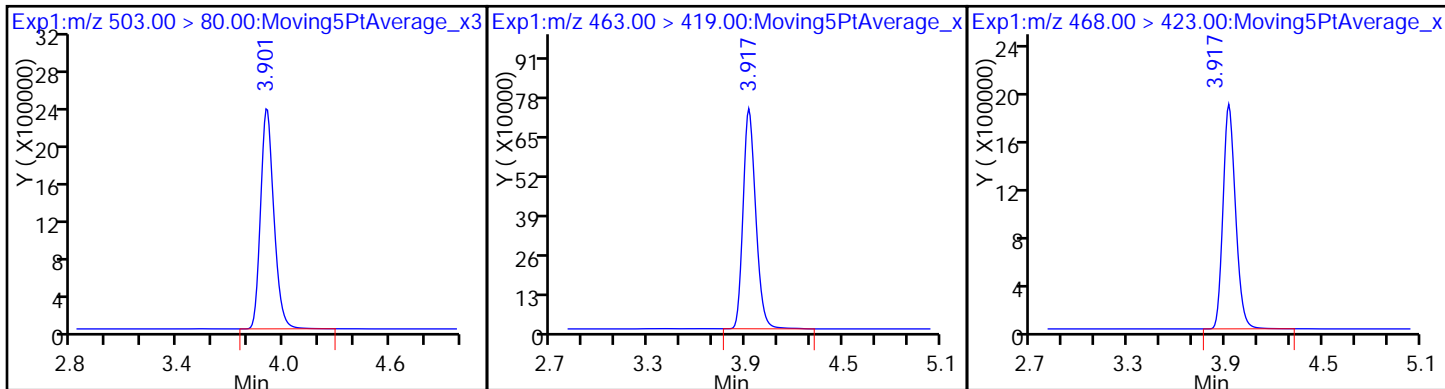
17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

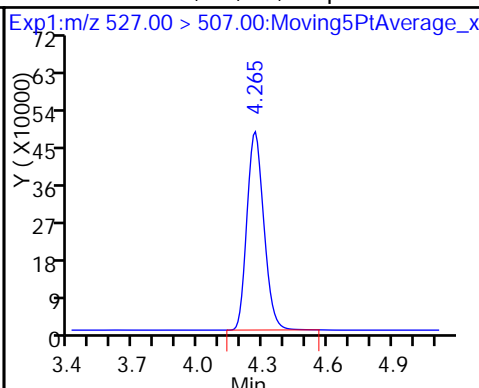
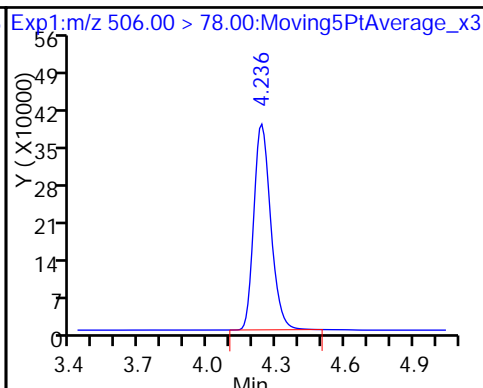
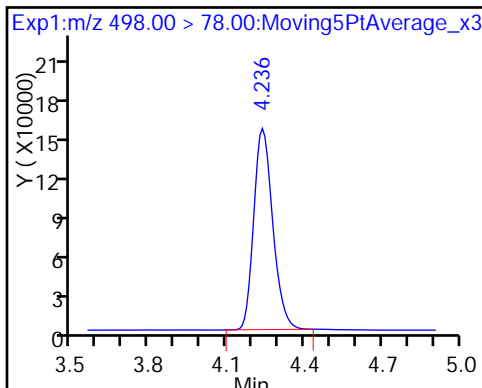
D 19 13C5 PFNA



22 Perfluorooctane Sulfonamide

D 21 13C8 FOSA

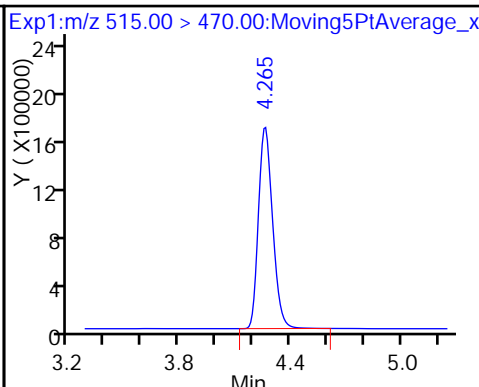
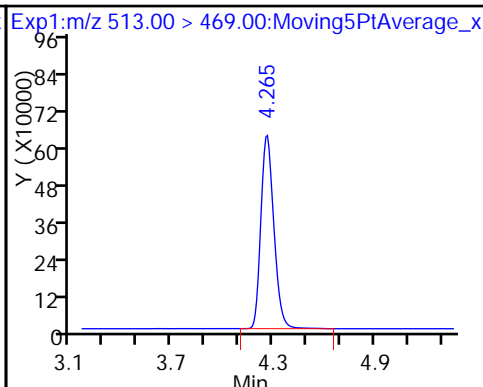
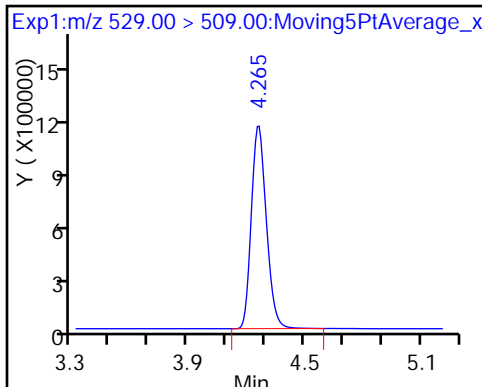
25 Sodium 1H,1H,2H,2H-perfluorooctane



D 26 M2-8:2FTS

24 Perfluorodecanoic acid

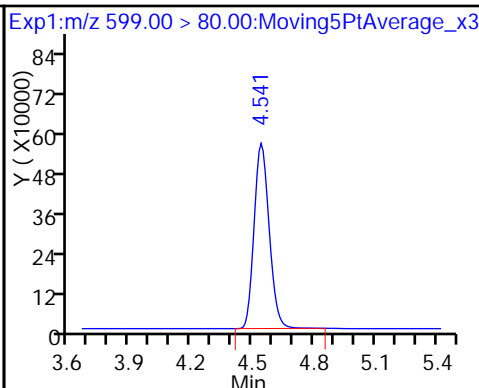
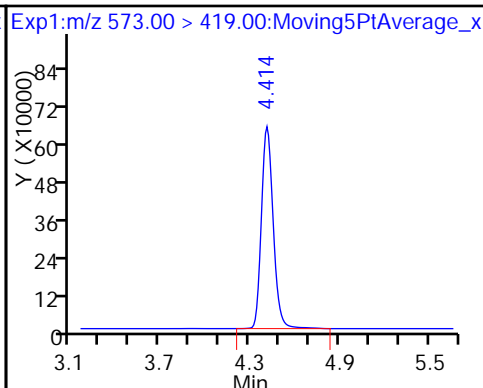
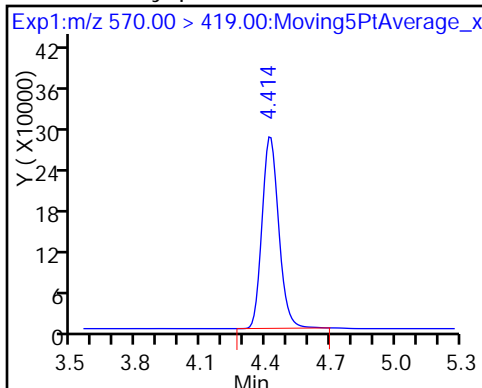
D 23 13C2 PFDA



28 N-methyl perfluorooctane sulfonamid

D 27 d3-NMeFOSAA

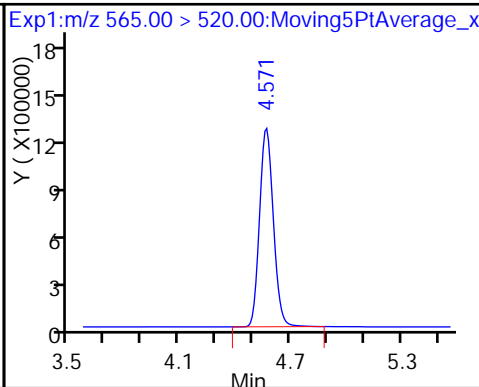
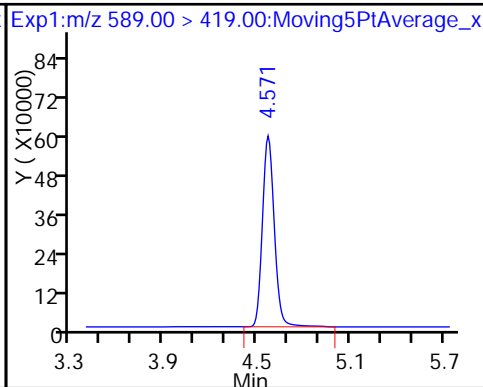
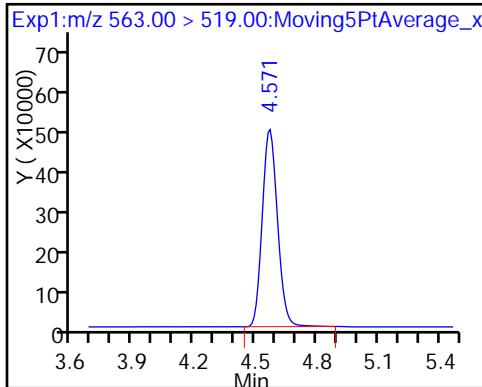
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid

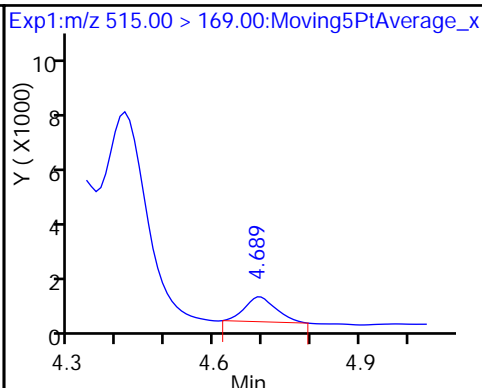
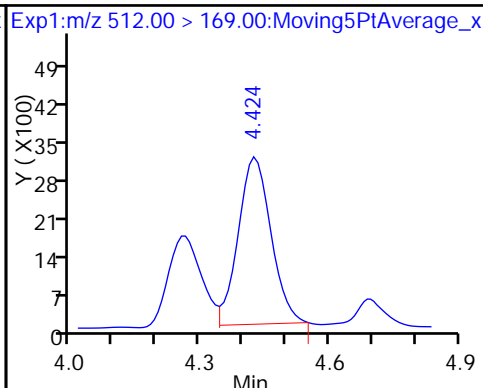
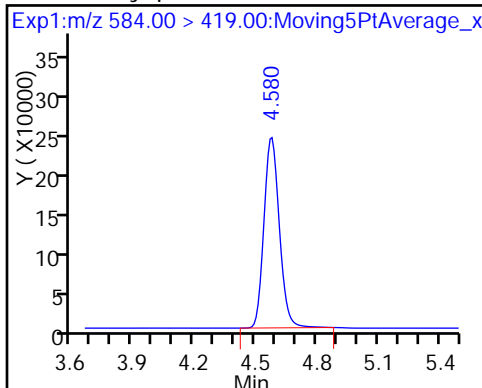
D 32 d5-NEtFOSAA

D 30 13C2 PFUnA



33 N-ethyl perfluorooctane sulfonamid 35 MeFOSA

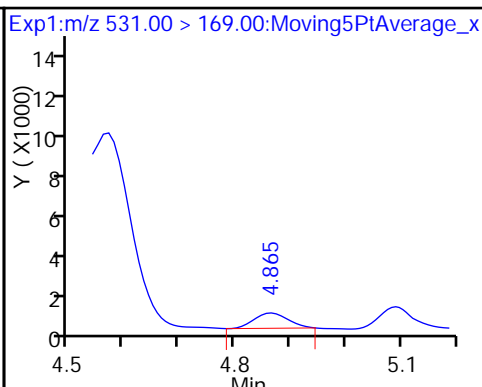
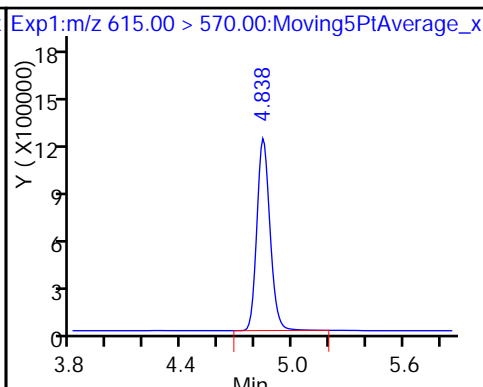
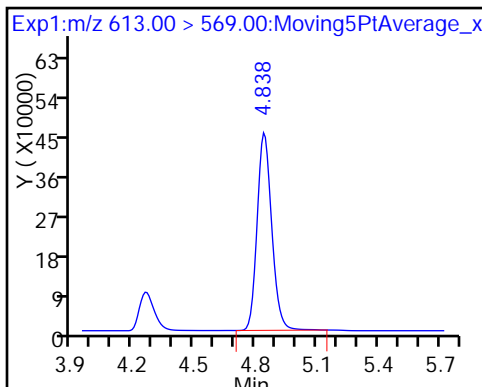
D 34 d-N-MeFOSA-M



37 Perfluorododecanoic acid

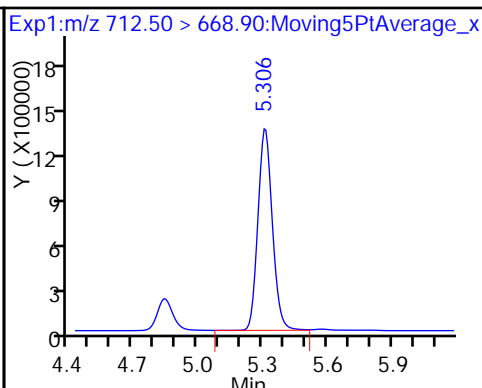
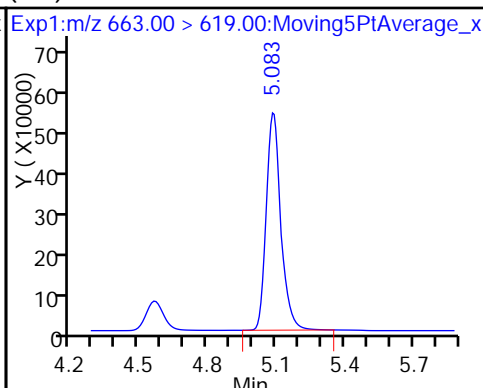
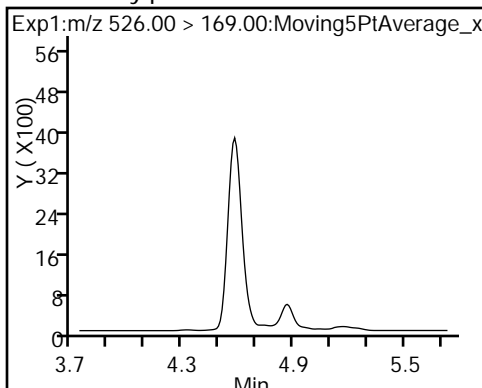
D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M



39 N-ethylperfluoro-1-octanesulfonamid (ND) Perfluorotridecanoic acid

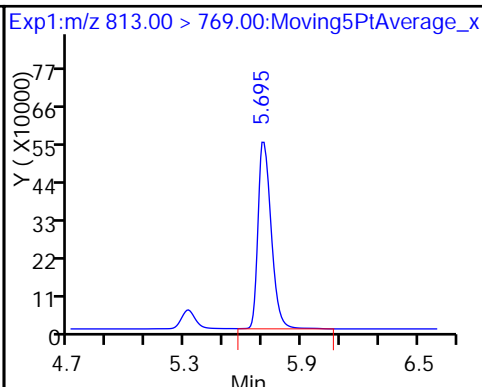
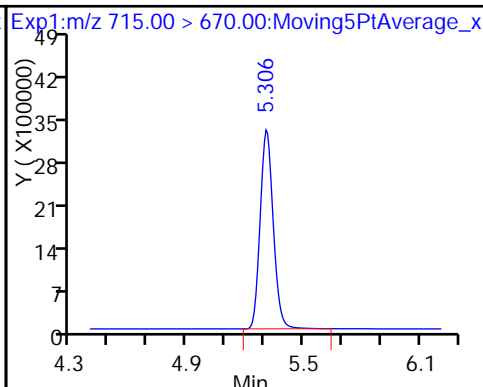
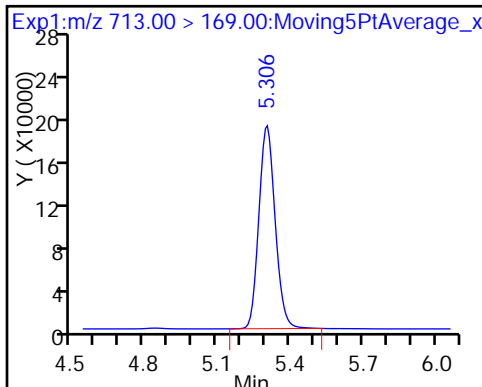
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

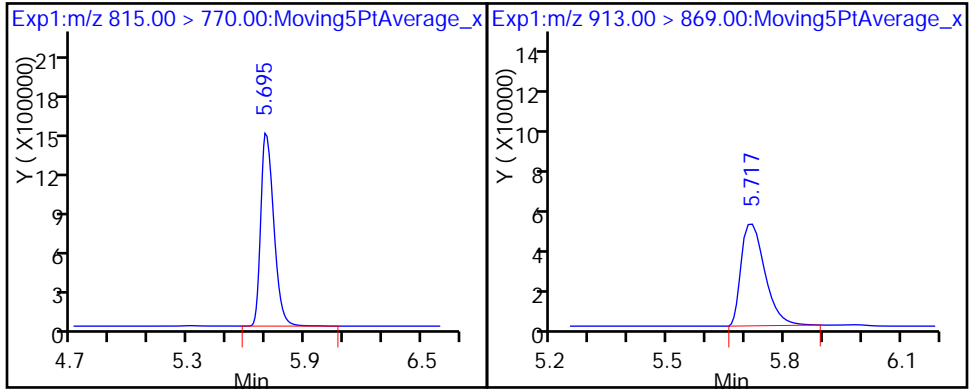
D 43 13C2-PFTeDA

45 Perfluorohexadecanoic acid



D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW09050417 MS</u>	Lab Sample ID: <u>680-138385-9 MS</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_017.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>277 (mL)</u>	Date Analyzed: <u>05/19/2017 13:14</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	30.2		2.3	0.83
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	36.8		2.3	0.79
375-85-9	Perfluoroheptanoic acid (PFHpA)	32.7		2.3	0.72
335-67-1	Perfluorooctanoic acid (PFOA)	36.7		2.3	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29.9	M	3.6	1.2
375-95-1	Perfluorononanoic acid (PFNA)	33.8		2.3	0.59

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	100		25-150
STL01892	13C4-PFHpA	76		25-150
STL00990	13C4 PFOA	63		25-150
STL00991	13C4 PFOS	100		25-150
STL00995	13C5 PFNA	47		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_017.d
 Lims ID: 680-138385-A-9-B MS
 Client ID: 06GW09050417
 Sample Type: MS
 Inject. Date: 19-May-2017 13:14:26 ALS Bottle#: 15 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-9-b ms
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:24:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.919	1.903	0.016	6527540	18.1		36.3	61321	
2 Perfluorobutyric acid	212.90 > 169.00	1.928	1.903	0.025	1.000	2814282	21.4	107	152	
4 Perfluoropentanoic acid	262.90 > 219.00	2.270	2.242	0.028	1.000	3282449	17.6	87.8	240	
D 3 13C5-PFPeA	267.90 > 223.00	2.261	2.242	0.019		8493922	34.2	68.3	56983	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.299	2.289	0.010	1.000	8089311	16.7	94.6		
	298.90 > 99.00	2.299	2.289	0.010	1.000	3339509	2.42(0.00-0.00)			
D 47 13C3-PFBS	301.90 > 83.00	2.299	2.309	-0.010		279034	NC			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.592	2.564	0.028	1.000	2145860	26.6	143		
6 Perfluorohexanoic acid	313.00 > 269.00	2.627	2.608	0.019	1.000	3130978	18.0	89.8	835	
D 7 13C2 PFHxA	315.00 > 270.00	2.627	2.608	0.019		8460896	34.7	69.5	225326	
D 60 M2-4:2FTS	329.00 > 309.00	2.592	2.675	-0.083		118075	NC			
10 Perfluoroheptanoic acid	363.00 > 319.00	3.025	2.994	0.031	1.000	3258008	18.1	90.7	631	
D 9 13C4-PFHpA	367.00 > 322.00	3.025	2.994	0.031		8027052	37.9	75.8	49307	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.033	3.009	0.024	1.000	7269633	20.4	112		
D 11 18O2 PFHxS	403.00 > 84.00	3.033	3.009	0.024		4438874	47.1	99.6	44388	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.397	3.370	0.027	1.000	2018047	20.0	105	
D 12 M2-6:2FTS	429.00	> 409.00	3.397	3.370	0.027		4957052	39.3	82.7	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.414	3.387	0.027	1.000	5563584	18.9	99.0	
15 Perfluorooctanoic acid	413.00	> 369.00	3.422	3.396	0.026	1.000	3118795	20.3	102	523
	413.00	> 169.00	3.422	3.396	0.026	1.000	1818498		1.72(0.90-1.10)	3194
D 14 13C4 PFOA	417.00	> 372.00	3.422	3.396	0.026		6672402	31.4	62.7	28905
* 62 13C2-PFOA	415.00	> 370.00	3.414	3.426	-0.012		7180	49.5	0.0	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.789	3.762	0.027	1.000	4512391	16.6	89.2	3716 M
	499.00	> 99.00	3.789	3.762	0.027	1.000	1004520		4.49(0.90-1.10)	1922 M
D 18 13C4 PFOS	503.00	> 80.00	3.789	3.762	0.027		10919609	47.6	99.6	16804
20 Perfluorononanoic acid	463.00	> 419.00	3.807	3.770	0.037	1.000	1571905	18.7	93.6	1035
D 19 13C5 PFNA	468.00	> 423.00	3.798	3.770	0.028		3922550	23.4	46.7	15294
D 21 13C8 FOSA	506.00	> 78.00	4.122	4.096	0.026		157031	0.4277	0.9	1604
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.131	4.096	0.035	1.000	57762	17.4	87.0	697
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.148	4.114	0.034	1.000	2193733	20.8	108	
D 26 M2-8:2FTS	529.00	> 509.00	4.148	4.114	0.034		5181329	52.3	109	
24 Perfluorodecanoic acid	513.00	> 469.00	4.148	4.123	0.025	1.000	1215551	19.0	95.1	1520
D 23 13C2 PFDA	515.00	> 470.00	4.148	4.123	0.025		3120523	21.6	43.2	9624
D 27 d3-NMeFOSAA	573.00	> 419.00	4.304	4.273	0.031		820624	12.6	25.3	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.304	4.273	0.031	1.000	387004	22.5	113	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.433	4.405	0.028	1.000	2656077	16.9	87.8	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.460	4.432	0.028	1.000	1164051	18.0	89.9	1722
D 32 d5-NEtFOSAA	589.00	> 419.00	4.460	4.432	0.028		845785	13.3	26.6	
D 30 13C2 PFUnA	565.00	> 520.00	4.451	4.432	0.019		2747700	27.0	54.0	5664
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.469	4.442	0.027	1.002	383415	23.7	118	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.586	4.566	0.020	3978	0.0400		0.1		
37 Perfluorododecanoic acid	613.00 > 569.00	4.731	4.703	0.028	1243094	19.4		96.8	1231	
D 36 13C2 PFDaA	615.00 > 570.00	4.731	4.703	0.028	3165214	31.6		63.2	3447	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.761	4.726	0.035	3634	0.0390		0.1		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.981	4.959	0.022	1396498	21.6		108	1106	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.208	5.178	0.030	4357659	30.2		151	277	
	713.00 > 169.00	5.198	5.178	0.020	610008		7.14(0.00-0.00)		2340	
D 43 13C2-PFTeDA	715.00 > 670.00	5.208	5.178	0.030	10546812	51.5		103	7823	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.609	5.588	0.021	1921928	27.1		135	304	
D 44 13C2-PFHxDA	815.00 > 770.00	5.609	5.588	0.021	5098419	43.1		86.2	4703	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.736	5.976	-0.240	986	-4.07		-20.4	0.0	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_017.d

Injection Date: 19-May-2017 13:14:26

Instrument ID: A8_N

Lims ID: 680-138385-A-9-B MS

Client ID: 06GW09050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

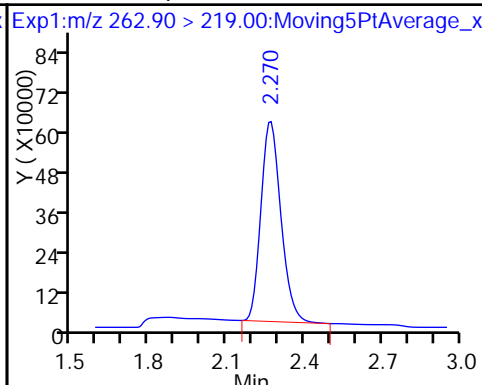
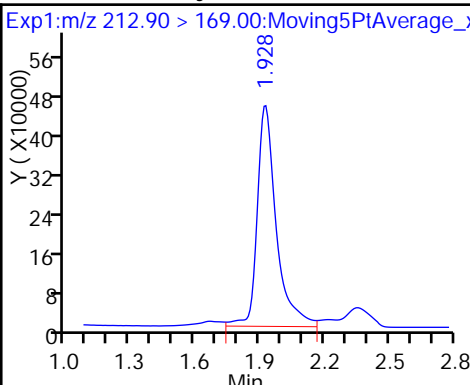
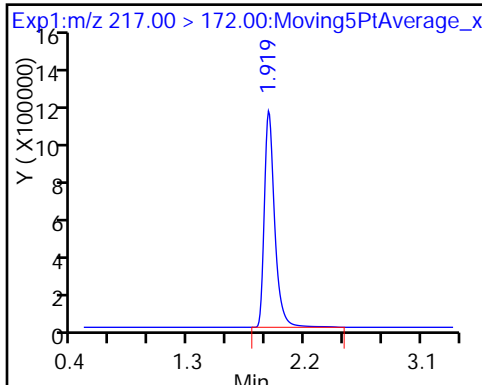
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

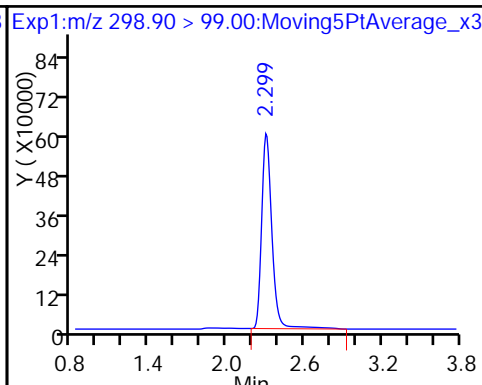
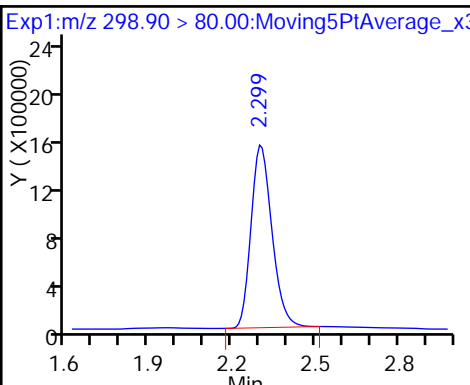
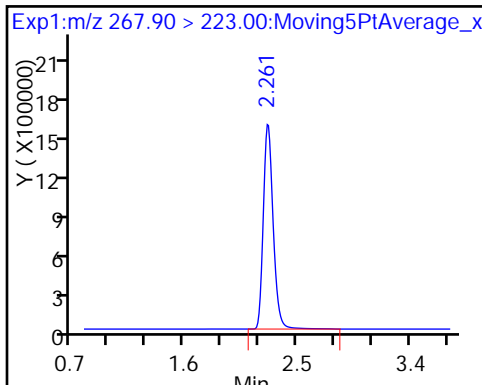
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

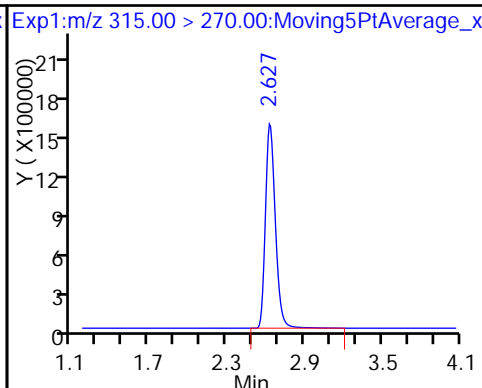
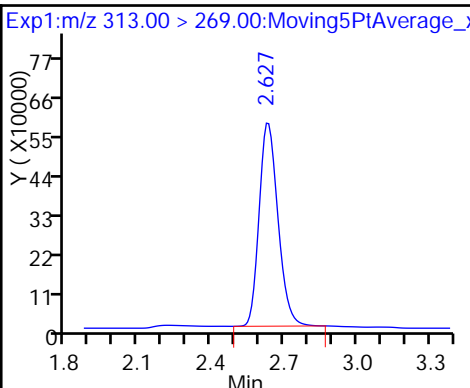
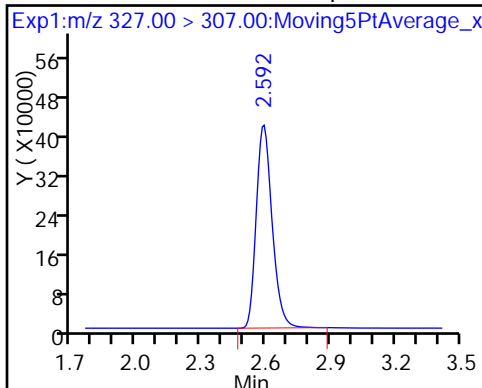
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

