



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG J26011-1**

*Naval Air Station Meridian
Meridian, Mississippi*

July 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-26011-1

Client Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

Revision: 1

For:

CH2M Hill, Inc.

2411 Dulles Corner Park

Suite 500

Herndon, Virginia 20171

Attn: Mr. Michael Zamboni



Authorized for release by:

3/27/2017 5:03:03 PM

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

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

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

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

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	6
Client Sample Results	8
Isotope Dilution Summary	14
QC Sample Results	15
QC Association Summary	17
Lab Chronicle	19
Certification Summary	26
Method Summary	27
Sample Summary	28
Chain of Custody	29
Receipt Checklists	31



Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Qualifiers

LCMS

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

Glossary

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

Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Job ID: 320-26011-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26011-1

Revision - March 27, 2017

Revision created to include PFBS in the method 537 Mod analyte list.

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

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

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

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

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

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

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

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

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

RECEIPT

The samples were received on 02/23/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.9 C.

PFAS

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.

The Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples:

Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Job ID: 320-26011-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

MEAFF-EB02-022217-SO (320-26011-10) and (MB 320-152587/1-A). These samples were reanalyzed and the results were confirmed. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-152587.

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

PERCENT SOLIDS

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

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Lab Sample ID: 320-26011-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2.6	M	0.66	0.13	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0	M	0.66	0.17	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD01-022217

Lab Sample ID: 320-26011-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.9	M	0.66	0.13	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9	M	0.66	0.17	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA1-SB02-0204

Lab Sample ID: 320-26011-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.19	J M	0.67	0.14	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.38	J M	0.67	0.17	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4B-SB01-0001

Lab Sample ID: 320-26011-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.4	M	0.62	0.13	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	26	M	0.62	0.16	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD02-022217

Lab Sample ID: 320-26011-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	4.0	M	0.60	0.12	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.15	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4B-SB01-0204

Lab Sample ID: 320-26011-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	3.2	M	0.65	0.13	ug/Kg	1	✱	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3	M	0.65	0.16	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4D-SB01-0001

Lab Sample ID: 320-26011-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.19	J M	0.58	0.12	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD03-022217

Lab Sample ID: 320-26011-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.58	0.12	ug/Kg	1	✱	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4D-SB01-0204

Lab Sample ID: 320-26011-9

No Detections.

Client Sample ID: MEAFF-EB02-022217-SO

Lab Sample ID: 320-26011-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	1.1	ng/L	1	—	537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Lab Sample ID: 320-26011-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.12	ug/Kg	1	✳	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.14	ug/Kg	1	✳	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.12	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4A-SB01-0204

Lab Sample ID: 320-26011-12

No Detections.

Client Sample ID: MEAFF-SDA4A-SB02-0001

Lab Sample ID: 320-26011-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.26	J M	0.61	0.12	ug/Kg	1	✳	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	21	M	0.61	0.15	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.12	ug/Kg	1	✳	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.15	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.72	M	0.60	0.15	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.4	M	0.67	0.17	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	0.70	0.18	ug/Kg	1	✳	537 (Modified)	Total/NA

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

No Detections.

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

No Detections.

Client Sample ID: HYDRANT BLANK-022217

Lab Sample ID: 320-26011-20

No Detections.

Client Sample ID: GROUT TANK BLANK-022217

Lab Sample ID: 320-26011-21

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	0.64	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Percent Solids: 75.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.6	M	0.66	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Perfluorooctanesulfonic acid (PFOS)	5.0	M	0.66	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				03/02/17 16:23	03/11/17 23:27	1
13C4 PFOS	34		25 - 150				03/02/17 16:23	03/11/17 23:27	1
18O2 PFHxS	90		25 - 150				03/02/17 16:23	03/11/17 23:27	1

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Percent Solids: 74.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.9	M	0.66	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Perfluorooctanesulfonic acid (PFOS)	4.9	M	0.66	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	103		25 - 150				03/02/17 16:23	03/11/17 23:35	1
13C4 PFOS	61		25 - 150				03/02/17 16:23	03/11/17 23:35	1
18O2 PFHxS	93		25 - 150				03/02/17 16:23	03/11/17 23:35	1

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Percent Solids: 73.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.19	J M	0.67	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Perfluorooctanesulfonic acid (PFOS)	0.38	J M	0.67	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				03/02/17 16:23	03/11/17 23:42	1
13C4 PFOS	48		25 - 150				03/02/17 16:23	03/11/17 23:42	1
18O2 PFHxS	92		25 - 150				03/02/17 16:23	03/11/17 23:42	1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Percent Solids: 80.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.4	M	0.62	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1
Perfluorooctanesulfonic acid (PFOS)	26	M	0.62	0.16	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.50	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Percent Solids: 80.3

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150	03/02/17 16:23	03/11/17 23:50	1
13C4 PFOS	62		25 - 150	03/02/17 16:23	03/11/17 23:50	1
18O2 PFHxS	94		25 - 150	03/02/17 16:23	03/11/17 23:50	1

Client Sample ID: MEAFF-FD02-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-5

Matrix: Solid

Percent Solids: 83.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4.0	M	0.60	0.12	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.15	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.12	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				03/02/17 16:23	03/11/17 23:57	1
13C4 PFOS	71		25 - 150				03/02/17 16:23	03/11/17 23:57	1
18O2 PFHxS	93		25 - 150				03/02/17 16:23	03/11/17 23:57	1

Client Sample ID: MEAFF-SDA4B-SB01-0204

Date Collected: 02/22/17 12:54

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-6

Matrix: Solid

Percent Solids: 78.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	3.2	M	0.65	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Perfluorooctanesulfonic acid (PFOS)	6.3	M	0.65	0.16	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.52	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	105		25 - 150				03/02/17 16:23	03/12/17 00:05	1
13C4 PFOS	39		25 - 150				03/02/17 16:23	03/12/17 00:05	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 00:05	1

Client Sample ID: MEAFF-SDA4D-SB01-0001

Date Collected: 02/22/17 13:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-7

Matrix: Solid

Percent Solids: 87.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.19	J M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	106		25 - 150				03/02/17 16:23	03/12/17 00:12	1
13C4 PFOS	42		25 - 150				03/02/17 16:23	03/12/17 00:12	1
18O2 PFHxS	91		25 - 150				03/02/17 16:23	03/12/17 00:12	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FD03-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-8

Matrix: Solid

Percent Solids: 87.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				03/02/17 16:23	03/12/17 00:28	1
13C4 PFOS	64		25 - 150				03/02/17 16:23	03/12/17 00:28	1
18O2 PFHxS	95		25 - 150				03/02/17 16:23	03/12/17 00:28	1

Client Sample ID: MEAFF-SDA4D-SB01-0204

Date Collected: 02/22/17 13:52

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-9

Matrix: Solid

Percent Solids: 91.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.11	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U M	0.55	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.11	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	103		25 - 150				03/02/17 16:23	03/12/17 00:35	1
13C4 PFOS	60		25 - 150				03/02/17 16:23	03/12/17 00:35	1
18O2 PFHxS	94		25 - 150				03/02/17 16:23	03/12/17 00:35	1

Client Sample ID: MEAFF-EB02-022217-SO

Date Collected: 02/22/17 15:05

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-10

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.2	0.66	ng/L		02/28/17 16:42	03/02/17 11:20	1
Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	1.1	ng/L		02/28/17 16:42	03/02/17 11:20	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.81	ng/L		02/28/17 16:42	03/02/17 11:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	159	Q	25 - 150				02/28/17 16:42	03/02/17 11:20	1
13C4 PFOS	140		25 - 150				02/28/17 16:42	03/02/17 11:20	1
18O2 PFHxS	143		25 - 150				02/28/17 16:42	03/02/17 11:20	1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	130		25 - 150				03/02/17 16:23	03/12/17 00:43	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Percent Solids: 86.5

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	89		25 - 150	03/02/17 16:23	03/12/17 00:43	1
18O2 PFHxS	106		25 - 150	03/02/17 16:23	03/12/17 00:43	1

Client Sample ID: MEAFF-SDA4A-SB01-0204

Date Collected: 02/22/17 15:33

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-12

Matrix: Solid

Percent Solids: 85.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.59	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				03/02/17 16:23	03/12/17 00:50	1
13C4 PFOS	32		25 - 150				03/02/17 16:23	03/12/17 00:50	1
18O2 PFHxS	89		25 - 150				03/02/17 16:23	03/12/17 00:50	1

Client Sample ID: MEAFF-SDA4A-SB02-0001

Date Collected: 02/22/17 15:39

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-13

Matrix: Solid

Percent Solids: 80.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.26	J M	0.61	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Perfluorooctanesulfonic acid (PFOS)	21	M	0.61	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.49	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	128		25 - 150				03/02/17 16:23	03/12/17 00:58	1
13C4 PFOS	74		25 - 150				03/02/17 16:23	03/12/17 00:58	1
18O2 PFHxS	95		25 - 150				03/02/17 16:23	03/12/17 00:58	1

Client Sample ID: MEAFF-SDA4A-SB02-0204

Date Collected: 02/22/17 15:43

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-14

Matrix: Solid

Percent Solids: 85.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	101		25 - 150				03/02/17 16:23	03/12/17 01:05	1
13C4 PFOS	37		25 - 150				03/02/17 16:23	03/12/17 01:05	1
18O2 PFHxS	91		25 - 150				03/02/17 16:23	03/12/17 01:05	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-WWTP-SB01-1012

Date Collected: 02/22/17 11:25

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-15

Matrix: Solid

Percent Solids: 82.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U M	0.60	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Perfluorooctanesulfonic acid (PFOS)	0.72	M	0.60	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150				03/02/17 16:23	03/12/17 01:13	1
13C4 PFOS	51		25 - 150				03/02/17 16:23	03/12/17 01:13	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 01:13	1

Client Sample ID: MEAFF-WWTP-SB03-0608

Date Collected: 02/22/17 13:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-16

Matrix: Solid

Percent Solids: 75.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.40	U M	0.67	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Perfluorooctanesulfonic acid (PFOS)	1.4	M	0.67	0.17	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.54	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	110		25 - 150				03/02/17 16:23	03/12/17 01:20	1
13C4 PFOS	56		25 - 150				03/02/17 16:23	03/12/17 01:20	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 01:20	1

Client Sample ID: MEAFF-WWTP-SB02-1012

Date Collected: 02/22/17 14:30

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-17

Matrix: Solid

Percent Solids: 71.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.42	U M	0.70	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	0.70	0.18	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Perfluorobutanesulfonic acid (PFBS)	0.42	U	0.56	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	107		25 - 150				03/02/17 16:23	03/12/17 01:28	1
13C4 PFOS	52		25 - 150				03/02/17 16:23	03/12/17 01:28	1
18O2 PFHxS	99		25 - 150				03/02/17 16:23	03/12/17 01:28	1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Date Collected: 02/22/17 15:45

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-18

Matrix: Solid

Percent Solids: 84.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U	0.59	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.59	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	86		25 - 150				03/02/17 16:23	03/12/17 01:58	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

Date Collected: 02/22/17 15:45

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.4

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	46		25 - 150	03/02/17 16:23	03/12/17 01:58	1
18O2 PFHxS	78		25 - 150	03/02/17 16:23	03/12/17 01:58	1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

Date Collected: 02/22/17 15:50

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	81		25 - 150				03/02/17 16:23	03/12/17 03:05	1
13C4 PFOS	39		25 - 150				03/02/17 16:23	03/12/17 03:05	1
18O2 PFHxS	80		25 - 150				03/02/17 16:23	03/12/17 03:05	1

Client Sample ID: HYDRANT BLANK-022217

Lab Sample ID: 320-26011-20

Date Collected: 02/22/17 08:35

Matrix: Water

Date Received: 02/23/17 09:55

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.3	0.67	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	1.2	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.83	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				02/28/17 16:42	03/02/17 11:27	1
13C4 PFOS	132		25 - 150				02/28/17 16:42	03/02/17 11:27	1
18O2 PFHxS	135		25 - 150				02/28/17 16:42	03/02/17 11:27	1

Client Sample ID: GROUT TANK BLANK-022217

Lab Sample ID: 320-26011-21

Date Collected: 02/22/17 09:20

Matrix: Water

Date Received: 02/23/17 09:55

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	0.64	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	1.1	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Perfluorobutanesulfonic acid (PFBS)	1.7	U	2.1	0.79	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				02/28/17 16:42	03/02/17 11:35	1
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/02/17 11:35	1
18O2 PFHxS	138		25 - 150				02/28/17 16:42	03/02/17 11:35	1

TestAmerica Sacramento

Isotope Dilution Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO/ (25-150)	3O2 PFHx (25-150)
320-26011-1	MEAFF-FTA1-SB01-0204	94	34	90
320-26011-2	MEAFF-FD01-022217	103	61	93
320-26011-3	MEAFF-FTA1-SB02-0204	98	48	92
320-26011-4	MEAFF-SDA4B-SB01-0001	108	62	94
320-26011-5	MEAFF-FD02-022217	113	71	93
320-26011-6	MEAFF-SDA4B-SB01-0204	105	39	98
320-26011-7	MEAFF-SDA4D-SB01-0001	106	42	91
320-26011-8	MEAFF-FD03-022217	113	64	95
320-26011-9	MEAFF-SDA4D-SB01-0204	103	60	94
320-26011-11	MEAFF-SDA4A-SB01-0001	130	89	106
320-26011-12	MEAFF-SDA4A-SB01-0204	98	32	89
320-26011-13	MEAFF-SDA4A-SB02-0001	128	74	95
320-26011-14	MEAFF-SDA4A-SB02-0204	101	37	91
320-26011-15	MEAFF-WWTP-SB01-1012	108	51	98
320-26011-16	MEAFF-WWTP-SB03-0608	110	56	98
320-26011-17	MEAFF-WWTP-SB02-1012	107	52	99
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	98	59	91
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	110	61	106
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	86	46	78
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	81	39	80
LCS 320-152953/2-A	Lab Control Sample	109	95	101
MB 320-152953/1-A	Method Blank	133	111	119

Surrogate Legend

13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
18O2 PFHxS = 18O2 PFHxS

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO/ (25-150)	3O2 PFHx (25-150)
320-26011-10	MEAFF-EB02-022217-SO	159 Q	140	143
320-26011-20	HYDRANT BLANK-022217	98	132	135
320-26011-21	GROUT TANK BLANK-022217	113	138	138
LCS 320-152587/2-A	Lab Control Sample	142	133	136
LCSD 320-152587/3-A	Lab Control Sample Dup	142	135	140
MB 320-152587/1-A	Method Blank	158 Q	138	145

Surrogate Legend

13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
18O2 PFHxS = 18O2 PFHxS

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-152587/1-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152587

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	0.75	ng/L		02/28/17 16:42	03/02/17 10:35	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3	ng/L		02/28/17 16:42	03/02/17 10:35	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		02/28/17 16:42	03/02/17 10:35	1
Isotope Dilution	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	158	Q	25 - 150				02/28/17 16:42	03/02/17 10:35	1
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/02/17 10:35	1
18O2 PFHxS	145		25 - 150				02/28/17 16:42	03/02/17 10:35	1

Lab Sample ID: LCS 320-152587/2-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		97	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6		ng/L		96	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	39.5		ng/L		112	50 - 150
Isotope Dilution	%Recovery	LCS Qualifier	Limits				
13C4 PFOA	142		25 - 150				
13C4 PFOS	133		25 - 150				
18O2 PFHxS	136		25 - 150				

Lab Sample ID: LCSD 320-152587/3-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 152587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	40.0	38.5		ng/L		96	60 - 140	0	30
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6	M	ng/L		96	60 - 140	0	30
Perfluorobutanesulfonic acid (PFBS)	35.4	40.3	M	ng/L		114	50 - 150	2	30
Isotope Dilution	%Recovery	LCSD Qualifier	Limits						
13C4 PFOA	142		25 - 150						
13C4 PFOS	135		25 - 150						
18O2 PFHxS	140		25 - 150						

Lab Sample ID: MB 320-152953/1-A

Matrix: Solid

Analysis Batch: 154516

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152953

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		03/02/17 16:23	03/11/17 23:12	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		03/02/17 16:23	03/11/17 23:12	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		03/02/17 16:23	03/11/17 23:12	1

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	133		25 - 150
13C4 PFOS	111		25 - 150
18O2 PFHxS	119		25 - 150

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
03/02/17 16:23	03/11/17 23:12	1
03/02/17 16:23	03/11/17 23:12	1
03/02/17 16:23	03/11/17 23:12	1

Lab Sample ID: LCS 320-152953/2-A
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152953

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
Perfluorooctanoic acid (PFOA)	4.00	4.09		ug/Kg		102	60 - 140
Perfluorooctanesulfonic acid (PFOS)	3.71	3.78	M	ug/Kg		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	4.00		ug/Kg		113	50 - 150

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	109		25 - 150
13C4 PFOS	95		25 - 150
18O2 PFHxS	101		25 - 150

Lab Sample ID: 320-26011-17 MS
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: MEAFF-WWTP-SB02-1012-MS
Prep Type: Total/NA
Prep Batch: 152953

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
Perfluorooctanoic acid (PFOA)	0.42	U M	5.58	5.56		ug/Kg	☼	100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	5.18	5.49	M	ug/Kg	☼	102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.42	U	4.93	6.26		ug/Kg	☼	127	50 - 150

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	98		25 - 150
13C4 PFOS	59		25 - 150
18O2 PFHxS	91		25 - 150

Lab Sample ID: 320-26011-17 MSD
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: MEAFF-WWTP-SB02-1012-SD
Prep Type: Total/NA
Prep Batch: 152953

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorooctanoic acid (PFOA)	0.42	U M	5.62	5.79		ug/Kg	☼	103	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	5.22	5.75	M	ug/Kg	☼	106	60 - 140	5	30
Perfluorobutanesulfonic acid (PFBS)	0.42	U	4.97	6.21		ug/Kg	☼	125	50 - 150	1	30

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	110		25 - 150
13C4 PFOS	61		25 - 150
18O2 PFHxS	106		25 - 150

TestAmerica Sacramento

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

LCMS

Prep Batch: 152587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-10	MEAFF-EB02-022217-SO	Total/NA	Water	3535	
320-26011-20	HYDRANT BLANK-022217	Total/NA	Water	3535	
320-26011-21	GROUT TANK BLANK-022217	Total/NA	Water	3535	
MB 320-152587/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-152587/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-152587/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 152836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-10	MEAFF-EB02-022217-SO	Total/NA	Water	537 (Modified)	152587
320-26011-20	HYDRANT BLANK-022217	Total/NA	Water	537 (Modified)	152587
320-26011-21	GROUT TANK BLANK-022217	Total/NA	Water	537 (Modified)	152587
MB 320-152587/1-A	Method Blank	Total/NA	Water	537 (Modified)	152587
LCS 320-152587/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	152587
LCSD 320-152587/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	152587

Prep Batch: 152953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	SHAKE	
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	SHAKE	
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	SHAKE	
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	SHAKE	
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	SHAKE	
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	SHAKE	
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	SHAKE	
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	SHAKE	
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	SHAKE	
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	SHAKE	
MB 320-152953/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-152953/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	Total/NA	Solid	SHAKE	
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	Total/NA	Solid	SHAKE	

Analysis Batch: 154516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	537 (Modified)	152953
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	537 (Modified)	152953
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	537 (Modified)	152953

TestAmerica Sacramento

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

LCMS (Continued)

Analysis Batch: 154516 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	537 (Modified)	152953
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	537 (Modified)	152953
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	537 (Modified)	152953
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	537 (Modified)	152953
MB 320-152953/1-A	Method Blank	Total/NA	Solid	537 (Modified)	152953
LCS 320-152953/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	152953
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	Total/NA	Solid	537 (Modified)	152953
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	Total/NA	Solid	537 (Modified)	152953

General Chemistry

Analysis Batch: 152217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	D 2216	
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	D 2216	
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	D 2216	
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	D 2216	
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	D 2216	
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	D 2216	
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	D 2216	
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	D 2216	
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	D 2216	
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	D 2216	
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	D 2216	
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	D 2216	
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	D 2216	
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	D 2216	
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	D 2216	
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	D 2216	
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	D 2216	
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	D 2216	

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Percent Solids: 75.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/11/17 23:27	TC1	TAL SAC

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Percent Solids: 74.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/11/17 23:35	TC1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/11/17 23:42	TC1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Lab Sample ID: 320-26011-4

Date Collected: 02/22/17 12:47

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0001

Lab Sample ID: 320-26011-4

Date Collected: 02/22/17 12:47

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/11/17 23:50	TC1	TAL SAC

Client Sample ID: MEAFF-FD02-022217

Lab Sample ID: 320-26011-5

Date Collected: 02/22/17 00:00

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD02-022217

Lab Sample ID: 320-26011-5

Date Collected: 02/22/17 00:00

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/11/17 23:57	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0204

Lab Sample ID: 320-26011-6

Date Collected: 02/22/17 12:54

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0204

Lab Sample ID: 320-26011-6

Date Collected: 02/22/17 12:54

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 78.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.94 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:05	TC1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4D-SB01-0001

Lab Sample ID: 320-26011-7

Date Collected: 02/22/17 13:50

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0001

Lab Sample ID: 320-26011-7

Date Collected: 02/22/17 13:50

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.92 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:12	TC1	TAL SAC

Client Sample ID: MEAFF-FD03-022217

Lab Sample ID: 320-26011-8

Date Collected: 02/22/17 00:00

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD03-022217

Lab Sample ID: 320-26011-8

Date Collected: 02/22/17 00:00

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.96 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:28	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0204

Lab Sample ID: 320-26011-9

Date Collected: 02/22/17 13:52

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0204

Lab Sample ID: 320-26011-9

Date Collected: 02/22/17 13:52

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.98 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:35	TC1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-EB02-022217-SO

Lab Sample ID: 320-26011-10

Date Collected: 02/22/17 15:05

Matrix: Water

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284.5 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			152836	03/02/17 11:20	SBC	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0001

Lab Sample ID: 320-26011-11

Date Collected: 02/22/17 15:26

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0001

Lab Sample ID: 320-26011-11

Date Collected: 02/22/17 15:26

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:43	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0204

Lab Sample ID: 320-26011-12

Date Collected: 02/22/17 15:33

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0204

Lab Sample ID: 320-26011-12

Date Collected: 02/22/17 15:33

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.96 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:50	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0001

Lab Sample ID: 320-26011-13

Date Collected: 02/22/17 15:39

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB02-0001

Lab Sample ID: 320-26011-13

Date Collected: 02/22/17 15:39

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.06 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 00:58	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Date Collected: 02/22/17 15:43

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Date Collected: 02/22/17 15:43

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 01:05	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Date Collected: 02/22/17 11:25

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Date Collected: 02/22/17 11:25

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 01:13	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Date Collected: 02/22/17 13:55

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Date Collected: 02/22/17 13:55

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.92 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 01:20	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Date Collected: 02/22/17 14:30

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Date Collected: 02/22/17 14:30

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 71.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 01:28	TC1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

Date Collected: 02/22/17 15:45

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

Date Collected: 02/22/17 15:45

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 01:58	TC1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

Date Collected: 02/22/17 15:50

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			152217	02/25/17 13:20	EP1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

Date Collected: 02/22/17 15:50

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1 mL	152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154516	03/12/17 03:05	TC1	TAL SAC

Client Sample ID: HYDRANT BLANK-022217

Lab Sample ID: 320-26011-20

Date Collected: 02/22/17 08:35

Matrix: Water

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277.1 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			152836	03/02/17 11:27	SBC	TAL SAC

Client Sample ID: GROUT TANK BLANK-022217

Lab Sample ID: 320-26011-21

Date Collected: 02/22/17 09:20

Matrix: Water

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			291.7 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			152836	03/02/17 11:35	SBC	TAL SAC

Laboratory References:

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

Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17 *
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17 *
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method	Method Description	Protocol	Laboratory
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: CH2M Hill, Inc.

TestAmerica Job ID: 320-26011-1

Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26011-1	MEAFF-FTA1-SB01-0204	Solid	02/22/17 10:40	02/23/17 09:55
320-26011-2	MEAFF-FD01-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-3	MEAFF-FTA1-SB02-0204	Solid	02/22/17 09:55	02/23/17 09:55
320-26011-4	MEAFF-SDA4B-SB01-0001	Solid	02/22/17 12:47	02/23/17 09:55
320-26011-5	MEAFF-FD02-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-6	MEAFF-SDA4B-SB01-0204	Solid	02/22/17 12:54	02/23/17 09:55
320-26011-7	MEAFF-SDA4D-SB01-0001	Solid	02/22/17 13:50	02/23/17 09:55
320-26011-8	MEAFF-FD03-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-9	MEAFF-SDA4D-SB01-0204	Solid	02/22/17 13:52	02/23/17 09:55
320-26011-10	MEAFF-EB02-022217-SO	Water	02/22/17 15:05	02/23/17 09:55
320-26011-11	MEAFF-SDA4A-SB01-0001	Solid	02/22/17 15:26	02/23/17 09:55
320-26011-12	MEAFF-SDA4A-SB01-0204	Solid	02/22/17 15:33	02/23/17 09:55
320-26011-13	MEAFF-SDA4A-SB02-0001	Solid	02/22/17 15:39	02/23/17 09:55
320-26011-14	MEAFF-SDA4A-SB02-0204	Solid	02/22/17 15:43	02/23/17 09:55
320-26011-15	MEAFF-WWTP-SB01-1012	Solid	02/22/17 11:25	02/23/17 09:55
320-26011-16	MEAFF-WWTP-SB03-0608	Solid	02/22/17 13:55	02/23/17 09:55
320-26011-17	MEAFF-WWTP-SB02-1012	Solid	02/22/17 14:30	02/23/17 09:55
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Solid	02/22/17 15:45	02/23/17 09:55
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Solid	02/22/17 15:50	02/23/17 09:55
320-26011-20	HYDRANT BLANK-022217	Water	02/22/17 08:35	02/23/17 09:55
320-26011-21	GROUT TANK BLANK-022217	Water	02/22/17 09:20	02/23/17 09:55

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Bryan Burkingstock		Site Contact: Ryan Brown		Date: 2/22/17		COC No: 2	
Tel/Fax:		Analysis Turnaround Time		Lab Contact: Jill Kellmann		Carrier: FedEx		2 of 2 COCs	
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600 Atlanta, GA 30328		CALENDAR DAYS ☐ WORKING DAYS ☒		PFC (Method EPA 821-R)					
(678) 530-4060 Phone (770) 604-9183 FAX		TAT if different from Below 2B		Perform MS/MSD (Y/N)					
Project Name: Meridian 10006-7-105420 JM01 Navy Clean		☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Filtered Sample (Y/N)					
Site: NAS Meridian									
P O #: 10006-7-105420									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
MEAFF-SDA4A-SB02-0001		2/22/17	1539		SO	1			
MEAFF-SDA4A-SB02-0204			1543						
MEAFF-WWTP-SB01-1012			1255						
MEAFF-WWTP-SB03-0608			1355						
MEAFF-WWTP-SB02-1012			1430						
MEAFF-WWTP-SB02-1012-HS									
MEAFF-WWTP-SB02-1012-SD									
MEAFF-Unknown 22-SB01-0001			1545						
MEAFF-Unknown 22-SB01-0204			1550						
Hydrant Blank-022217			0835						
Grout Tank Blank-022217			0920						
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown Special Instructions/QC Requirements & Comments: Send results to Mike Lamborn - address should be on file									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: Ryan Brown		Company: CH2M		Received by: Mike Lamborn		Company: TAWS		Date/Time: 2/23/17 9:55	
Relinquished by:		Company:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Received in Laboratory by:		Company:		Date/Time:	

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26011-1

Login Number: 26011

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

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

ANALYTICAL REPORT

Job Number: 320-26011-1

Job Description: Meridian 10006-7-105420 JM01 Navy Clean

For:
CH2M Hill, Inc.
2411 Dulles Corner Park
Suite 500
Herndon, VA 20171
Attention: Mr. Michael Zamboni



Approved for release.
Jill Kellmann
Manager of Project Management
3/27/2017 5:06 PM

Jill Kellmann, Manager of Project Management
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4402
jill.kellmann@testamericainc.com
03/27/2017
Revision: 1

Table of Contents

Cover Title Page	1
Data Summaries	4
Definitions	4
Case Narrative	5
Detection Summary	6
Client Sample Results	8
Default Detection Limits	14
Isotope Dilution Summary	15
QC Sample Results	16
QC Association	18
Chronicle	20
Certification Summary	27
Method Summary	28
Sample Summary	29
Manual Integration Summary	30
Reagent Traceability	44
COAs	72
Organic Sample Data	297
LCMS	297
Method PFC DOD	297
Method PFC DOD QC Summary	298
Method PFC DOD Sample Data	307
Standards Data	465
Method PFC DOD ICAL Data	465
Method PFC DOD CCAL Data	536
Raw QC Data	652

Table of Contents

Method PFC DOD Blank Data	652
Method PFC DOD LCS/LCSD Data	672
Method PFC DOD MS/MSD Data	703
Method PFC DOD Run Logs	725
Method PFC DOD Prep Data	730
Inorganic Sample Data	770
General Chemistry Data	770
Gen Chem Cover Page	771
Gen Chem MDL	772
Gen Chem Analysis Run Log	774
Gen Chem Prep Data	775
Gen Chem Raw Data	777
Shipping and Receiving Documents	778
Client Chain of Custody	779
Sample Receipt Checklist	781

Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Qualifiers

LCMS

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

Glossary

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

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26011-1

Revision - March 27, 2017

Revision created to include PFBS in the method 537 Mod analyte list.

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

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

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

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

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

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

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

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

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

RECEIPT

The samples were received on 02/23/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.9 C.

PFAS

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.

The Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: MEAFF-EB02-022217-SO (320-26011-10) and (MB 320-152587/1-A). These samples were reanalyzed and the results were confirmed. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-152587.

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

PERCENT SOLIDS

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

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Lab Sample ID: 320-26011-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2.6	M	0.66	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0	M	0.66	0.17	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD01-022217

Lab Sample ID: 320-26011-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.9	M	0.66	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9	M	0.66	0.17	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA1-SB02-0204

Lab Sample ID: 320-26011-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.19	J M	0.67	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.38	J M	0.67	0.17	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4B-SB01-0001

Lab Sample ID: 320-26011-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.4	M	0.62	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	26	M	0.62	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD02-022217

Lab Sample ID: 320-26011-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	4.0	M	0.60	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4B-SB01-0204

Lab Sample ID: 320-26011-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	3.2	M	0.65	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3	M	0.65	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4D-SB01-0001

Lab Sample ID: 320-26011-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.19	J M	0.58	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD03-022217

Lab Sample ID: 320-26011-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.58	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4D-SB01-0204

Lab Sample ID: 320-26011-9

No Detections.

Client Sample ID: MEAFF-EB02-022217-SO

Lab Sample ID: 320-26011-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	1.1	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Lab Sample ID: 320-26011-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4A-SB01-0204

Lab Sample ID: 320-26011-12

No Detections.

Client Sample ID: MEAFF-SDA4A-SB02-0001

Lab Sample ID: 320-26011-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.26	J M	0.61	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	21	M	0.61	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.72	M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.4	M	0.67	0.17	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	0.70	0.18	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

No Detections.

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

No Detections.

Client Sample ID: HYDRANT BLANK-022217

Lab Sample ID: 320-26011-20

No Detections.

Client Sample ID: GROUT TANK BLANK-022217

Lab Sample ID: 320-26011-21

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	0.64	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Percent Solids: 75.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.6	M	0.66	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Perfluorooctanesulfonic acid (PFOS)	5.0	M	0.66	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				03/02/17 16:23	03/11/17 23:27	1
13C4 PFOS	34		25 - 150				03/02/17 16:23	03/11/17 23:27	1
18O2 PFHxS	90		25 - 150				03/02/17 16:23	03/11/17 23:27	1

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Percent Solids: 74.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.9	M	0.66	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Perfluorooctanesulfonic acid (PFOS)	4.9	M	0.66	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	103		25 - 150				03/02/17 16:23	03/11/17 23:35	1
13C4 PFOS	61		25 - 150				03/02/17 16:23	03/11/17 23:35	1
18O2 PFHxS	93		25 - 150				03/02/17 16:23	03/11/17 23:35	1

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Percent Solids: 73.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.19	J M	0.67	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Perfluorooctanesulfonic acid (PFOS)	0.38	J M	0.67	0.17	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.14	ug/Kg	☼	03/02/17 16:23	03/11/17 23:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				03/02/17 16:23	03/11/17 23:42	1
13C4 PFOS	48		25 - 150				03/02/17 16:23	03/11/17 23:42	1
18O2 PFHxS	92		25 - 150				03/02/17 16:23	03/11/17 23:42	1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Percent Solids: 80.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.4	M	0.62	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1
Perfluorooctanesulfonic acid (PFOS)	26	M	0.62	0.16	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.50	0.13	ug/Kg	☼	03/02/17 16:23	03/11/17 23:50	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Percent Solids: 80.3

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150	03/02/17 16:23	03/11/17 23:50	1
13C4 PFOS	62		25 - 150	03/02/17 16:23	03/11/17 23:50	1
18O2 PFHxS	94		25 - 150	03/02/17 16:23	03/11/17 23:50	1

Client Sample ID: MEAFF-FD02-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-5

Matrix: Solid

Percent Solids: 83.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4.0	M	0.60	0.12	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.15	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.12	ug/Kg	☼	03/02/17 16:23	03/11/17 23:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				03/02/17 16:23	03/11/17 23:57	1
13C4 PFOS	71		25 - 150				03/02/17 16:23	03/11/17 23:57	1
18O2 PFHxS	93		25 - 150				03/02/17 16:23	03/11/17 23:57	1

Client Sample ID: MEAFF-SDA4B-SB01-0204

Date Collected: 02/22/17 12:54

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-6

Matrix: Solid

Percent Solids: 78.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	3.2	M	0.65	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Perfluorooctanesulfonic acid (PFOS)	6.3	M	0.65	0.16	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.52	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	105		25 - 150				03/02/17 16:23	03/12/17 00:05	1
13C4 PFOS	39		25 - 150				03/02/17 16:23	03/12/17 00:05	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 00:05	1

Client Sample ID: MEAFF-SDA4D-SB01-0001

Date Collected: 02/22/17 13:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-7

Matrix: Solid

Percent Solids: 87.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.19	J M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	106		25 - 150				03/02/17 16:23	03/12/17 00:12	1
13C4 PFOS	42		25 - 150				03/02/17 16:23	03/12/17 00:12	1
18O2 PFHxS	91		25 - 150				03/02/17 16:23	03/12/17 00:12	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FD03-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-8

Matrix: Solid

Percent Solids: 87.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				03/02/17 16:23	03/12/17 00:28	1
13C4 PFOS	64		25 - 150				03/02/17 16:23	03/12/17 00:28	1
18O2 PFHxS	95		25 - 150				03/02/17 16:23	03/12/17 00:28	1

Client Sample ID: MEAFF-SDA4D-SB01-0204

Date Collected: 02/22/17 13:52

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-9

Matrix: Solid

Percent Solids: 91.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.11	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U M	0.55	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.11	ug/Kg	☼	03/02/17 16:23	03/12/17 00:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	103		25 - 150				03/02/17 16:23	03/12/17 00:35	1
13C4 PFOS	60		25 - 150				03/02/17 16:23	03/12/17 00:35	1
18O2 PFHxS	94		25 - 150				03/02/17 16:23	03/12/17 00:35	1

Client Sample ID: MEAFF-EB02-022217-SO

Date Collected: 02/22/17 15:05

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-10

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.2	0.66	ng/L	—	02/28/17 16:42	03/02/17 11:20	1
Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	1.1	ng/L	—	02/28/17 16:42	03/02/17 11:20	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.81	ng/L	—	02/28/17 16:42	03/02/17 11:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	159	Q	25 - 150				02/28/17 16:42	03/02/17 11:20	1
13C4 PFOS	140		25 - 150				02/28/17 16:42	03/02/17 11:20	1
18O2 PFHxS	143		25 - 150				02/28/17 16:42	03/02/17 11:20	1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	130		25 - 150				03/02/17 16:23	03/12/17 00:43	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Percent Solids: 86.5

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C4 PFOS	89		25 - 150	03/02/17 16:23	03/12/17 00:43	1
¹⁸ O2 PFHxS	106		25 - 150	03/02/17 16:23	03/12/17 00:43	1

Client Sample ID: MEAFF-SDA4A-SB01-0204

Date Collected: 02/22/17 15:33

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-12

Matrix: Solid

Percent Solids: 85.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.59	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	98		25 - 150				03/02/17 16:23	03/12/17 00:50	1
¹³ C4 PFOS	32		25 - 150				03/02/17 16:23	03/12/17 00:50	1
¹⁸ O2 PFHxS	89		25 - 150				03/02/17 16:23	03/12/17 00:50	1

Client Sample ID: MEAFF-SDA4A-SB02-0001

Date Collected: 02/22/17 15:39

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-13

Matrix: Solid

Percent Solids: 80.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.26	J M	0.61	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Perfluorooctanesulfonic acid (PFOS)	21	M	0.61	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.49	0.13	ug/Kg	☼	03/02/17 16:23	03/12/17 00:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	128		25 - 150				03/02/17 16:23	03/12/17 00:58	1
¹³ C4 PFOS	74		25 - 150				03/02/17 16:23	03/12/17 00:58	1
¹⁸ O2 PFHxS	95		25 - 150				03/02/17 16:23	03/12/17 00:58	1

Client Sample ID: MEAFF-SDA4A-SB02-0204

Date Collected: 02/22/17 15:43

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-14

Matrix: Solid

Percent Solids: 85.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	101		25 - 150				03/02/17 16:23	03/12/17 01:05	1
¹³ C4 PFOS	37		25 - 150				03/02/17 16:23	03/12/17 01:05	1
¹⁸ O2 PFHxS	91		25 - 150				03/02/17 16:23	03/12/17 01:05	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-WWTP-SB01-1012

Date Collected: 02/22/17 11:25

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-15

Matrix: Solid

Percent Solids: 82.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U M	0.60	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Perfluorooctanesulfonic acid (PFOS)	0.72	M	0.60	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150				03/02/17 16:23	03/12/17 01:13	1
13C4 PFOS	51		25 - 150				03/02/17 16:23	03/12/17 01:13	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 01:13	1

Client Sample ID: MEAFF-WWTP-SB03-0608

Date Collected: 02/22/17 13:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-16

Matrix: Solid

Percent Solids: 75.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.40	U M	0.67	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Perfluorooctanesulfonic acid (PFOS)	1.4	M	0.67	0.17	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.54	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	110		25 - 150				03/02/17 16:23	03/12/17 01:20	1
13C4 PFOS	56		25 - 150				03/02/17 16:23	03/12/17 01:20	1
18O2 PFHxS	98		25 - 150				03/02/17 16:23	03/12/17 01:20	1

Client Sample ID: MEAFF-WWTP-SB02-1012

Date Collected: 02/22/17 14:30

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-17

Matrix: Solid

Percent Solids: 71.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.42	U M	0.70	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	0.70	0.18	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Perfluorobutanesulfonic acid (PFBS)	0.42	U	0.56	0.14	ug/Kg	☼	03/02/17 16:23	03/12/17 01:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	107		25 - 150				03/02/17 16:23	03/12/17 01:28	1
13C4 PFOS	52		25 - 150				03/02/17 16:23	03/12/17 01:28	1
18O2 PFHxS	99		25 - 150				03/02/17 16:23	03/12/17 01:28	1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Date Collected: 02/22/17 15:45

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-18

Matrix: Solid

Percent Solids: 84.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U	0.59	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.59	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 01:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	86		25 - 150				03/02/17 16:23	03/12/17 01:58	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Date Collected: 02/22/17 15:45

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-18

Matrix: Solid

Percent Solids: 84.4

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	46		25 - 150	03/02/17 16:23	03/12/17 01:58	1
18O2 PFHxS	78		25 - 150	03/02/17 16:23	03/12/17 01:58	1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Date Collected: 02/22/17 15:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-19

Matrix: Solid

Percent Solids: 84.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	03/02/17 16:23	03/12/17 03:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	81		25 - 150				03/02/17 16:23	03/12/17 03:05	1
13C4 PFOS	39		25 - 150				03/02/17 16:23	03/12/17 03:05	1
18O2 PFHxS	80		25 - 150				03/02/17 16:23	03/12/17 03:05	1

Client Sample ID: HYDRANT BLANK-022217

Date Collected: 02/22/17 08:35

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-20

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.3	0.67	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	1.2	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.83	ng/L	—	02/28/17 16:42	03/02/17 11:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				02/28/17 16:42	03/02/17 11:27	1
13C4 PFOS	132		25 - 150				02/28/17 16:42	03/02/17 11:27	1
18O2 PFHxS	135		25 - 150				02/28/17 16:42	03/02/17 11:27	1

Client Sample ID: GROUT TANK BLANK-022217

Date Collected: 02/22/17 09:20

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-21

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	0.64	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	1.1	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Perfluorobutanesulfonic acid (PFBS)	1.7	U	2.1	0.79	ng/L	—	02/28/17 16:42	03/02/17 11:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	113		25 - 150				02/28/17 16:42	03/02/17 11:35	1
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/02/17 11:35	1
18O2 PFHxS	138		25 - 150				02/28/17 16:42	03/02/17 11:35	1

Default Detection Limits

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: 3535

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	2.5	0.92	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)

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: SHAKE

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	0.40	0.10	ug/Kg	537 (Modified)
Perfluorooctanesulfonic acid (PFOS)	0.50	0.13	ug/Kg	537 (Modified)
Perfluorooctanoic acid (PFOA)	0.50	0.10	ug/Kg	537 (Modified)

Isotope Dilution Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-26011-1	MEAFF-FTA1-SB01-0204	94	34	90
320-26011-2	MEAFF-FD01-022217	103	61	93
320-26011-3	MEAFF-FTA1-SB02-0204	98	48	92
320-26011-4	MEAFF-SDA4B-SB01-0001	108	62	94
320-26011-5	MEAFF-FD02-022217	113	71	93
320-26011-6	MEAFF-SDA4B-SB01-0204	105	39	98
320-26011-7	MEAFF-SDA4D-SB01-0001	106	42	91
320-26011-8	MEAFF-FD03-022217	113	64	95
320-26011-9	MEAFF-SDA4D-SB01-0204	103	60	94
320-26011-11	MEAFF-SDA4A-SB01-0001	130	89	106
320-26011-12	MEAFF-SDA4A-SB01-0204	98	32	89
320-26011-13	MEAFF-SDA4A-SB02-0001	128	74	95
320-26011-14	MEAFF-SDA4A-SB02-0204	101	37	91
320-26011-15	MEAFF-WWTP-SB01-1012	108	51	98
320-26011-16	MEAFF-WWTP-SB03-0608	110	56	98
320-26011-17	MEAFF-WWTP-SB02-1012	107	52	99
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	98	59	91
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	110	61	106
320-26011-18	MEAFF-UNKNOWN22-SB01-00	86	46	78
320-26011-19	MEAFF-UNKNOWN22-SB01-02	81	39	80
LCS 320-152953/2-A	Lab Control Sample	109	95	101
MB 320-152953/1-A	Method Blank	133	111	119

Surrogate Legend

13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
18O2 PFHxS = 18O2 PFHxS

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-26011-10	MEAFF-EB02-022217-SO	159 Q	140	143
320-26011-20	HYDRANT BLANK-022217	98	132	135
320-26011-21	GROUT TANK BLANK-022217	113	138	138
LCS 320-152587/2-A	Lab Control Sample	142	133	136
LCSD 320-152587/3-A	Lab Control Sample Dup	142	135	140
MB 320-152587/1-A	Method Blank	158 Q	138	145

Surrogate Legend

13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
18O2 PFHxS = 18O2 PFHxS

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-152587/1-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152587

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	0.75	ng/L		02/28/17 16:42	03/02/17 10:35	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3	ng/L		02/28/17 16:42	03/02/17 10:35	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		02/28/17 16:42	03/02/17 10:35	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	158	Q	25 - 150				02/28/17 16:42	03/02/17 10:35	1
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/02/17 10:35	1
18O2 PFHxS	145		25 - 150				02/28/17 16:42	03/02/17 10:35	1

Lab Sample ID: LCS 320-152587/2-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		97	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6		ng/L		96	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	39.5		ng/L		112	50 - 150
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C4 PFOA	142		25 - 150				
13C4 PFOS	133		25 - 150				
18O2 PFHxS	136		25 - 150				

Lab Sample ID: LCSD 320-152587/3-A

Matrix: Water

Analysis Batch: 152836

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 152587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	40.0	38.5		ng/L		96	60 - 140	0	30
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6	M	ng/L		96	60 - 140	0	30
Perfluorobutanesulfonic acid (PFBS)	35.4	40.3	M	ng/L		114	50 - 150	2	30
Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits						
13C4 PFOA	142		25 - 150						
13C4 PFOS	135		25 - 150						
18O2 PFHxS	140		25 - 150						

Lab Sample ID: MB 320-152953/1-A

Matrix: Solid

Analysis Batch: 154516

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152953

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		03/02/17 16:23	03/11/17 23:12	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		03/02/17 16:23	03/11/17 23:12	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		03/02/17 16:23	03/11/17 23:12	1

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

	MB	MB				
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	133		25 - 150	03/02/17 16:23	03/11/17 23:12	1
13C4 PFOS	111		25 - 150	03/02/17 16:23	03/11/17 23:12	1
18O2 PFHxS	119		25 - 150	03/02/17 16:23	03/11/17 23:12	1

Lab Sample ID: LCS 320-152953/2-A
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152953
%Rec.

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Perfluorooctanoic acid (PFOA)	4.00	4.09		ug/Kg		102	60 - 140
Perfluorooctanesulfonic acid (PFOS)	3.71	3.78	M	ug/Kg		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	4.00		ug/Kg		113	50 - 150

<i>LCS LCS</i>					
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>		
13C4 PFOA	109		25 - 150		
13C4 PFOS	95		25 - 150		
18O2 PFHxS	101		25 - 150		

Lab Sample ID: 320-26011-17 MS
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: MEAFF-WWTP-SB02-1012-MS
Prep Type: Total/NA
Prep Batch: 152953
%Rec.

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Perfluorooctanoic acid (PFOA)	0.42	U M	5.58	5.56		ug/Kg	☼	100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	5.18	5.49	M	ug/Kg	☼	102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.42	U	4.93	6.26		ug/Kg	☼	127	50 - 150

<i>MS MS</i>					
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>		
13C4 PFOA	98		25 - 150		
13C4 PFOS	59		25 - 150		
18O2 PFHxS	91		25 - 150		

Lab Sample ID: 320-26011-17 MSD
Matrix: Solid
Analysis Batch: 154516

Client Sample ID: MEAFF-WWTP-SB02-1012-SD
Prep Type: Total/NA
Prep Batch: 152953
%Rec.

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Perfluorooctanoic acid (PFOA)	0.42	U M	5.62	5.79		ug/Kg	☼	103	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	0.20	J M	5.22	5.75	M	ug/Kg	☼	106	60 - 140	5	30
Perfluorobutanesulfonic acid (PFBS)	0.42	U	4.97	6.21		ug/Kg	☼	125	50 - 150	1	30

<i>MSD MSD</i>					
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>		
13C4 PFOA	110		25 - 150		
13C4 PFOS	61		25 - 150		
18O2 PFHxS	106		25 - 150		

TestAmerica Sacramento

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

LCMS

Prep Batch: 152587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-10	MEAFF-EB02-022217-SO	Total/NA	Water	3535	
320-26011-20	HYDRANT BLANK-022217	Total/NA	Water	3535	
320-26011-21	GROUT TANK BLANK-022217	Total/NA	Water	3535	
MB 320-152587/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-152587/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-152587/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 152836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-10	MEAFF-EB02-022217-SO	Total/NA	Water	537 (Modified)	152587
320-26011-20	HYDRANT BLANK-022217	Total/NA	Water	537 (Modified)	152587
320-26011-21	GROUT TANK BLANK-022217	Total/NA	Water	537 (Modified)	152587
MB 320-152587/1-A	Method Blank	Total/NA	Water	537 (Modified)	152587
LCS 320-152587/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	152587
LCSD 320-152587/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	152587

Prep Batch: 152953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	SHAKE	
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	SHAKE	
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	SHAKE	
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	SHAKE	
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	SHAKE	
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	SHAKE	
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	SHAKE	
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	SHAKE	
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	SHAKE	
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	SHAKE	
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	SHAKE	
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	SHAKE	
MB 320-152953/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-152953/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	Total/NA	Solid	SHAKE	
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	Total/NA	Solid	SHAKE	

Analysis Batch: 154516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	537 (Modified)	152953
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	537 (Modified)	152953
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	537 (Modified)	152953

TestAmerica Sacramento

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

LCMS (Continued)

Analysis Batch: 154516 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	537 (Modified)	152953
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	537 (Modified)	152953
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	537 (Modified)	152953
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	537 (Modified)	152953
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	537 (Modified)	152953
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	537 (Modified)	152953
MB 320-152953/1-A	Method Blank	Total/NA	Solid	537 (Modified)	152953
LCS 320-152953/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	152953
320-26011-17 MS	MEAFF-WWTP-SB02-1012-MS	Total/NA	Solid	537 (Modified)	152953
320-26011-17 MSD	MEAFF-WWTP-SB02-1012-SD	Total/NA	Solid	537 (Modified)	152953

General Chemistry

Analysis Batch: 152217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26011-1	MEAFF-FTA1-SB01-0204	Total/NA	Solid	D 2216	
320-26011-2	MEAFF-FD01-022217	Total/NA	Solid	D 2216	
320-26011-3	MEAFF-FTA1-SB02-0204	Total/NA	Solid	D 2216	
320-26011-4	MEAFF-SDA4B-SB01-0001	Total/NA	Solid	D 2216	
320-26011-5	MEAFF-FD02-022217	Total/NA	Solid	D 2216	
320-26011-6	MEAFF-SDA4B-SB01-0204	Total/NA	Solid	D 2216	
320-26011-7	MEAFF-SDA4D-SB01-0001	Total/NA	Solid	D 2216	
320-26011-8	MEAFF-FD03-022217	Total/NA	Solid	D 2216	
320-26011-9	MEAFF-SDA4D-SB01-0204	Total/NA	Solid	D 2216	
320-26011-11	MEAFF-SDA4A-SB01-0001	Total/NA	Solid	D 2216	
320-26011-12	MEAFF-SDA4A-SB01-0204	Total/NA	Solid	D 2216	
320-26011-13	MEAFF-SDA4A-SB02-0001	Total/NA	Solid	D 2216	
320-26011-14	MEAFF-SDA4A-SB02-0204	Total/NA	Solid	D 2216	
320-26011-15	MEAFF-WWTP-SB01-1012	Total/NA	Solid	D 2216	
320-26011-16	MEAFF-WWTP-SB03-0608	Total/NA	Solid	D 2216	
320-26011-17	MEAFF-WWTP-SB02-1012	Total/NA	Solid	D 2216	
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Total/NA	Solid	D 2216	
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Total/NA	Solid	D 2216	

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB01-0204

Date Collected: 02/22/17 10:40

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-1

Matrix: Solid

Percent Solids: 75.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/11/17 23:27	TC1	TAL SAC

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD01-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-2

Matrix: Solid

Percent Solids: 74.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/11/17 23:35	TC1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FTA1-SB02-0204

Date Collected: 02/22/17 09:55

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-3

Matrix: Solid

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/11/17 23:42	TC1	TAL SAC

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0001

Date Collected: 02/22/17 12:47

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-4

Matrix: Solid

Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/11/17 23:50	TC1	TAL SAC

Client Sample ID: MEAFF-FD02-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD02-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-5

Matrix: Solid

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/11/17 23:57	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0204

Date Collected: 02/22/17 12:54

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4B-SB01-0204

Date Collected: 02/22/17 12:54

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-6

Matrix: Solid

Percent Solids: 78.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:05	TC1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4D-SB01-0001

Date Collected: 02/22/17 13:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0001

Date Collected: 02/22/17 13:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-7

Matrix: Solid

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:12	TC1	TAL SAC

Client Sample ID: MEAFF-FD03-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-FD03-022217

Date Collected: 02/22/17 00:00

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-8

Matrix: Solid

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:28	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0204

Date Collected: 02/22/17 13:52

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4D-SB01-0204

Date Collected: 02/22/17 13:52

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-9

Matrix: Solid

Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:35	TC1	TAL SAC

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-EB02-022217-SO

Date Collected: 02/22/17 15:05

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	152836	03/02/17 11:20	SBC	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0001

Date Collected: 02/22/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-11

Matrix: Solid

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:43	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0204

Date Collected: 02/22/17 15:33

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB01-0204

Date Collected: 02/22/17 15:33

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-12

Matrix: Solid

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:50	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0001

Date Collected: 02/22/17 15:39

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26011-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-SDA4A-SB02-0001

Lab Sample ID: 320-26011-13

Date Collected: 02/22/17 15:39

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 00:58	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Date Collected: 02/22/17 15:43

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-SDA4A-SB02-0204

Lab Sample ID: 320-26011-14

Date Collected: 02/22/17 15:43

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 01:05	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Date Collected: 02/22/17 11:25

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB01-1012

Lab Sample ID: 320-26011-15

Date Collected: 02/22/17 11:25

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 01:13	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Date Collected: 02/22/17 13:55

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-WWTP-SB03-0608

Lab Sample ID: 320-26011-16

Date Collected: 02/22/17 13:55

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 01:20	TC1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Date Collected: 02/22/17 14:30

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-WWTP-SB02-1012

Lab Sample ID: 320-26011-17

Date Collected: 02/22/17 14:30

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 71.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 01:28	TC1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

Date Collected: 02/22/17 15:45

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001

Lab Sample ID: 320-26011-18

Date Collected: 02/22/17 15:45

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 01:58	TC1	TAL SAC

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

Date Collected: 02/22/17 15:50

Matrix: Solid

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152217	02/25/17 13:20	EP1	TAL SAC

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Client Sample ID: MEAFF-UNKNOWN22-SB01-0204

Lab Sample ID: 320-26011-19

Date Collected: 02/22/17 15:50

Matrix: Solid

Date Received: 02/23/17 09:55

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152953	03/02/17 16:23	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154516	03/12/17 03:05	TC1	TAL SAC

Client Sample ID: HYDRANT BLANK-022217

Lab Sample ID: 320-26011-20

Date Collected: 02/22/17 08:35

Matrix: Water

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	152836	03/02/17 11:27	SBC	TAL SAC

Client Sample ID: GROUT TANK BLANK-022217

Lab Sample ID: 320-26011-21

Date Collected: 02/22/17 09:20

Matrix: Water

Date Received: 02/23/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	152836	03/02/17 11:35	SBC	TAL SAC

Laboratory References:

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

Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17 *
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17 *
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: CH2M Hill, Inc.
Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

TestAmerica Job ID: 320-26011-1

Method	Method Description	Protocol	Laboratory
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: CH2M Hill, Inc.

TestAmerica Job ID: 320-26011-1

Project/Site: Meridian 10006-7-105420 JM01 Navy Clean

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26011-1	MEAFF-FTA1-SB01-0204	Solid	02/22/17 10:40	02/23/17 09:55
320-26011-2	MEAFF-FD01-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-3	MEAFF-FTA1-SB02-0204	Solid	02/22/17 09:55	02/23/17 09:55
320-26011-4	MEAFF-SDA4B-SB01-0001	Solid	02/22/17 12:47	02/23/17 09:55
320-26011-5	MEAFF-FD02-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-6	MEAFF-SDA4B-SB01-0204	Solid	02/22/17 12:54	02/23/17 09:55
320-26011-7	MEAFF-SDA4D-SB01-0001	Solid	02/22/17 13:50	02/23/17 09:55
320-26011-8	MEAFF-FD03-022217	Solid	02/22/17 00:00	02/23/17 09:55
320-26011-9	MEAFF-SDA4D-SB01-0204	Solid	02/22/17 13:52	02/23/17 09:55
320-26011-10	MEAFF-EB02-022217-SO	Water	02/22/17 15:05	02/23/17 09:55
320-26011-11	MEAFF-SDA4A-SB01-0001	Solid	02/22/17 15:26	02/23/17 09:55
320-26011-12	MEAFF-SDA4A-SB01-0204	Solid	02/22/17 15:33	02/23/17 09:55
320-26011-13	MEAFF-SDA4A-SB02-0001	Solid	02/22/17 15:39	02/23/17 09:55
320-26011-14	MEAFF-SDA4A-SB02-0204	Solid	02/22/17 15:43	02/23/17 09:55
320-26011-15	MEAFF-WWTP-SB01-1012	Solid	02/22/17 11:25	02/23/17 09:55
320-26011-16	MEAFF-WWTP-SB03-0608	Solid	02/22/17 13:55	02/23/17 09:55
320-26011-17	MEAFF-WWTP-SB02-1012	Solid	02/22/17 14:30	02/23/17 09:55
320-26011-18	MEAFF-UNKNOWN22-SB01-0001	Solid	02/22/17 15:45	02/23/17 09:55
320-26011-19	MEAFF-UNKNOWN22-SB01-0204	Solid	02/22/17 15:50	02/23/17 09:55
320-26011-20	HYDRANT BLANK-022217	Water	02/22/17 08:35	02/23/17 09:55
320-26011-21	GROUT TANK BLANK-022217	Water	02/22/17 09:20	02/23/17 09:55

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152681Lab Sample ID: IC 320-152681/2 Client Sample ID: _____Date Analyzed: 03/01/17 11:08 Lab File ID: 2017.03.01CURVE_003.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.51	Isomers	chandrase nas	03/01/17 15:43
Perfluorooctanoic acid (PFOA)	2.86	Incomplete Integration	chandrase nas	03/01/17 15:43
Perfluorooctanesulfonic acid (PFOS)	3.23	Isomers	chandrase nas	03/01/17 15:43

Lab Sample ID: IC 320-152681/4 Client Sample ID: _____Date Analyzed: 03/01/17 11:23 Lab File ID: 2017.03.01CURVE_005.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Baseline	chandrase nas	03/01/17 15:43
Perfluorooctanesulfonic acid (PFOS)	3.17	Baseline	chandrase nas	03/01/17 15:43

Lab Sample ID: IC 320-152681/5 Client Sample ID: _____Date Analyzed: 03/01/17 11:31 Lab File ID: 2017.03.01CURVE_006.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.49	Isomers	chandrase nas	03/01/17 15:43

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152681

Lab Sample ID: IC 320-152681/6 Client Sample ID: _____

Date Analyzed: 03/01/17 11:38 Lab File ID: 2017.03.01CURVE_007.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	chandrase nas	03/01/17 15:43
13C2 PFUnA	3.87	Incomplete Integration	chandrase nas	03/01/17 15:43

Lab Sample ID: IC 320-152681/7 Client Sample ID: _____

Date Analyzed: 03/01/17 11:46 Lab File ID: 2017.03.01CURVE_008.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.19	Baseline	chandrase nas	03/01/17 15:43
M2-8:2FTS	3.52	Incomplete Integration	chandrase nas	03/01/17 15:43
13C2 PFDoA	4.15	Incomplete Integration	chandrase nas	03/01/17 15:43

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152836Lab Sample ID: CCV 320-152836/10 CCVL Client Sample ID: _____Date Analyzed: 03/02/17 10:12 Lab File ID: 2017.03.02A_001.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	chandrase nas	03/27/17 09:41
Perfluorooctanesulfonic acid (PFOS)	3.19	Baseline	chandrase nas	03/27/17 09:41
Perfluorododecanoic acid (PFDoA)	4.17	Incomplete Integration	chandrase nas	03/27/17 09:41
Perfluorotetradecanoic acid (PFTeA)	4.67	Baseline	chandrase nas	03/27/17 09:41
Perfluoro-n-hexadecanoic acid (PFHxDA)	5.09	Baseline	chandrase nas	03/27/17 09:41

Lab Sample ID: CCV 320-152836/11 Client Sample ID: _____Date Analyzed: 03/02/17 10:20 Lab File ID: 2017.03.02A_002.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoropentanoic acid (PFPeA)	1.82	Baseline	chandrase nas	03/02/17 12:33
Perfluorohexanoic acid (PFHxA)	2.12	Baseline	chandrase nas	03/02/17 12:33

Lab Sample ID: MB 320-152587/1-A Client Sample ID: _____Date Analyzed: 03/02/17 10:35 Lab File ID: 2017.03.02A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.82	Baseline	westendor fc	03/08/17 08:23

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152836Lab Sample ID: LCSD 320-152587/3-A Client Sample ID: _____Date Analyzed: 03/02/17 10:50 Lab File ID: 2017.03.02A_006.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/02/17 12:34
Perfluorooctanesulfonic acid (PFOS)	3.22	Isomers	chandrase nas	03/02/17 12:34

Lab Sample ID: 320-26011-10 Client Sample ID: MEAFF-EB02-022217-SODate Analyzed: 03/02/17 11:20 Lab File ID: 2017.03.02A_010.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	chandrase nas	03/27/17 09:39

Lab Sample ID: 320-26011-20 Client Sample ID: HYDRANT BLANK-022217Date Analyzed: 03/02/17 11:27 Lab File ID: 2017.03.02A_011.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.82	Isomers	chandrase nas	03/27/17 09:39

Lab Sample ID: 320-26011-21 Client Sample ID: GROUT TANK BLANK-022217Date Analyzed: 03/02/17 11:35 Lab File ID: 2017.03.02A_012.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Isomers	chandrase nas	03/27/17 09:39

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152836Lab Sample ID: CCV 320-152836/23 Client Sample ID: _____Date Analyzed: 03/02/17 11:50 Lab File ID: 2017.03.02A_014.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	chandrase nas	03/02/17 12:34

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154503Lab Sample ID: CCV 320-154503/1 CCVL Client Sample ID: _____Date Analyzed: 03/11/17 12:34 Lab File ID: 2017.03.11C_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.56	Baseline	changnoit	03/13/17 11:37
Perfluorohexanesulfonic acid (PFHxS)	2.52	Isomers	changnoit	03/13/17 11:38
Perfluorooctanesulfonic acid (PFOS)	3.25	Isomers	changnoit	03/13/17 11:38

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: CCV 320-154516/1 Client Sample ID: _____Date Analyzed: 03/11/17 23:05 Lab File ID: 2017.03.11D_037.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	changnoit	03/14/17 10:20
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/14/17 10:20

Lab Sample ID: LCS 320-152953/2-A Client Sample ID: _____Date Analyzed: 03/11/17 23:20 Lab File ID: 2017.03.11D_039.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/14/17 10:28

Lab Sample ID: 320-26011-1 Client Sample ID: MEAFF-FTA1-SB01-0204Date Analyzed: 03/11/17 23:27 Lab File ID: 2017.03.11D_040.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 10:58
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/27/17 10:57
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/27/17 10:57

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-2 Client Sample ID: MEAFF-FD01-022217Date Analyzed: 03/11/17 23:35 Lab File ID: 2017.03.11D_041.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 10:58
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/27/17 10:58
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 10:58

Lab Sample ID: 320-26011-3 Client Sample ID: MEAFF-FTA1-SB02-0204Date Analyzed: 03/11/17 23:42 Lab File ID: 2017.03.11D_042.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 10:58
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 10:58
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 10:58

Lab Sample ID: 320-26011-4 Client Sample ID: MEAFF-SDA4B-SB01-0001Date Analyzed: 03/11/17 23:50 Lab File ID: 2017.03.11D_043.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 10:59
Perfluorooctanoic acid (PFOA)	2.80	Isomers	changnoit	03/27/17 10:58
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/27/17 10:58

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-5 Client Sample ID: MEAFF-FD02-022217Date Analyzed: 03/11/17 23:57 Lab File ID: 2017.03.11D_044.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 10:59
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 10:59
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/27/17 10:59

Lab Sample ID: 320-26011-6 Client Sample ID: MEAFF-SDA4B-SB01-0204Date Analyzed: 03/12/17 00:05 Lab File ID: 2017.03.11D_045.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 10:59
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 10:59
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 10:59

Lab Sample ID: 320-26011-7 Client Sample ID: MEAFF-SDA4D-SB01-0001Date Analyzed: 03/12/17 00:12 Lab File ID: 2017.03.11D_046.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 11:00
Perfluorooctanoic acid (PFOA)	2.76	Baseline	chandrase nas	03/27/17 10:59
Perfluorooctanesulfonic acid (PFOS)	3.20	Baseline	chandrase nas	03/27/17 10:59

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: CCV 320-154516/11 Client Sample ID: _____Date Analyzed: 03/12/17 00:20 Lab File ID: 2017.03.11D_047.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.46	Isomers	changnoit	03/14/17 11:40
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/14/17 11:40

Lab Sample ID: 320-26011-8 Client Sample ID: MEAFF-FD03-022217Date Analyzed: 03/12/17 00:28 Lab File ID: 2017.03.11D_048.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 11:00
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:00
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/27/17 11:00

Lab Sample ID: 320-26011-9 Client Sample ID: MEAFF-SDA4D-SB01-0204Date Analyzed: 03/12/17 00:35 Lab File ID: 2017.03.11D_049.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 11:00
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/27/17 11:00
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:00

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-11 Client Sample ID: MEAFF-SDA4A-SB01-0001Date Analyzed: 03/12/17 00:43 Lab File ID: 2017.03.11D_050.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 11:01
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:01
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/27/17 11:01

Lab Sample ID: 320-26011-12 Client Sample ID: MEAFF-SDA4A-SB01-0204Date Analyzed: 03/12/17 00:50 Lab File ID: 2017.03.11D_051.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 11:02
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 11:01
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:01

Lab Sample ID: 320-26011-13 Client Sample ID: MEAFF-SDA4A-SB02-0001Date Analyzed: 03/12/17 00:58 Lab File ID: 2017.03.11D_052.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 11:02
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 11:02
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:02

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-14 Client Sample ID: MEAFF-SDA4A-SB02-0204Date Analyzed: 03/12/17 01:05 Lab File ID: 2017.03.11D_053.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 11:03
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:02
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 11:02

Lab Sample ID: 320-26011-15 Client Sample ID: MEAFF-WWTP-SB01-1012Date Analyzed: 03/12/17 01:13 Lab File ID: 2017.03.11D_054.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:03
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 11:03

Lab Sample ID: 320-26011-16 Client Sample ID: MEAFF-WWTP-SB03-0608Date Analyzed: 03/12/17 01:20 Lab File ID: 2017.03.11D_055.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.84	Baseline	chandrase nas	03/27/17 11:05
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:05
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 11:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-17 Client Sample ID: MEAFF-WWTP-SB02-1012Date Analyzed: 03/12/17 01:28 Lab File ID: 2017.03.11D_056.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.80	Isomers	changnoit	03/14/17 12:33
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/14/17 12:33

Lab Sample ID: CCV 320-154516/21 Client Sample ID: _____Date Analyzed: 03/12/17 01:35 Lab File ID: 2017.03.11D_057.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.46	Isomers	changnoit	03/14/17 12:38
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/14/17 12:38

Lab Sample ID: 320-26011-17 MS Client Sample ID: MEAFF-WWTP-SB02-1012-MS MSDate Analyzed: 03/12/17 01:43 Lab File ID: 2017.03.11D_058.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/14/17 12:41

Lab Sample ID: 320-26011-17 MSD Client Sample ID: MEAFF-WWTP-SB02-1012-SD MSDDate Analyzed: 03/12/17 01:50 Lab File ID: 2017.03.11D_059.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/14/17 12:52

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154516Lab Sample ID: 320-26011-18 Client Sample ID: MEAFF-UNKNOWN22-SB01-0001Date Analyzed: 03/12/17 01:58 Lab File ID: 2017.03.11D_060.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrase nas	03/27/17 11:06

Lab Sample ID: CCV 320-154516/26 Client Sample ID: _____Date Analyzed: 03/12/17 03:13 Lab File ID: 2017.03.11D_062.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.46	Isomers	changnoit	03/14/17 13:01
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/14/17 13:01
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/14/17 13:01

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00003	1000 uL	M2-8:2FTS	0.958 ug/mL
.LCd-NEtFOSA-M_00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
.LCd-NMeFOSA-M_00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
.LCd3-NMeFOSAA_00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
.LCd5-NEtFOSAA_00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
.LCM2-6:FTS_00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
.LCM2-8:2FTS_00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL
.LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
.LCM4PFHFA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpa0516			(Purchased Reagent)		13C4-PFHpa	50 ug/mL
.LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
.LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
.LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
.LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
.LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
.LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
.LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
.LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LCMPFUDa_00009	02/12/21	Wellington Laboratories, Lot MPFUDa0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
LCPF_C_FULLL-L1_00001	06/14/17	02/16/17	MeOH/H2O, Lot 90285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	25 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ng/mL
							N-ethylperfluoro-1-octanesulfoamide	0.5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ng/mL
							MeFOSA	0.5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ng/mL
					LCPFCSP_00078	25 uL	Perfluorobutyric acid	0.5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ng/mL
							Perfluorodecanoic acid	0.5 ng/mL
							Perfluorododecanoic acid	0.5 ng/mL
							Perfluorodecane Sulfonic acid	0.482 ng/mL
							Perfluoroheptanoic acid	0.5 ng/mL
							Perfluoroheptanesulfonic Acid	0.476 ng/mL
							Perfluorohexanoic acid	0.5 ng/mL
							Perfluorohexadecanoic acid	0.5 ng/mL
							Perfluorohexanesulfonic acid	0.455 ng/mL
							Perfluorononanoic acid	0.5 ng/mL
							Perfluorooctanoic acid (PFOA)	0.5 ng/mL
							Perfluorooctadecanoic acid	0.5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ng/mL
							Perfluorooctane Sulfonamide	0.5 ng/mL
							Perfluoropentanoic acid	0.5 ng/mL
							Perfluorotetradecanoic acid	0.5 ng/mL
							Perfluorotridecanoic acid	0.5 ng/mL
							Perfluoroundecanoic acid	0.5 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	Lcd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NetFOSAA 00003	1000 uL	d5-NetFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NetFOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NetFOSAA 00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)		d5-NetFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfoamide	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
..LCPFC2SP_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NetFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NetFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotridecanoic acid	0.1 ug/mL
..LCPFCSP_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluoroundecanoic acid	0.1 ug/mL
							Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
Perfluorotridecanoic acid	0.5 ug/mL							
Perfluoroundecanoic acid	0.5 ug/mL							
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA 00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHXS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFFeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL					
....LCPFBA 00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
....LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA 00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LCPFDa 00005	01/30/20		Wellington Laboratories, Lot PFDoA0115		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS 00006	05/24/21		Wellington Laboratories, Lot LPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
....LCPFHpa 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHps 00009	11/06/20		Wellington Laboratories, Lot LPFHs1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br 00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
....LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....LCPFOSA 00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
....LCPFUDa 00005	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L2_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpa	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	50 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	1 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							MeFOSA	1 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFCSP_00078	50 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							Perfluorobutyric acid	1 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.884 ng/mL
							Perfluorodecanoic acid	1 ng/mL
							Perfluorododecanoic acid	1 ng/mL
							Perfluorodecane Sulfonic acid	0.964 ng/mL
							Perfluoroheptanoic acid	1 ng/mL
							Perfluoroheptanesulfonic Acid	0.952 ng/mL
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid	0.91 ng/mL
							Perfluorononanoic acid	1 ng/mL
							Perfluorooctanoic acid (PFOA)	1 ng/mL
							Perfluorooctadecanoic acid	1 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.928 ng/mL
							Perfluorooctane Sulfonamide	1 ng/mL
							Perfluoropentanoic acid	1 ng/mL
							Perfluorotetradecanoic acid	1 ng/mL
Perfluorotridecanoic acid	1 ng/mL							
Perfluoroundecanoic acid	1 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21	WELLINGTON, Lot dNetFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21	WELLINGTON, Lot d5NetFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA 00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHPA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00009	02/12/21	Wellington Laboratories, Lot MPFUDa0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPF2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPF2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfoamide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
..LCPF2SP_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfoamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NETFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfoamide	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NetFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
..LCPFCSP_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluoroundecanoic acid	0.1 ug/mL
							Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
							Perfluorotridecanoic acid	0.5 ug/mL
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluoroundecanoic acid	0.5 ug/mL
							Perfluorobutyric acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFBs_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA 00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHps 00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA 00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br 00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA 00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA 00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDa 00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
....LCPFBA 00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
....LCPFBs_00005	03/15/21		Wellington Laboratories, Lot LFPBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA 00005	07/02/20		Wellington Laboratories, Lot PFDA0615		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
....LCPFDoA 00005	01/30/20		Wellington Laboratories, Lot PFDoA0115		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS 00006	05/24/21		Wellington Laboratories, Lot LFPDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
....LCPFHpA 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHps 00009	11/06/20		Wellington Laboratories, Lot LFPFHps1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br 00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
....LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....LCPFOSA 00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
....LCPFUDa 00005	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L3_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NMeFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	250 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	4.74 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	4.79 ng/mL
							N-ethylperfluoro-1-octanesulfoamide	5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
							MeFOSA	5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
					LCPFCSP_00078	250 uL	Perfluorobutyric acid	5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	4.42 ng/mL
							Perfluorodecanoic acid	5 ng/mL
							Perfluorododecanoic acid	5 ng/mL
							Perfluorodecane Sulfonic acid	4.82 ng/mL
							Perfluoroheptanoic acid	5 ng/mL
							Perfluoroheptanesulfonic Acid	4.76 ng/mL
							Perfluorohexanoic acid	5 ng/mL
							Perfluorohexadecanoic acid	5 ng/mL
							Perfluorohexanesulfonic acid	4.55 ng/mL
							Perfluorononanoic acid	5 ng/mL
							Perfluorooctanoic acid (PFOA)	5 ng/mL
							Perfluorooctadecanoic acid	5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.64 ng/mL
							Perfluorooctane Sulfonamide	5 ng/mL
							Perfluoropentanoic acid	5 ng/mL
							Perfluorotetradecanoic acid	5 ng/mL
							Perfluorotridecanoic acid	5 ng/mL
							Perfluoroundecanoic acid	5 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCD-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCD-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NetFOSAA 00003	1000 uL	d5-NetFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NetFOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NetFOSAA 00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)		d5-NetFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA 00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPPC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfoamide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFC2SP_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL			MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
					LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616				MeFOSA	0.5 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFCSP_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHXS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
....LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
....LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LCPFHpA 00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHpS 00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA 00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA 00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br 00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA 00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA 00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA 00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
....LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....LCPFOSA 00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA 00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA 00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA 00005	02/12/21	Wellington Laboratories, Lot PFTTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
....LCPFuDA 00005	08/19/20	Wellington Laboratories, Lot PFUDa0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULLL-L4_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00026	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	18.96 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	19.16 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	20 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
							MeFOSA	20 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	20 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFCSP_00074	100 uL	Perfluorobutyric acid	20 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	17.68 ng/mL
							Perfluorodecanoic acid	20 ng/mL
							Perfluorododecanoic acid	20 ng/mL
							Perfluorodecane Sulfonic acid	19.28 ng/mL
							Perfluoroheptanoic acid	20 ng/mL
							Perfluoroheptanesulfonic Acid	19.04 ng/mL
							Perfluorohexanoic acid	20 ng/mL
							Perfluorohexadecanoic acid	20 ng/mL
							Perfluorohexanesulfonic acid	18.2 ng/mL
							Perfluorononanoic acid	20 ng/mL
							Perfluorooctanoic acid (PFOA)	20 ng/mL
							Perfluorooctadecanoic acid	20 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	18.56 ng/mL
							Perfluorooctane Sulfonamide	20 ng/mL
							Perfluoropentanoic acid	20 ng/mL
							Perfluorotetradecanoic acid	20 ng/mL
							Perfluorotridecanoic acid	20 ng/mL
							Perfluoroundecanoic acid	20 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21	WELLINGTON, Lot dNetFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21	WELLINGTON, Lot d5NetFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFHxDA 00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA 00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00026	07/30/17	01/30/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
..LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NetFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NetFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA 00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA 00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHps 00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00005	200 uL	Perfluorohexanoic acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFHxDA 00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA 00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA 00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTEDA 00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDA 00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA 00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA 00005	07/02/20		Wellington Laboratories, Lot PFDA0615		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA 00005	01/30/20		Wellington Laboratories, Lot PFDoA0115		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS 00006	05/24/21		Wellington Laboratories, Lot LPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS 00009	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA 00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTEDA 00005	12/09/20		Wellington Laboratories, Lot PFTEDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDA 00005	08/19/20		Wellington Laboratories, Lot PFUDA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L5_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NETFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTEdA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00026	500 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	50 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
							MeFOSA	50 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
					LCPFCSP_00074	250 uL	Perfluorobutyric acid	50 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ng/mL
							Perfluorodecanoic acid	50 ng/mL
							Perfluorododecanoic acid	50 ng/mL
							Perfluorodecane Sulfonic acid	48.2 ng/mL
							Perfluoroheptanoic acid	50 ng/mL
							Perfluoroheptanesulfonic Acid	47.6 ng/mL
							Perfluorohexanoic acid	50 ng/mL
							Perfluorohexadecanoic acid	50 ng/mL
							Perfluorohexanesulfonic acid	45.5 ng/mL
							Perfluorononanoic acid	50 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
							Perfluorooctadecanoic acid	50 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	46.4 ng/mL
							Perfluorooctane Sulfonamide	50 ng/mL
							Perfluoropentanoic acid	50 ng/mL
							Perfluorotetradecanoic acid	50 ng/mL
							Perfluorotridecanoic acid	50 ng/mL
							Perfluoroundecanoic acid	50 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NETFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA 00003	1000 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETFOSA-M 00004	06/10/21	WELLINGTON, Lot dNetFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00003	08/02/21	WELLINGTON, Lot d5NetFOSAA0716			(Purchased Reagent)		d5-NETFOSAA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA_00007	05/27/21		Wellington Laboratories, Lot M4PFHFA0516		(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCRFC2SP_00026	07/30/17	01/30/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTEdA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00005	07/02/20		Wellington Laboratories, Lot PFDA0615		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00005	01/30/20		Wellington Laboratories, Lot PFDoA0115		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21		Wellington Laboratories, Lot LPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L6_00002	06/14/17	02/24/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00027	1000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	189.6 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	191.6 ng/mL
							N-ethylperfluoro-1-octanesulfoamide	200 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							MeFOSA	200 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							Perfluorobutyric acid	200 ng/mL
					LCPFCSP_00080	2000 uL	Perfluorobutanesulfonic acid (PFBS)	176.8 ng/mL
							Perfluorodecanoic acid	200 ng/mL
							Perfluorododecanoic acid	200 ng/mL
							Perfluorodecane Sulfonic acid	192.8 ng/mL
							Perfluoroheptanoic acid	200 ng/mL
							Perfluoroheptanesulfonic Acid	190.4 ng/mL
							Perfluorohexanoic acid	200 ng/mL
							Perfluorohexadecanoic acid	200 ng/mL
							Perfluorohexanesulfonic acid	182 ng/mL
							Perfluorononanoic acid	200 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanoic acid (PFOA)	200 ng/mL
							Perfluorooctadecanoic acid	200 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	185.6 ng/mL
							Perfluorooctane Sulfonamide	200 ng/mL
							Perfluoropentanoic acid	200 ng/mL
							Perfluorotetradecanoic acid	200 ng/mL
							Perfluorotridecanoic acid	200 ng/mL
							Perfluoroundecanoic acid	200 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21	WELLINGTON, Lot dNEtFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21	WELLINGTON, Lot d5NEtFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00027	08/24/17	02/24/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NetFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NetFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00080	08/01/17	02/01/17	Methanol, Lot 090285	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00005	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00005	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHXS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00008	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