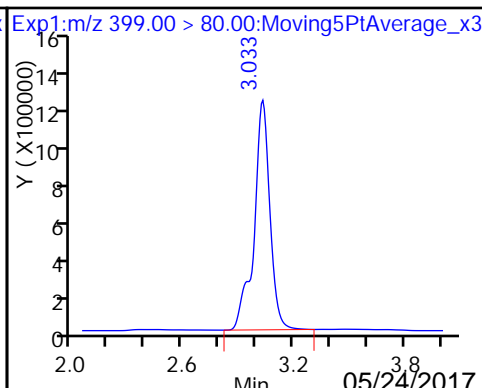
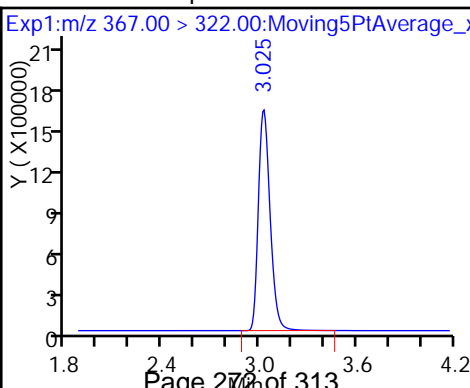
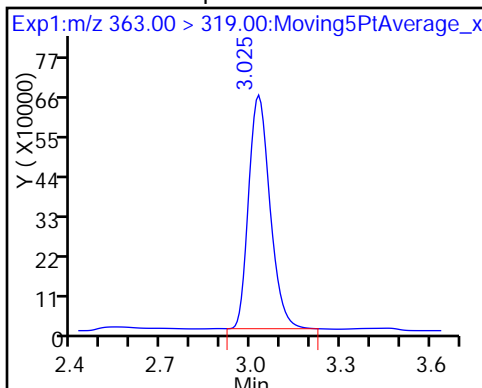
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

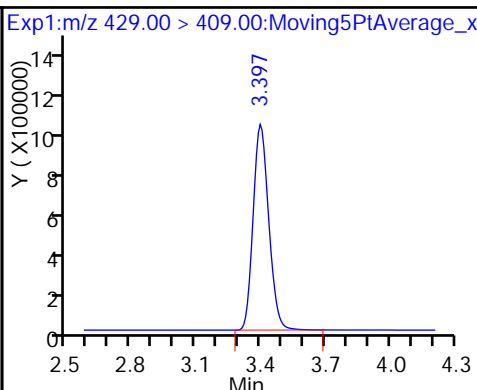
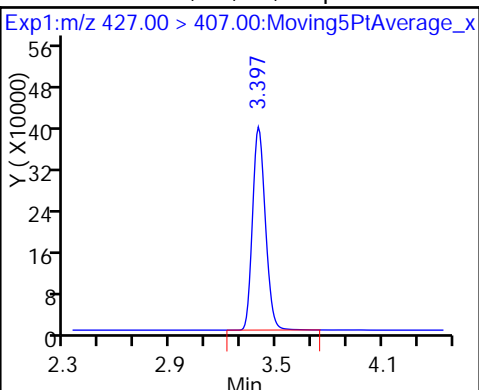
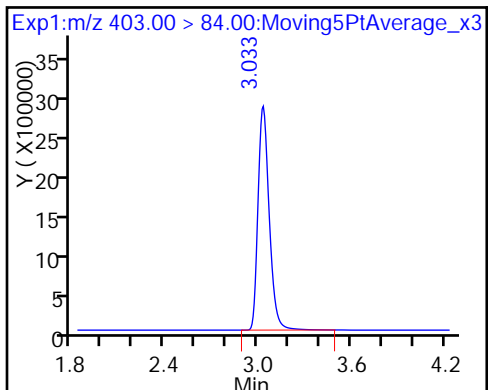
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecane

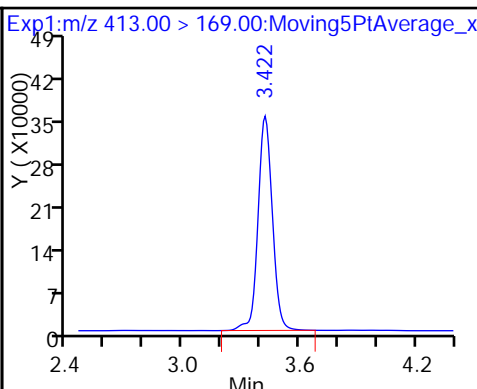
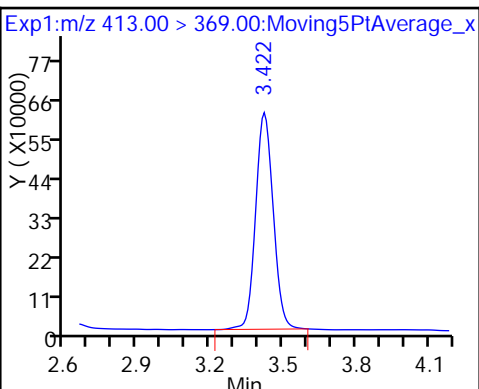
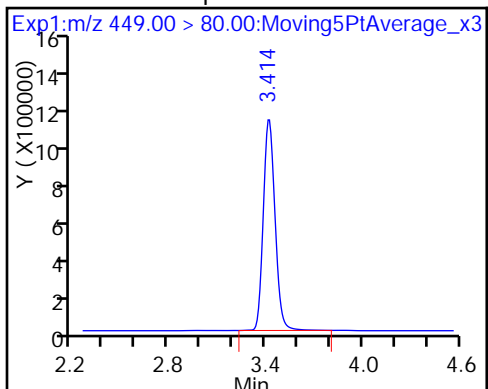
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

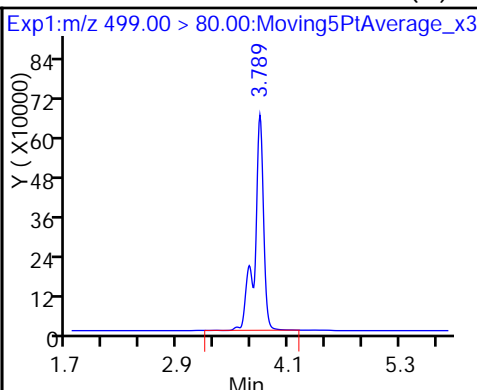
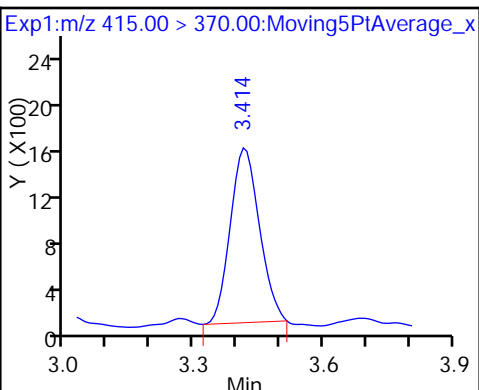
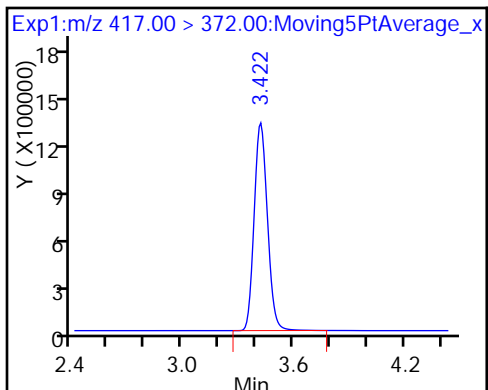
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA

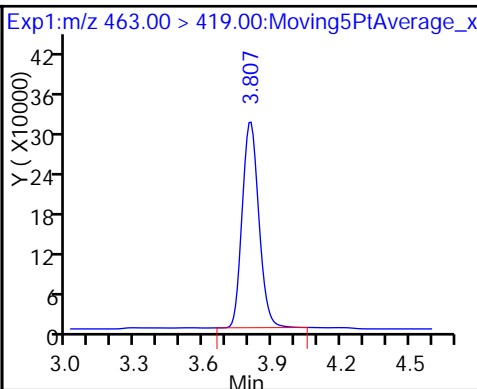
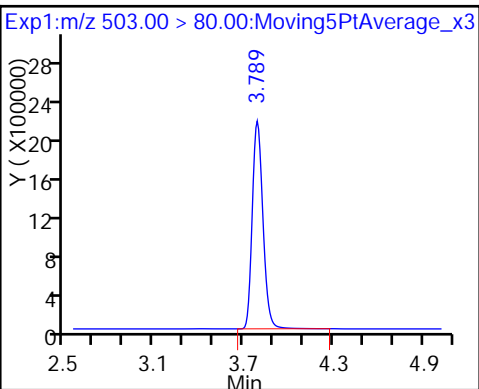
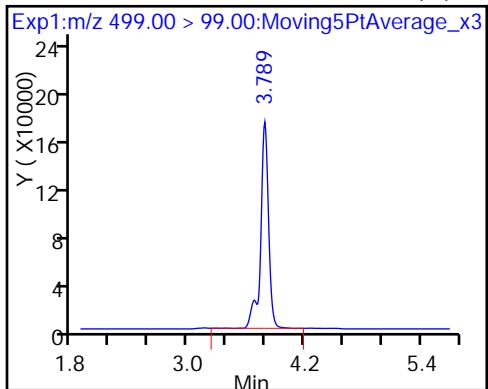
17 Perfluorooctane sulfonic acid (M)



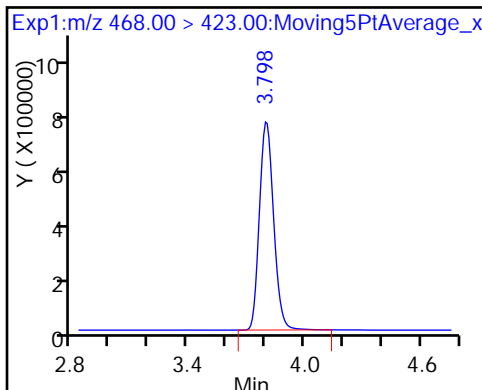
17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS

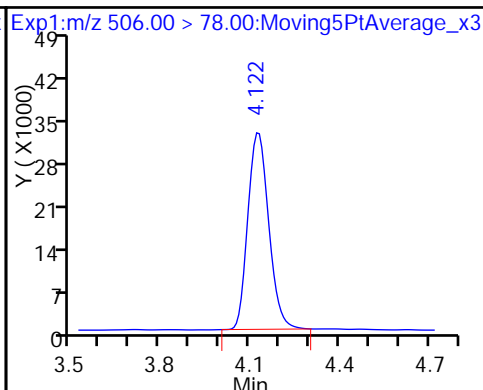
20 Perfluorononanoic acid



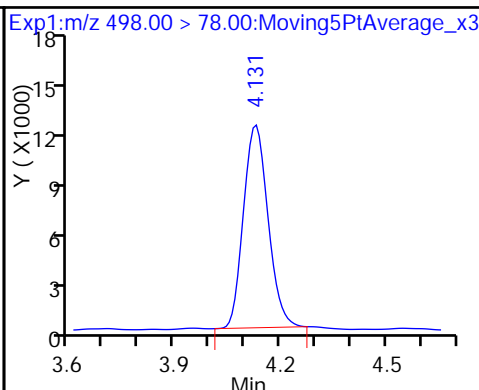
D 19 13C5 PFNA



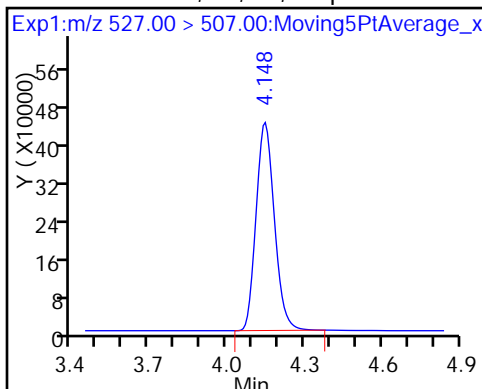
D 21 13C8 FOSA



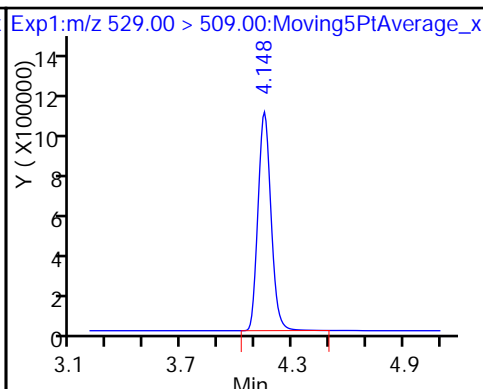
22 Perfluorooctane Sulfonamide



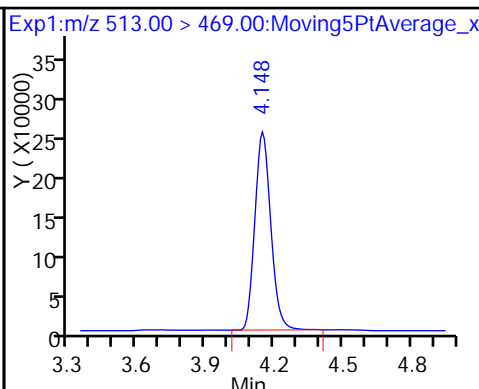
25 Sodium 1H,1H,2H,2H-perfluorooctane



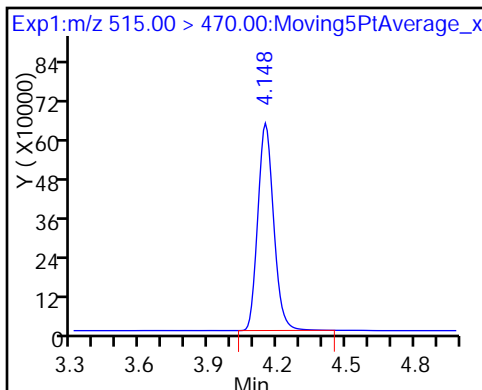
D 26 M2-8:2FTS



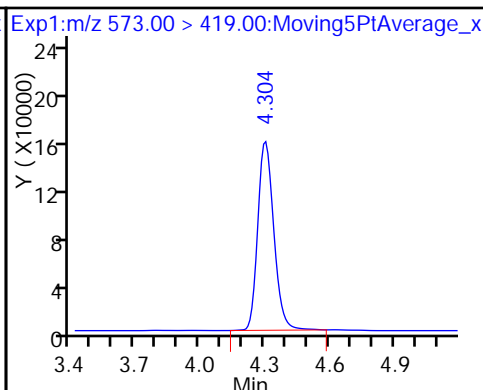
24 Perfluorodecanoic acid



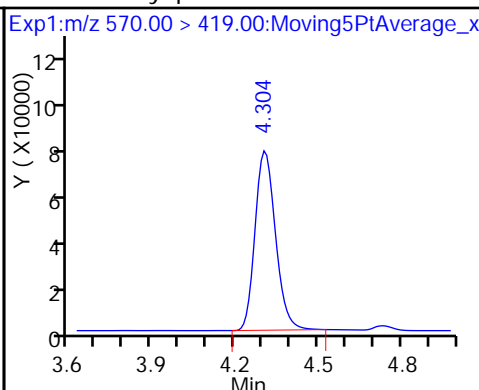
D 23 13C2 PFDA



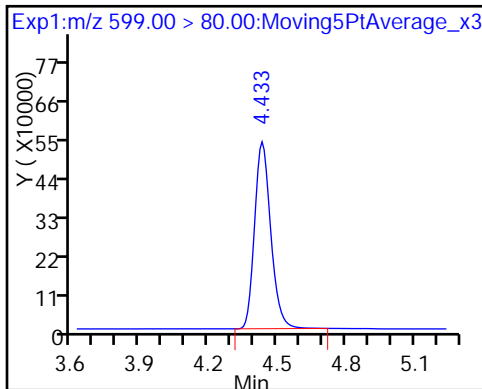
D 27 d3-NMeFOSAA



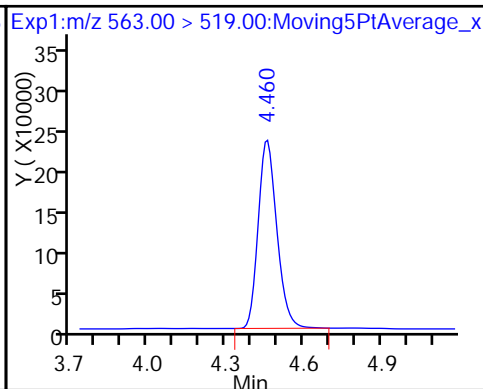
28 N-methyl perfluorooctane sulfonami



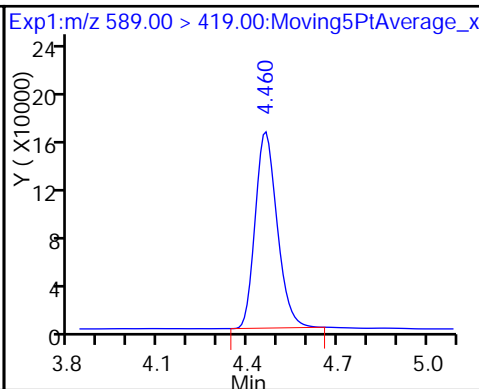
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid



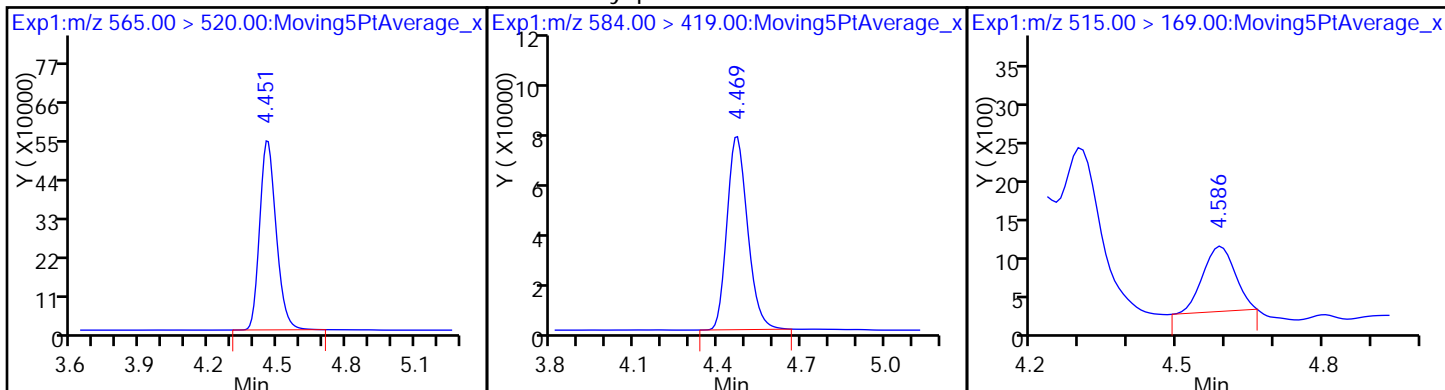
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

33 N-ethyl perfluorooctane sulfonamid

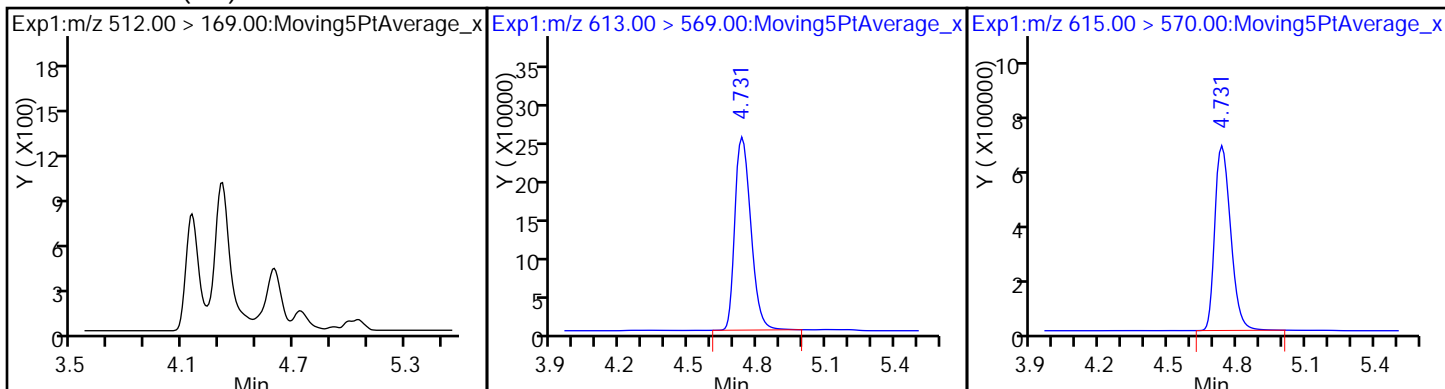
D 34 d-N-MeFOSA-M



35 MeFOSA (ND)

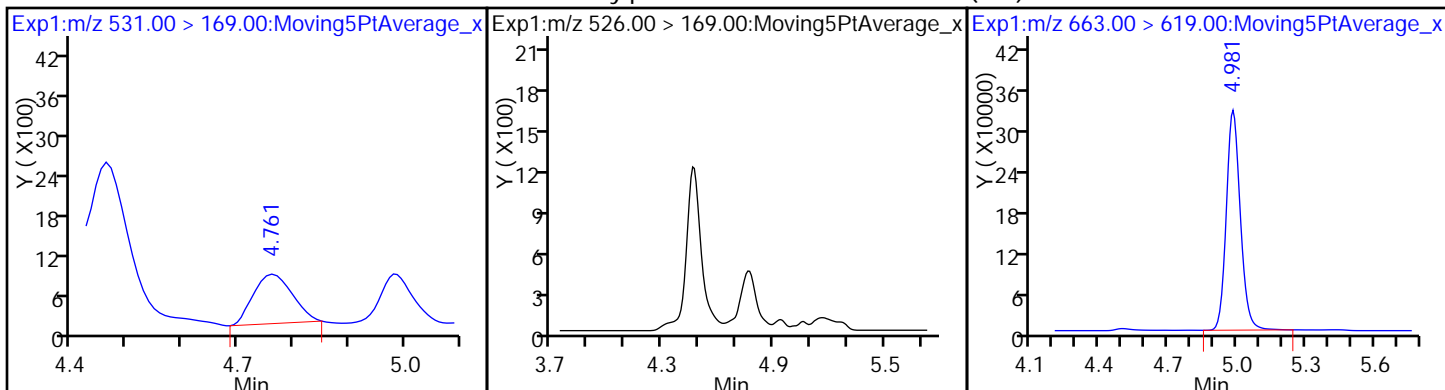
37 Perfluorododecanoic acid

D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

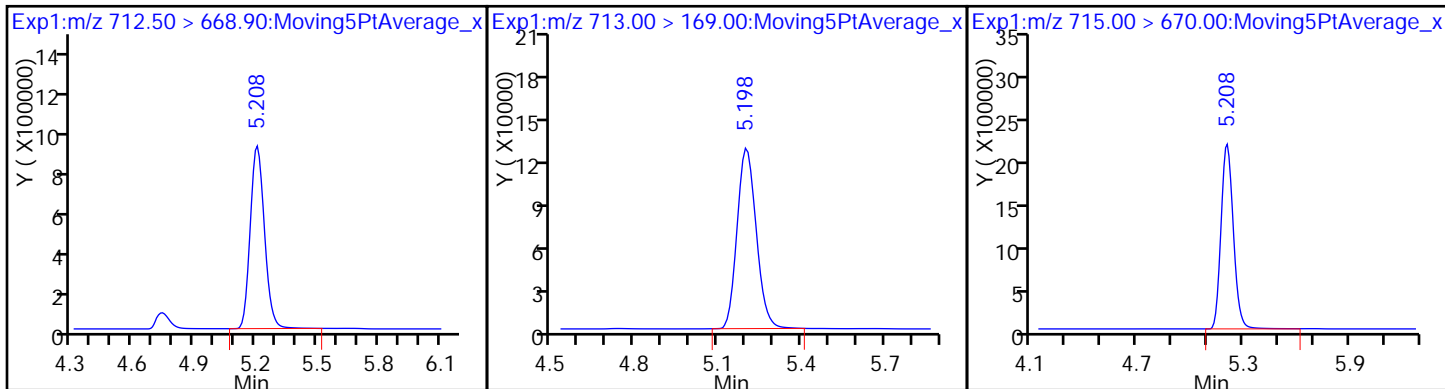
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

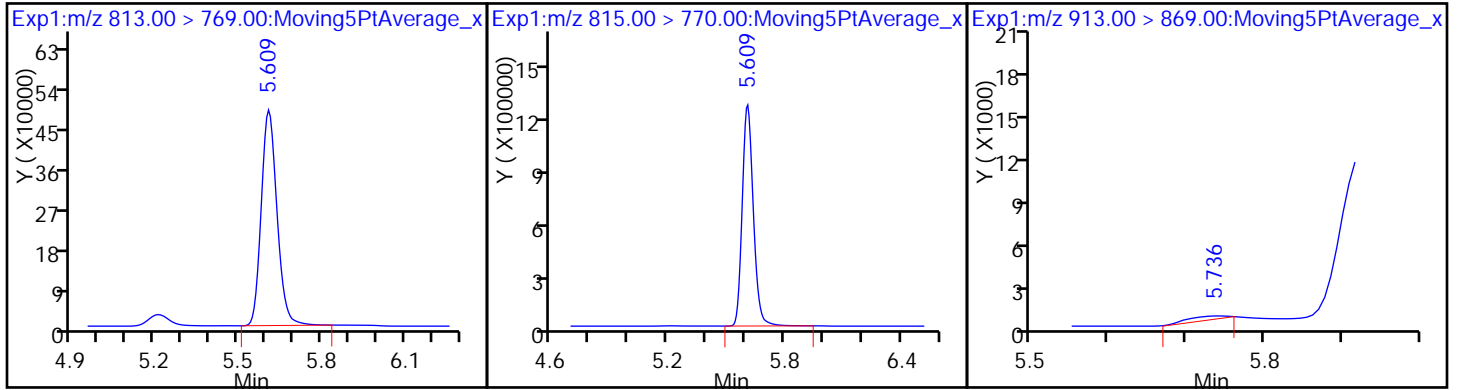
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



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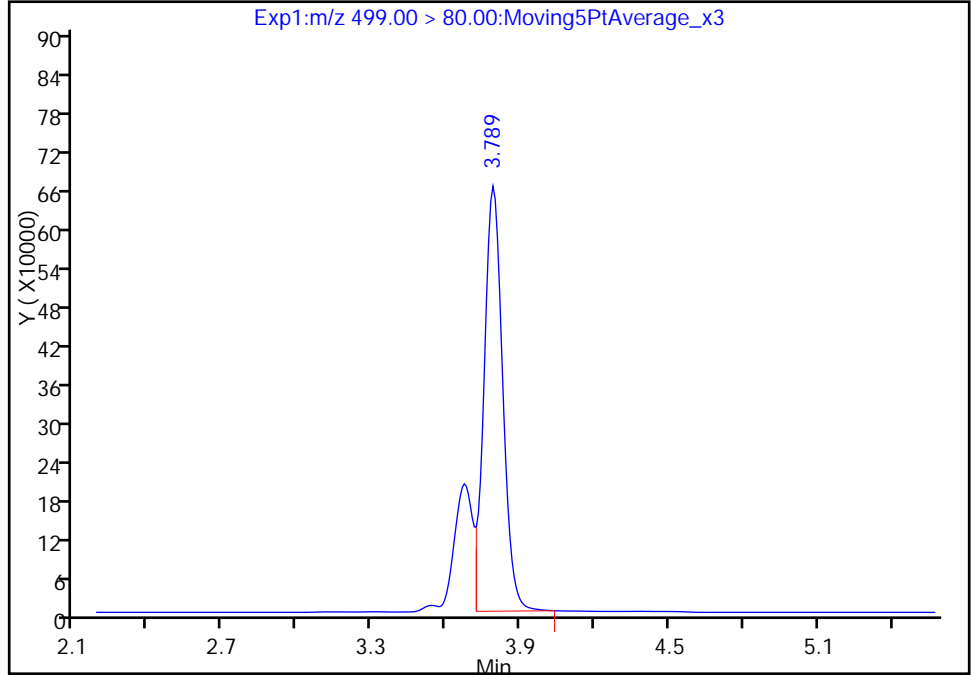
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Injection Date: 19-May-2017 13:14:26 Instrument ID: A8_N
Lims ID: 680-138385-A-9-B MS
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