 Lab Name: TestAmerica Sacramento

 Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFBA_00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LFPBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00005	07/02/20		Wellington Laboratories, Lot PFDA0615		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00005	01/30/20		Wellington Laboratories, Lot PFDoA0115		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21		Wellington Laboratories, Lot LFPDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20		Wellington Laboratories, Lot LFPHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC2SP_00017	03/02/17	09/02/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
.LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
.LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
.LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NetFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
.LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NetFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
.LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFCIC_FULL_00001	06/01/17	02/16/17	MeOH/H2O, Lot 09285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFCSU_00047	250 uL	d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
							13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
					13C5 PFNA	50 ng/mL		
					13C4 PFOA	50 ng/mL		
					13C4 PFOS	47.8 ng/mL		
					13C2 PFUnA	50 ng/mL		
					LCPFACMXB_00007	125 uL	Perfluorooctanesulfonic acid (PFOS)	47.75 ng/mL
Perfluorooctanoic acid (PFOA)	50 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21	WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL	
..LCd-NMeFOSA-M 00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL	
..LCd3-NMeFOSAA 00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL	
..LCd5-NEtFOSAA 00003	08/02/21	WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL	
..LCM2-6:FTS 00003	01/08/21	WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL	
..LCM2-8:2FTS 00003	01/08/21	WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL	
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFHxDA 00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21	Wellington Laboratories, Lot M4PFHPA0516			(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00009	02/12/21	Wellington Laboratories, Lot MPFUDa0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFACMXB_00007	11/06/20	Wellington Laboratories, Lot PFACMXB1115			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL
LCPFCSP_00080	08/01/17	02/01/17	Methanol, Lot 090285	10000 uL	LCPFBA 00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutane Sulfonate	0.442 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA 00005	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA 00005	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonate	0.482 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpa 00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHps_00009	100 uL	Perfluoroheptane Sulfonate	0.476 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA 00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA 00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexane Sulfonate	0.455 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA 00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA 00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA 00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA 00008	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA 00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA 00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTTrDA 00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUDa 00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
.LCPFBA 00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
.LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA 00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFDS_00006	05/24/21		Wellington Laboratories, Lot LPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonate	48.2 ug/mL
							Perfluorodecane Sulfonic acid	48.2 ug/mL
.LCPFHpA_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
.LCPFHps_00009	11/06/20		Wellington Laboratories, Lot LPFHps1115		(Purchased Reagent)		Perfluoroheptane Sulfonate	47.6 ug/mL
							Perfluoroheptanesulfonic Acid	47.6 ug/mL
.LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
.LCPFHxDA_00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid	45.5 ug/mL
.LCPFNA_00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
.LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA_00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA_00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
.LCPFPeA_00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
.LCPFTeDA_00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA_00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA_00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Reagent

LC6:2FTS_00002

R: 8/23/16 SBC



715544

ID: LC6:2FTS_00002

Exp: 06/25/21 Prpd: SBC
6:2FTS



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

6:2FTS

LOT NUMBER:

62FTS0616

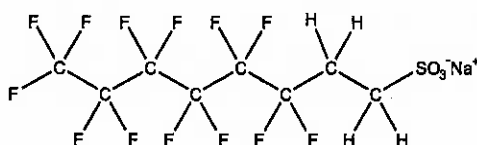
COMPOUND:

Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₈H₄F₁₃SO₃Na

MOLECULAR WEIGHT:

450.15

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)
47.4 ± 2.4 µg/ml (6:2FTS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

06/25/2016

EXPIRY DATE: (mm/dd/yyyy)

06/25/2021

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 06/29/2016

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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

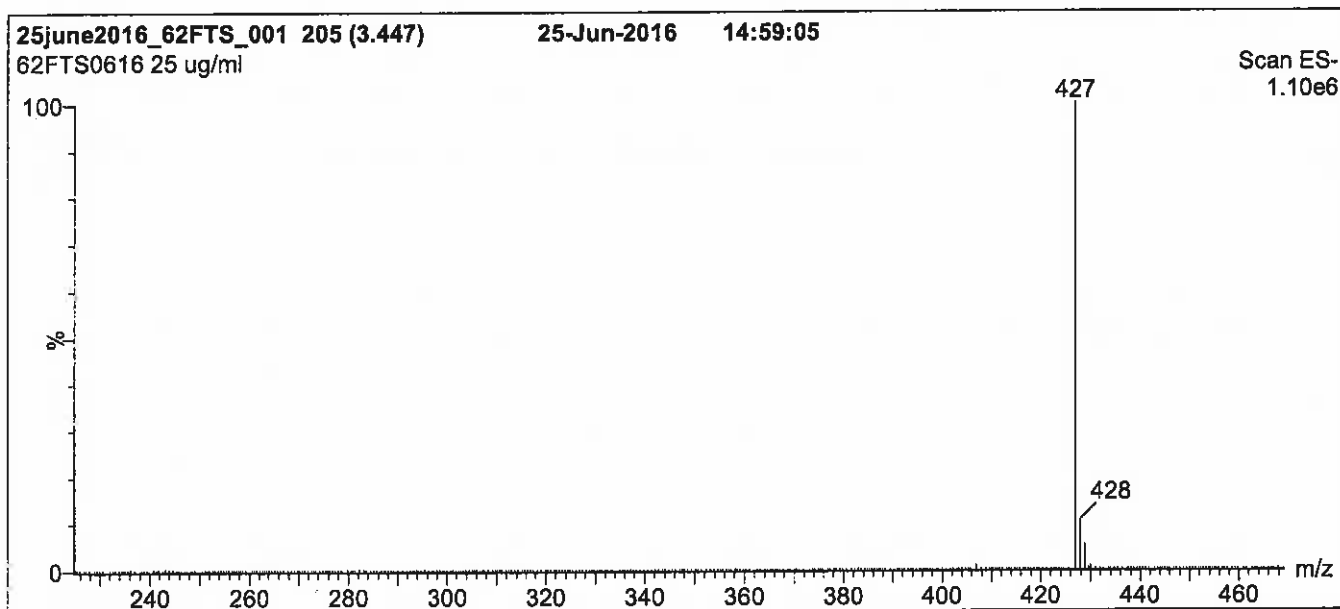
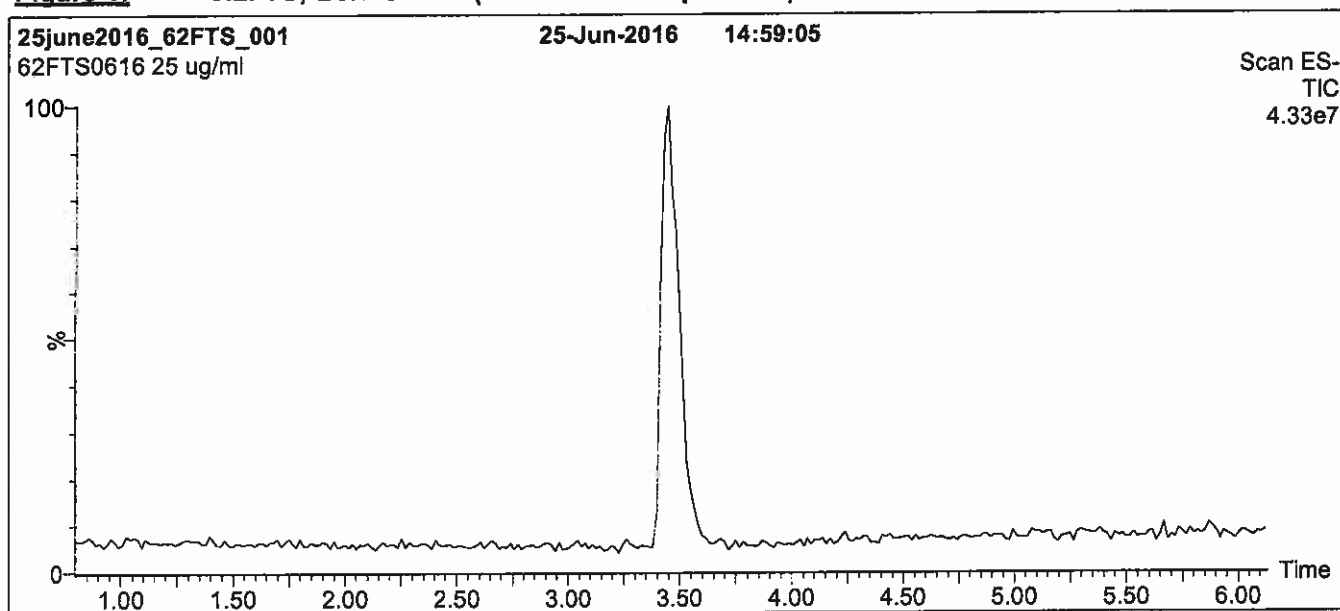
QUALITY MANAGEMENT:

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



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Figure 1: 6:2FTS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

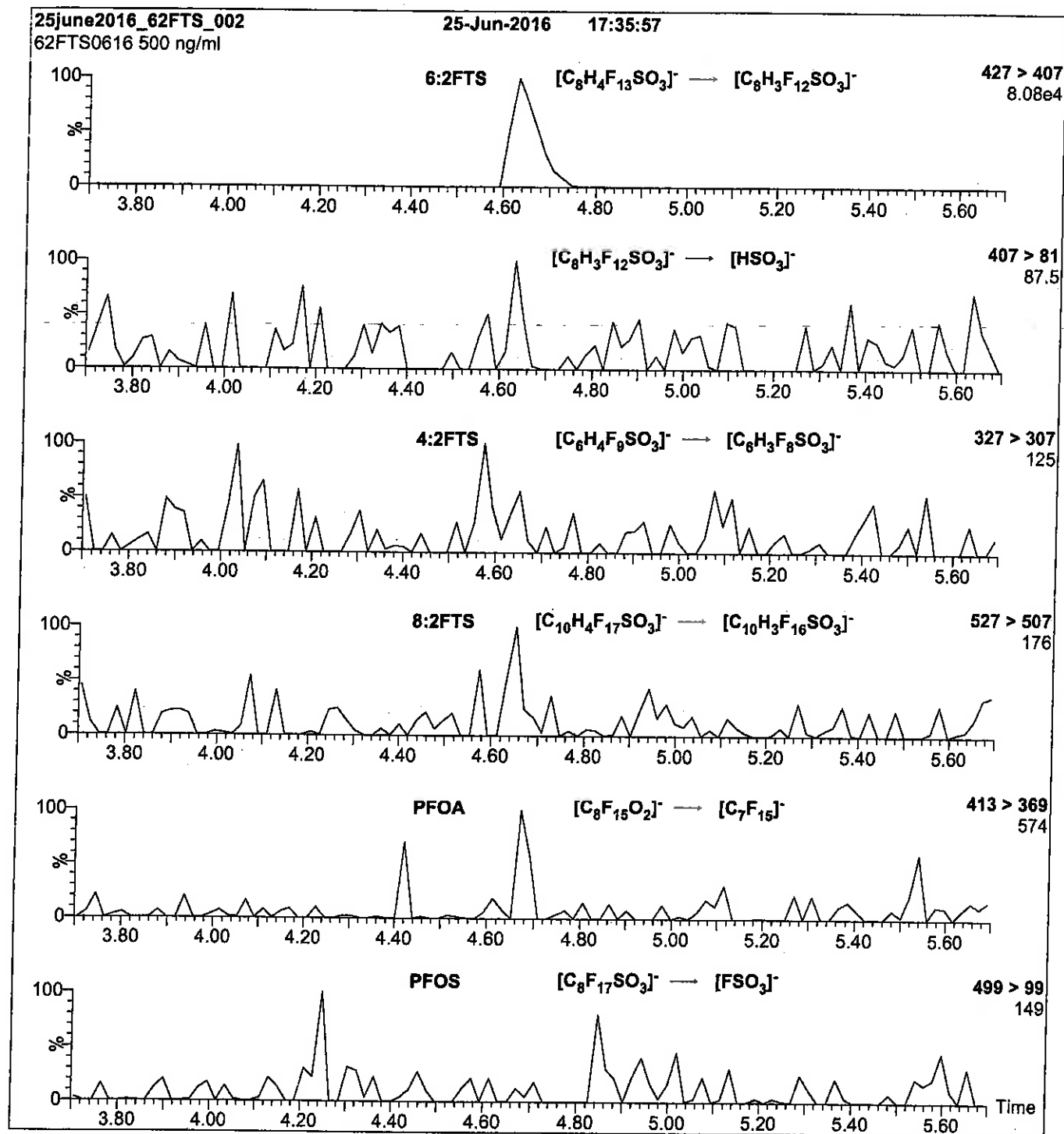
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: 6:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop Injection
10 μ l (500 ng/ml 6:2FTS)

Mobility phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 25

Reagent

LC8 : 2FTS_00002

R: 8/23/16 SBC



715545
ID: LC8:2FTS_00002
Exp: 10/23/20 Prod: SBC
8:2FTS

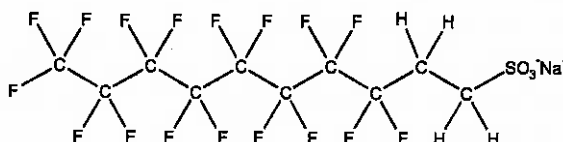


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS1015
COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_{10}H_4F_{17}SO_3Na$ **MOLECULAR WEIGHT:** 550.16
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.9 ± 2.4 µg/ml (8:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/23/2015
EXPIRY DATE: (mm/dd/yyyy) 10/23/2020
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/27/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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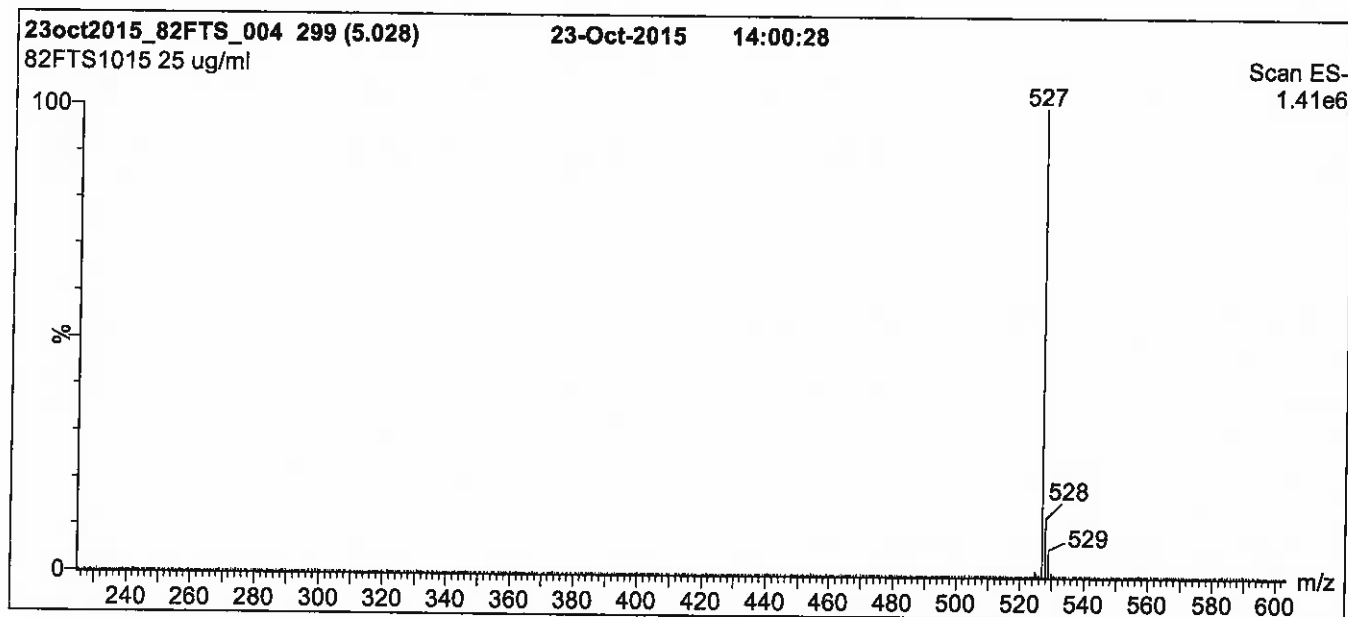
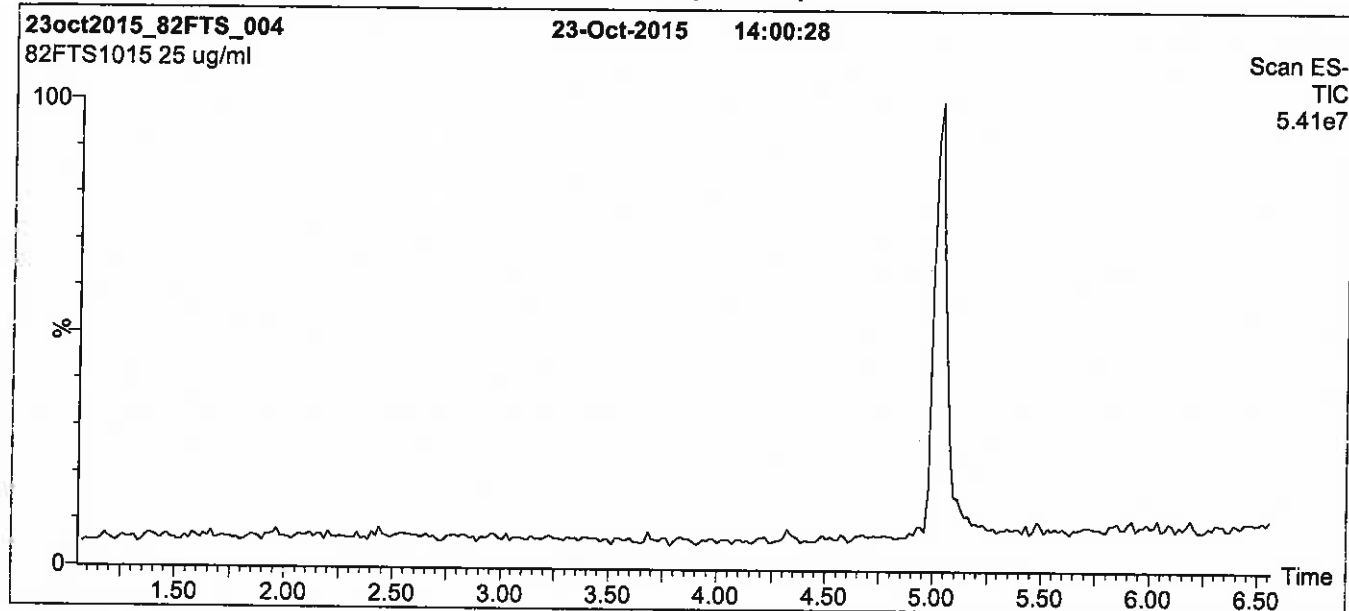
QUALITY MANAGEMENT:

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Figure 1: 8:2FTS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

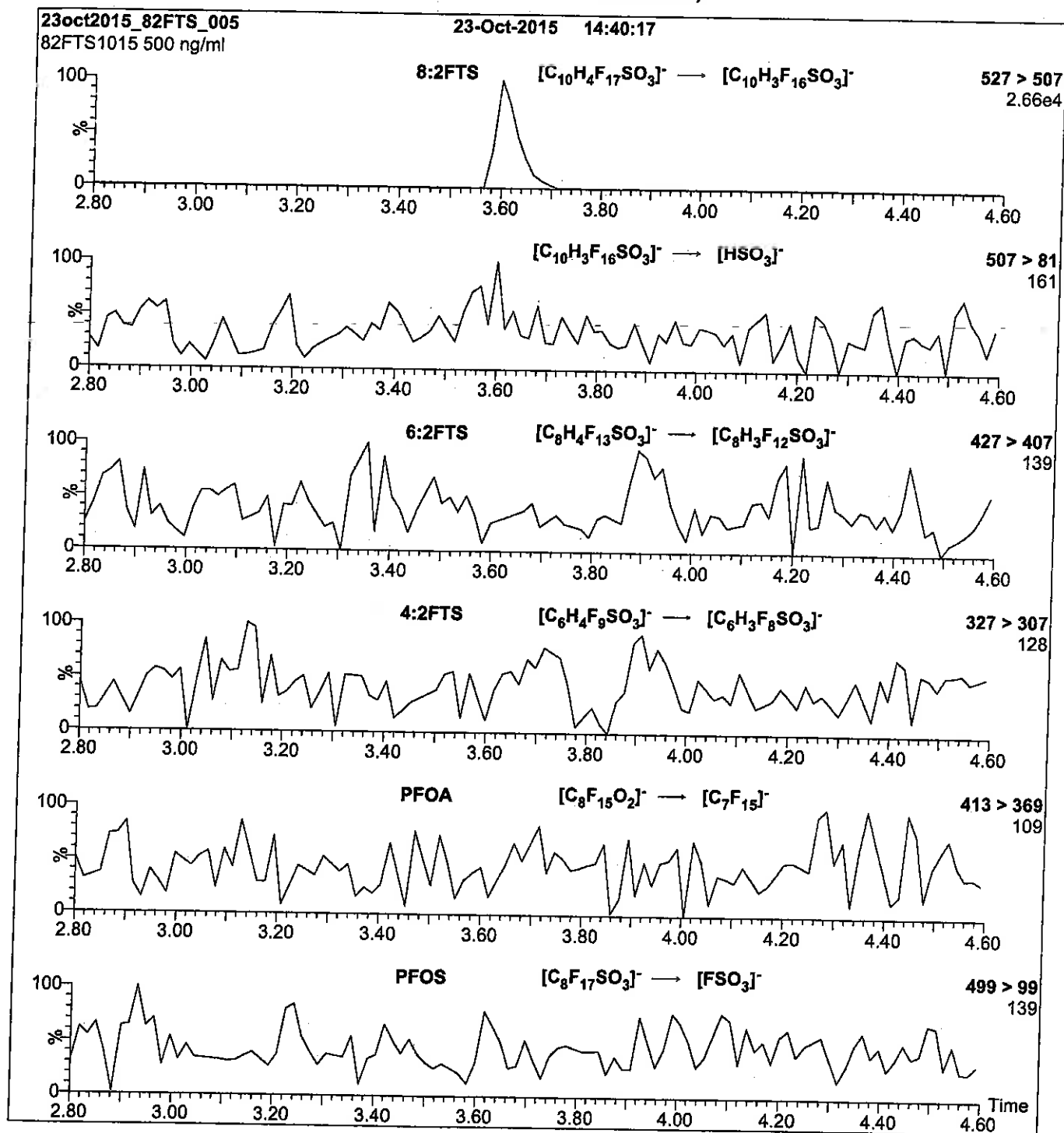
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min.
Return to Initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: 8:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml 8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 30

Reagent

LCd-NMeFOSA-M_00003

R: 9/9/16 SBC



728303

ID: LCd-NMeFOSA-M_00003

Exp: 06/10/21 Prep: SBC

d-N-MeFOSA-M



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

d-N-MeFOSA-M

LOT NUMBER:

dNMeFOSA0616M

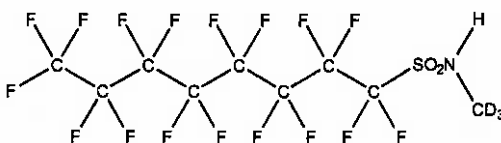
COMPOUND:

N-methyl-d₃-perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₈D₃HF₁₇NO₂S

CONCENTRATION:

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

06/10/2016

EXPIRY DATE: (mm/dd/yyyy)

06/10/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT:

516.19

SOLVENT(S):

Methanol

ISOTOPIC PURITY:

≥98% ²H₃

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 06/16/2016

(mm/dd/yyyy)

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

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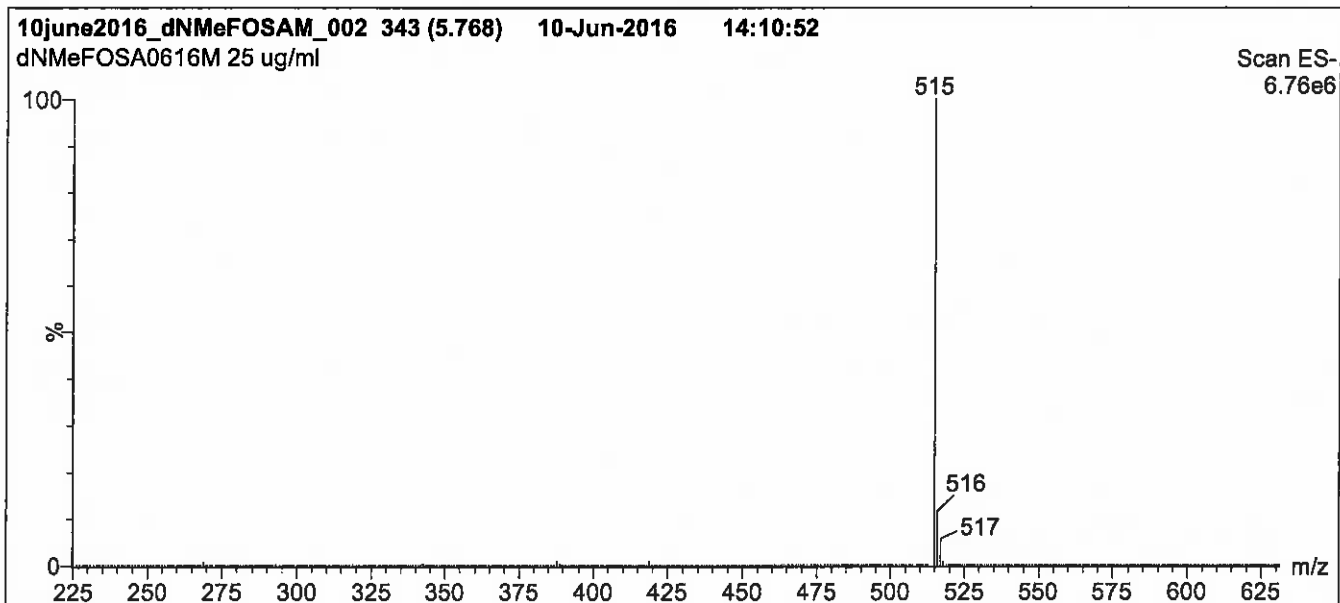
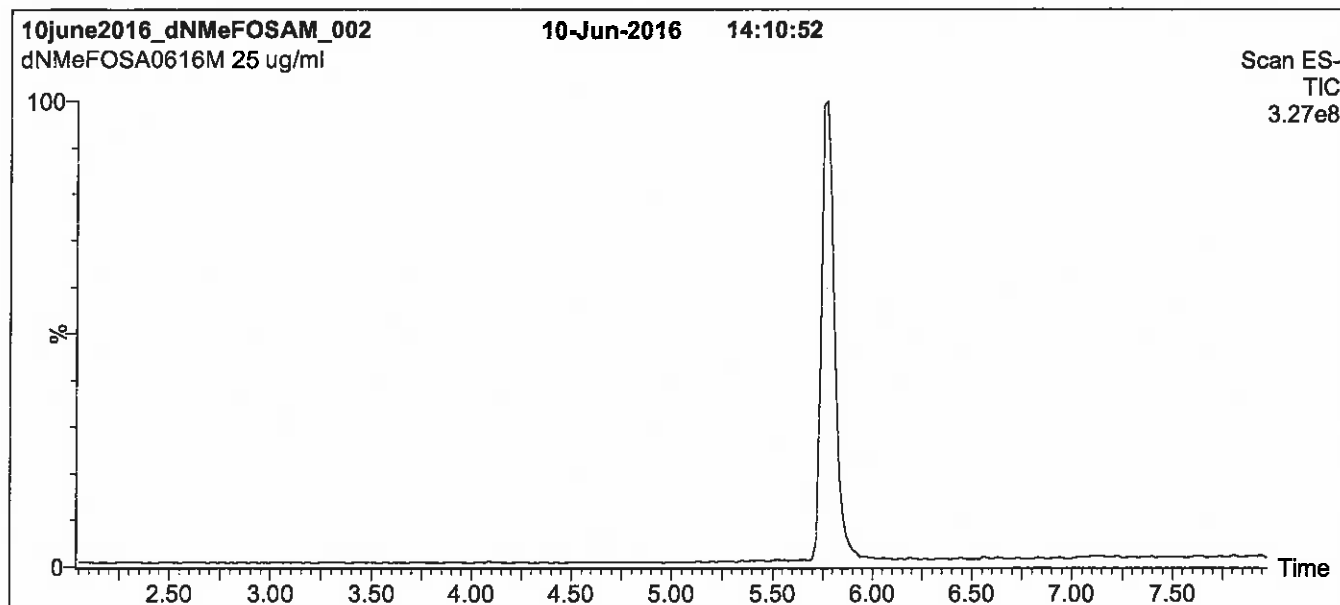
QUALITY MANAGEMENT:

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Figure 1: d-N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

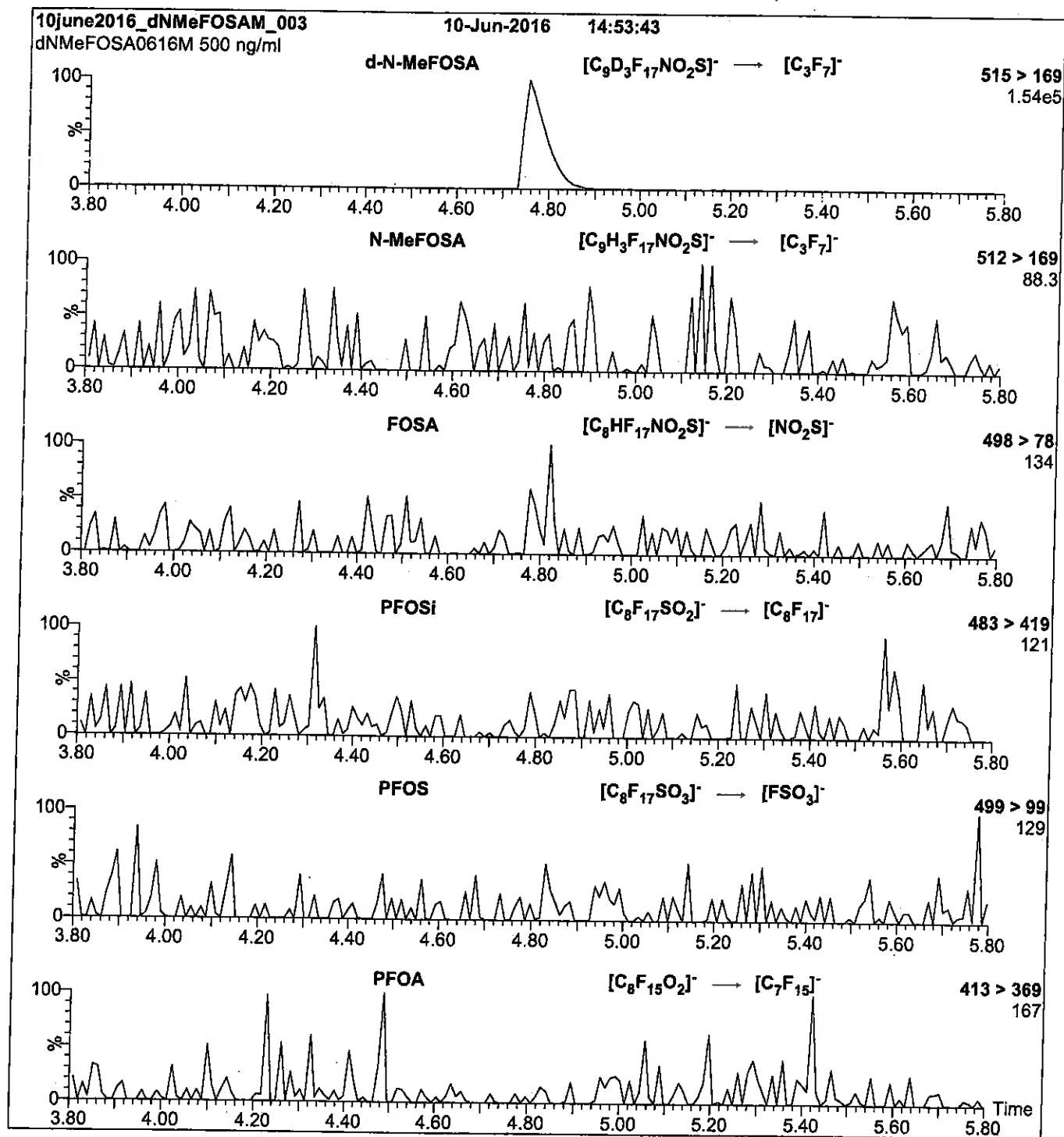
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: d-N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml d-N-MeFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

Reagent

LCd3-NMeFOSAA_00003

R: 9/9/16
SBC



728300
ID: LCd3-NMeFOSAA_00003
Exp: 05/31/21 Prod: SBC
d3-N-MeFOSAA

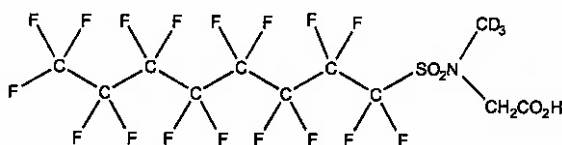


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0516
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₁D₃H₃F₁₇NO₄S **MOLECULAR WEIGHT:** 574.23
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.
- Contains ~ 1% of branched isomer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 06/01/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

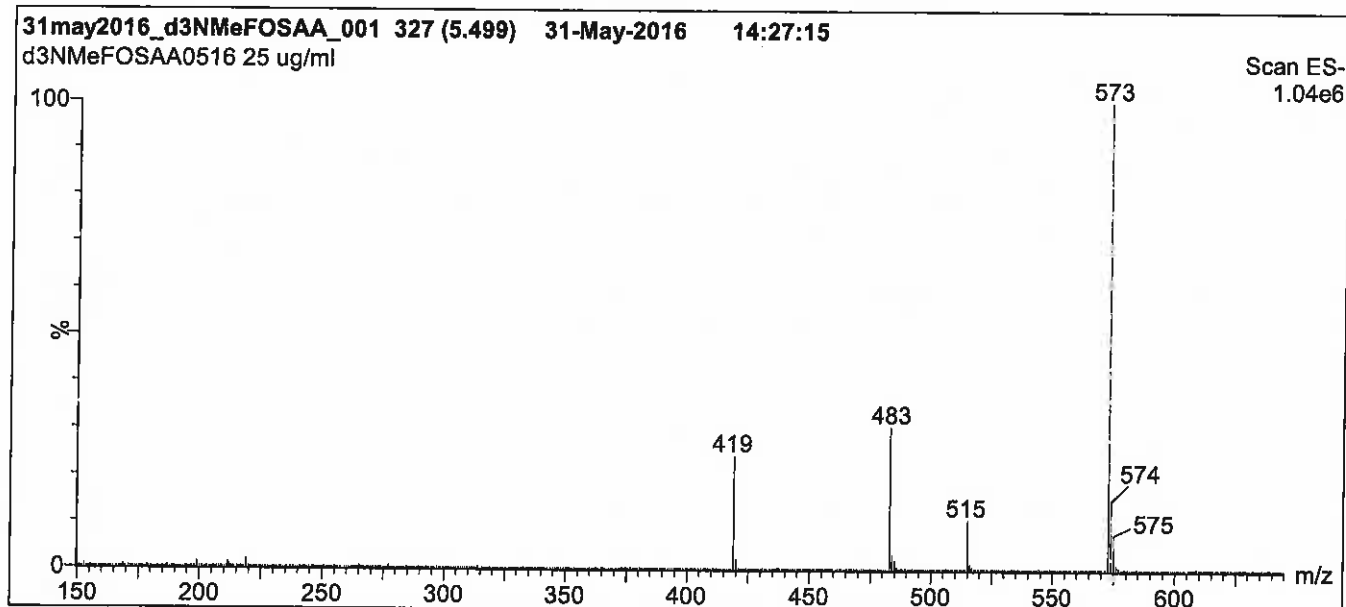
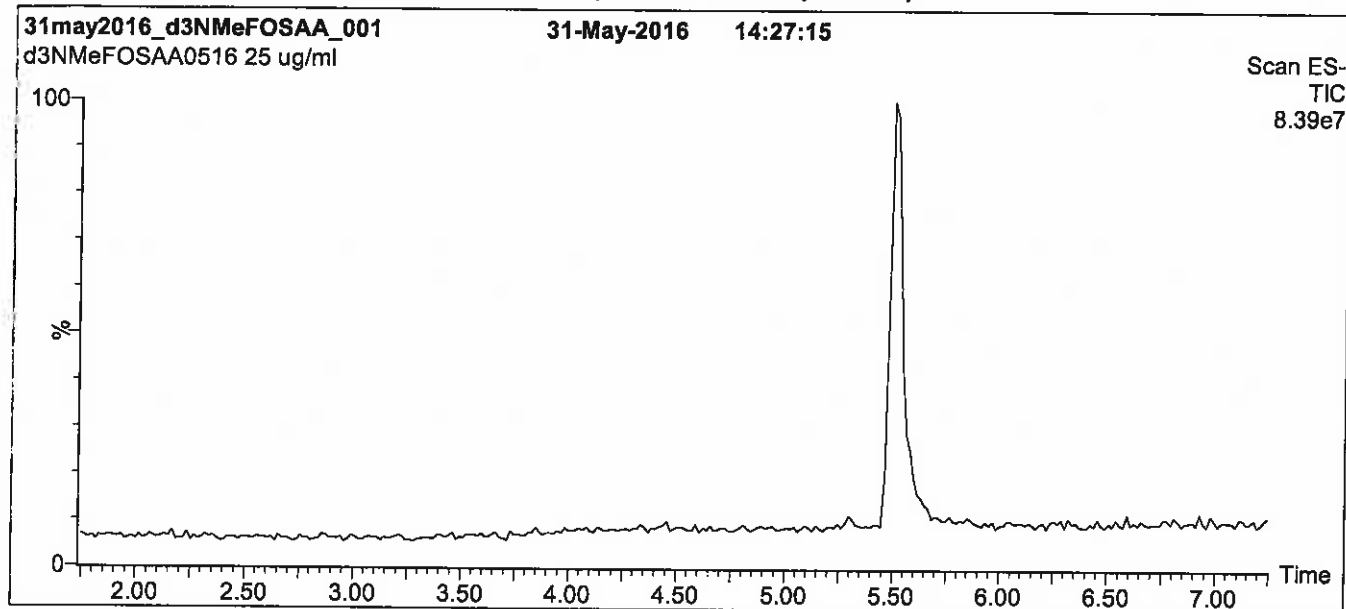
QUALITY MANAGEMENT:

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



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

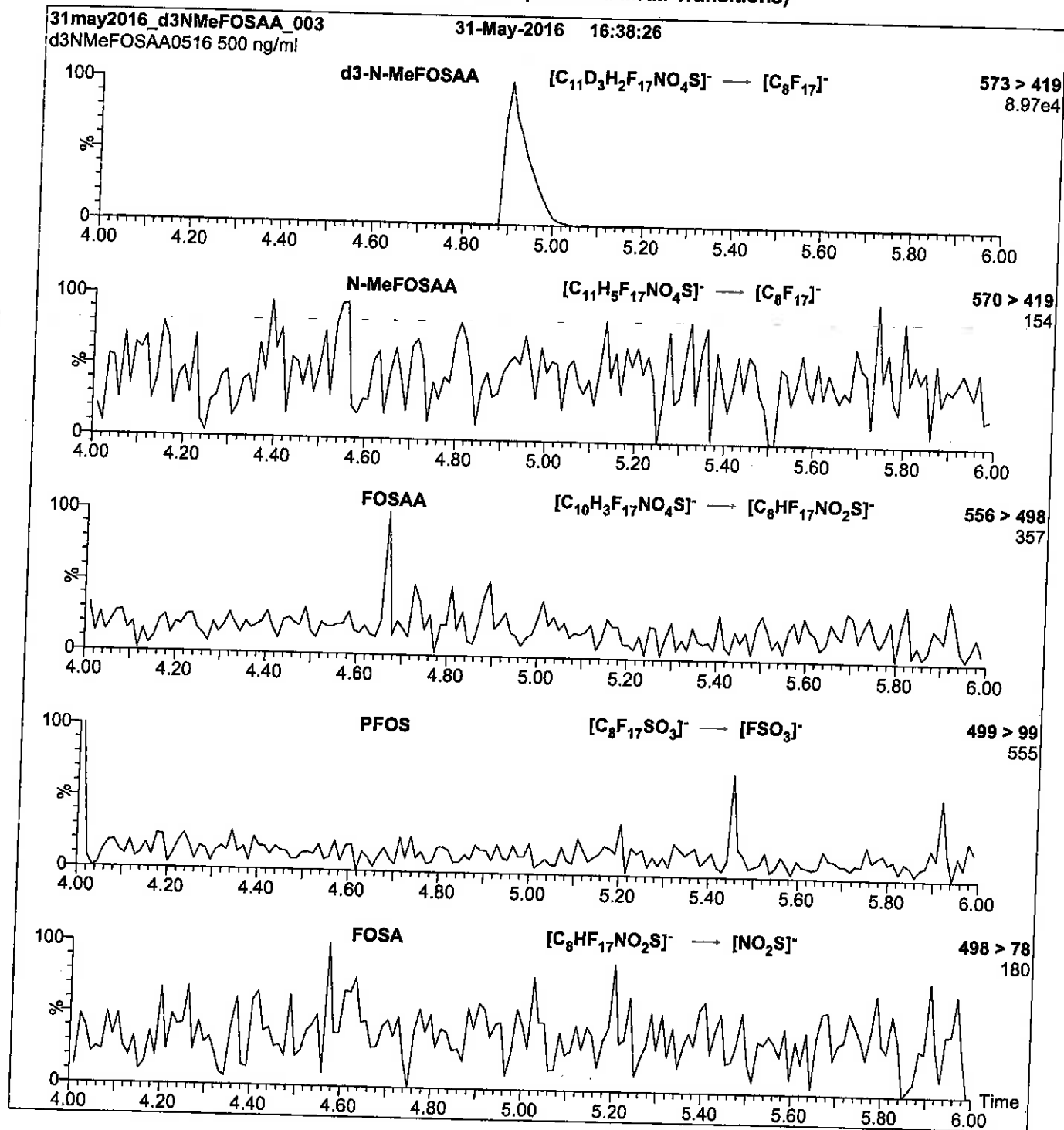
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d3-N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 25

Reagent

LCd5-NEtFOSAA_00003

R: 9/9/16 SBC



728301

ID: LCd5-NEtFOSAA_00003

Exp: 08/02/21 Prid: SBC

d5-N-EtFOSAA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

d5-N-EtFOSAA

LOT NUMBER:

d5NEtFOSAA0716

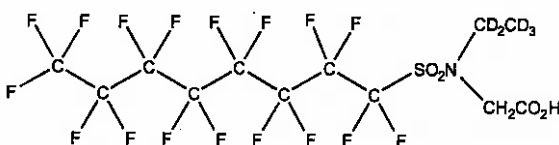
COMPOUND:

N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₁₂D₈H₃F₁₇NO₄S

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

590.26

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥98% ²H₅

LAST TESTED: (mm/dd/yyyy)

08/02/2016

EXPIRY DATE: (mm/dd/yyyy)

08/02/2021

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/09/2016

(mm/dd/yyyy)

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

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LIMITED WARRANTY:

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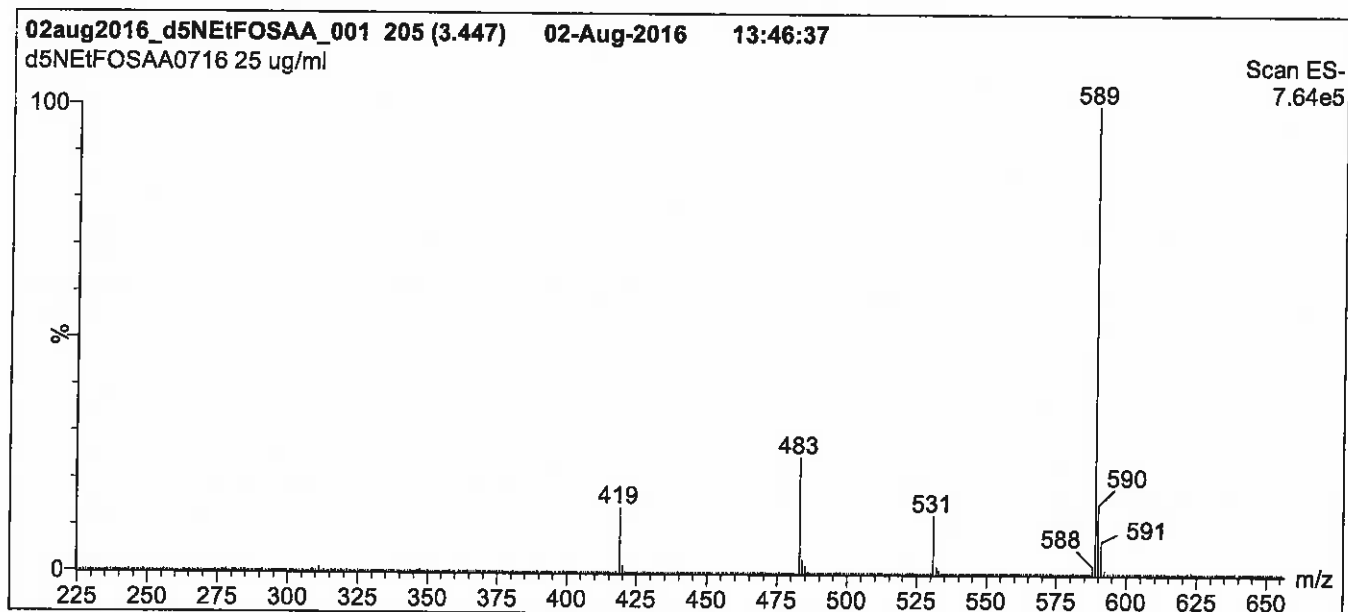
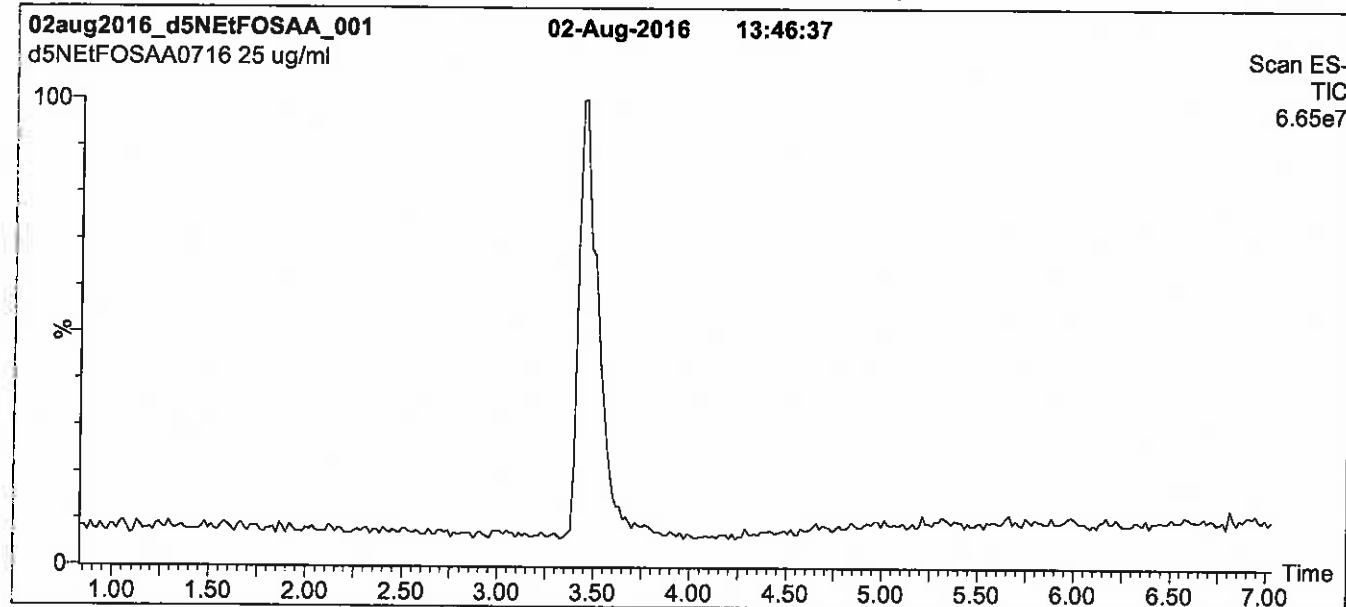
QUALITY MANAGEMENT:

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



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Figure 1: d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

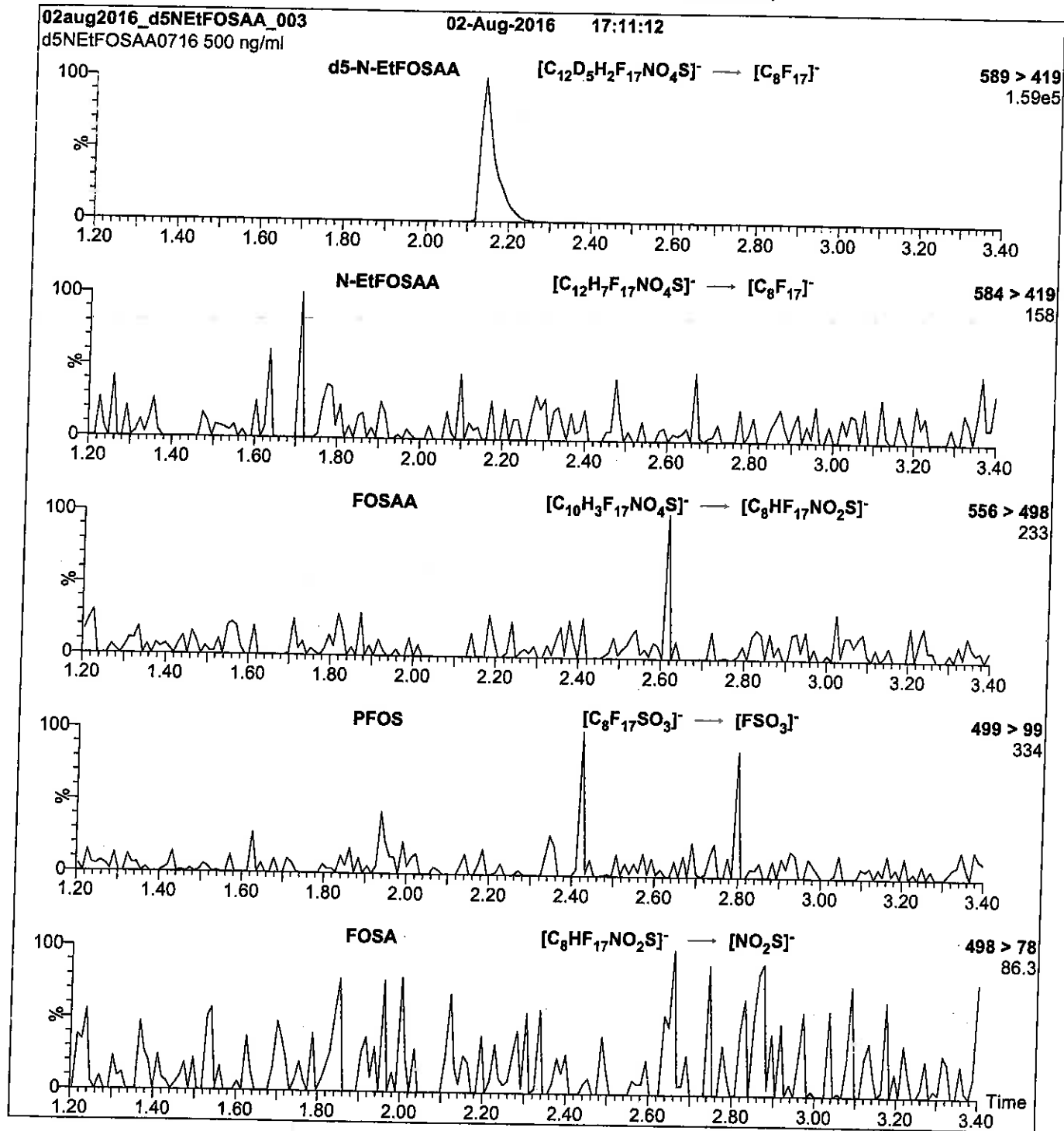
Flow: 350 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml d5-N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 25

Reagent

LCM2-6:FTS_00003

R: 9/9/16 8BC



728304

ID: LCM2-6:FTS_00003

Exp: 01/08/21 Prpt: SAC

M2-6:2FTS



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

M2-6:2FTS

LOT NUMBER:

M262FTS0116

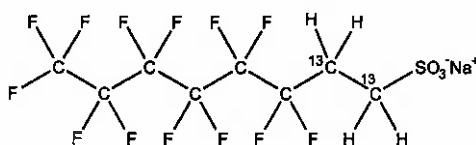
COMPOUND:

Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]octane sulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₆H₄F₁₃SO₃Na

MOLECULAR WEIGHT:

452.13

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)
47.5 ± 2.4 µg/ml (M2-6:2FTS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C
(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy)

01/08/2016

EXPIRY DATE: (mm/dd/yyyy)

01/08/2021

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ³⁴S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/11/2016

(mm/dd/yyyy)

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

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

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LIMITED WARRANTY:

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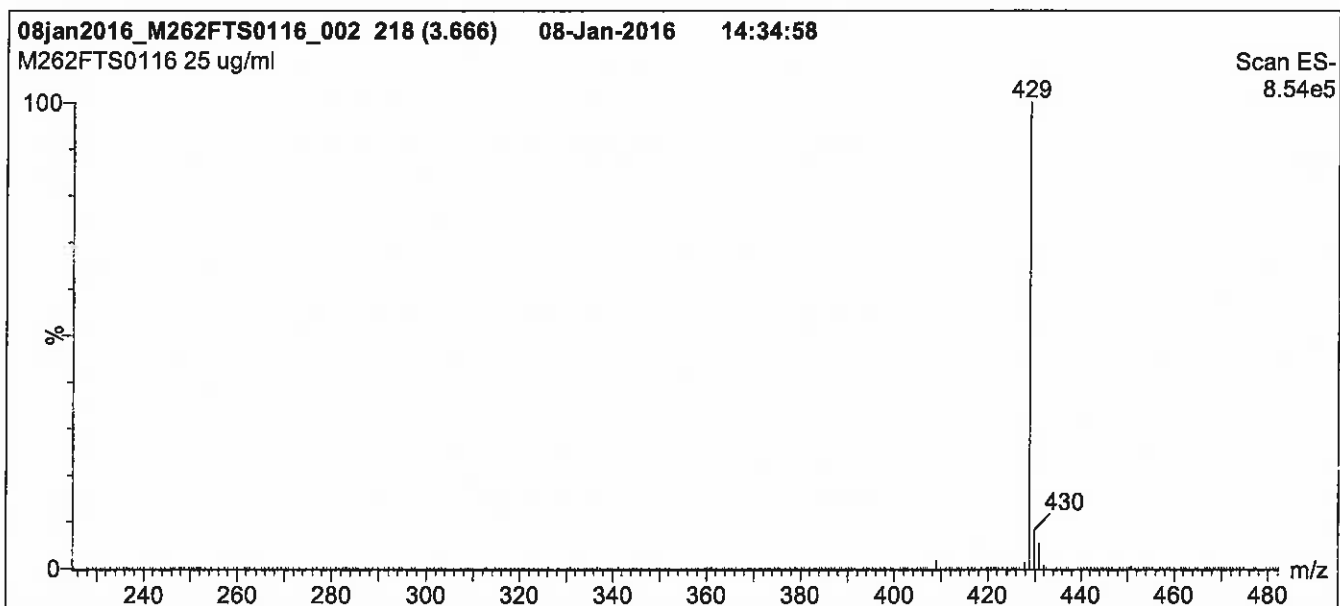
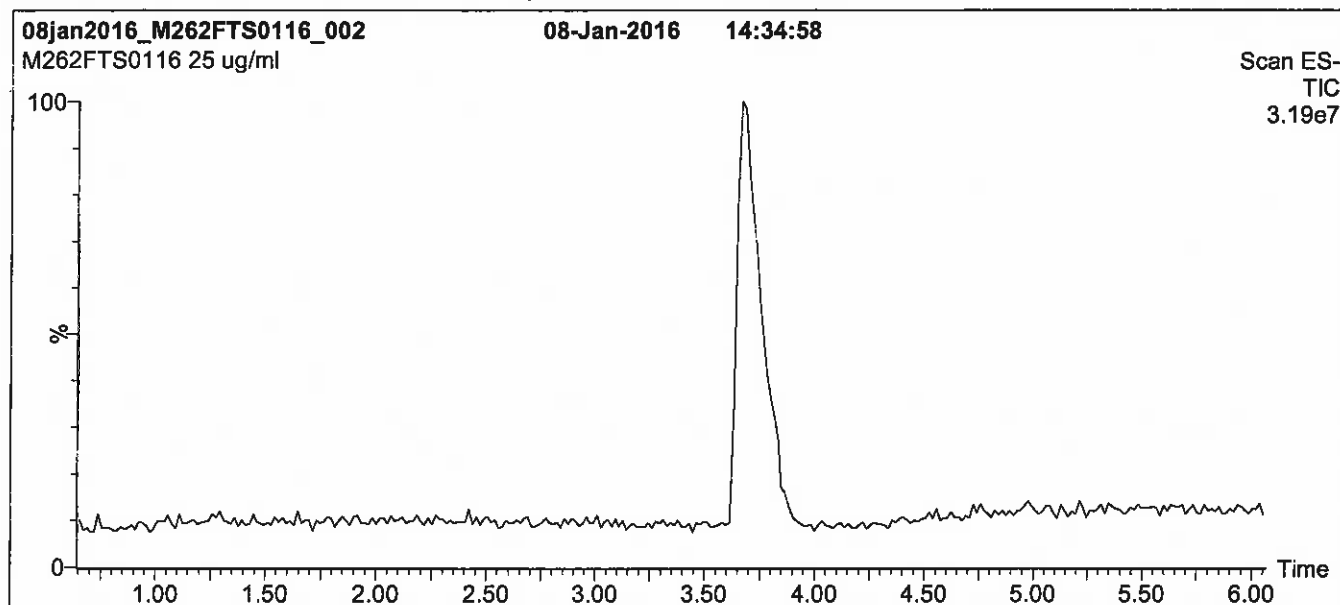
QUALITY MANAGEMENT:

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Figure 1: M2-6:2FTS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.

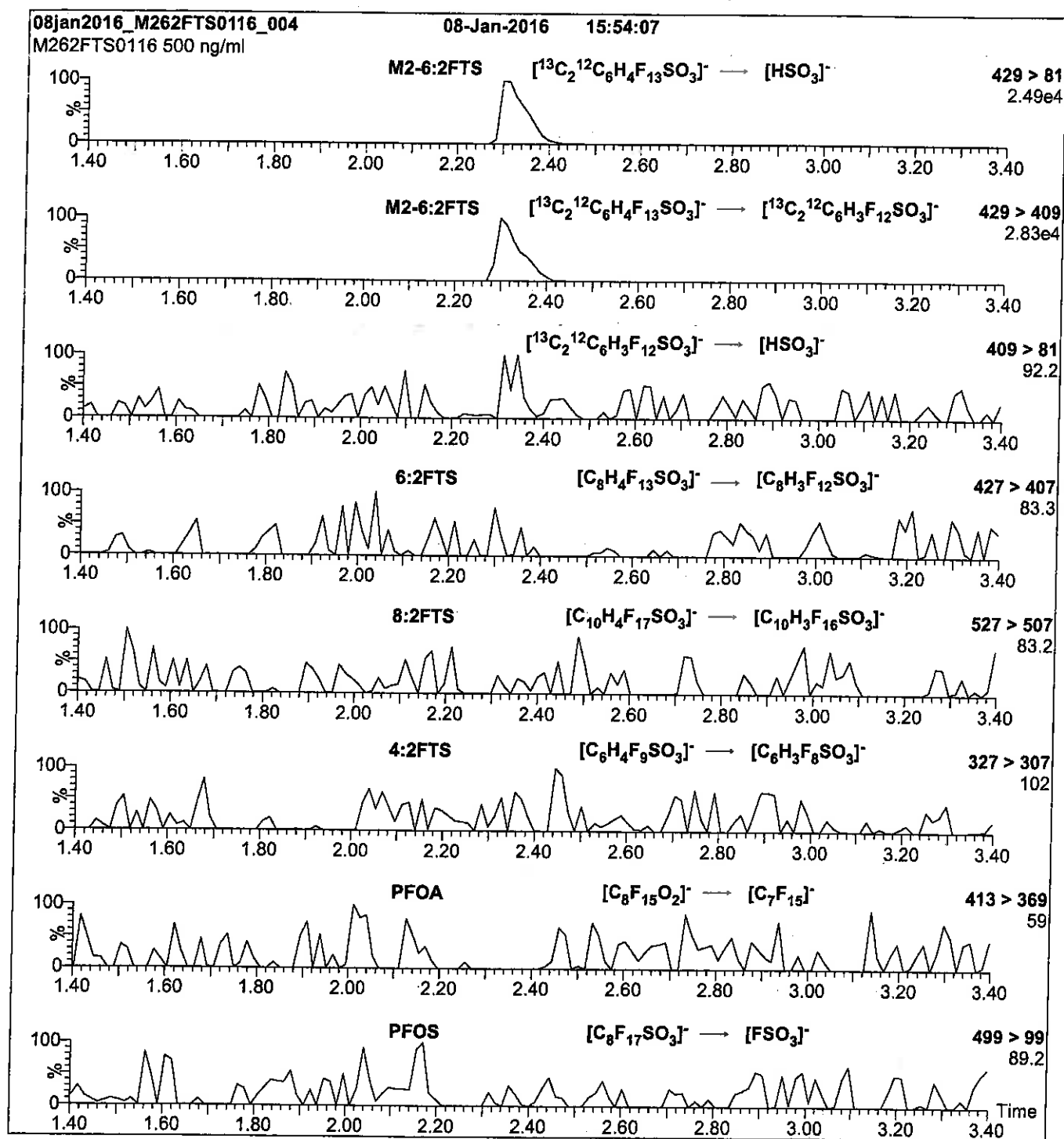
Time: 10 min
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2-6:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 25

Reagent

LCM2PFHxDA_00008

R: 8BC 9/22/16



739512

ID: LCM2PFHxDA_00008

Exp: 01/07/21 Prod: SBC

¹³C2-PFHxDA at 50ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

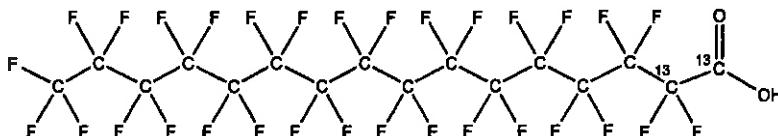
M2PFHxDA

LOT NUMBER:

M2PFHxDA1112

COMPOUND:Perfluoro-n-[1,2-¹³C₂]hexadecanoic acid**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₁₄HF₃₁O₂**CONCENTRATION:**

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

816.11

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

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

01/07/2016

EXPIRY DATE: (mm/dd/yyyy)

01/07/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

(1,2-¹³C₂)**DOCUMENTATION/ DATA ATTACHED:**

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of native perfluoro-n-hexadecanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/11/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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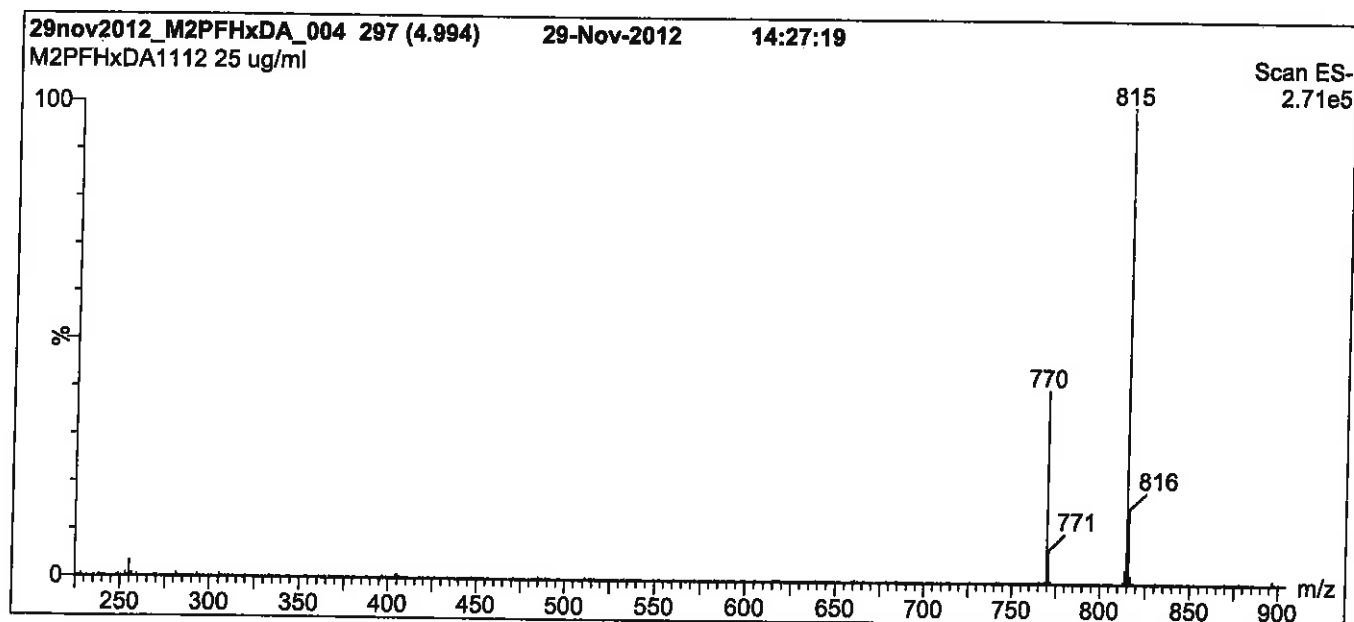
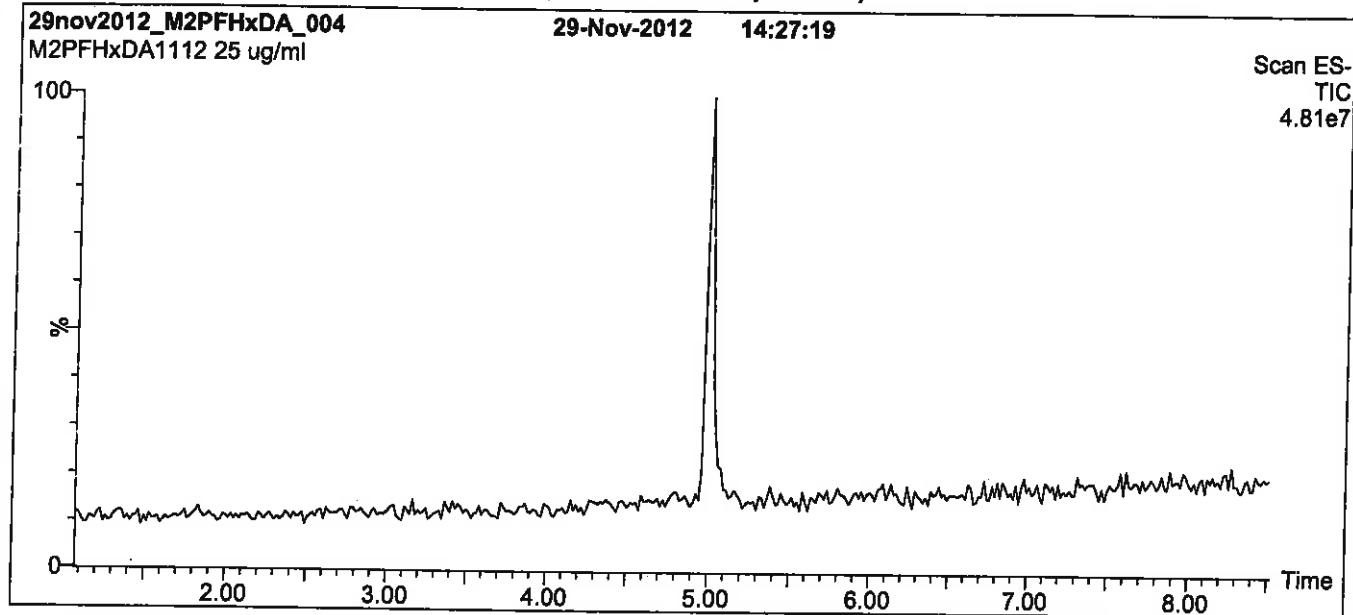
QUALITY MANAGEMENT:

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



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Figure 1: M2PFHxDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 100% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