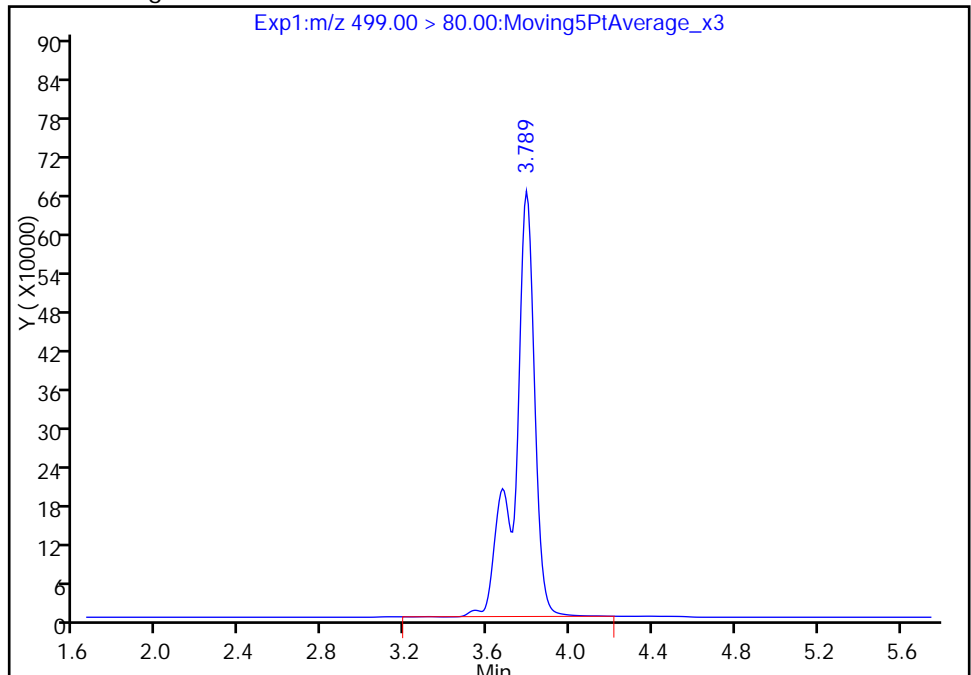
RT: 3.79
Area: 3428182
Amount: 12.584079
Amount Units: ng/ml

Processing Integration Results



RT: 3.79
Area: 4512391
Amount: 16.563965
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:24:19

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

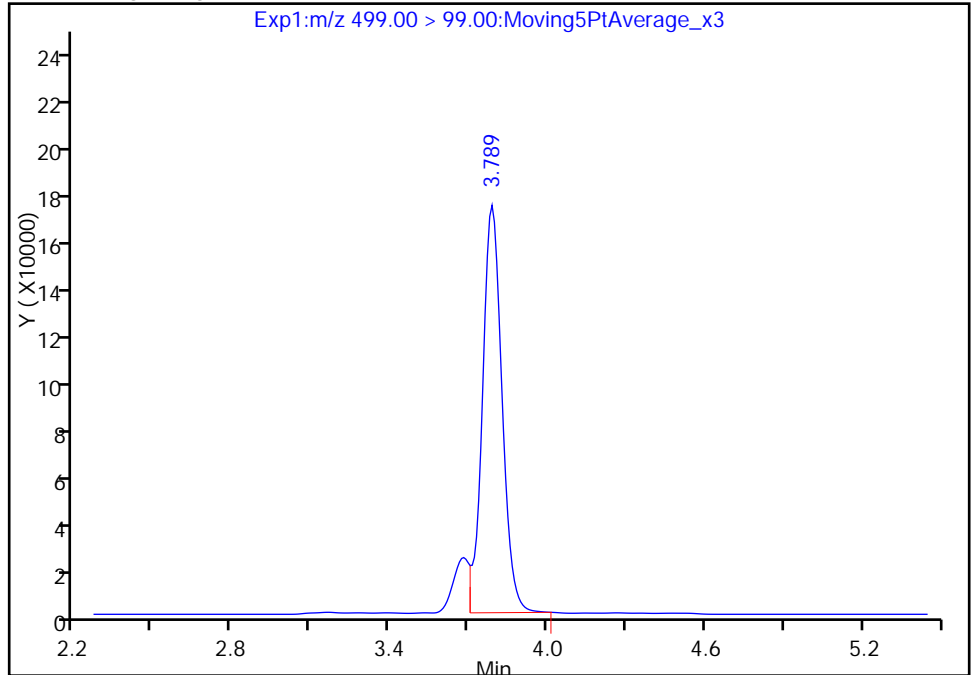
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Injection Date: 19-May-2017 13:14:26 Instrument ID: A8_N
Lims ID: 680-138385-A-9-B MS
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

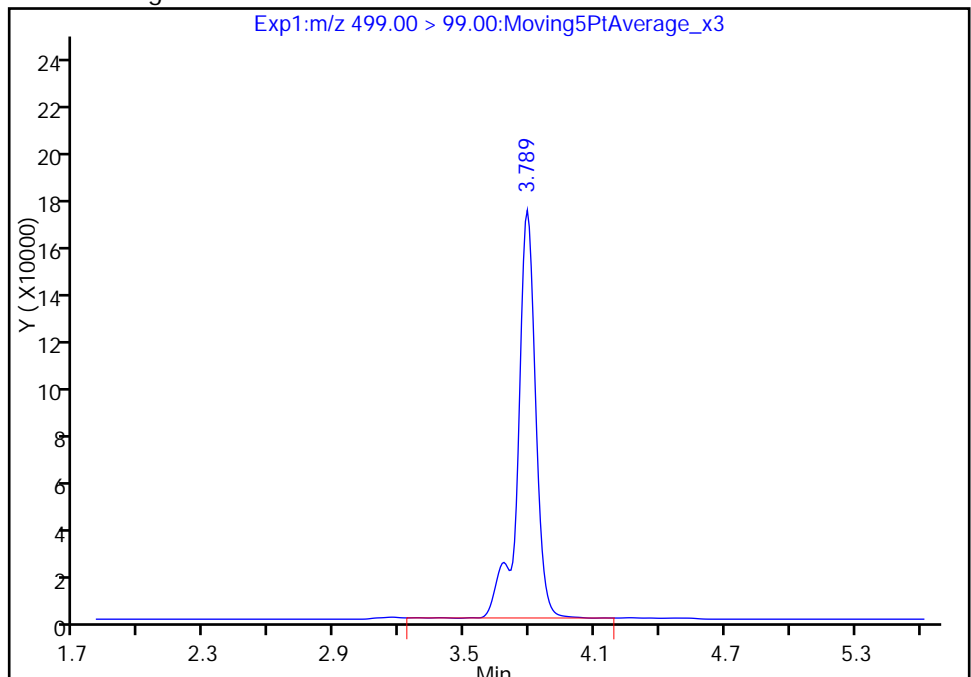
RT: 3.79
Area: 901953
Amount: 12.584079
Amount Units: ng/ml

Processing Integration Results



RT: 3.79
Area: 1004520
Amount: 16.563965
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:24:20

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW09050417 MSD</u>	Lab Sample ID: <u>680-138385-9 MSD</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_018.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>273.4 (mL)</u>	Date Analyzed: <u>05/19/2017 13:21</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31.8		2.3	0.84
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	37.8		2.3	0.80
375-85-9	Perfluoroheptanoic acid (PFHpA)	33.3		2.3	0.73
335-67-1	Perfluorooctanoic acid (PFOA)	37.4		2.3	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31.0	M	3.7	1.2
375-95-1	Perfluorononanoic acid (PFNA)	33.0		2.3	0.60

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	99		25-150
STL01892	13C4-PFHpA	78		25-150
STL00990	13C4 PFOA	67		25-150
STL00991	13C4 PFOS	101		25-150
STL00995	13C5 PFNA	51		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_018.d
 Lims ID: 680-138385-A-9-C MSD
 Client ID: 06GW09050417
 Sample Type: MSD
 Inject. Date: 19-May-2017 13:21:56 ALS Bottle#: 16 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-9-c msd
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:35:07 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 15:24:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.919	1.903	0.016	6598355	18.3		36.7	65441	
2 Perfluorobutyric acid	212.90 > 169.00	1.919	1.903	0.016	2912790	21.9		110	187	
4 Perfluoropentanoic acid	262.90 > 219.00	2.261	2.242	0.019	3157283	17.9		89.6	270	
D 3 13C5-PFPeA	267.90 > 223.00	2.261	2.242	0.019	8005230	32.2		64.4	31574	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.298	2.289	0.009	8361412	17.4		98.5		
	298.90 > 99.00	2.298	2.289	0.009	3569244		2.34(0.00-0.00)			
D 47 13C3-PFBS	301.90 > 83.00	2.298	2.309	-0.011	295661	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.583	2.564	0.019	2228724	25.9		138		
6 Perfluorohexanoic acid	313.00 > 269.00	2.627	2.608	0.018	3307458	18.7		93.3	1031	
D 7 13C2 PFHxA	315.00 > 270.00	2.627	2.608	0.018	8605161	35.3		70.7	41323	
D 60 M2-4:2FTS	329.00 > 309.00	2.583	2.675	-0.092	126850	NC				
10 Perfluoroheptanoic acid	363.00 > 319.00	3.016	2.994	0.022	3365900	18.2		91.1	655	
D 9 13C4-PFHpA	367.00 > 322.00	3.016	2.994	0.022	8251864	38.9		77.9	37174	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.024	3.009	0.015	7317517	20.6		113		
D 11 18O2 PFHxS	403.00 > 84.00	3.024	3.009	0.015	44236123	46.8		98.9	187895	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.386	3.370	0.016	1.000	2173793	20.1	106	
D 12 M2-6:2FTS	429.00	> 409.00	3.386	3.370	0.016		5301610	42.0	88.5	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.411	3.387	0.024	1.000	5795288	19.4	102	
15 Perfluorooctanoic acid	413.00	> 369.00	3.411	3.396	0.015	1.000	3327001	20.4	102	553
	413.00	> 169.00	3.411	3.396	0.015	1.000	1941313		1.71(0.90-1.10)	2989
D 14 13C4 PFOA	417.00	> 372.00	3.411	3.396	0.015		7083757	33.3	66.6	30120
* 62 13C2-PFOA	415.00	> 370.00	3.411	3.426	-0.015		7295	49.5	0.0	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.783	3.762	0.021	1.000	4673381	17.0	91.3	3760 M
	499.00	> 99.00	3.774	3.762	0.012	0.998	1036432		4.51(0.90-1.10)	1989 M
D 18 13C4 PFOS	503.00	> 80.00	3.774	3.762	0.012		11050276	48.2	101	13545
20 Perfluorononanoic acid	463.00	> 419.00	3.792	3.770	0.022	1.000	1654220	18.1	90.3	1046
D 19 13C5 PFNA	468.00	> 423.00	3.792	3.770	0.022		4278229	25.5	51.0	22910
D 21 13C8 FOSA	506.00	> 78.00	4.115	4.096	0.019		204105	0.5560	1.1	1859
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.115	4.096	0.019	1.000	83408	19.3	96.6	908
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.133	4.114	0.019	1.000	2305908	22.6	118	
D 26 M2-8:2FTS	529.00	> 509.00	4.133	4.114	0.019		5011821	50.6	106	
24 Perfluorodecanoic acid	513.00	> 469.00	4.141	4.123	0.018	1.000	1145375	18.6	92.8	1244
D 23 13C2 PFDA	515.00	> 470.00	4.141	4.123	0.018		3013852	20.9	41.7	12379
D 27 d3-NMeFOSAA	573.00	> 419.00	4.296	4.273	0.023		833077	12.8	25.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.296	4.273	0.023	1.000	359423	20.6	103	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.425	4.405	0.020	1.000	2700465	17.0	88.2	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.443	4.432	0.011	1.000	961570	18.0	89.9	1308
D 32 d5-NEtFOSAA	589.00	> 419.00	4.452	4.432	0.020		896783	14.1	28.2	
D 30 13C2 PFUnA	565.00	> 520.00	4.443	4.432	0.011		2269335	22.3	44.6	4361
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.452	4.442	0.010	1.000	350848	20.5	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00 > 569.00	4.722	4.703	0.019	1.000	1096093	20.2	101	1075	
D 36 13C2 PFDoA	615.00 > 570.00	4.722	4.703	0.019		2673736	26.7	53.3	3288	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.974	4.726	0.248		2597	0.0278	0.1		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.974	4.959	0.015	1.000	1369867	25.1	125	1295	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.198	5.178	0.020	1.000	4685796	38.5	192	436	
	713.00 > 169.00	5.189	5.178	0.011	0.998	665807		7.04(0.00-0.00)	2375	
D 43 13C2-PFTeDA	715.00 > 670.00	5.198	5.178	0.020		11450166	55.9	112	9260	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.603	5.588	0.015	1.000	2005932	33.6	168	311	
D 44 13C2-PFHxDA	815.00 > 770.00	5.603	5.588	0.015		5227071	44.2	88.3	4004	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.743	5.976	-0.233	1.000	1338	-3.95	-19.7	0.0	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_018.d

Injection Date: 19-May-2017 13:21:56

Instrument ID: A8_N

Lims ID: 680-138385-A-9-C MSD

Client ID: 06GW09050417

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

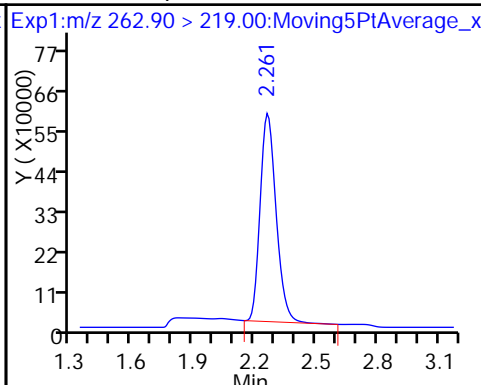
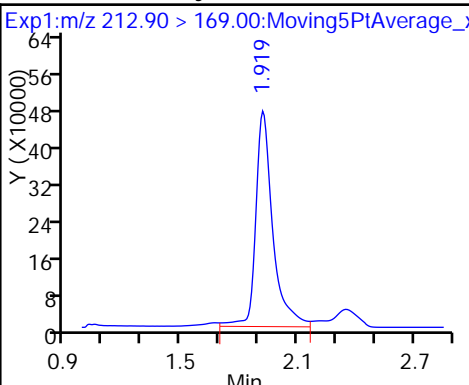
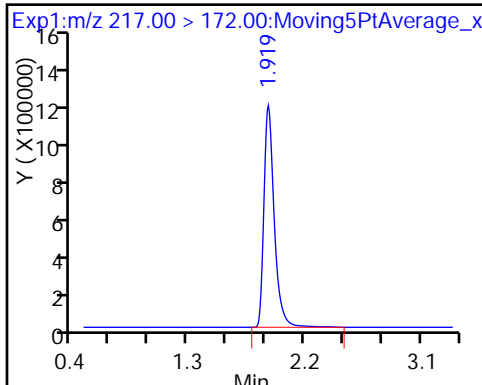
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

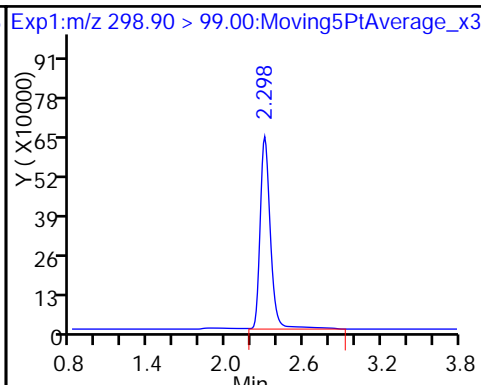
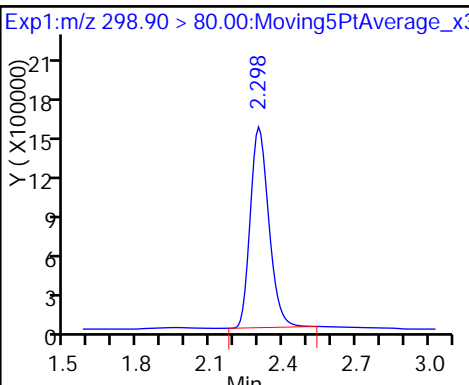
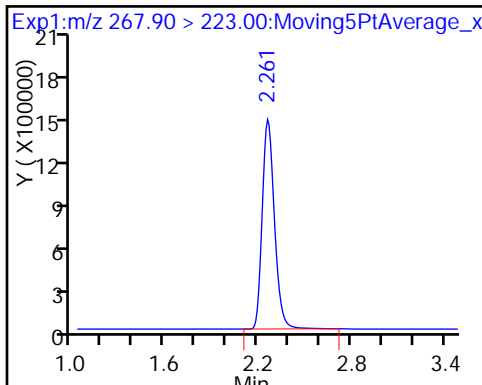
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

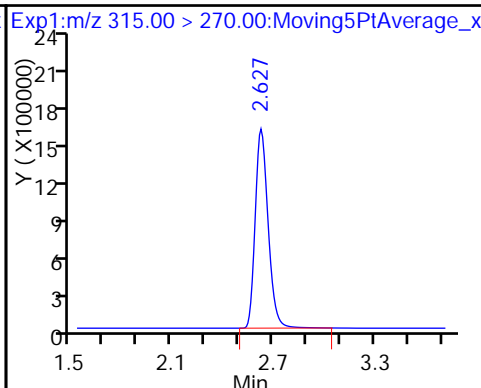
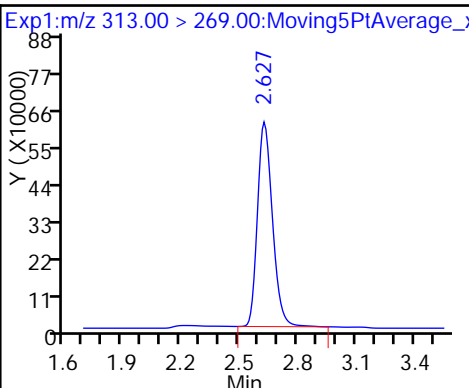
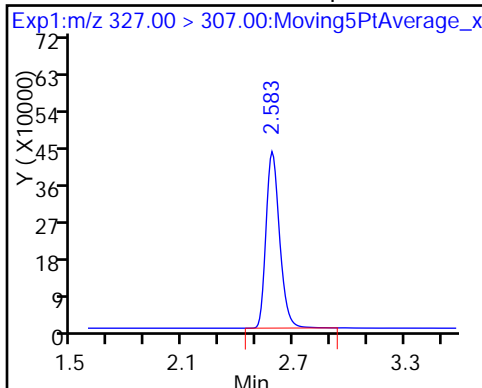
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

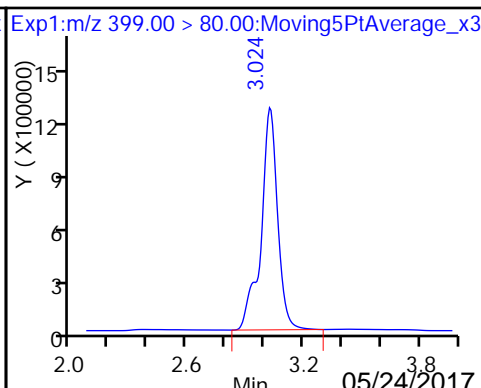
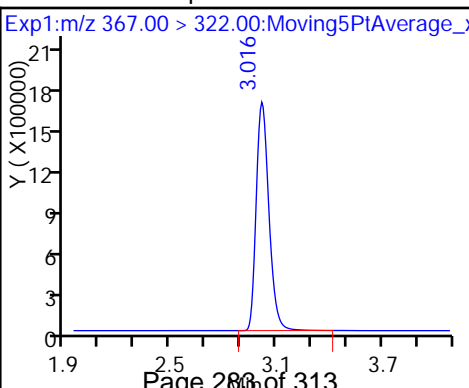
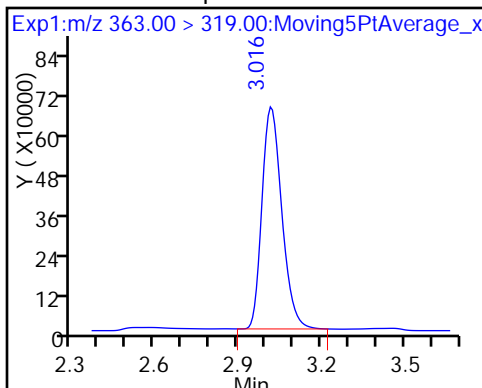
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

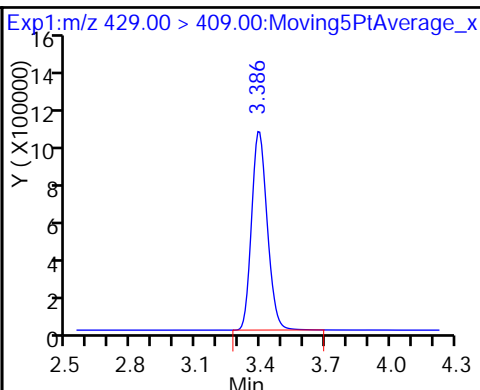
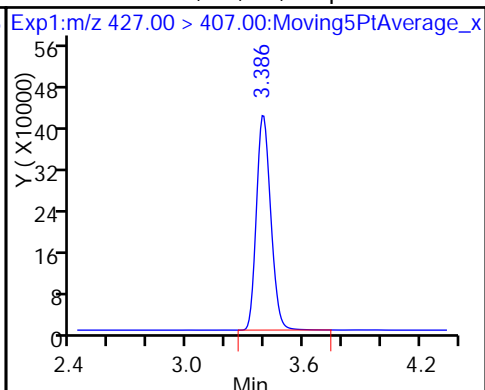
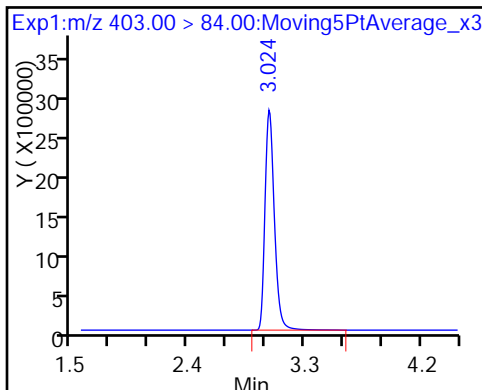
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

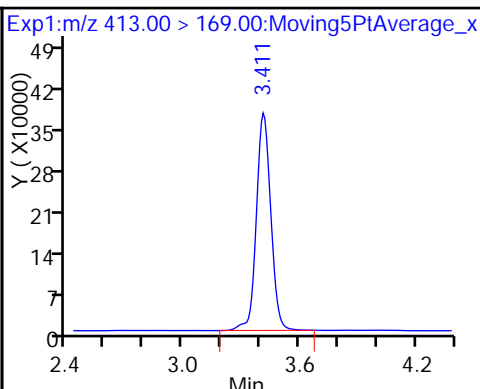
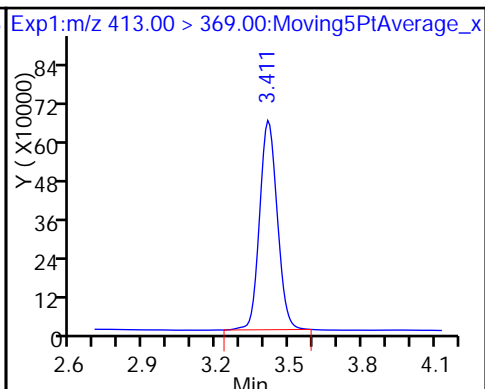
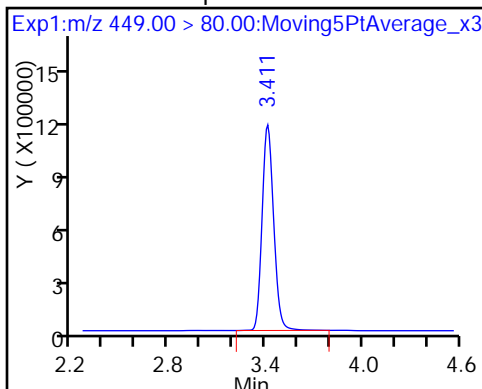
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

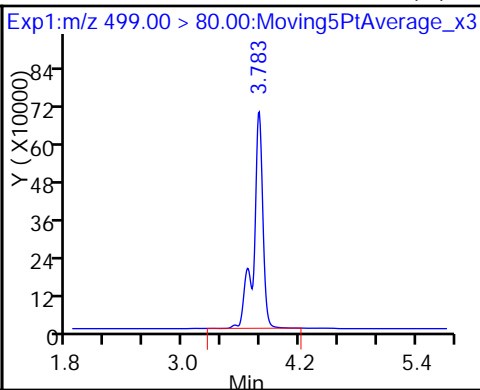
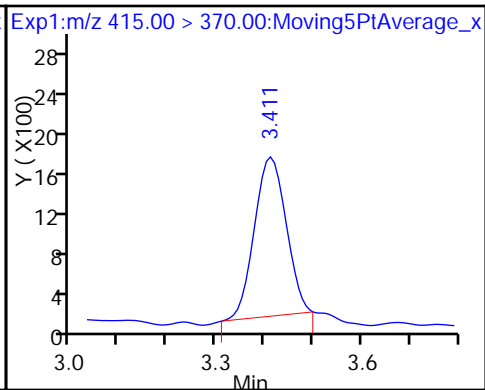
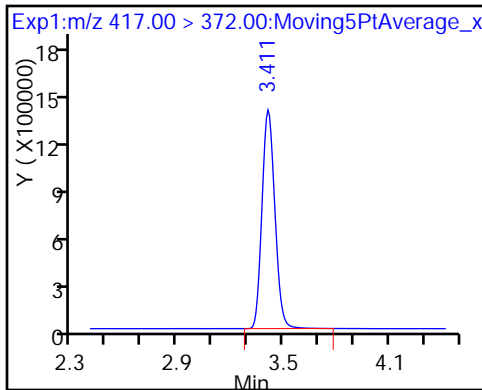
15 Perfluorooctanoic acid



D 14 13C4 PFOA

* 62 13C2-PFOA

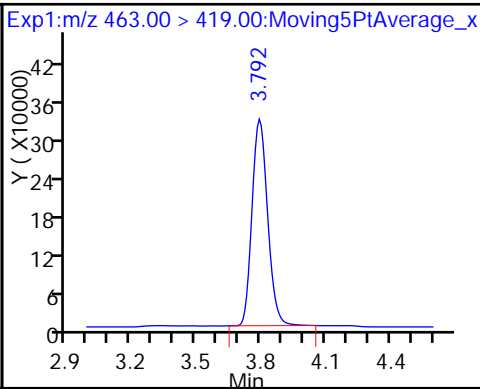
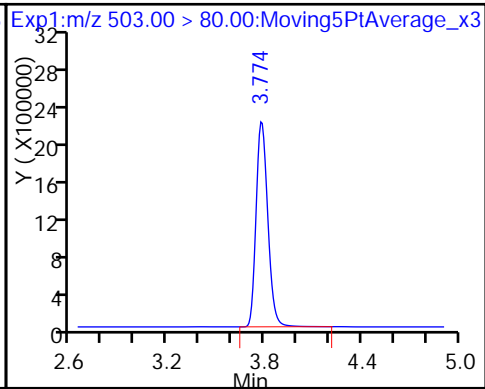
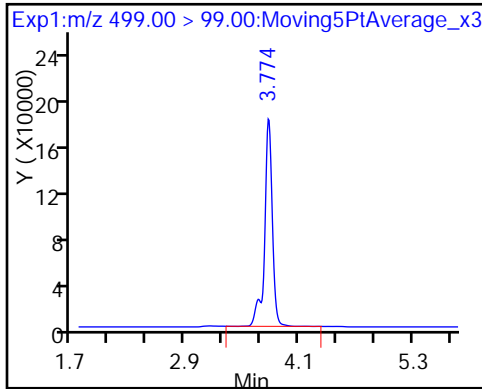
17 Perfluorooctane sulfonic acid (M)



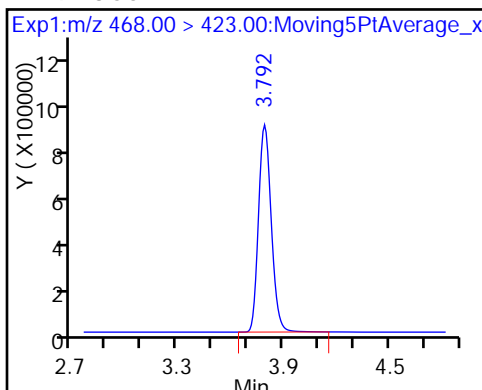
17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS

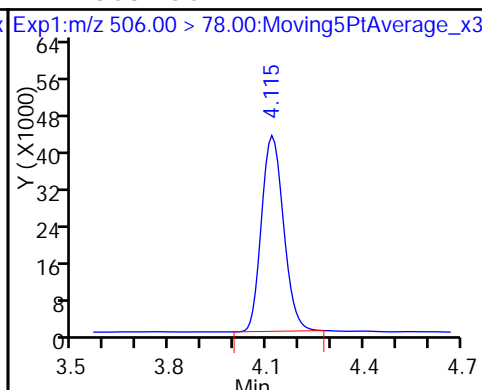
20 Perfluorononanoic acid



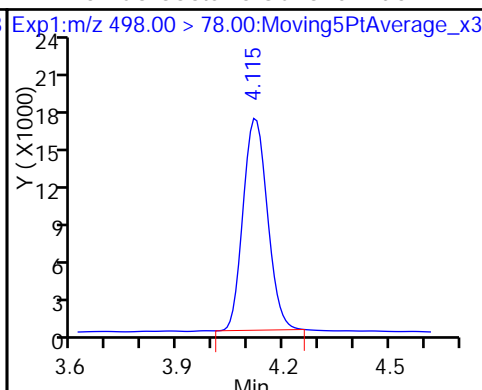
D 19 13C5 PFNA



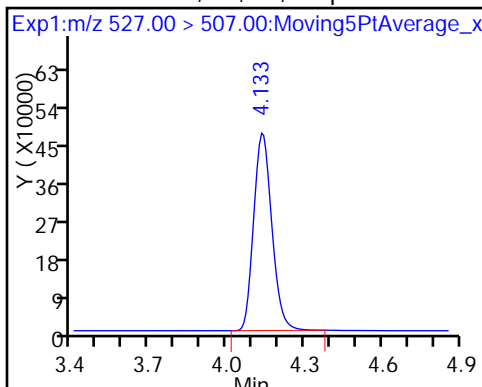
D 21 13C8 FOSA



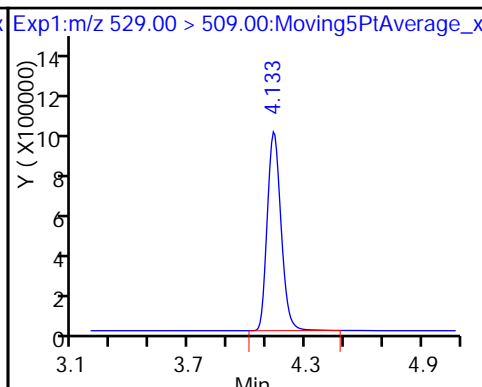
22 Perfluorooctane Sulfonamide



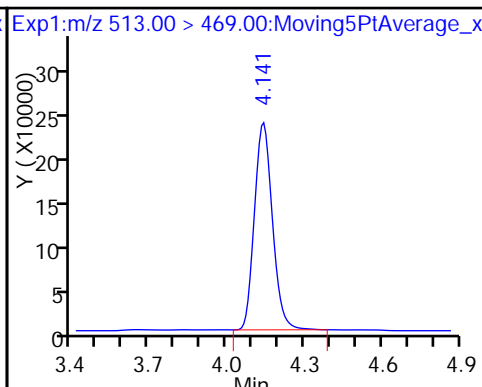
25 Sodium 1H,1H,2H,2H-perfluorooctane



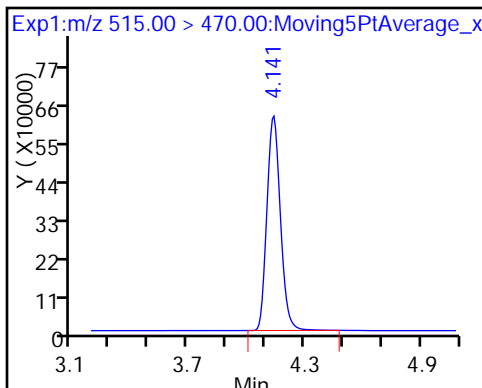
D 26 M2-8:2F7S



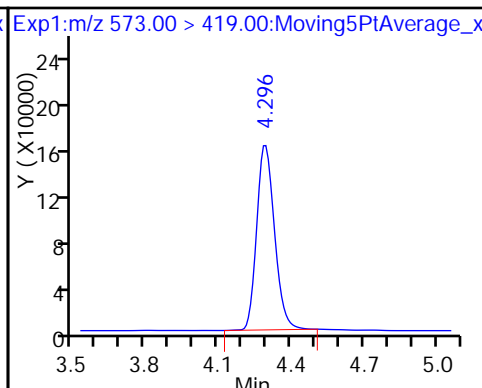
24 Perfluorodecanoic acid



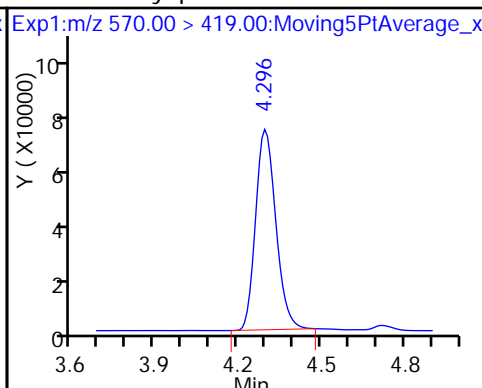
D 23 13C2 PFDA



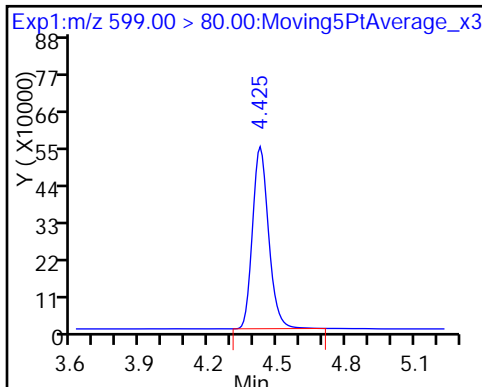
D 27 d3-NMeFOSAA



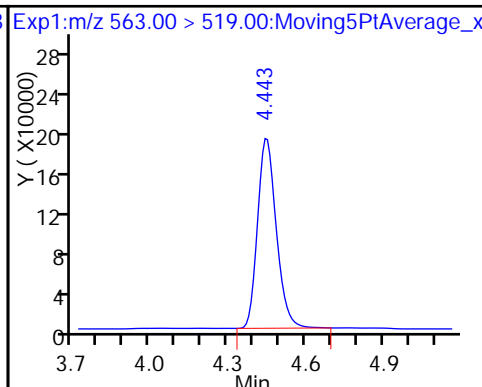
28 N-methyl perfluorooctane sulfonamide



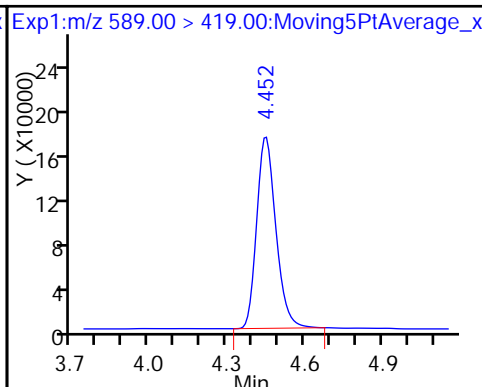
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid

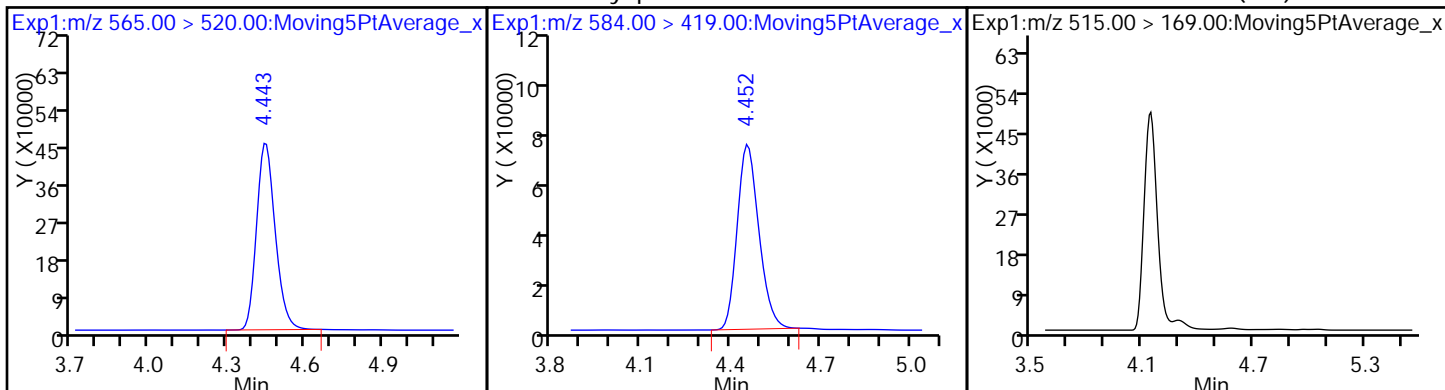


D 32 d5-NEtFOSAA



D 30 13C2 PFUa

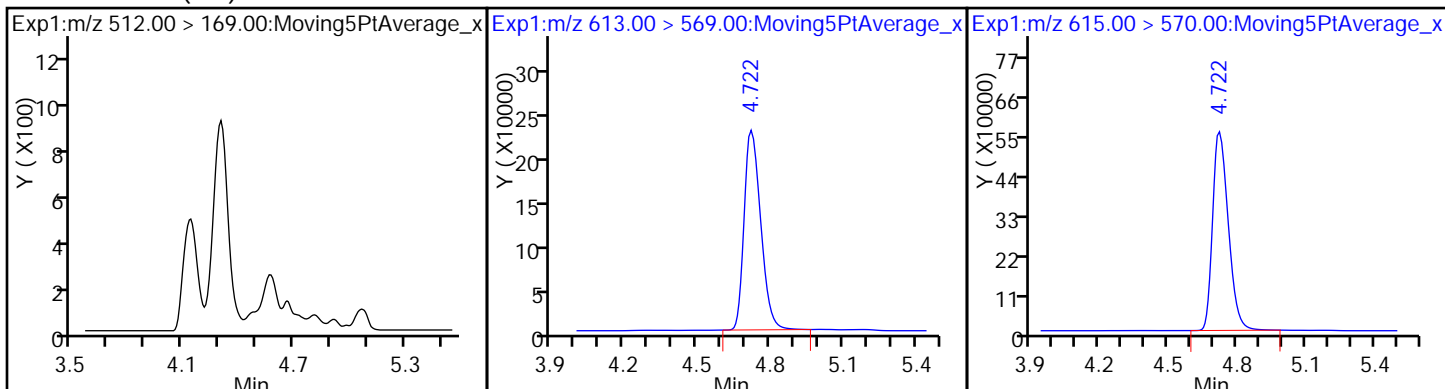
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

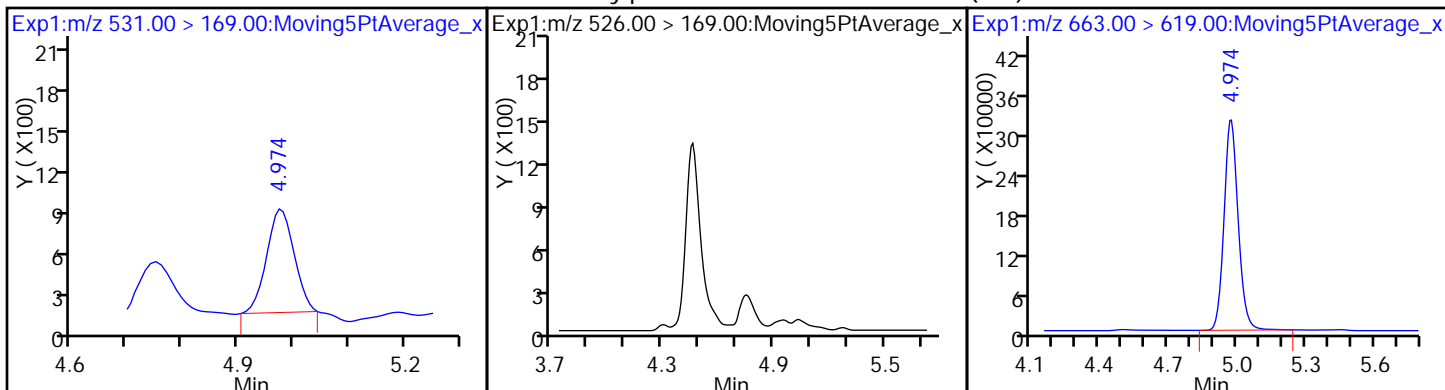
37 Perfluorododecanoic acid

D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

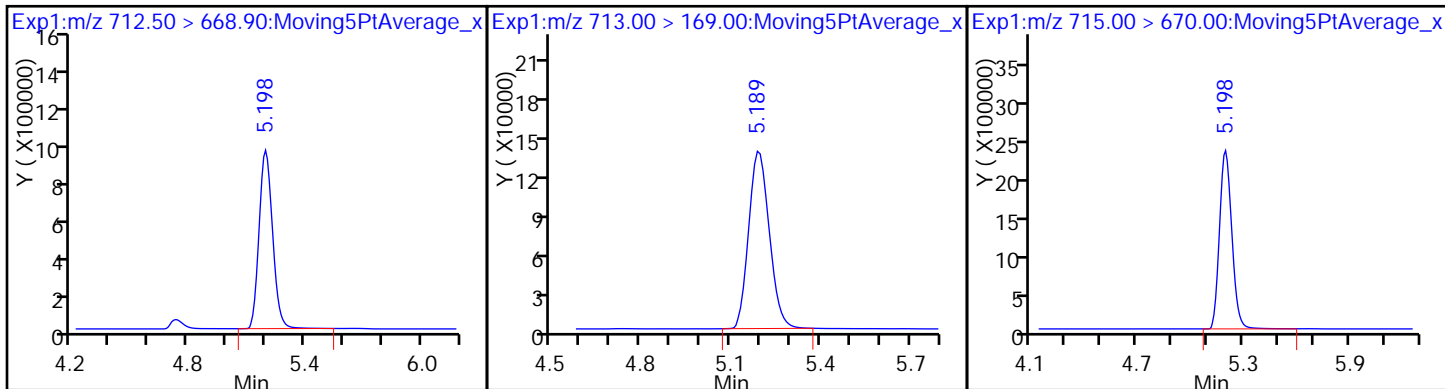
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

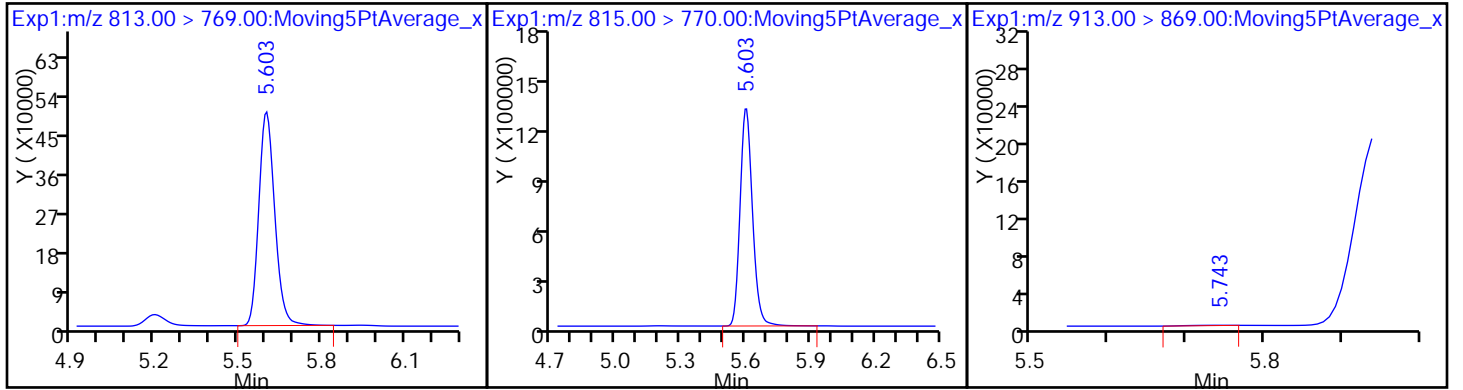
D 43 13C2-PFTeDA



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



TestAmerica Sacramento

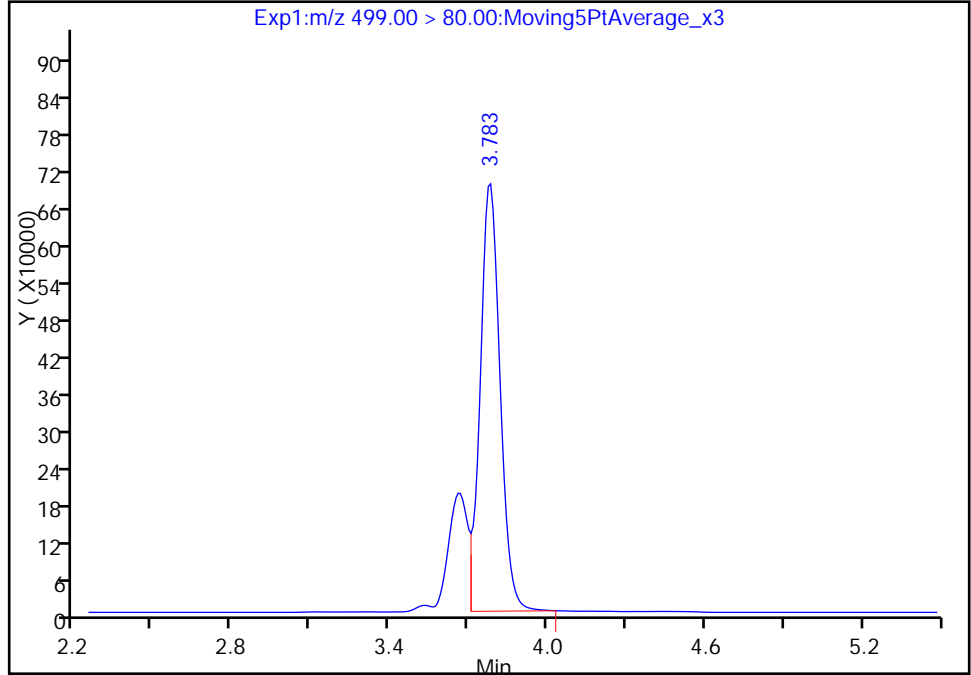
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Injection Date: 19-May-2017 13:21:56 Instrument ID: A8_N
Lims ID: 680-138385-A-9-C MSD
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

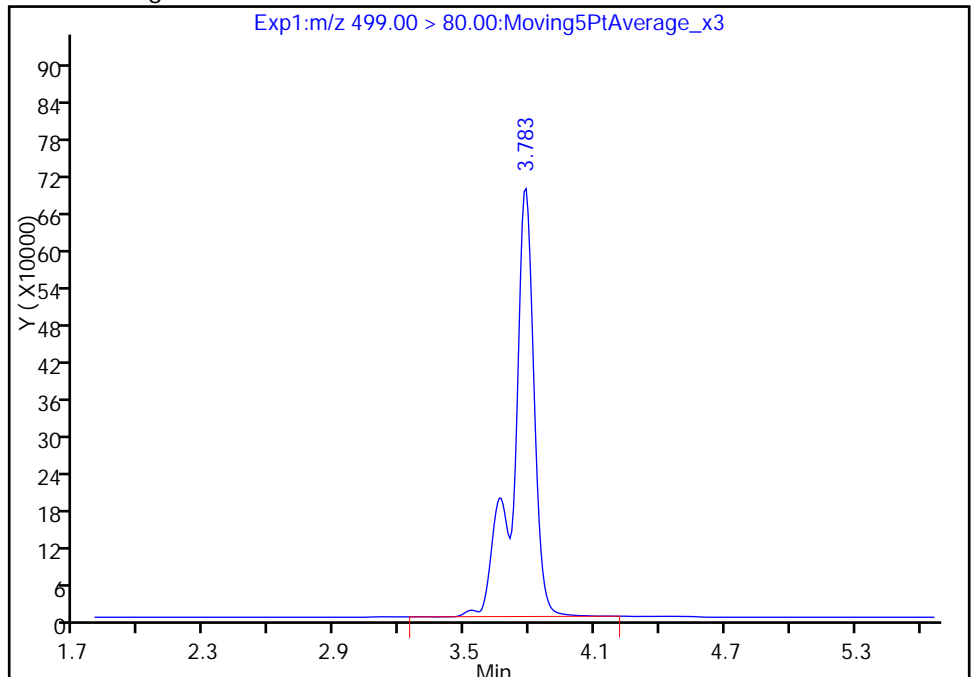
RT: 3.78
Area: 3632656
Amount: 13.176978
Amount Units: ng/ml

Processing Integration Results



RT: 3.78
Area: 4673381
Amount: 16.952069
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 15:24:38
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

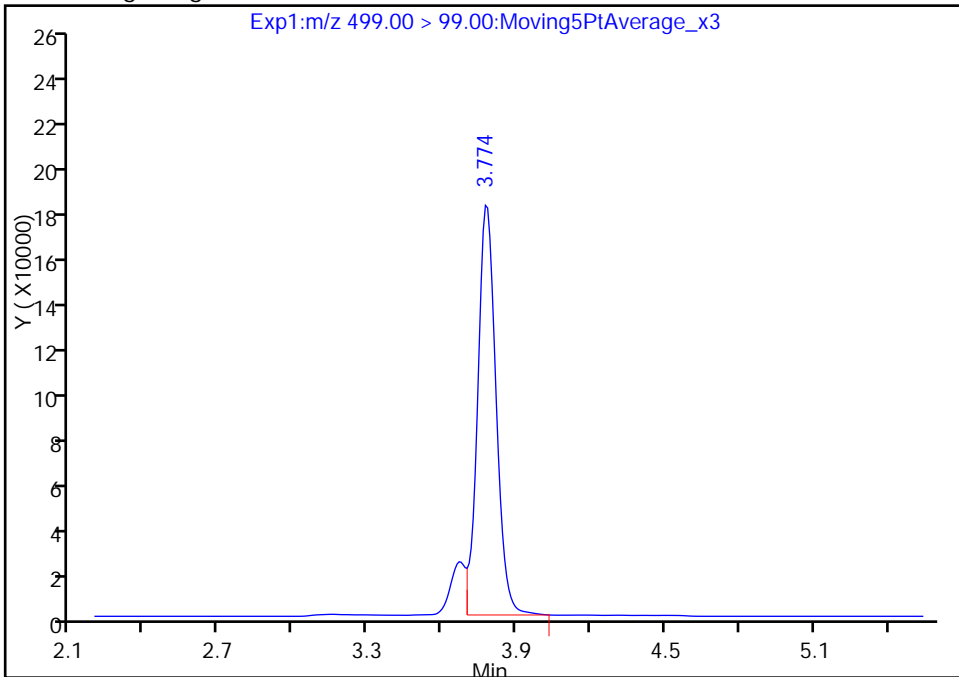
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_018.d
Injection Date: 19-May-2017 13:21:56 Instrument ID: A8_N
Lims ID: 680-138385-A-9-C MSD
Client ID: 06GW09050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

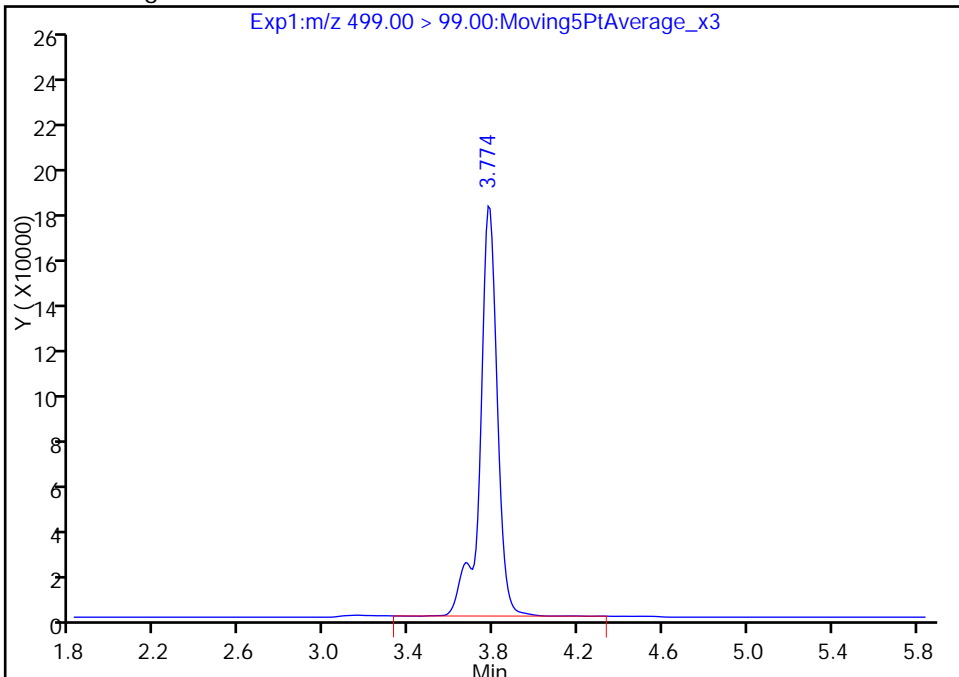
RT: 3.77
Area: 933704
Amount: 13.176978
Amount Units: ng/ml

Processing Integration Results



RT: 3.77
Area: 1036432
Amount: 16.952069
Amount Units: ng/ml

Manual Integration Results



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Start Date: 05/18/2017 17:49

Analysis Batch Number: 165218 End Date: 05/18/2017 18:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-165218/2		05/18/2017 17:49	1	2017.05.18AA_00 3.d	GeminiC18 3x100 3(mm)
IC 320-165218/3		05/18/2017 17:57	1	2017.05.18AA_00 4.d	GeminiC18 3x100 3(mm)
IC 320-165218/4		05/18/2017 18:04	1	2017.05.18AA_00 5.d	GeminiC18 3x100 3(mm)
IC 320-165218/5		05/18/2017 18:12	1	2017.05.18AA_00 6.d	GeminiC18 3x100 3(mm)
IC 320-165218/6		05/18/2017 18:19	1	2017.05.18AA_00 7.d	GeminiC18 3x100 3(mm)
IC 320-165218/7		05/18/2017 18:27	1	2017.05.18AA_00 8.d	GeminiC18 3x100 3(mm)
IC 320-165218/8		05/18/2017 18:35	1	2017.05.18AA_00 9.d	GeminiC18 3x100 3(mm)
ICB 320-165218/10		05/18/2017 18:50	1		GeminiC18 3x100 3(mm)
ICV 320-165218/11		05/18/2017 18:57	1	2017.05.18AA_01 2.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Start Date: 05/19/2017 10:36

Analysis Batch Number: 165303 End Date: 05/19/2017 14:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-165303/1		05/19/2017 10:36	1	2017.05.18G_001 .d	GeminiC18 3x100 3(mm)
MB 320-164788/1-A		05/19/2017 10:44	1	2017.05.18G_002 .d	GeminiC18 3x100 3(mm)
LCS 320-164788/2-A		05/19/2017 10:51	1	2017.05.18G_003 .d	GeminiC18 3x100 3(mm)
CCV 320-165303/5		05/19/2017 11:06	1	2017.05.18G_003 C.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:29	1		GeminiC18 3x100 3(mm)
CCV 320-165303/34		05/19/2017 11:51	1	2017.05.18G_006 C.d	GeminiC18 3x100 3(mm)
680-138385-1		05/19/2017 11:59	1	2017.05.18G_007 .d	GeminiC18 3x100 3(mm)
680-138385-2		05/19/2017 12:06	1	2017.05.18G_008 .d	GeminiC18 3x100 3(mm)
680-138385-3		05/19/2017 12:14	1	2017.05.18G_009 .d	GeminiC18 3x100 3(mm)
680-138385-4		05/19/2017 12:21	1	2017.05.18G_010 .d	GeminiC18 3x100 3(mm)
680-138385-5		05/19/2017 12:29	1	2017.05.18G_011 .d	GeminiC18 3x100 3(mm)
CCV 320-165303/14		05/19/2017 12:36	1	2017.05.18G_012 .d	GeminiC18 3x100 3(mm)
680-138385-6		05/19/2017 12:44	1	2017.05.18G_013 .d	GeminiC18 3x100 3(mm)
680-138385-7		05/19/2017 12:51	1	2017.05.18G_014 .d	GeminiC18 3x100 3(mm)
680-138385-8		05/19/2017 12:59	1	2017.05.18G_015 .d	GeminiC18 3x100 3(mm)
680-138385-9		05/19/2017 13:06	1	2017.05.18G_016 .d	GeminiC18 3x100 3(mm)
680-138385-9 MS		05/19/2017 13:14	1	2017.05.18G_017 .d	GeminiC18 3x100 3(mm)
680-138385-9 MSD		05/19/2017 13:21	1	2017.05.18G_018 .d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:36	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:51	1		GeminiC18 3x100 3(mm)
CCV 320-165303/25		05/19/2017 13:59	1	2017.05.18G_023 .d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:37	1		GeminiC18 3x100 3(mm)
CCV 320-165303/31		05/19/2017 14:44	1		GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Batch Number: 164788 Batch Start Date: 05/16/17 19:25 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 05/17/17 13:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC2SU 00017	LCMPFCSU 00065
MB 320-164788/1		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
LCS 320-164788/2		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
680-138385-A-1	06GW14050417	3535, 537 (Modified)	T	292.53 g	28.47 g	264.1 mL	0.50 mL	500 uL	500 uL
680-138385-A-2	06GW03050417	3535, 537 (Modified)	T	286.66 g	27.38 g	259.3 mL	0.50 mL	500 uL	500 uL
680-138385-A-3	06FD01-050417	3535, 537 (Modified)	T	316.57 g	27.81 g	288.8 mL	0.50 mL	500 uL	500 uL
680-138385-A-4	06GW04050417	3535, 537 (Modified)	T	308.41 g	27.91 g	280.5 mL	0.50 mL	500 uL	500 uL
680-138385-A-5	06GW06050417	3535, 537 (Modified)	T	314.90 g	28.09 g	286.8 mL	0.50 mL	500 uL	500 uL
680-138385-A-6	06GW08050417	3535, 537 (Modified)	T	314.15 g	27.99 g	286.2 mL	0.50 mL	500 uL	500 uL
680-138385-A-7	06GW15050417	3535, 537 (Modified)	T	313.24 g	28.24 g	285 mL	0.50 mL	500 uL	500 uL
680-138385-A-8	06GW16050417	3535, 537 (Modified)	T	307.58 g	28.26 g	279.3 mL	0.50 mL	500 uL	500 uL
680-138385-A-9	06GW09050417	3535, 537 (Modified)	T	301.18 g	27.26 g	273.9 mL	0.50 mL	500 uL	500 uL
680-138385-A-9 MS	06GW09050417	3535, 537 (Modified)	T	304.61 g	27.57 g	277 mL	0.50 mL	500 uL	500 uL
680-138385-A-9 MSD	06GW09050417	3535, 537 (Modified)	T	301.30 g	27.86 g	273.4 mL	0.50 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFC2SP 00032	LCPFCSP 00092				
MB 320-164788/1		3535, 537 (Modified)							
LCS 320-164788/2		3535, 537 (Modified)		500 uL	500 uL				
680-138385-A-1	06GW14050417	3535, 537 (Modified)	T						
680-138385-A-2	06GW03050417	3535, 537 (Modified)	T						
680-138385-A-3	06FD01-050417	3535, 537 (Modified)	T						
680-138385-A-4	06GW04050417	3535, 537 (Modified)	T						
680-138385-A-5	06GW06050417	3535, 537 (Modified)	T						

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.: 680-138385-1

SDG No.: 680-138385

Batch Number: 164788 Batch Start Date: 05/16/17 19:25 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 05/17/17 13:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFC2SP 00032	LCPFCSP 00092				
680-138385-A-6	06GW08050417	3535, 537 (Modified)	T						
680-138385-A-7	06GW15050417	3535, 537 (Modified)	T						
680-138385-A-8	06GW16050417	3535, 537 (Modified)	T						
680-138385-A-9	06GW09050417	3535, 537 (Modified)	T						
680-138385-A-9 MS	06GW09050417	3535, 537 (Modified)	T	500 uL	500 uL				
680-138385-A-9 MSD	06GW09050417	3535, 537 (Modified)	T	500 uL	500 uL				

Batch Notes	
Balance ID	QA-070
H2O ID	5/11/17
Hexane ID	921666
Manifold ID	11,12,13
Methanol ID	924282
Sodium Hydroxide ID	924543
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Solvent Lot #	926809
Solvent Name	0.3% NH4OH/MEOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A

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.