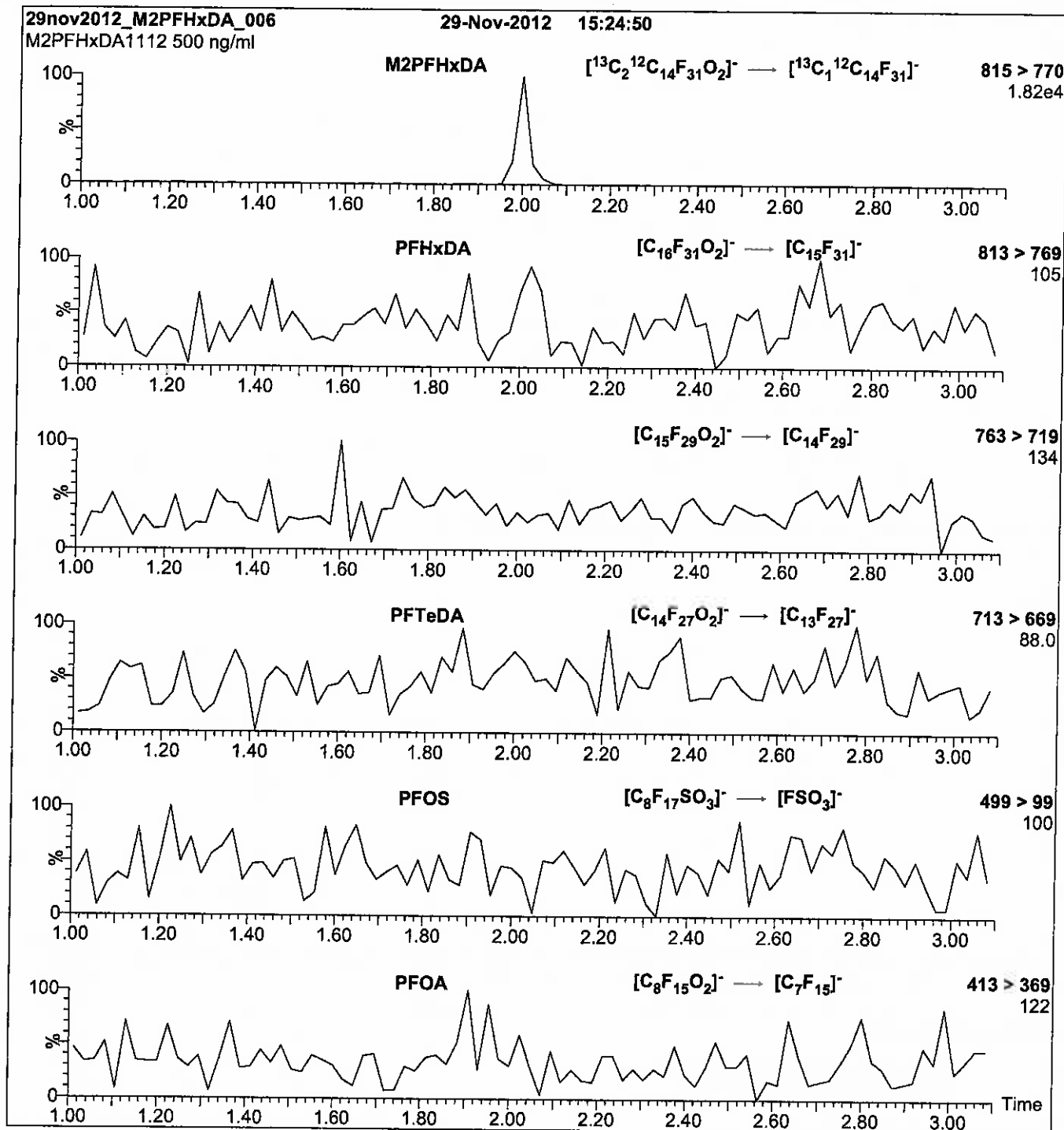
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: M2PFHxDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.39\text{e-}3$
Collision Energy (eV) = 15

Reagent

LCM2PFTeDA_00007



Scanned 10/14/16 R: 800 9/27/16
WELLINGTON
LABORATORIES



739563

ID: LCM2PFTeDA_00007

Exp: 12/07/20 Prod: SEC

13C2-PFTeDA at 50ug/mL

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

M2PFTeDA

LOT NUMBER:

M2PFTeDA1115

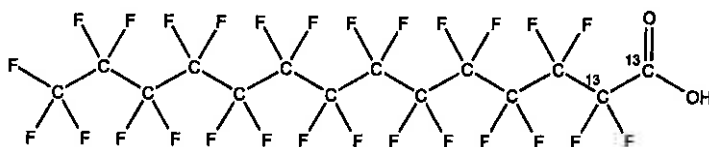
COMPOUND:

Perfluoro-n-[1,2-¹³C₂]tetradecanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₁₂HF₂₇O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

716.10

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy)

12/07/2015

EXPIRY DATE: (mm/dd/yyyy)

12/07/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/08/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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EXPIRY DATE / PERIOD OF VALIDITY:

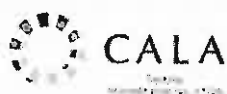
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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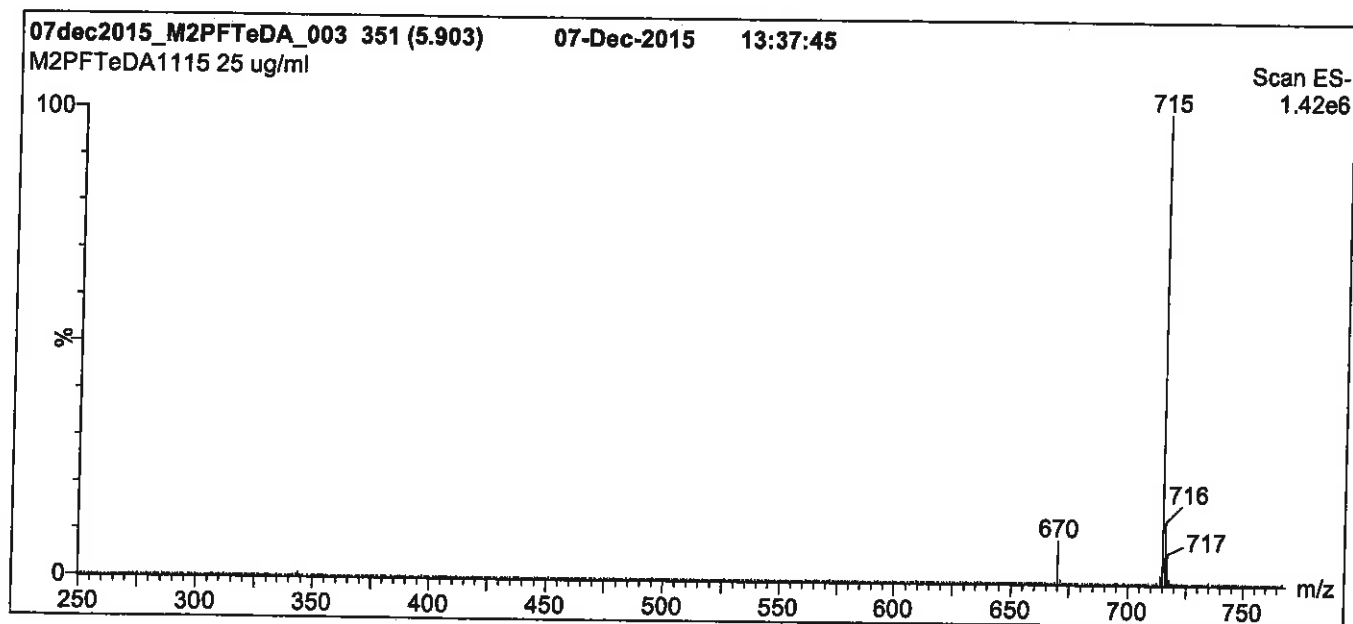
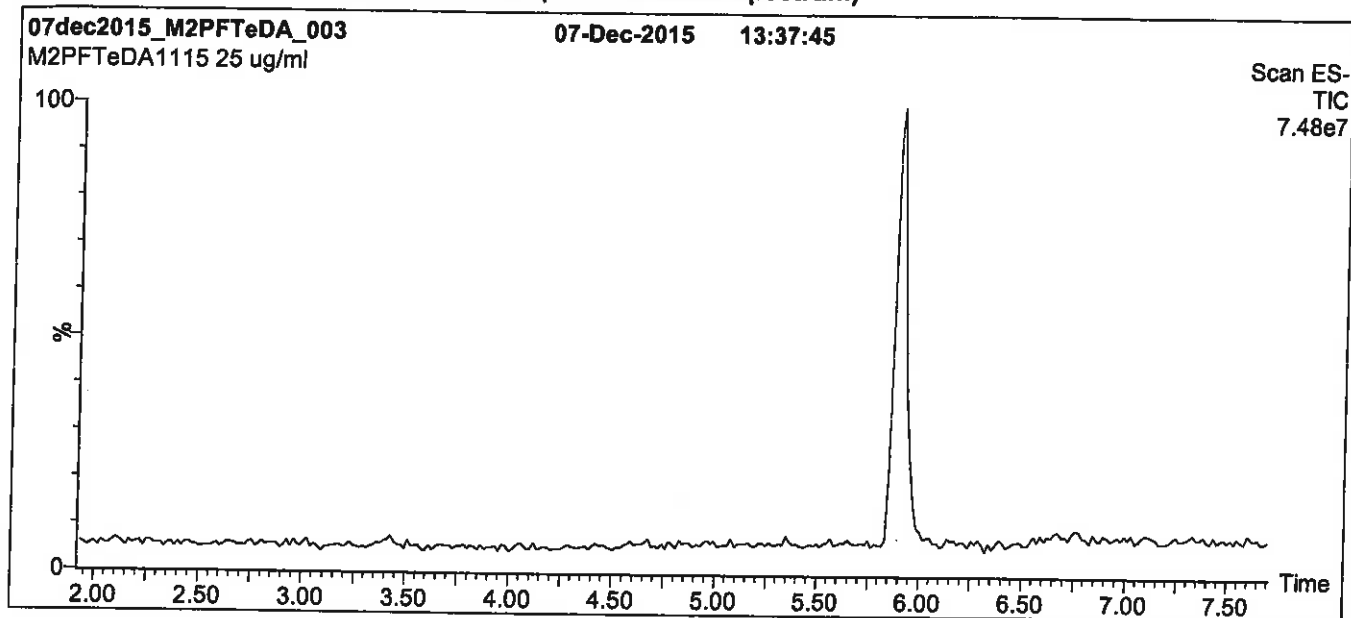
QUALITY MANAGEMENT:

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Figure 1: M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

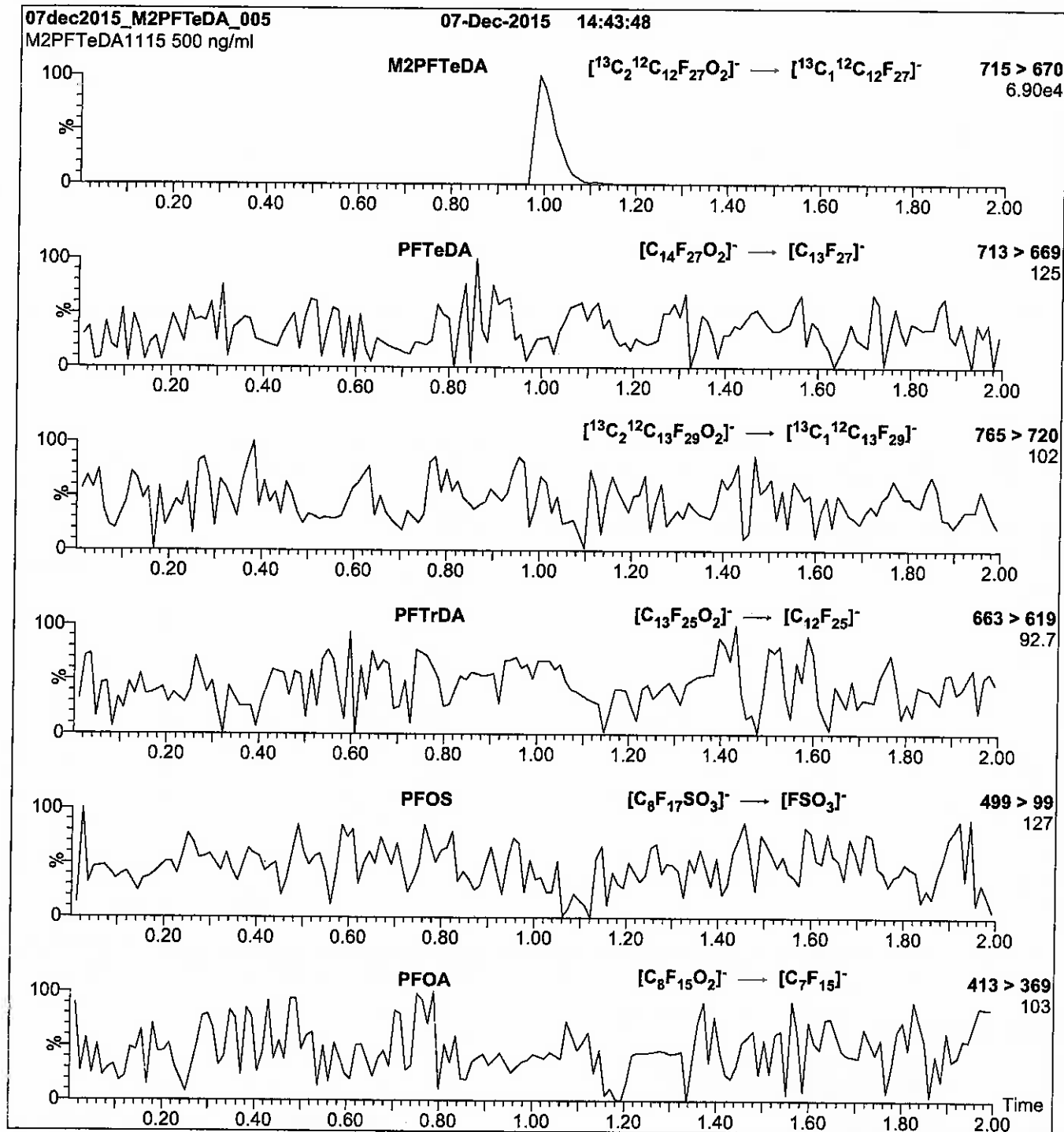
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: M2PFTeDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.28\text{e-}3$
Collision Energy (eV) = 14

Reagent

LCM4PFHPA_00007

f: SBC 9/22/16

739567
ID: LCM4PFHPA_00007
Exp: 05/27/21 Prpd: SBC
13C4-Perfluoroheptanoic a



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE:

M4PFHpA

LOT NUMBER:

M4PFHpA0516

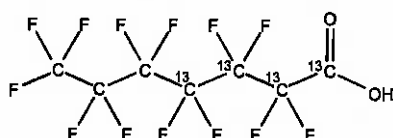
COMPOUND:

Perfluoro-n-[1,2,3,4-¹³C₄]heptanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₄¹²C₃HF₁₃O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

368.03

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99%¹³C

LAST TESTED: (mm/dd/yyyy)

05/27/2016

(1,2,3,4-¹³C₄)

EXPIRY DATE: (mm/dd/yyyy)

05/27/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 07/05/2016

(mm/dd/yyyy)

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

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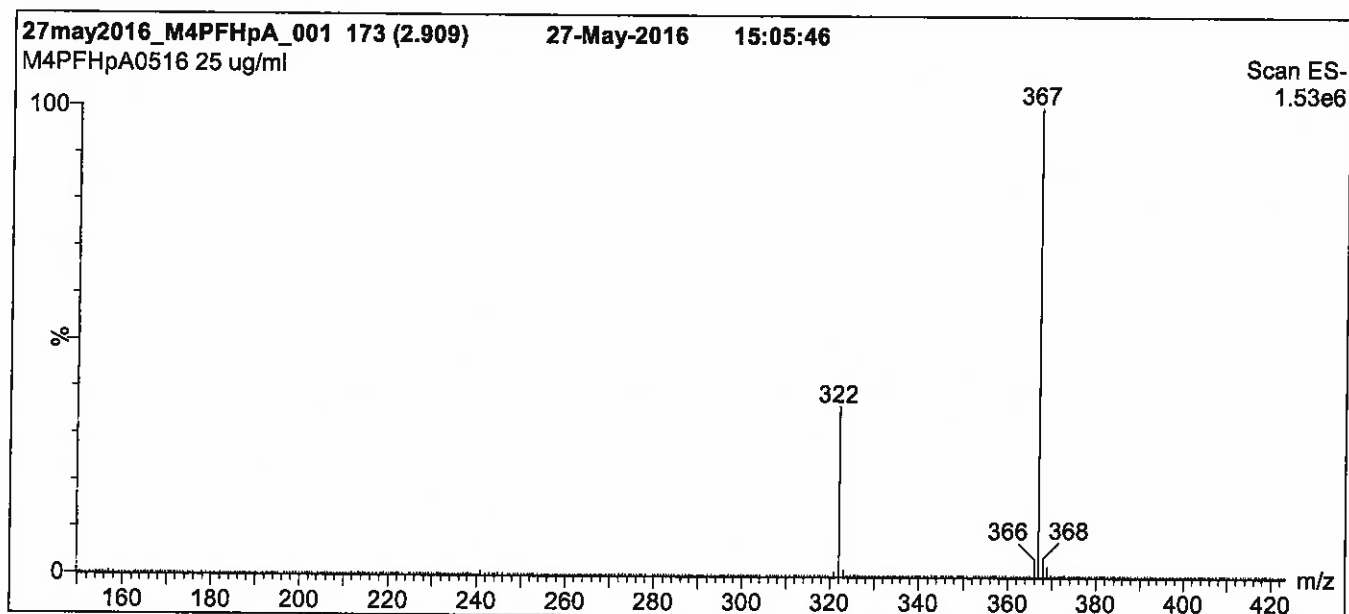
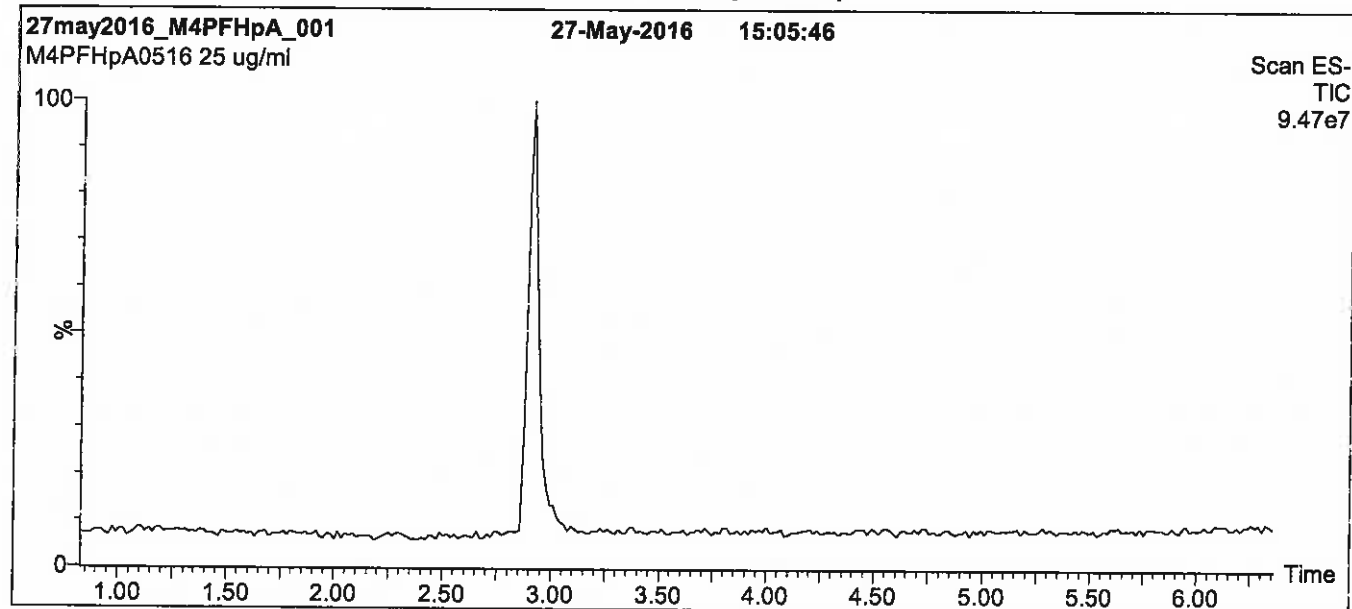
QUALITY MANAGEMENT:

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Figure 1: M4PFHpA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

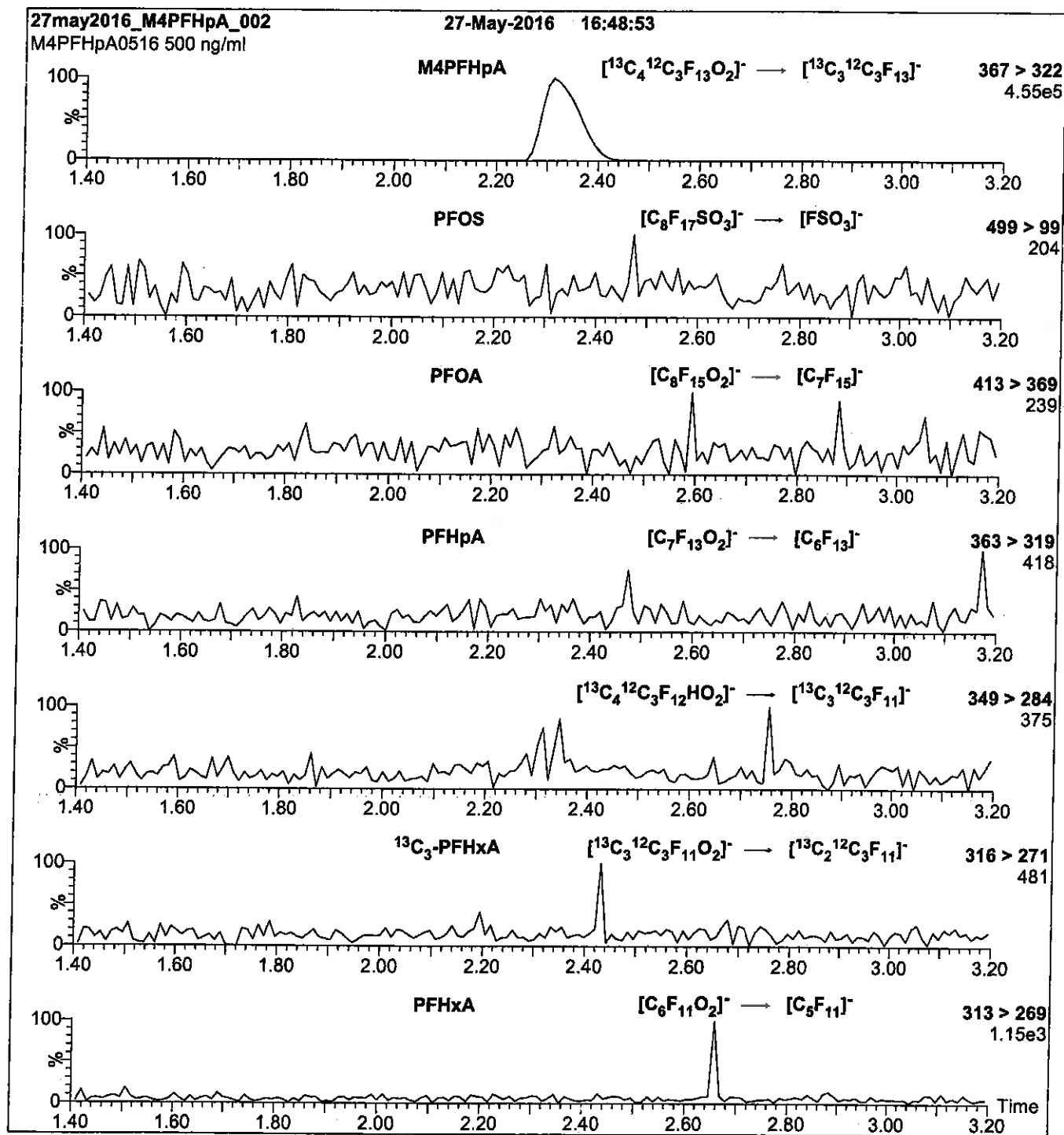
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: M4PFHpA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M4PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

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

Reagent

LCM5PFPEA_00008

R: 8BC 9/22/16



739590

ID: LCM5PFPEA_00008

Exp: 05/22/20 Prpt: SAC

¹³C5-Perfluoropentanoic a



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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 LR

PRODUCT CODE:

M5PFPeA

LOT NUMBER:

M5PFPeA0515

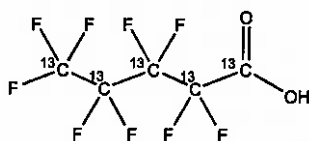
COMPOUND:

Perfluoro-n-[¹³C₅]pentanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₅HF₉O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

269.01

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

05/22/2015

(¹³C₅)

EXPIRY DATE: (mm/dd/yyyy)

05/22/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/25/2015

(mm/dd/yyyy)

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

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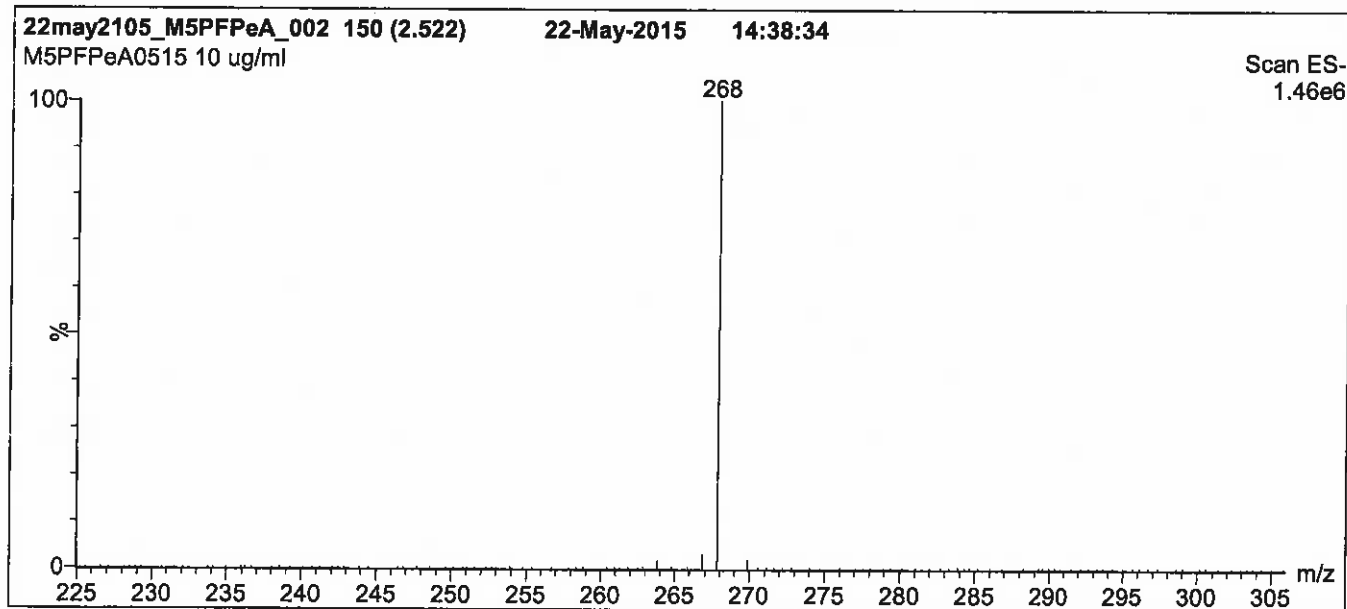
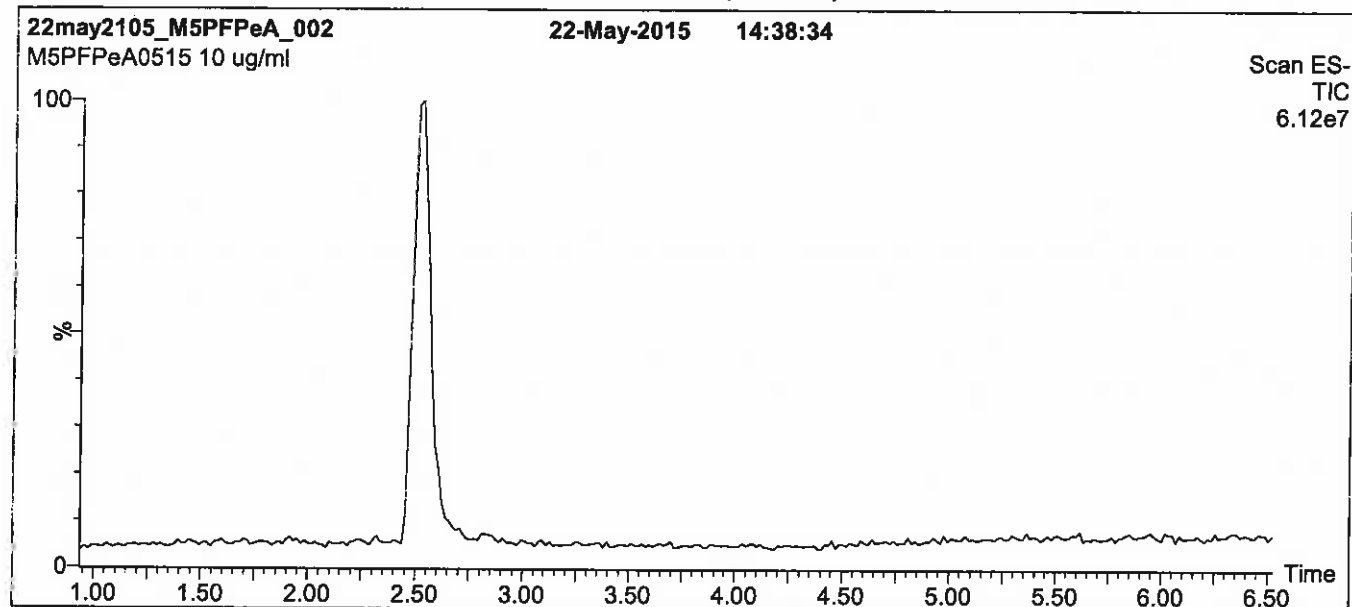
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Figure 1: M5PFPeA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

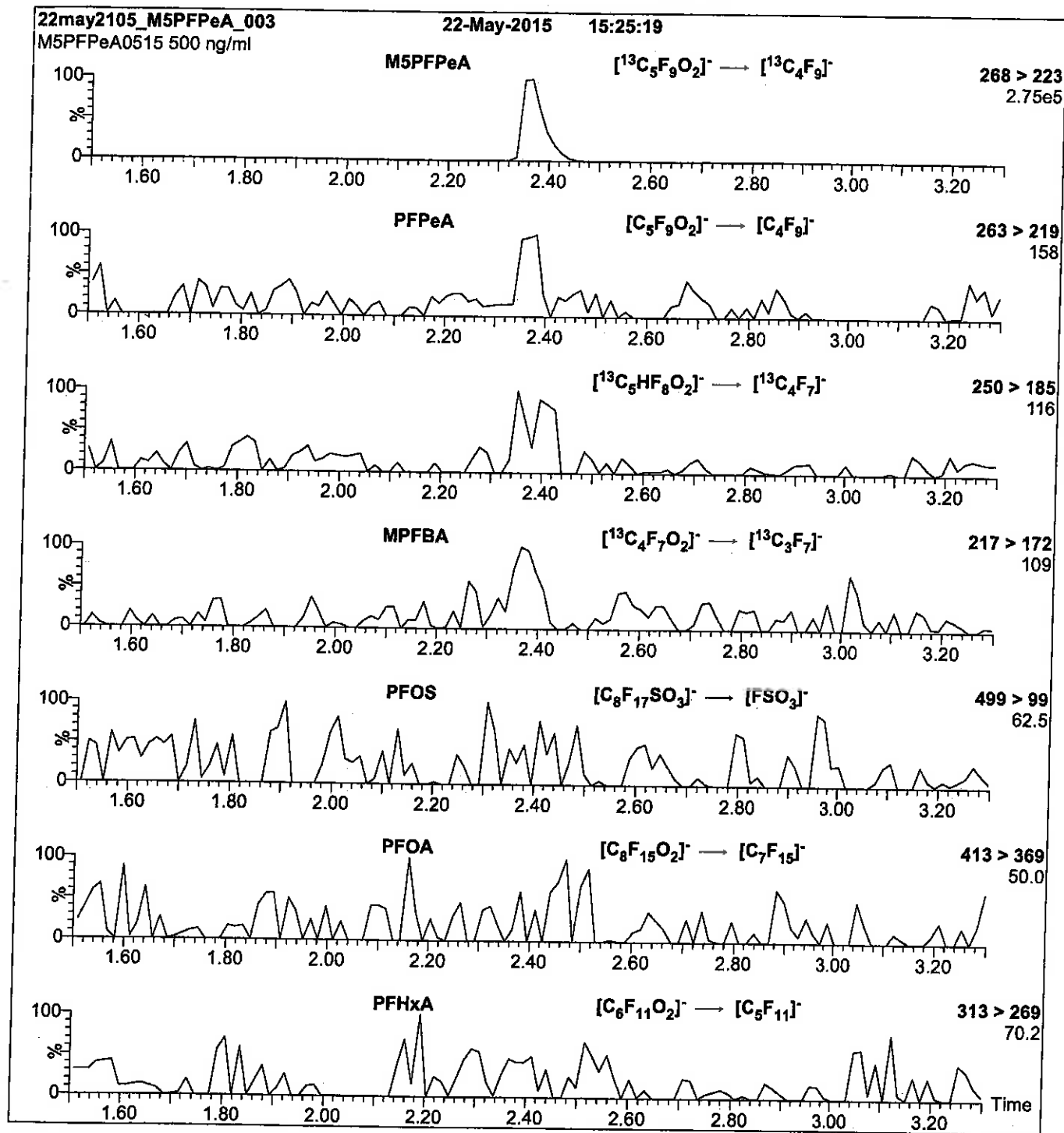
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: M5PFPeA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M5PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 9

Reagent

LCM8FOSA_00011



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION



739615

ID: LCM8FOSA_00011

Exp: 12/22/17 Prod: SBC
13C8-Perfluorooctanesulfo

R: SBC 9/22/16
Scanned 10/14/16

PRODUCT CODE:

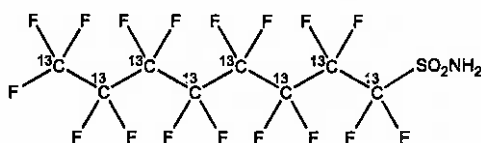
M8FOSA-I

LOT NUMBER:

M8FOSA1215I

COMPOUND:Perfluoro-1-[¹³C₈]octanesulfonamide**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₈H₂F₁₇NO₂S**CONCENTRATION:**

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/22/2015

EXPIRY DATE: (mm/dd/yyyy)

12/22/2017

RECOMMENDED STORAGE:

Refrigerate ampoule

MOLECULAR WEIGHT:

507.09

SOLVENT(S):

Isopropanol

ISOTOPIC PURITY:≥99% ¹³C
(¹³C₈)**DOCUMENTATION/ DATA ATTACHED:**

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/14/2016

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

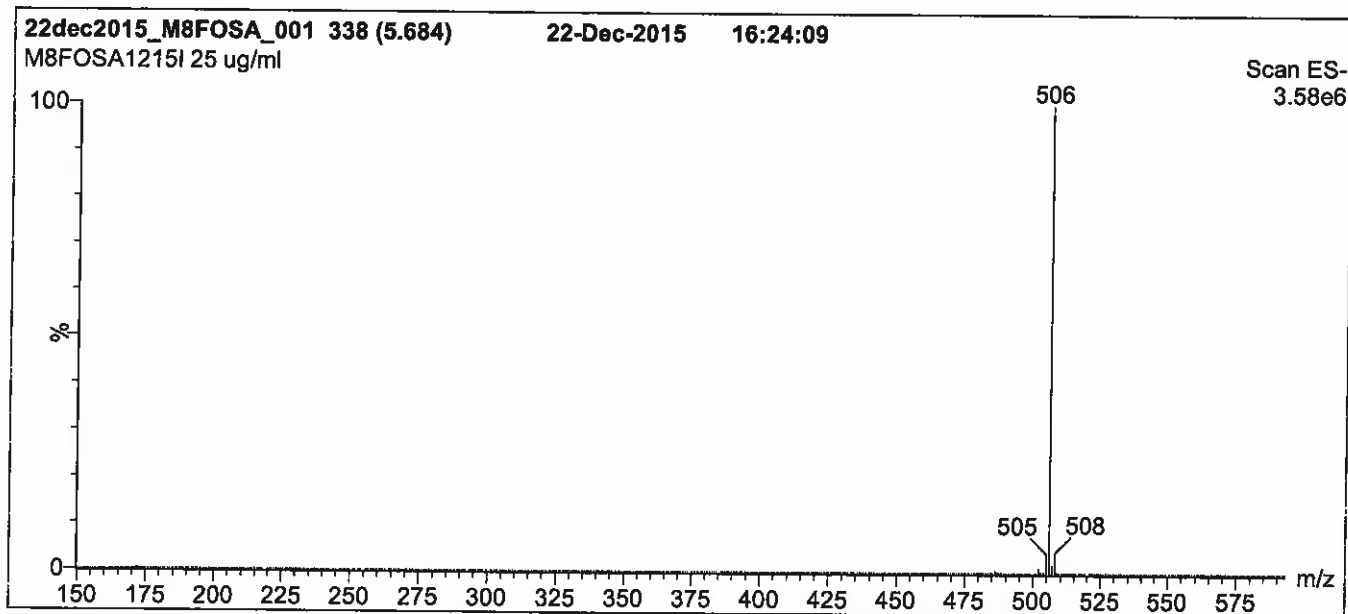
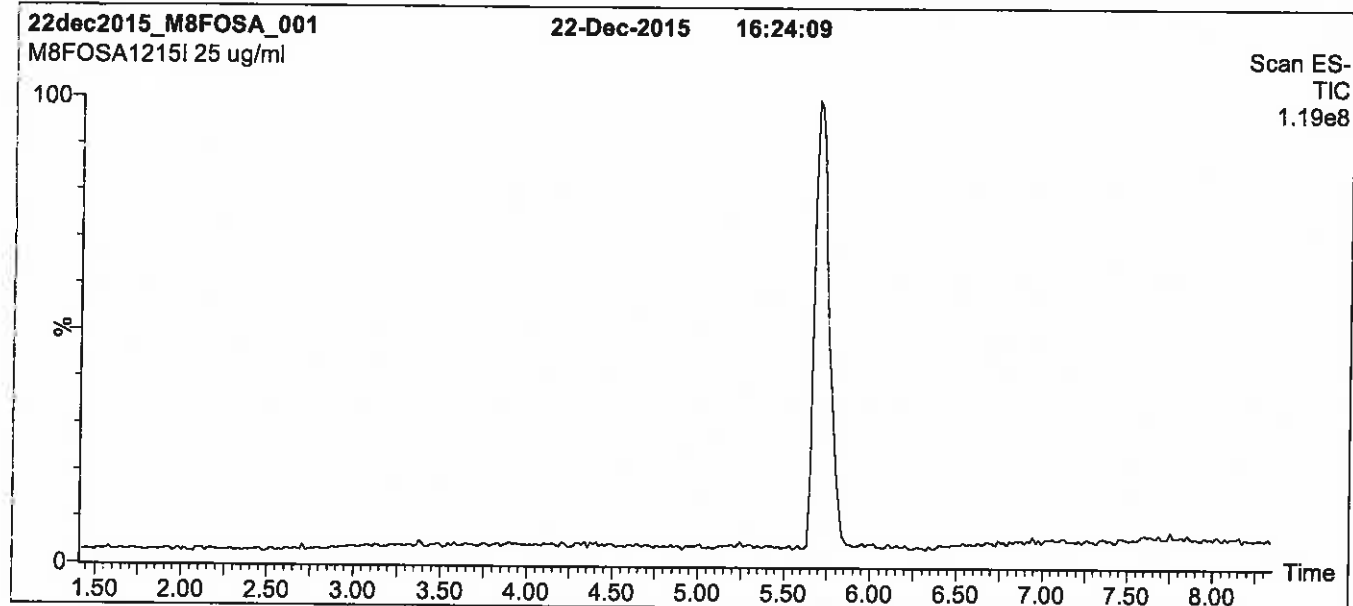
QUALITY MANAGEMENT:

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



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Figure 1: M8FOSA-I; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

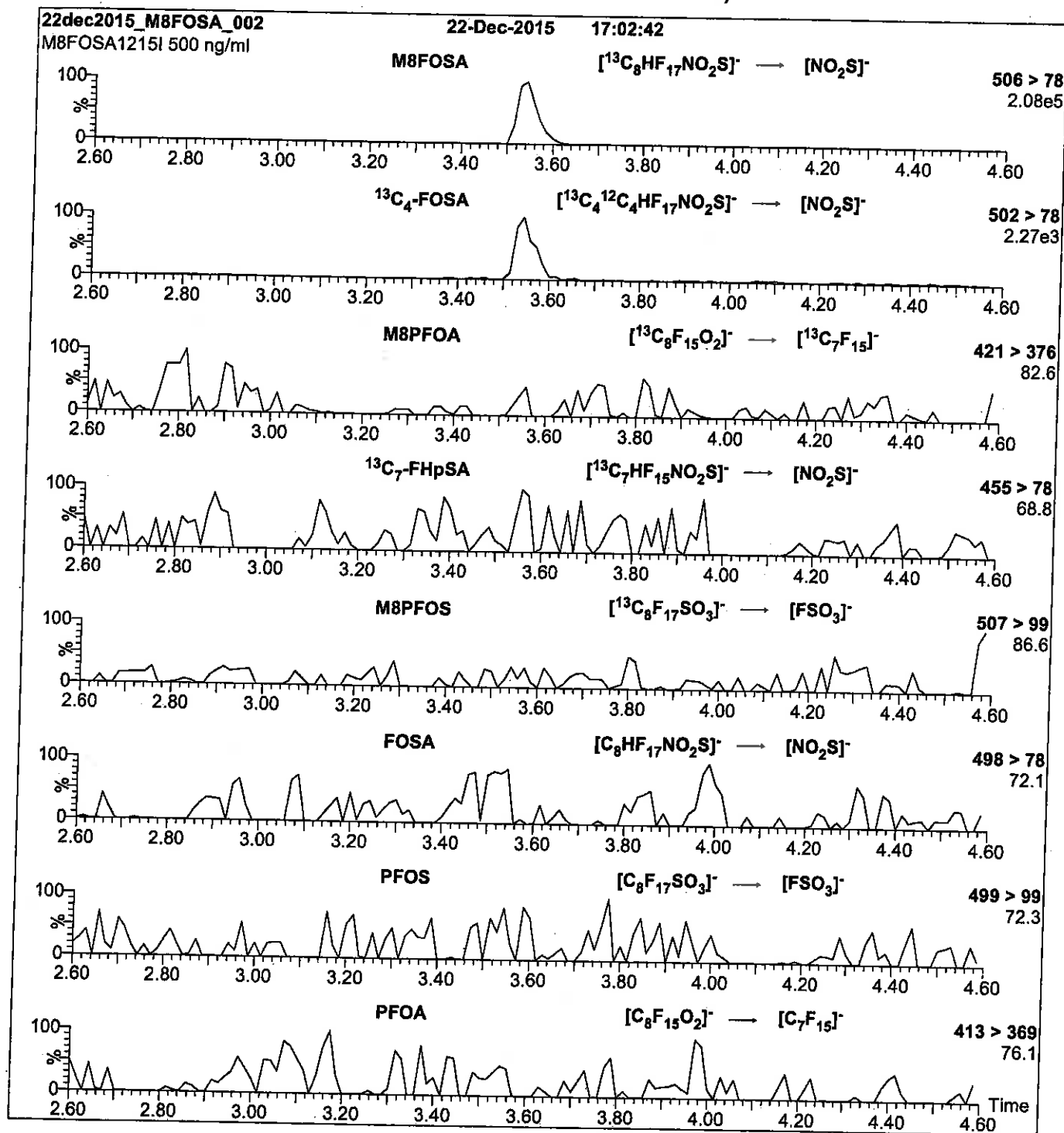
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: M8FOSA-I; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M8FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 30

Reagent

LCMPFBA_00008

R: 8BC 9/22/16



739593

ID: LCMFBA_00008

Exp: 05/24/21 Prod: SEC

13C4-Perfluorobutanoic ac



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SP

PRODUCT CODE:

MPFBA

LOT NUMBER:

MPFBA0516

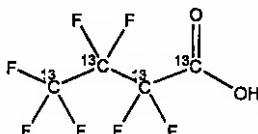
COMPOUND:

Perfluoro-n-[1,2,3,4-¹³C₄]butanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₄HF₉O₂

MOLECULAR WEIGHT:

218.01

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99%¹³C

LAST TESTED: (mm/dd/yyyy)

05/24/2016

(1,2,3,4-¹³C₄)

EXPIRY DATE: (mm/dd/yyyy)

05/24/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/30/2016

(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

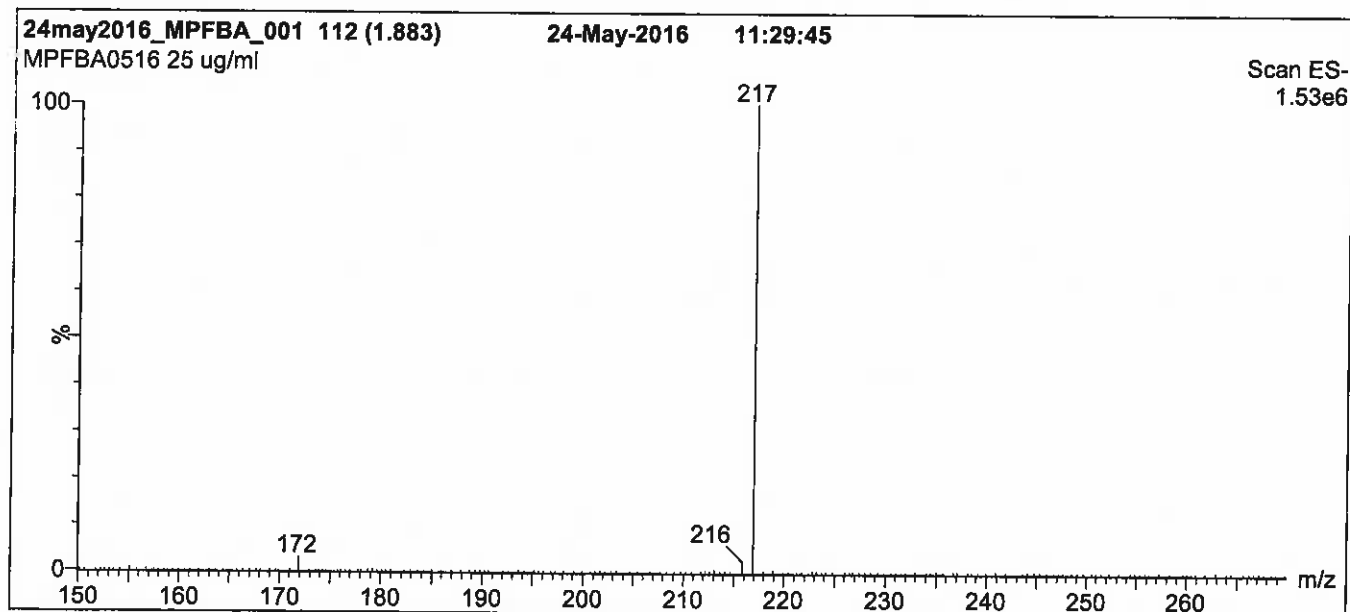
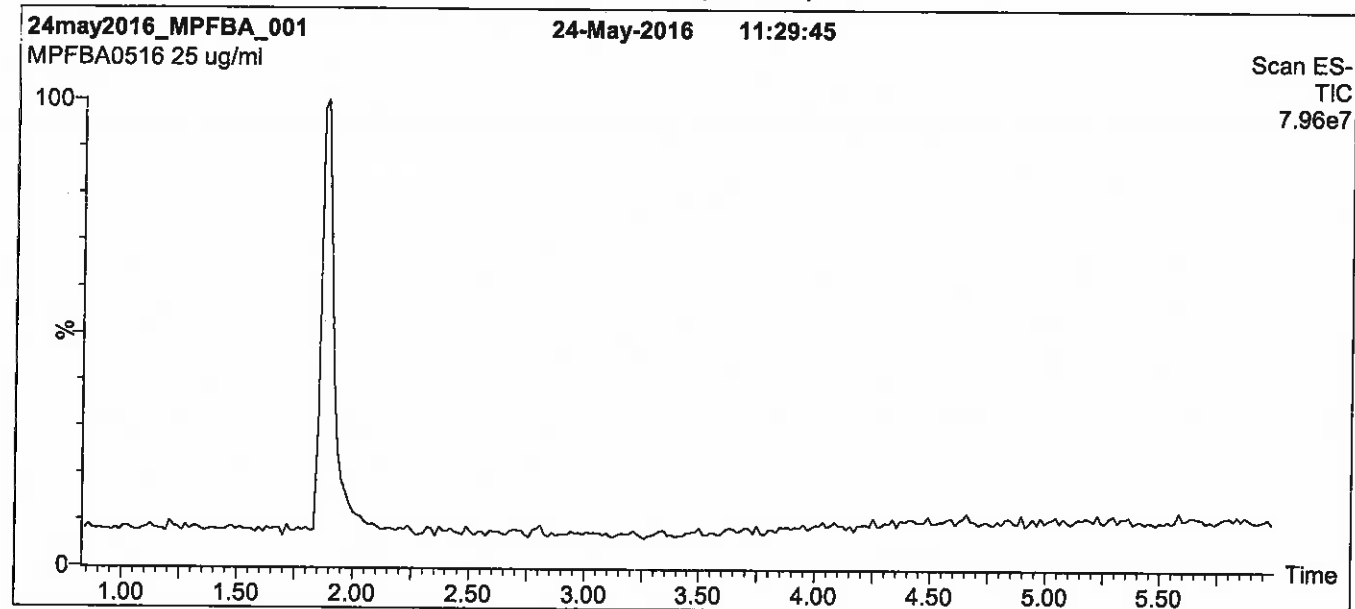
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

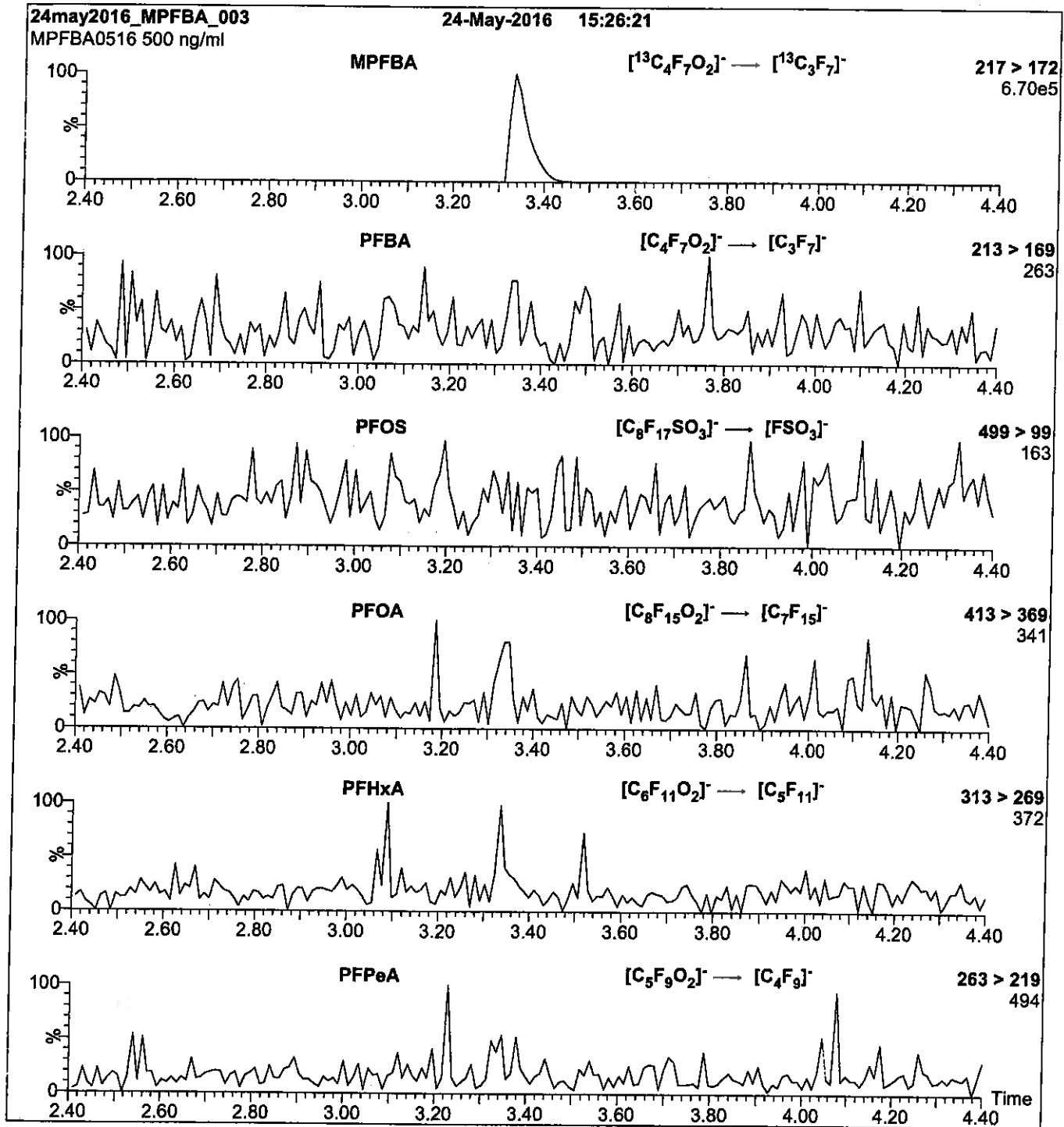
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop Injection
10 μl (500 ng/ml MPFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 10

Reagent

LCMPFDA_00011



Scanned 10/14/16 R: SBC 9/22/16
WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

739609
ID: LCMFDA_00011
Exp: 08/19/20 Prod: SBC
13C2-Perfluorodecanoic a

PRODUCT CODE:

MPFDA

LOT NUMBER:

MPFDA0815

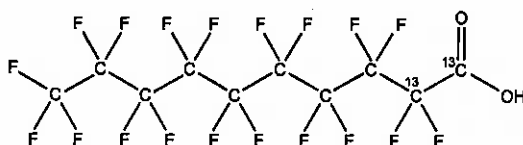
COMPOUND:

Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₈HF₁₈O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

516.07

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

08/19/2015

EXPIRY DATE: (mm/dd/yyyy)

08/19/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of ¹³C₁-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/21/2015

(mm/dd/yyyy)

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

INTENDED USE:

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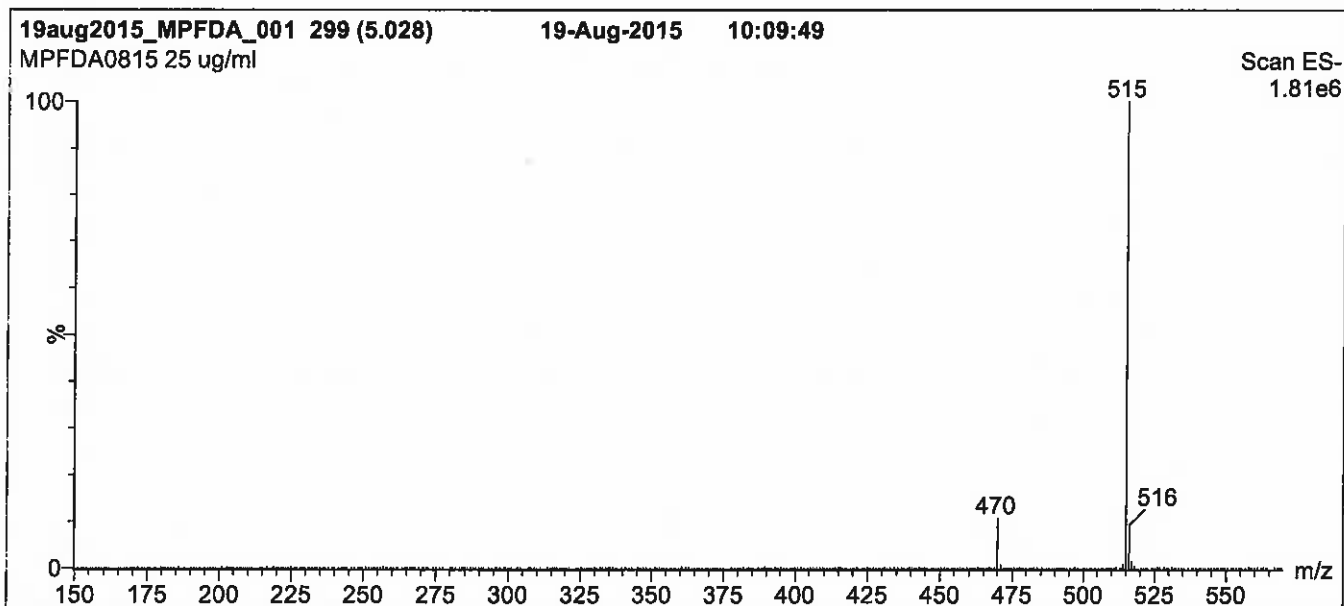
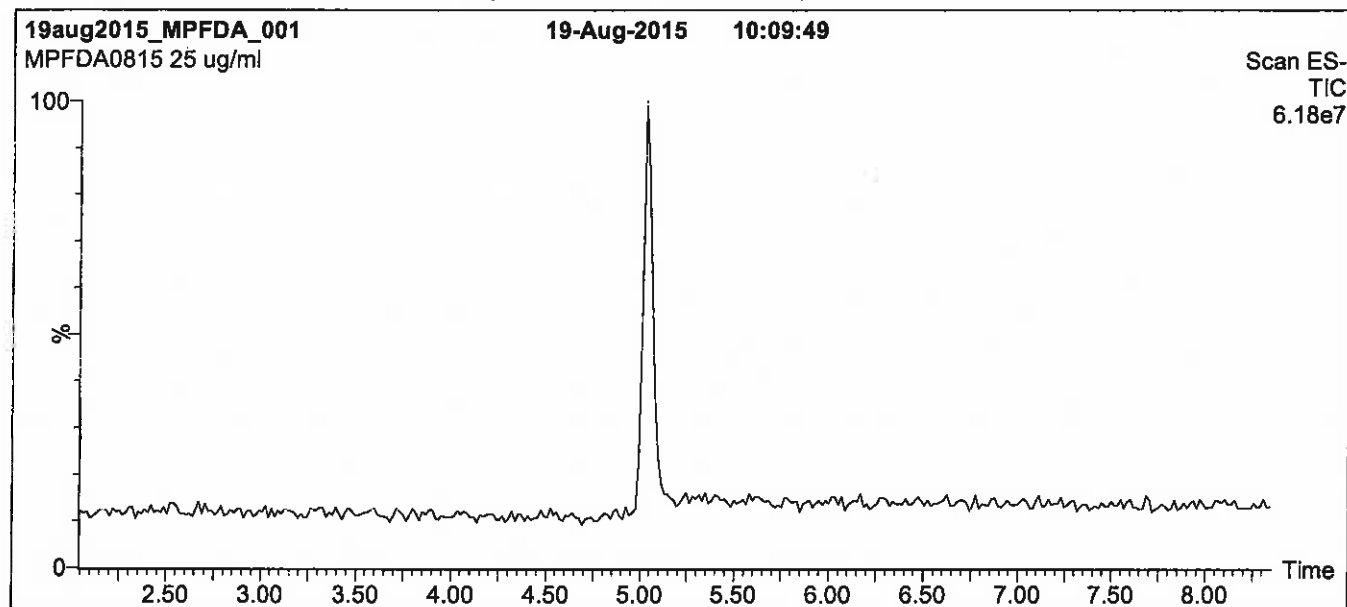
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

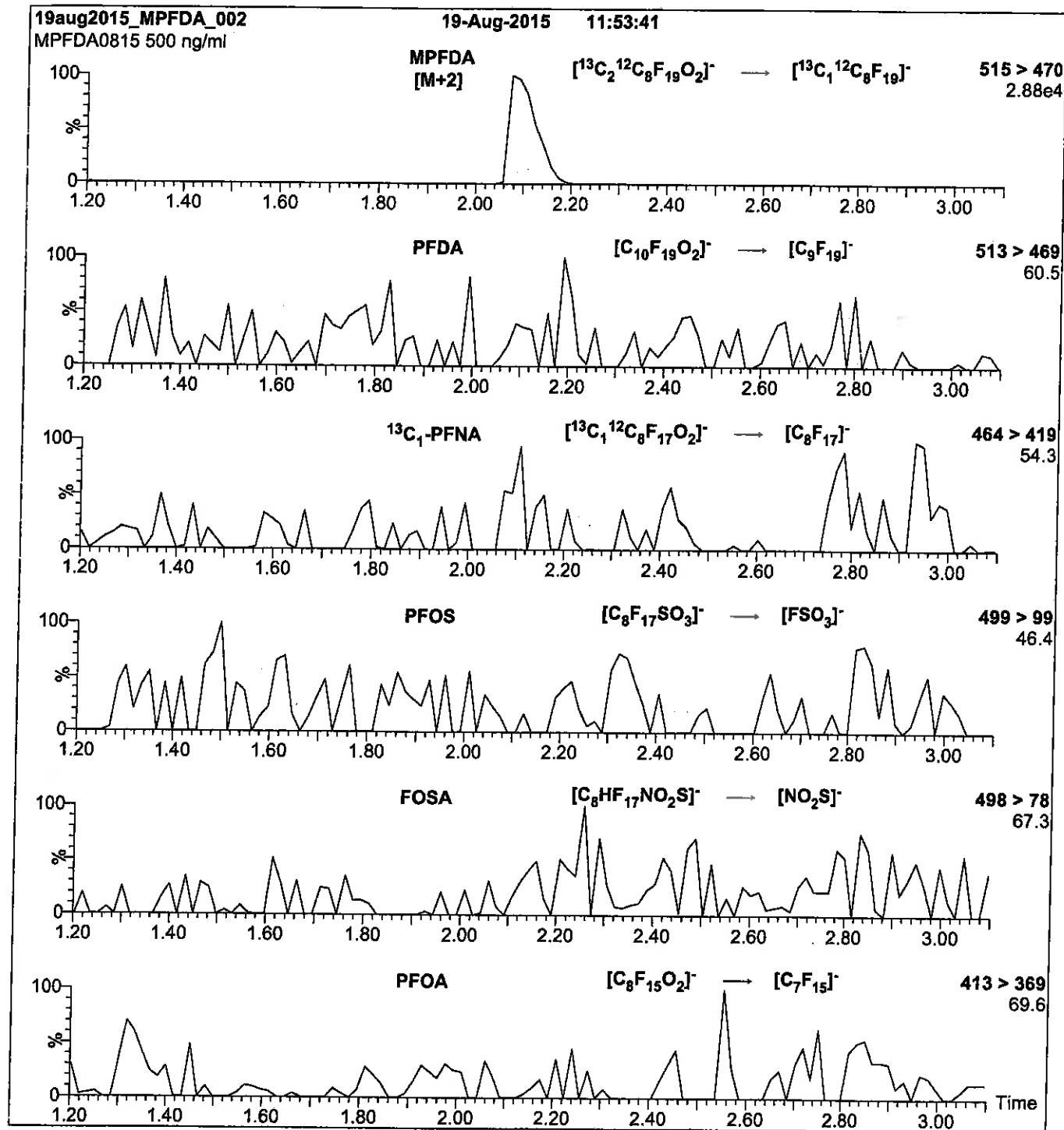
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFDoA_00008

R: 888 9/22/16



739598

ID: LCMFDoA_00008

Exp: 04/06/21 Prod: SBC

13C2-Perfluorododecanoic



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE:

MPFDoA

LOT NUMBER:

MPFDoA0416

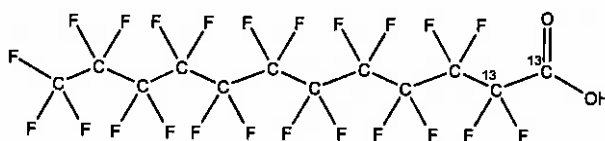
COMPOUND:

Perfluoro-n-[1,2-¹³C₂]dodecanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₁₀HF₂₃O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

616.08

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy)

04/08/2016

EXPIRY DATE: (mm/dd/yyyy)

04/08/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 04/15/2016

(mm/dd/yyyy)

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

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

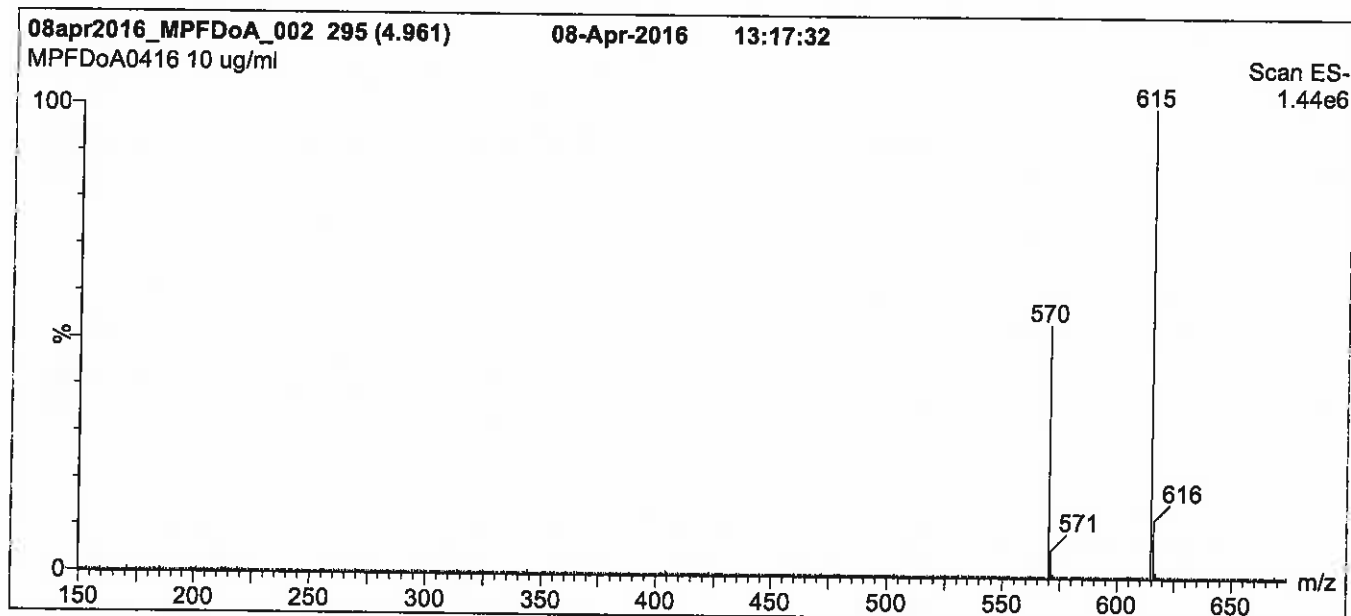
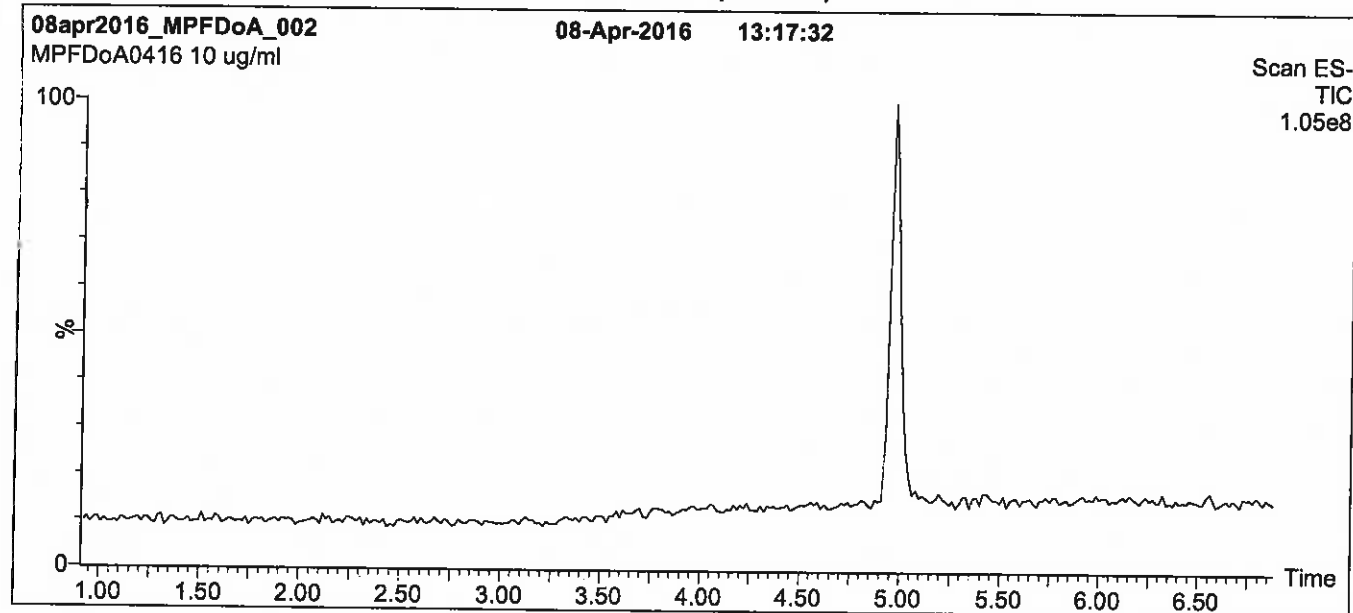
QUALITY MANAGEMENT:

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



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

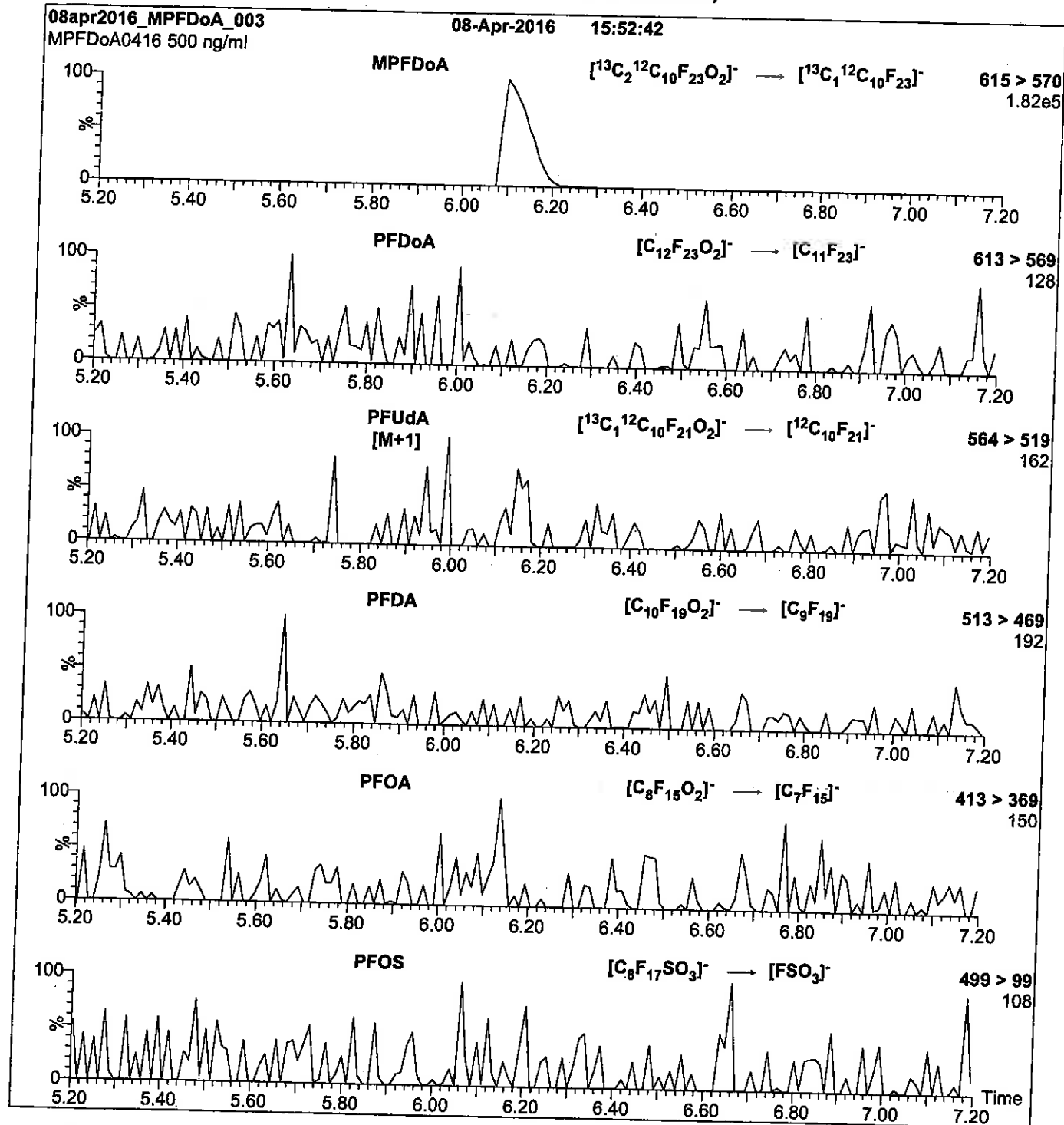
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFDoA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00012

Scanned 10/14/16 R: SBC 9/22/16

739612
ID: LCMPFHxA_00012
Exp: 04/08/21 Prep: SBC
13C2-Perfluorohexanoic ac



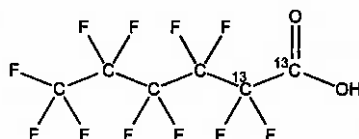
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexanoic acid

LOT NUMBER: MPFHxA0416

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₄HF₁₁O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99%¹³C
(1,2-¹³C₂)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/08/2016
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