537 (Modified)

HPLC/LCMS Data Review Checklist

28022, 28029, 28073

Job Number(s): 680-138385

Work List ID(s): 43288, 43321

Extraction Batch: 164788

Analysis Batch(es): 165303, 165468

Delivery Rank: 4

Due Date: 5/23/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>165218, 165468</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r > 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 > 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?	✓	✓	
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	✓ <i>CBW 5/22/17</i>
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?	✓	✓	
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM# <u>88146, 88156</u>	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

*Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.

1st Level (Analyst): Charee Ranney
S. W. 5/22/17

Date: 5/19/17

2nd Level Reviewer: M. W. J.

Date: 5/22/2017

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 18MAY2017E_PFC Worklist Number: 43288
 Instrument Name: A8_N Chrom Method: A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b
 QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 165303	LC PFC ICAL Raw Batch: 165304
# 1 CCV L4	# 1 CCV L4	# 1 CCV L4
# 2 MB 320-164788/1-A	# 2 MB 320-164788/1-A	# 2 MB 320-164788/1-A
# 3 LCS 320-164788/2-A	# 3 LCS 320-164788/2-A	# 3 LCS 320-164788/2-A
# 4 480-117741-A-1-A		# 4 480-117741-A-1-A
# 5 CCV L5	# 5 CCV L5	# 5 CCV L5
# 6 320-28022-A-1-A	# 6 320-28022-A-1-A <i>ZOX</i>	
# 7 320-28029-A-1-A	# 7 320-28029-A-1-A <i>RI</i>	
# 8 320-28029-A-2-A	# 8 320-28029-A-2-A	
#32 RB		#32 RB
#33 480-117741-A-1-A		#33 480-117741-A-1-A
#34 CCV L4	#34 CCV L4	#34 CCV L4
# 9 680-138385-A-1-A	# 9 680-138385-A-1-A	
#10 680-138385-A-2-A	#10 680-138385-A-2-A	
#11 680-138385-A-3-A	#11 680-138385-A-3-A	
#12 680-138385-A-4-A	#12 680-138385-A-4-A	
#13 680-138385-A-5-A	#13 680-138385-A-5-A <i>MS</i>	
#14 CCV L5	#14 CCV L5	#14 CCV L5
#15 680-138385-A-6-A	#15 680-138385-A-6-A	
#16 680-138385-A-7-A	#16 680-138385-A-7-A	
#17 680-138385-A-8-A	#17 680-138385-A-8-A	
#18 680-138385-A-9-A	#18 680-138385-A-9-A <i>RI</i>	
#19 680-138385-A-9-B MS	#19 680-138385-A-9-B MS <i>RI</i>	
#20 680-138385-A-9-C MSD	#20 680-138385-A-9-C MSD <i>RI</i>	
#21 320-28073-A-1-A	#21 320-28073-A-1-A	
#22 320-28073-A-2-A	#22 320-28073-A-2-A	
#23 320-28073-A-3-A	#23 320-28073-A-3-A <i>RI</i>	
#24 320-28073-A-3-B MS	#24 320-28073-A-3-B MS <i>RI</i>	
#25 CCV L4	#25 CCV L4	#25 CCV L4
#26 320-28073-A-3-C MSD	#26 320-28073-A-3-C MSD <i>RI</i>	
#27 320-28073-A-4-A	#27 320-28073-A-4-A	
#28 320-28073-A-5-A	#28 320-28073-A-5-A	
#29 320-28073-A-6-A	#29 320-28073-A-6-A	
#30 320-28073-A-7-A	#30 320-28073-A-7-A	
#31 CCV L5	#31 CCV L5	#31 CCV L5

165218

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 19MAY2017B_PFC Worklist Number: 43321
 Instrument Name: A8_N Chrom Method: A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43321.b
 QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 165468	LC PFC ICAL Raw Batch: 165469	LC PFAS ICAL Raw Batch: 165470
# 1 CCV L4	# 1 CCV L4	# 1 CCV L4	
# 2 320-27967-A-15-A		# 2 320-27967-A-15-A	# 2 320-27967-A-15-A
# 3 320-27967-A-16-A		# 3 320-27967-A-16-A	# 3 320-27967-A-16-A
# 4 320-28022-A-1-A	# 4 320-28022-A-1-A		
# 5 320-27967-A-17-A		# 5 320-27967-A-17-A	# 5 320-27967-A-17-A
# 6 320-28029-A-1-A	# 6 320-28029-A-1-A		
# 7 MB 320-164638/1-A		# 7 MB 320-164638/1-A	# 7 MB 320-164638/1-A
# 8 LCS 320-164638/2-A		# 8 LCS 320-164638/2-A	# 8 LCS 320-164638/2-A
# 9 LCSD 320-164638/3-A		# 9 LCSD 320-164638/3-A	# 9 LCSD 320-164638/3-A
#10 320-28143-A-1-A		#10 320-28143-A-1-A	#10 320-28143-A-1-A
#11 320-28143-A-2-A		#11 320-28143-A-2-A	#11 320-28143-A-2-A
#12 CCV L5	#12 CCV L5	#12 CCV L5	
#13 440-183720-T-1-A		#13 440-183720-T-1-A	#13 440-183720-T-1-A
#14 320-27967-A-15-A		#14 320-27967-A-15-A	#14 320-27967-A-15-A
#15 RB		#15 RB	#15 RB
#16 320-27967-A-16-A		#16 320-27967-A-16-A	#16 320-27967-A-16-A
#17 RB		#17 RB	#17 RB
#18 320-27967-A-17-A		#18 320-27967-A-17-A	#18 320-27967-A-17-A
#19 RB		#19 RB	#19 RB
#20 200-38557-A-3-A		#20 200-38557-A-3-A	#20 200-38557-A-3-A
#21 480-117919-A-1-A		#21 480-117919-A-1-A	#21 480-117919-A-1-A
#22 480-117919-A-2-A		#22 480-117919-A-2-A	#22 480-117919-A-2-A
#23 CCV L4	#23 CCV L4	#23 CCV L4	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End: 5/17/17 13:20

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
MB-320-164788/1 N/A	N/A		250.00 mL				N/A	N/A	N/A		MB-320-164788/1-A1
			0.50 mL								
LCS-320-164788/2 N/A	N/A		250.00 mL				N/A	N/A	N/A		LCS-320-164788/2-A1
			0.50 mL								
320-28022-A-1 (PFC_IDA_DOD5)	N/A (320-28022-1)	280.26 g	253.2 mL				5/23/17	12_Days	4	20X	320-28022-A-1-A1
		27.05 g	0.50 mL								
320-28029-A-1 (PFC_IDA_DOD5)	N/A (320-27914-1)	304.18 g	276.8 mL				5/21/17	16_Days	4	RI	320-28029-A-1-A1
		27.35 g	0.50 mL								
320-28029-A-2 (PFC_IDA_DOD5)	N/A (320-27914-1)	301.39 g	274 mL				5/21/17	16_Days	4		320-28029-A-2-A1
		27.38 g	0.50 mL								
680-138385-A-1 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	292.53 g	264.1 mL				5/23/17	12_Days	4		680-138385-A-1-A1
		28.47 g	0.50 mL								
680-138385-A-2 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	286.66 g	259.3 mL				5/23/17	12_Days	4		680-138385-A-2-A1
		27.38 g	0.50 mL								
680-138385-A-3 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	316.57 g	288.8 mL				5/23/17	12_Days	4		680-138385-A-3-A1
		27.81 g	0.50 mL								
680-138385-A-4 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	308.41 g	280.5 mL				5/23/17	12_Days	4		680-138385-A-4-A1
		27.91 g	0.50 mL								
680-138385-A-5 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	314.90 g	286.8 mL				5/23/17	12_Days	4		680-138385-A-5-A1
		28.09 g	0.50 mL								

Printed: 5/17/2017

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05/24/2017

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

11	680-138385-A-6 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	314.15 g	286.2 mL			5/23/17	12_Days	4	
			27.99 g	0.50 mL						
12	680-138385-A-7 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	313.24 g	285 mL			5/23/17	12_Days	4	
			28.24 g	0.50 mL						
13	680-138385-A-8 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	307.58 g	279.3 mL			5/23/17	12_Days	4	
			28.26 g	0.50 mL						
14	680-138385-A-9 (PFC_IDA_DOD5)	680-138385 (680-138385-1)	301.18 g	273.9 mL			5/23/17	12_Days	4	
			27.26 g	0.50 mL						
15	680-138385-A-9-MS (PFC_IDA_DOD5)	680-138385 (680-138385-1)	304.61 g	277 mL			5/23/17	12_Days	4	
			27.57 g	0.50 mL						
16	680-138385-A-9-MSD (PFC_IDA_DOD5)	680-138385 (680-138385-1)	301.30 g	273.4 mL			5/23/17	12_Days	4	
			27.86 g	0.50 mL						
17	320-28073-A-1 (PFC_IDA_DOD5)	N/A (320-28073-1)	293.43 g	266.1 mL			5/25/17	16_Days	4	
			27.38 g	0.50 mL						
18	320-28073-A-2 (PFC_IDA_DOD5)	N/A (320-28073-1)	305.57 g	277.5 mL			5/25/17	16_Days	4	
			28.03 g	0.50 mL						
19	320-28073-A-3 (PFC_IDA_DOD5)	N/A (320-28073-1)	303.84 g	277.1 mL			5/25/17	16_Days	4	
			26.75 g	0.50 mL						
20	320-28073-A-3-MS (PFC_IDA_DOD5)	N/A (320-28073-1)	315.90 g	287.9 mL			5/25/17	16_Days	4	
			28.00 g	0.50 mL						
21	320-28073-A-3-MSD (PFC_IDA_DOD5)	N/A (320-28073-1)	310.88 g	282.7 mL			5/25/17	16_Days	4	
			28.18 g	0.50 mL						
22	320-28073-A-4 (PFC_IDA_DOD5)	N/A (320-28073-1)	315.66 g	288.1 mL			5/25/17	16_Days	4	
			27.56 g	0.50 mL						

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05/24/2017

Printed: 5/17/2017

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)





Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

23	320-28073-A-5 (PFC_IDA_DOD5)	N/A (320-28073-1)	311.78 g	284.3 mL				5/25/17	16_Days	4	
			27.45 g	0.50 mL							
24	320-28073-A-6 (PFC_IDA_DOD5)	N/A (320-28073-1)	303.03 g	275.5 mL				5/25/17	16_Days	4	
			27.56 g	0.50 mL							
25	320-28073-A-7 (PFC_IDA_DOD5)	N/A (320-28073-1)	304.59 g	276.4 mL				5/25/17	16_Days	4	
			28.22 g	0.50 mL							
26	480-117741-A-1 (PFC_IDA)	N/A (480-117741-1)	281.39 g	253.6 mL				5/17/17	5_Day_RUSH	2	
			27.78 g	0.50 mL							

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

Batch Notes

Manifold ID 11,12,13
Methanol ID 924282
Hexane ID 921666
Sodium Hydroxide ID 924543
First Start time NA
First End time NA
SPE Cartridge Type WAX 500mg
Solid Phase Extraction Disk ID 002836112A
Balance ID QA-070
H2O ID 5/11/17
Pipette ID MD05306
Solvent Name 0.3% NH4OH/MEOH
Solvent Lot # 926809
Analyst ID - Reagent Drop JER
Analyst ID - SU Reagent Drop JER
Analyst ID - SU Reagent Drop *VJM*
Witness *VJM*
Acid Name NA
Acid ID NA
Reagent ID NA
Reagent Lot Number NA
SOP Number WS-LC-0025

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Printed : 5/16/2017

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TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

Batch Comment

Comments

320-28029-A-1

Method Comments: include add on spikes

320-28029-A-2

Method Comments: include add on spikes

Login Comments for Job 138385:

320-28073-A-1

SAMPLES TO ARRIVE TA SACRAMENTO ON SATURDAY 5/6/17

320-28073-A-2

Method Comments: include add on spikes

320-28073-A-3

Method Comments: include add on spikes

320-28073-A-3-MS

Method Comments: include add on spikes

320-28073-A-3-MSD

Method Comments: include add on spikes

320-28073-A-4

Method Comments: include add on spikes

320-28073-A-5

Method Comments: include add on spikes

320-28073-A-6

Method Comments: include add on spikes

320-28073-A-7

Method Comments: include add on spikes

Method Comments: include add on spikes

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05/24/2017

Printed : 5/16/2017

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TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-164788/1	LCMPFC2SU_00017	500 uL	0.50 mL	<i>J. Reed 5/16/17</i>	<i>VPM 5-16-17</i>
MB 320-164788/1	LCMPFCSU_00065	500 uL	0.50 mL		
LCS 320-164788/2	LCMPFC2SU_00017	500 uL	0.50 mL	↓	↓
LCS 320-164788/2	LCMPFCSU_00065	500 uL	0.50 mL		
LCS 320-164788/2	LCPFC2SP_00032	500 uL	0.50 mL		
LCS 320-164788/2	LCPFCSP_00092	500 uL	0.50 mL		
320-28022-A-1	LCMPFC2SU_00017	500 uL	0.50 mL		
320-28022-A-1	LCMPFCSU_00065	500 uL	0.50 mL		
320-28029-A-1	LCMPFC2SU_00017	500 uL	0.50 mL		
320-28029-A-1	LCMPFCSU_00065	500 uL	0.50 mL		
320-28029-A-2	LCMPFC2SU_00017	500 uL	0.50 mL		
320-28029-A-2	LCMPFCSU_00065	500 uL	0.50 mL		
680-138385-A-1	LCMPFC2SU_00017	500 uL	0.50 mL		
680-138385-A-1	LCMPFCSU_00065	500 uL	0.50 mL		
680-138385-A-2	LCMPFC2SU_00017	500 uL	0.50 mL		
680-138385-A-2	LCMPFCSU_00065	500 uL	0.50 mL		
680-138385-A-3	LCMPFC2SU_00017	500 uL	0.50 mL		
680-138385-A-3	LCMPFCSU_00065	500 uL	0.50 mL		

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05/24/2017

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

680-138385-A-4	LCMPFC2SU_00017	500 uL	0.50 mL	<i>JWR 5/16/17</i>	<i>VM 5-16-17</i>		
680-138385-A-4	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-5	LCMPFC2SU_00017	500 uL	0.50 mL	↓	↓		
680-138385-A-5	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-6	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-6	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-7	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-7	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-8	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-8	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-9	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-9	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-9 MS	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-9 MS	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-9 MS	LCMPFC2SP_00032	500 uL	0.50 mL				
680-138385-A-9 MS	LCMPFC2SP_00092	500 uL	0.50 mL				
680-138385-A-9 MSD	LCMPFC2SU_00017	500 uL	0.50 mL				
680-138385-A-9 MSD	LCMPFC2SU_00065	500 uL	0.50 mL				
680-138385-A-9 MSD	LCMPFC2SP_00032	500 uL	0.50 mL				
680-138385-A-9 MSD	LCMPFC2SP_00092	500 uL	0.50 mL				
320-28073-A-1	LCMPFC2SU_00017	500 uL	0.50 mL			↓	↓

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05/24/2017

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-164788

Analyst: Reed, Jonathan E

Batch Open: 5/16/2017 7:25:00PM

Method Code: 320-3535_PFC-320

Batch End:

320-28073-A-1	LCMPFCSU_00065	500 uL	0.50 mL	<i>Hand 5/16/17</i> <i>VPM 5-16-17</i>
320-28073-A-2	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-2	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-3	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-3	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-3 MS	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-3 MS	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-3 MS	LCPFC2SP_00032	500 uL	0.50 mL	
320-28073-A-3 MS	LCPFCSP_00092	500 uL	0.50 mL	
320-28073-A-3 MSD	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-3 MSD	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-3 MSD	LCPFC2SP_00032	500 uL	0.50 mL	
320-28073-A-3 MSD	LCPFCSP_00092	500 uL	0.50 mL	
320-28073-A-4	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-4	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-5	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-5	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-6	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-6	LCMPFCSU_00065	500 uL	0.50 mL	
320-28073-A-7	LCMPFC2SU_00017	500 uL	0.50 mL	
320-28073-A-7	LCMPFCSU_00065	500 uL	0.50 mL	

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05/24/2017

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-164788

Method Code: 320-3535_PFC-320

Batch Open: 5/16/2017 7:25:00PM

Batch End:

480-117741-A-1	LCMPFC2SU_00017	500 uL	0.50 mL	<i>[Signature]</i> 5/16/17	VPM 544e-17
480-117741-A-1	LCMPFC2SU_00065	500 uL	0.50 mL	↓	↓

Reagent	Other Reagents:	Amount/Units	Lot#:

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05/24/2017

Preparation Batch Number(s): 1104788

Test: PFC-IDA_DDD5(L)

Earliest Holding Time: 5/18/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	✓
All necessary NCMs filed (including holding time)		/	✓
Method/sample/login/QAS checked and correct		/	✓
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		NA	NA
Weights in anticipated range and not targeted		/	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	✓
The pH is transcribed correctly in TALS		NA	NA
All additional information transcribed into TALS is correct and raw data is attached		/	✓
Comments are transcribed correctly in TALS		/	✓
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		/	✓
All spike amounts correct and added to necessary samples and QC		/	✓
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	✓
All necessary 'batch information' complete and entered into TALS correctly		/	✓

1st Level Reviewer: VM

Date: 5-17-17

2nd Level Reviewer: [Signature]

Date: 5/17/17

Comments: _____

<h1 style="margin: 0;">TestAmerica</h1> <p style="margin: 0;">THE LEADER IN ENVIRONMENTAL TESTING</p>	<p>Test America – Sacramento</p> <p>Sample Dilution Record</p>
---	---

Method ID PFC DoD

Job # 28022

Analyst (Print Name) Cary Westendorf

Analyst Initials CW

Date 5/19/17

<u>Sample#</u>	<u>Original F.V.</u> <u>(uL)</u>	<u>Aliquot (uL)</u>	<u>Dilution F.V.</u> <u>(uL)</u>	<u>Dilution Factor</u>
1	500	10	200	20X

Comments:

Subcontract Data

Shipping and Receiving Documents

Chain of Custody Record



Client Information	Sampler: Dane Siefken	Lab PM: Lanier, Jerry A	Carrier Tracking No(s):	COC No: 680-83669-34013.21
Client Contact: Dr. Bette Premo	Phone: 904.334.7260	E-Mail: jerry.lanier@testamericainc.com		Page: Page 21 of 14
Company: White Water Associates				Job #:

Address: PO BOX 27	Due Date Requested:	Analysis Requested Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8260B_DOD5 - VOCs 8270D_DOD5 - SVOCs 8015C_DRO_DOD5 - DRO - Diesel Range Organics PFC_IDA_DOD5 - PFAS, UCMR List 350.1 - Ammonia 2540C_Catcd - TDS 9056A_OF_28D_D5 - Sulfate 6010C_DOD5 - Iron & Sodium 8260B_DOD5 - Trip Blank 8260B_DOD5 - VOCs 8015C_DRO_DOD5, 8270D_DOD5 8260B_DOD5 - VOCs EB 8270D_DOD5 - SVOCs EB Total Number of containers	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)
City: Amasa	TAT Requested (days): STD		
State, Zip: MI, 49903	PO #: Purchase Order Requested		
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	WO #:		
Email: bette.premo@white-water-associates.com	Project #: 68018082		
Project Name: CTO JM08 - TT - Gulfport MS	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.1 - Ammonia	2540C_Catcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs	8015C_DRO_DOD5, 8270D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	Total Number of containers	Special Instructions/Note:
				Preservation Code:			A	N	N	N	S	N	N	D	A	N	N	A	N		
06GW14050417	5-4-17	0810		Solid						2											
06GW03050417		0910		Solid						2											
06GWFD01-050417		0900		Solid						2											
06GW04050417		0945		Solid						2											
06GW06050417		1025		Solid						2											
06GW08050417		1135		Solid						2											
06GW15050417		1210		Solid						2											
06GW16050417		1445		Solid						2											
06GW09050417		1510		Solid						6											MS/MSD
				Solid																	
				Solid																	

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by: <i>Jen B...</i>	Date: 4-24-17	Time: 12:00	Method of Shipment: Lab carrier
Relinquished by: <i>Julia...</i>	Date/Time: 5-5-17 09:10	Company: TAMobile	Received by: <i>Julia...</i>
Relinquished by: <i>Julia...</i>	Date/Time: 5/5/17 @ 1000	Company: TAMobile	Received by: <i>Julia...</i>
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seal: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: 680-138385	530-Orlan	Cooler Temperature(s) °C and Other Remarks: 1.2°C #5592

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05/24/2017

TestAmerica Savannah

5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica

THE LEADER IN TESTING



Client Information	Sampler: <u>Dave Siefken</u>	Lab PM: <u>Lanier, Jerry A</u>	Carrier Tracking No(s):	COC No: <u>680-83669-34013.21</u>
Client Contact: <u>Dr. Bette Premo</u>	Phone: <u>904.334.7260</u>	E-Mail: <u>jerry.lanier@testamericainc.com</u>		Page: <u>Page 21 of 14</u>
Company: <u>White Water Associates</u>				Job #: <u>680-138385 COC</u>

Address: <u>PO BOX 27</u>	Due Date Requested:	Analysis Requested												Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)				
City: <u>Amasa</u>	TAT Requested (days): <u>STD</u>	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.T - Ammonia	2540C_Calcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs		8015C_DRO_DOD5, 8:70D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	Total Number of containers
State, Zip: <u>MI, 49903</u>	PO #: <u>Purchase Order Requested</u>																	
Phone: <u>906-822-7889(Tel) 906-822-7977(Fax)</u>	WO #: <u></u>																	
Email: <u>bette.premo@white-water-associates.com</u>	Project #: <u>68018082</u>																	
Project Name: <u>CTO JM08 - TT - Gulfport MS</u>	SSOW#: <u></u>																	
Site: <u>Site G</u>																		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Analysis Requested												Total Number of containers	Special Instructions/Note:				
						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.T - Ammonia	2540C_Calcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs			8015C_DRO_DOD5, 8:70D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	
<u>06GW14050417</u>	<u>5-4-17</u>	<u>0810</u>		<u>Solid</u>		X	X	A	N	N	N	S	N	N	D	A	N	N	A	N			
<u>06GW03050417</u>		<u>0910</u>		<u>Solid</u>																			
<u>06GWFD01-050417</u>		<u>0900</u>		<u>Solid</u>																			
<u>06GW04050417</u>		<u>0945</u>		<u>Solid</u>																			
<u>06GW06050417</u>		<u>1025</u>		<u>Solid</u>																			
<u>06GW08050417</u>		<u>1135</u>		<u>Solid</u>																			
<u>06GW15050417</u>		<u>1210</u>		<u>Solid</u>																			
<u>06GW16050417</u>		<u>1445</u>		<u>Solid</u>																			
<u>06GW09050417</u>		<u>1510</u>		<u>Solid</u>																			
				<u>Solid</u>																			
				<u>Solid</u>																			

Possible Hazard Identification	<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab	<input type="checkbox"/> Archive For _____ Months
Deliverable Requested: <u>I, II, III, IV, Other (specify)</u>	Special Instructions/QC Requirements:									

Empty Kit Relinquished by: <u>[Signature]</u>	Date: <u>4-24-17</u>	Time: <u>12:00</u>	Method of Shipment: <u>Lab courier</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5-5-17 @ 9:10</u>	Company: <u>TAMobile</u>	Received by: <u>[Signature]</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/5/17 @ 1000</u>	Company: <u>TAMobile</u>	Received by: <u>[Signature]</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/5/17 @ 9:25</u>	Company: <u>TAMS</u>	Received by: <u>[Signature]</u>

Custody Seal: <u>Yes</u>	Custody Seal No.: <u>680-138385</u>	530-Orlan.	Cooler Temperature(s) °C and Other Remarks: <u>1.2°C #5592</u>	<u>7.10C water</u> <u>AIC-2</u>
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06031101318

MS/MSD

05/24/2017

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 680-138385-1

SDG Number: 680-138385

Login Number: 138385

List Number: 1

Creator: Ragnaldsen, Amy E

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
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.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 680-138385-1

SDG Number: 680-138385

Login Number: 138385
List Number: 2
Creator: Edman, Connor M

List Source: TestAmerica Sacramento
List Creation: 05/08/17 12:46 PM

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	
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.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	7.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <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	

Lab Sample	Client Sample Matrix	Sample Type	Collection	Percent M	Analysis Method	Dilution	Final Analysis Data	CAS
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	375-73-5
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	375-85-9
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	355-46-4
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	375-95-1
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	1763-23-1
680-13838	06GW140!	Water	#####	537	(Modi	1	#####	335-67-1
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	375-73-5
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	375-85-9
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	355-46-4
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	375-95-1
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	1763-23-1
680-13838	06GW030!	Water	#####	537	(Modi	1	#####	335-67-1
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	375-73-5
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	375-85-9
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	355-46-4
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	375-95-1
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	1763-23-1
680-13838	06FD01-05	Water	#####	537	(Modi	1	#####	335-67-1
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	375-73-5
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	375-85-9
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	355-46-4
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	375-95-1
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	1763-23-1
680-13838	06GW040!	Water	#####	537	(Modi	1	#####	335-67-1
680-13838	06GW060!	Water	#####	537	(Modi	1	#####	
680-13838	06GW060!	Water	#####	537	(Modi	1	#####	

680-13838 06GW090! Water		#####	537 (Modi	1 #####	375-73-5
680-13838 06GW090! Water		#####	537 (Modi	1 #####	375-85-9
680-13838 06GW090! Water		#####	537 (Modi	1 #####	355-46-4
680-13838 06GW090! Water		#####	537 (Modi	1 #####	375-95-1
680-13838 06GW090! Water		#####	537 (Modi	1 #####	1763-23-1
680-13838 06GW090! Water		#####	537 (Modi	1 #####	335-67-1
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	375-73-5
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	375-85-9
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	355-46-4
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	375-95-1
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	1763-23-1
680-13838 06GW090! Water	MS	#####	537 (Modi	1 #####	335-67-1
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	375-73-5
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	375-85-9
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	355-46-4
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	375-95-1
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	1763-23-1
680-13838 06GW090! Water	MSD	#####	537 (Modi	1 #####	335-67-1
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	375-73-5
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	375-85-9
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	355-46-4
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	375-95-1
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	1763-23-1
LCS 320-164788/2-A Water	LCS		537 (Modi	1 #####	335-67-1
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	375-73-5
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	375-85-9
MB 320-164788/1-A Water	MB		537 (Modi	1 #####	355-46-4

MB 320-164788/1-A	Water	MB	537 (Modi	1 #####	375-95-1
MB 320-164788/1-A	Water	MB	537 (Modi	1 #####	1763-23-1
MB 320-164788/1-A	Water	MB	537 (Modi	1 #####	335-67-1

Analyte	Result	Unit	Flag	High Limit	High Limit	Low Limit	Low Limit	Percent Re	Lower Rec
13C4 PFOA	61	ng/L		95	RL	47	MDL	64	25
13C4 PFOS	82	ng/L		95	RL	47	MDL	91	25
13C4-PFHx	69	ng/L		95	RL	47	MDL	73	25
13C5 PFNA	36	ng/L		95	RL	47	MDL	38	25
18O2 PFHx	81	ng/L		95	RL	47	MDL	91	25
Perfluorob	5.8	ng/L	M	2.4	RL	0.87	MDL		
Perfluoroh	7.6	ng/L		2.4	RL	0.76	MDL		
Perfluoroh	5.1	ng/L		2.4	RL	0.82	MDL		
Perfluoron	1.9	ng/L	U	2.4	RL	0.62	MDL		
Perfluoroc	11	ng/L	M	3.8	RL	1.2	MDL		
Perfluoroc	160	ng/L	M	2.4	RL	0.71	MDL		
13C4 PFOA	71	ng/L		96	RL	48	MDL	74	25
13C4 PFOS	78	ng/L		96	RL	48	MDL	85	25
13C4-PFHx	71	ng/L		96	RL	48	MDL	73	25
13C5 PFNA	62	ng/L		96	RL	48	MDL	64	25
18O2 PFHx	83	ng/L		96	RL	48	MDL	91	25
Perfluorob	3.8	ng/L	M	2.4	RL	0.89	MDL		
Perfluoroh	4.1	ng/L		2.4	RL	0.77	MDL		
Perfluoroh	2.3	ng/L	J M	2.4	RL	0.84	MDL		
Perfluoron	1.9	ng/L	U	2.4	RL	0.63	MDL		
Perfluoroc	5.3	ng/L	M	3.9	RL	1.2	MDL		
Perfluoroc	150	ng/L	M	2.4	RL	0.72	MDL		
13C4 PFOA	63	ng/L		87	RL	43	MDL	72	25
13C4 PFOS	70	ng/L		87	RL	43	MDL	85	25
13C4-PFHx	62	ng/L		87	RL	43	MDL	71	25
13C5 PFNA	52	ng/L		87	RL	43	MDL	60	25
18O2 PFHx	74	ng/L		87	RL	43	MDL	90	25
Perfluorob	3.9	ng/L	M	2.2	RL	0.79	MDL		
Perfluoroh	4.2	ng/L	M	2.2	RL	0.69	MDL		
Perfluoroh	2.3	ng/L	M	2.2	RL	0.75	MDL		
Perfluoron	0.71	ng/L	J	2.2	RL	0.57	MDL		
Perfluoroc	5.2	ng/L	M	3.5	RL	1.1	MDL		
Perfluoroc	140	ng/L	M	2.2	RL	0.65	MDL		
13C4 PFOA	59	ng/L		89	RL	45	MDL	66	25
13C4 PFOS	75	ng/L		89	RL	45	MDL	88	25
13C4-PFHx	56	ng/L		89	RL	45	MDL	63	25
13C5 PFNA	67	ng/L		89	RL	45	MDL	75	25
18O2 PFHx	69	ng/L		89	RL	45	MDL	82	25
Perfluorob	5.5	ng/L		2.2	RL	0.82	MDL		
Perfluoroh	0.8	ng/L	J M	2.2	RL	0.71	MDL		
Perfluoroh	5.1	ng/L		2.2	RL	0.78	MDL		
Perfluoron	1.8	ng/L	U	2.2	RL	0.58	MDL		
Perfluoroc	19	ng/L		3.6	RL	1.1	MDL		
Perfluoroc	44	ng/L	M	2.2	RL	0.67	MDL		
13C4 PFOA	61	ng/L		87	RL	44	MDL	70	25
13C4 PFOS	62	ng/L		87	RL	44	MDL	74	25

13C4-PFHç	56 ng/L		87 RL	44 MDL	64	25
13C5 PFNA	48 ng/L		87 RL	44 MDL	55	25
18O2 PFH›	69 ng/L		87 RL	44 MDL	84	25
Perfluorob	10 ng/L	* M	2.2 RL	0.8 MDL		
Perfluoroh	6.5 ng/L		2.2 RL	0.7 MDL		
Perfluoroh	7 ng/L	M	2.2 RL	0.76 MDL		
Perfluoron	1.7 ng/L	U	2.2 RL	0.57 MDL		
Perfluoroc	15 ng/L	M	3.5 RL	1.1 MDL		
Perfluoroc	58 ng/L	M	2.2 RL	0.65 MDL		
13C4 PFOA	65 ng/L		87 RL	44 MDL	74	25
13C4 PFOS	77 ng/L		87 RL	44 MDL	92	25
13C4-PFHç	59 ng/L		87 RL	44 MDL	68	25
13C5 PFNA	67 ng/L		87 RL	44 MDL	76	25
18O2 PFH›	73 ng/L		87 RL	44 MDL	88	25
Perfluorob	3 ng/L	M	2.2 RL	0.8 MDL		
Perfluoroh	1.7 ng/L	U	2.2 RL	0.7 MDL		
Perfluoroh	1.7 ng/L	U M	2.2 RL	0.76 MDL		
Perfluoron	1.7 ng/L	U M	2.2 RL	0.57 MDL		
Perfluoroc	2.6 ng/L	U	3.5 RL	1.1 MDL		
Perfluoroc	1.7 ng/L	U	2.2 RL	0.65 MDL		
13C4 PFOA	74 ng/L		88 RL	44 MDL	84	25
13C4 PFOS	86 ng/L		88 RL	44 MDL	102	25
13C4-PFHç	71 ng/L		88 RL	44 MDL	81	25
13C5 PFNA	70 ng/L		88 RL	44 MDL	80	25
18O2 PFH›	77 ng/L		88 RL	44 MDL	93	25
Perfluorob	1.8 ng/L	U M	2.2 RL	0.81 MDL		
Perfluoroh	1.3 ng/L	J	2.2 RL	0.7 MDL		
Perfluoroh	1.8 ng/L	U	2.2 RL	0.76 MDL		
Perfluoron	1.8 ng/L	U	2.2 RL	0.57 MDL		
Perfluoroc	2 ng/L	J M	3.5 RL	1.1 MDL		
Perfluoroc	3.1 ng/L		2.2 RL	0.66 MDL		
13C4 PFOA	69 ng/L		90 RL	45 MDL	77	25
13C4 PFOS	83 ng/L		90 RL	45 MDL	97	25
13C4-PFHç	69 ng/L		90 RL	45 MDL	77	25
13C5 PFNA	64 ng/L		90 RL	45 MDL	71	25
18O2 PFH›	79 ng/L		90 RL	45 MDL	93	25
Perfluorob	0.84 ng/L	J	2.2 RL	0.82 MDL		
Perfluoroh	1.8 ng/L	U	2.2 RL	0.72 MDL		
Perfluoroh	1.8 ng/L	U M	2.2 RL	0.78 MDL		
Perfluoron	1.8 ng/L	U	2.2 RL	0.59 MDL		
Perfluoroc	1.6 ng/L	J M	3.6 RL	1.1 MDL		
Perfluoroc	1 ng/L	J M	2.2 RL	0.67 MDL		
13C4 PFOA	60 ng/L		91 RL	46 MDL	66	25
13C4 PFOS	90 ng/L		91 RL	46 MDL	103	25
13C4-PFHç	70 ng/L		91 RL	46 MDL	77	25
13C5 PFNA	44 ng/L		91 RL	46 MDL	49	25
18O2 PFH›	89 ng/L		91 RL	46 MDL	103	25

Perfluorob	1.1 ng/L	J	2.3 RL	0.84 MDL		
Perfluoroh	1.8 ng/L	U	2.3 RL	0.73 MDL		
Perfluoroh	7 ng/L		2.3 RL	0.79 MDL		
Perfluoron	1.8 ng/L	U	2.3 RL	0.6 MDL		
Perfluoroc	2.7 ng/L	U M	3.7 RL	1.2 MDL		
Perfluoroc	4.8 ng/L	M	2.3 RL	0.68 MDL		
13C4 PFOA	56.6 ng/L		90 RL	45 MDL	63	25
13C4 PFOS	86 ng/L		90 RL	45 MDL	100	25
13C4-PFHx	68.4 ng/L		90 RL	45 MDL	76	25
13C5 PFNA	42.2 ng/L		90 RL	45 MDL	47	25
18O2 PFHx	85 ng/L		90 RL	45 MDL	100	25
Perfluorob	30.2 ng/L		2.3 RL	0.83 MDL	91	50
Perfluoroh	32.7 ng/L		2.3 RL	0.72 MDL	91	60
Perfluoroh	36.8 ng/L		2.3 RL	0.79 MDL	90	60
Perfluoron	33.8 ng/L		2.3 RL	0.59 MDL	94	60
Perfluoroc	29.9 ng/L	M	3.6 RL	1.2 MDL	89	60
Perfluoroc	36.7 ng/L		2.3 RL	0.68 MDL	88	60
13C4 PFOA	60.9 ng/L		91 RL	46 MDL	67	25
13C4 PFOS	88.1 ng/L		91 RL	46 MDL	101	25
13C4-PFHx	71.2 ng/L		91 RL	46 MDL	78	25
13C5 PFNA	46.6 ng/L		91 RL	46 MDL	51	25
18O2 PFHx	85.5 ng/L		91 RL	46 MDL	99	25
Perfluorob	31.8 ng/L		2.3 RL	0.84 MDL	95	50
Perfluoroh	33.3 ng/L		2.3 RL	0.73 MDL	91	60
Perfluoroh	37.8 ng/L		2.3 RL	0.8 MDL	92	60
Perfluoron	33 ng/L		2.3 RL	0.6 MDL	90	60
Perfluoroc	31 ng/L	M	3.7 RL	1.2 MDL	91	60
Perfluoroc	37.4 ng/L		2.3 RL	0.68 MDL	89	60
13C4 PFOA	126 ng/L		100 RL	50 MDL	126	25
13C4 PFOS	107 ng/L		100 RL	50 MDL	111	25
13C4-PFHx	119 ng/L		100 RL	50 MDL	119	25
13C5 PFNA	121 ng/L		100 RL	50 MDL	121	25
18O2 PFHx	104 ng/L		100 RL	50 MDL	110	25
Perfluorob	35.4 ng/L		2.5 RL	0.92 MDL	100	50
Perfluoroh	36.8 ng/L		2.5 RL	0.8 MDL	92	60
Perfluoroh	33.1 ng/L		2.5 RL	0.87 MDL	91	60
Perfluoron	37.3 ng/L		2.5 RL	0.65 MDL	93	60
Perfluoroc	33.1 ng/L		4 RL	1.3 MDL	89	60
Perfluoroc	35.2 ng/L		2.5 RL	0.75 MDL	88	60
13C4 PFOA	133 ng/L		100 RL	50 MDL	133	25
13C4 PFOS	108 ng/L		100 RL	50 MDL	112	25
13C4-PFHx	126 ng/L		100 RL	50 MDL	126	25
13C5 PFNA	131 ng/L		100 RL	50 MDL	131	25
18O2 PFHx	110 ng/L		100 RL	50 MDL	116	25
Perfluorob	2 ng/L	U	2.5 RL	0.92 MDL		
Perfluoroh	2 ng/L	U	2.5 RL	0.8 MDL		
Perfluoroh	2 ng/L	U	2.5 RL	0.87 MDL		

Perfluoron	2 ng/L	U	2.5 RL	0.65 MDL
Perfluoroc	3 ng/L	U	4 RL	1.3 MDL
Perfluoroc	2 ng/L	U	2.5 RL	0.75 MDL

CTO JM09 680-13838 680-138385-1
CTO JM09 680-13838 680-138385-1
CTO JM09 680-13838 680-138385-1

Method Blank
Method Blank
Method Blank

Total Samç	Total Samç	Leach Batc	Leach Met	Leach Date	Prep Batch	Prep Meth	Prep Date	Prep Type	Initial Amc
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	264.1
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	259.3
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	288.8
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	280.5
					320-16478	3535	#####	Total/NA	286.8
					320-16478	3535	#####	Total/NA	286.8

320-16478	3535 #####	Total/NA	250
320-16478	3535 #####	Total/NA	250
320-16478	3535 #####	Total/NA	250

mL	0.5 mL	320-16530 TestAmeri A8_N	WET	Target
mL	0.5 mL	320-16530 TestAmeri A8_N	WET	Target
mL	0.5 mL	320-16530 TestAmeri A8_N	WET	Target

Result Stat TPU	TPU Sigma Decision	Lt Retention	Spike Amo Expected / RER	RER Limit	Lower Bre
PRIMARY		3.403	94.7		
PRIMARY		3.772	90.5		
PRIMARY		3.008	94.7		
PRIMARY		3.781	94.7		
PRIMARY		3.016	89.5		
PRIMARY		2.289			
PRIMARY		3.008			
PRIMARY		3.016			
PRIMARY					
PRIMARY		3.772			
PRIMARY		3.403			
PRIMARY		3.409	96.4		
PRIMARY		3.78	92.2		
PRIMARY		3.005	96.4		
PRIMARY		3.789	96.4		
PRIMARY		3.015	91.2		
PRIMARY		2.29			
PRIMARY		3.005			
PRIMARY		3.015			
PRIMARY		3.789			
PRIMARY		3.656			
PRIMARY		3.409			
PRIMARY		3.398	86.6		
PRIMARY		3.767	82.8		
PRIMARY		3.003	86.6		
PRIMARY		3.784	86.6		
PRIMARY		3.013	81.9		
PRIMARY		2.299			
PRIMARY		3.003			
PRIMARY		3.013			
PRIMARY		3.767			
PRIMARY		3.645			
PRIMARY		3.398			
PRIMARY		3.365	89.1		
PRIMARY		3.734	85.2		
PRIMARY		2.984	89.1		
PRIMARY		3.742	89.1		
PRIMARY		2.991	84.3		
PRIMARY		2.28			
PRIMARY		2.991			
PRIMARY		2.984			
PRIMARY		3.742			
PRIMARY		3.614			
PRIMARY		3.365			
PRIMARY		3.381	87.2		
PRIMARY		3.762	83.3		

PRIMARY	2.982	87.2
PRIMARY	3.771	87.2
PRIMARY	2.993	82.5
PRIMARY	2.318	
PRIMARY	2.982	
PRIMARY	2.982	
PRIMARY	3.762	
PRIMARY	3.762	
PRIMARY	3.381	
PRIMARY	3.38	87.4
PRIMARY	3.75	83.5
PRIMARY	2.983	87.4
PRIMARY	3.758	87.4
PRIMARY	2.991	82.6
PRIMARY	2.28	
PRIMARY	2.965	
PRIMARY	2.991	
PRIMARY	3.758	
PRIMARY	3.629	
PRIMARY	3.369	
PRIMARY	3.394	87.7
PRIMARY	3.764	83.9
PRIMARY	3	87.7
PRIMARY	3.782	87.7
PRIMARY	3.008	83
PRIMARY	2.29	
PRIMARY	3	
PRIMARY	3.016	
PRIMARY	3.782	
PRIMARY	3.764	
PRIMARY	3.403	
PRIMARY	3.405	89.5
PRIMARY	3.775	85.6
PRIMARY	3.01	89.5
PRIMARY	3.784	89.5
PRIMARY	3.018	84.7
PRIMARY	2.289	
PRIMARY	3.01	
PRIMARY	3.018	
PRIMARY	3.784	
PRIMARY	3.775	
PRIMARY	3.405	
PRIMARY	3.412	91.3
PRIMARY	3.784	87.3
PRIMARY	3.016	91.3
PRIMARY	3.793	91.3
PRIMARY	3.024	86.3

PRIMARY	2.299		
PRIMARY	3.016		
PRIMARY	3.024		
PRIMARY	3.676		
PRIMARY	3.66		
PRIMARY	3.412		
PRIMARY	3.422	90.3	150
PRIMARY	3.789	86.3	176
PRIMARY	3.025	90.3	160
PRIMARY	3.798	90.3	134
PRIMARY	3.033	85.4	174
PRIMARY	2.299	31.9	33
PRIMARY	3.025	36.1	36.1
PRIMARY	3.033	32.9	39.9
PRIMARY	3.807	36.1	36.1
PRIMARY	3.789	33.5	33.5
PRIMARY	3.422	36.1	40.9
PRIMARY	3.411	91.4	151
PRIMARY	3.774	87.4	177
PRIMARY	3.016	91.4	161
PRIMARY	3.792	91.4	135
PRIMARY	3.024	86.5	176
PRIMARY	2.298	32.3	33.4
PRIMARY	3.016	36.6	36.6
PRIMARY	3.024	33.3	40.3
PRIMARY	3.792	36.6	36.6
PRIMARY	3.783	33.9	33.9
PRIMARY	3.411	36.6	41.4
PRIMARY	3.534	100	
PRIMARY	3.901	95.6	
PRIMARY	3.141	100	
PRIMARY	3.917	100	
PRIMARY	3.15	94.6	
PRIMARY	2.409	35.4	
PRIMARY	3.141	40	
PRIMARY	3.15	36.4	
PRIMARY	3.917	40	
PRIMARY	3.901	37.1	
PRIMARY	3.542	40	
PRIMARY	3.537	100	
PRIMARY	3.899	95.6	
PRIMARY	3.148	100	
PRIMARY	3.915	100	
PRIMARY	3.148	94.6	
PRIMARY	2.409		
PRIMARY	3.139		
PRIMARY	3.148		

PRIMARY	3.915
PRIMARY	3.899
PRIMARY	3.53

Upper Breech Limit



TETRA TECH

INTERNAL CORRESPONDENCE

TO: G. ROOF **DATE:** JULY 17, 2017
FROM: MICHELLE L. ALLEN **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
NAVAL CONSTRUCTION BATTALION CENTER (NCBC) GULFPORT
GULFPORT, MISSISSIPPI
SAMPLE DELIVERY GROUP (SDG) 680-138385-1

SAMPLES: 9/Aqueous/PFAS

06FD01-050417	06GW03050417	06GW04050417
06GW06050417	06GW08050417	06GW09050417
06GW14050417	06GW15050417	06GW16050417

Overview

The sample set for NCBC Gulfport, SDG 680-138385-1 consisted of nine (9) aqueous environmental samples. All nine (9) samples were analyzed for polyfluoroalkyl substances (PFAS). One field duplicate sample pair was included in this SDG: 06FD01-050417/06GW03050417.

The samples were collected by Tetra Tech, Inc. on May 4, 2017 and analyzed by Test America, Inc. All analyses were conducted in accordance with EPA Method 537 Modified analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

- * • Data completeness
- * • Hold times/Sample Preservation
- * • LC/MS/MS System Tuning and Performance
- * • Initial/Continuing Calibrations
- * • Laboratory Method Blank Results
- * • Isotope Dilution Analyte Surrogate Recoveries
- * • Laboratory Control Sample Results
- * • Matrix Spike/Matrix Spike Duplicate Results
- * • Field Duplicate Precision
- * • Compound Identification
- * • Compound Quantitation
- * • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, and documentation supporting these findings is presented in Appendix C.

PFAS

As stated in the laboratory case narrative, the peak identified for perfluorobutanesulfonic acid (PFBS) by the data system exhibited chromatographic interferences that could not be resolved in sample 06GW06050417. The result for this compound was qualified as estimated, (J).

Additional Comments

Field Reagent Blanks (FRBs) were not collected with the environmental samples. The project manager was informed of the oversight and the requirement collect them in EPA Method 537. No validation action was taken because the project manager indicated that the samples were collected for screening purposes and are not part of a formal investigation.

Samples 06GW14050417 and 06GW03050417 were decanted prior to preparation.

Detected results reported below the Reporting Limit (RL) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

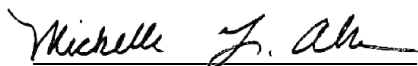
Non-detected results were reported to the Limit of Detection (LOD) on the sample Form Is, however, the electronic deliverable did not contain the LOD. The non-detected results were reported to the MDL.

Executive Summary

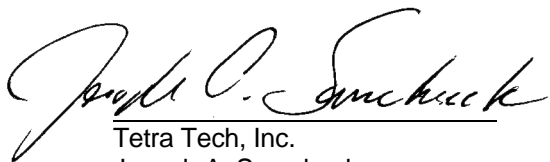
Laboratory Performance Issues: One compound was estimated due to matrix interference.

Other Factors Affecting Data Quality: Detected results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017), EPA Method 537 Modified, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (2013). The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:

- Appendix A - Qualified Analytical Results
- Appendix B – Results as Reported by the Laboratory
- Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $>40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-JM08 SDG: 680-138385-1 FRACTION: OS MEDIA: WATER	NSAMPLE	06FD01-050417			06GW03050417			06GW04050417			06GW06050417		
	LAB_ID	680-138385-3			680-138385-2			680-138385-4			680-138385-5		
	SAMP_DATE	5/4/2017			5/4/2017			5/4/2017			5/4/2017		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	140			150			44			58			
PERFLUOROBUTANE SULFONATE	3.9			3.8			5.5			10	J	Q	
PERFLUOROHEPTANOIC ACID	4.2			4.1			0.8	J	P	6.5			
PERFLUOROHEXANESULFONIC ACID	2.3			2.3	J	P	5.1			7			
PERFLUORONONANOIC ACID	0.71	J	P	0.63	U		0.58	U		0.57	U		
PERFLUOROOCTANE SULFONIC ACID	5.2			5.3			19			15			

PROJ_NO: 08005-JM08 SDG: 680-138385-1 FRACTION: OS MEDIA: WATER	NSAMPLE	06GW08050417			06GW09050417			06GW14050417			06GW15050417		
	LAB_ID	680-138385-6			680-138385-9			680-138385-1			680-138385-7		
	SAMP_DATE	5/4/2017			5/4/2017			5/4/2017			5/4/2017		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	0.65	U		4.8			160			3.1			
PERFLUOROBUTANE SULFONATE	3			1.1	J	P	5.8			0.81	U		
PERFLUOROHEPTANOIC ACID	0.7	U		0.73	U		7.6			1.3	J	P	
PERFLUOROHXANESULFONIC ACID	0.76	U		7			5.1			0.76	U		
PERFLUORONONANOIC ACID	0.57	U		0.6	U		0.62	U		0.57	U		
PERFLUOROOCTANE SULFONIC ACID	1.1	U		1.2	U		11			2	J	P	

PROJ_NO: 08005-JM08 SDG: 680-138385-1 FRACTION: OS MEDIA: WATER	NSAMPLE	06GW16050417		
	LAB_ID	680-138385-8		
	SAMP_DATE	5/4/2017		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	1	J	P	
PERFLUOROBUTANE SULFONATE	0.84	J	P	
PERFLUOROHEPTANOIC ACID	0.72	U		
PERFLUOROHEXANESULFONIC ACID	0.78	U		
PERFLUORONONANOIC ACID	0.59	U		
PERFLUOROOCTANE SULFONIC ACID	1.6	J	P	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW14050417</u>	Lab Sample ID: <u>680-138385-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_007.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 08:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>264.1 (mL)</u>	Date Analyzed: <u>05/19/2017 11:59</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.8	M	2.4	0.87
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1		2.4	0.82
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6		2.4	0.76
335-67-1	Perfluorooctanoic acid (PFOA)	160	M	2.4	0.71
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	M	3.8	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.62

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	91		25-150
STL01892	13C4-PFHpA	73		25-150
STL00990	13C4 PFOA	64		25-150
STL00991	13C4 PFOS	91		25-150
STL00995	13C5 PFNA	38		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW03050417</u>	Lab Sample ID: <u>680-138385-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_008.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>259.3 (mL)</u>	Date Analyzed: <u>05/19/2017 12:06</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.8	M	2.4	0.89
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.3	J M	2.4	0.84
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1		2.4	0.77
335-67-1	Perfluorooctanoic acid (PFOA)	150	M	2.4	0.72
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.3	M	3.9	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	0.63

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	91		25-150
STL01892	13C4-PFHpA	73		25-150
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	85		25-150
STL00995	13C5 PFNA	64		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06FD01-050417</u>	Lab Sample ID: <u>680-138385-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_009.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 00:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>288.8 (mL)</u>	Date Analyzed: <u>05/19/2017 12:14</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.9	M	2.2	0.79
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.3	M	2.2	0.75
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	M	2.2	0.69
335-67-1	Perfluorooctanoic acid (PFOA)	140	M	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.2	M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	0.71	J	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	90		25-150
STL01892	13C4-PFHpA	71		25-150
STL00990	13C4 PFOA	72		25-150
STL00991	13C4 PFOS	85		25-150
STL00995	13C5 PFNA	60		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Client Sample ID: 06GW04050417 Lab Sample ID: 680-138385-4
 Matrix: Water Lab File ID: 2017.05.18G_010.d
 Analysis Method: 537 (Modified) Date Collected: 05/04/2017 09:45
 Extraction Method: 3535 Date Extracted: 05/16/2017 19:25
 Sample wt/vol: 280.5 (mL) Date Analyzed: 05/19/2017 12:21
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165303 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.5		2.2	0.82
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1		2.2	0.78
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.80	J M	2.2	0.71
335-67-1	Perfluorooctanoic acid (PFOA)	44	M	2.2	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19		3.6	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.58

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	82		25-150
STL01892	13C4-PFHpA	63		25-150
STL00990	13C4 PFOA	66		25-150
STL00991	13C4 PFOS	88		25-150
STL00995	13C5 PFNA	75		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW06050417</u>	Lab Sample ID: <u>680-138385-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_011.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 10:25</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>286.8 (mL)</u>	Date Analyzed: <u>05/19/2017 12:29</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	10	* M	2.2	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	M	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5		2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	58	M	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.7	U	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	84		25-150
STL01892	13C4-PFHpA	64		25-150
STL00990	13C4 PFOA	70		25-150
STL00991	13C4 PFOS	74		25-150
STL00995	13C5 PFNA	55		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW08050417</u>	Lab Sample ID: <u>680-138385-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_013.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 11:35</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>286.2 (mL)</u>	Date Analyzed: <u>05/19/2017 12:44</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.0	M	2.2	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.7	U M	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.7	U	2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	1.7	U	2.2	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.7	U M	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	88		25-150
STL01892	13C4-PFHpA	68		25-150
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	92		25-150
STL00995	13C5 PFNA	76		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW15050417</u>	Lab Sample ID: <u>680-138385-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_014.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 12:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>285 (mL)</u>	Date Analyzed: <u>05/19/2017 12:51</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U M	2.2	0.81
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.8	U	2.2	0.76
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.3	J	2.2	0.70
335-67-1	Perfluorooctanoic acid (PFOA)	3.1		2.2	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.5	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.57

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	93		25-150
STL01892	13C4-PFHpA	81		25-150
STL00990	13C4 PFOA	84		25-150
STL00991	13C4 PFOS	102		25-150
STL00995	13C5 PFNA	80		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW16050417</u>	Lab Sample ID: <u>680-138385-8</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_015.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 14:45</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>279.3 (mL)</u>	Date Analyzed: <u>05/19/2017 12:59</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.84	J	2.2	0.82
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.8	U M	2.2	0.78
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.8	U	2.2	0.72
335-67-1	Perfluorooctanoic acid (PFOA)	1.0	J M	2.2	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.6	J M	3.6	1.1
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.2	0.59

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	93		25-150
STL01892	13C4-PFHpA	77		25-150
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	97		25-150
STL00995	13C5 PFNA	71		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>680-138385-1</u>
SDG No.: <u>680-138385</u>	
Client Sample ID: <u>06GW09050417</u>	Lab Sample ID: <u>680-138385-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.05.18G_016.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/04/2017 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>05/16/2017 19:25</u>
Sample wt/vol: <u>273.9(mL)</u>	Date Analyzed: <u>05/19/2017 13:06</u>
Con. Extract Vol.: <u>0.50(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>165303</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.3	0.84
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0		2.3	0.79
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.8	U	2.3	0.73
335-67-1	Perfluorooctanoic acid (PFOA)	4.8	M	2.3	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.7	1.2
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.3	0.60

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	103		25-150
STL01892	13C4-PFHpA	77		25-150
STL00990	13C4 PFOA	66		25-150
STL00991	13C4 PFOS	103		25-150
STL00995	13C5 PFNA	49		25-150

APPENDIX C

SUPPORT DOCUMENTATION

NCBC GULFPORT
SDG 680-138385-1

SAMPLE IDENTIFICATION

06GW14050417

COMPOUND

PENTADECAFLUOROOCCTANOIC ACID

COMPOUND AREA	13062605
ISOTOPE DILUTION ANALYTE SURROGATE (ng/L)	50
DILUTION FACTOR	1
ISOTOPE DILUTION ANALYTE SURROGATE AREA	6834669
AVERAGE RRF	1.149
SAMPLE VOLUME (ml)	264.1
VOLUME EXTRACT (μ l)	500
VOLUME INJECTED (μ l)	1

CONCENTRATION = 157.46 ng/L

$13062605 \times 50\text{ng/L} \times 1 \times 500 / (6834669 \times 1.149 \times 264.1 \times 1)$

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\2017.05.18G_007.d
 Lims ID: 680-138385-A-1-A
 Client ID: 06GW14050417
 Sample Type: Client
 Inject. Date: 19-May-2017 11:59:16 ALS Bottle#: 6 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 680-138385-a-1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170519-43288.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 19-May-2017 15:34:50 Calib Date: 18-May-2017 18:42:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170518-43267.b\2017.05.18AA_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: westendorfc Date: 19-May-2017 14:43:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.289	2.289	0.0	1.000	1347203	3.06				M
298.90 > 99.00	2.289	2.289	0.0	1.000	370052		3.64(0.00-0.00)			M
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.008	2.994	0.014	1.000	701102	4.03			45.2	
D 9 13C4-PFHpA										
367.00 > 322.00	3.008	2.994	0.014		7776250	36.7		73.4	54750	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.016	3.009	0.007	1.000	876811	2.70				
D 11 18O2 PFHxS										
403.00 > 84.00	3.016	3.009	0.007		13037292	42.8		90.5	40986	
* 62 13C2-PFOA										
415.00 > 370.00	3.394	3.426	-0.032		17296	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.403	3.396	0.007	1.000	13062605	83.2			736	M
413.00 > 169.00	3.403	3.396	0.007	1.000	8530504		1.53(0.90-1.10)		5935	M
D 14 13C4 PFOA										
417.00 > 372.00	3.403	3.396	0.007		6834669	32.1		64.2	32665	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.772	3.762	0.010	1.000	1504036	6.04			90.0	M
499.00 > 99.00	3.772	3.762	0.010	1.000	237223		6.34(0.90-1.10)		162	M
D 18 13C4 PFOS										
503.00 > 80.00	3.772	3.762	0.010		9973607	43.5		91.0	1621	
D 19 13C5 PFNA										
468.00 > 423.00	3.781	3.770	0.011		3207553	19.1		38.2	12662	