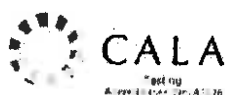
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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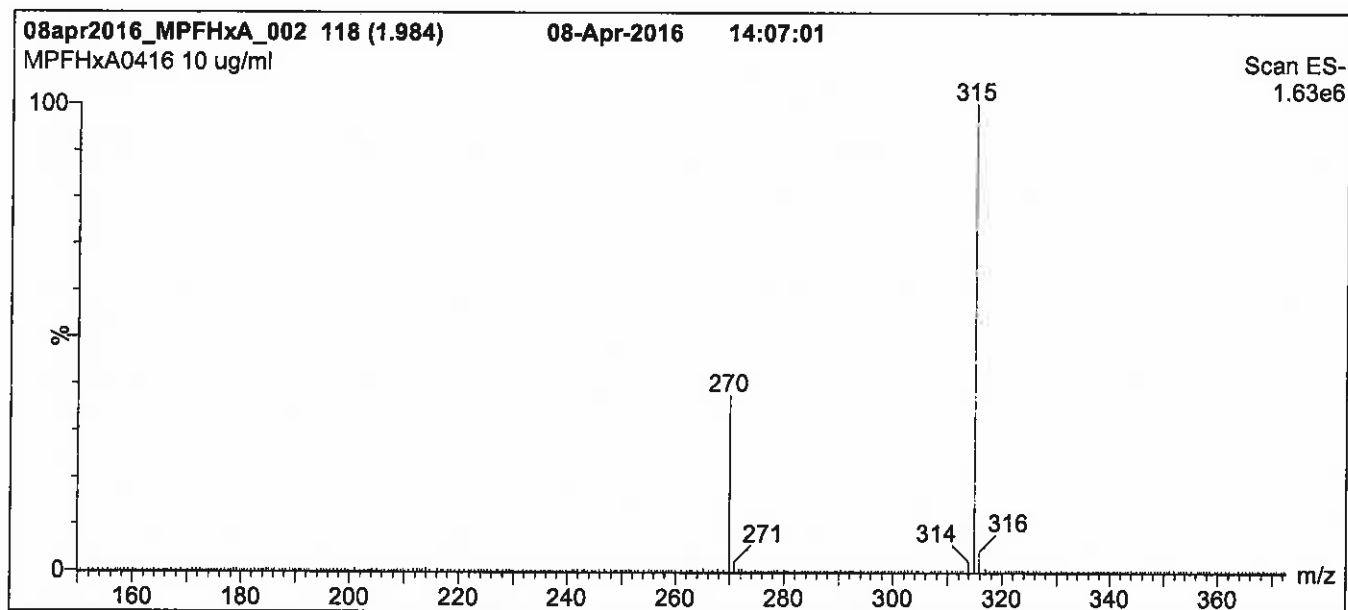
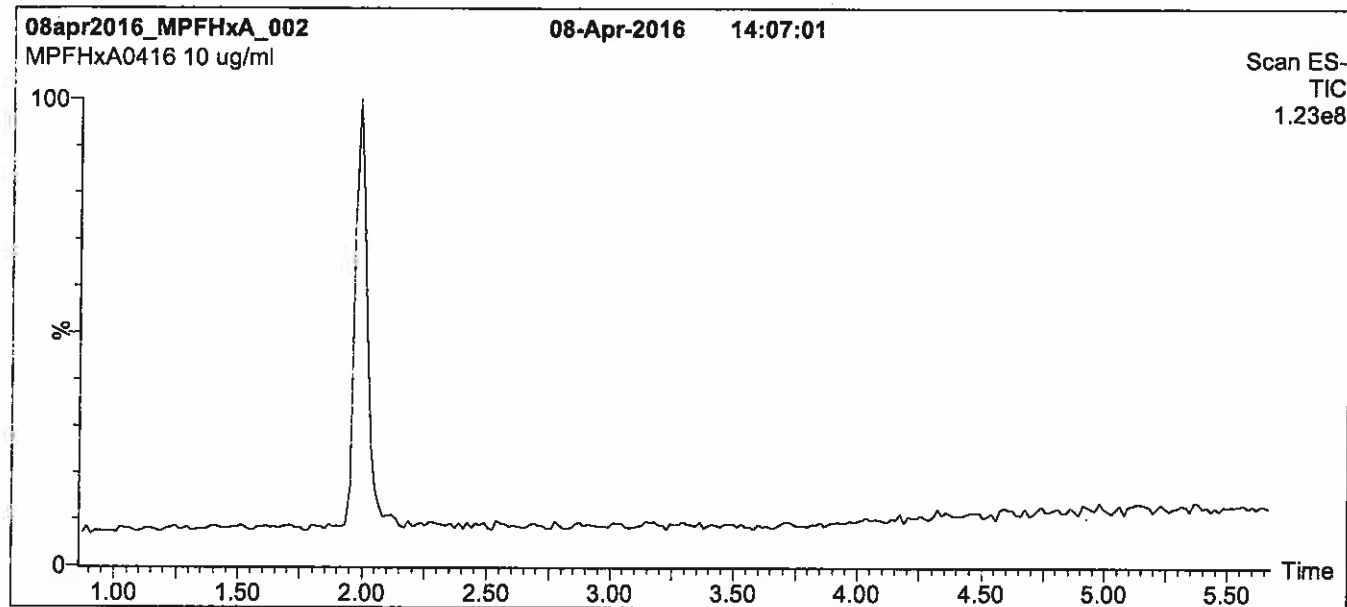
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions over 0.5 min.
Time: 10 min

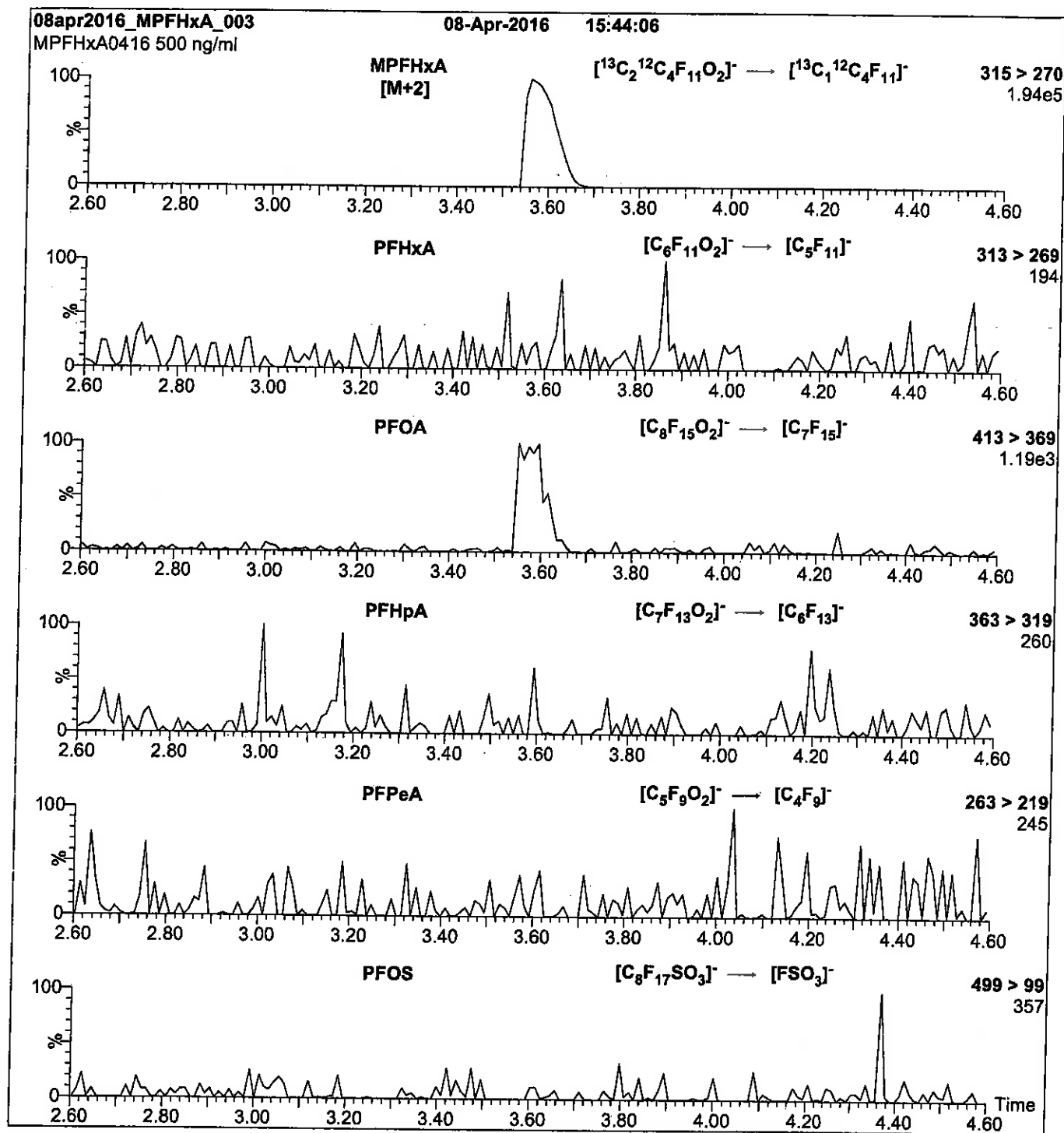
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

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

Reagent

LCMPFHXS_00008

f: 8BC 9/22/16



739601

ID: LCMPFHxS_00008

Exp: 10/23/20 Prod: SBC

18O2-Perfluorohexanesulfo



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CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE:

MPFHxS

LOT NUMBER:

MPFHxS1015

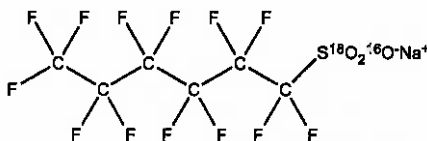
COMPOUND:

Sodium perfluoro-1-hexane[¹⁸O₂]sulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₆F₁₃S¹⁸O₂¹⁶ONa

MOLECULAR WEIGHT:

426.10

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)

SOLVENT(S):

Methanol

47.3 ± 2.4 µg/ml (MPFHxS anion)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

>94% (¹⁸O₂)

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS (C₆F₁₃S¹⁸O₂¹⁶O⁻) has been observed to be up to 10% lower than for PFHxS (C₆F₁₃S¹⁸O₃⁻) when both compounds are injected together. This difference may vary between instruments.
- Due to the isotopic purity of the starting material (¹⁸O₂ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/28/2015

(mm/dd/yyyy)

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

INTENDED USE:

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LIMITED WARRANTY:

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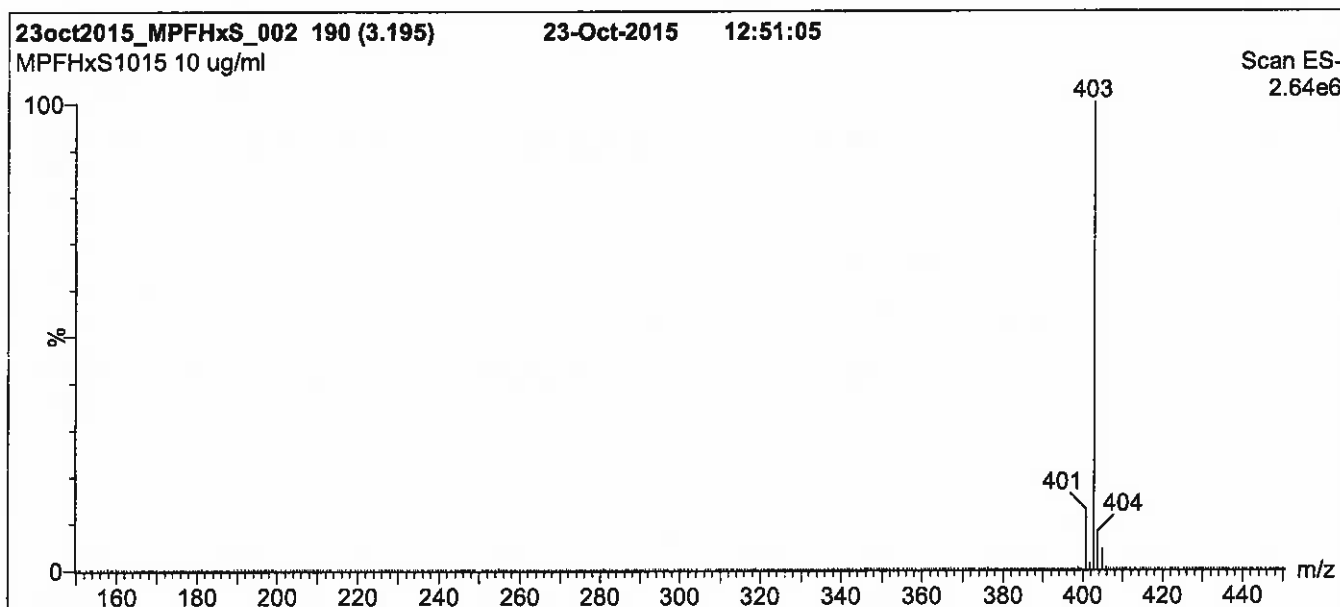
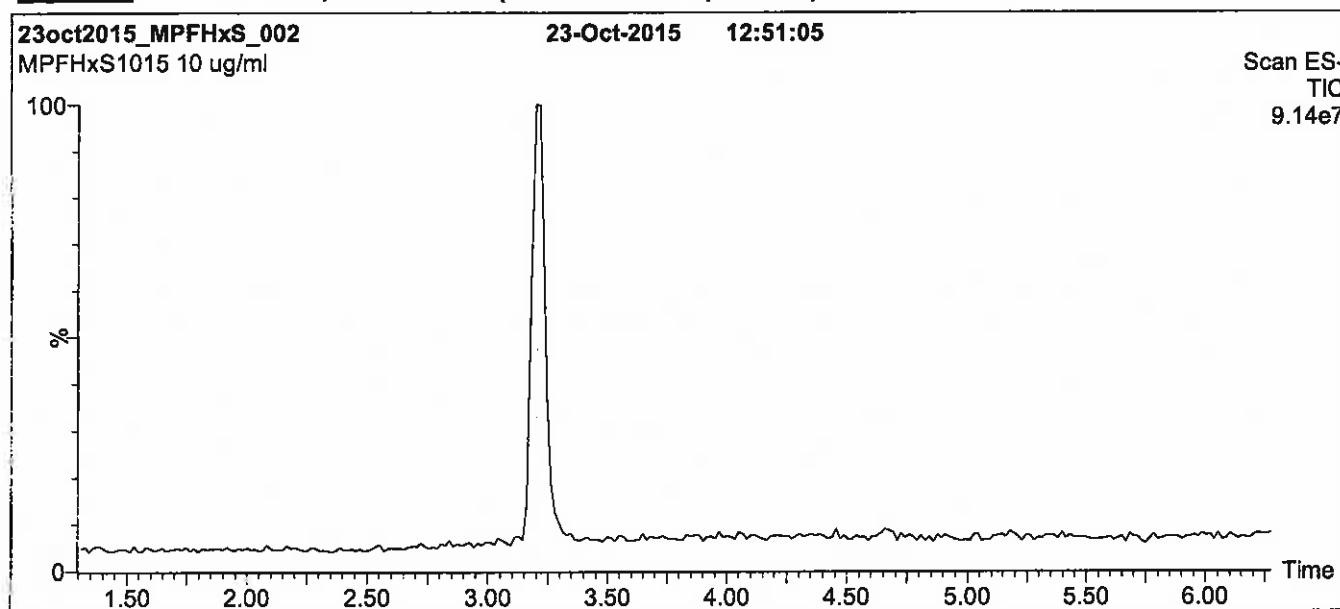
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

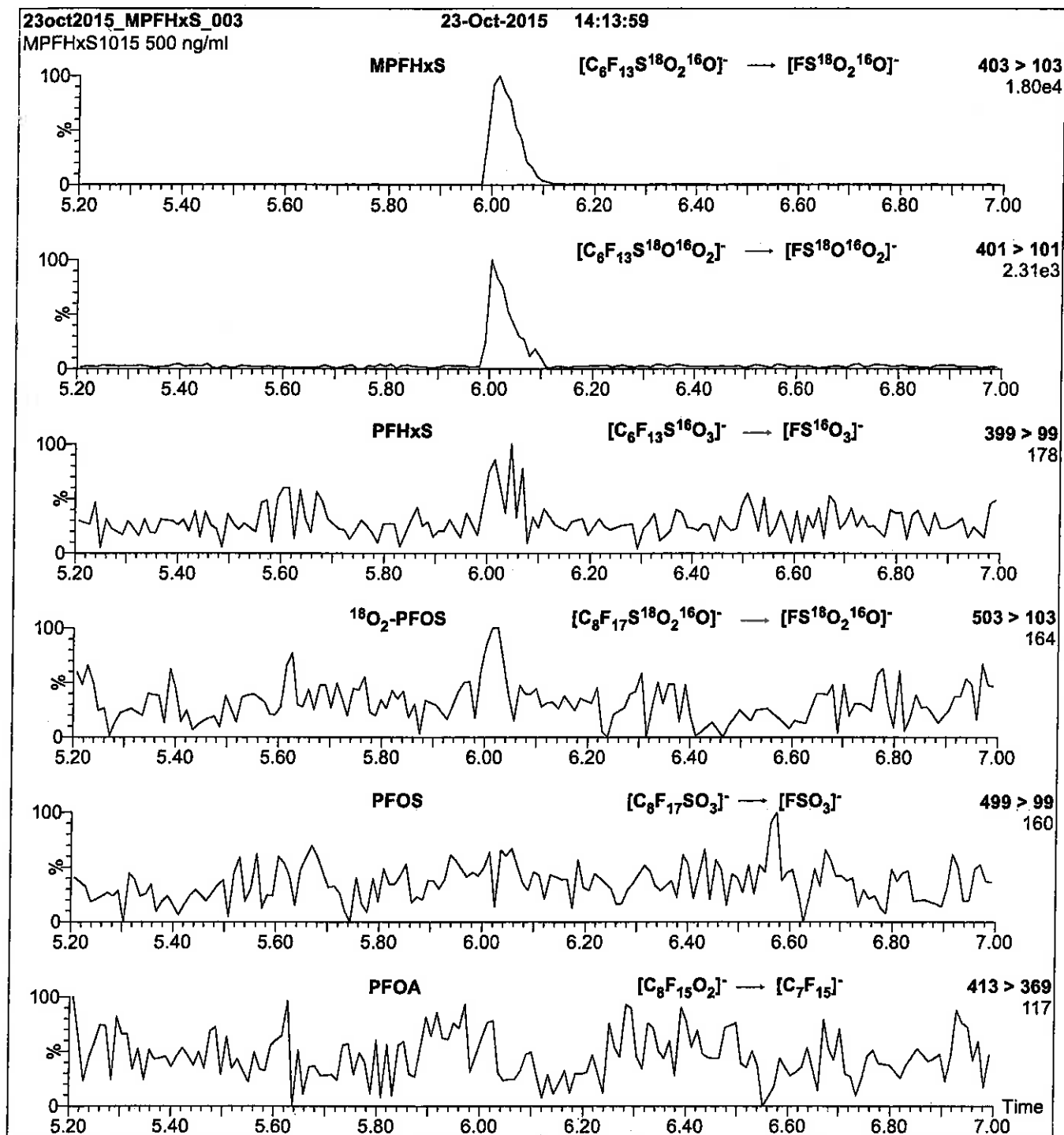
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml MPFHxS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 30

Reagent

LCMPFNA_00008

Scanned 10/14/16 R: SBC 9/22/16



739637
ID: LCM:PFNA_00008
Exp: 04/13/19 Prod: SBC
13C5-Perfluoronanoic aci



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFNA

LOT NUMBER:

MPFNA0414

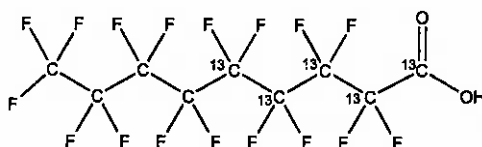
COMPOUND:

Perfluoro-n-[1,2,3,4,5-¹³C₅]nonanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₅¹²C₄HF₁₇O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

469.04

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99%¹³C

LAST TESTED: (mm/dd/yyyy)

04/13/2014

EXPIRY DATE: (mm/dd/yyyy)

04/13/2019

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

(1,2,3,4,5-¹³C₅)

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 04/01/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

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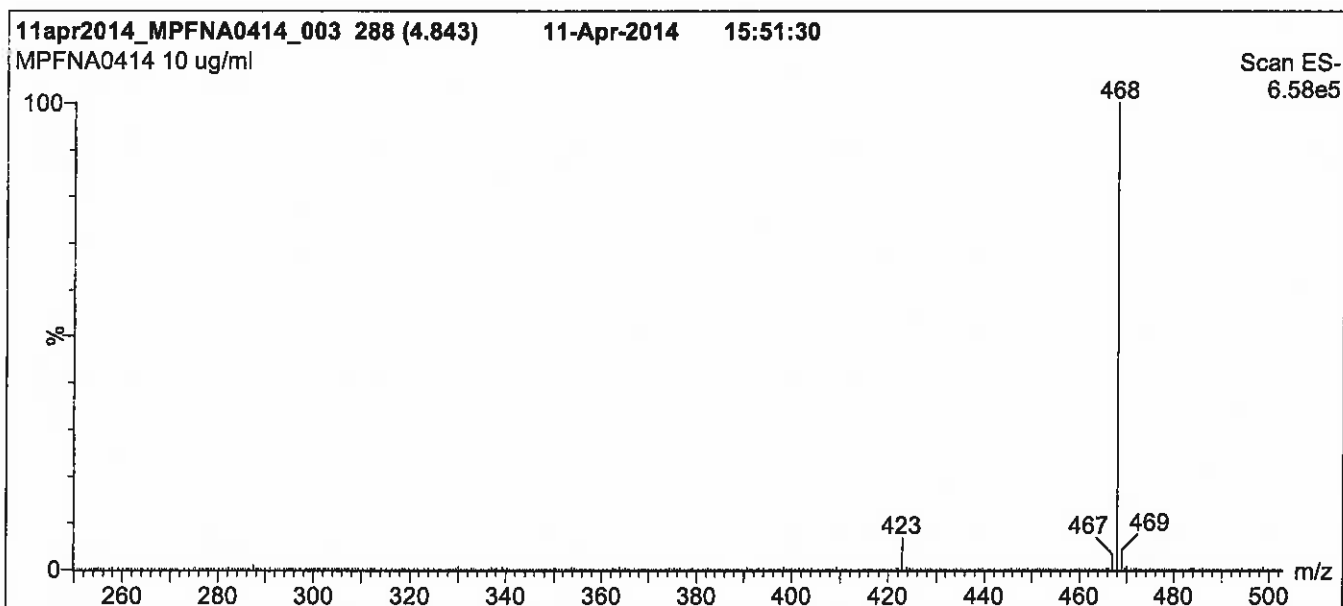
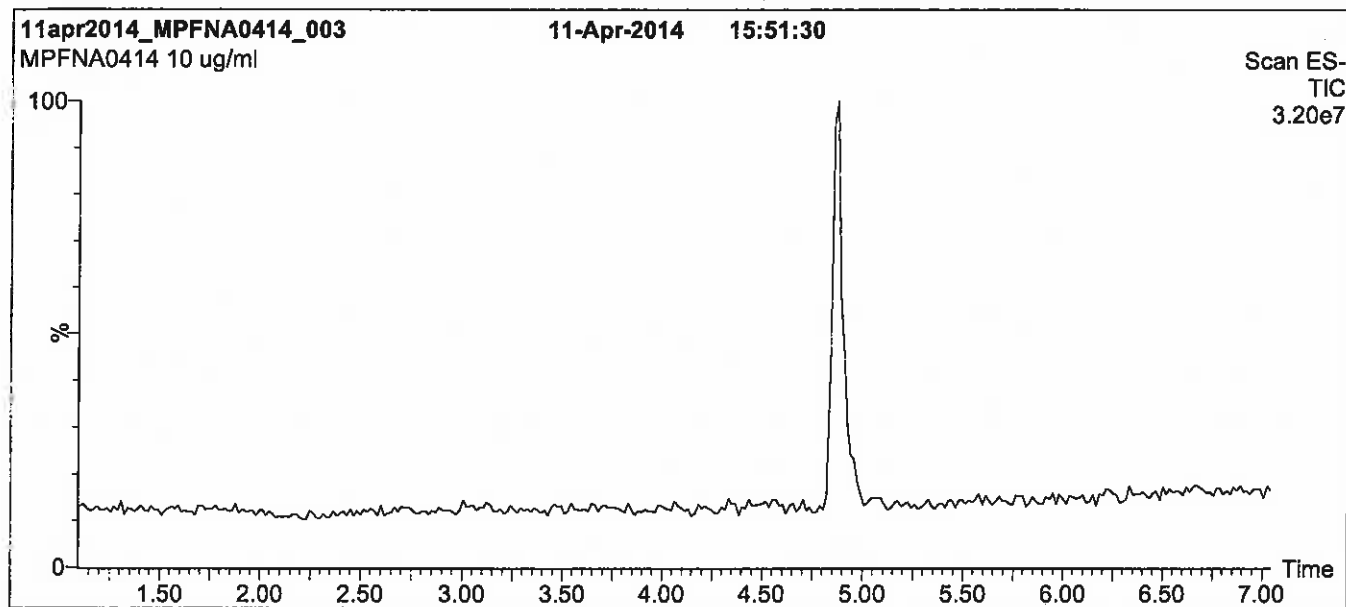
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

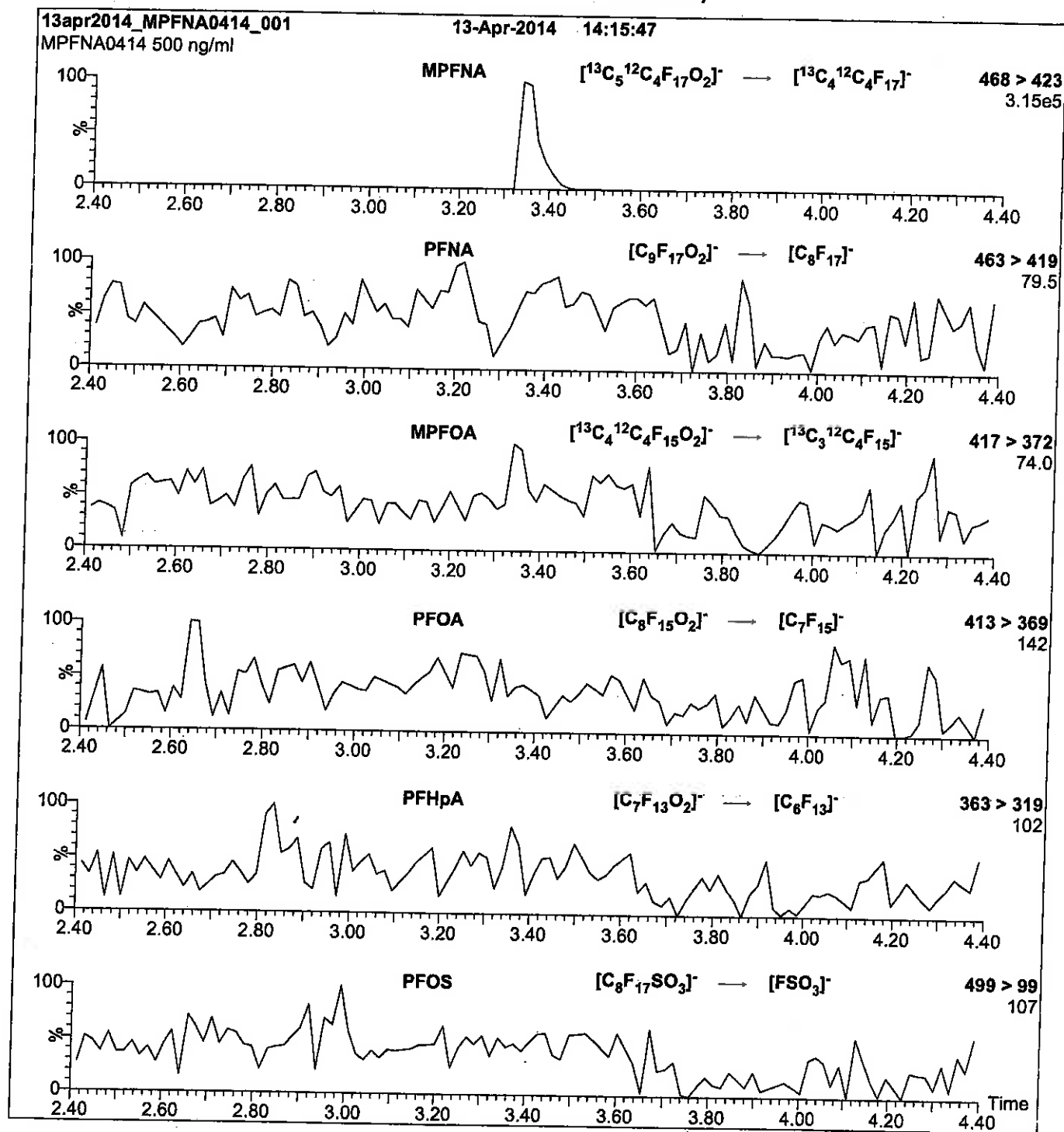
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.28\text{e-}3$
Collision Energy (eV) = 11

Reagent

LCMPFOA_00012

R: SBC 9/22/16



738683

ID: LCMFOA_00012

Exp: 01/22/21 Prod: SBC
13C4-Perfluorooctanoic ac



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFOA

LOT NUMBER:

MPFOA0116

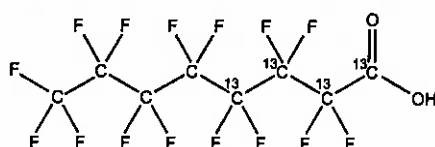
COMPOUND:

Perfluoro-n-[1,2,3,4-¹³C₄]octanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₄¹²C₄HF₁₅O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

418.04

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

01/22/2016

(1,2,3,4-¹³C₄)

EXPIRY DATE: (mm/dd/yyyy)

01/22/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of native perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/01/2016

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

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LIMITED WARRANTY:

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

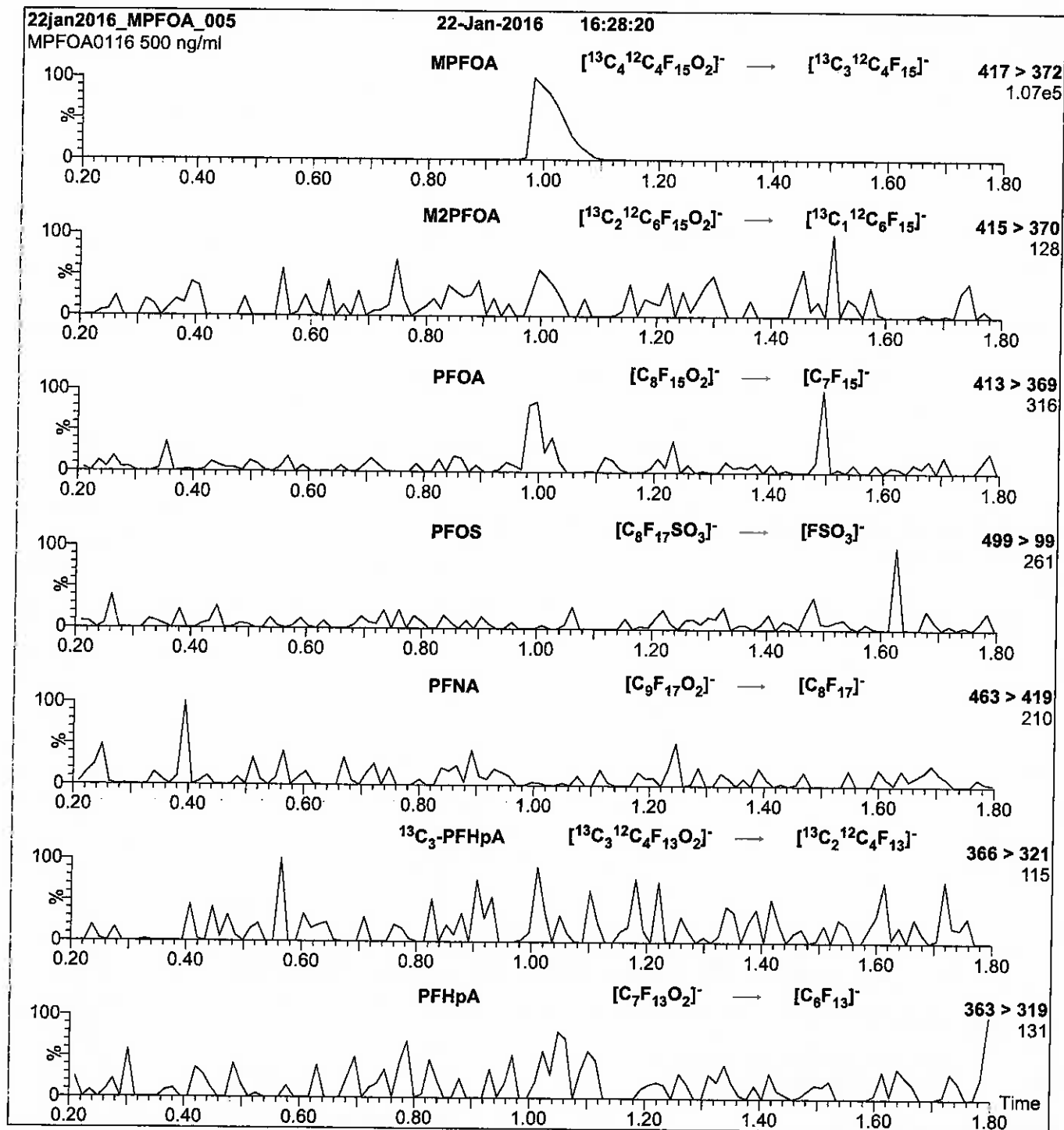
QUALITY MANAGEMENT:

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



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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFOA)

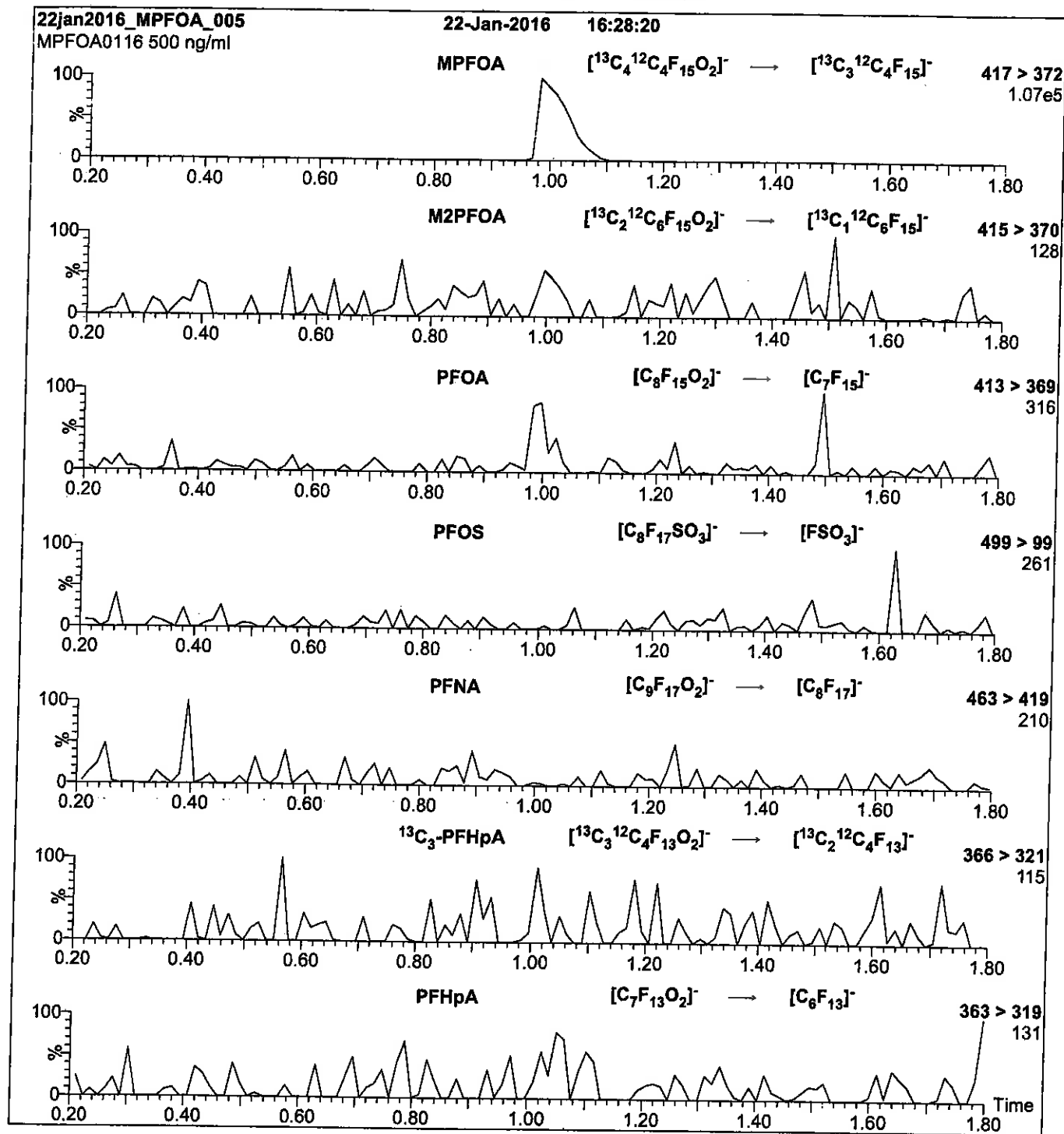
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.58\text{e-}3$
Collision Energy (eV) = 10

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

Reagent

LCMPFOS_00017

R: 9/9/16 802

728309
ID: LCMFOS_00017
Exp: 08/03/21 Prpt: SBC
13C4-Perfluorooctanesulfo

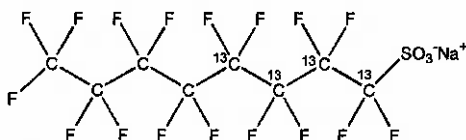


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0816
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE: **CAS #:** Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/05/2016
(mm/dd/yyyy)

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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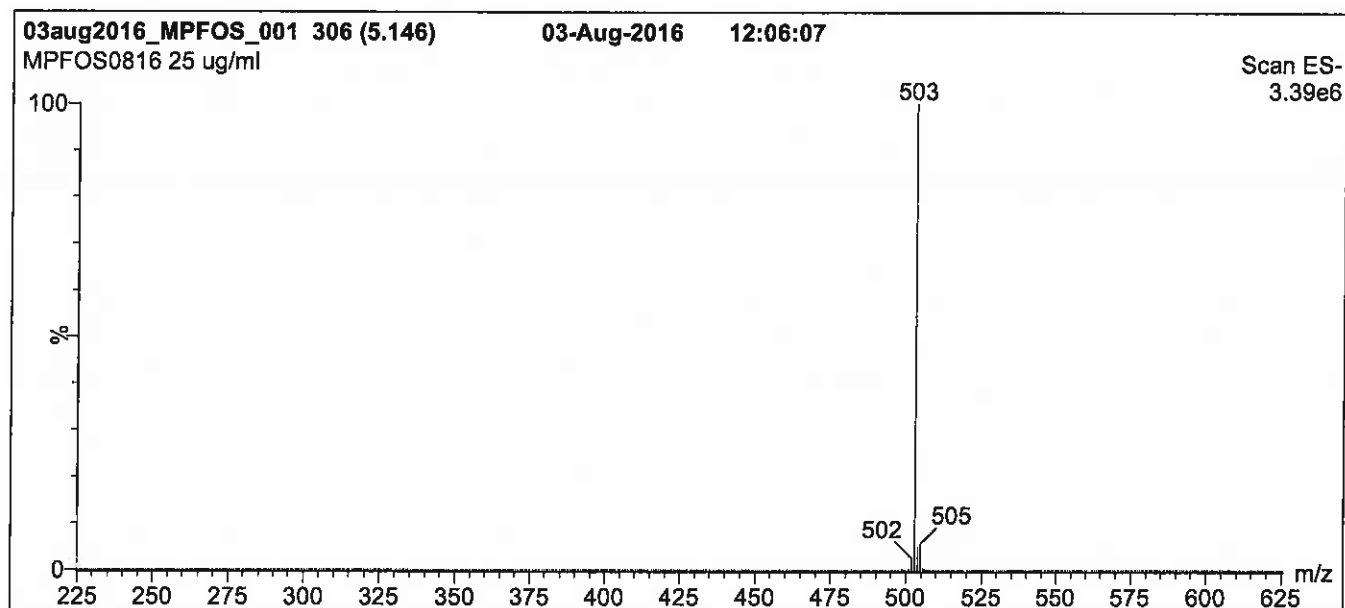
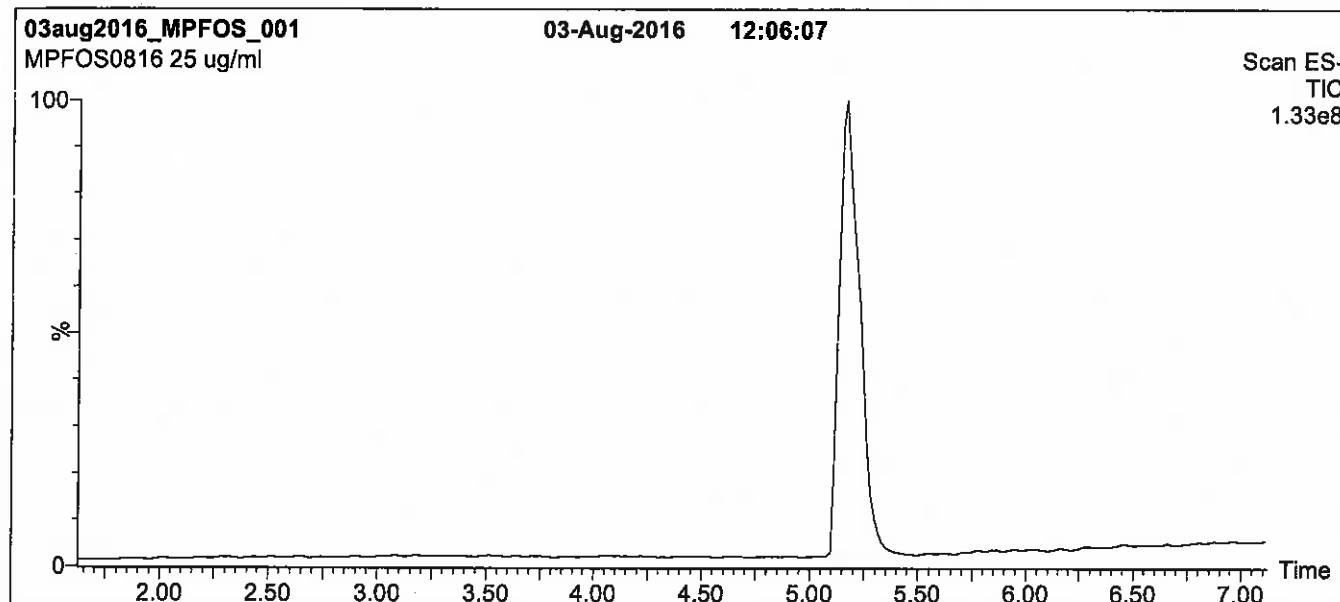
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

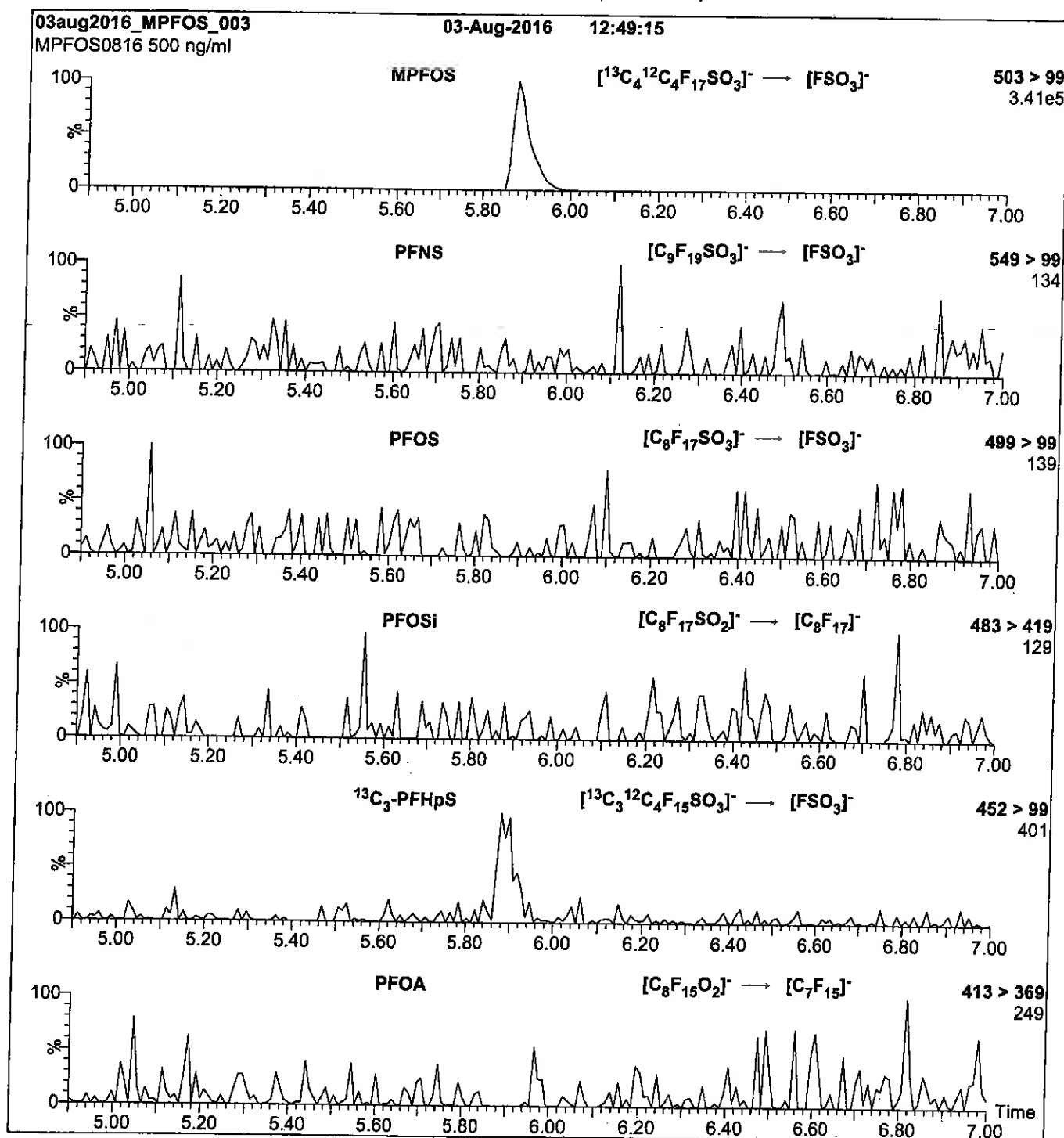
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

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

Reagent

LCMPFUdA_00009

R: SBC 9/22/16



739604

ID: LCMFUDa_00009

Exp: 02/12/21 Prod: SBC

¹³C2-Perfluoroundecanoic



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE:

MPFUDa

LOT NUMBER:

MPFUDa0216

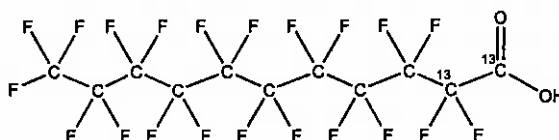
COMPOUND:

Perfluoro-n-[1,2-¹³C₂]undecanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₉HF₂₁O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

566.08

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

02/12/2016

(1,2-¹³C₂)

EXPIRY DATE: (mm/dd/yyyy)

02/12/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Presence of 1-¹³C₁-PFUDa (~1%; see Figure 2), 2-¹³C₁-PFUDa (~1%), and PFUDa (~0.2%; see Figure 2) are due to the isotopic purity of the ¹³C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/24/2016

(mm/dd/yyyy)

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

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EXPIRY DATE / PERIOD OF VALIDITY:

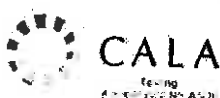
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LIMITED WARRANTY:

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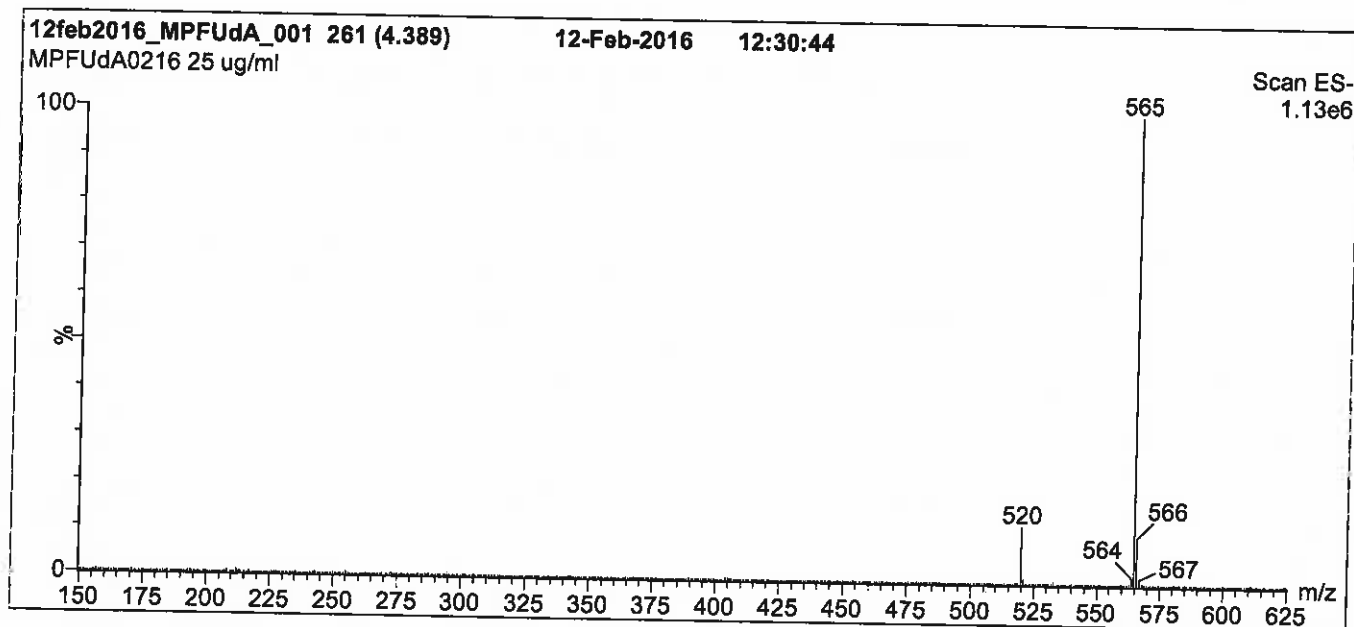
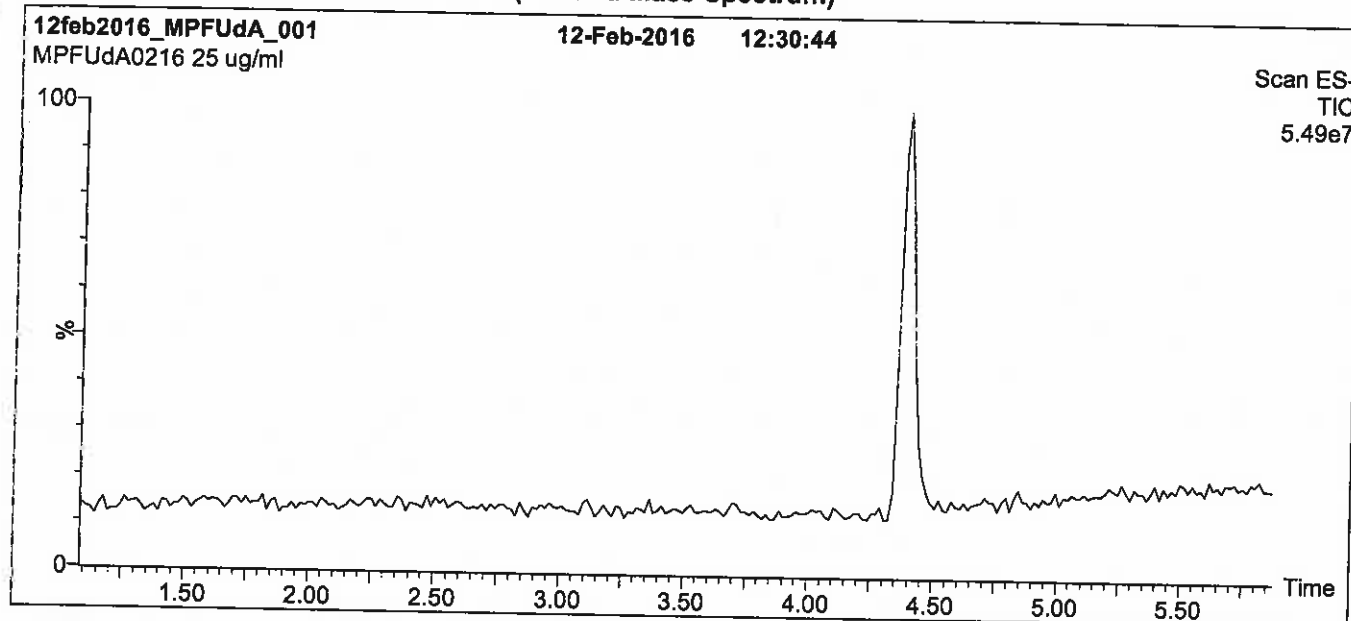
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Figure 1: MPFUdA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

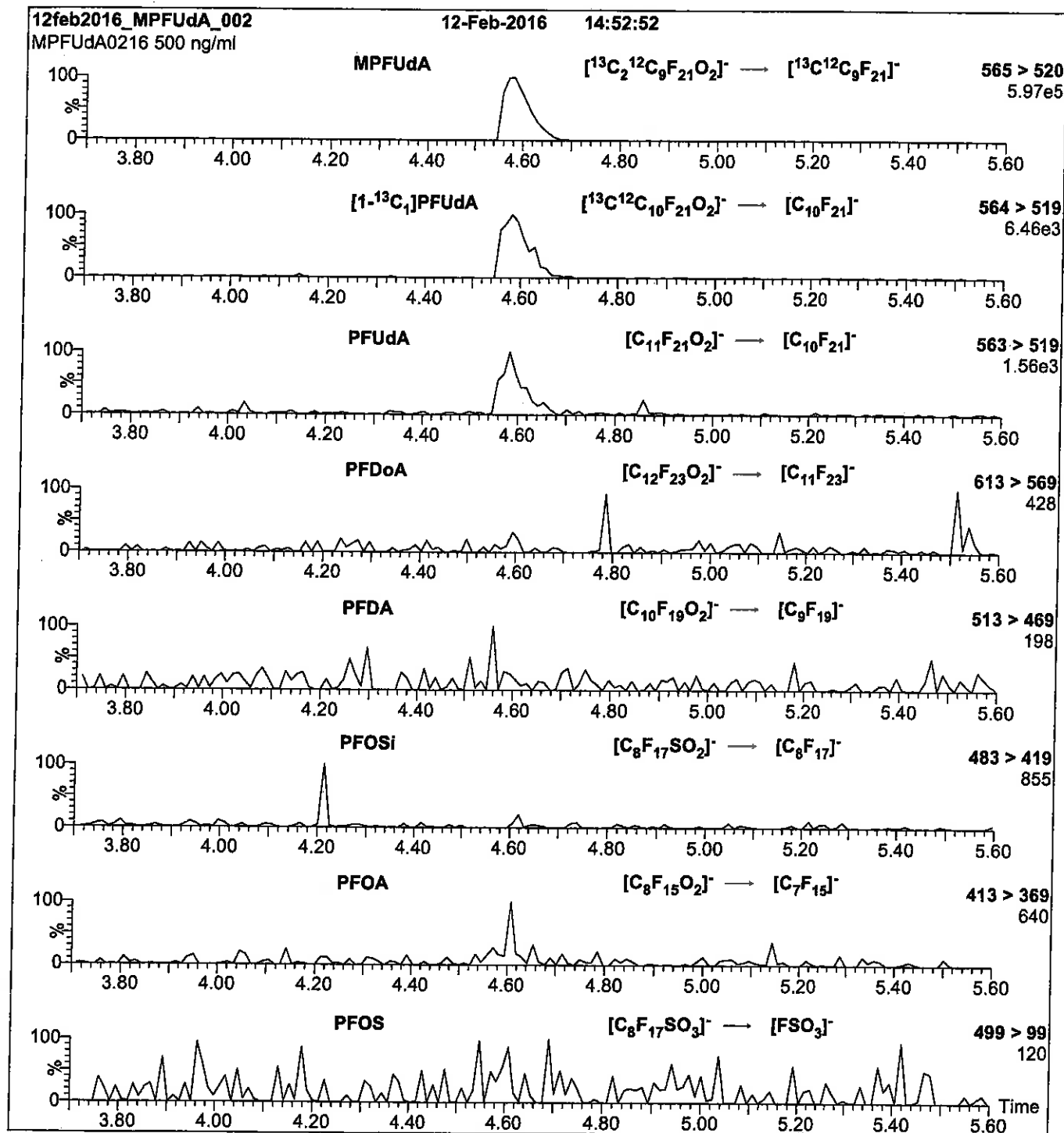
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFUDa)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

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

MS Parameters

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

Reagent

LCN-EtFOSA-M_00003

R: 8/23/16 SBC



715563
ID: LCN-EtFOSA-M_00003
Exp: 05/24/21 Prod: SBC
N-EtFOSA-M



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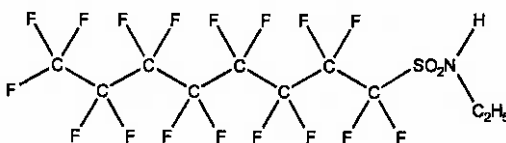
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0516M

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA: $C_{10}H_8F_{17}NO_2S$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 527.20
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim

Date: 05/27/2016
(mm/dd/yyyy)

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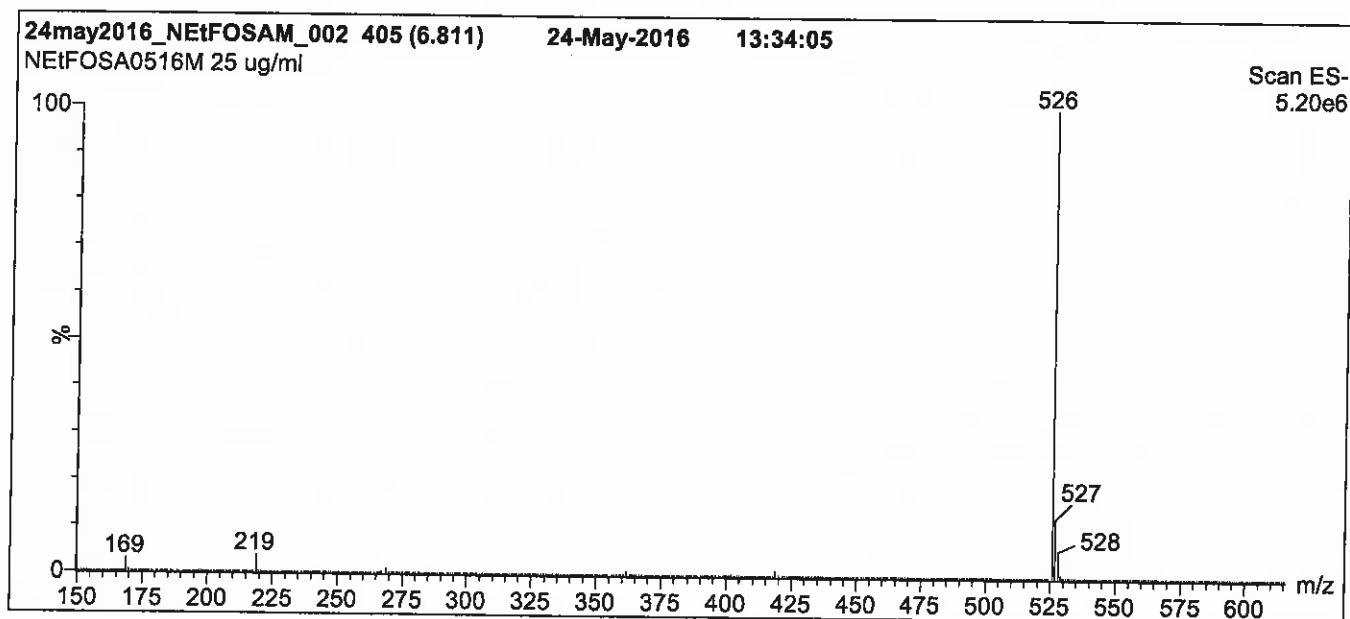
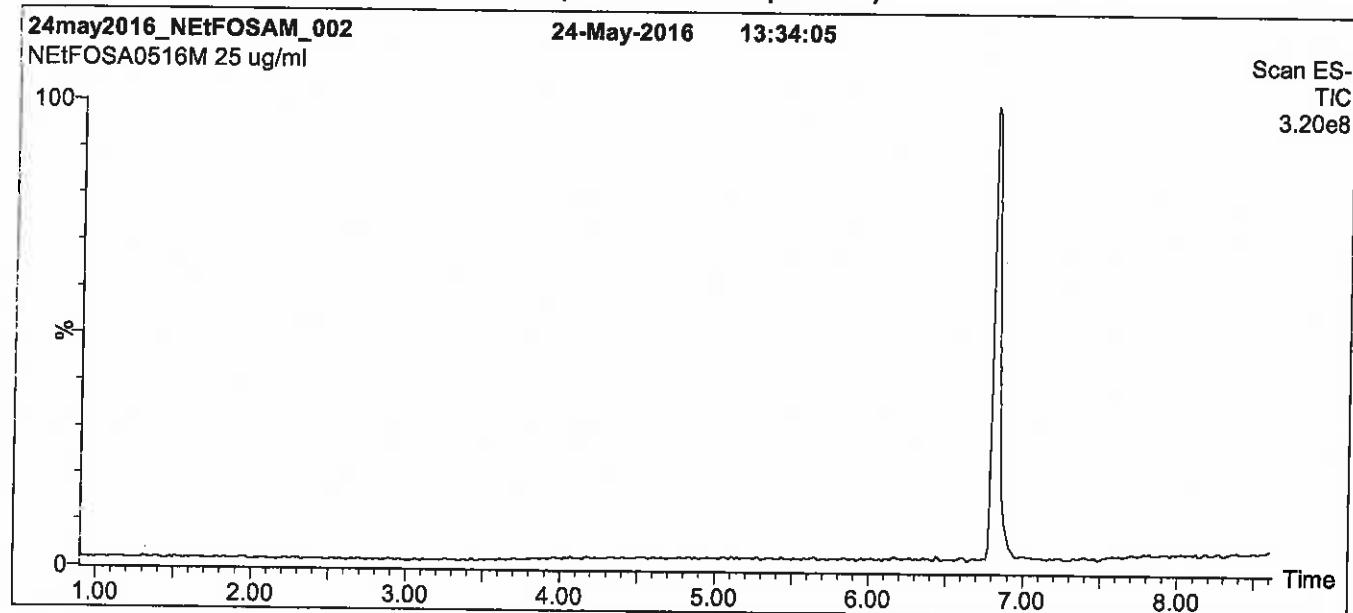
QUALITY MANAGEMENT:

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



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Figure 1: N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5
min before returning to initial conditions in 0.5 min.
Time: 10 min

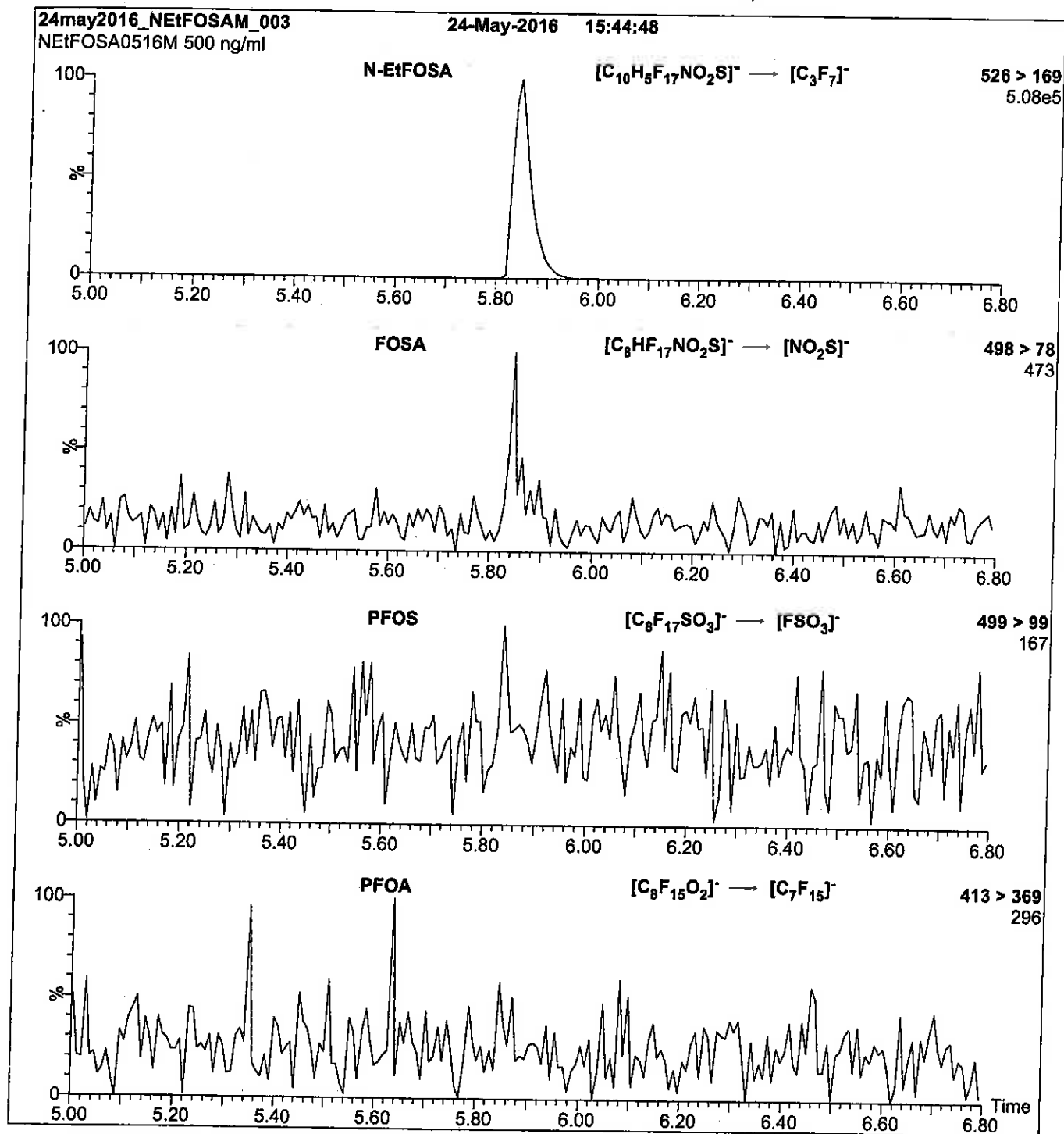
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml N-EtFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

LCN-EtFOSAA_00002

R: 8/23/16 SBC



715561

ID: LCN-EtFOSAA_00002

Exp: 01/20/21 Prod: SBC

N-EtFOSAA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSAA

LOT NUMBER:

NEtFOSAA0116

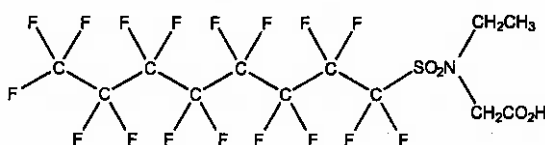
COMPOUND:

N-ethylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

2991-50-6



MOLECULAR FORMULA:

C₁₂H₈F₁₇NO₄S

MOLECULAR WEIGHT:

585.23

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/20/2016

EXPIRY DATE: (mm/dd/yyyy)

01/20/2021

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/21/2016

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

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

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

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

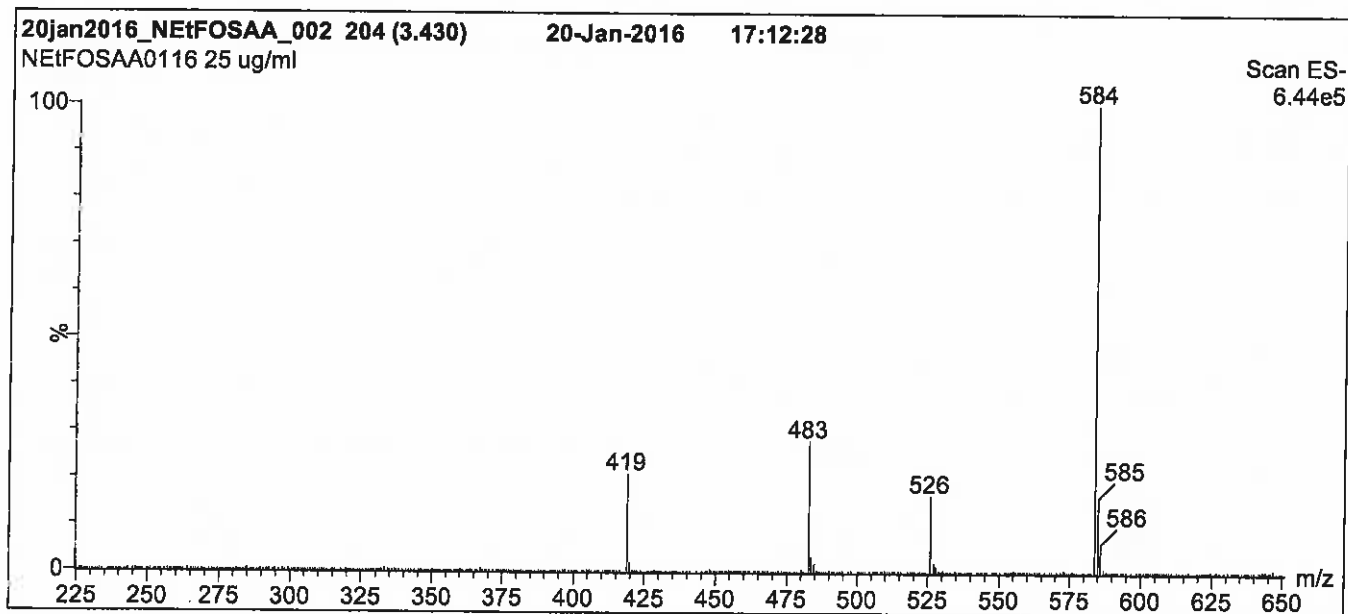
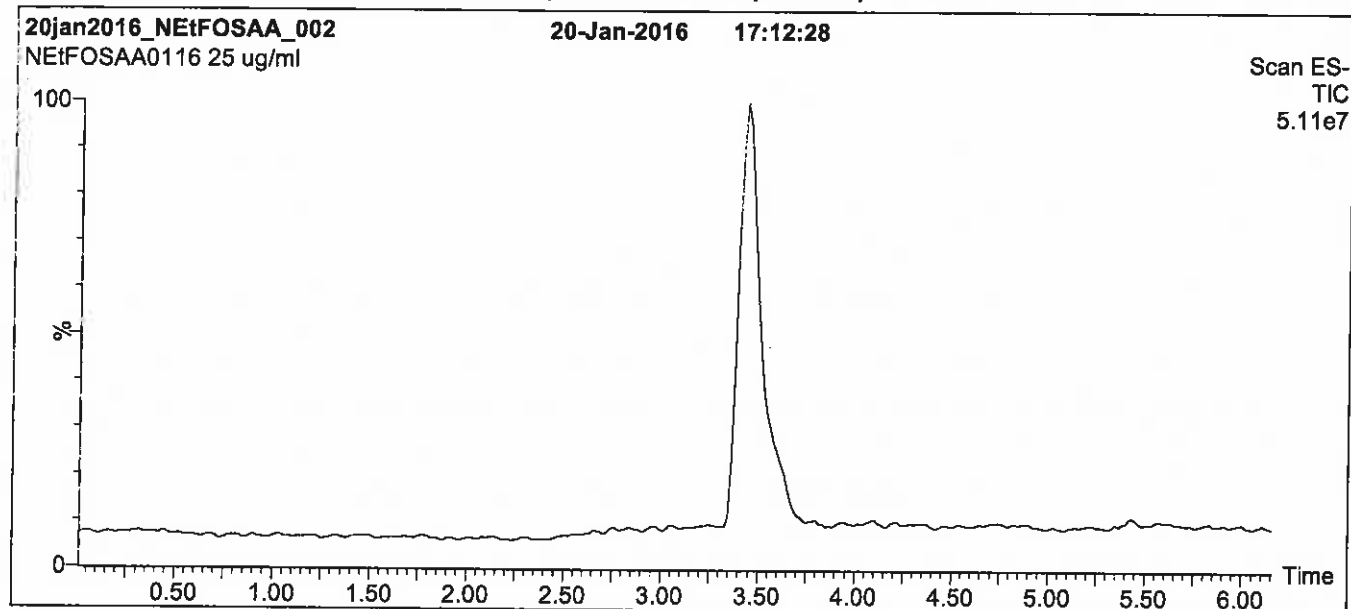
QUALITY MANAGEMENT:

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Figure 1: N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

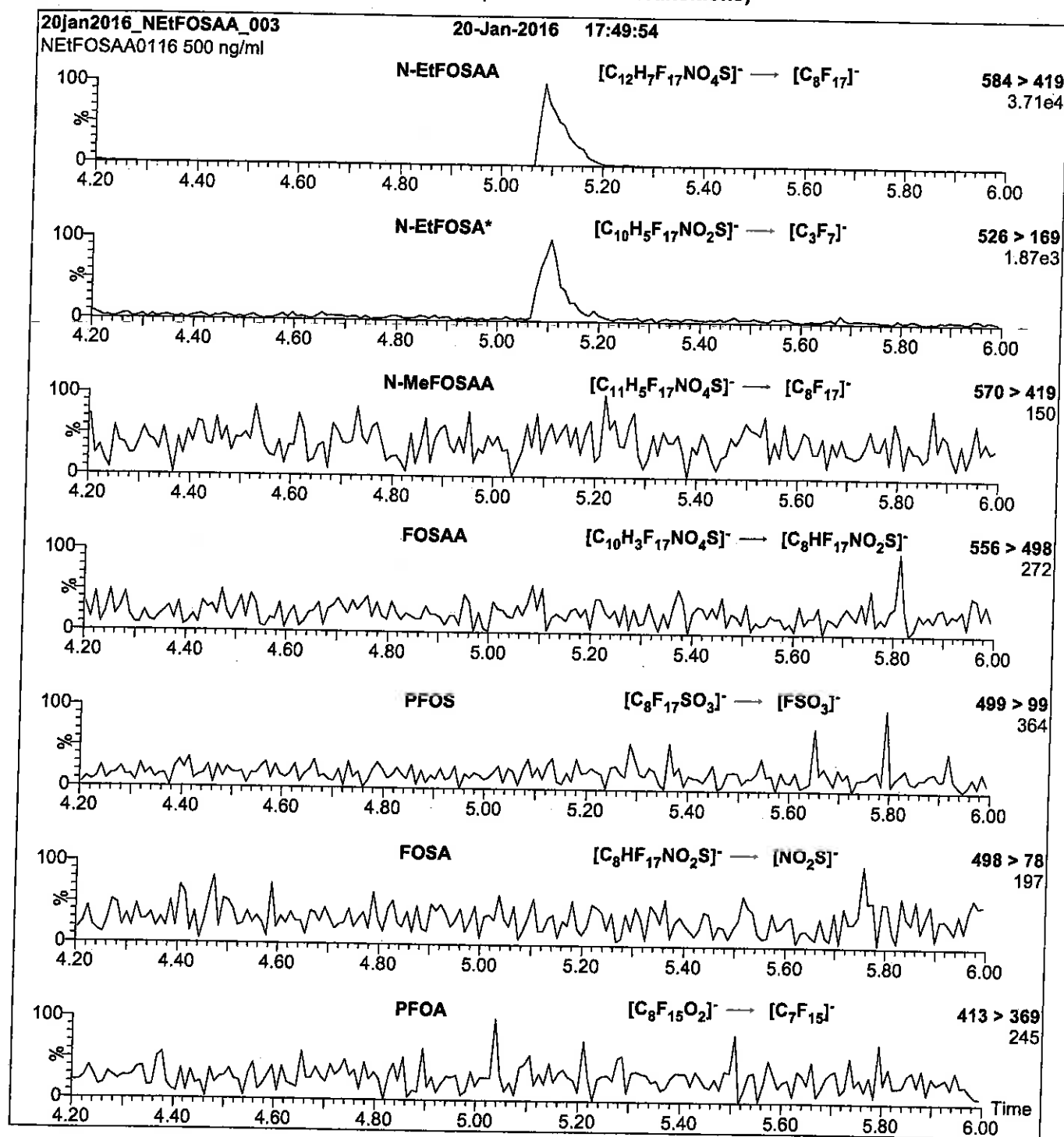
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)



Note: N-EtFOSA is formed by fragmentation of N-EtFOSAA.

Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCN-MeFOSA-M_00002

R: 8/23/16 SBC



715564

ID: LCN-MeFOSA-M_00002

Exp: 05/24/21 Prpt: SBC

N-MeFOSA-M



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

NMeFOSA0516M

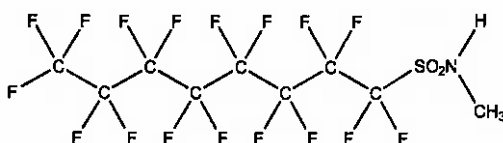
COMPOUND:

N-methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₈H₄F₁₇NO₂S

MOLECULAR WEIGHT:

513.17

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/24/2016

EXPIRY DATE: (mm/dd/yyyy)

05/24/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/26/2016

(mm/dd/yyyy)

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INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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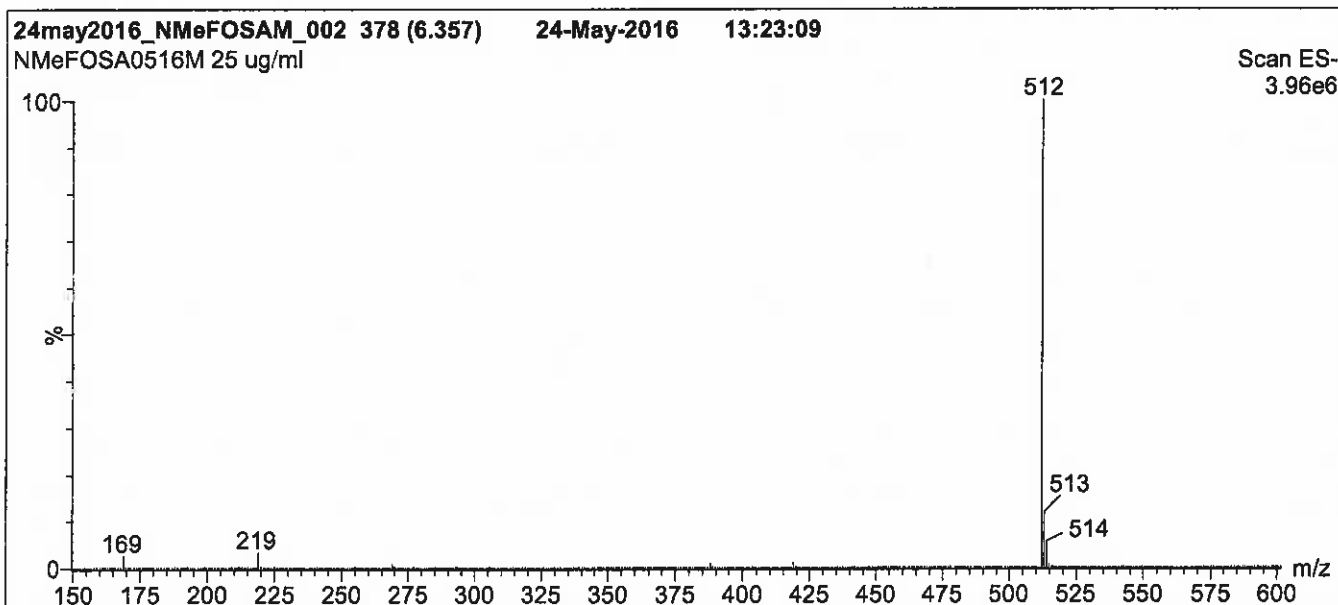
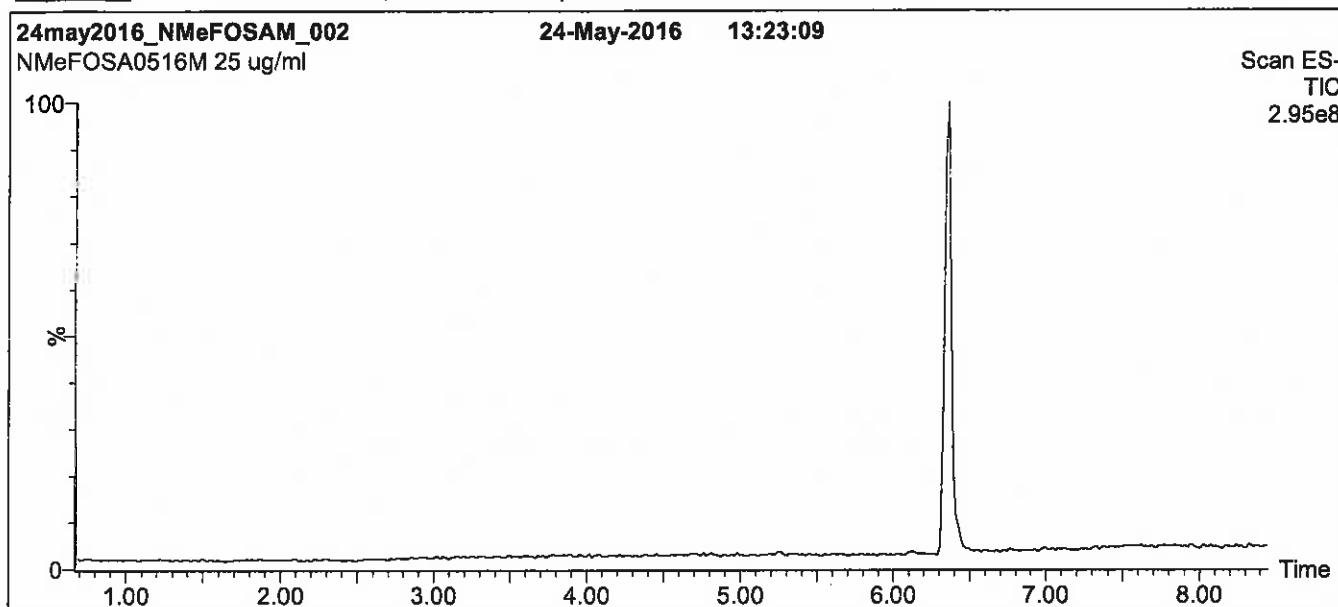
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Figure 1: N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

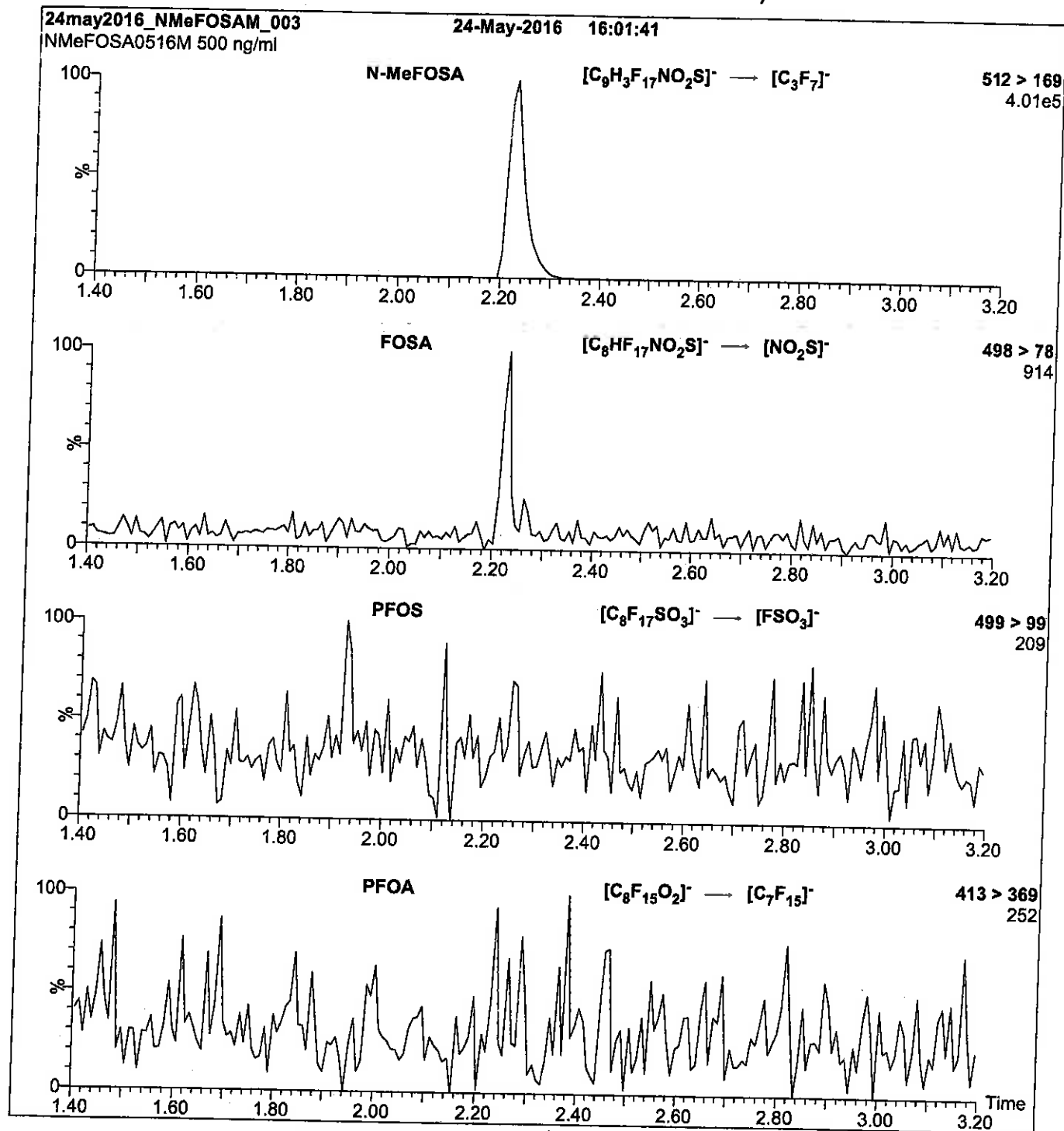
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

LCN-MeFOSAA_00003

R: 8/23/16 SAE

715562
ID: LCN-MeFOSAA_00003
Exp: 01/20/21 Prod: SEC
N-MeFOSAA

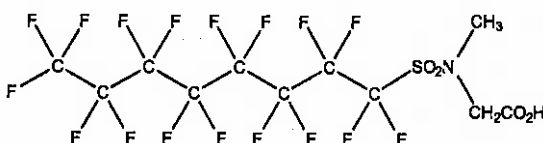


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0116
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2355-31-9



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/20/2016
EXPIRY DATE: (mm/dd/yyyy) 01/20/2021
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/21/2016
(mm/dd/yyyy)

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HOMOGENEITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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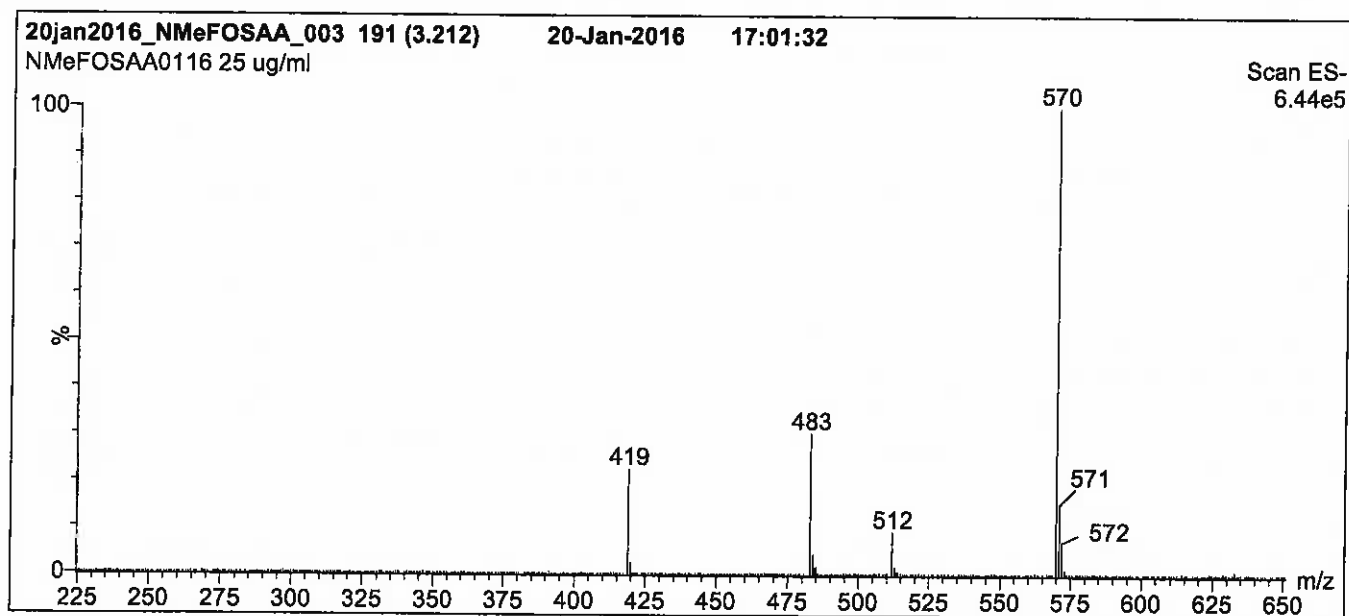
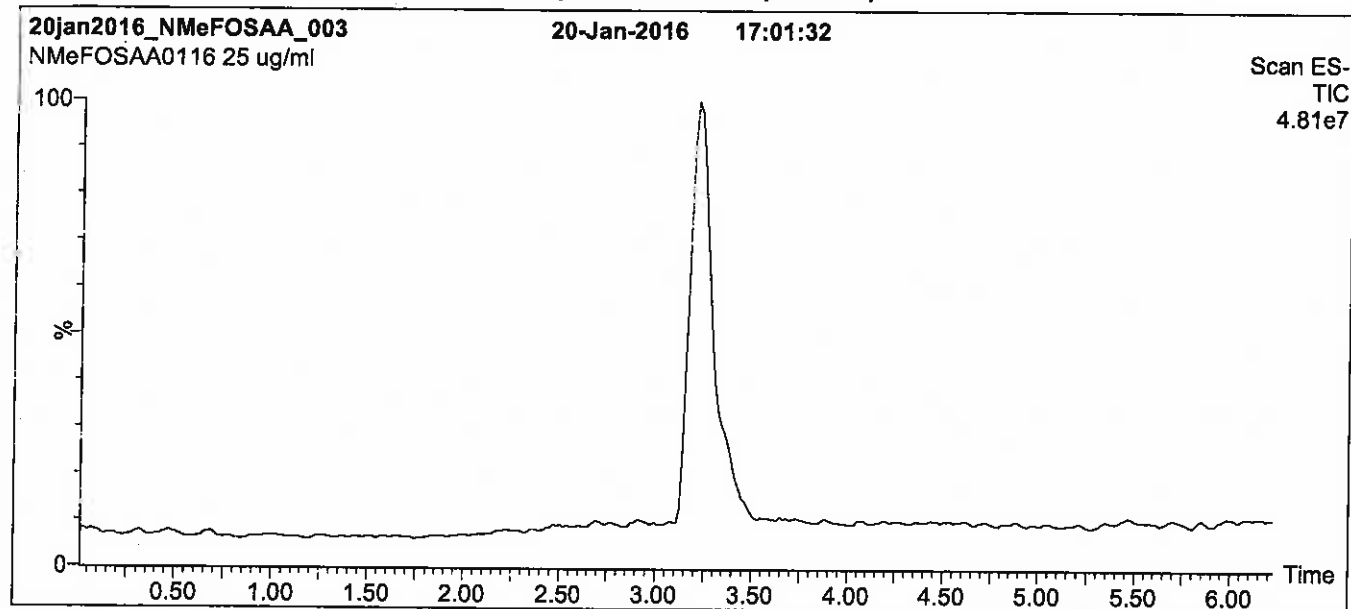
QUALITY MANAGEMENT:

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Figure 1: N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

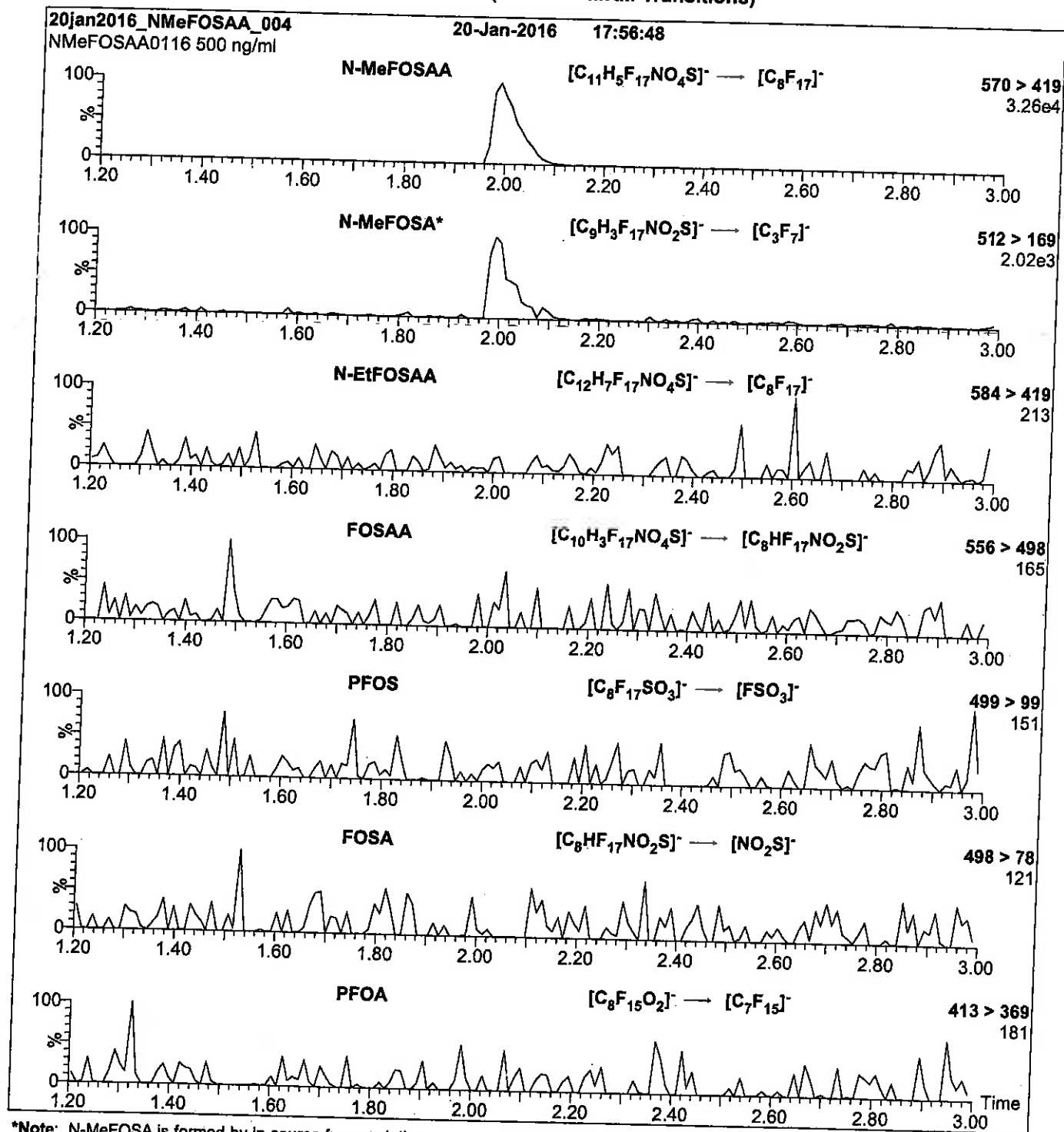
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)



*Note: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCPFACMXB_00007



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXB

**Solution/Mixture of Native
Perfluoroalkylcarboxylic Acids and
Native Perfluoroalkylsulfonates**

PRODUCT CODE: PFAC-MXB
LOT NUMBER: PFACMXB1115
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/04/2015
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXB is a solution/mixture of thirteen native perfluoroalkylcarboxylic acids (C₄-C₁₄, C₁₆, and C₁₈) and four native perfluoroalkylsulfonates (C₄, C₆, C₈ and C₁₀). The full name, abbreviation and concentration for each of the components are given in Table A.

The individual perfluoroalkylcarboxylic acids and perfluoroalkylsulfonates all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
 Figure 1: LC/MS Data (SiR)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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INTENDED USE:

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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Table A: PFAC-MXB; Components and Concentrations (ng/ml, $\pm$ 5% in Methanol / Water (<1%))

Name	Abbreviation	Concentration (ng/ml)	Peak Assignment In Figure 1	
Perfluoro-n-butanoic acid	PFBA	2000	A	
Perfluoro-n-pentanoic acid	PFPeA	2000	B	
Perfluoro-n-hexanoic acid	PFHxA	2000	D	
Perfluoro-n-heptanoic acid	PFHpA	2000	E	
Perfluoro-n-octanoic acid	PFOA	2000	G	
Perfluoro-n-nonanoic acid	PFNA	2000	H	
Perfluoro-n-decanoic acid	PFDA	2000	J	
Perfluoro-n-undecanoic acid	PFUdA	2000	K	
Perfluoro-n-dodecanoic acid	PFDoA	2000	M	
Perfluoro-n-tridecanoic acid	PFTrDA	2000	N	
Perfluoro-n-tetradecanoic acid	PFTeDA	2000	O	
Perfluoro-n-hexadecanoic acid	PFHxDA	2000	P	
Perfluoro-n-octadecanoic acid	PFODA	2000	Q	
Name	Abbreviation	Concentration (ng/ml)		Peak Assignment In Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-buthanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	F
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	I
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	L

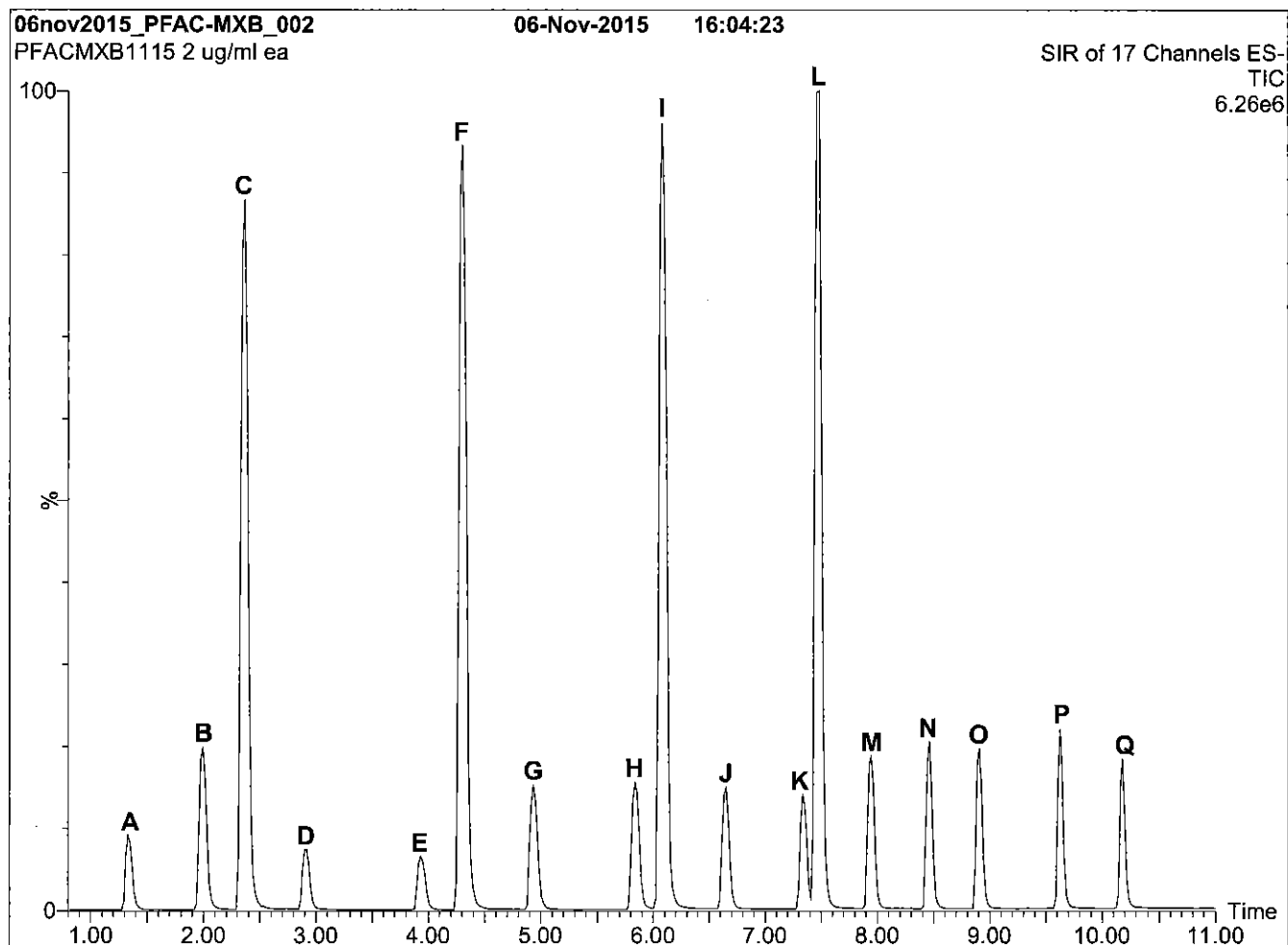
Certified By:


B.G. Chittim

Date: 11/11/2015

(mm/dd/yyyy)

Figure 1: PFAC-MXB; LC/MS Data (Total Ion Current Chromatogram; SIR)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% H₂O / 45% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 10 min and hold for 1 min
before returning to initial conditions in 0.5 min.

Time: 12 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR of 17 Channels

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (10-70)
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)

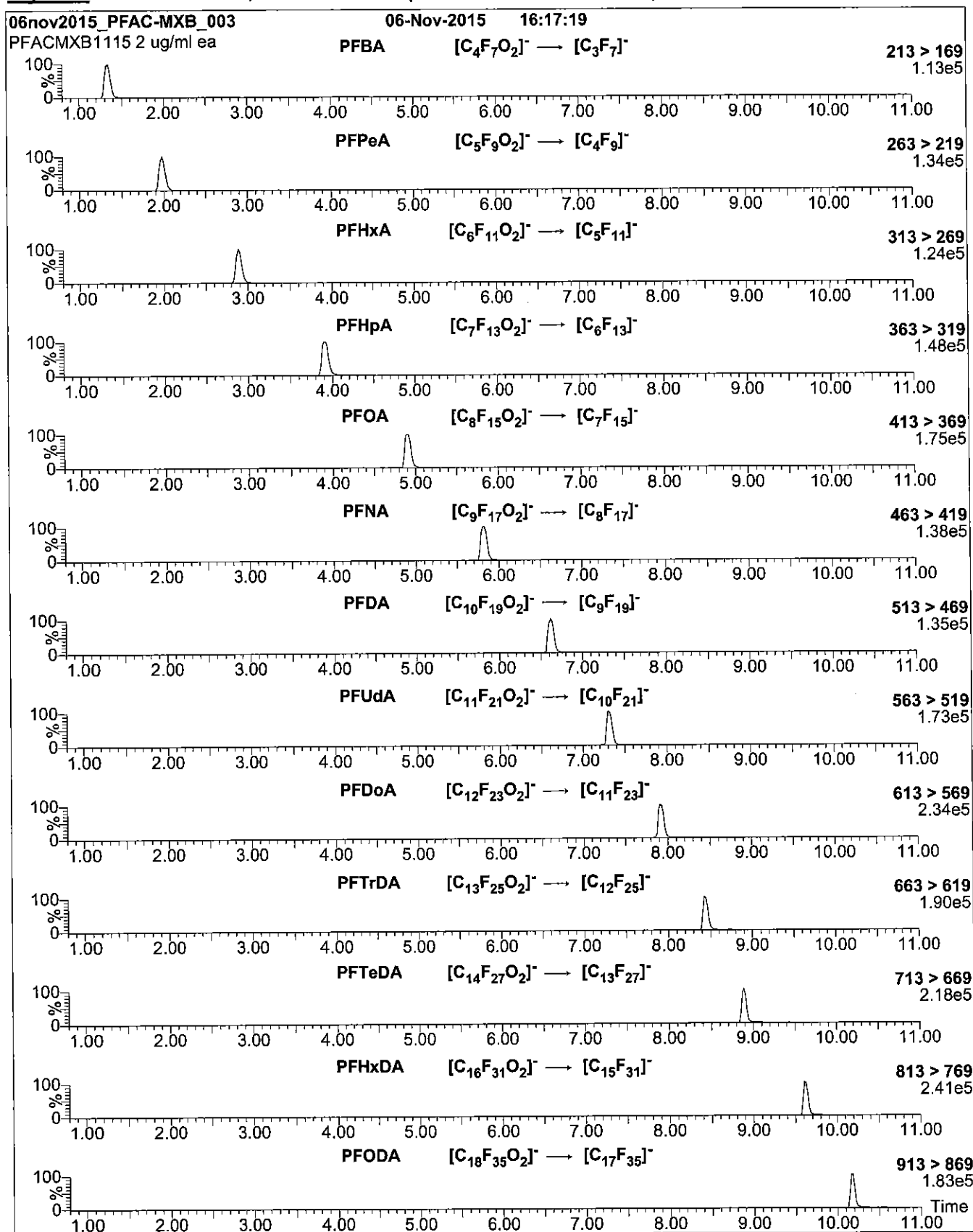
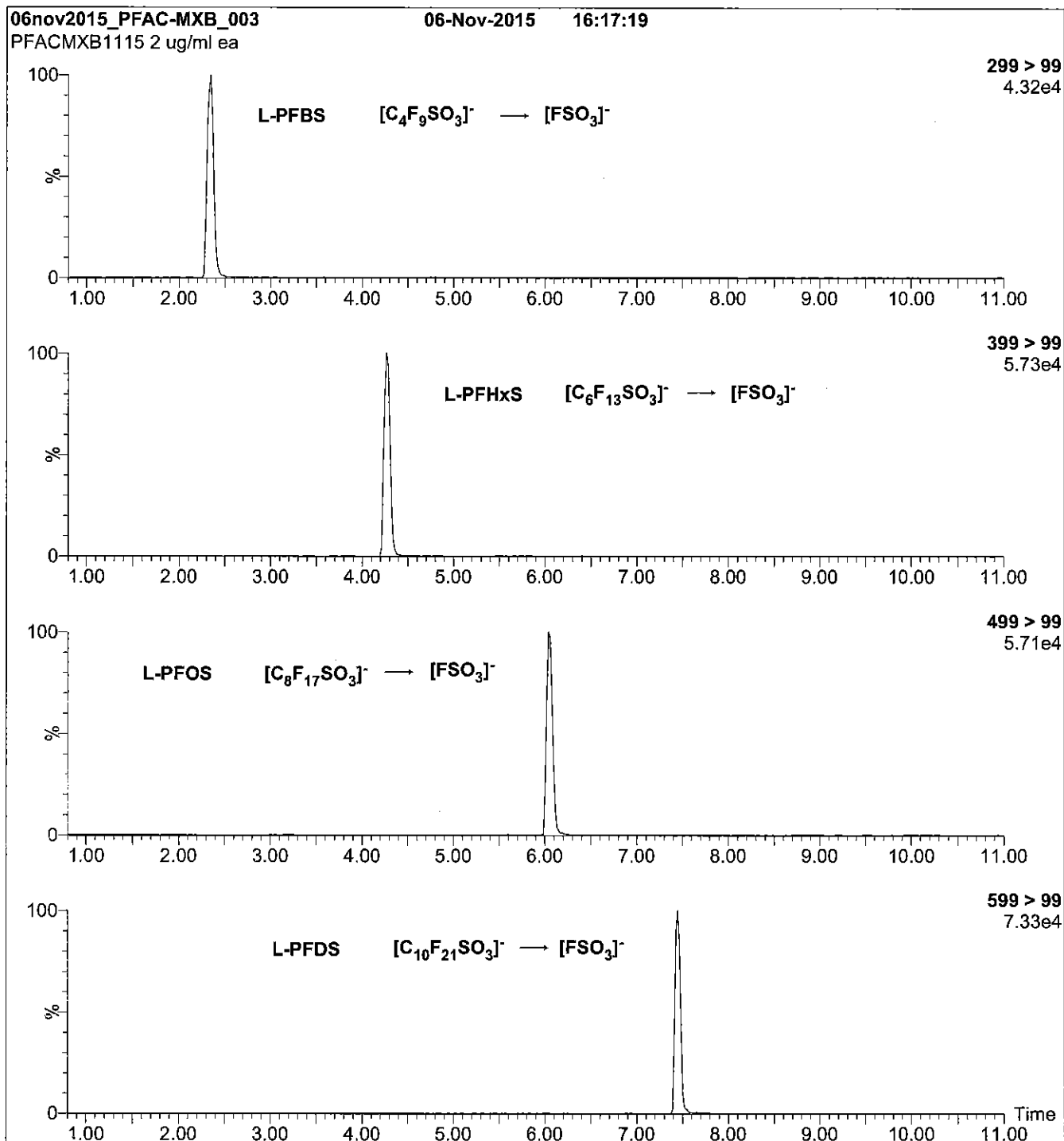


Figure 3: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figures 2 and 3:

Injection: on-column (PFAC-MXB)

Mobile phase: Same as Figure 1

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.24e-3

Collision Energy (eV) = 8-50 (variable)

Reagent

LCPFBA_00005

Scanned
10/16/14

R: SBC 9/13/16



730531
ID: LCPFBA_00005
Exp: 05/27/21 Ppd: SBC
PF-n-butanoic acid



730532
ID: LCPFBA_00006
Exp: 05/27/21 Ppd: SBC
PF-n-butanoic acid



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFBA

LOT NUMBER:

PFBA0516

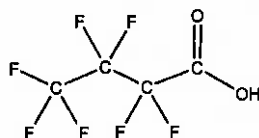
COMPOUND:

Perfluoro-n-butanoic acid

STRUCTURE:

CAS #:

375-22-4



MOLECULAR FORMULA:

C₄HF₇O₂

MOLECULAR WEIGHT:

214.04

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/27/2016

EXPIRY DATE: (mm/dd/yyyy)

05/27/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/31/2016

(mm/dd/yyyy)

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

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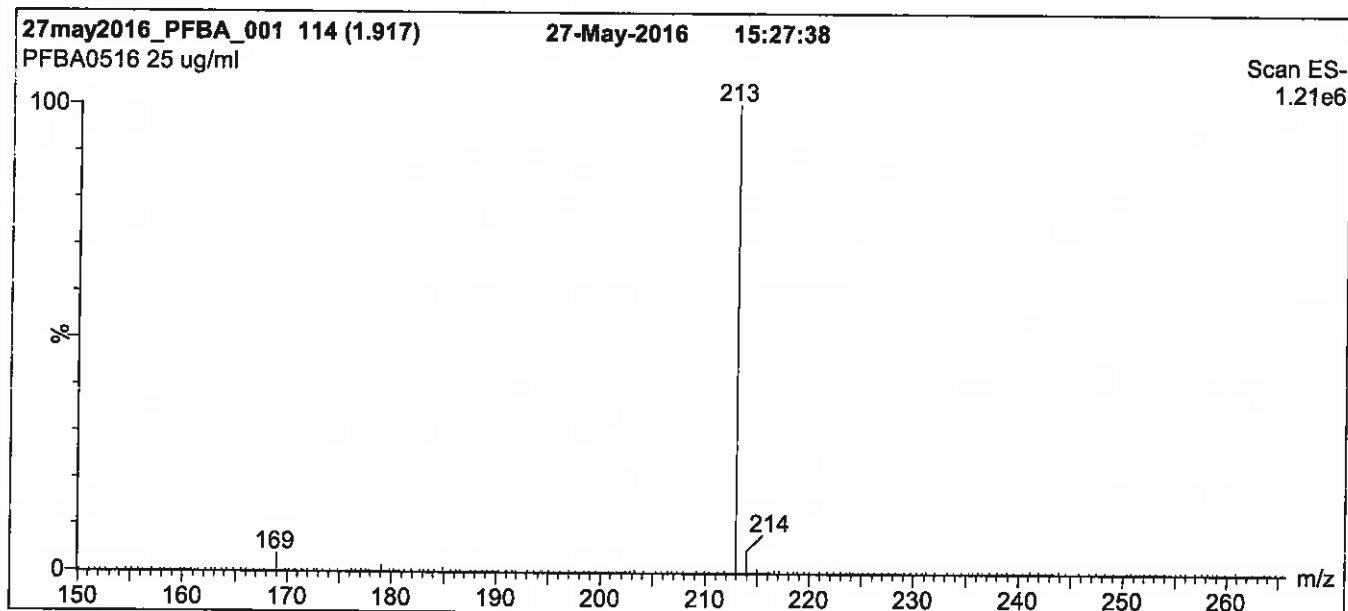
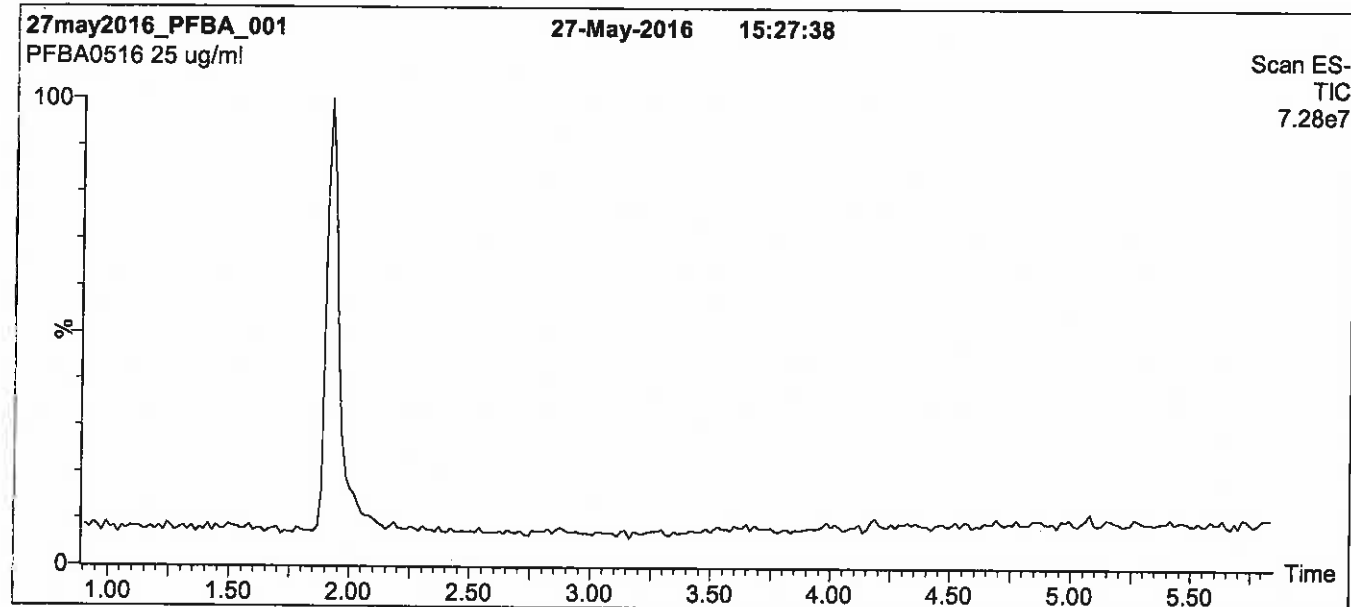
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Figure 1: PFBA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

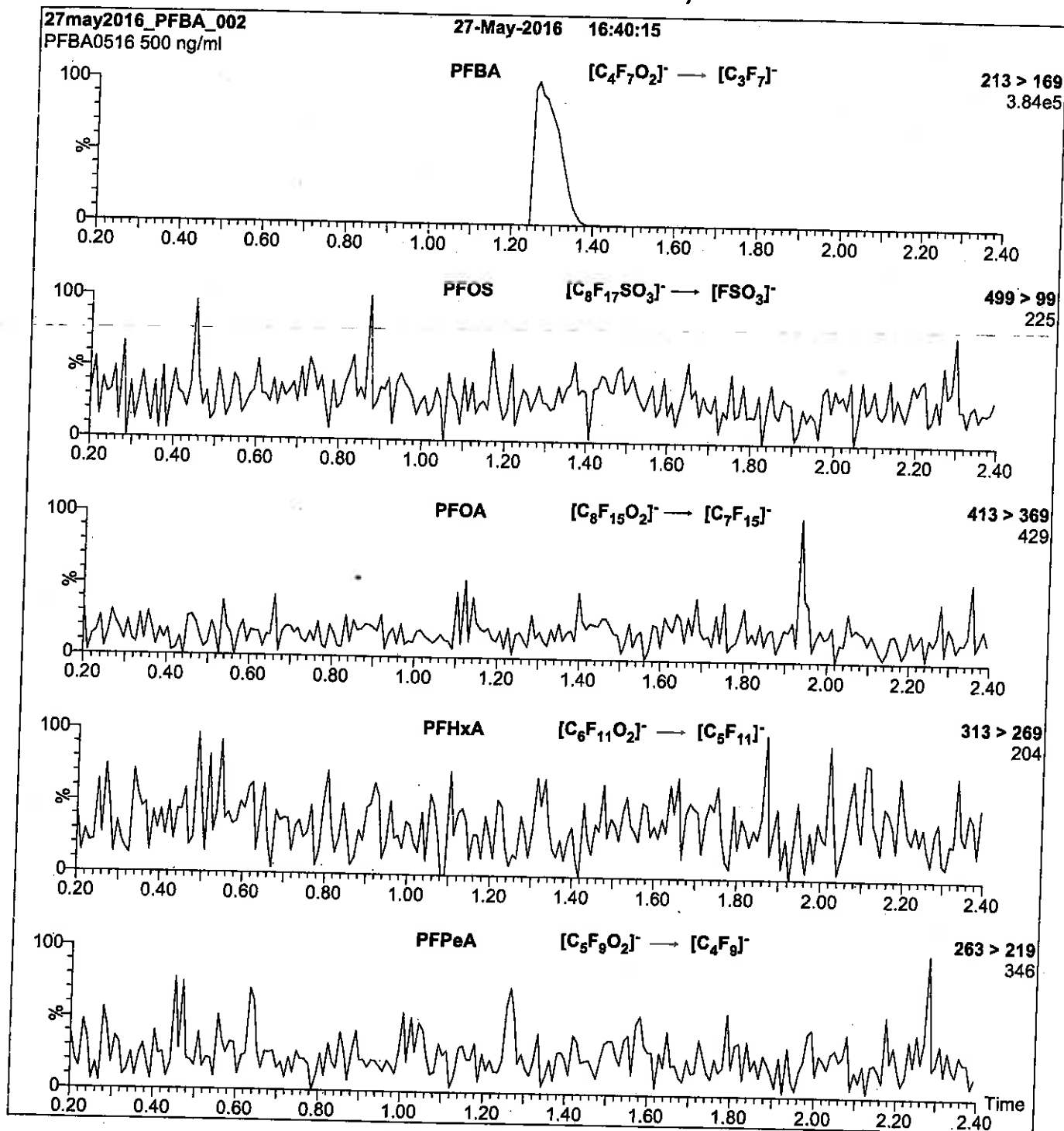
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 10

Reagent

LCPFBS_00005

R: 9/9/16 gbx



728306

ID: LCM2-8:2FTS_00003

Exp: 01/08/21 Prod: SBC

M2-8:2FTS

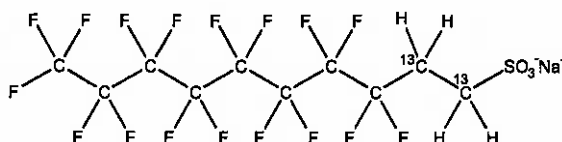


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0116
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈H₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 552.15
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
 47.9 ± 2.4 µg/ml (M2-8:2FTS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 01/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 01/08/2021
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 8:2FTS contains 4.22% of ³⁴S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 01/18/2016

(mm/dd/yyyy)

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

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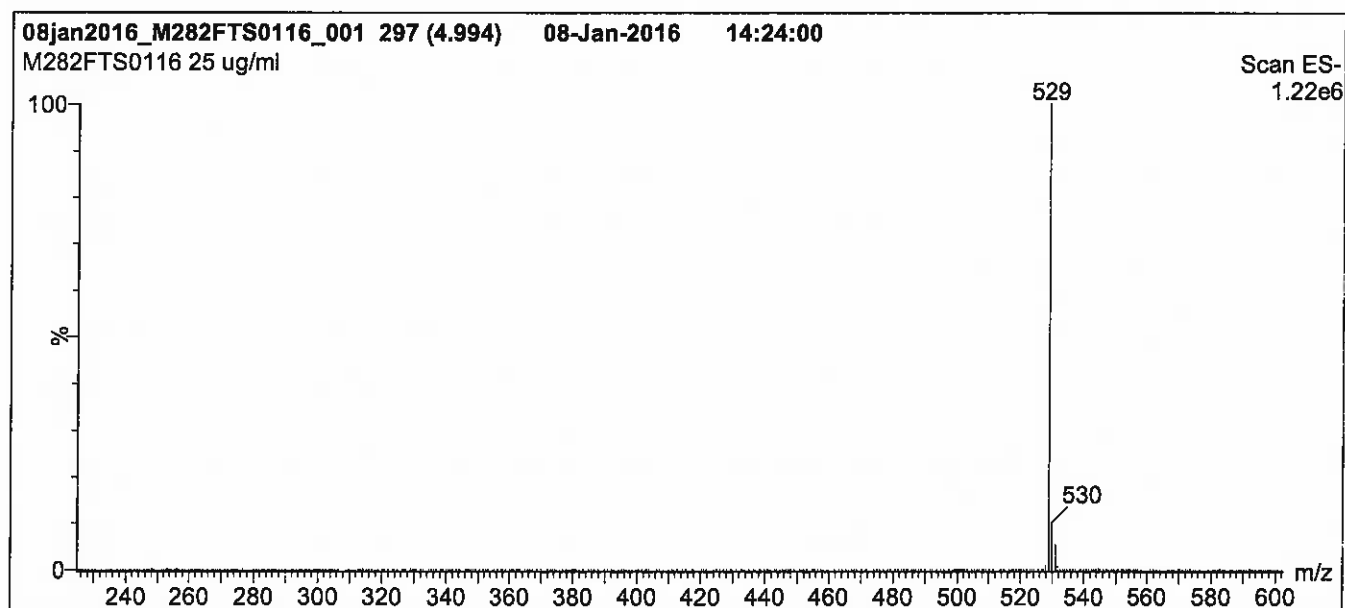
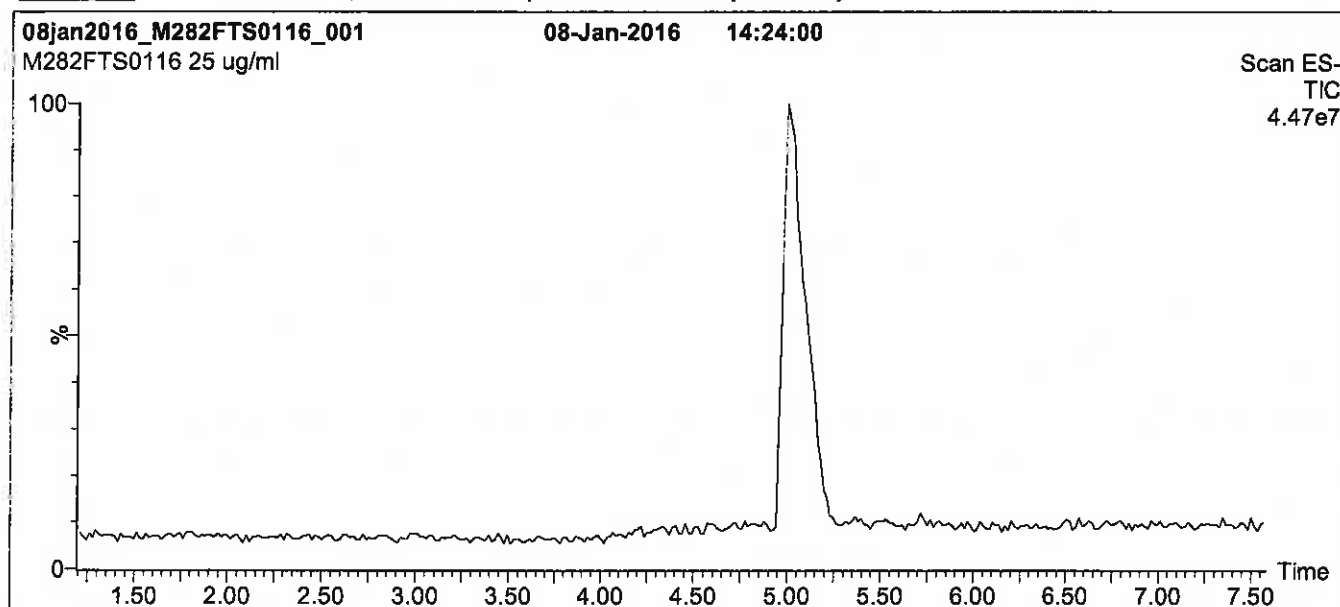
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Figure 1: M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.

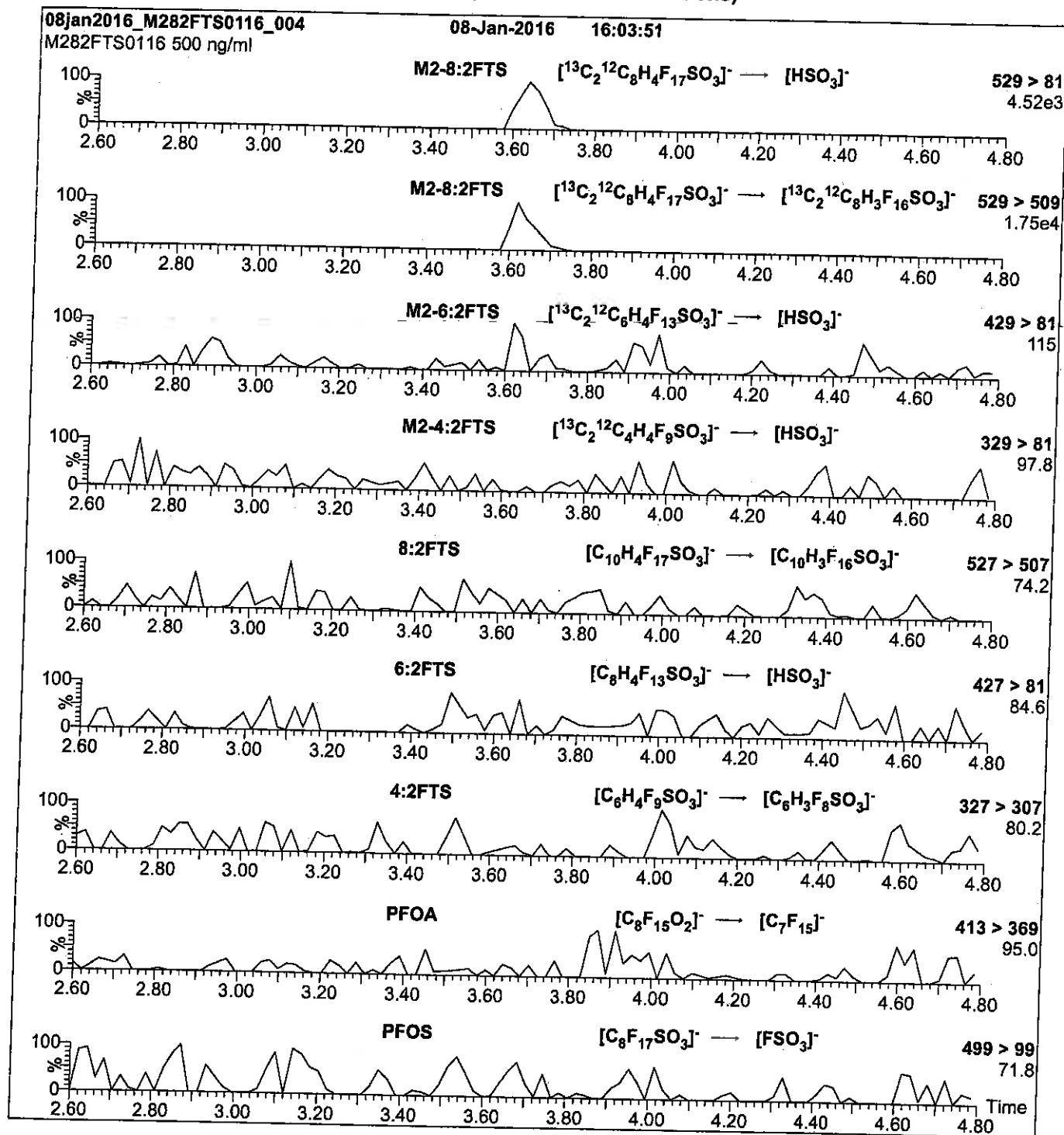
Time: 10 min
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2-8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

R: SBC 9/13/16



730511

ID: LCPFB5_00005

Exp: 03/15/21 Prod: SBC

PF-1-butanedisulfonate K sa



730512

ID: LCPFB5_00006

Exp: 03/15/21 Prod: SBC

PF-1-butanedisulfonate K sa



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFBS

COMPOUND:

Potassium perfluoro-1-butanedisulfonate

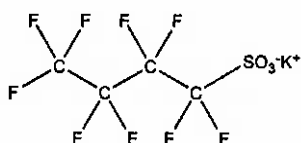
LOT NUMBER:

LPFBS0316

STRUCTURE:

CAS #:

29420-49-3



MOLECULAR FORMULA:

C₄F₉SO₃K

CONCENTRATION:

50.0 ± 2.5 µg/ml (K salt)
44.2 ± 2.2 µg/ml (PFBS anion)

MOLECULAR WEIGHT:

338.19

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/15/2016

EXPIRY DATE: (mm/dd/yyyy)

03/15/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 03/21/2016

(mm/dd/yyyy)

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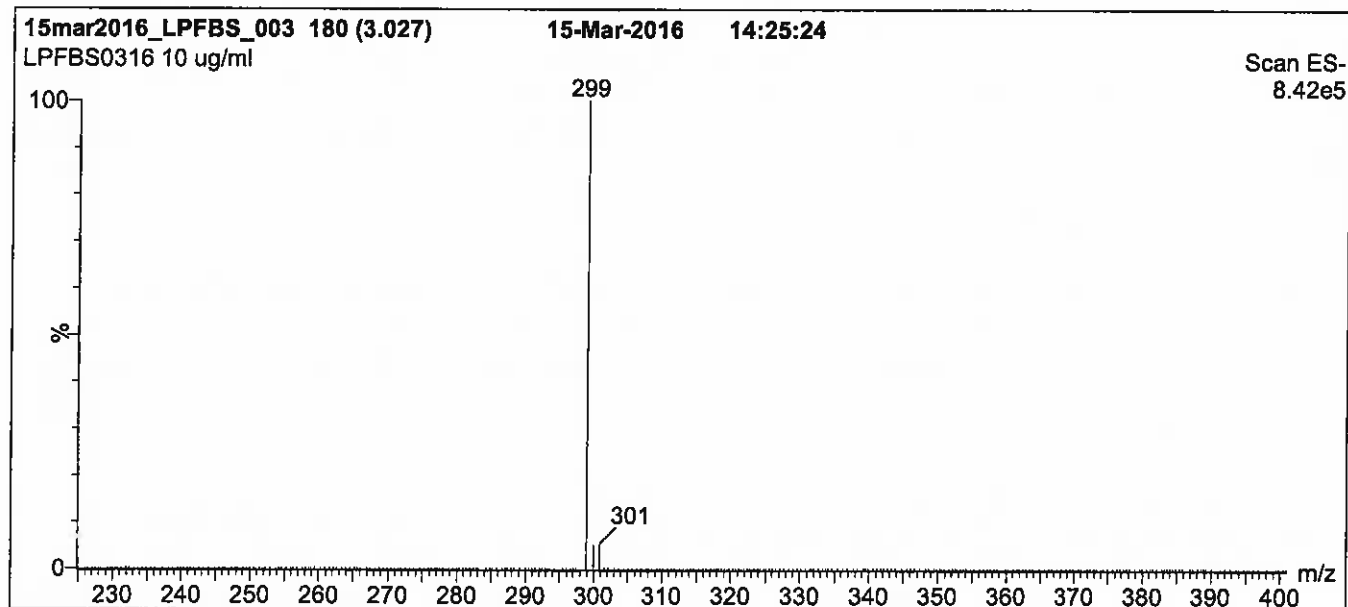
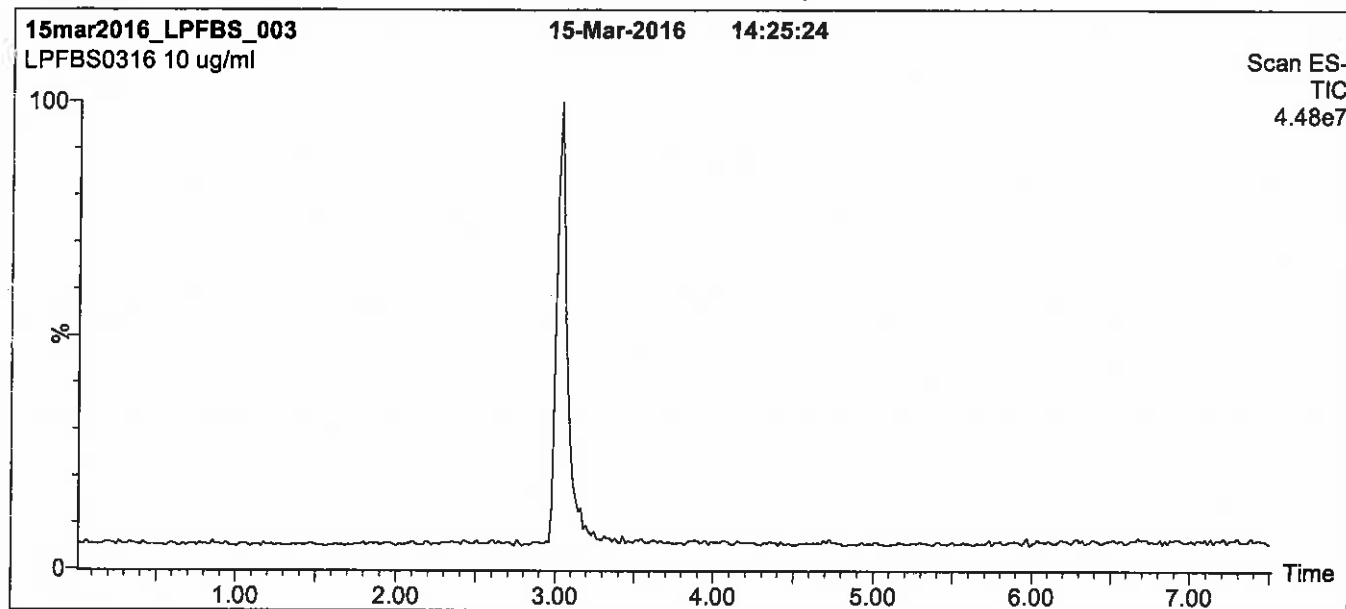
QUALITY MANAGEMENT:

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



****For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com****

Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

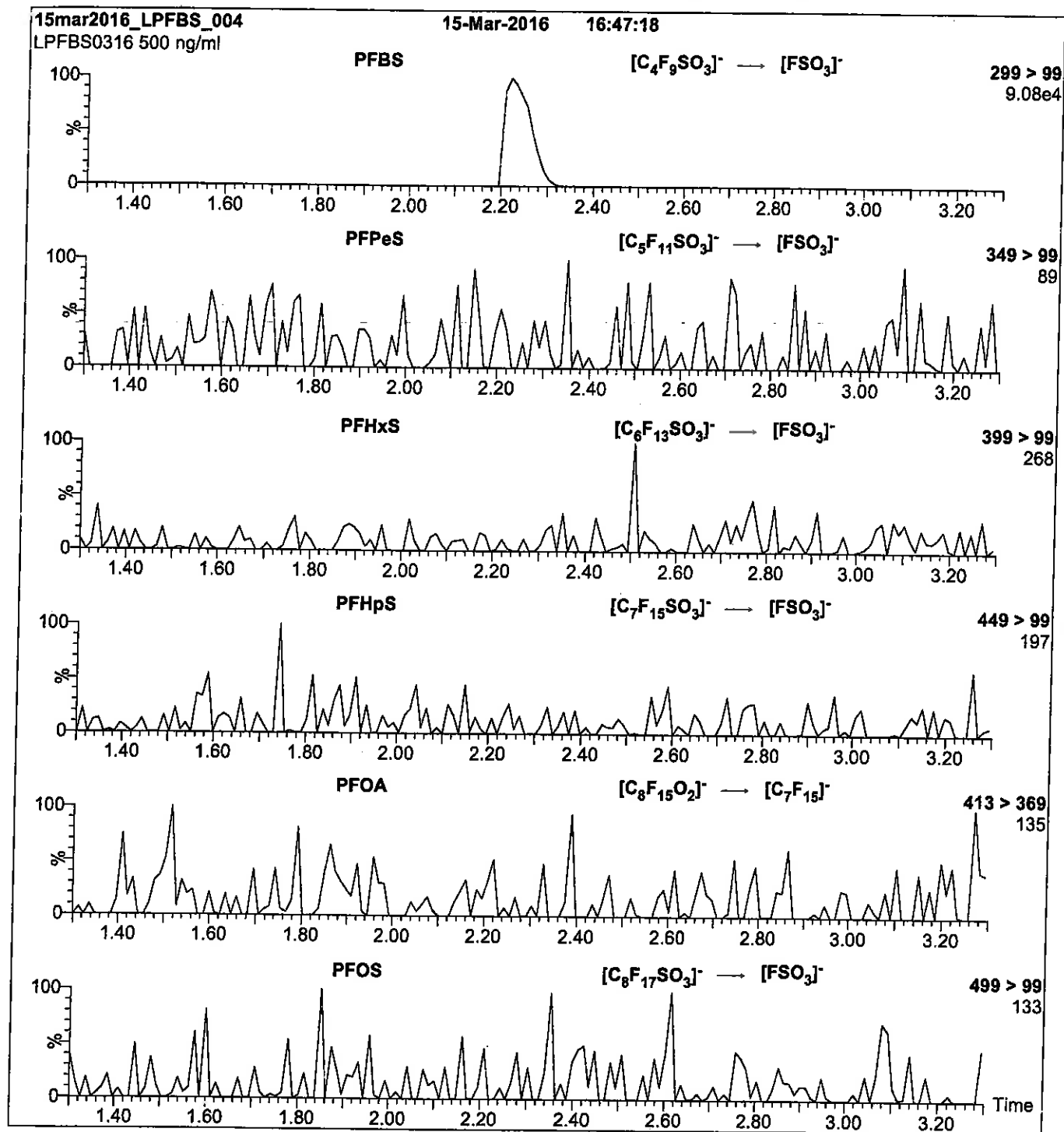
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: L-PFBS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml L-PFBS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 25

Reagent

LCPFDA_00005

R: 7/16/16 CBW



671576

ID: LCPFDA_00305

Exp: 07/02/20 Ppdt: CBW

PF-n-decanoic acid

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

PFDA

LOT NUMBER:

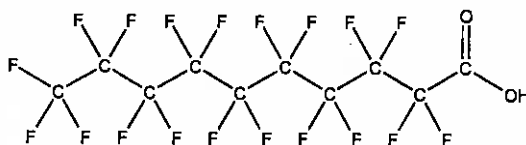
PFDA0615

COMPOUND:

Perfluoro-n-decanoic acid

STRUCTURE:**CAS #:**

335-76-2

**MOLECULAR FORMULA:** $C_{10}H_{19}O_2$ **MOLECULAR WEIGHT:**

514.08

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/02/2015

EXPIRY DATE: (mm/dd/yyyy)

07/02/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.6% PFNA and ~ 0.3% PFOA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 07/24/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

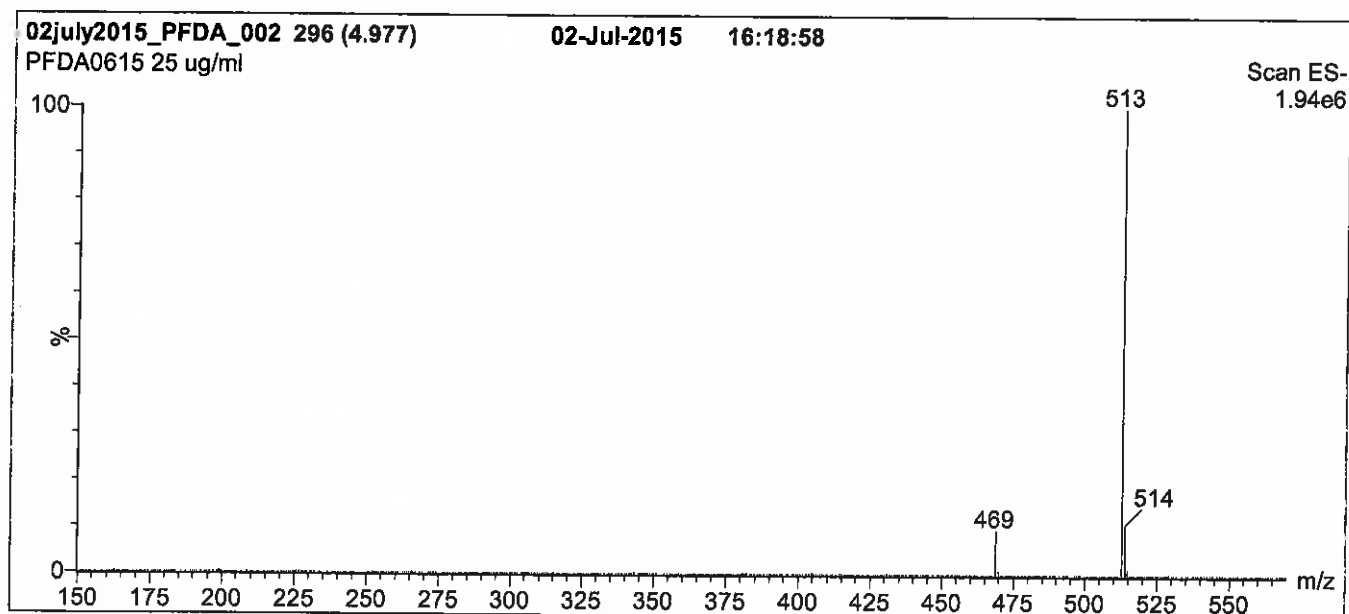
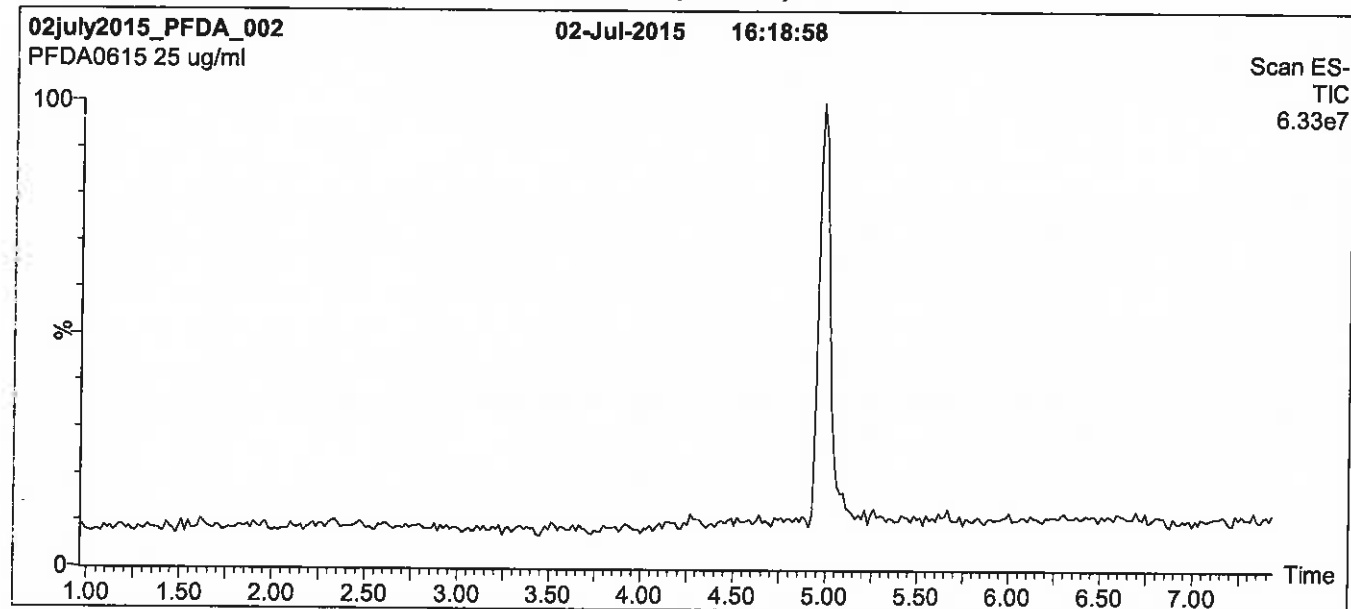
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

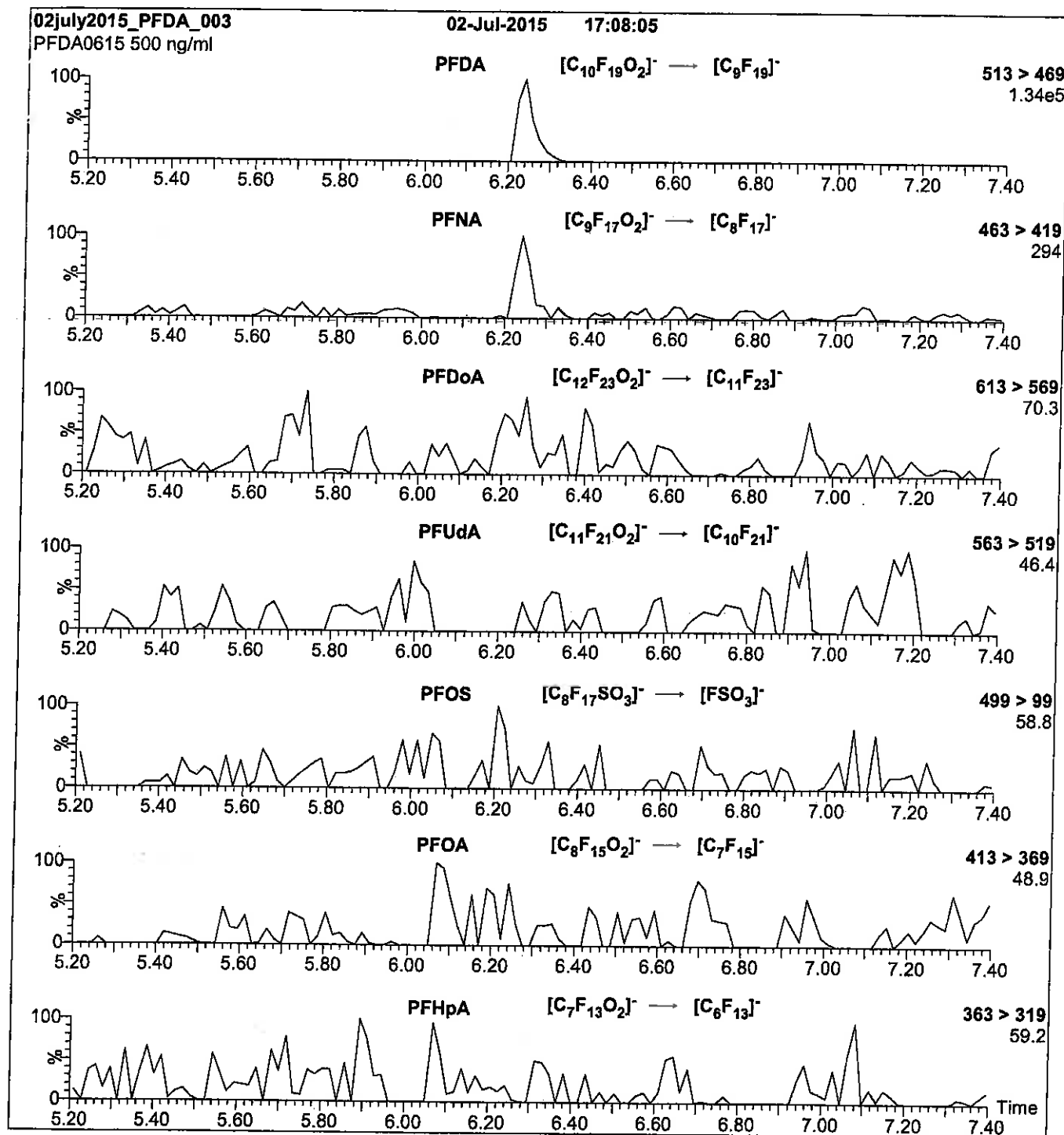
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 13

Reagent

LCPFDoA_00005

R: 7/6/16 car

671601
ID: LCPFD0A_00005
Exp: 01/30/20 Pripd: CSW
PF-n-dodecanoic acid

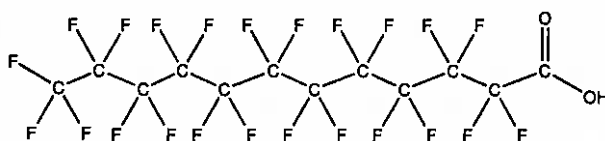


WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFD0A **LOT NUMBER:** PFD0A0115
COMPOUND: Perfluoro-n-dodecanoic acid