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%
PENTADECAFLUOROOCCTANOIC ACID	150	140	2.4	6.90	FALSE
PERFLUOROBUTANE SULFONATE	3.8	3.9	2.4	2.60	FALSE
PERFLUOROHEPTANOIC ACID	4.1	4.2	2.4	2.41	FALSE
PERFLUOROHEXANESULFONIC ACID	2.3	2.3	2.4	0.00	FALSE
PERFLUORONONANOIC ACID	0.63	0.71	2.4	11.94	FALSE
PERFLUOROOCCTANE SULFONIC ACID	5.3	5.2	3.9	1.90	FALSE

ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2xRL
TRUE	TRUE	TRUE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE

SDG 680-138385-1

06FD01-050417/06GW03050417

Chain of Custody Record



Client Information	Sampler: Dane Stephen	Lab PM: Lanier, Jerry A	Carrier Tracking No(s):	COC No: 680-83669-34013.21
Client Contact: Dr. Bette Premo	Phone: 904.334.7260	E-Mail: jerry.lanier@testamericainc.com		Page: Page 21 of 14
Company: White Water Associates				Job #:

Address: PO BOX 27	Due Date Requested:	Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.1 - Ammonia	2540C_Catcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs	8015C_DRO_DOD5, 8:70D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	Total Number of containers	Preservation Codes:	
City: Amasa	TAT Requested (days): STD																		A - HCL	M - Hexane
State, Zip: MI, 49903	PO #: Purchase Order Requested																		B - NaOH	N - None
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	WO #:																		C - Zn Acetate	O - AsNaO2
Email: bette.premo@white-water-associates.com	Project #: 68018082																		D - Nitric Acid	P - Na2O4S
Project Name: CTO JM08 - TT - Gulfport MS	SSOW#:																		E - NaHSO4	Q - Na2SO3
Site: Site 6		F - MeOH	R - Na2S2O3																	
		G - Amchlor	S - H2SO4																	
		H - Ascorbic Acid	T - TSP Dodecahydrate																	
		I - Ice	U - Acetone																	
		J - DI Water	V - MCAA																	
		K - EDTA	W - pH 4-5																	
		L - EDTA	Z - other (specify)																	

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.1 - Ammonia	2540C_Catcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs	8015C_DRO_DOD5, 8:70D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	Total Number of containers	Special Instructions/Note:	
				Preservation Code:			A	N	N	N	S	N	N	D	A	N	N	A	N			
06GW14050417	5-4-17	0810		Solid																		
06GW03050417		0910		Solid																		
06GWFD01-050417		0900		Solid																		
06GW04050417		0945		Solid																		
06GW06050417		1025		Solid																		
06GW08050417		1135		Solid																		
06GW15050417		1210		Solid																		
06GW16050417		1445		Solid																		
06GW09050417		1510		Solid																		MS/MSD
				Solid																		
				Solid																		

Possible Hazard Identification	<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	

Empty Kit Relinquished by: <i>Jen Betts</i>	Date: 4-24-17	Time: 12:00	Method of Shipment: Lab carrier
Relinquished by: <i>Julia Zeman</i>	Date/Time: 5-5-17 9:10	Company: TAMobile	Received by: <i>Julia Zeman</i>
Relinquished by: <i>Julia Zeman</i>	Date/Time: 5/5/17 @ 1000	Company: TAMobile	Date/Time: 5/5/17 @ 910
Relinquished by:	Date/Time:	Company:	Date/Time:
Custody Seal: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Custody Seal No.: 680-138385	530-Orlan	Cooler Temperature(s) °C and Other Remarks: 1.2°C #5592

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MS/MSD

05/24/2017

TestAmerica Savannah

5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica

THE LEADER IN TESTING



Client Information	Sampler: <u>Dave Siefken</u>	Lab PM: <u>Lanier, Jerry A</u>	Carrier Tracking No(s):	COC No: <u>680-83669-34013.21</u>
Client Contact: <u>Dr. Bette Premo</u>	Phone: <u>904.334.7260</u>	E-Mail: <u>jerry.lanier@testamericainc.com</u>		Page: <u>Page 21 of 14</u>
Company: <u>White Water Associates</u>				Job #: <u>680-138385 COC</u>

Address: <u>PO BOX 27</u>	Due Date Requested:	Analysis Requested												Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)					
City: <u>Amasa</u>	TAT Requested (days): <u>STD</u>	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs	8270D_DOD5 - SVOCs	8015C_DRO_DOD5 - DRO - Diesel Range Organics	PFC_IDA_DOD5 - PFAS, UCMR List	350.1 - Ammonia	2540C_Calcd - TDS	9056A_OF_28D_D5 - Sulfate	6010C_DOD5 - Iron & Sodium	8260B_DOD5 - Trip Blank	8260B_DOD5 - VOCs		8015C_DRO_DOD5, 8:70D_DOD5	8260B_DOD5 - VOCs EB	8270D_DOD5 - SVOCs EB	Total Number of containers	
State, Zip: <u>MI, 49903</u>	PO #: <u>Purchase Order Requested</u>																		
Phone: <u>906-822-7889(Tel) 906-822-7977(Fax)</u>	WO #: <u></u>																		
Email: <u>bette.premo@white-water-associates.com</u>	Project #: <u>68018082</u>																		
Project Name: <u>CTO JM08 - TT - Gulfport MS</u>	SSOW#: <u></u>																		
Site: <u>Site G</u>																			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)												Total Number of containers	Special Instructions/Note:
						A	N	N	N	S	N	N	D	A	N	N	A		
06GW14050417	5-4-17	0810		Solid															
06GW03050417		0910		Solid															
06GWFD01-050417		0900		Solid															
06GW04050417		0945		Solid															
06GW06050417		1025		Solid															
06GW08050417		1135		Solid															
06GW15050417		1210		Solid															
06GW16050417		1445		Solid															
06GW09050417		1510		Solid															
					Solid														
				Solid															

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by: <u>[Signature]</u>	Date: <u>4-24-17</u>	Time: <u>12:00</u>	Method of Shipment: <u>Lab courier</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5-5-17 @ 9:10</u>	Company: <u>TAMobile</u>	Received by: <u>[Signature]</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/5/17 @ 1000</u>	Company: <u>TAMobile</u>	Received by: <u>[Signature]</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/5/17 @ 0925</u>	Company: <u>TAMS</u>	Received by: <u>[Signature]</u>

Custody Seal: <u>Yes</u>	Custody Seal No.: <u>680-138385</u>	530-Orlan.	Cooler Temperature(s) °C and Other Remarks: <u>1.2°C #5592</u>	<u>7.10C water AIC-2</u>
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0603110318

MS/MSD

05/24/2017

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 680-138385-1

SDG Number: 680-138385

Login Number: 138385
List Number: 1
Creator: Ragnaldsen, Amy E

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
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.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 680-138385-1

SDG Number: 680-138385

Login Number: 138385
List Number: 2
Creator: Edman, Connor M

List Source: TestAmerica Sacramento
List Creation: 05/08/17 12:46 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	7.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: CTO JM09 - TT - Gulfport MS / Site 6

Report Number: 680-138385-1

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 the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 05/05/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.2° C and 7.1° C.

The following samples was received at the laboratory outside the required temperature criteria (7.1° C) : 06GW14050417 (680-138385-1), 06GW03050417 (680-138385-2), 06FD01-050417 (680-138385-3), 06GW04050417 (680-138385-4), 06GW06050417 (680-138385-5), 06GW08050417 (680-138385-6), 06GW15050417 (680-138385-7), 06GW16050417 (680-138385-8), 06GW09050417 (680-138385-9), 06GW09050417 (680-138385-9[MS]) and 06GW09050417 (680-138385-9[MSD]). The client as contacted and advised the lab to proceed with analysis.

PERFLUORINATED HYDROCARBONS

Samples 06GW14050417 (680-138385-1), 06GW03050417 (680-138385-2), 06FD01-050417 (680-138385-3), 06GW04050417 (680-138385-4), 06GW06050417 (680-138385-5), 06GW08050417 (680-138385-6), 06GW15050417 (680-138385-7), 06GW16050417 (680-138385-8) and 06GW09050417 (680-138385-9) were analyzed for Perfluorinated Hydrocarbons in accordance with TestAmerica SOP. The samples were prepared on 05/16/2017 and analyzed on 05/19/2017.

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

In the following sample the peak identified for perfluorobutanesulfonic acid (PFBS) by the data system exhibited chromatographic interferences that could not be resolved: 06GW06050417 (680-138385-5). The result may be biased high.

The following samples 06GW14050417 (680-138385-1) and 06GW03050417 (680-138385-2) were decanted prior to preparation.

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

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Qualifiers

LCMS

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

Glossary

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

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-138385-1	06GW14050417	Water	05/04/17 08:10	05/05/17 09:10
680-138385-2	06GW03050417	Water	05/04/17 09:10	05/05/17 09:10
680-138385-3	06FD01-050417	Water	05/04/17 00:00	05/05/17 09:10
680-138385-4	06GW04050417	Water	05/04/17 09:45	05/05/17 09:10
680-138385-5	06GW06050417	Water	05/04/17 10:25	05/05/17 09:10
680-138385-6	06GW08050417	Water	05/04/17 11:35	05/05/17 09:10
680-138385-7	06GW15050417	Water	05/04/17 12:10	05/05/17 09:10
680-138385-8	06GW16050417	Water	05/04/17 14:45	05/05/17 09:10
680-138385-9	06GW09050417	Water	05/04/17 15:10	05/05/17 09:10

Method Summary

Client: Tetra Tech, Inc.
Project/Site: CTO JM09 - TT - Gulfport MS / Site 6

TestAmerica Job ID: 680-138385-1
SDG: 680-138385

Method	Method Description	Protocol	Laboratory
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHpA #	PFHxS #	PFOA #	PFOS #	PFNA #
06GW14050417	680-138385-1	73	91	64	91	38
06GW03050417	680-138385-2	73	91	74	85	64
06FD01-050417	680-138385-3	71	90	72	85	60
06GW04050417	680-138385-4	63	82	66	88	75
06GW06050417	680-138385-5	64	84	70	74	55
06GW08050417	680-138385-6	68	88	74	92	76
06GW15050417	680-138385-7	81	93	84	102	80
06GW16050417	680-138385-8	77	93	77	97	71
06GW09050417	680-138385-9	77	103	66	103	49
	MB 320-164788/1-A	126	116	133	112	131
	LCS 320-164788/2-A	119	110	126	111	121
06GW09050417 MS	680-138385-9 MS	76	100	63	100	47
06GW09050417 MSD	680-138385-9 MSD	78	99	67	101	51

QC LIMITS

PFHpA = 13C4-PFHpA
 PFHxS = 18O2 PFHxS
 PFOA = 13C4 PFOA
 PFOS = 13C4 PFOS
 PFNA = 13C5 PFNA

25-150
25-150
25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab File ID: 2017.05.18G_002.d Lab Sample ID: MB 320-164788/1-A
 Matrix: Water Date Extracted: 05/16/2017 19:25
 Instrument ID: A8_N Date Analyzed: 05/19/2017 10:44
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-164788/2-A	2017.05.18G 003.d	05/19/2017 10:51
06GW14050417	680-138385-1	2017.05.18G 007.d	05/19/2017 11:59
06GW03050417	680-138385-2	2017.05.18G 008.d	05/19/2017 12:06
06FD01-050417	680-138385-3	2017.05.18G 009.d	05/19/2017 12:14
06GW04050417	680-138385-4	2017.05.18G 010.d	05/19/2017 12:21
06GW06050417	680-138385-5	2017.05.18G 011.d	05/19/2017 12:29
06GW08050417	680-138385-6	2017.05.18G 013.d	05/19/2017 12:44
06GW15050417	680-138385-7	2017.05.18G 014.d	05/19/2017 12:51
06GW16050417	680-138385-8	2017.05.18G 015.d	05/19/2017 12:59
06GW09050417	680-138385-9	2017.05.18G 016.d	05/19/2017 13:06
06GW09050417 MS	680-138385-9 MS	2017.05.18G 017.d	05/19/2017 13:14
06GW09050417 MSD	680-138385-9 MSD	2017.05.18G 018.d	05/19/2017 13:21

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Client Sample ID: _____ Lab Sample ID: MB 320-164788/1-A
 Matrix: Water Lab File ID: 2017.05.18G_002.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/16/2017 19:25
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/19/2017 10:44
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165303 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.5	0.80
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	116		25-150
STL01892	13C4-PFHpA	126		25-150
STL00990	13C4 PFOA	133		25-150
STL00991	13C4 PFOS	112		25-150
STL00995	13C5 PFNA	131		25-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Matrix: Water Level: Low Lab File ID: 2017.05.18G_003.d
 Lab ID: LCS 320-164788/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanesulfonic acid (PFBS)	35.4	35.4	100	50-150	
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.1	91	60-140	
Perfluoroheptanoic acid (PFHpA)	40.0	36.8	92	60-140	
Perfluorooctanoic acid (PFOA)	40.0	35.2	88	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	33.1	89	60-140	
Perfluorononanoic acid (PFNA)	40.0	37.3	93	60-140	
18O2 PFHxS	94.6	104	110	25-150	
13C4-PFHpA	100	119	119	25-150	
13C4 PFOA	100	126	126	25-150	
13C4 PFOS	95.6	107	111	25-150	
13C5 PFNA	100	121	121	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water Level: Low

Lab File ID: 2017.05.18G_017.d

Lab ID: 680-138385-9 MS

Client ID: 06GW09050417 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorobutanesulfonic acid (PFBS)	31.9	1.1 J	30.2	91	50-150	
Perfluorohexanesulfonic acid (PFHxS)	32.9	7.0	36.8	90	60-140	
Perfluoroheptanoic acid (PFHpA)	36.1	1.8 U	32.7	91	60-140	
Perfluorooctanoic acid (PFOA)	36.1	4.8	36.7	88	60-140	
Perfluorooctanesulfonic acid (PFOS)	33.5	2.7 U	29.9	89	60-140	M
Perfluorononanoic acid (PFNA)	36.1	1.8 U	33.8	94	60-140	
18O2 PFHxS	85.4	89	85.0	100	25-150	
13C4-PFHpA	90.3	70	68.4	76	25-150	
13C4 PFOA	90.3	60	56.6	63	25-150	
13C4 PFOS	86.3	90	86.0	100	25-150	
13C5 PFNA	90.3	44	42.2	47	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

SDG No.: 680-138385

Matrix: Water Level: Low

Lab File ID: 2017.05.18G_018.d

Lab ID: 680-138385-9 MSD

Client ID: 06GW09050417 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorobutanesulfonic acid (PFBS)	32.3	31.8	95	5	30	50-150	
Perfluorohexanesulfonic acid (PFHxS)	33.3	37.8	92	3	30	60-140	
Perfluoroheptanoic acid (PFHpA)	36.6	33.3	91	2	30	60-140	
Perfluorooctanoic acid (PFOA)	36.6	37.4	89	2	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	33.9	31.0	91	4	30	60-140	M
Perfluorononanoic acid (PFNA)	36.6	33.0	90	2	30	60-140	
18O2 PFHxS	86.5	85.5	99			25-150	
13C4-PFHpA	91.4	71.2	78			25-150	
13C4 PFOA	91.4	60.9	67			25-150	
13C4 PFOS	87.4	88.1	101			25-150	
13C5 PFNA	91.4	46.6	51			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (Modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Start Date: 05/18/2017 17:49

Analysis Batch Number: 165218 End Date: 05/18/2017 18:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-165218/2		05/18/2017 17:49	1	2017.05.18AA_00 3.d	GeminiC18 3x100 3(mm)
IC 320-165218/3		05/18/2017 17:57	1	2017.05.18AA_00 4.d	GeminiC18 3x100 3(mm)
IC 320-165218/4		05/18/2017 18:04	1	2017.05.18AA_00 5.d	GeminiC18 3x100 3(mm)
IC 320-165218/5		05/18/2017 18:12	1	2017.05.18AA_00 6.d	GeminiC18 3x100 3(mm)
IC 320-165218/6		05/18/2017 18:19	1	2017.05.18AA_00 7.d	GeminiC18 3x100 3(mm)
IC 320-165218/7		05/18/2017 18:27	1	2017.05.18AA_00 8.d	GeminiC18 3x100 3(mm)
IC 320-165218/8		05/18/2017 18:35	1	2017.05.18AA_00 9.d	GeminiC18 3x100 3(mm)
ICB 320-165218/10		05/18/2017 18:50	1		GeminiC18 3x100 3(mm)
ICV 320-165218/11		05/18/2017 18:57	1	2017.05.18AA_01 2.d	GeminiC18 3x100 3(mm)

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165218/2	2017.05.18AA_003.d
Level 2	IC 320-165218/3	2017.05.18AA_004.d
Level 3	IC 320-165218/4	2017.05.18AA_005.d
Level 4	IC 320-165218/5	2017.05.18AA_006.d
Level 5	IC 320-165218/6	2017.05.18AA_007.d
Level 6	IC 320-165218/7	2017.05.18AA_008.d
Level 7	IC 320-165218/8	2017.05.18AA_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C4 PFBA	393100 360068	383476 344701	369564 320492	347032	Ave		359775.926			6.9		50.0				
13C5-PFPeA	281993 240788	276441 226106	268234 207537	239722	Ave		248688.771			11.1		50.0				
13C2 PFHxA	273594 243153	266746 222849	255660 206095	236938	Ave		243576.428			9.9		50.0				
13C4-PFHpA	238952 202910	238938 195016	236311 163127	208073	Ave		211903.890			13.4		50.0				
18O2 PFHxS	328655 303865	332347 290012	324507 254911	296958	Ave		304465.150			9.0		50.0				
M2-6:2FTS	128901 152676	125609 105933	117684 96850	155261	Ave		126130.553			17.4		50.0				
13C4 PFOA	228960 228215	231767 185911	225643 156014	233029	Ave		212791.218			14.1		50.0				
13C4 PFOS	242352 230834	248589 222444	239433 191405	229903	Ave		229279.985			8.2		50.0				
13C5 PFNA	183079 164074	186638 154741	182512 132459	171456	Ave		167851.231			11.5		50.0				
13C8 FOSA	393052 376063	398827 348864	390425 293165	369469	Ave		367123.648			10.0		50.0				
13C2 PFDA	160037 137914	162067 138639	159436 114776	138655	Ave		144503.332			11.9		50.0				
M2-8:2FTS	103498 96125	108379 97614	102427 87348	98244	Ave		99090.7084			6.7		50.0				
d3-NMeFOSAA	65403 66128	70421 65506	67133 57067	62560	Ave		64888.2782			6.4		50.0				
13C2 PFUnA	115343 99979	116061 92303	107399 79716	101393	Ave		101741.816			12.7		50.0				

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

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

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
d5-NEtFOSAA	68015 66704	70132 57760	67177 53049	61844	Ave		63525.8863			9.8			50.0			
d-N-MeFOSA-M	98447 101662	104565 102626	99219 94323	96003	Ave		99549.4207			3.7			50.0			
d-N-EtFOSA-M	90409 93501	99209 94139	94275 87437	93790	Ave		93251.3695			3.9			50.0			
13C2 PFDoA	106916 98427	110095 96172	105584 86047	98411	Ave		100235.822			8.1			50.0			
13C2-PFTeDA	212017 199106	228222 198111	217492 174394	205257	Ave		204942.739			8.4			50.0			
13C2-PFHxDA	118816 116027	132749 116592	125213 103555	115388	Ave		118334.379			7.6			50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 680-138385-1

Analy Batch No.: 165218

SDG No.: 680-138385

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 05/18/2017 17:49

Calibration End Date: 05/18/2017 18:35

Calibration ID: 30447

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	1.0327 0.9705	1.0635 0.7983	1.0638	1.0725	1.0384	AveID		1.0057			9.7		35.0				
Perfluoropentanoic acid (PFPeA)	1.2288 1.0534	1.1477 0.9334	1.1137	1.1361	1.0880	AveID		1.1001			8.3		35.0				
Perfluorobutanesulfonic acid (PFBS)	1.7703 1.4207	1.7034 1.2400	1.6515	1.7732	1.6087	AveID		1.5954			12.4		50.0				
4:2 FTS	0.7592 0.8162	0.8344 0.8326	0.8836	0.6672	0.6105	AveID		0.7720			12.9		35.0				
Perfluorohexanoic acid (PFHxA)	1.0957 0.9983	1.1085 0.8889	1.0369	1.0571	1.0253	AveID		1.0301			7.1		35.0				
Perfluoroheptanoic acid (PFHpA)	1.1941 1.0579	1.1623 0.9949	1.1065	1.1692	1.1478	AveID		1.1189			6.3		35.0				
Perfluorohexanesulfonic acid (PFHxS)	++++ 1.1563	1.3183 1.0470	1.1857	1.1855	1.1724	AveID		1.1776			7.4		35.0				
6:2FTS	++++ 0.9169	1.0145 0.8312	1.1222	1.0071	0.9227	AveID		0.9691			10.4		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	1.3271 1.2396	1.3738 1.1039	1.3809	1.2965	1.3202	AveID		1.2917			7.4		50.0				
Perfluorooctanoic acid (PFOA)	++++ 1.0857	1.3408 1.0105	1.1715	1.1552	1.1303	AveID		1.1490			9.6		35.0				
Perfluorooctanesulfonic acid (PFOS)	1.2297 1.2003	1.2122 1.1479	1.2070	1.1578	1.1928	AveID		1.1925			2.5		35.0				
Perfluorononanoic acid (PFNA)	1.1009 1.0403	1.0954 0.9684	1.0854	1.0974	1.1023	AveID		1.0700			4.6		35.0				
Perfluorooctane Sulfonamide (FOSA)	1.1491 0.9760	1.1659 0.8626	1.1010	1.1183	1.0284	AveID		1.0573			10.3		35.0				
8:2FTS	1.0555 0.8991	1.0478 0.8378	1.0314	1.0328	0.9248	AveID		0.9756			8.9		35.0				
Perfluorodecanoic acid (PFDA)	1.1103 0.9595	1.0383 0.9523	1.0251	1.0529	1.0263	AveID		1.0235			5.3		35.0				
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0391 1.0144	1.0696 1.0717	1.0387	1.0952	1.0028	AveID		1.0474			3.2		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.7108 0.6475	0.7332 0.6188	0.6899	0.6997	0.7067	AveID		0.6867			5.8		50.0				
Perfluoroundecanoic acid (PFUnA)	1.4002 1.1053	1.2995 1.0241	1.1676	1.1314	1.1163	AveID		1.1778			10.9		35.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.9921 0.9666	0.9712 0.9402	0.9456	0.9608	0.9193	AveID		0.9565			2.5		35.0				

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1 Analy Batch No.: 165218
 SDG No.: 680-138385
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/18/2017 17:49 Calibration End Date: 05/18/2017 18:35 Calibration ID: 30447

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
MeFOSA	0.9493 0.9405	0.9282 0.9712	0.9917	0.9988	0.9692	AveID		0.9641			2.7		35.0				
Perfluorododecanoic acid (PFDoA)	1.0449 0.9794	1.0777 0.9133	1.0189	1.0380	1.0274	AveID		1.0142			5.3		35.0				
N-EtFOSA-M	0.9804 1.0018	1.0392 1.0299	1.0122	1.0258	1.0264	AveID		1.0165			2.0		35.0				
Perfluorotridecanoic Acid (PFTriA)	1.0753 0.9880	1.0649 0.9062	1.0209	1.0618	1.0284	AveID		1.0208			5.8		50.0				
Perfluorotetradecanoic acid (PFTeA)	2.7521 2.2154	2.5784 1.9353	2.4612	2.4220	2.3952	L2ID	0.2575	2.2722						0.9930		0.9900	
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 1.1318	2.0992 1.0106	1.3225	1.1306	1.1262	L2ID	1.0111	1.0847						0.9980		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	0.6309 0.0186	0.6118 0.0069	0.1327	0.1641	0.0491	L2ID	0.3258	0.0762						0.2920	*	0.9900	

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

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: ICV 320-165218/11 Calibration Date: 05/18/2017 18:57
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18AA_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	0.8997		44.3	49.5	-10.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	0.9850		44.3	49.5	-10.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.457		40.0	43.8	-8.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9319		44.8	49.5	-9.5	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	0.9787		43.3	49.5	-12.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	0.9857		39.2	46.8	-16.3	25.0
6:2FTS	AveID	0.9691	0.9709		47.0	46.9	0.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.185		43.2	47.1	-8.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.043		44.9	49.5	-9.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	0.9494		37.6	47.3	-20.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	0.9523		44.1	49.5	-11.0	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	0.9543		44.7	49.5	-9.7	25.0
8:2FTS	AveID	0.9756	1.002		48.7	47.4	2.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	0.8777		42.4	49.5	-14.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	0.9778		46.2	49.5	-6.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.6122		42.6	47.8	-10.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	0.997		41.9	49.5	-15.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9379		48.5	49.5	-1.9	25.0
MeFOSA	AveID	0.9641	0.9916		50.9	49.5	2.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	0.8966		43.8	49.5	-11.6	25.0
N-EtFOSA-M	AveID	1.017	1.031		50.2	49.5	1.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.8988		43.6	49.5	-11.9	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.030		44.1	49.5	-10.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9375		41.9	49.5	-15.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0362		19.2	49.5	-61.1*	25.0
13C4 PFBA	Ave	359776	362709		49.9	49.5	0.8	50.0
13C5-PFPeA	Ave	248689	248296		49.4	49.5	-0.2	50.0
13C2 PFHxA	Ave	243576	242738		49.3	49.5	-0.3	50.0
13C4-PFHpA	Ave	211904	213072		49.8	49.5	0.6	50.0
18O2 PFHxS	Ave	304465	305217		46.9	46.8	0.2	50.0
M2-6:2FTS	Ave	126131	112214		41.8	47.0	-11.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: ICV 320-165218/11 Calibration Date: 05/18/2017 18:57
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18AA_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	207673		48.3	49.5	-2.4	50.0
13C4 PFOS	Ave	229280	226141		46.7	47.3	-1.4	50.0
13C5 PFNA	Ave	167851	166552		49.1	49.5	-0.8	50.0
13C8 FOSA	Ave	367124	361803		48.8	49.5	-1.4	50.0
13C2 PFDA	Ave	144503	147064		50.4	49.5	1.8	50.0
M2-8:2FTS	Ave	99091	90784		43.5	47.4	-8.4	50.0
d3-NMeFOSAA	Ave	64888	64716		49.4	49.5	-0.3	50.0
13C2 PFUnA	Ave	101742	101086		49.2	49.5	-0.6	50.0
d5-NEtFOSAA	Ave	63526	63470		49.5	49.5	-0.0	50.0
d-N-MeFOSA-M	Ave	99549	98727		49.1	49.5	-0.8	50.0
13C2 PFDoA	Ave	100236	99680		49.2	49.5	-0.6	50.0
d-N-EtFOSA-M	Ave	93251	94261		50.0	49.5	1.1	50.0
13C2-PFTeDA	Ave	204943	201241		48.6	49.5	-1.8	50.0
13C2-PFHxDA	Ave	118334	107420		44.9	49.5	-9.2	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Instrument ID: A8_N Start Date: 05/19/2017 10:36

Analysis Batch Number: 165303 End Date: 05/19/2017 14:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-165303/1		05/19/2017 10:36	1	2017.05.18G_001.d	GeminiC18 3x100 3(mm)
MB 320-164788/1-A		05/19/2017 10:44	1	2017.05.18G_002.d	GeminiC18 3x100 3(mm)
LCS 320-164788/2-A		05/19/2017 10:51	1	2017.05.18G_003.d	GeminiC18 3x100 3(mm)
CCV 320-165303/5		05/19/2017 11:06	1	2017.05.18G_003.c.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 11:29	1		GeminiC18 3x100 3(mm)
CCV 320-165303/34		05/19/2017 11:51	1	2017.05.18G_006.C.d	GeminiC18 3x100 3(mm)
680-138385-1		05/19/2017 11:59	1	2017.05.18G_007.d	GeminiC18 3x100 3(mm)
680-138385-2		05/19/2017 12:06	1	2017.05.18G_008.d	GeminiC18 3x100 3(mm)
680-138385-3		05/19/2017 12:14	1	2017.05.18G_009.d	GeminiC18 3x100 3(mm)
680-138385-4		05/19/2017 12:21	1	2017.05.18G_010.d	GeminiC18 3x100 3(mm)
680-138385-5		05/19/2017 12:29	1	2017.05.18G_011.d	GeminiC18 3x100 3(mm)
CCV 320-165303/14		05/19/2017 12:36	1	2017.05.18G_012.d	GeminiC18 3x100 3(mm)
680-138385-6		05/19/2017 12:44	1	2017.05.18G_013.d	GeminiC18 3x100 3(mm)
680-138385-7		05/19/2017 12:51	1	2017.05.18G_014.d	GeminiC18 3x100 3(mm)
680-138385-8		05/19/2017 12:59	1	2017.05.18G_015.d	GeminiC18 3x100 3(mm)
680-138385-9		05/19/2017 13:06	1	2017.05.18G_016.d	GeminiC18 3x100 3(mm)
680-138385-9 MS		05/19/2017 13:14	1	2017.05.18G_017.d	GeminiC18 3x100 3(mm)
680-138385-9 MSD		05/19/2017 13:21	1	2017.05.18G_018.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:36	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 13:51	1		GeminiC18 3x100 3(mm)
CCV 320-165303/25		05/19/2017 13:59	1	2017.05.18G_023.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/19/2017 14:37	1		GeminiC18 3x100 3(mm)
CCV 320-165303/31		05/19/2017 14:44	1		GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/1 Calibration Date: 05/19/2017 10:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.077		21.2	19.8	7.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.110		20.0	19.8	0.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.788		19.6	17.5	12.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.049		20.2	19.8	1.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.117		19.8	19.8	-0.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.212		18.5	18.0	2.9	25.0
6:2FTS	AveID	0.9691	0.9563		18.5	18.8	-1.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.345		19.6	18.9	4.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.109		19.1	19.8	-3.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.175		18.1	18.4	-1.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.128		20.9	19.8	5.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.116		20.9	19.8	5.5	25.0
8:2FTS	AveID	0.9756	0.9903		19.3	19.0	1.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.099		21.3	19.8	7.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.060		20.0	19.8	1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.6851		19.0	19.1	-0.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.173		19.7	19.8	-0.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9761		20.2	19.8	2.0	25.0
MeFOSA	AveID	0.9641	0.9930		20.4	19.8	3.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.057		20.6	19.8	4.2	25.0
N-EtFOSA-M	AveID	1.017	1.034		20.1	19.8	1.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.095		21.2	19.8	7.3	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.365		20.5	19.8	3.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.146		20.0	19.8	0.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.1488		34.4	19.8	73.8*	25.0
13C4 PFBA	Ave	359776	372444		51.2	49.5	3.5	50.0
13C5-PFPeA	Ave	248689	255260		50.8	49.5	2.6	50.0
13C2 PFHxA	Ave	243576	257189		52.3	49.5	5.6	50.0
13C4-PFHpA	Ave	211904	230514		53.9	49.5	8.8	50.0
18O2 PFHxS	Ave	304465	320991		49.4	46.8	5.4	50.0
M2-6:2FTS	Ave	126131	161809		60.3	47.0	28.3	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/1 Calibration Date: 05/19/2017 10:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	252383		58.7	49.5	18.6	50.0
13C4 PFOS	Ave	229280	248029		51.2	47.3	8.2	50.0
13C5 PFNA	Ave	167851	186469		55.0	49.5	11.1	50.0
13C8 FOSA	Ave	367124	377949		51.0	49.5	2.9	50.0
13C2 PFDA	Ave	144503	154718		53.0	49.5	7.1	50.0
M2-8:2FTS	Ave	99091	107475		51.4	47.4	8.5	50.0
d3-NMeFOSAA	Ave	64888	70893		54.1	49.5	9.3	50.0
13C2 PFUnA	Ave	101742	115046		56.0	49.5	13.1	50.0
d5-NEtFOSAA	Ave	63526	71501		55.7	49.5	12.6	50.0
d-N-MeFOSA-M	Ave	99549	108469		53.9	49.5	9.0	50.0
13C2 PFDoA	Ave	100236	110516		54.6	49.5	10.3	50.0
d-N-EtFOSA-M	Ave	93251	99346		52.7	49.5	6.5	50.0
13C2-PFTeDA	Ave	204943	233487		56.4	49.5	13.9	50.0
13C2-PFHxDA	Ave	118334	127509		53.3	49.5	7.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/5 Calibration Date: 05/19/2017 11:06
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_003C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.028		50.6	49.5	2.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.109		49.9	49.5	0.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.863		51.1	43.8	16.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.039		49.9	49.5	0.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.136		50.3	49.5	1.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.184		45.3	45.0	0.6	25.0
6:2FTS	AveID	0.9691	0.9273		44.9	46.9	-4.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.333		48.6	47.1	3.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.105		47.6	49.5	-3.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.214		46.8	45.9	1.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.106		51.2	49.5	3.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.039		48.7	49.5	-1.7	25.0
8:2FTS	AveID	0.9756	0.9182		44.6	47.4	-5.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.061		51.3	49.5	3.6	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.029		48.6	49.5	-1.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7096		49.3	47.7	3.3	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.120		47.1	49.5	-4.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9678		50.1	49.5	1.2	25.0
MeFOSA	AveID	0.9641	0.9724		49.9	49.5	0.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	0.998		48.7	49.5	-1.6	25.0
N-EtFOSA-M	AveID	1.017	0.9921		48.3	49.5	-2.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.9812		47.6	49.5	-3.9	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.094		45.5	49.5	-8.1	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.066		47.7	49.5	-3.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0008		0.200	49.5	-100.0*	25.0
13C4 PFBA	Ave	359776	351263		48.3	49.5	-2.4	50.0
13C5-PFPeA	Ave	248689	259495		51.7	49.5	4.3	50.0
13C2 PFHxA	Ave	243576	238434		48.5	49.5	-2.1	50.0
13C4-PFHpA	Ave	211904	208001		48.6	49.5	-1.8	50.0
18O2 PFHxS	Ave	304465	295803		45.5	46.8	-2.8	50.0
M2-6:2FTS	Ave	126131	139016		51.8	47.0	10.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/5 Calibration Date: 05/19/2017 11:06
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_003C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	216309		50.3	49.5	1.7	50.0
13C4 PFOS	Ave	229280	219823		45.4	47.3	-4.1	50.0
13C5 PFNA	Ave	167851	171738		50.7	49.5	2.3	50.0
13C8 FOSA	Ave	367124	354569		47.8	49.5	-3.4	50.0
M2-8:2FTS	Ave	99091	110965		53.1	47.4	12.0	50.0
13C2 PFDA	Ave	144503	147000		50.4	49.5	1.7	50.0
d3-NMeFOSAA	Ave	64888	68893		52.6	49.5	6.2	50.0
13C2 PFUnA	Ave	101742	113553		55.3	49.5	11.6	50.0
d5-NEtFOSAA	Ave	63526	65824		51.3	49.5	3.6	50.0
d-N-MeFOSA-M	Ave	99549	94961		47.2	49.5	-4.6	50.0
13C2 PFDoA	Ave	100236	121367		59.9	49.5	21.1	50.0
d-N-EtFOSA-M	Ave	93251	92978		49.4	49.5	-0.3	50.0
13C2-PFTeDA	Ave	204943	230826		55.8	49.5	12.6	50.0
13C2-PFHxDA	Ave	118334	135180		56.6	49.5	14.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/34 Calibration Date: 05/19/2017 11:51
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_006C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.057		20.8	19.8	5.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.141		20.5	19.8	3.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.947		21.4	17.5	22.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.069		20.6	19.8	3.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.149		20.3	19.8	2.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.213		18.6	18.0	3.0	25.0
6:2FTS	AveID	0.9691	0.998		19.3	18.8	3.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.372		20.0	18.9	6.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.151		19.8	19.8	0.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.183		18.2	18.4	-0.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.099		20.3	19.8	2.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.080		20.2	19.8	2.2	25.0
8:2FTS	AveID	0.9756	1.017		19.8	19.0	4.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.067		20.7	19.8	4.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.040		19.7	19.8	-0.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7151		19.9	19.1	4.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.145		19.2	19.8	-2.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	1.001		20.7	19.8	4.6	25.0
MeFOSA	AveID	0.9641	1.005		20.7	19.8	4.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.031		20.1	19.8	1.6	25.0
N-EtFOSA-M	AveID	1.017	1.024		19.9	19.8	0.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.023		19.8	19.8	0.2	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.266		19.6	19.8	-0.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.102		19.2	19.8	-3.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		1.156		296	19.8	1396.4*	25.0
13C4 PFBA	Ave	359776	357723		49.2	49.5	-0.6	50.0
13C5-PFPeA	Ave	248689	261146		52.0	49.5	5.0	50.0
13C2 PFHxA	Ave	243576	249695		50.7	49.5	2.5	50.0
13C4-PFHpA	Ave	211904	218767		51.1	49.5	3.2	50.0
18O2 PFHxS	Ave	304465	311258		47.9	46.8	2.2	50.0
M2-6:2FTS	Ave	126131	142758		53.2	47.0	13.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/34 Calibration Date: 05/19/2017 11:51
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_006C.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	232692		54.1	49.5	9.4	50.0
13C4 PFOS	Ave	229280	226284		46.7	47.3	-1.3	50.0
13C5 PFNA	Ave	167851	176668		52.1	49.5	5.3	50.0
13C8 FOSA	Ave	367124	355178		47.9	49.5	-3.3	50.0
13C2 PFDA	Ave	144503	149902		51.4	49.5	3.7	50.0
M2-8:2FTS	Ave	99091	106746		51.1	47.4	7.7	50.0
d3-NMeFOSAA	Ave	64888	66999		51.1	49.5	3.3	50.0
13C2 PFUnA	Ave	101742	118633		57.7	49.5	16.6	50.0
d5-NEtFOSAA	Ave	63526	66828		52.1	49.5	5.2	50.0
d-N-MeFOSA-M	Ave	99549	94111		46.8	49.5	-5.5	50.0
13C2 PFDoA	Ave	100236	121105		59.8	49.5	20.8	50.0
d-N-EtFOSA-M	Ave	93251	93202		49.5	49.5	-0.0	50.0
13C2-PFTeDA	Ave	204943	234914		56.7	49.5	14.6	50.0
13C2-PFHxDA	Ave	118334	135116		56.5	49.5	14.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/14 Calibration Date: 05/19/2017 12:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.058		52.1	49.5	5.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.100		49.5	49.5	-0.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.918		52.6	43.8	20.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.020		49.0	49.5	-0.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.112		49.2	49.5	-0.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.181		45.2	45.0	0.3	25.0
6:2FTS	AveID	0.9691	0.9438		45.7	46.9	-2.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.346		49.1	47.1	4.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.104		47.6	49.5	-3.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.198		46.1	45.9	0.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.068		49.4	49.5	-0.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.041		48.7	49.5	-1.5	25.0
8:2FTS	AveID	0.9756	0.9675		47.0	47.4	-0.8	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.077		52.1	49.5	5.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	0.9918		46.9	49.5	-5.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7412		51.5	47.7	7.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9195		47.6	49.5	-3.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.142		48.0	49.5	-3.0	25.0
MeFOSA	AveID	0.9641	0.9747		50.0	49.5	1.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.000		48.8	49.5	-1.4	25.0
N-EtFOSA-M	AveID	1.017	1.001		48.7	49.5	-1.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	0.9734		47.2	49.5	-4.6	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.157		46.9	49.5	-5.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.009		45.1	49.5	-8.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		0.0015		0.200	49.5	-100.0*	25.0
13C4 PFBA	Ave	359776	359949		49.5	49.5	0.0	50.0
13C5-PFPeA	Ave	248689	270721		53.9	49.5	8.9	50.0
13C2 PFHxA	Ave	243576	241982		49.2	49.5	-0.7	50.0
13C4-PFHpA	Ave	211904	203949		47.6	49.5	-3.8	50.0
18O2 PFHxS	Ave	304465	295358		45.4	46.8	-3.0	50.0
M2-6:2FTS	Ave	126131	133241		49.7	47.0	5.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/14 Calibration Date: 05/19/2017 12:36
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	215209		50.1	49.5	1.1	50.0
13C4 PFOS	Ave	229280	221680		45.8	47.3	-3.3	50.0
13C5 PFNA	Ave	167851	167255		49.3	49.5	-0.4	50.0
13C8 FOSA	Ave	367124	351641		47.4	49.5	-4.2	50.0
M2-8:2FTS	Ave	99091	109513		52.4	47.4	10.5	50.0
13C2 PFDA	Ave	144503	141205		48.4	49.5	-2.3	50.0
d3-NMeFOSAA	Ave	64888	69095		52.7	49.5	6.5	50.0
13C2 PFUnA	Ave	101742	113322		55.1	49.5	11.4	50.0
d5-NEtFOSAA	Ave	63526	68749		53.6	49.5	8.2	50.0
d-N-MeFOSA-M	Ave	99549	97301		48.4	49.5	-2.3	50.0
13C2 PFDoA	Ave	100236	117852		58.2	49.5	17.6	50.0
d-N-EtFOSA-M	Ave	93251	90073		47.8	49.5	-3.4	50.0
13C2-PFTeDA	Ave	204943	237392		57.3	49.5	15.8	50.0
13C2-PFHxDA	Ave	118334	125300		52.4	49.5	5.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/25 Calibration Date: 05/19/2017 13:59
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.006	1.060		20.9	19.8	5.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.100	1.174		21.1	19.8	6.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.595	1.783		19.6	17.5	11.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.054		20.3	19.8	2.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.119	1.140		20.2	19.8	1.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.178	1.193		18.3	18.0	1.3	25.0
6:2FTS	AveID	0.9691	1.053		20.4	18.8	8.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.292	1.344		19.6	18.9	4.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.149	1.157		19.9	19.8	0.7	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.193	1.176		18.1	18.4	-1.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.070	1.085		20.1	19.8	1.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.057	1.118		20.9	19.8	5.8	25.0
8:2FTS	AveID	0.9756	1.037		20.2	19.0	6.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.024	1.066		20.6	19.8	4.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.047	1.045		19.8	19.8	-0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6867	0.7483		20.8	19.1	9.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.178	1.116		18.8	19.8	-5.2	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9565	0.9510		19.7	19.8	-0.6	25.0
MeFOSA	AveID	0.9641	0.9839		20.2	19.8	2.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.014	1.049		20.5	19.8	3.4	25.0
N-EtFOSA-M	AveID	1.017	1.059		20.6	19.8	4.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.021	1.073		20.8	19.8	5.1	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.425		21.0	19.8	6.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.142		19.9	19.8	0.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L2ID		1.206		309	19.8	1462.5*	25.0
13C4 PFBA	Ave	359776	354954		48.8	49.5	-1.3	50.0
13C5-PFPeA	Ave	248689	258942		51.5	49.5	4.1	50.0
13C2 PFHxA	Ave	243576	245288		49.9	49.5	0.7	50.0
13C4-PFHpA	Ave	211904	221414		51.7	49.5	4.5	50.0
18O2 PFHxS	Ave	304465	314384		48.4	46.8	3.3	50.0
M2-6:2FTS	Ave	126131	133485		49.8	47.0	5.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1
 SDG No.: 680-138385
 Lab Sample ID: CCV 320-165303/25 Calibration Date: 05/19/2017 13:59
 Instrument ID: A8_N Calib Start Date: 05/18/2017 17:49
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/18/2017 18:35
 Lab File ID: 2017.05.18G_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	212791	229540		53.4	49.5	7.9	50.0
13C4 PFOS	Ave	229280	227475		47.0	47.3	-0.8	50.0
13C5 PFNA	Ave	167851	177305		52.3	49.5	5.6	50.0
13C8 FOSA	Ave	367124	359394		48.5	49.5	-2.1	50.0
13C2 PFDA	Ave	144503	152808		52.4	49.5	5.7	50.0
M2-8:2FTS	Ave	99091	106370		50.9	47.4	7.3	50.0
d3-NMeFOSAA	Ave	64888	67224		51.3	49.5	3.6	50.0
13C2 PFUnA	Ave	101742	117869		57.4	49.5	15.9	50.0
d5-NEtFOSAA	Ave	63526	71035		55.4	49.5	11.8	50.0
d-N-MeFOSA-M	Ave	99549	99023		49.2	49.5	-0.5	50.0
13C2 PFDoA	Ave	100236	111260		54.9	49.5	11.0	50.0
d-N-EtFOSA-M	Ave	93251	92097		48.9	49.5	-1.2	50.0
13C2-PFTeDA	Ave	204943	239576		57.9	49.5	16.9	50.0
13C2-PFHxDA	Ave	118334	131645		55.1	49.5	11.2	50.0

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Batch Number: 164788 Batch Start Date: 05/16/17 19:25 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 05/17/17 13:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC2SU 00017	LCMPFCSU 00065
MB 320-164788/1		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
LCS 320-164788/2		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
680-138385-A-1	06GW14050417	3535, 537 (Modified)	T	292.53 g	28.47 g	264.1 mL	0.50 mL	500 uL	500 uL
680-138385-A-2	06GW03050417	3535, 537 (Modified)	T	286.66 g	27.38 g	259.3 mL	0.50 mL	500 uL	500 uL
680-138385-A-3	06FD01-050417	3535, 537 (Modified)	T	316.57 g	27.81 g	288.8 mL	0.50 mL	500 uL	500 uL
680-138385-A-4	06GW04050417	3535, 537 (Modified)	T	308.41 g	27.91 g	280.5 mL	0.50 mL	500 uL	500 uL
680-138385-A-5	06GW06050417	3535, 537 (Modified)	T	314.90 g	28.09 g	286.8 mL	0.50 mL	500 uL	500 uL
680-138385-A-6	06GW08050417	3535, 537 (Modified)	T	314.15 g	27.99 g	286.2 mL	0.50 mL	500 uL	500 uL
680-138385-A-7	06GW15050417	3535, 537 (Modified)	T	313.24 g	28.24 g	285 mL	0.50 mL	500 uL	500 uL
680-138385-A-8	06GW16050417	3535, 537 (Modified)	T	307.58 g	28.26 g	279.3 mL	0.50 mL	500 uL	500 uL
680-138385-A-9	06GW09050417	3535, 537 (Modified)	T	301.18 g	27.26 g	273.9 mL	0.50 mL	500 uL	500 uL
680-138385-A-9 MS	06GW09050417	3535, 537 (Modified)	T	304.61 g	27.57 g	277 mL	0.50 mL	500 uL	500 uL
680-138385-A-9 MSD	06GW09050417	3535, 537 (Modified)	T	301.30 g	27.86 g	273.4 mL	0.50 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFC2SP 00032	LCPFCSP 00092				
MB 320-164788/1		3535, 537 (Modified)							
LCS 320-164788/2		3535, 537 (Modified)		500 uL	500 uL				
680-138385-A-1	06GW14050417	3535, 537 (Modified)	T						
680-138385-A-2	06GW03050417	3535, 537 (Modified)	T						
680-138385-A-3	06FD01-050417	3535, 537 (Modified)	T						
680-138385-A-4	06GW04050417	3535, 537 (Modified)	T						
680-138385-A-5	06GW06050417	3535, 537 (Modified)	T						

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.

537 (Modified)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 680-138385-1

SDG No.: 680-138385

Batch Number: 164788 Batch Start Date: 05/16/17 19:25 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 05/17/17 13:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFC2SP 00032	LCPFCSP 00092				
680-138385-A-6	06GW08050417	3535, 537 (Modified)	T						
680-138385-A-7	06GW15050417	3535, 537 (Modified)	T						
680-138385-A-8	06GW16050417	3535, 537 (Modified)	T						
680-138385-A-9	06GW09050417	3535, 537 (Modified)	T						
680-138385-A-9 MS	06GW09050417	3535, 537 (Modified)	T	500 uL	500 uL				
680-138385-A-9 MSD	06GW09050417	3535, 537 (Modified)	T	500 uL	500 uL				

Batch Notes	
Balance ID	QA-070
H2O ID	5/11/17
Hexane ID	921666
Manifold ID	11,12,13
Methanol ID	924282
Sodium Hydroxide ID	924543
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Solvent Lot #	926809
Solvent Name	0.3% NH4OH/MEOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A

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.

537 (Modified)

TestAmerica Sacramento

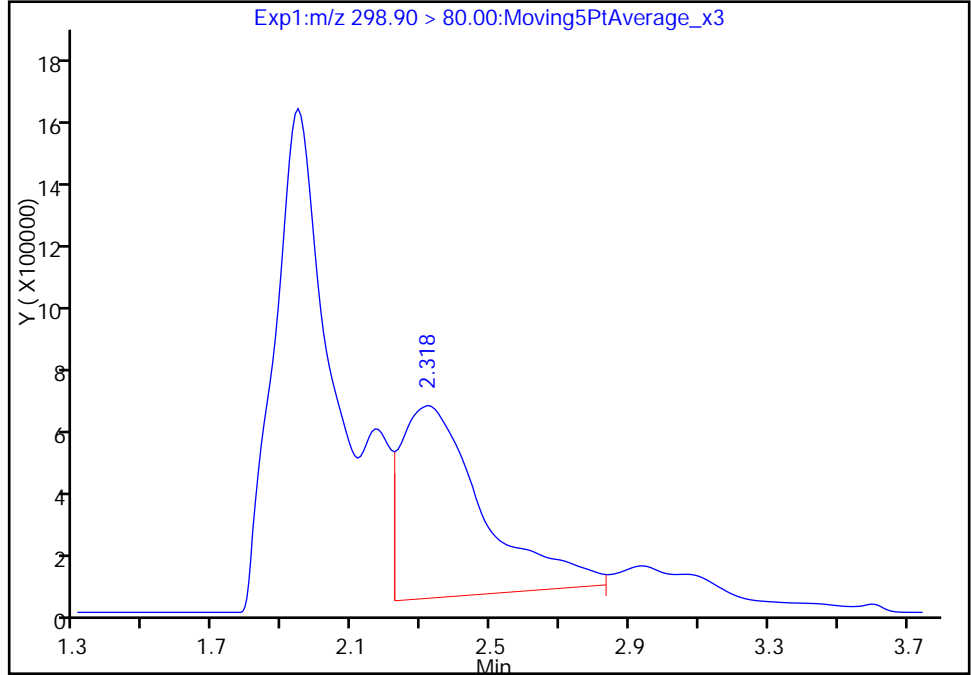
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Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

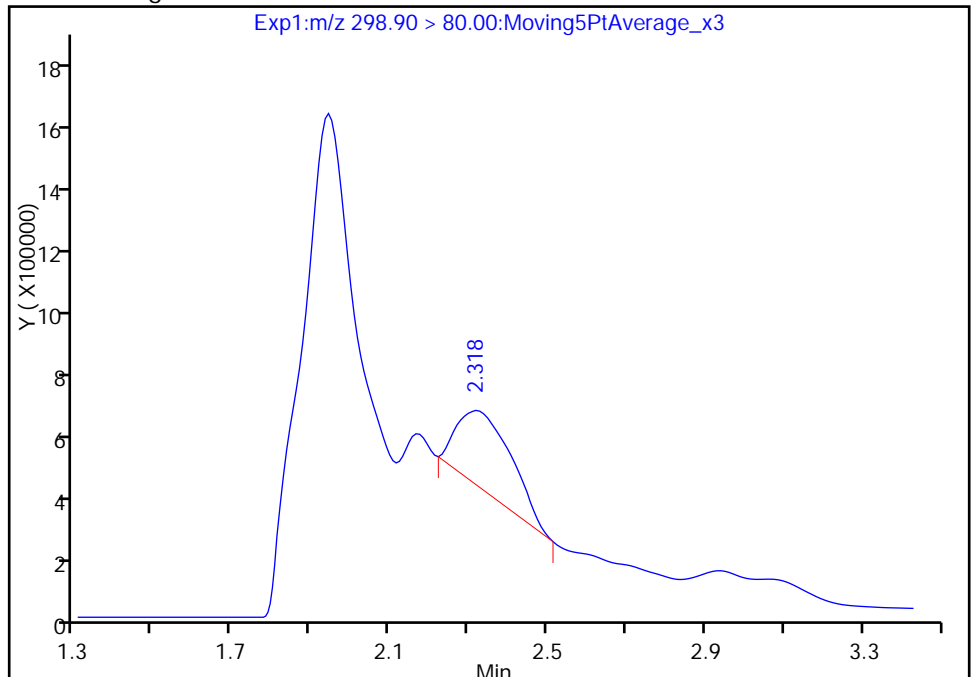
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Amount Units: ng/ml

Processing Integration Results



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Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:45
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

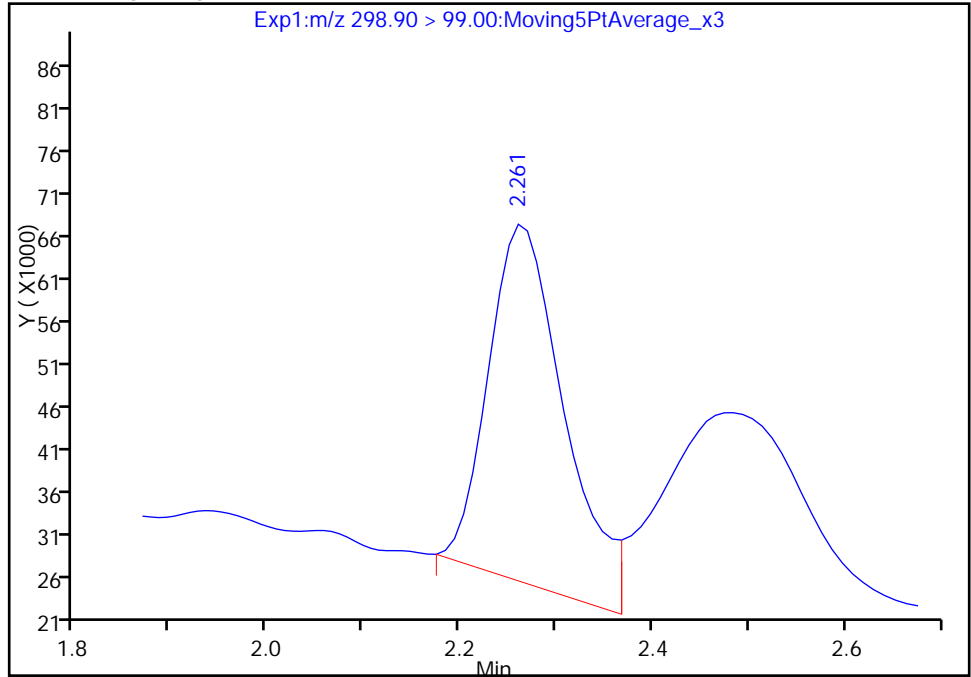
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Injection Date: 19-May-2017 12:29:19 Instrument ID: A8_N
Lims ID: 680-138385-A-5-A Lab Sample ID: 320-138385-5
Client ID: 06GW06050417
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

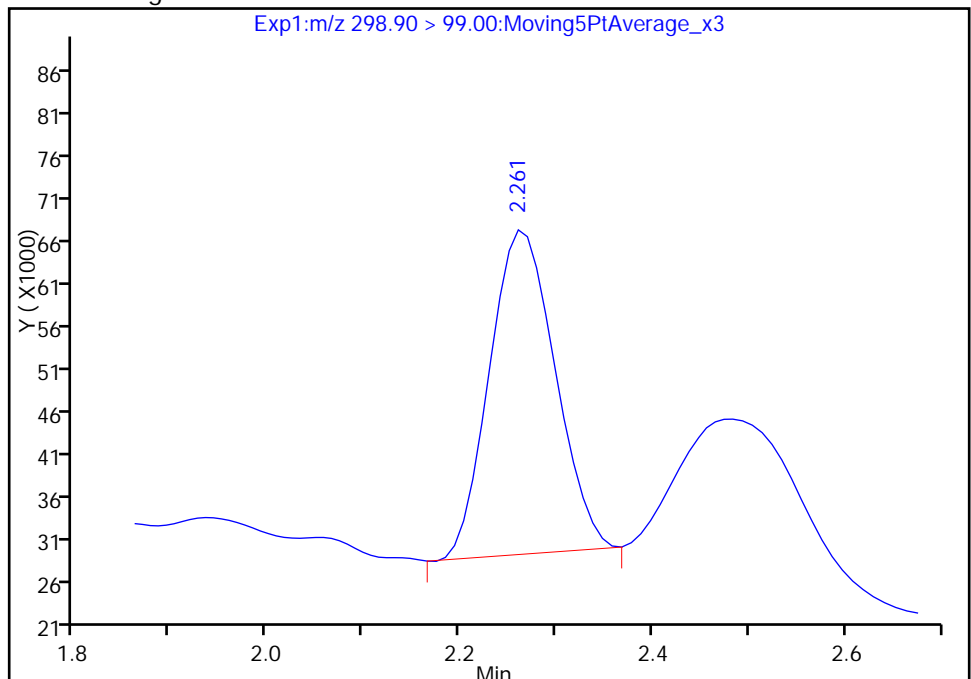
RT: 2.26
Area: 229824
Amount: 24.218511
Amount Units: ng/ml

Processing Integration Results



RT: 2.26
Area: 179008
Amount: 5.802488
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 19-May-2017 14:58:51

Audit Action: Manually Integrated

Audit Reason: Baseline

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC	RES_META_ID
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-15	Monitoring well	888775.56	317913.47	N6247016D9008	JM08	TETRA TECH, INC.	06GW15050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-3	Monitoring well	888757.846	318072.4797	N6247016D9008	JM08	TETRA TECH, INC.	06GW03050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-8	Monitoring well	888808.8527	317970.4662	N6247016D9008	JM08	TETRA TECH, INC.	06GW08050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-4	Monitoring well	888807.7901	318074.6049	N6247016D9008	JM08	TETRA TECH, INC.	06GW04050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-14	Monitoring well	888784.09	318138.17	N6247016D9008	JM08	TETRA TECH, INC.	06GW14050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-16	Monitoring well	888657.74	317944.41	N6247016D9008	JM08	TETRA TECH, INC.	06GW16050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-9	Monitoring well	888661.1458	318084.1687	N6247016D9008	JM08	TETRA TECH, INC.	06GW09050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-6	Monitoring well	888774.8483	318007.6586	N6247016D9008	JM08	TETRA TECH, INC.	06GW06050417	Ground water	Normal (Regular)	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00
SOUTHEAST	GULFPORT_NCBC	680-138385-1	SITE 00006	SITE 00006	GPT-6-3	Monitoring well	888757.846	318072.4797	N6247016D9008	JM08	TETRA TECH, INC.	06GW03050417-D	Ground water	Field duplicate	4-May-17	537	Perfluoroalkyl Compounds	20180712055911.00