STRUCTURE: **CAS #:** 307-55-1



MOLECULAR FORMULA: $C_{12}H_{23}O_2$ **MOLECULAR WEIGHT:** 614.10
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/30/2015
EXPIRY DATE: (mm/dd/yyyy) 01/30/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 03/25/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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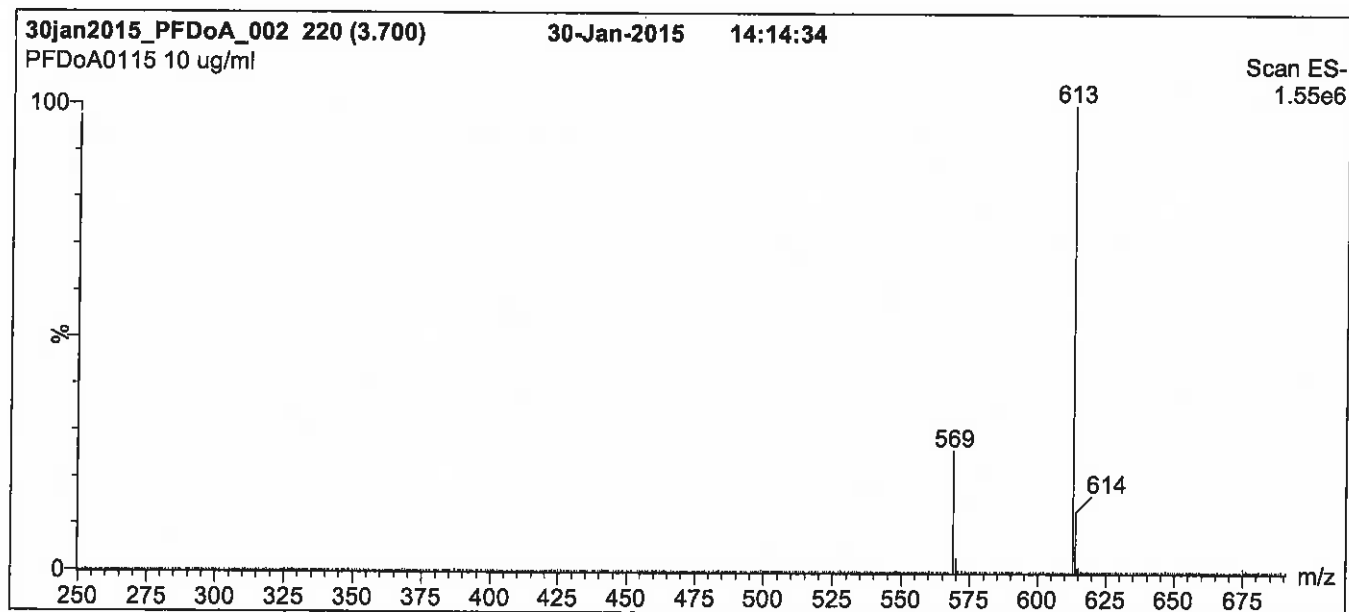
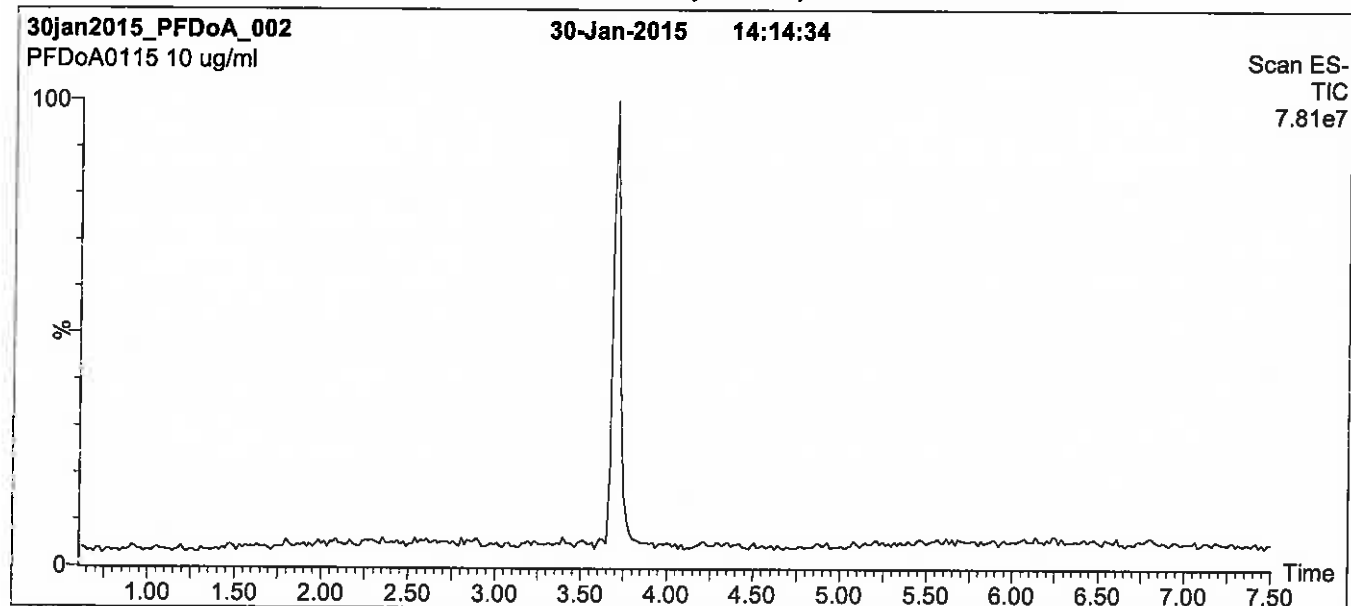
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

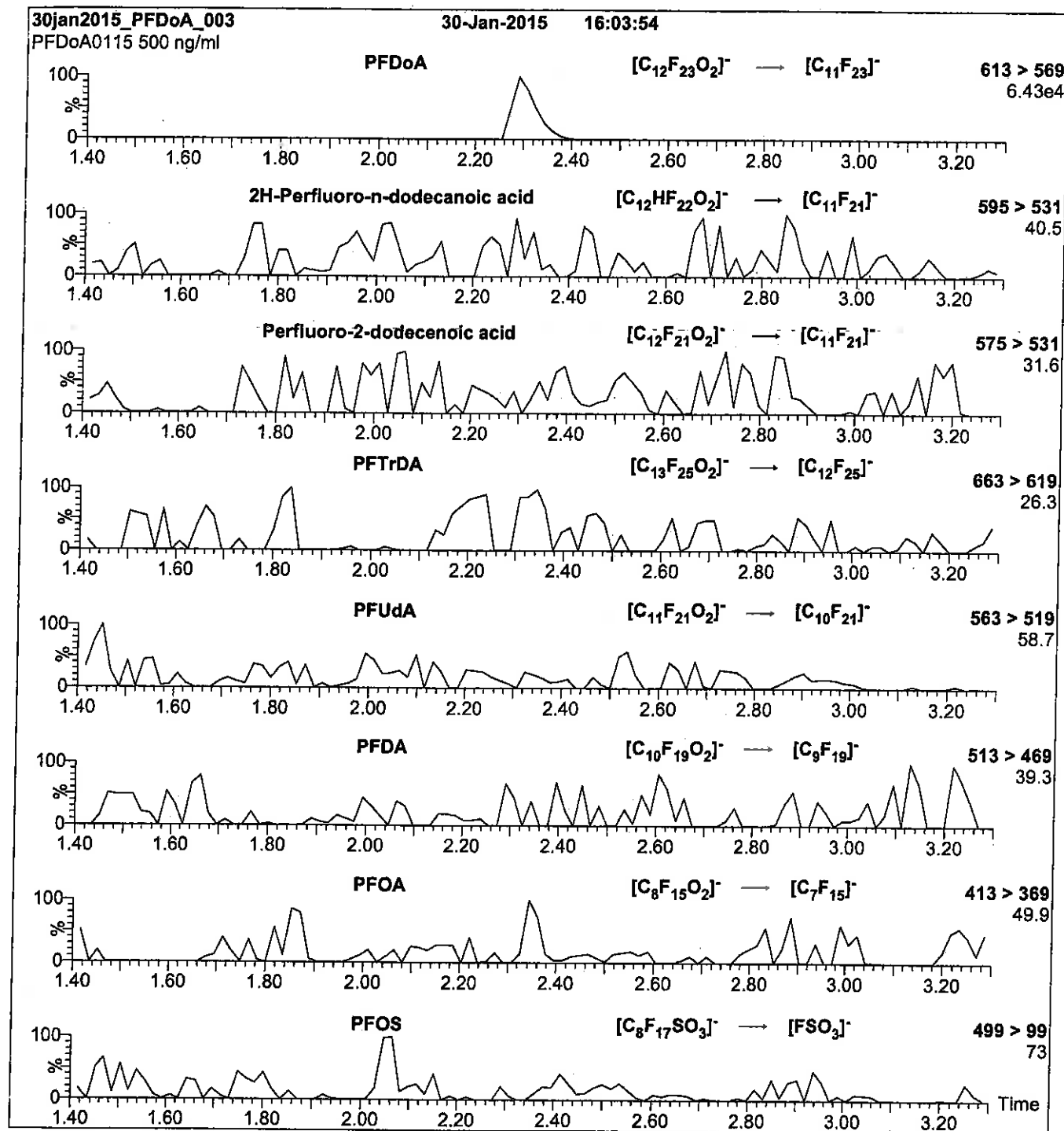
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFDoA)

MS Parameters

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 13

Flow: 300 μ l/min

Reagent

LCPFHpA_00006

Scanned R: SBC 9/13/16
10/14/16 JK



730517
ID: LCPFHpa_00006
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



730518
ID: LCPFHpa_00007
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHpA

LOT NUMBER:

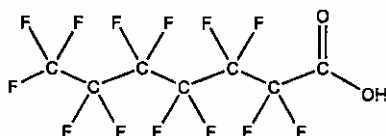
PFHpA0116

COMPOUND:

Perfluoro-n-heptanoic acid

STRUCTURE:**CAS #:**

375-85-9

**MOLECULAR FORMULA:** $C_7H_2F_{13}O_2$ **MOLECULAR WEIGHT:**

364.06

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/22/2016

EXPIRY DATE: (mm/dd/yyyy)

01/22/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/02/2016

(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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

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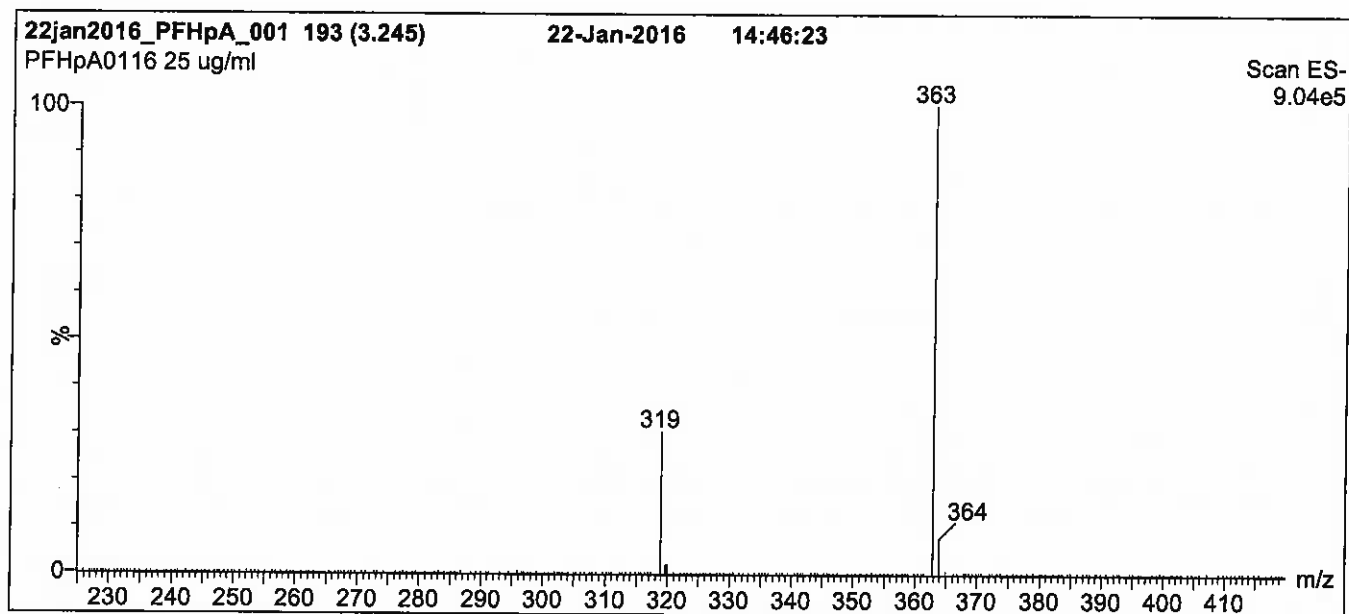
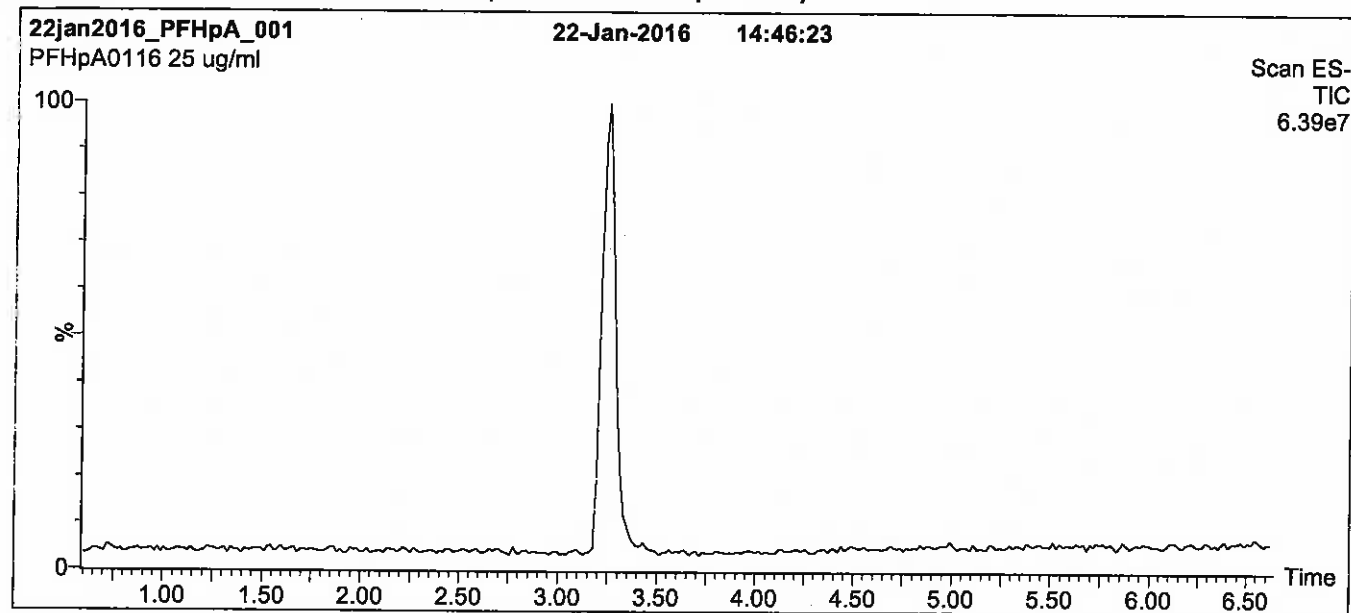
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

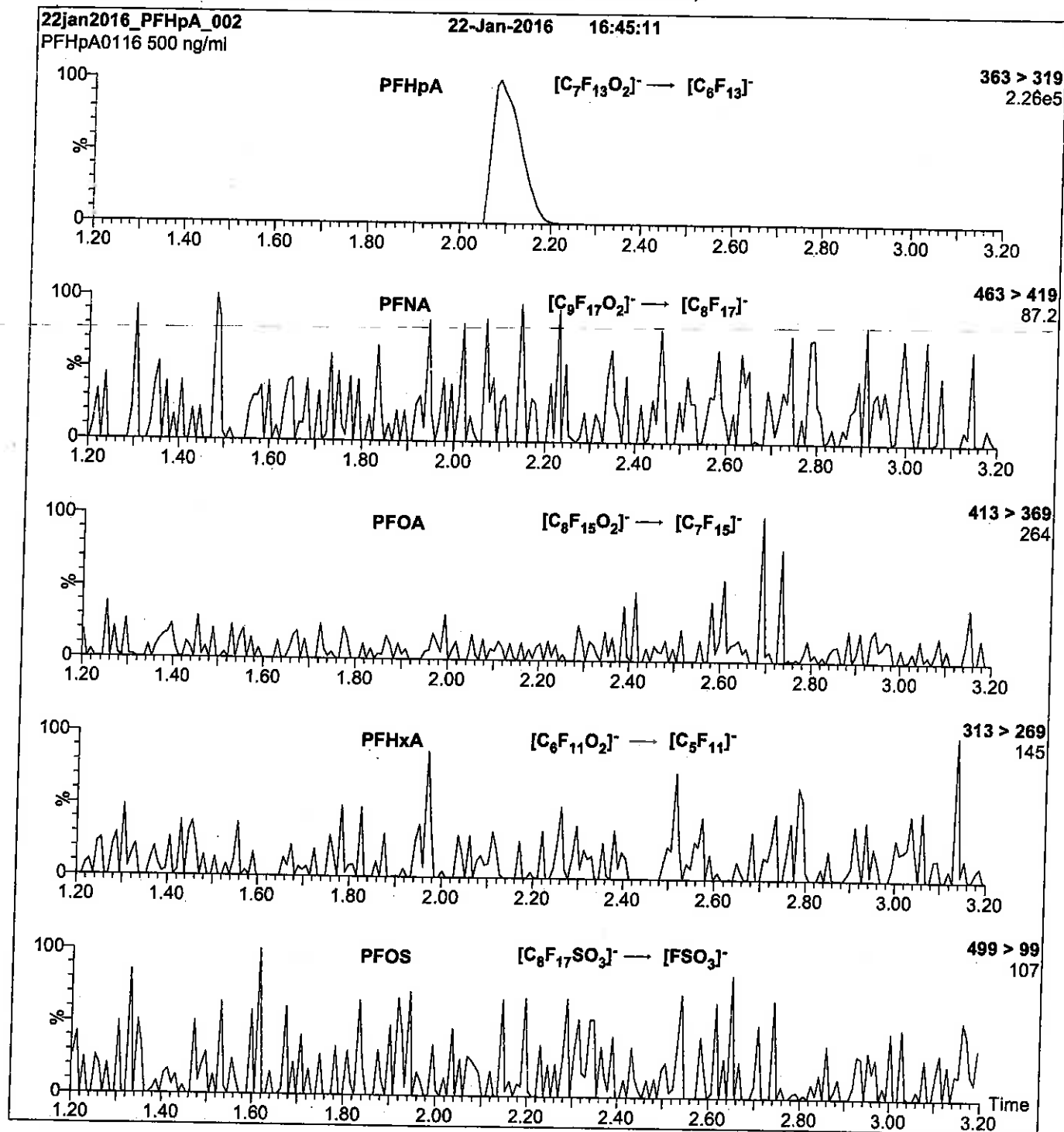
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 11

Reagent

LCPFHpS_00009

Scanned
10/14/16 SP
R: SBC 9/13/16

730635
ID: LCPFHPS_00009
Exp: 11/06/20 Prod: SBC
PFHpS at 47.6ug/mL

730639
ID: LCPFHPS_00010
Exp: 11/06/20 Prod: SBC
PFHpS at 47.6ug/mL



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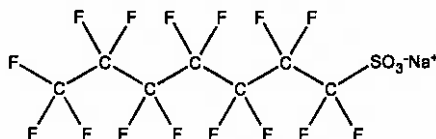
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFHPS
COMPOUND: Sodium perfluoro-1-heptanesulfonate

LOT NUMBER: LPFHPS1115

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $C_7F_{15}SO_3Na$
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ (Na salt)
 $47.6 \pm 2.4 \mu\text{g/mL}$ (PFHpS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 472.10
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.1% of L-PFHxS ($C_6F_{13}SO_3Na$) and ~ 0.2% of L-PFOS ($C_8F_{17}SO_3Na$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 11/09/2015
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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

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

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

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

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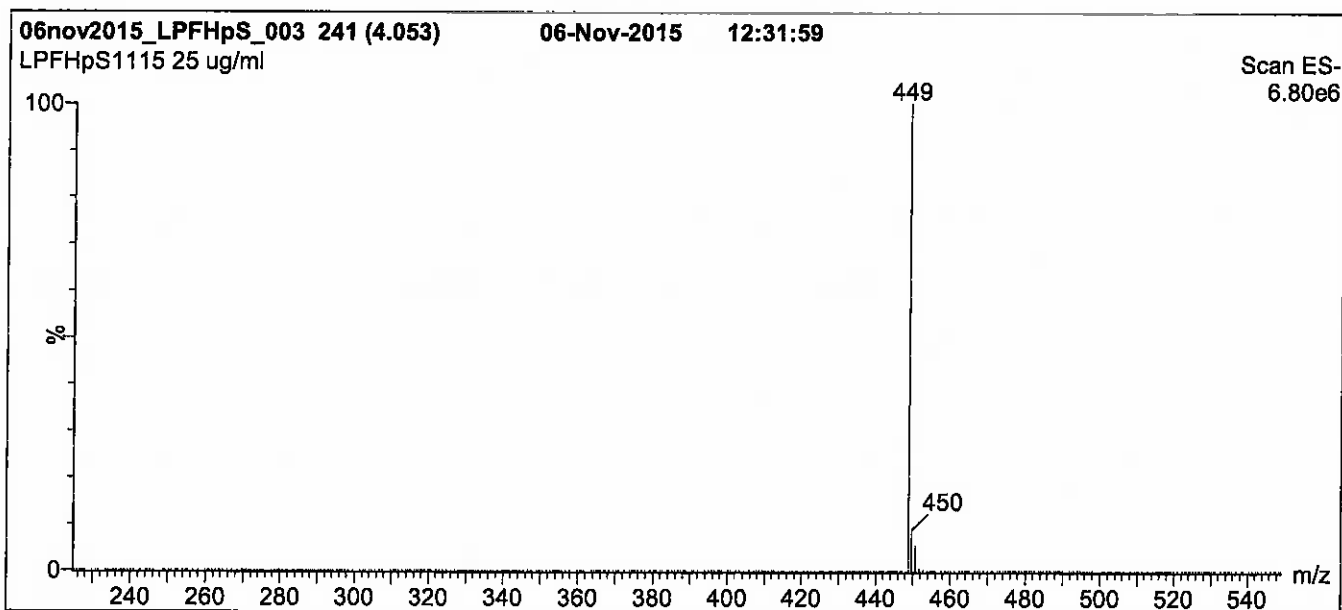
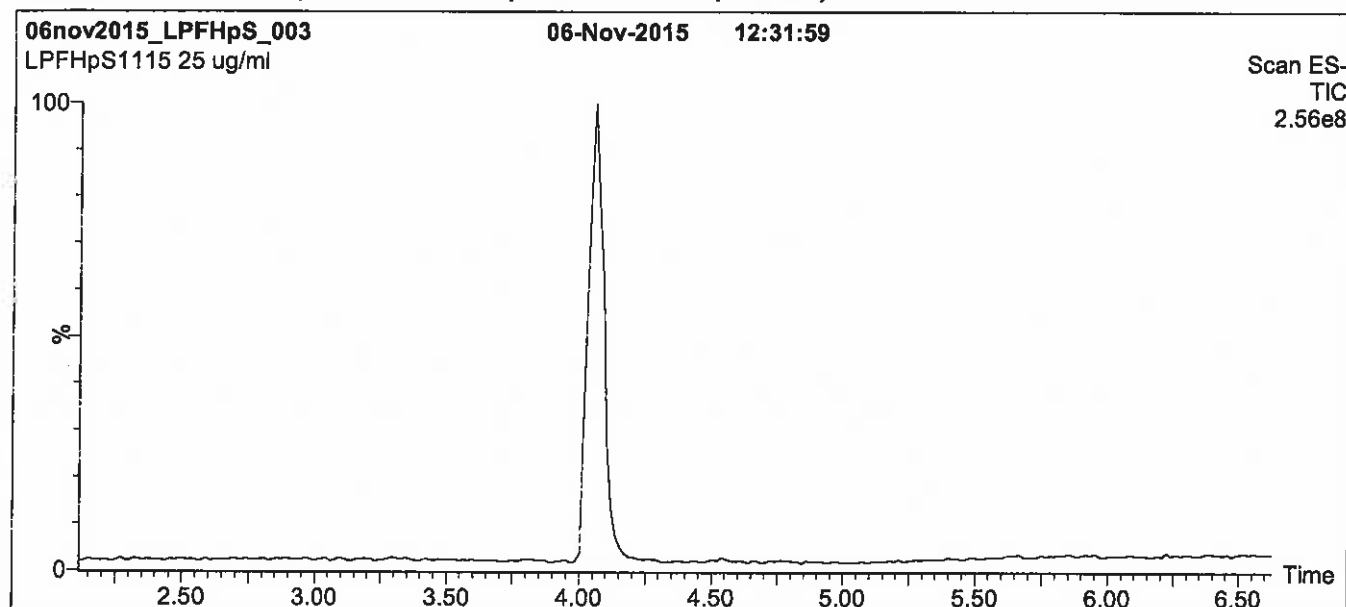
QUALITY MANAGEMENT:

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Figure 1: L-PFHpS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold
for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

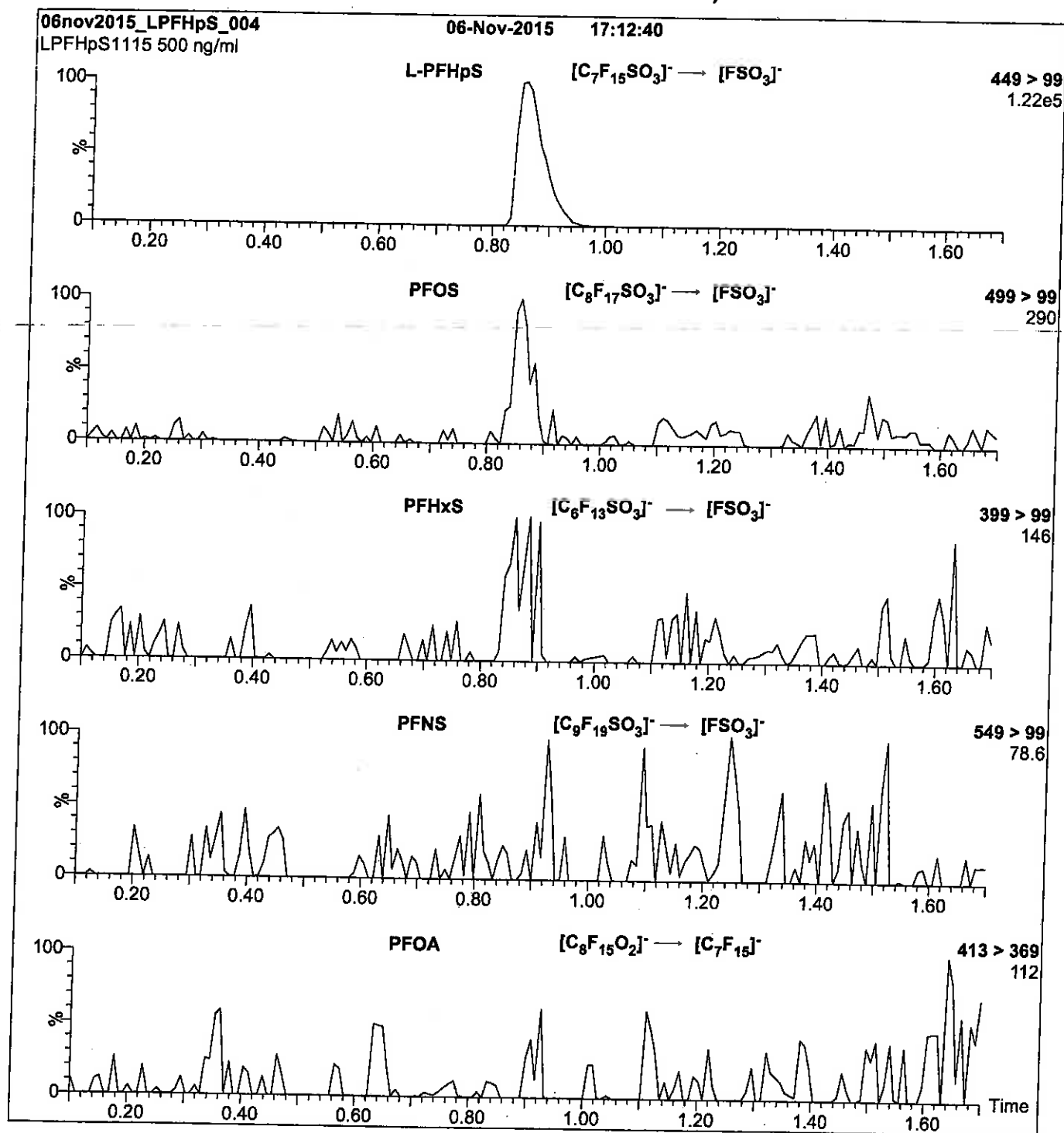
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml L-PFHpS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 35

Reagent

LCPFHxA_00005

R: 832 9/13/16



730551
ID: LCPFHxA_00005
Exp: 12/22/20 Ppd: SBC
PF-n-hexanoic acid



730552
ID: LCPFHxA_00006
Exp: 12/22/20 Ppd: SBC
PF-n-hexanoic acid



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHxA

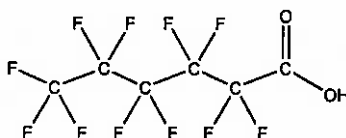
LOT NUMBER: PFHxA1215

COMPOUND:

Perfluoro-n-hexanoic acid

STRUCTURE:

CAS #: 307-24-4



MOLECULAR FORMULA:

$C_6H_5F_{11}O_2$

MOLECULAR WEIGHT: 314.05

CONCENTRATION:

$50 \pm 2.5 \mu\text{g/ml}$

SOLVENT(S): Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/22/2015

EXPIRY DATE: (mm/dd/yyyy)

12/22/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of Perfluoro-n-pentanoic acid (PFPeA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/23/2015

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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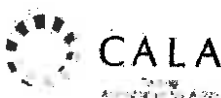
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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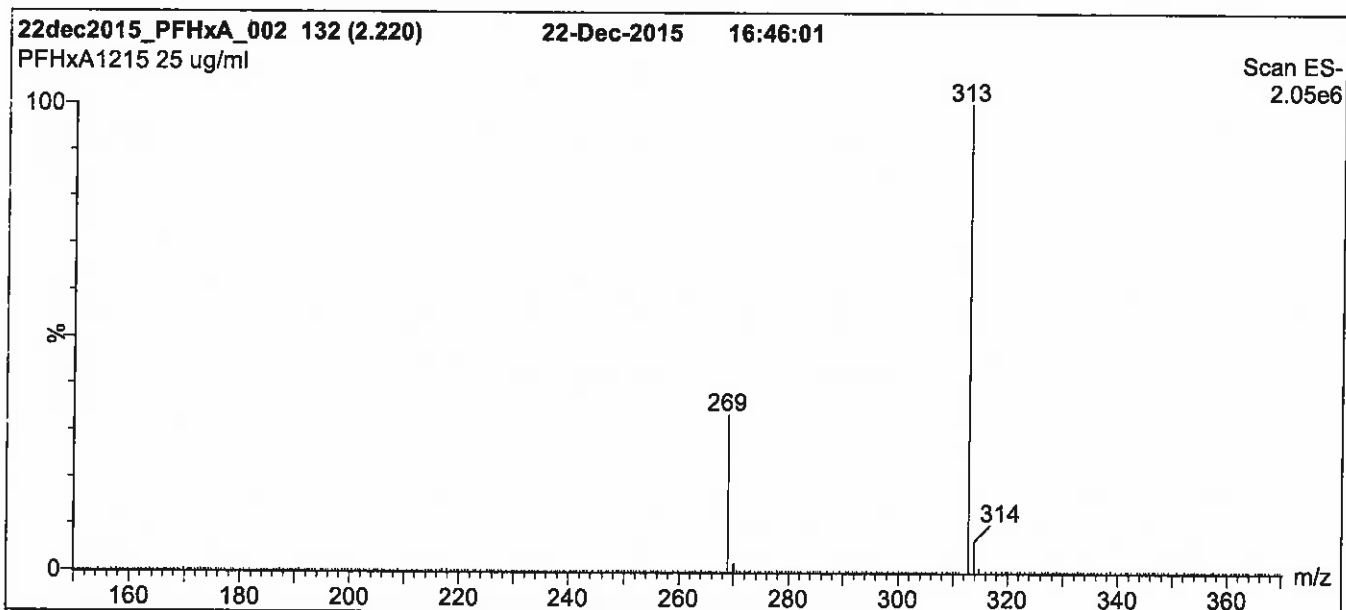
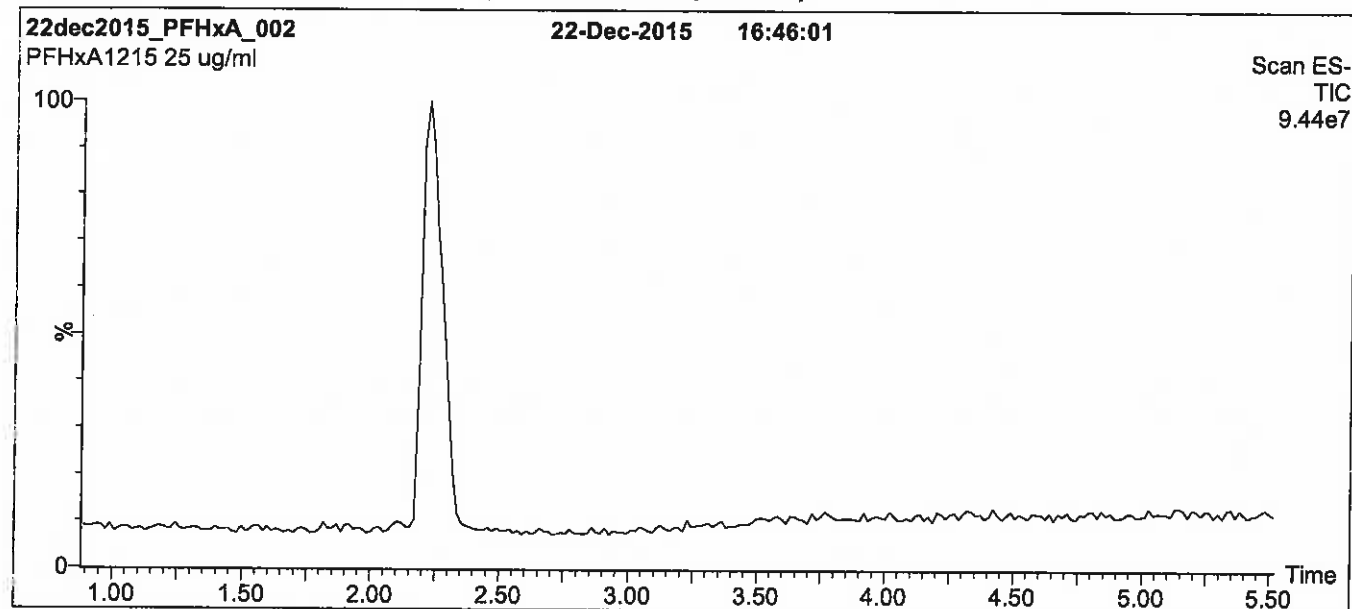
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

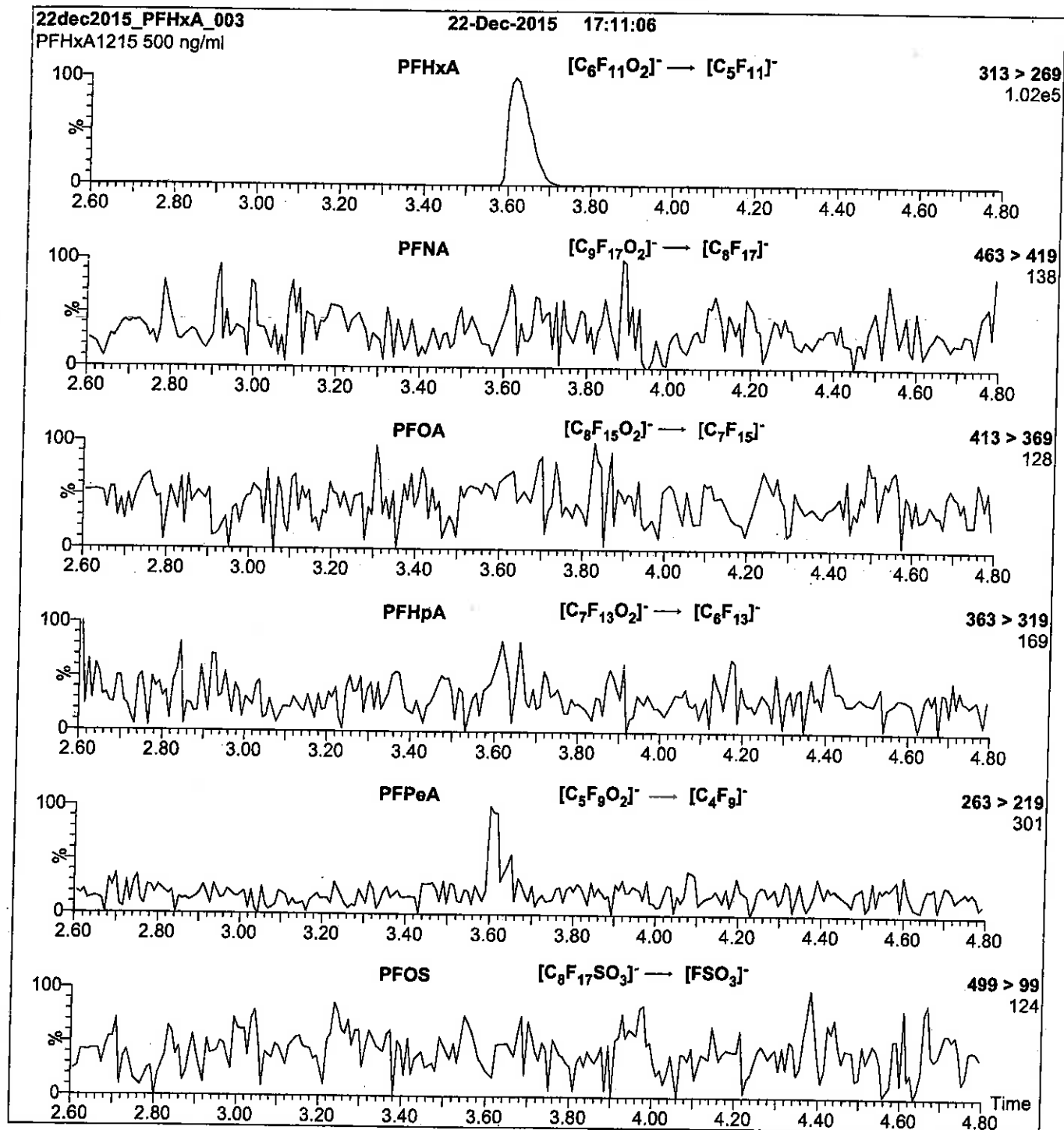
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 10

Reagent

LCPFHxDA_00006



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730630
ID: LCPFHxDA_00006
Exp: 05/25/21 Prpd: SBC
PFHxDA stock 50ug/mL



730631
ID: LCPFHxDA_00007
Exp: 05/25/21 Prpd: SBC
PFHxDA stock 50ug/mL

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHxDA

LOT NUMBER:

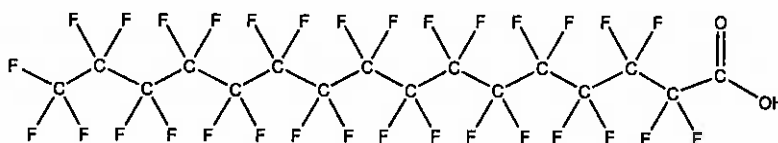
PFHxDA0516

COMPOUND:

Perfluoro-n-hexadecanoic acid

STRUCTURE:**CAS #:**

67905-19-5

**MOLECULAR FORMULA:** $C_{16}H_{31}O_2$ **MOLECULAR WEIGHT:**

814.13

CONCENTRATION: $50 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/25/2016

EXPIRY DATE: (mm/dd/yyyy)

05/25/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.4% of PFODA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/27/2016

(mm/dd/yyyy)

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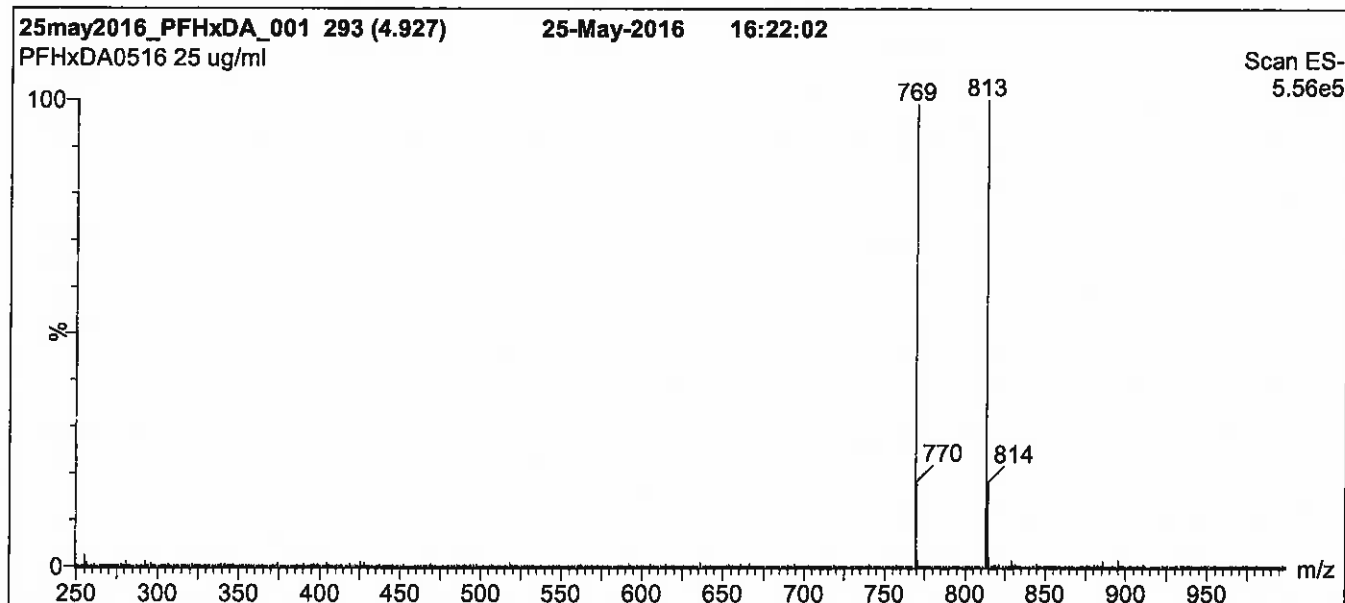
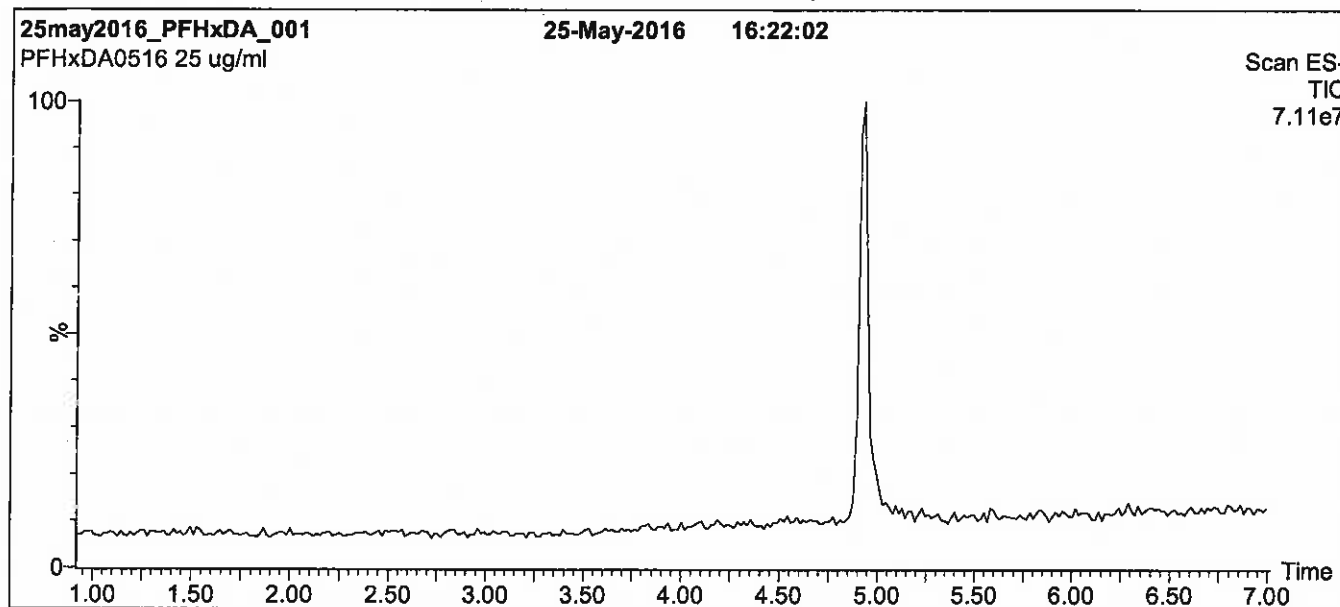
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Figure 1: PFHxDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

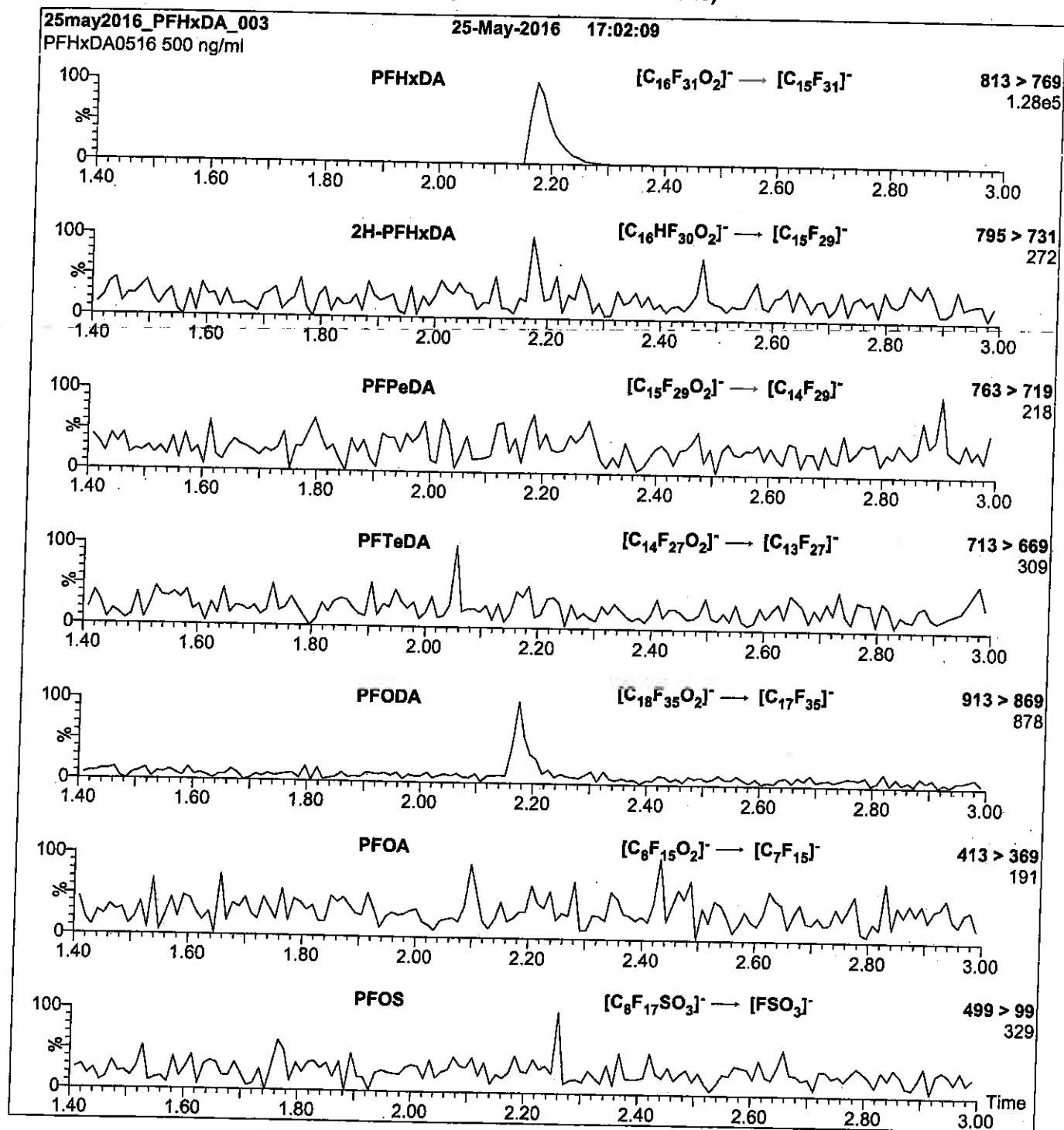
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 15

Reagent

LCPFHxS-br_00002

SBC
R: 9/13/16



730513
ID: LCPFHxS-br_00002
Exp: 07/03/20 Pripd: SBC
Potassium Perfluorohexane



730514
ID: LCPFHxS-br_00003
Exp: 07/03/20 Pripd: SBC
Potassium Perfluorohexane



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE: br-PFHxSK
LOT NUMBER: brPFHxSK0615
CONCENTRATION: 50.0 ± 2.5 µg/ml (total potassium salt)
45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 06/29/2015
LAST TESTED: (mm/dd/yyyy) 07/03/2015
EXPIRY DATE: (mm/dd/yyyy) 07/03/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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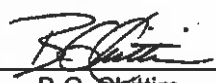


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Table A: br-PFHxSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

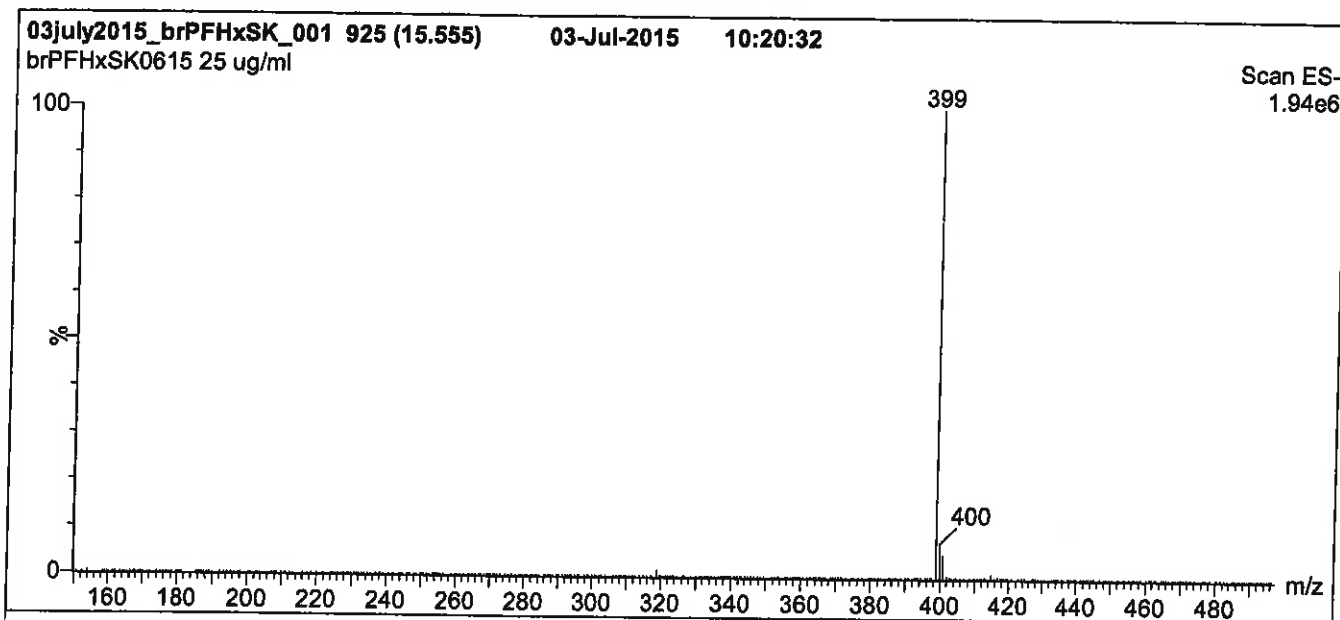
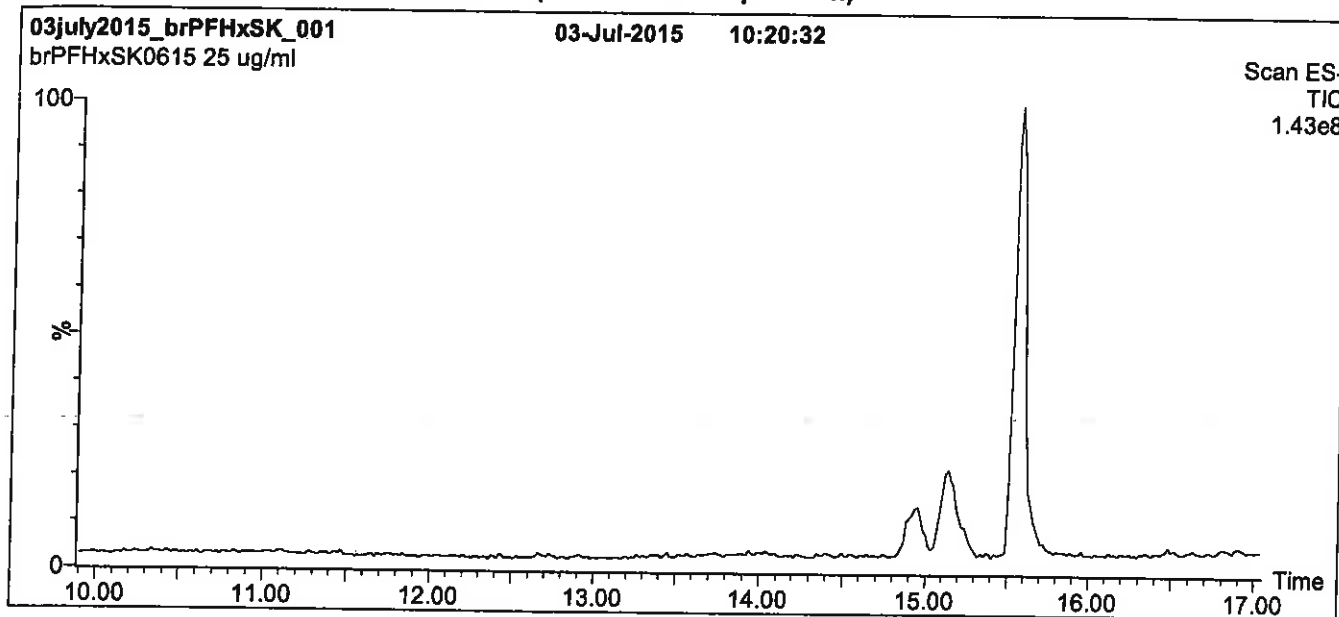
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CCF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: 
B.G. Chittim

Date: 07/15/2015
(mm/dd/yyyy)

Figure 1: br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 20 min

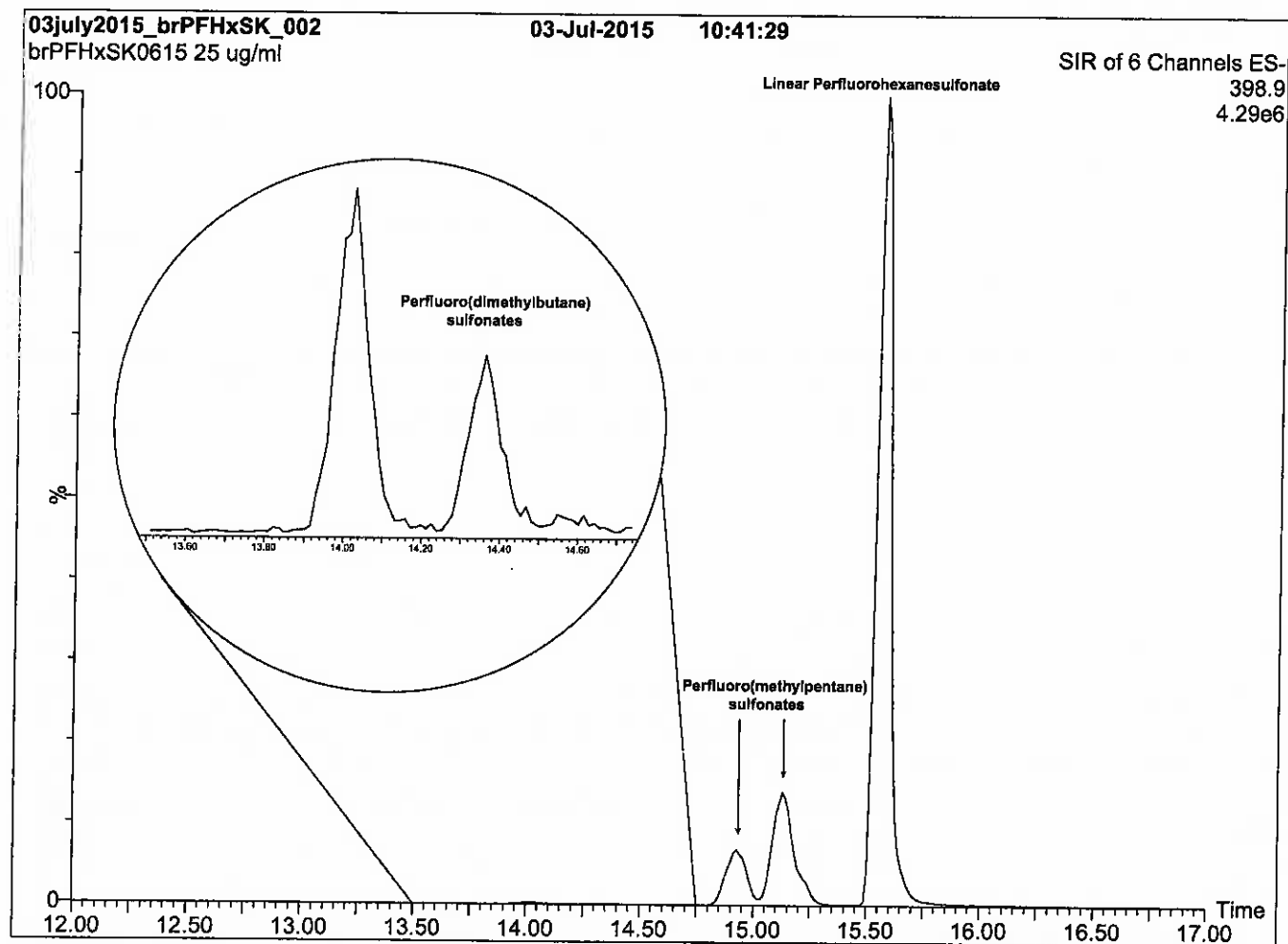
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: br-PFHxSK; LC/MS Data



Conditions for Figure 2:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min.
before returning to initial conditions in 0.5 min.
Time: 20 min

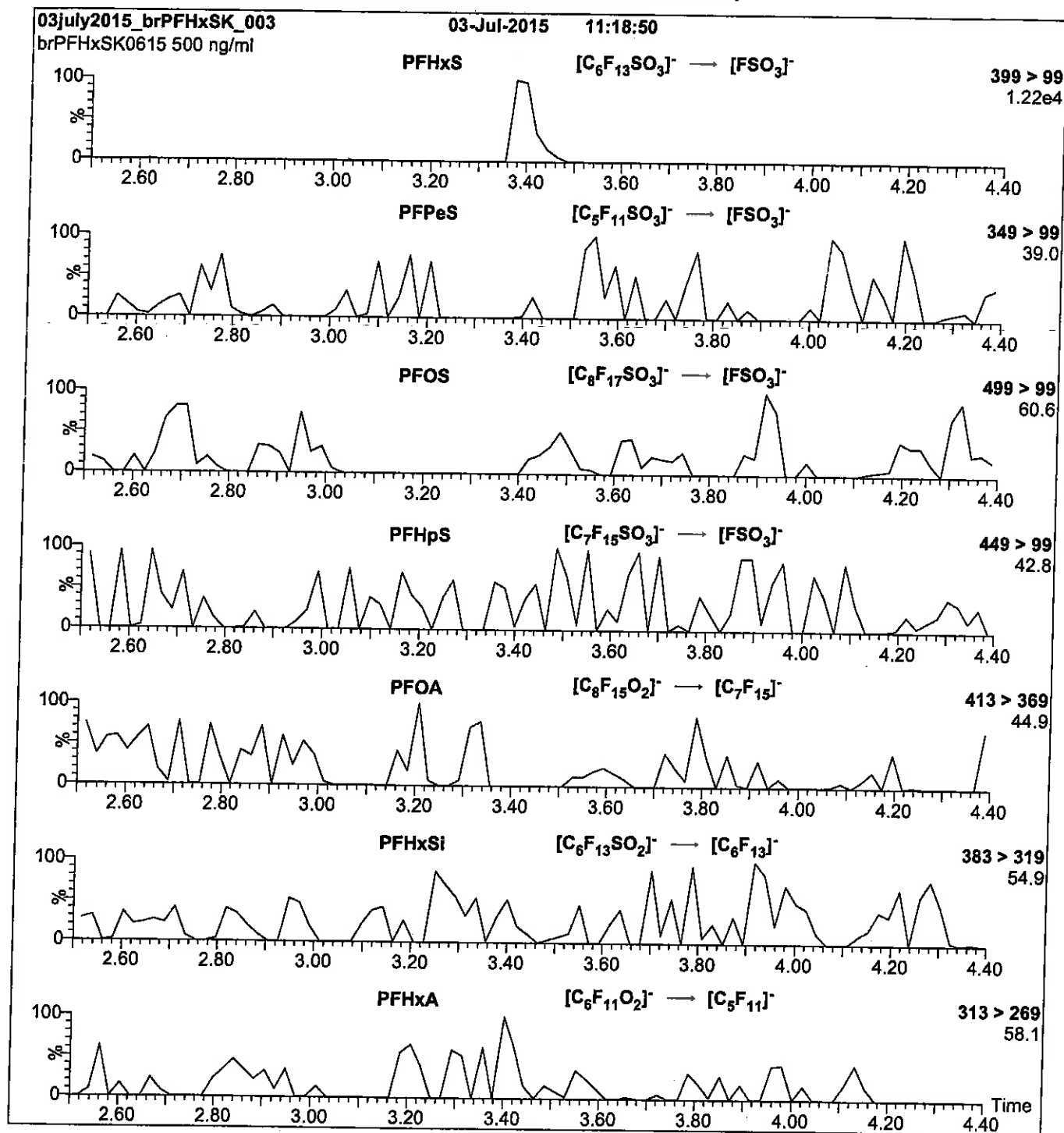
Flow: 300 μ l/min

MS Parameters

Experiment: SIR (6 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 3: br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: Direct loop injection
10 μ l (500 ng/ml br-PFHxSK)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = $3.54e-3$
Collision Energy (eV) = 30

Reagent

LCPFNA_00006



WELLINGTON
LABORATORIES



730559
ID: LCPFNA_00006
Exp: 10/23/20 Ppfd: SBC
PF-n-nonanoic acid



730560
ID: LCPFNA_00007
Exp: 10/23/20 Ppfd: SBC
PF-n-nonanoic acid

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

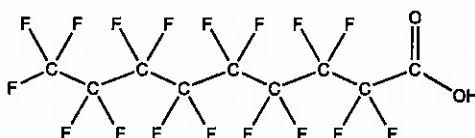
COMPOUND:

Perfluoro-n-nonanoic acid

STRUCTURE:

CAS #:

375-95-1



MOLECULAR FORMULA:

$C_9H_{17}O_2$

MOLECULAR WEIGHT:

464.08

CONCENTRATION:

$50 \pm 2.5 \mu\text{g/ml}$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/30/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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

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

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

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

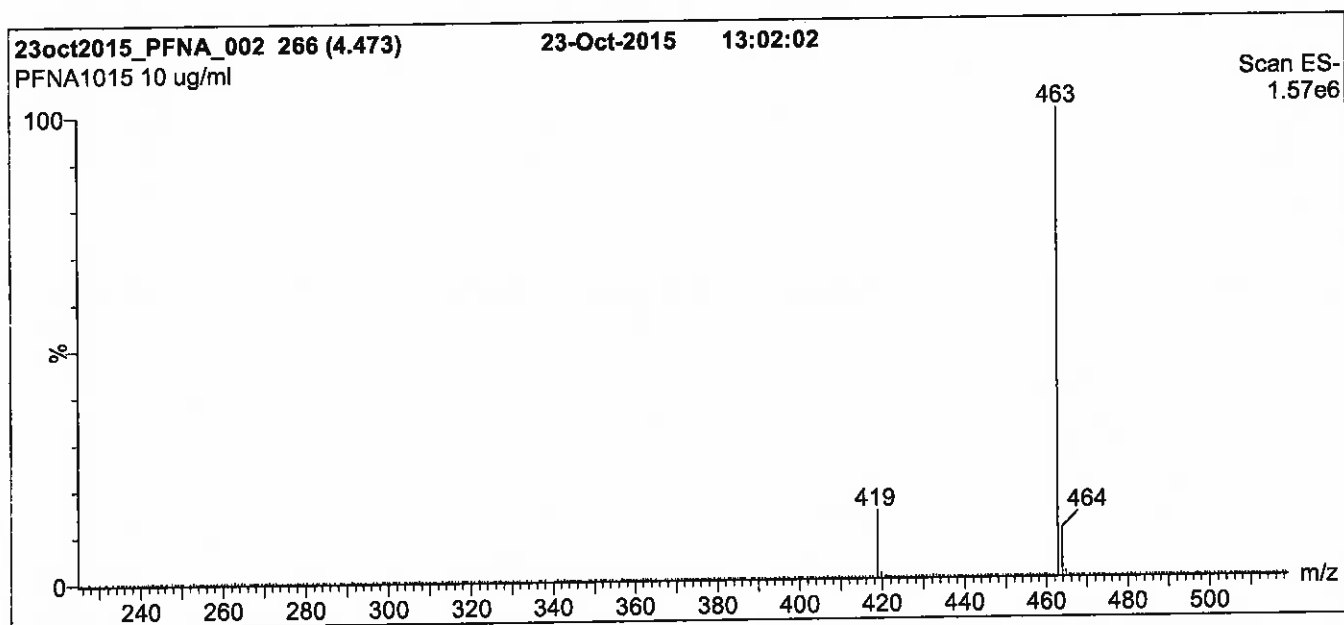
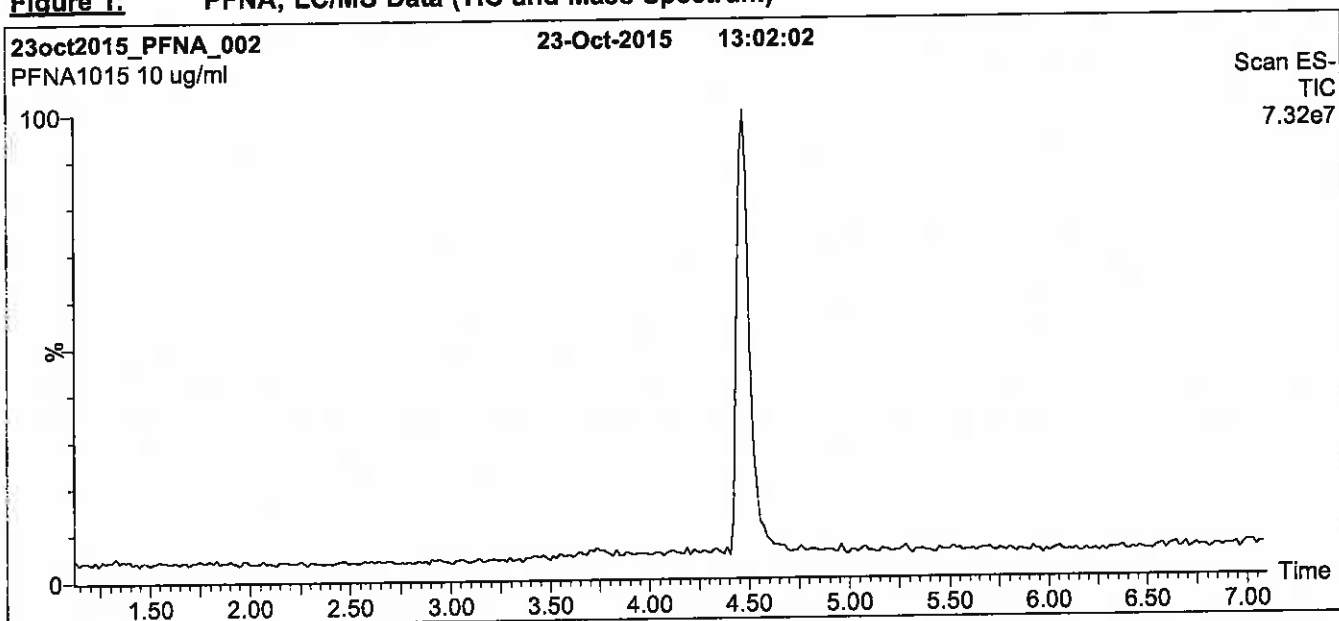
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

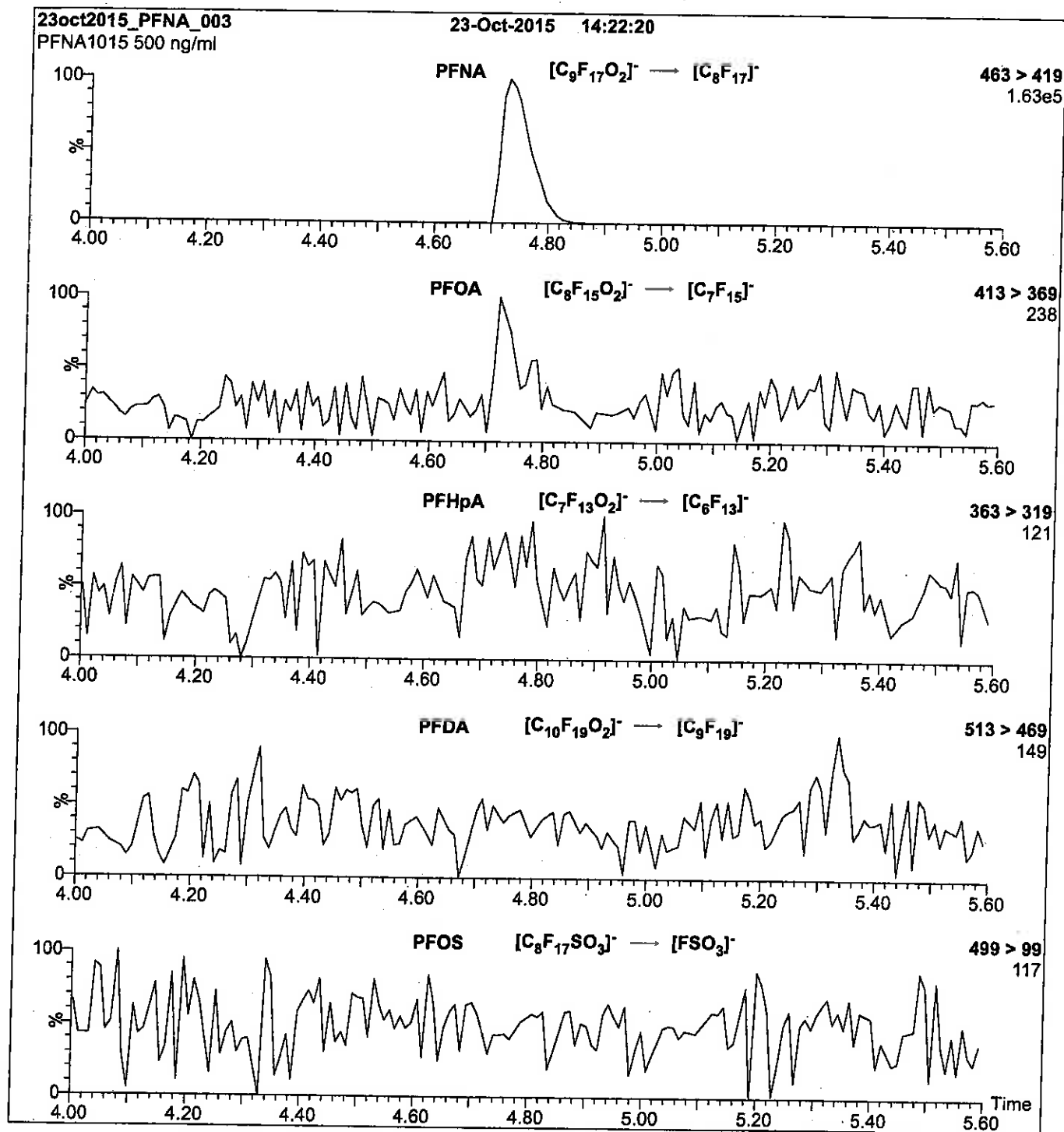
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCPFOA_00006

R-716/16CBW

671577
 ID: LCPFOA_00006
 Exp: 11/06/20 Prod: CBW
 PF-n-octanoic acid



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFOA

LOT NUMBER:

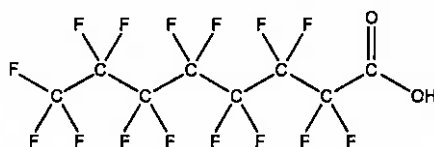
PFOA1115

COMPOUND:

Perfluoro-n-octanoic acid

STRUCTURE:**CAS #:**

335-67-1

**MOLECULAR FORMULA:** $C_8H_2F_{15}O_2$ **MOLECULAR WEIGHT:**

414.07

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 11/11/2015

(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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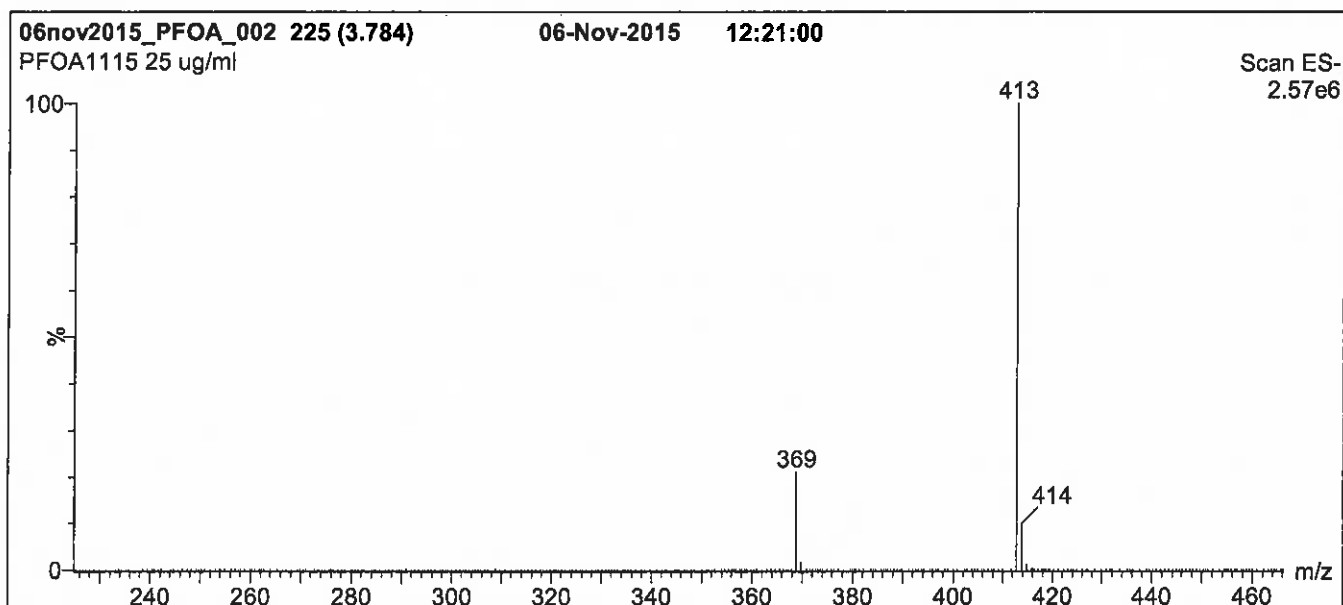
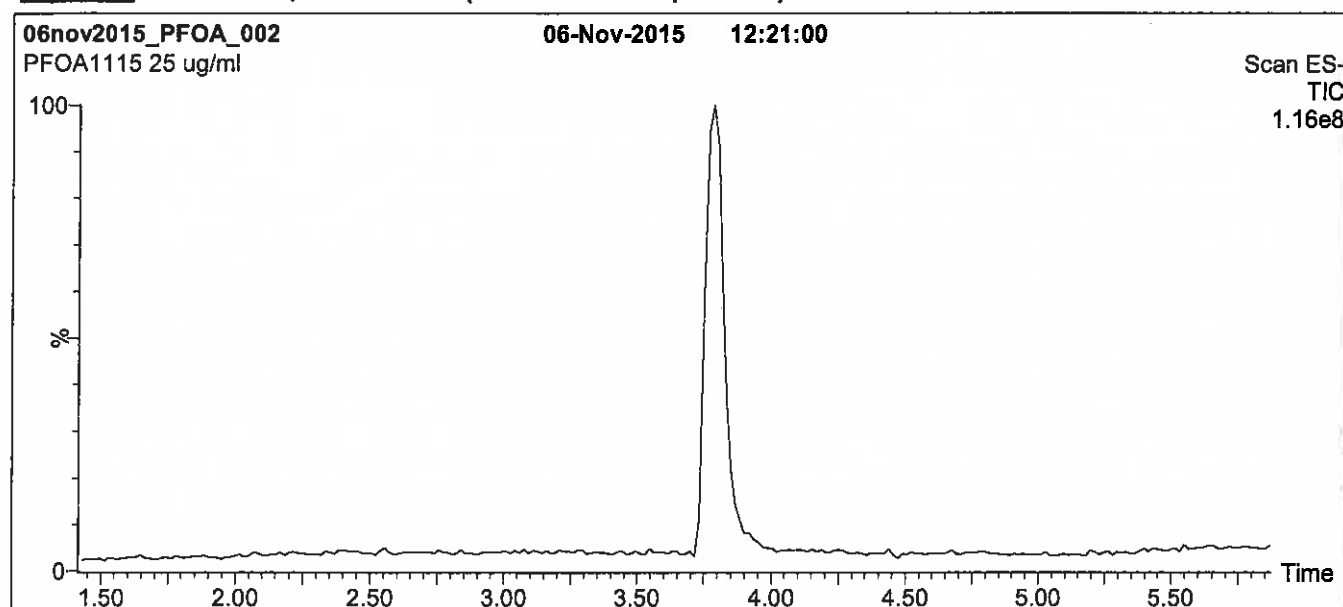
QUALITY MANAGEMENT:

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For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

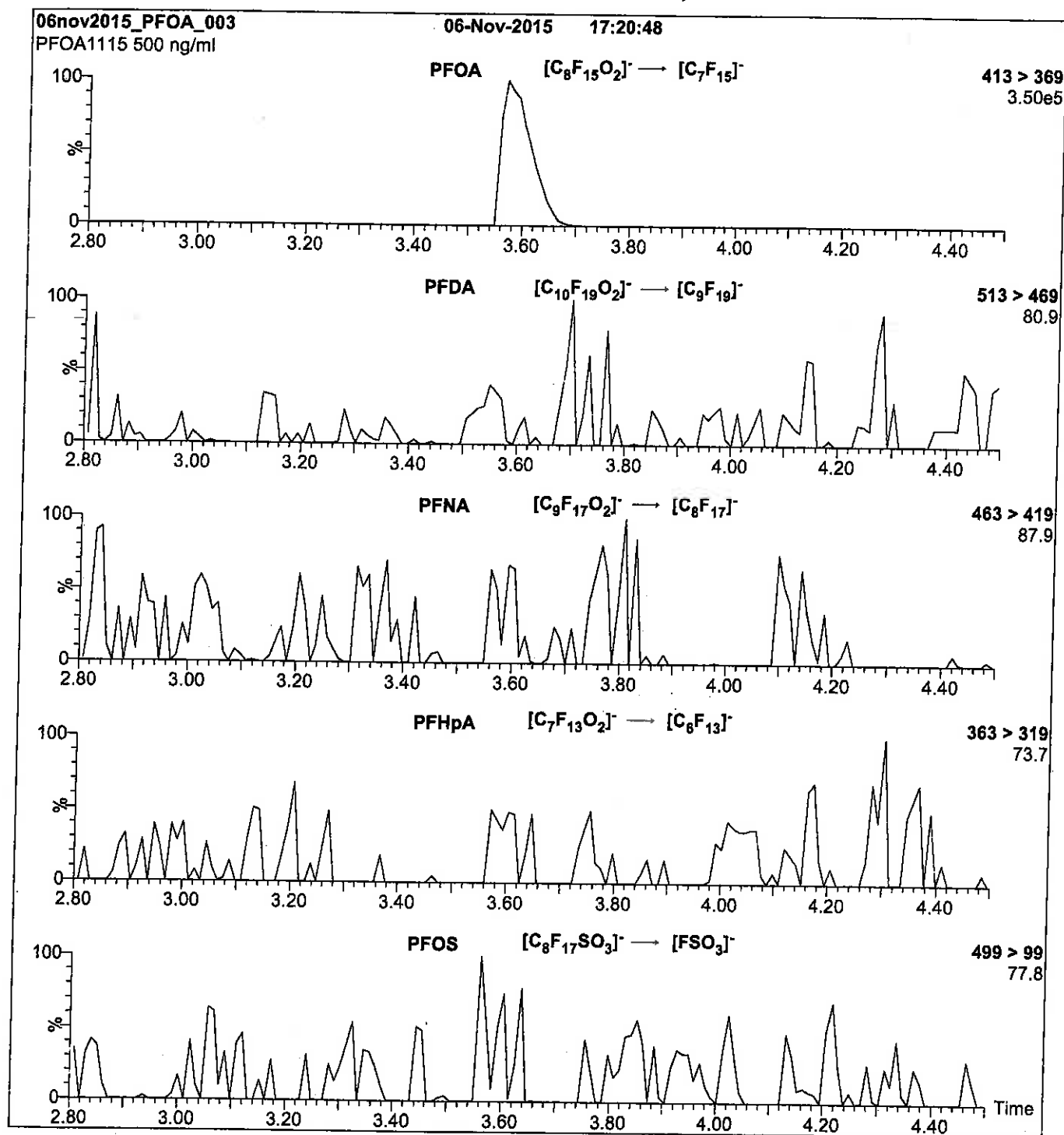
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 10

Reagent

LCPFODA_00006



Scanned
10/14/16
P: SBC
9/13/16

**WELLINGTON
LABORATORIES**

730632
ID: LCPFODA_00006
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

730633
ID: LCPFODA_00007
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0416

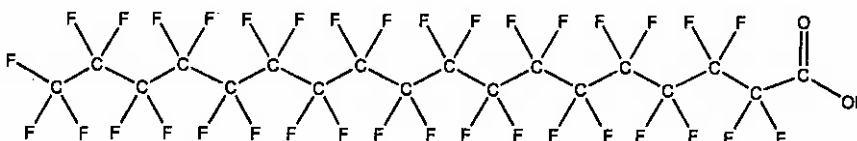
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

$C_{18}H_{36}O_2$

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

04/29/2016

EXPIRY DATE: (mm/dd/yyyy)

04/29/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/20/2016

(mm/dd/yyyy)

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

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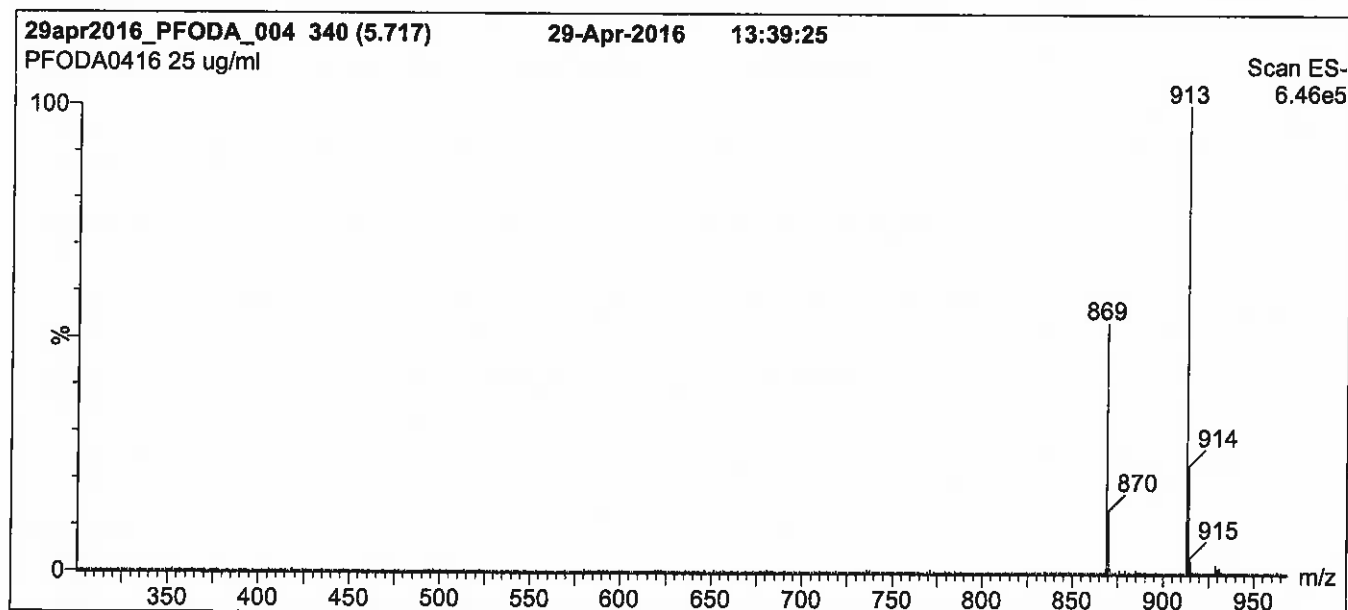
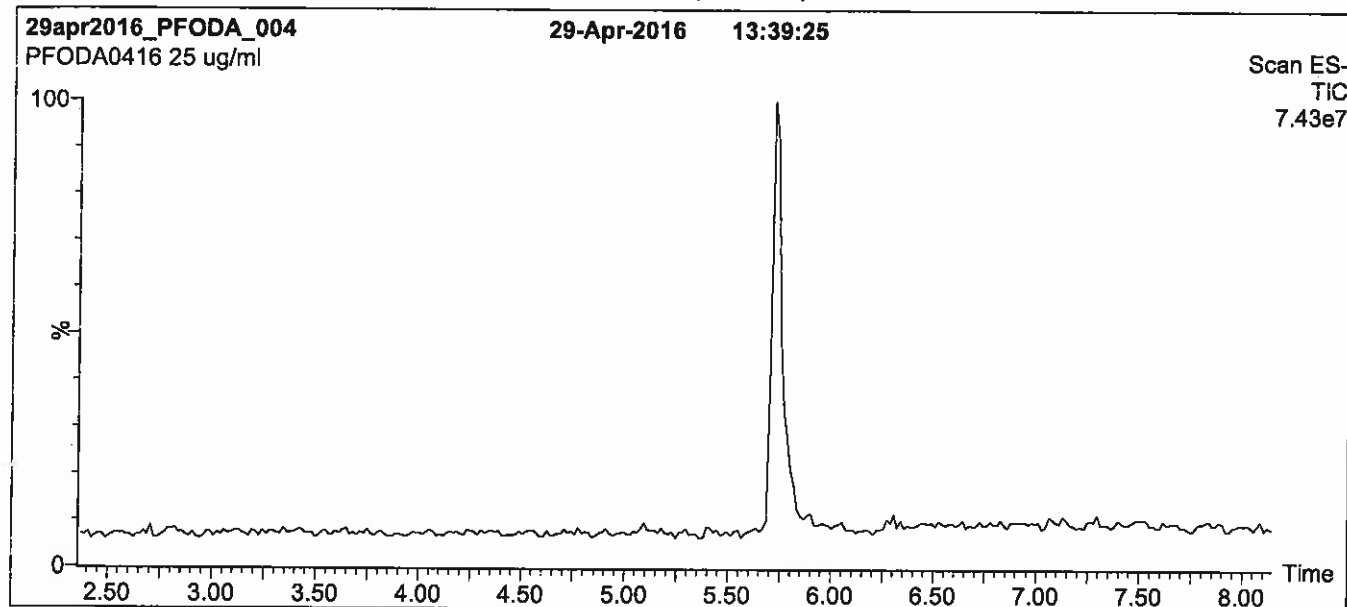
QUALITY MANAGEMENT:

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MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for
2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

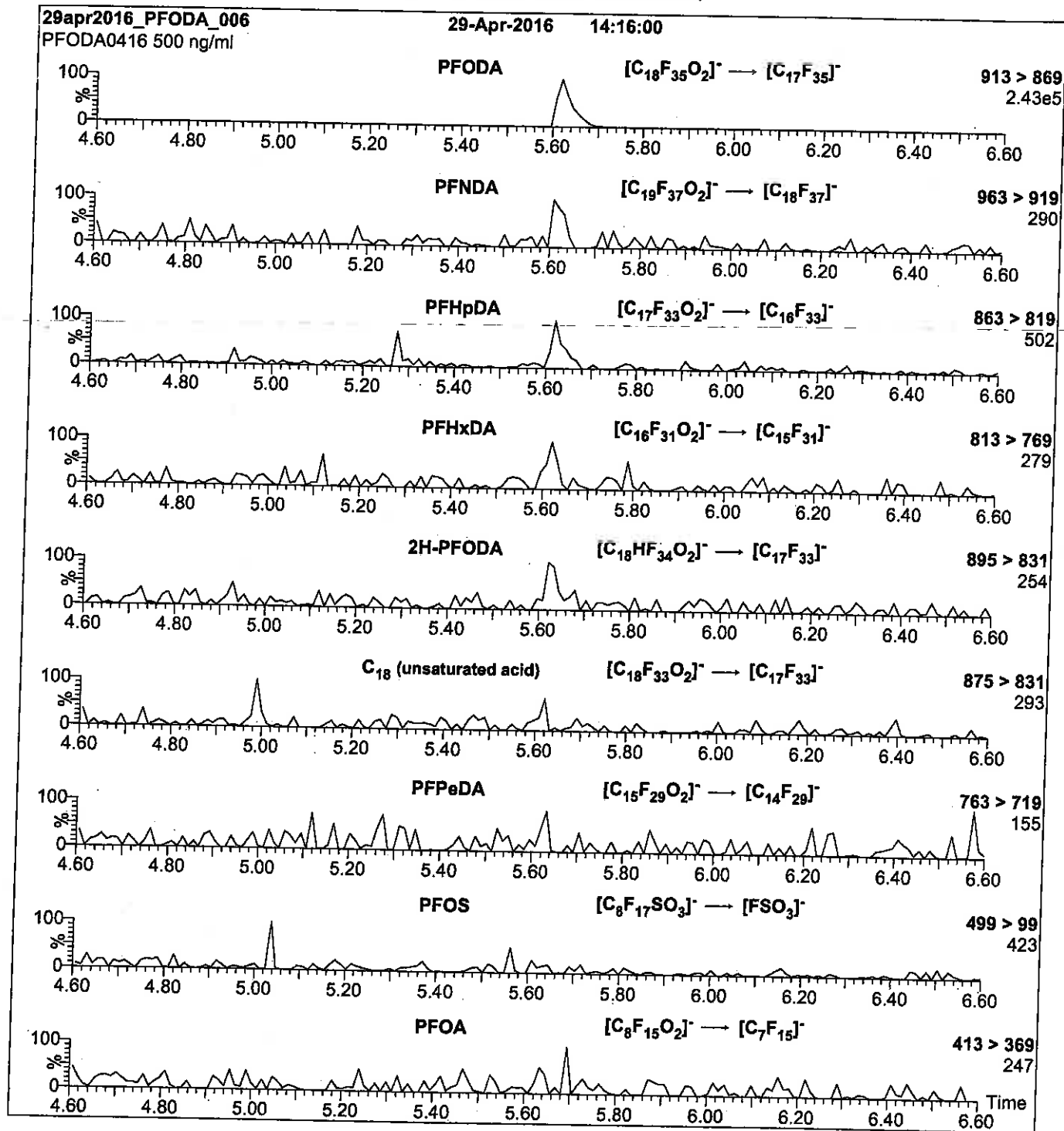
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFODA)

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

LCPFOS-br_00002

Scanned
10/14/16 SR

R: SBC 9/13/16



730515

ID: LCPFOS-br_00002

Exp: 10/14/20 Ppdt: SBC

Potassium Perfluorooctane



730516

ID: LCPFOS-br_00003

Exp: 10/14/20 Ppdt: SBC

Potassium Perfluorooctane



WELLINGTON
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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE: br-PFOSK
LOT NUMBER: brPFOSK1015
CONCENTRATION: 50 ± 2.5 µg/ml (total potassium salt)
46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 10/13/2015
LAST TESTED: (mm/dd/yyyy) 10/14/2015
EXPIRY DATE: (mm/dd/yyyy) 10/14/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers.
The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

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UNCERTAINTY:

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

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

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

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

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Table A: br-PFOSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_2\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_2\text{CF}_2\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}(\text{SO}_3\text{K}^+)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_3 \\ \\ \text{CF}_3 \end{array}$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}_2-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

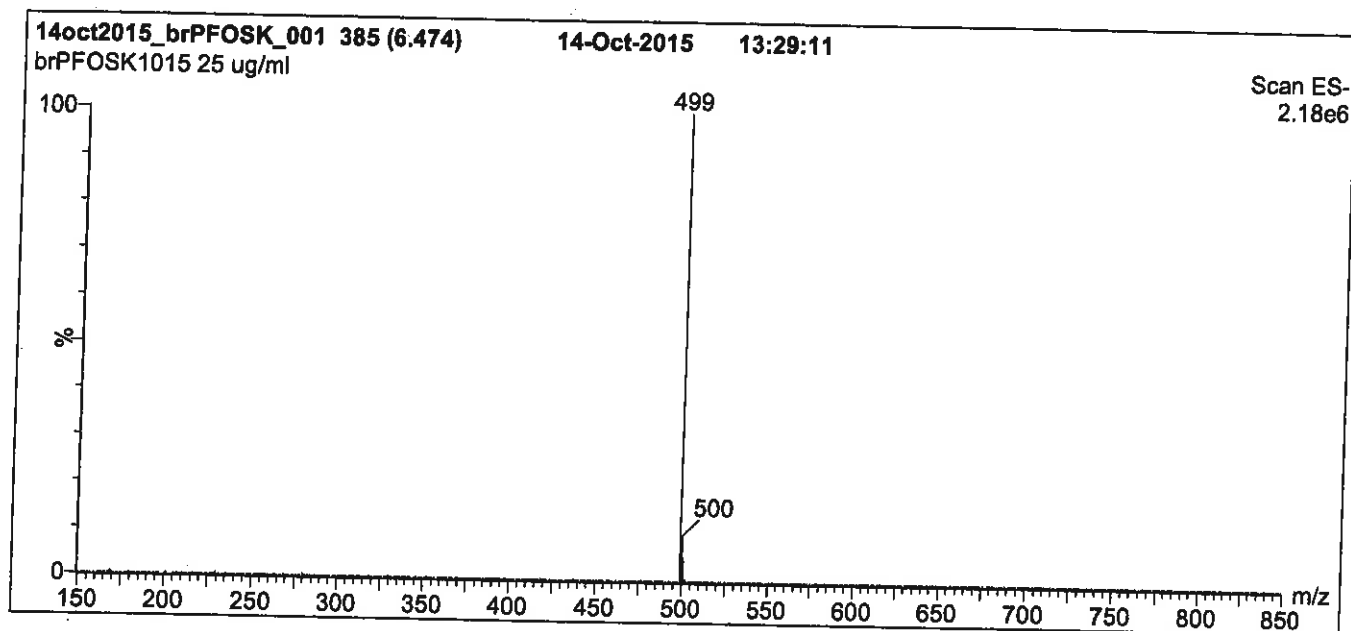
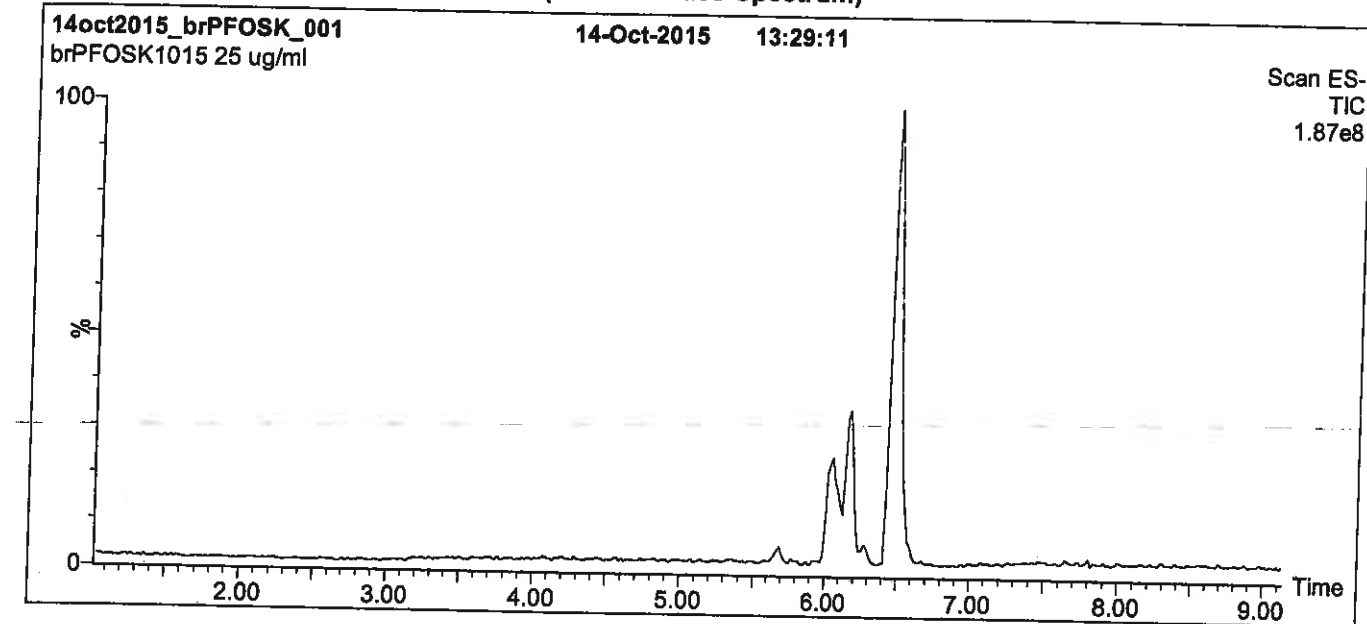
Certified By:


B.G. Chittim

Date: 10/15/2015

(mm/dd/yyyy)

Figure 1: br-PFOSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 12 min and hold for 2 min.
Return to initial conditions over 0.5 min.
Time: 16 min

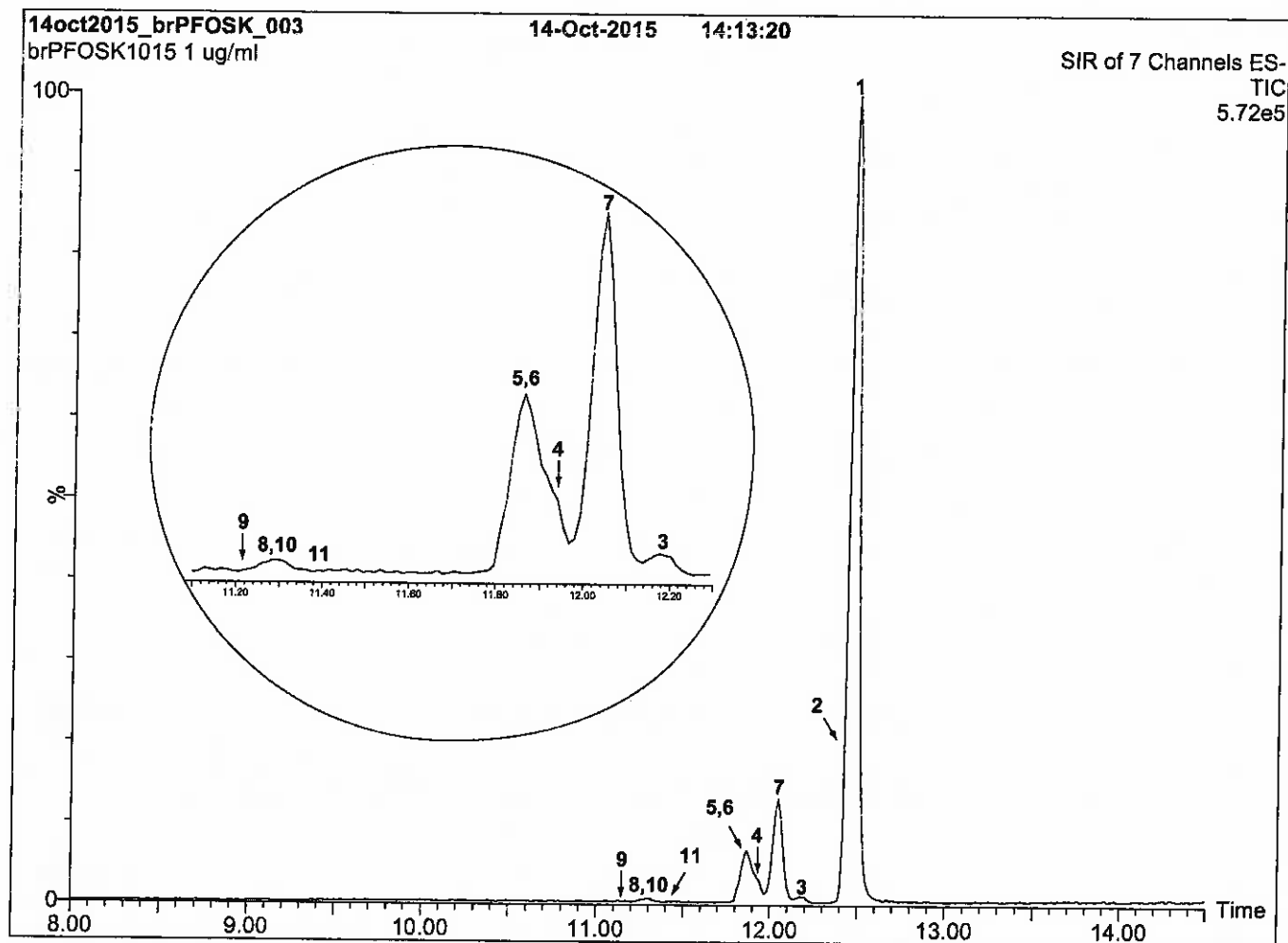
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: br-PFOSK; LC/MS Data (SIR)



Conditions for Figure 2:

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

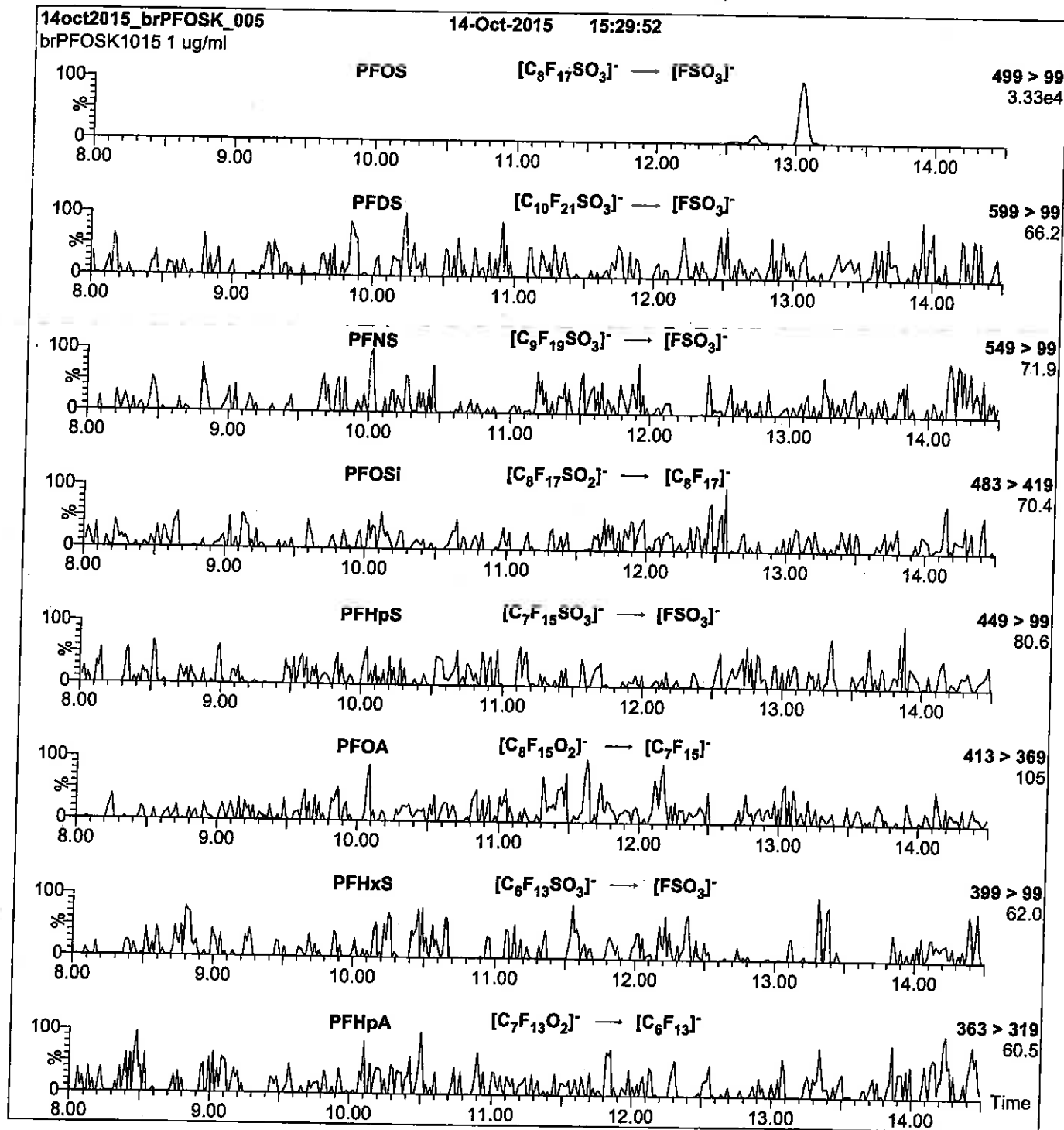
Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈ (1.7 μ m, 2.1 x 100 mm)
Injection: 1.0 μ g/ml of br-PFOSK
Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H₂O (both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min
Flow: 300 μ l/min

MS Conditions:

SIR (ES)
Source = 110 $^{\circ}$ C
Desolvation = 325 $^{\circ}$ C
Cone Voltage = 60V

Figure 3: br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.06e-3

Collision Energy (eV) = 11-50 (variable)

Reagent

LCPFOSA_00008

Scanned
10/14/16

R: SBC 9/13/16



730534
ID: LCPFOSA_00009
Exp: 09/02/17 Prod: SBC
PF-1-octanesulfonamide



730533
ID: LCPFOSA_00008
Exp: 09/02/17 Prod: SBC
PF-1-octanesulfonamide



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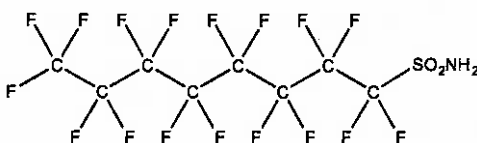
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0815I

STRUCTURE:

CAS #: 754-91-6



MOLECULAR FORMULA: $C_8H_2F_{17}NO_2S$
CONCENTRATION: $50 \pm 2.5 \mu g/ml$
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/02/2015
EXPIRY DATE: (mm/dd/yyyy) 09/02/2017
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 499.14
SOLVENT(S): Isopropanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim

Date: 09/11/2015

(mm/dd/yyyy)

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

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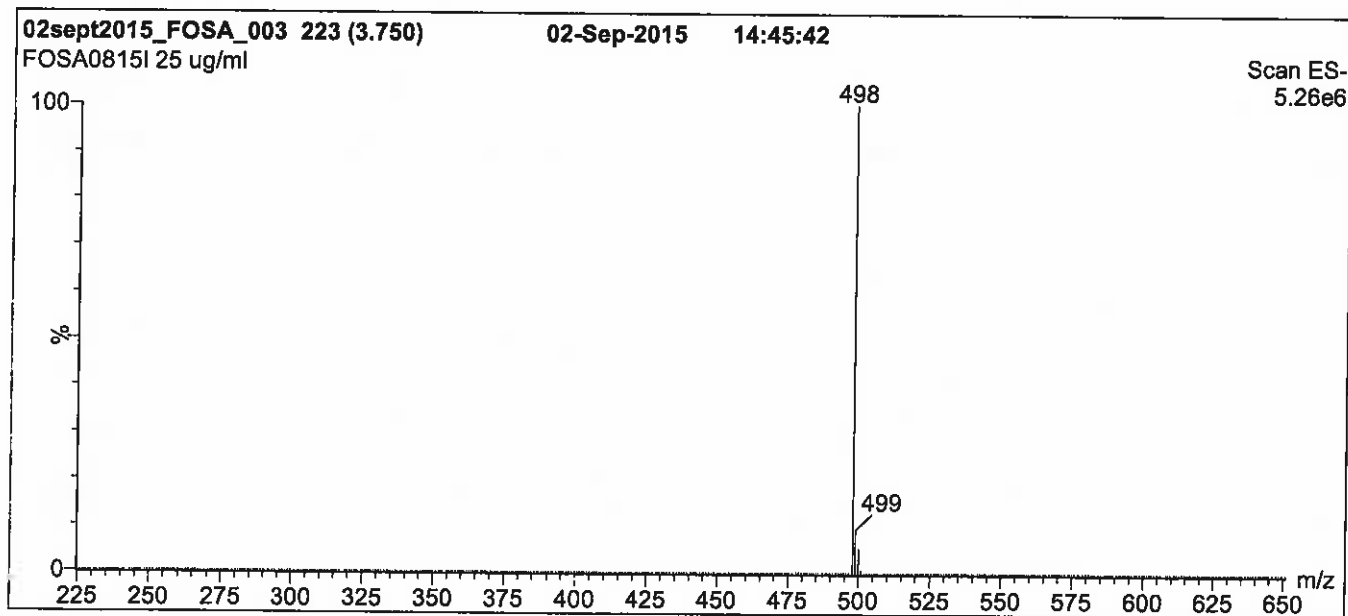
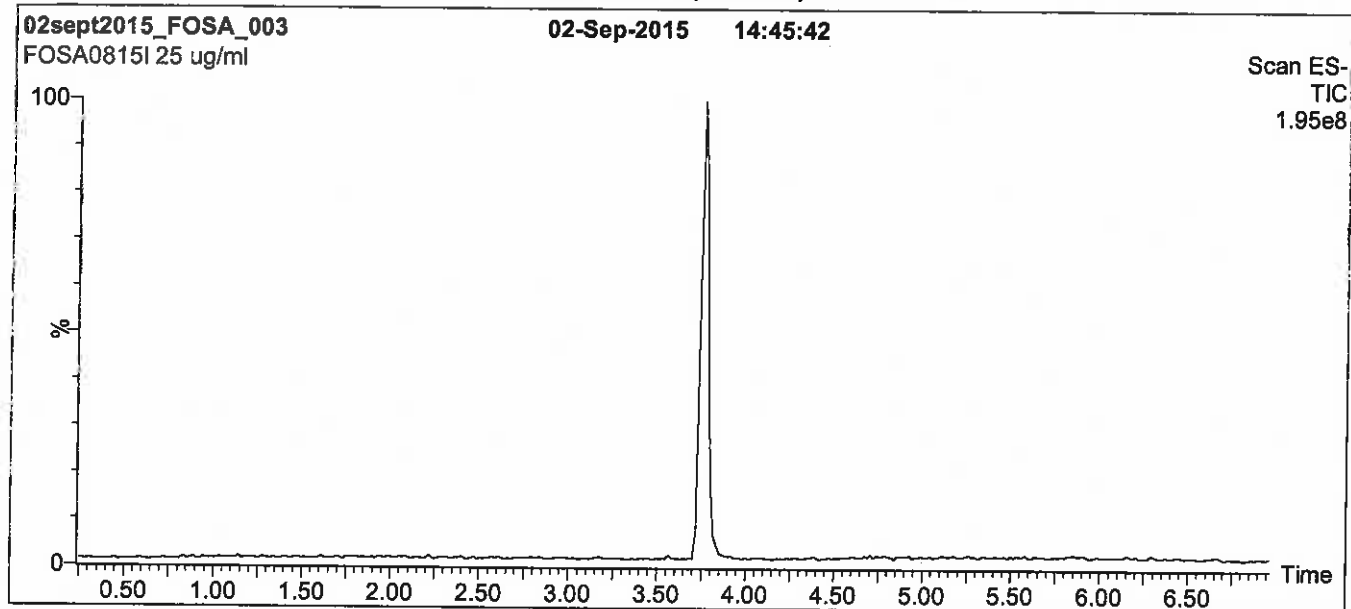
QUALITY MANAGEMENT:

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Figure 1: FOSA-I; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

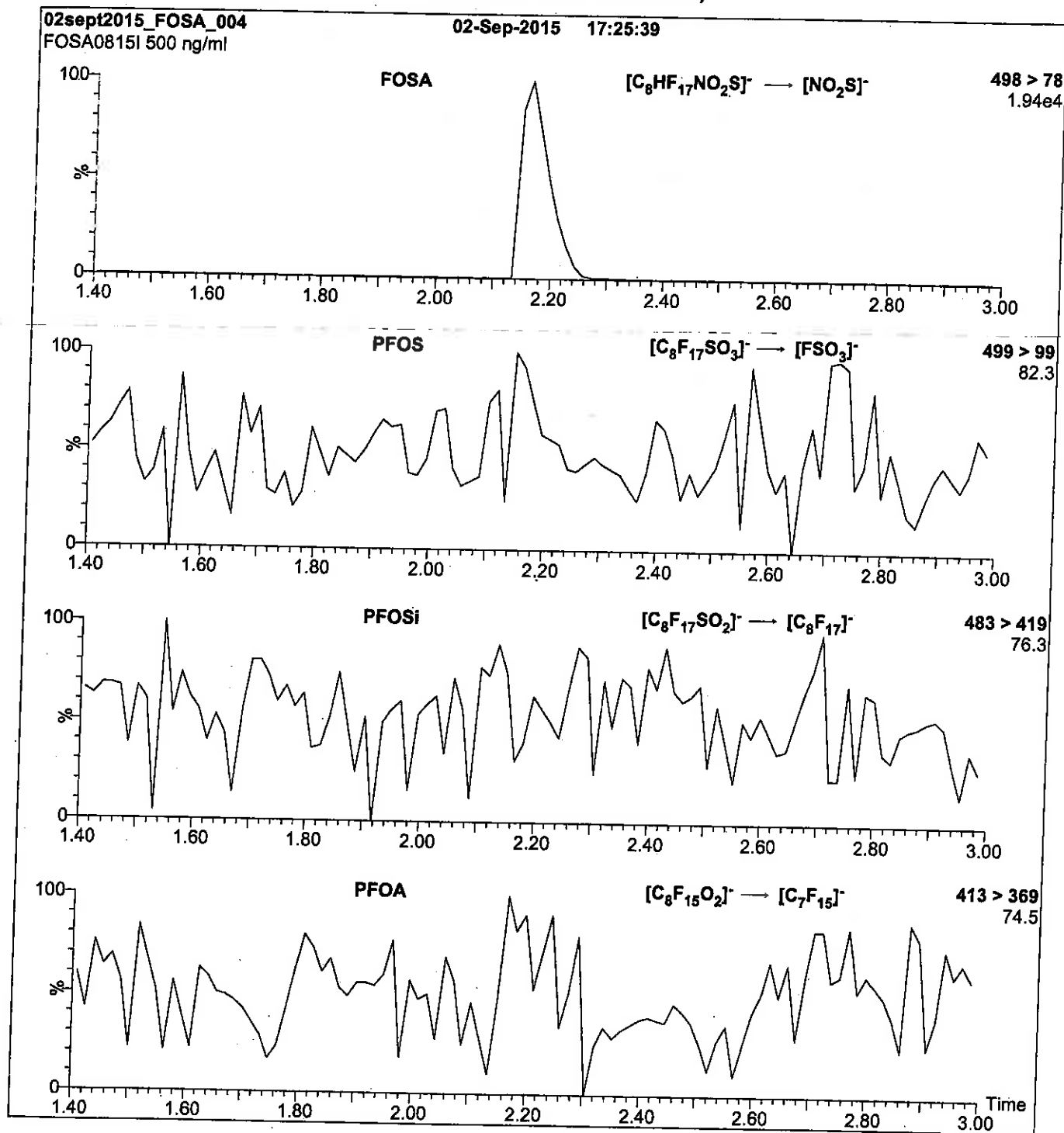
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: FOSA-I; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

LCPFPeA_00005

R: 7/6/16 CBW



671579

ID: LCPFPeA_00005

Exp: 01/30/20 Prod: CBW

PF-n-pentanoic acid

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

PFPeA

LOT NUMBER:

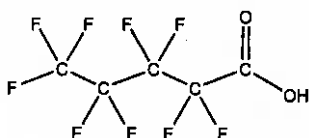
PFPeA0115

COMPOUND:

Perfluoro-n-pentanoic acid

STRUCTURE:**CAS #:**

2706-90-3

**MOLECULAR FORMULA:** $C_5H_9F_9O_2$ **MOLECULAR WEIGHT:**

264.05

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mm/dd/yyyy)

01/30/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

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

B.G. Chittim
Date: 03/26/2015

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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EXPIRY DATE / PERIOD OF VALIDITY:

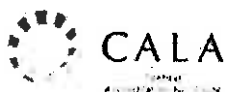
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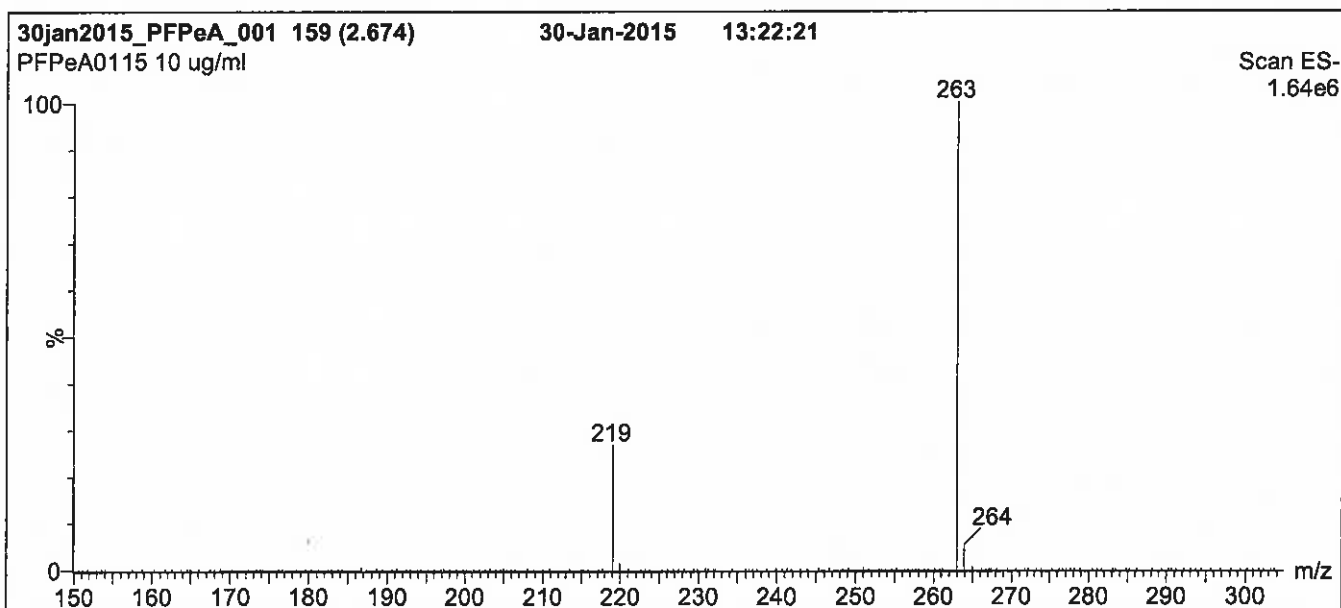
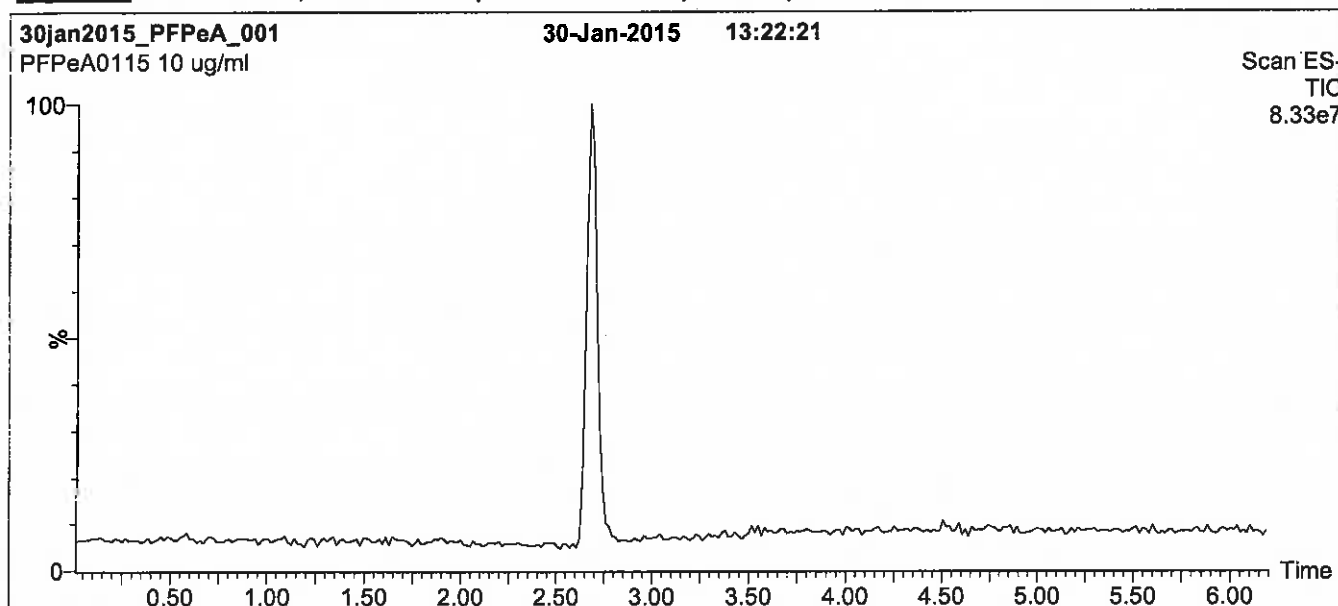
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MS: Micromass Quattro micro API MS

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1.7 μ m, 2.1 x 100 mm

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

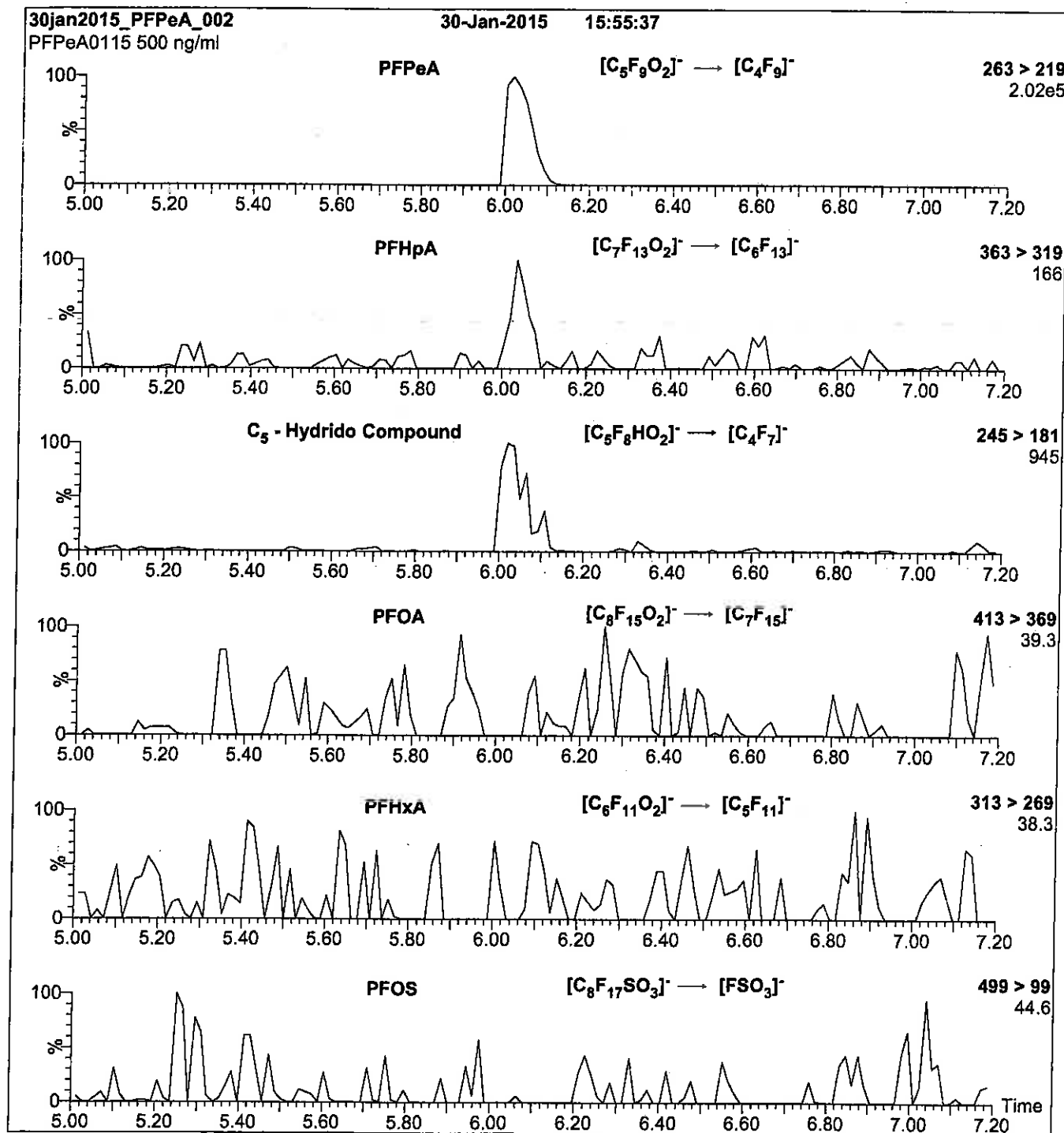
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 9

Reagent

LCPFTeDA_00005

P: SBG 9/13/16



730645
ID: LCPFTeDA_00005
Exp: 12/09/20 Prod: SBC
PF-n-tetradecanoic acid



730659
ID: LCPFTeDA_00006
Exp: 12/09/20 Prod: SBC
PF-n-tetradecanoic acid



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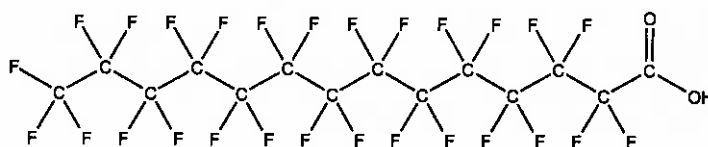
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid

LOT NUMBER: PFTeDA1215

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$

MOLECULAR WEIGHT: 714.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/09/2015
EXPIRY DATE: (mm/dd/yyyy) 12/09/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of PFDoA ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{16}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/09/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

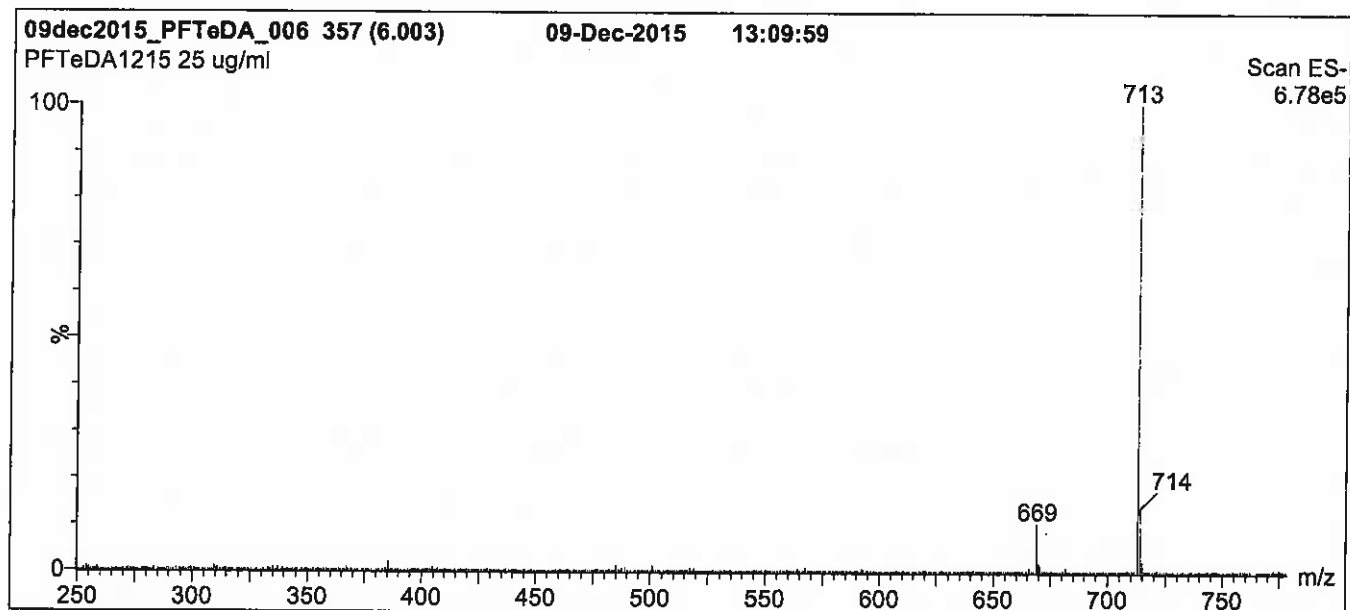
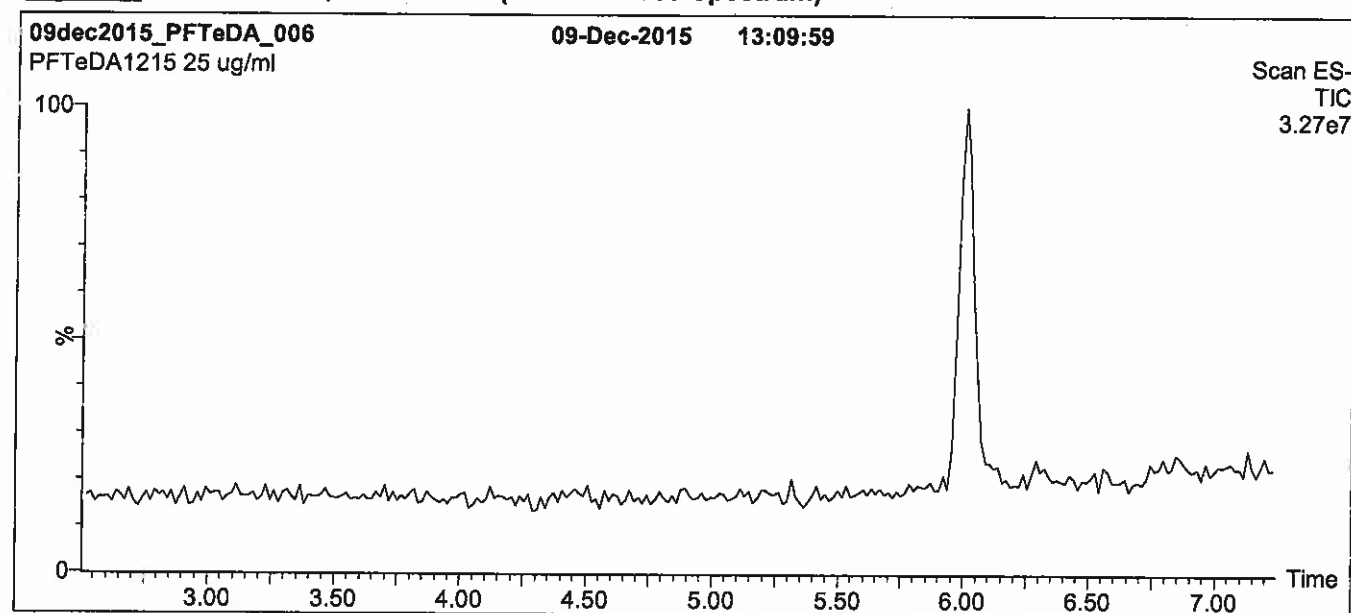
QUALITY MANAGEMENT:

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



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

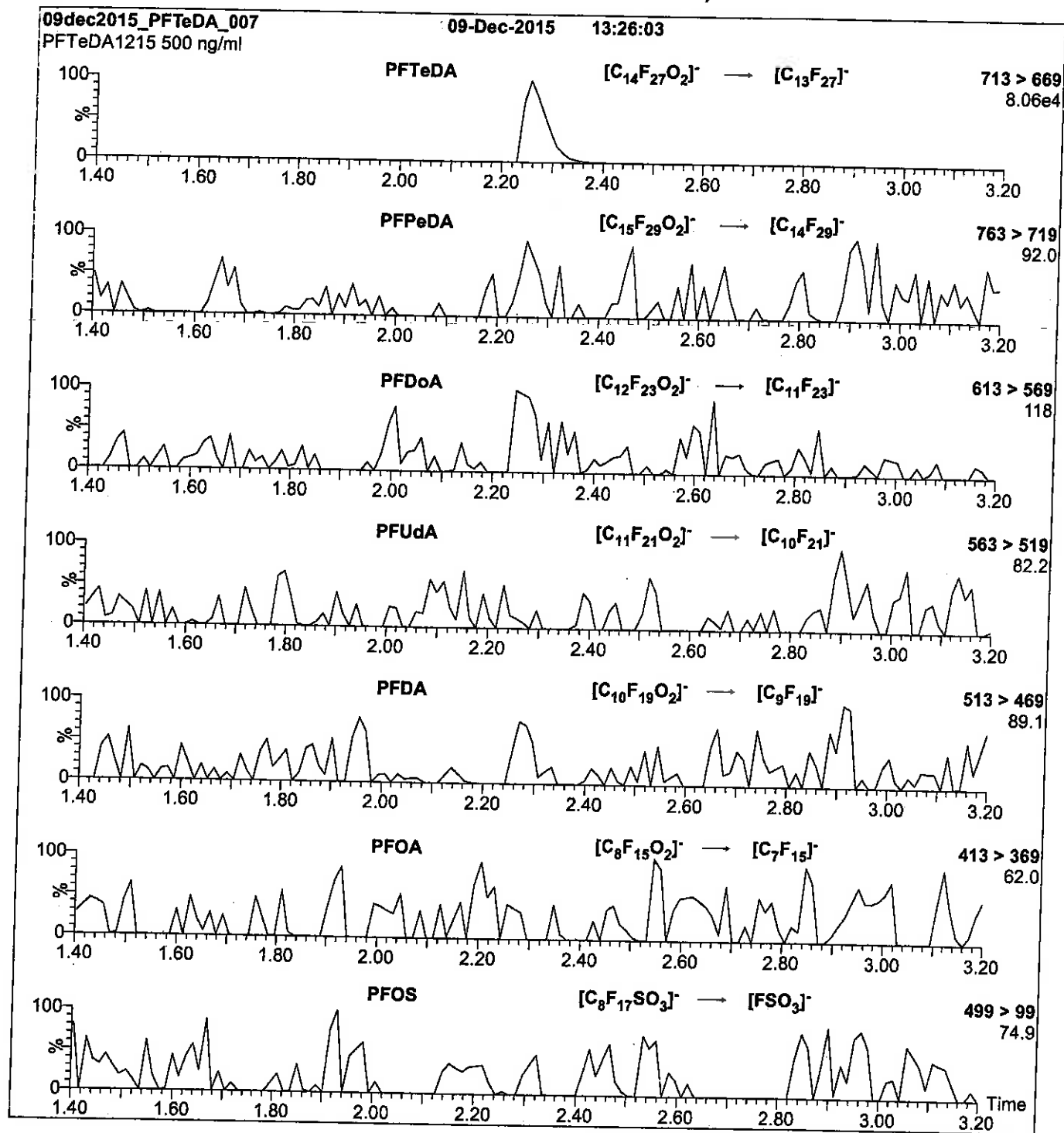
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 14

Reagent

LCPFT_rDA_00005

R: SBC 9/13/16



730665
ID: LCPFTDA_00005
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid



730666
ID: LCPFTDA_00006
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFTTrDA

LOT NUMBER:

PFTTrDA0216

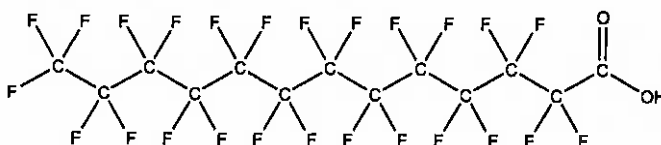
COMPOUND:

Perfluoro-n-tridecanoic acid

STRUCTURE:

CAS #:

72629-94-8



MOLECULAR FORMULA:

$C_{13}H_{25}O_2$

MOLECULAR WEIGHT:

664.11

CONCENTRATION:

$50 \pm 2.5 \mu\text{g/ml}$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

02/12/2016

EXPIRY DATE: (mm/dd/yyyy)

02/12/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUDA ($C_{11}H_{21}O_2$), ~ 0.4% of PFDaA ($C_{12}H_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}H_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/16/2016

(mm/dd/yyyy)

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

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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

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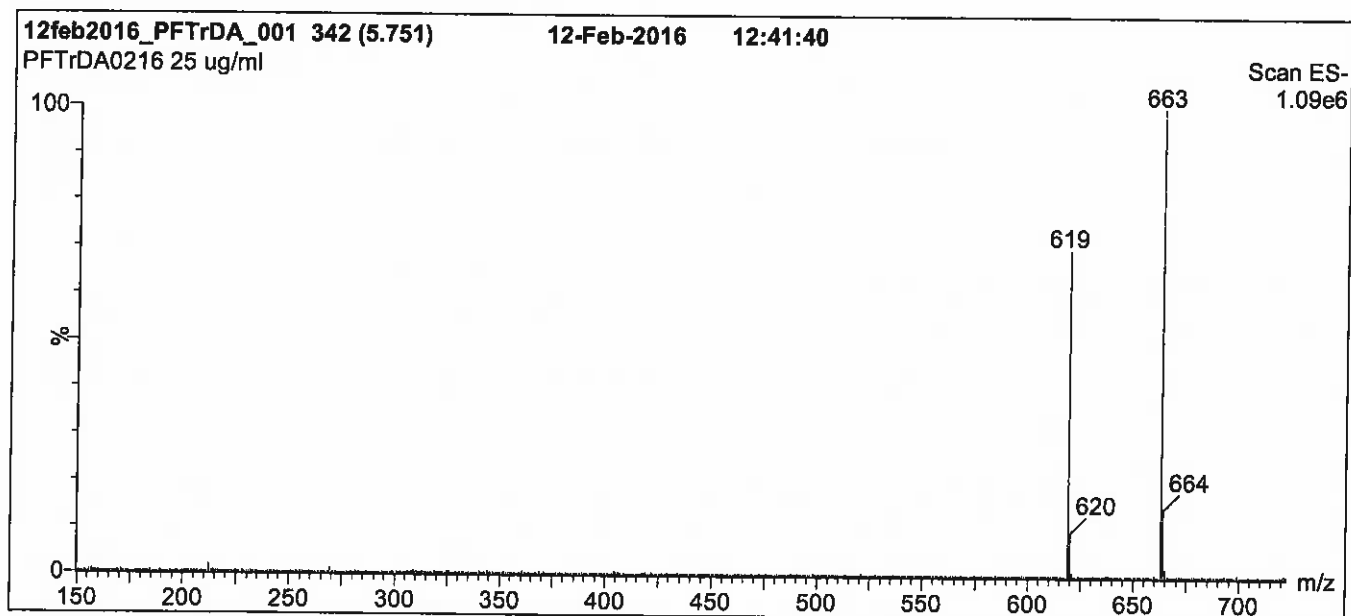
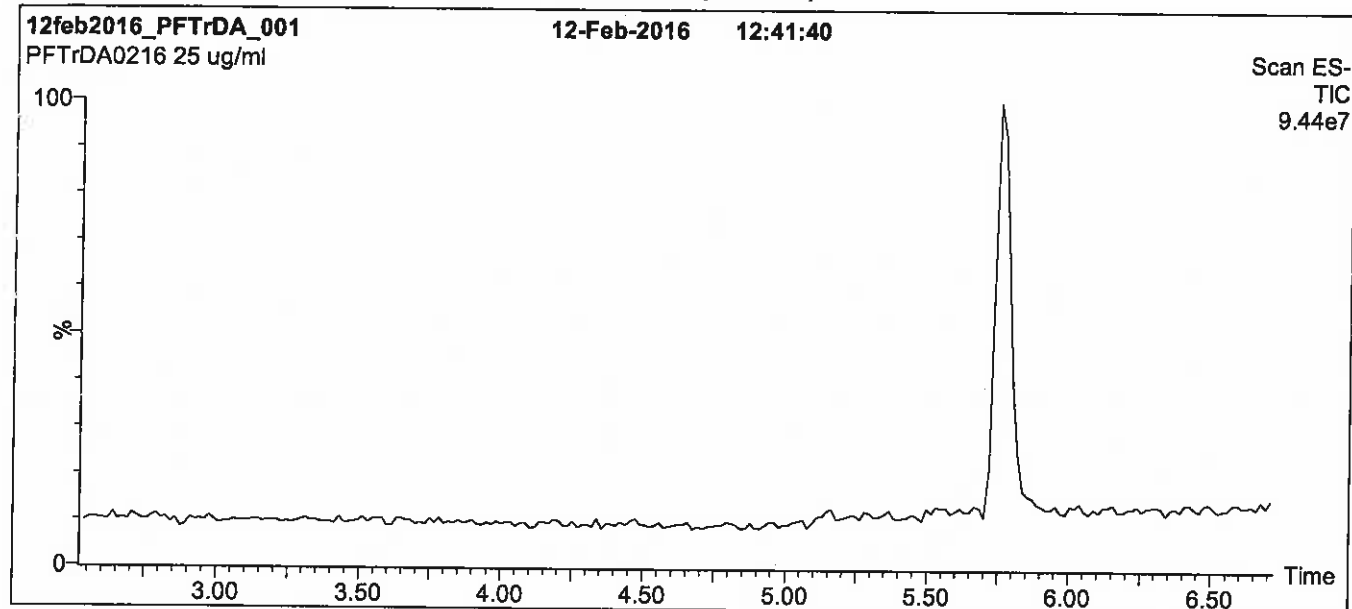
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

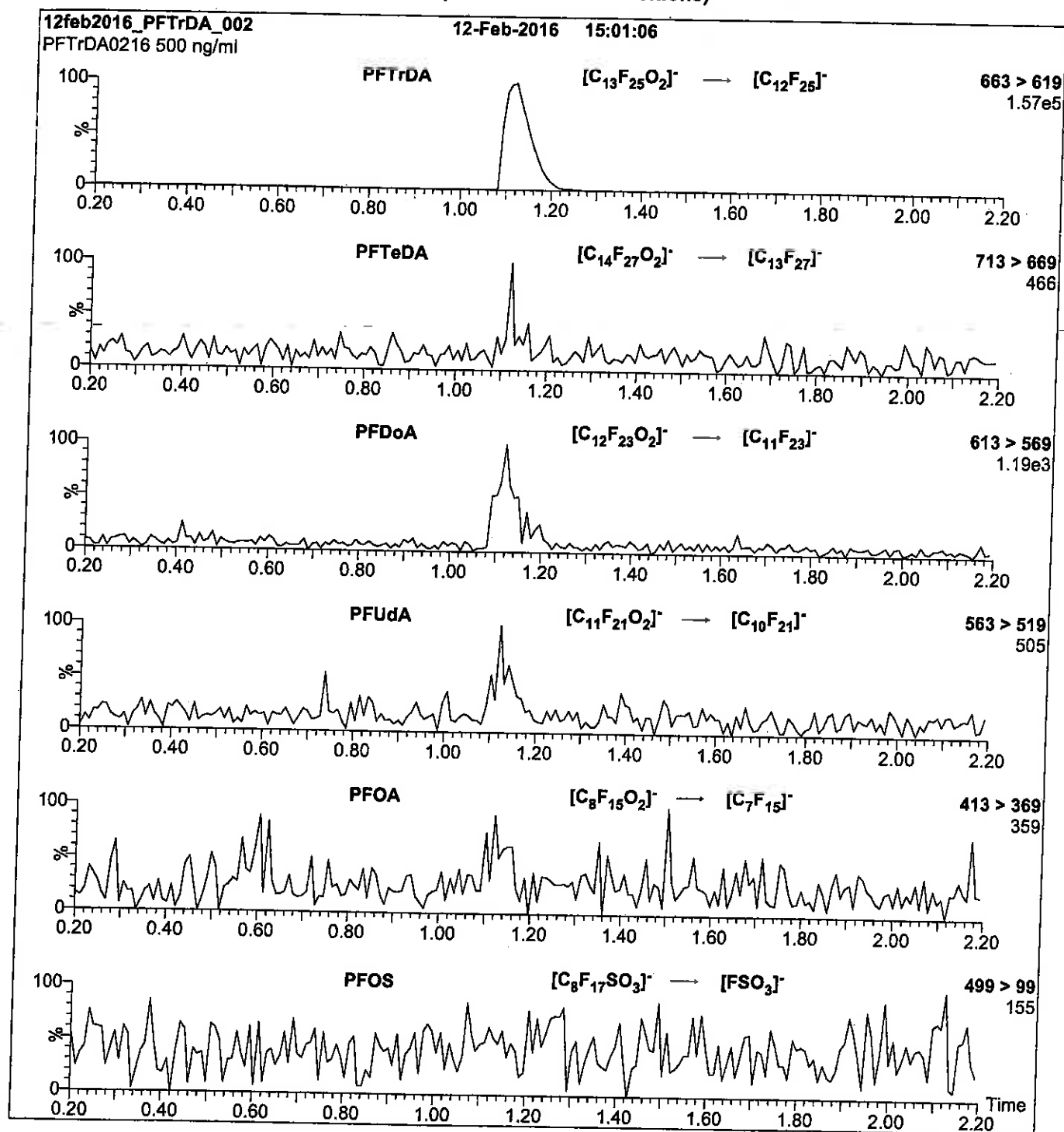
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFTTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H₂O

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

LCPFUdA_00005

Scanned
10/14/16 R: SBC 9/13/16



730535
ID: LCPFUdA_00005
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid



730536
ID: LCPFUdA_00006
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFUdA

LOT NUMBER:

PFUdA0815

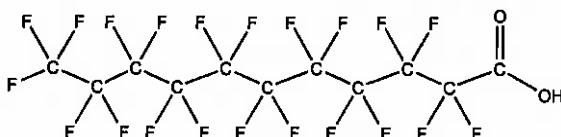
COMPOUND:

Perfluoro-n-undecanoic acid

STRUCTURE:

CAS #:

2058-94-8



MOLECULAR FORMULA:

$C_{11}HF_{21}O_2$

MOLECULAR WEIGHT:

564.09

CONCENTRATION:

$50 \pm 2.5 \mu\text{g/ml}$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/19/2015

EXPIRY DATE: (mm/dd/yyyy)

08/19/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/21/2015

(mm/dd/yyyy)

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

INTENDED USE:

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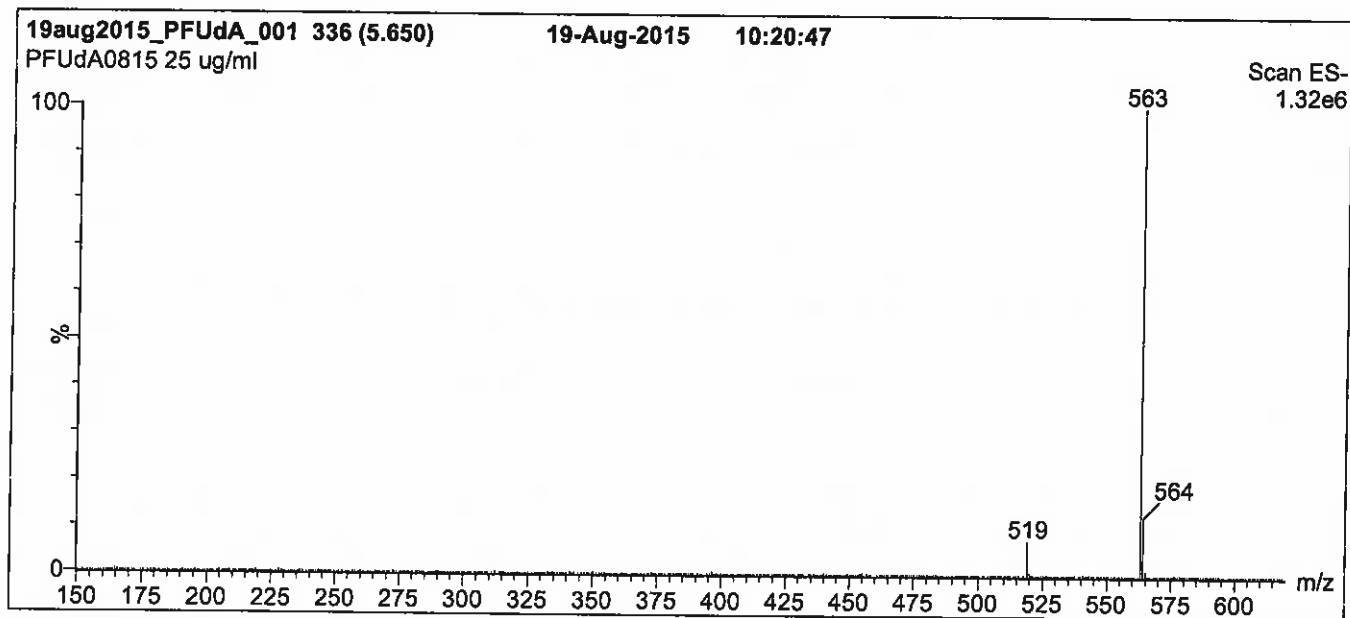
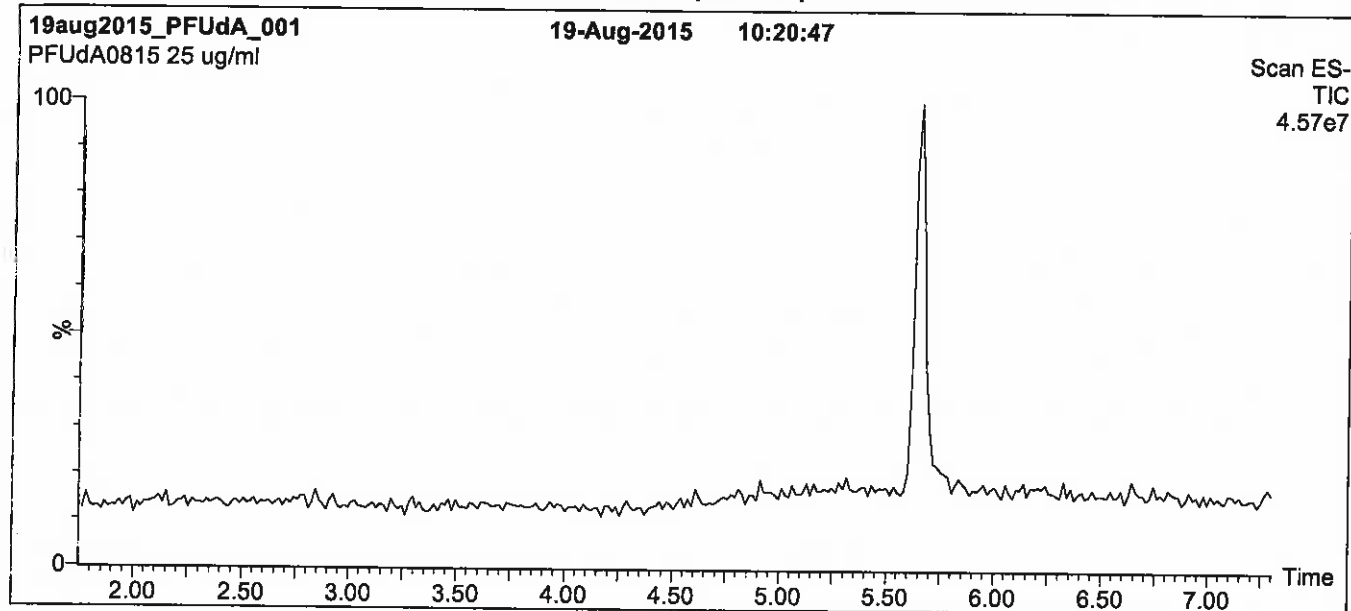
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

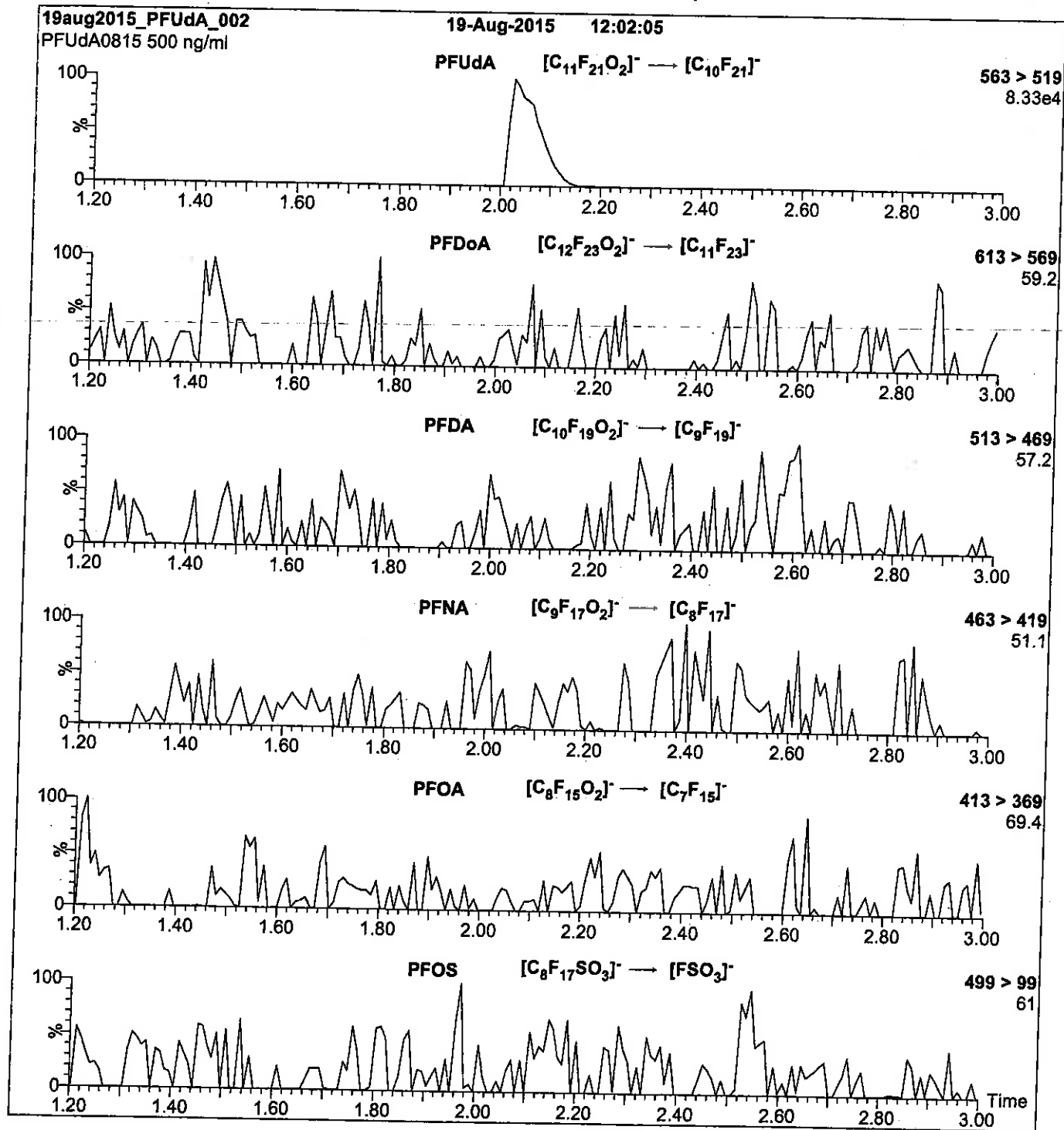
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 11

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS)
by Method PFC_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Matrix: Solid Level: Low

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

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-FTA1-SB01-0204	320-26011-1	90	94	34
MEAFF-FD01-022217	320-26011-2	93	103	61
MEAFF-FTA1-SB02-0204	320-26011-3	92	98	48
MEAFF-SDA4B-SB01-0001	320-26011-4	94	108	62
MEAFF-FD02-022217	320-26011-5	93	113	71
MEAFF-SDA4B-SB01-0204	320-26011-6	98	105	39
MEAFF-SDA4D-SB01-0001	320-26011-7	91	106	42
MEAFF-FD03-022217	320-26011-8	95	113	64
MEAFF-SDA4D-SB01-0204	320-26011-9	94	103	60
MEAFF-SDA4A-SB01-0001	320-26011-11	106	130	89
MEAFF-SDA4A-SB01-0204	320-26011-12	89	98	32
MEAFF-SDA4A-SB02-0001	320-26011-13	95	128	74
MEAFF-SDA4A-SB02-0204	320-26011-14	91	101	37
MEAFF-WWTP-SB01-1012	320-26011-15	98	108	51
MEAFF-WWTP-SB03-0608	320-26011-16	98	110	56
MEAFF-WWTP-SB02-1012	320-26011-17	99	107	52
MEAFF-UNKNOWN22-SB01-0001	320-26011-18	78	86	46
MEAFF-UNKNOWN22-SB01-0204	320-26011-19	80	81	39
	MB 320-152953/1-A	119	133	111
	LCS 320-152953/2-A	101	109	95
MEAFF-WWTP-SB02-1012-MS MS	320-26011-17 MS	91	98	59
MEAFF-WWTP-SB02-1012-SD MSD	320-26011-17 MSD	106	110	61

QC LIMITS

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-EB02-022217-SO	320-26011-10	143	159 Q	140
HYDRANT BLANK-022217	320-26011-20	135	98	132
GROUT TANK BLANK-022217	320-26011-21	138	113	138
	MB 320-152587/1-A	145	158 Q	138
	LCS 320-152587/2-A	136	142	133
	LCSD 320-152587/3-A	140	142	135

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

QC LIMITS
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.: 320-26011-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.03.02A_005.d
 Lab ID: LCS 320-152587/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.0	38.6	97	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6	96	60-140	
13C4 PFOA	100	142	142	25-150	
13C4 PFOS	95.6	127	133	25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	39.5	112	50-150	
18O2 PFHxS	94.6	129	136	25-150	

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

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.03.11D_039.d
 Lab ID: LCS 320-152953/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.00	4.09	102	60-140	
Perfluorooctanesulfonic acid (PFOS)	3.71	3.78	102	60-140	M
13C4 PFOA	10.0	10.9	109	25-150	
13C4 PFOS	9.56	9.09	95	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.54	4.00	113	50-150	
18O2 PFHxS	9.46	9.52	101	25-150	

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

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.03.02A_006.d
 Lab ID: LCSD 320-152587/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	40.0	38.5	96	0	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	35.6	96	0	30	60-140	M
13C4 PFOA	100	142	142			25-150	
13C4 PFOS	95.6	129	135			25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.3	114	2	30	50-150	M
18O2 PFHxS	94.6	132	140			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.: 320-26011-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.03.11D_058.d
 Lab ID: 320-26011-17 MS Client ID: MEAFF-WWTP-SB02-1012-MS MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	5.58	0.42 U	5.56	100	60-140	
Perfluorooctanesulfonic acid (PFOS)	5.18	0.20 J	5.49	102	60-140	M
13C4 PFOA	13.9	15	13.7	98	25-150	
13C4 PFOS	13.3	6.9	7.93	59	25-150	
Perfluorobutanesulfonic acid (PFBS)	4.93	0.42 U	6.26	127	50-150	
18O2 PFHxS	13.2	13	12.1	91	25-150	

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.03.11D_059.d
 Lab ID: 320-26011-17 MSD Client ID: MEAFF-WWTP-SB02-1012-SD MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	5.62	5.79	103	4	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	5.22	5.75	106	5	30	60-140	M
13C4 PFOA	14.1	15.5	110			25-150	
13C4 PFOS	13.4	8.26	61			25-150	
Perfluorobutanesulfonic acid (PFBS)	4.97	6.21	125	1	30	50-150	
18O2 PFHxS	13.3	14.0	106			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.: 320-26011-1
SDG No.: _____
Lab File ID: 2017.03.02A_004.d Lab Sample ID: MB 320-152587/1-A
Matrix: Water Date Extracted: 02/28/2017 16:42
Instrument ID: A8_N Date Analyzed: 03/02/2017 10:35
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-152587/2-A	2017.03.02A 005.d	03/02/2017 10:42
	LCSD 320-152587/3-A	2017.03.02A 006.d	03/02/2017 10:50
MEAFF-EB02-022217-SO	320-26011-10	2017.03.02A 010.d	03/02/2017 11:20
HYDRANT BLANK-022217	320-26011-20	2017.03.02A 011.d	03/02/2017 11:27
GROUT TANK BLANK-022217	320-26011-21	2017.03.02A 012.d	03/02/2017 11:35

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab File ID: 2017.03.11D_038.d Lab Sample ID: MB 320-152953/1-A
 Matrix: Solid Date Extracted: 03/02/2017 16:23
 Instrument ID: A8_N Date Analyzed: 03/11/2017 23:12
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-152953/2-A	2017.03.11D 039.d	03/11/2017 23:20
MEAFF-FTA1-SB01-0204	320-26011-1	2017.03.11D 040.d	03/11/2017 23:27
MEAFF-FD01-022217	320-26011-2	2017.03.11D 041.d	03/11/2017 23:35
MEAFF-FTA1-SB02-0204	320-26011-3	2017.03.11D 042.d	03/11/2017 23:42
MEAFF-SDA4B-SB01-0001	320-26011-4	2017.03.11D 043.d	03/11/2017 23:50
MEAFF-FD02-022217	320-26011-5	2017.03.11D 044.d	03/11/2017 23:57
MEAFF-SDA4B-SB01-0204	320-26011-6	2017.03.11D 045.d	03/12/2017 00:05
MEAFF-SDA4D-SB01-0001	320-26011-7	2017.03.11D 046.d	03/12/2017 00:12
MEAFF-FD03-022217	320-26011-8	2017.03.11D 048.d	03/12/2017 00:28
MEAFF-SDA4D-SB01-0204	320-26011-9	2017.03.11D 049.d	03/12/2017 00:35
MEAFF-SDA4A-SB01-0001	320-26011-11	2017.03.11D 050.d	03/12/2017 00:43
MEAFF-SDA4A-SB01-0204	320-26011-12	2017.03.11D 051.d	03/12/2017 00:50
MEAFF-SDA4A-SB02-0001	320-26011-13	2017.03.11D 052.d	03/12/2017 00:58
MEAFF-SDA4A-SB02-0204	320-26011-14	2017.03.11D 053.d	03/12/2017 01:05
MEAFF-WWTP-SB01-1012	320-26011-15	2017.03.11D 054.d	03/12/2017 01:13
MEAFF-WWTP-SB03-0608	320-26011-16	2017.03.11D 055.d	03/12/2017 01:20
MEAFF-WWTP-SB02-1012	320-26011-17	2017.03.11D 056.d	03/12/2017 01:28
MEAFF-WWTP-SB02-1012-MS MS	320-26011-17 MS	2017.03.11D 058.d	03/12/2017 01:43
MEAFF-WWTP-SB02-1012-SD MSD	320-26011-17 MSD	2017.03.11D 059.d	03/12/2017 01:50
MEAFF-UNKNOWN22-SB01-0001	320-26011-18	2017.03.11D 060.d	03/12/2017 01:58
MEAFF-UNKNOWN22-SB01-0204	320-26011-19	2017.03.11D 061.d	03/12/2017 03:05

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA1-SB01-0204</u>	Lab Sample ID: <u>320-26011-1</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_040.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 10:40</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.02(g)</u>	Date Analyzed: <u>03/11/2017 23:27</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>24.6</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.6	M	0.66	0.40	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.0	M	0.66	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	34		25-150
STL00994	18O2 PFHxS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_040.d
 Lims ID: 320-26011-A-1-A
 Client ID: MEAFF-FTA1-SB01-0204
 Sample Type: Client
 Inject. Date: 11-Mar-2017 23:27:58 ALS Bottle#: 33 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:58:07 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: chandrasenas

Date: 27-Mar-2017 10:58:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.853	1.861	-0.008	1.000	23361	0.0622				
298.90 > 99.00	1.863	1.861	0.002	1.005	8203		2.85(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.468	-0.004		12399673	42.6		90.1	429973	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.822	2.818	0.004	1.000	1920819	9.72			17221	M
413.00 > 169.00	2.814	2.818	-0.004	0.997	1234081		1.56(0.90-1.10)		34934	M
D 14 13C4 PFOA										
417.00 > 372.00	2.814	2.826	-0.012		9666375	47.2		94.3	305970	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.183	0.013		3895578	16.1		33.7	118670	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.196	3.192	0.004	1.000	1525456	19.0			54617	M
499.00 > 99.00	3.188	3.192	-0.004	0.997	278903		5.47(0.90-1.10)		8709	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_040.d

Injection Date: 11-Mar-2017 23:27:58

Instrument ID: A8_N

Lims ID: 320-26011-A-1-A

Lab Sample ID: 320-26011-1

Client ID: MEAFF-FTA1-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 33

Worklist Smp#: 4

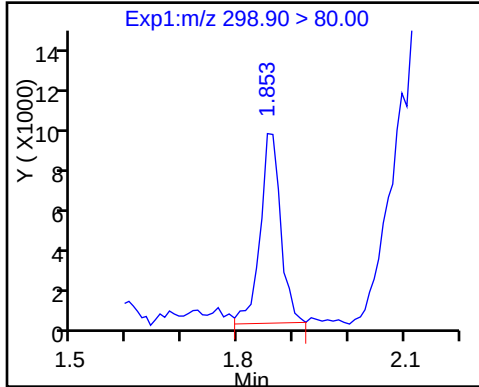
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

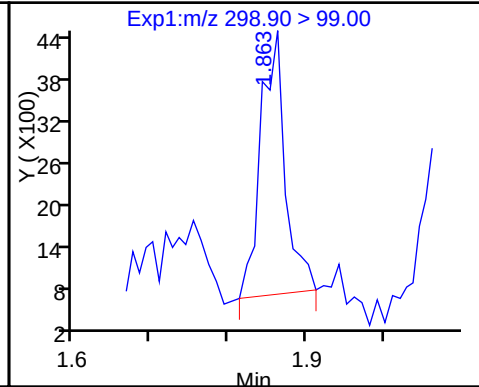
Method: A8_N

Limit Group: LC PFC_DOD ICAL

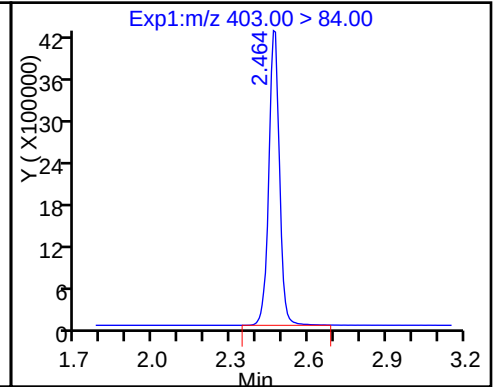
5 Perfluorobutanesulfonic acid



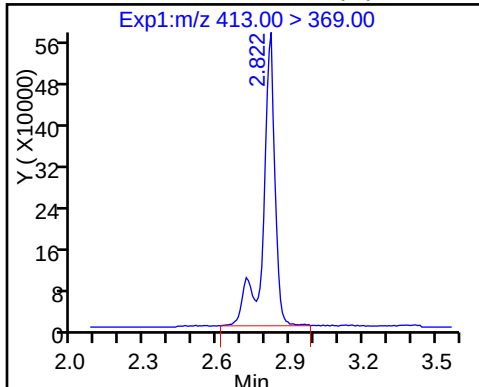
5 Perfluorobutanesulfonic acid (M)



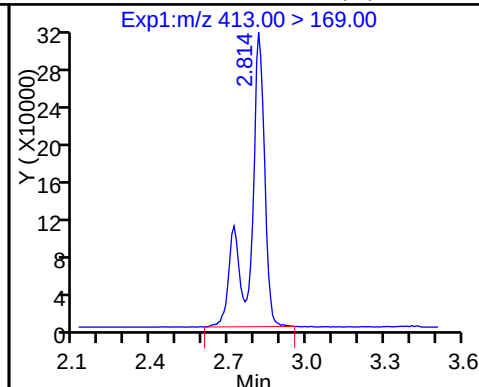
D 11 18O2 PFHxS



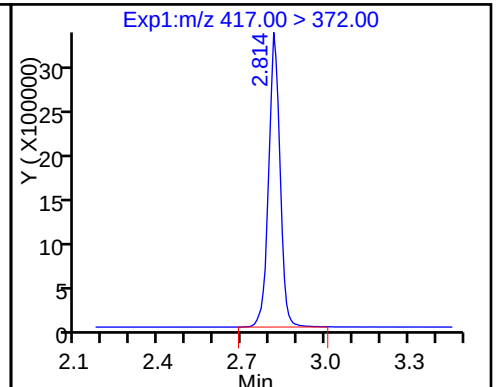
15 Perfluorooctanoic acid (M)



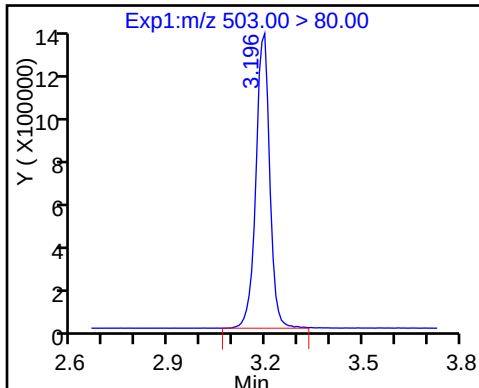
15 Perfluorooctanoic acid (M)



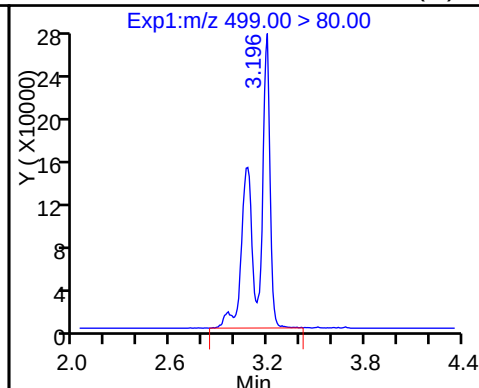
D 14 13C4 PFOA



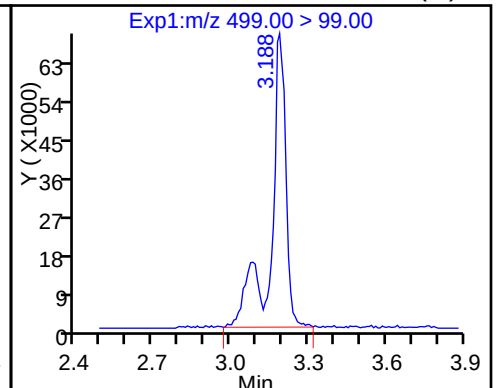
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

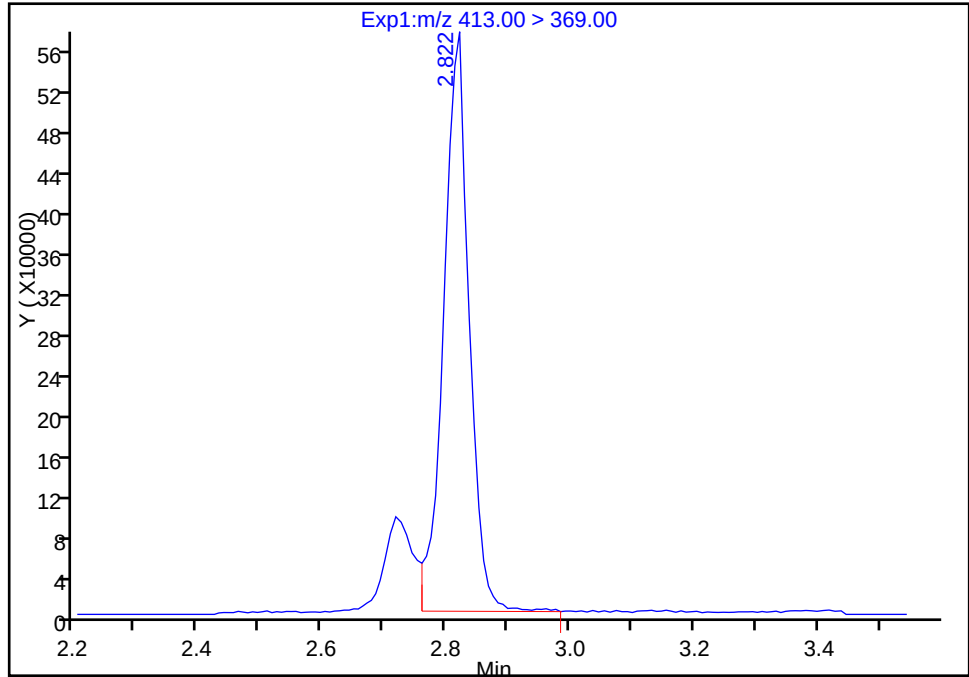
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Injection Date:	11-Mar-2017 23:27:58	Instrument ID:	A8_N		
Lims ID:	320-26011-A-1-A	Lab Sample ID:	320-26011-1		
Client ID:	MEAFF-FTA1-SB01-0204				
Operator ID:	A8-PC\A8	ALS Bottle#:	33	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

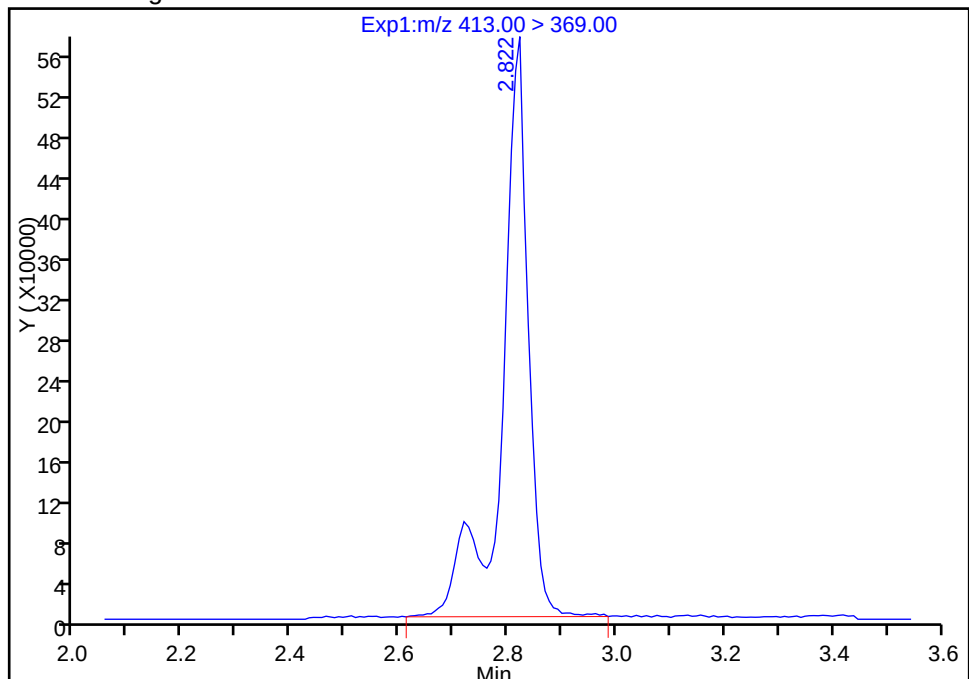
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Area: 1613260
Amount: 8.167798
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 1920819
Amount: 9.724943
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:57:46

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

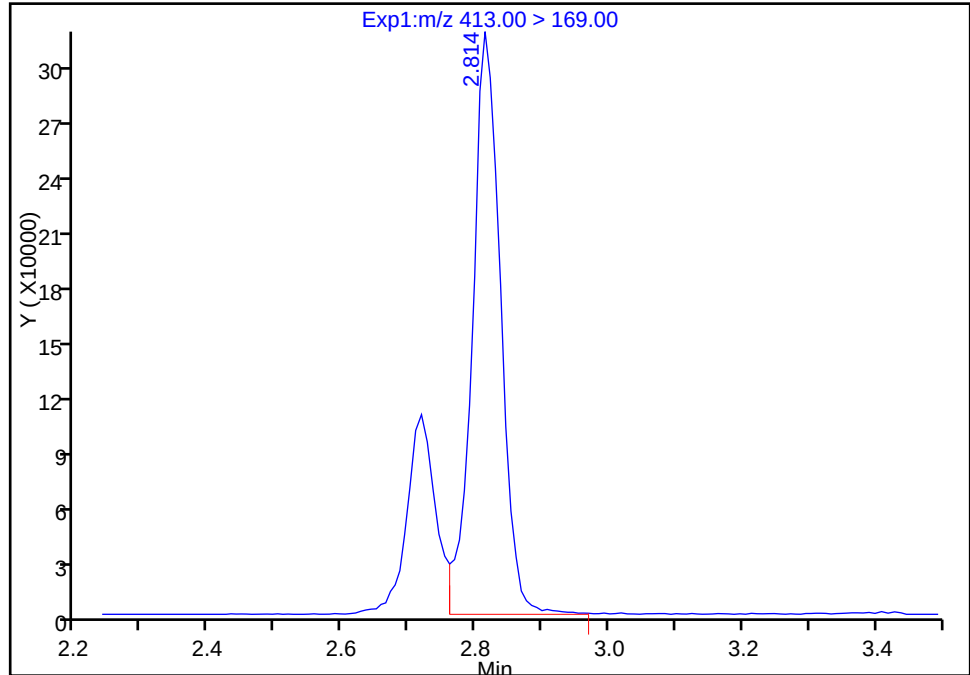
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_040.d
Injection Date: 11-Mar-2017 23:27:58 Instrument ID: A8_N
Lims ID: 320-26011-A-1-A Lab Sample ID: 320-26011-1
Client ID: MEAFF-FTA1-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 33 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

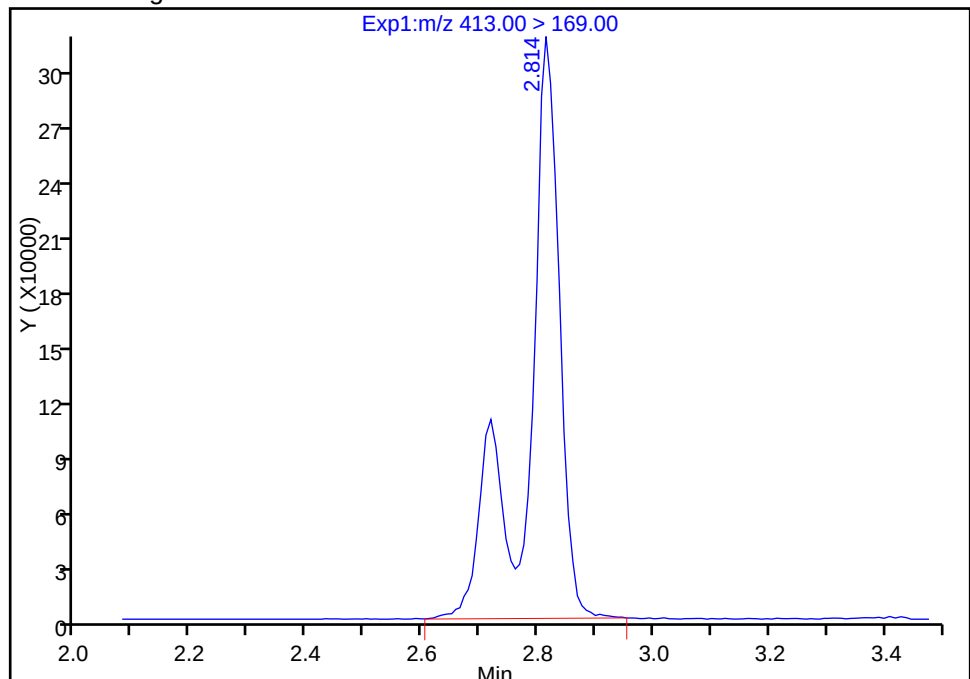
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Area: 921086
Amount: 8.167798
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
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Amount: 9.724943
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:57:46

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

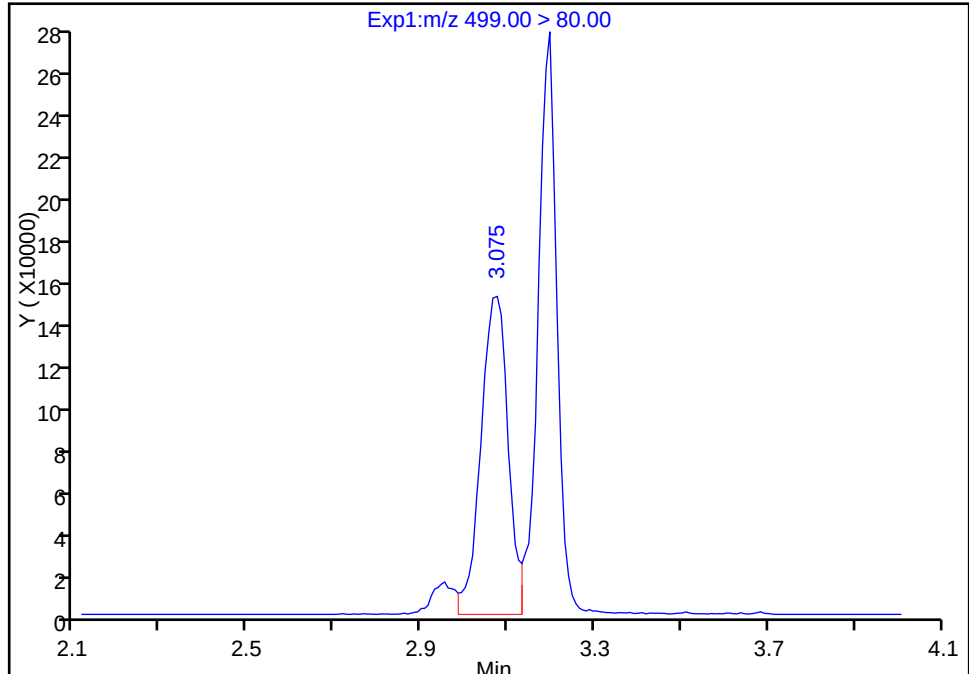
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Injection Date: 11-Mar-2017 23:27:58 Instrument ID: A8_N
Lims ID: 320-26011-A-1-A Lab Sample ID: 320-26011-1
Client ID: MEAFF-FTA1-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

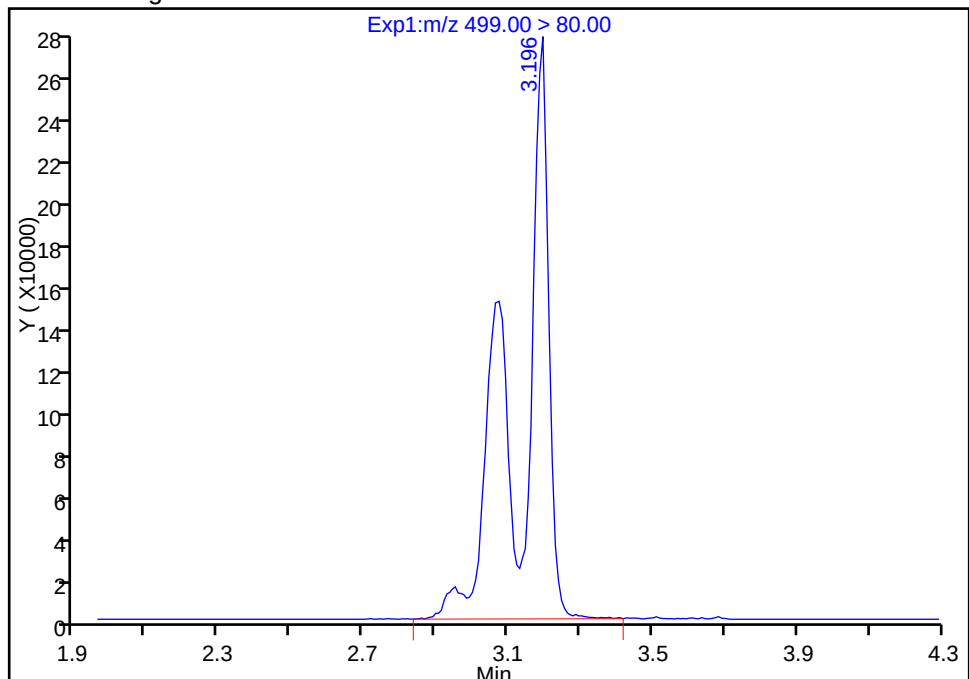
RT: 3.08
Area: 649650
Amount: 8.105296
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 1525456
Amount: 19.032206
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:57:46

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

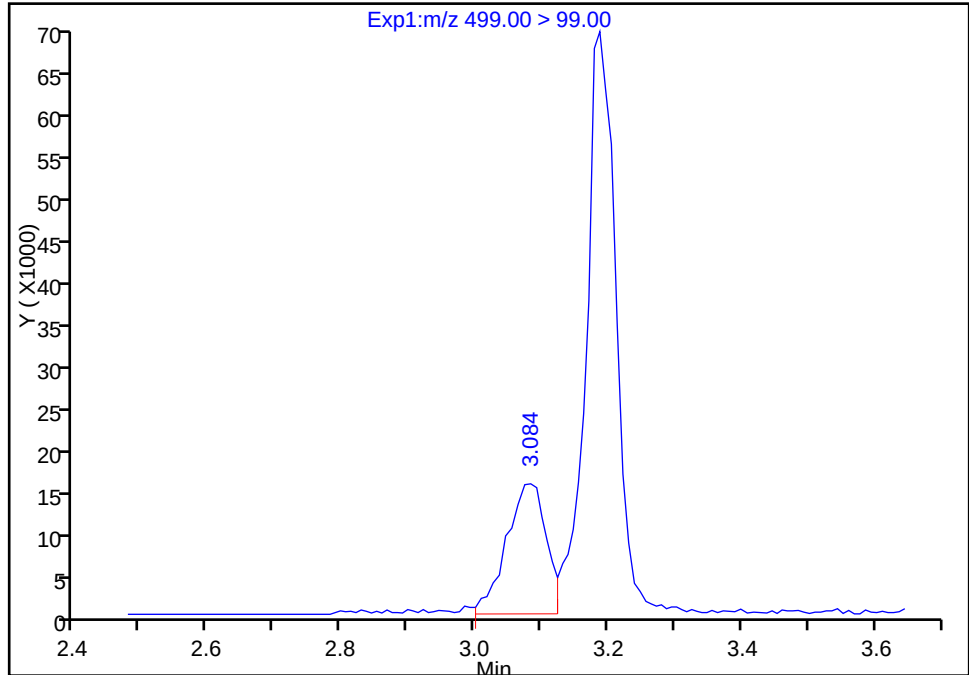
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Injection Date: 11-Mar-2017 23:27:58 Instrument ID: A8_N
Lims ID: 320-26011-A-1-A Lab Sample ID: 320-26011-1
Client ID: MEAFF-FTA1-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 33 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

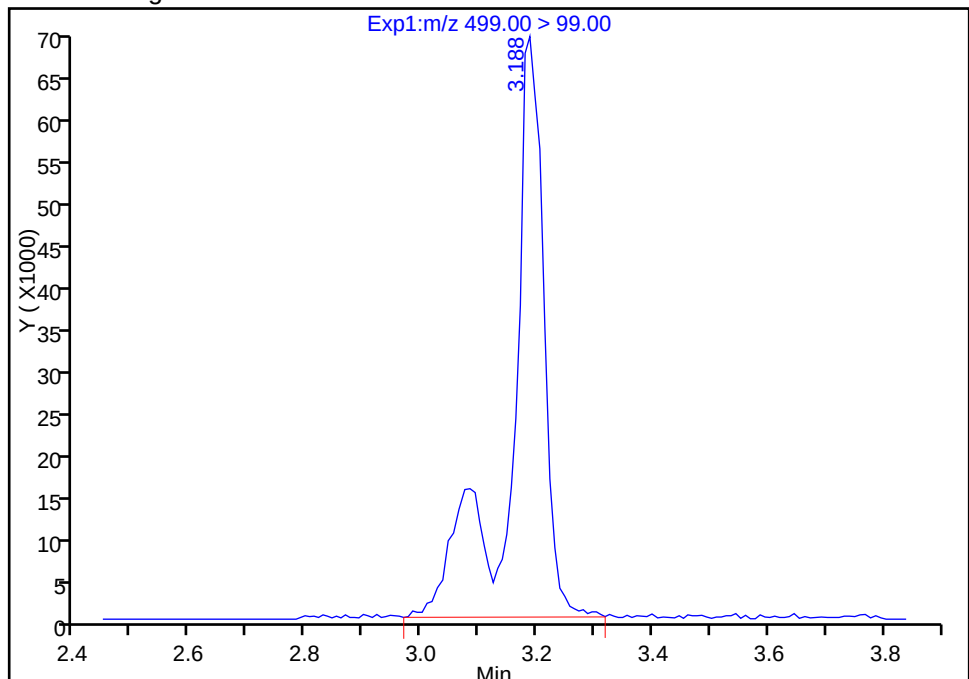
RT: 3.08
Area: 64075
Amount: 8.105296
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 278903
Amount: 19.032206
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:57:46

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

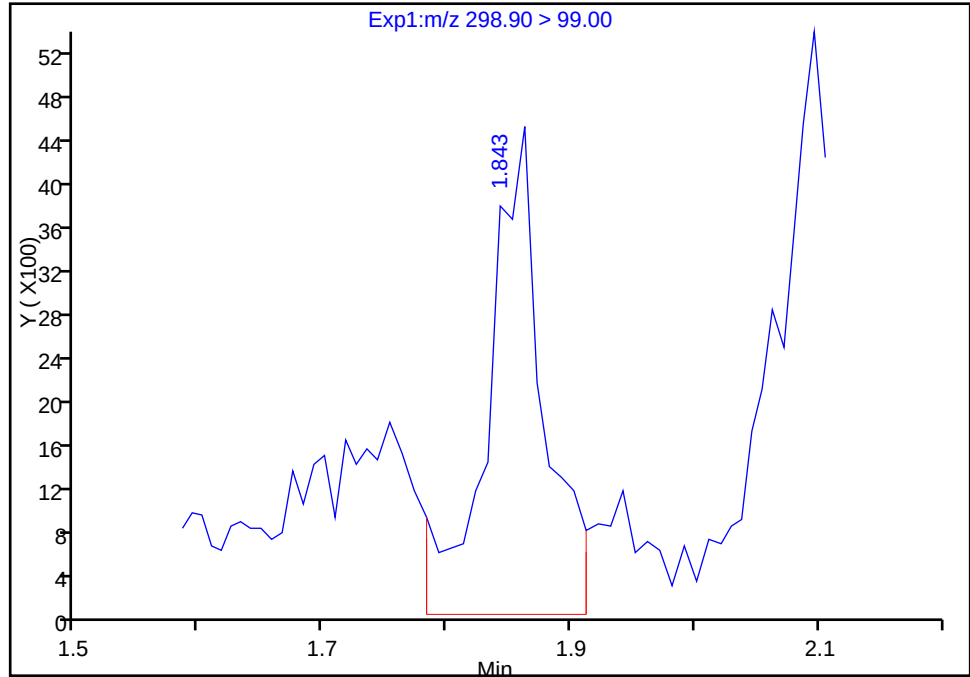
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Injection Date: 11-Mar-2017 23:27:58 Instrument ID: A8_N
Lims ID: 320-26011-A-1-A Lab Sample ID: 320-26011-1
Client ID: MEAFF-FTA1-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

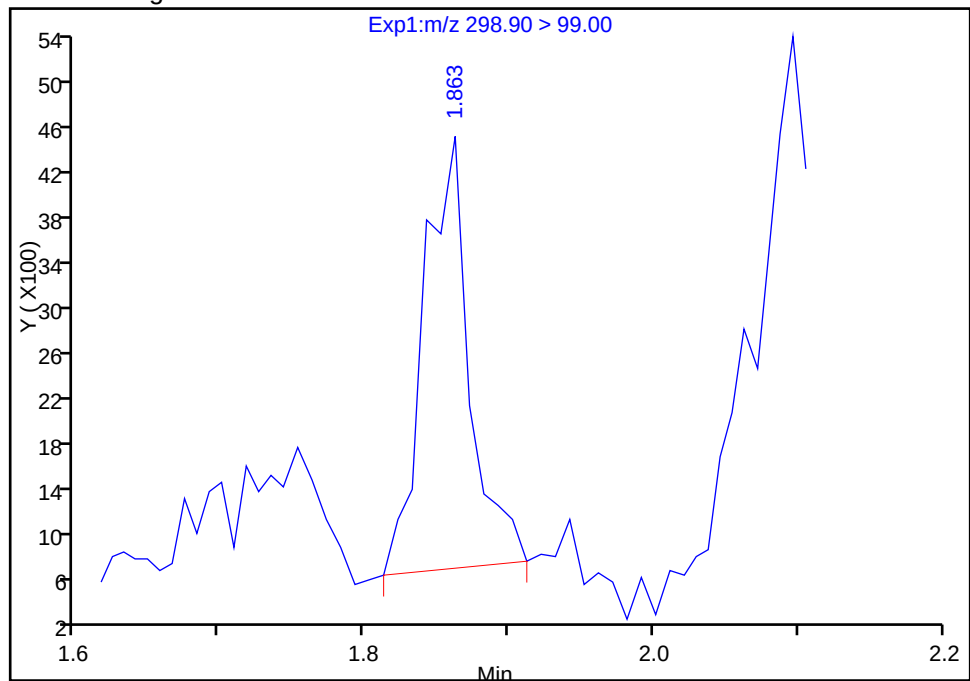
RT: 1.84
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Amount: 0.062208
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 8203
Amount: 0.062208
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:58:02

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FD01-022217</u>	Lab Sample ID: <u>320-26011-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_041.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 00:00</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.08(g)</u>	Date Analyzed: <u>03/11/2017 23:35</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>25.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	M	0.66	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.9	M	0.66	0.39	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.53	0.39	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	103		25-150
STL00991	13C4 PFOS	61		25-150
STL00994	18O2 PFHxS	93		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d
 Lims ID: 320-26011-A-2-A
 Client ID: MEAFF-FD01-022217
 Sample Type: Client
 Inject. Date: 11-Mar-2017 23:35:28 ALS Bottle#: 34 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:58:25 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 10:43:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.861	1.861	0.0	1.000	22855	0.0591				
298.90 > 99.00	1.861	1.861	0.0	1.000	7865		2.91(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.476	2.468	0.008		12776327	43.9		92.9	403670	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.818	2.818	0.0	1.000	1580534	7.29			14120	M
413.00 > 169.00	2.818	2.818	0.0	1.000	1044002		1.51(0.90-1.10)		25528	M
D 14 13C4 PFOA										
417.00 > 372.00	2.818	2.826	-0.008		10604252	51.7		103	449789	
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.183	0.010		7015885	29.0		60.7	218243	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.192	0.001	1.000	2668065	18.5			78663	M
499.00 > 99.00	3.193	3.192	0.001	1.000	523024		5.10(0.90-1.10)		17205	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d

Injection Date: 11-Mar-2017 23:35:28

Instrument ID: A8_N

Lims ID: 320-26011-A-2-A

Lab Sample ID: 320-26011-2

Client ID: MEAFF-FD01-022217

Operator ID: A8-PC\A8

ALS Bottle#: 34

Worklist Smp#: 5

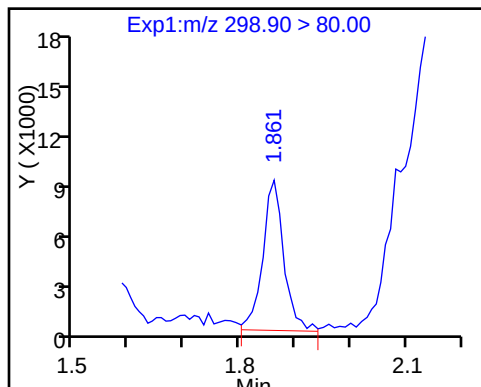
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

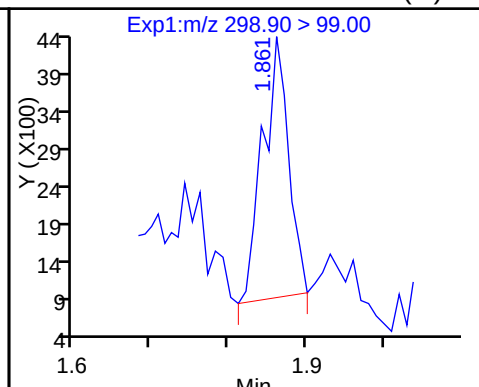
Method: A8_N

Limit Group: LC PFC_DOD ICAL

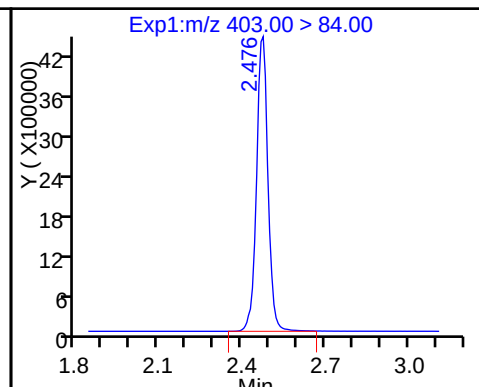
5 Perfluorobutanesulfonic acid



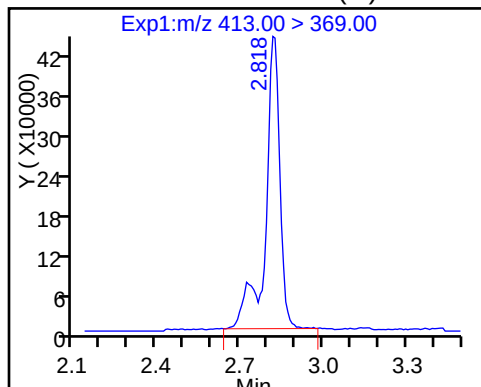
5 Perfluorobutanesulfonic acid (M)



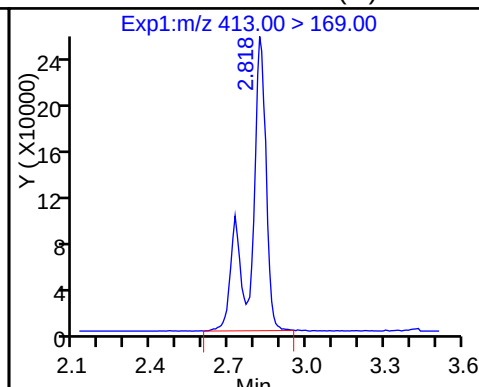
D 11 18O2 PFHxS



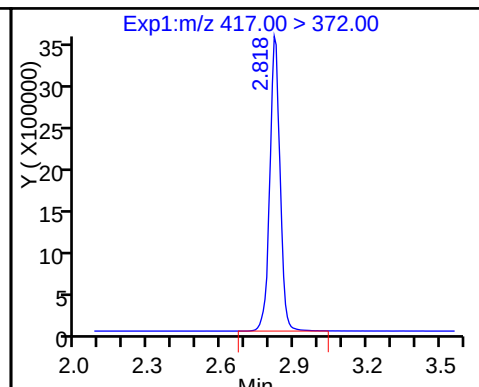
15 Perfluorooctanoic acid (M)



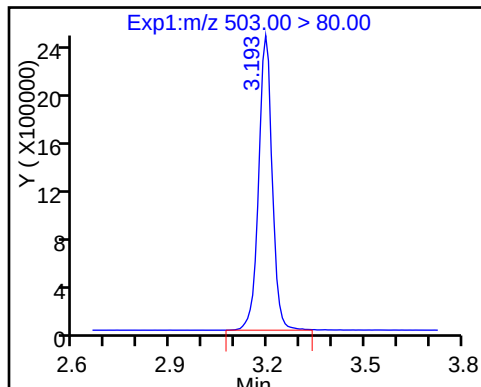
15 Perfluorooctanoic acid (M)



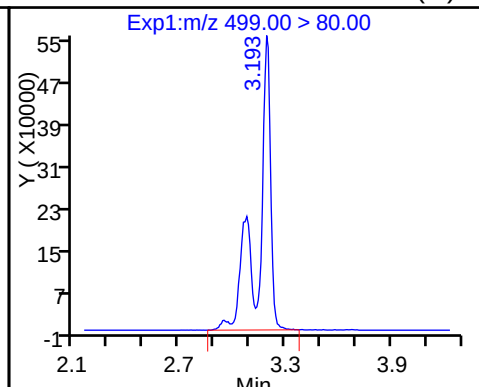
D 14 13C4 PFOA



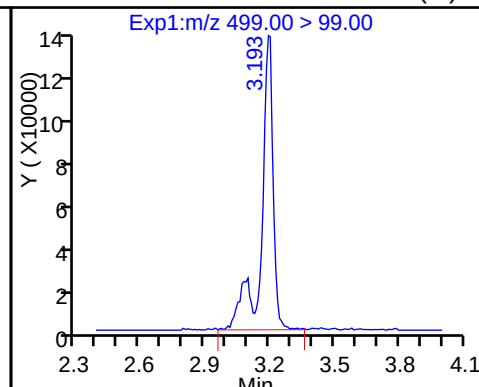
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

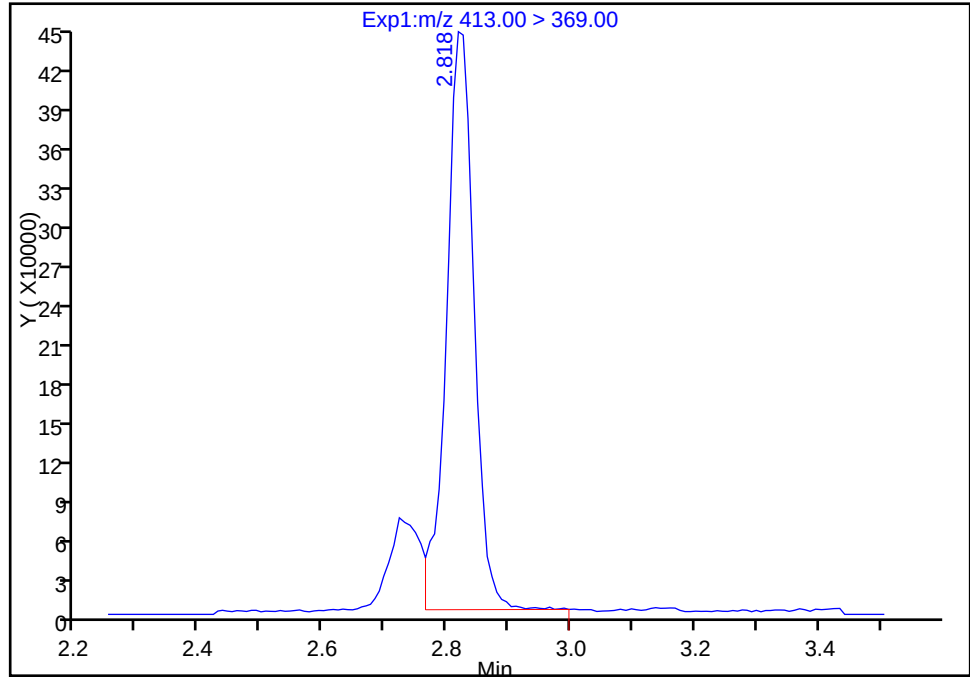
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d				
Injection Date:	11-Mar-2017 23:35:28	Instrument ID:	A8_N		
Lims ID:	320-26011-A-2-A	Lab Sample ID:	320-26011-2		
Client ID:	MEAFF-FD01-022217				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	5
Injection Vol:	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

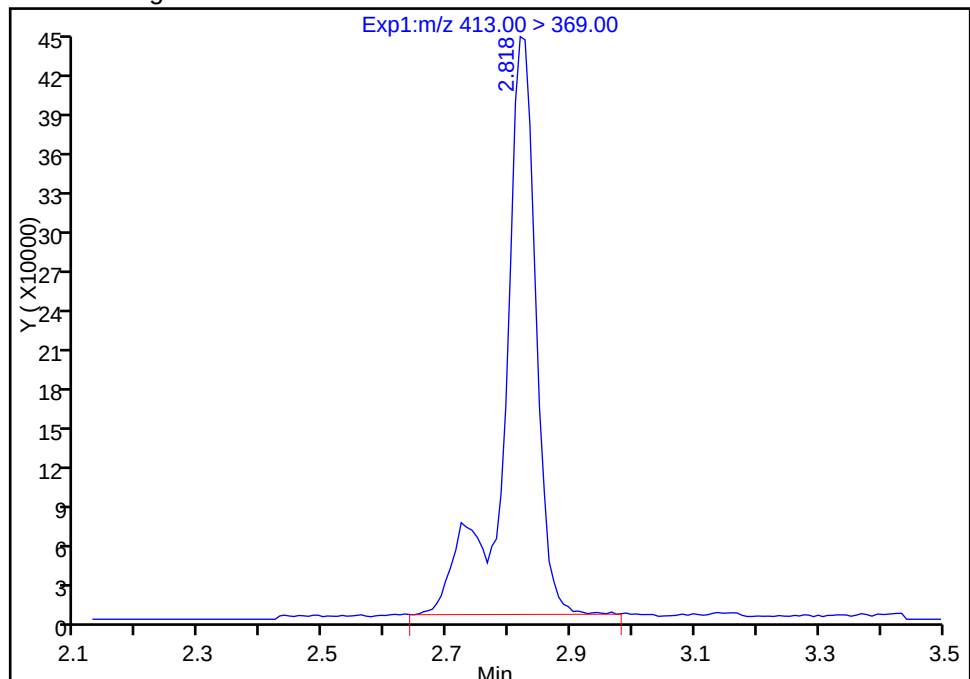
RT: 2.82
Area: 1345827
Amount: 6.211171
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 1580534
Amount: 7.294375
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

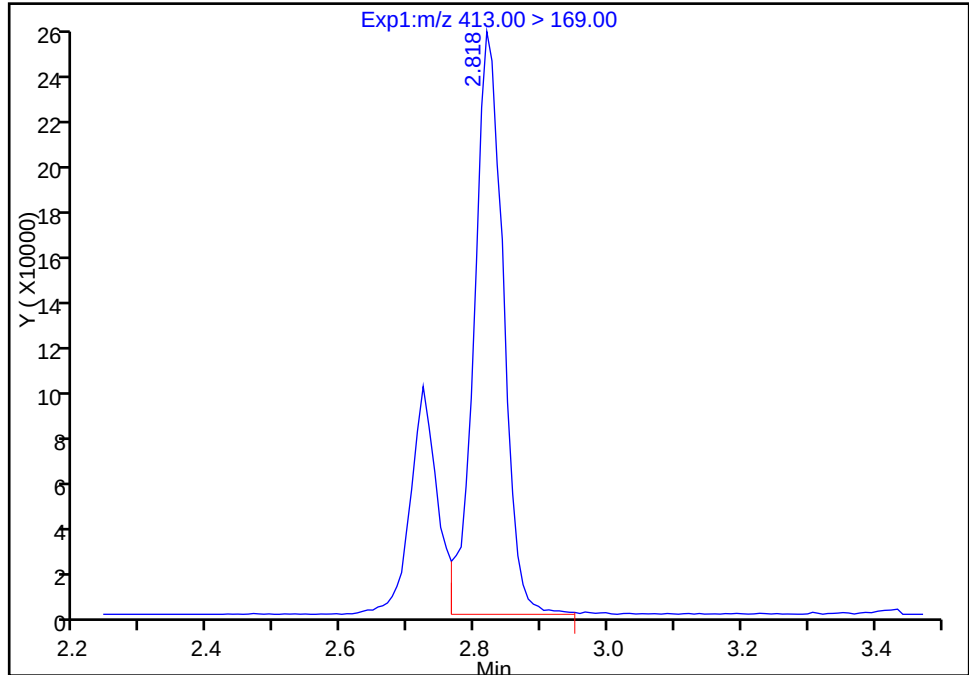
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d
Injection Date: 11-Mar-2017 23:35:28 Instrument ID: A8_N
Lims ID: 320-26011-A-2-A Lab Sample ID: 320-26011-2
Client ID: MEAFF-FD01-022217
Operator ID: A8-PCVA8 ALS Bottle#: 34 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

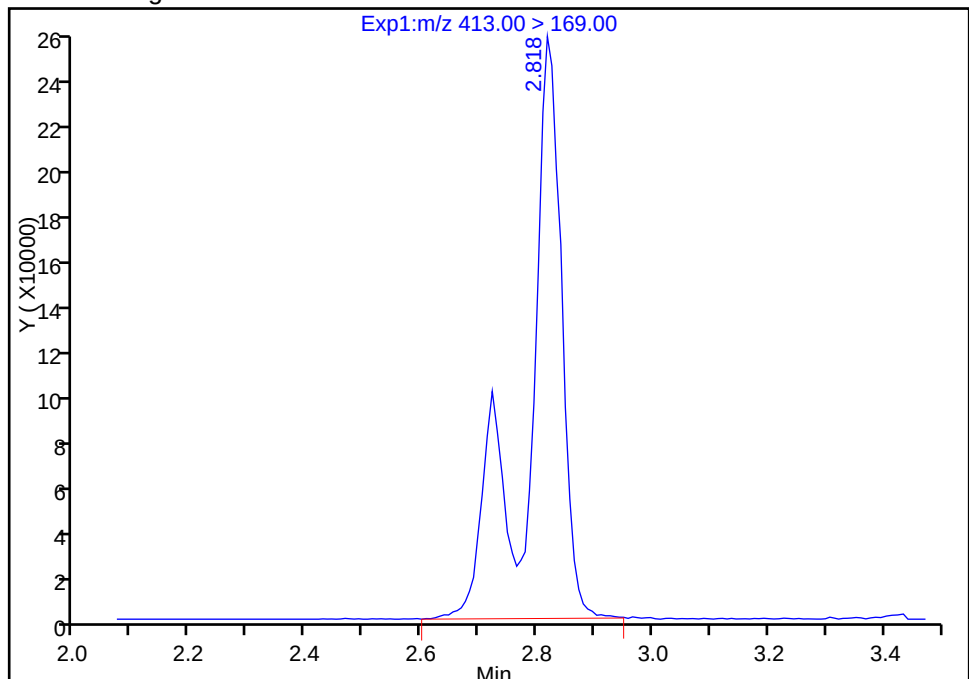
RT: 2.82
Area: 772917
Amount: 6.211171
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 1044002
Amount: 7.294375
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

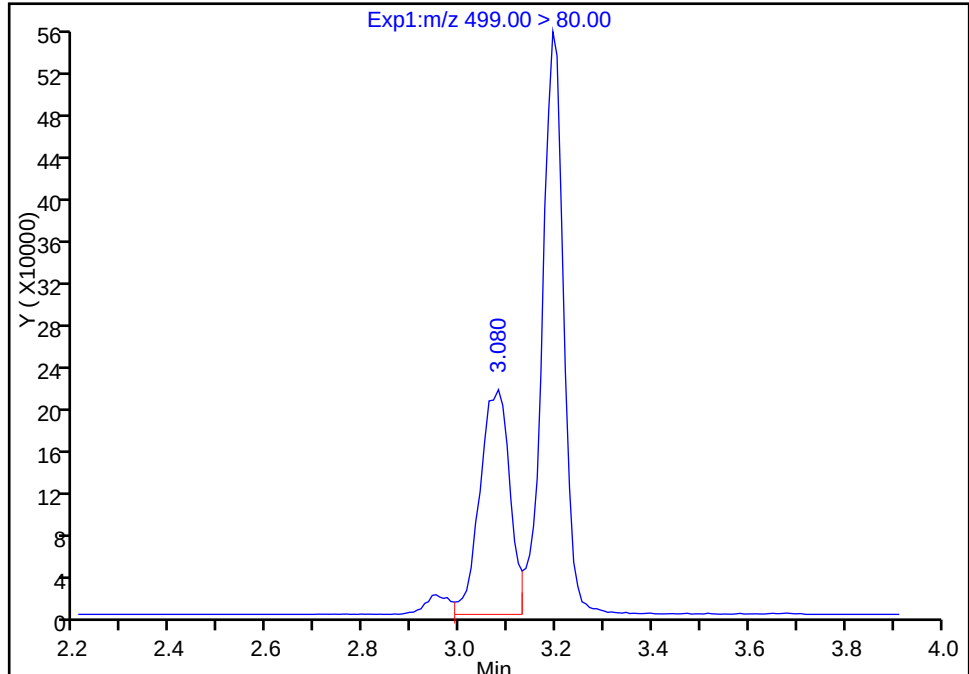
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d				
Injection Date:	11-Mar-2017 23:35:28	Instrument ID:	A8_N		
Lims ID:	320-26011-A-2-A	Lab Sample ID:	320-26011-2		
Client ID:	MEAFF-FD01-022217				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	5
Injection Vol:	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

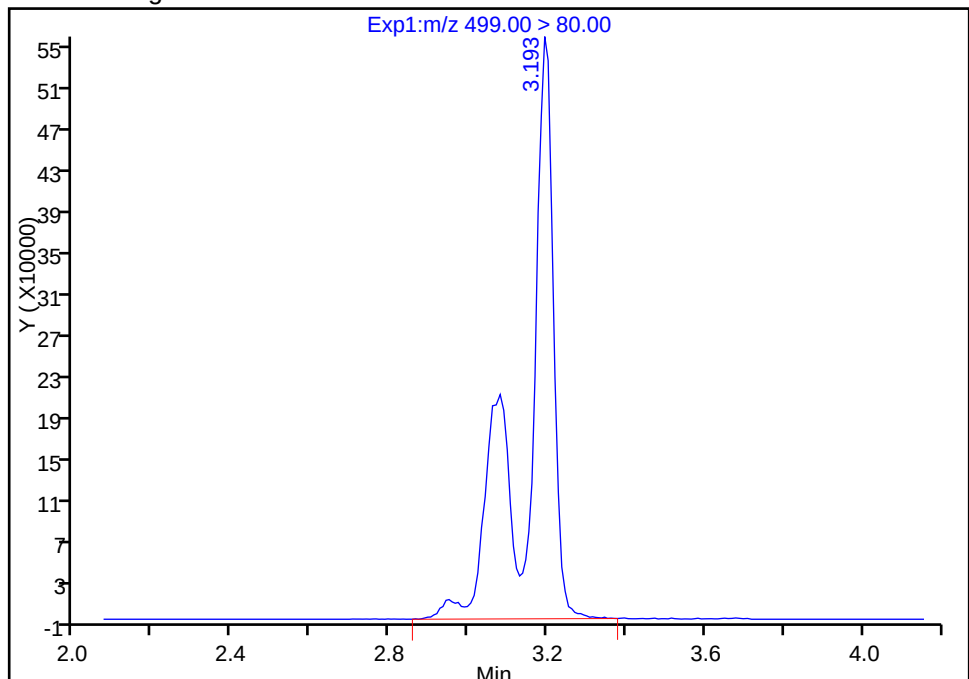
RT: 3.08
Area: 913979
Amount: 6.331624
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2668065
Amount: 18.483120
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

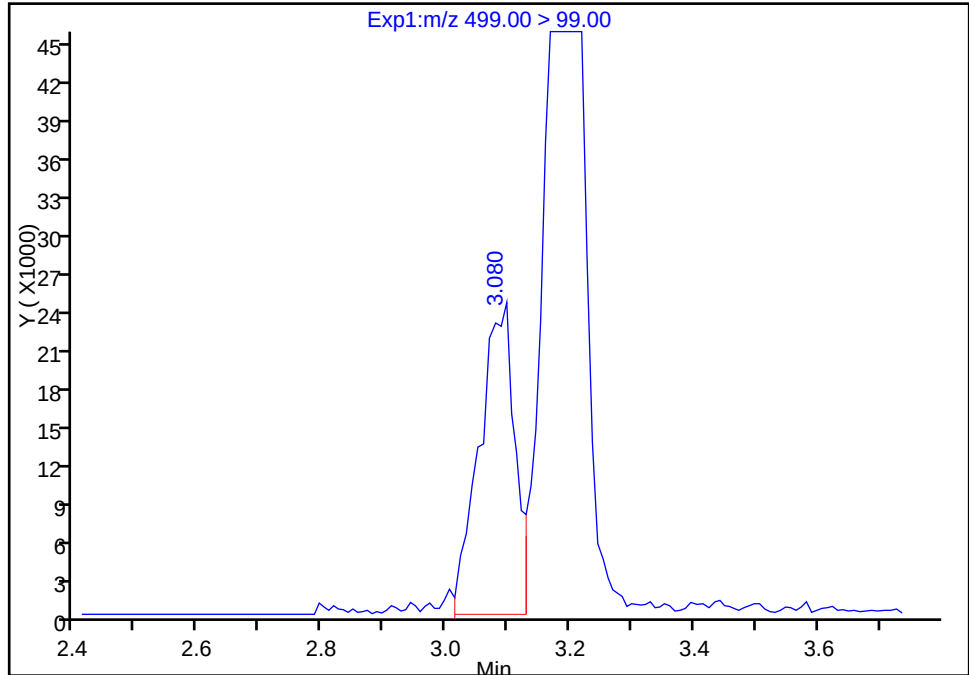
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d
Injection Date: 11-Mar-2017 23:35:28 Instrument ID: A8_N
Lims ID: 320-26011-A-2-A Lab Sample ID: 320-26011-2
Client ID: MEAFF-FD01-022217
Operator ID: A8-PCVA8 ALS Bottle#: 34 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. 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

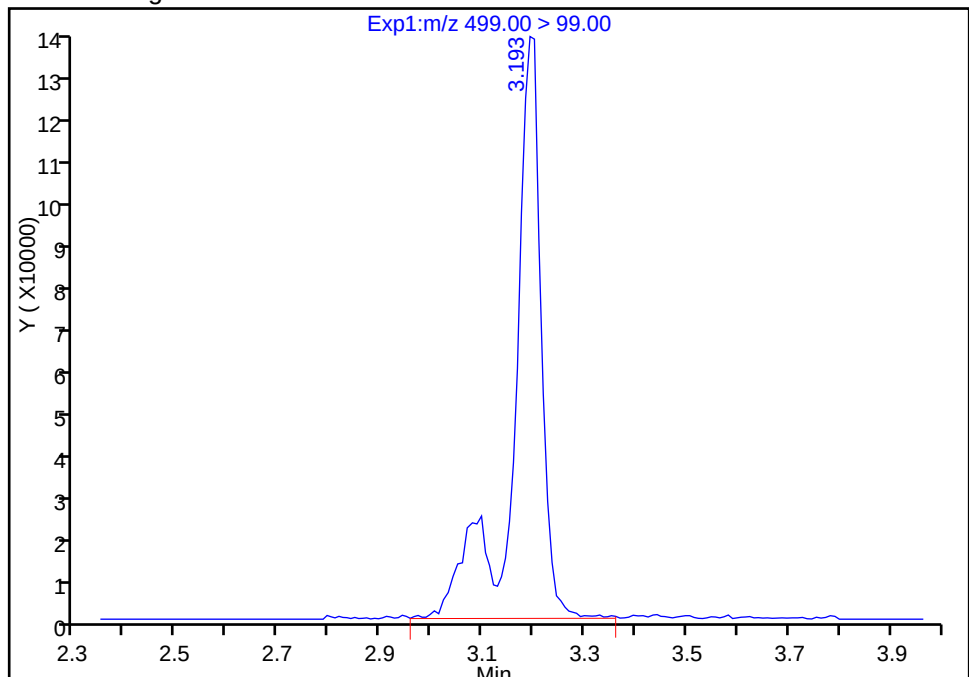
RT: 3.08
Area: 95974
Amount: 6.331624
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 523024
Amount: 18.483120
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

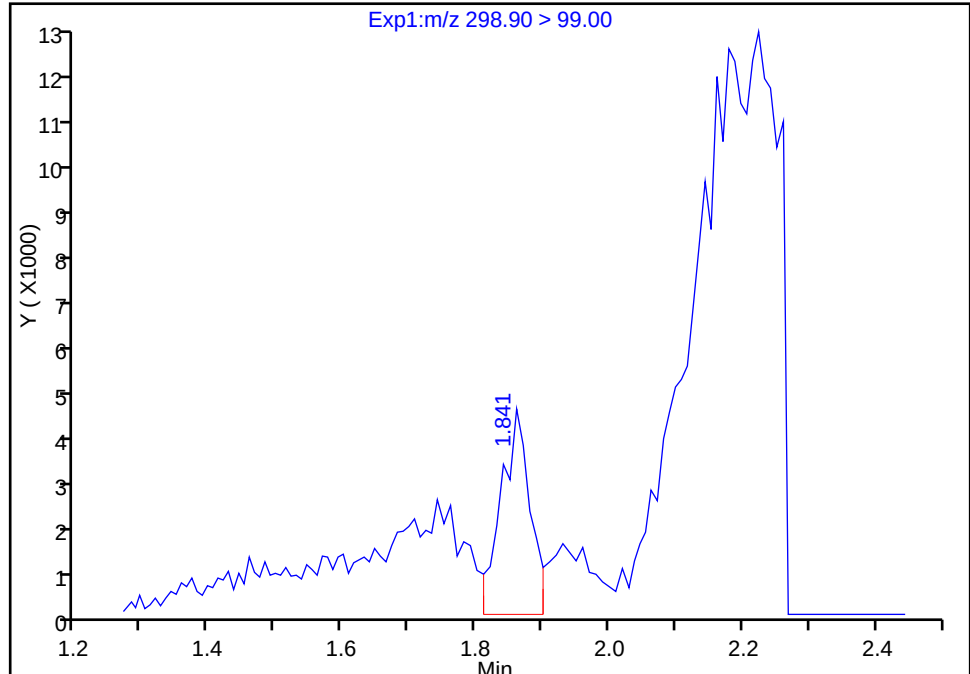
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_041.d
Injection Date: 11-Mar-2017 23:35:28 Instrument ID: A8_N
Lims ID: 320-26011-A-2-A Lab Sample ID: 320-26011-2
Client ID: MEAFF-FD01-022217
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

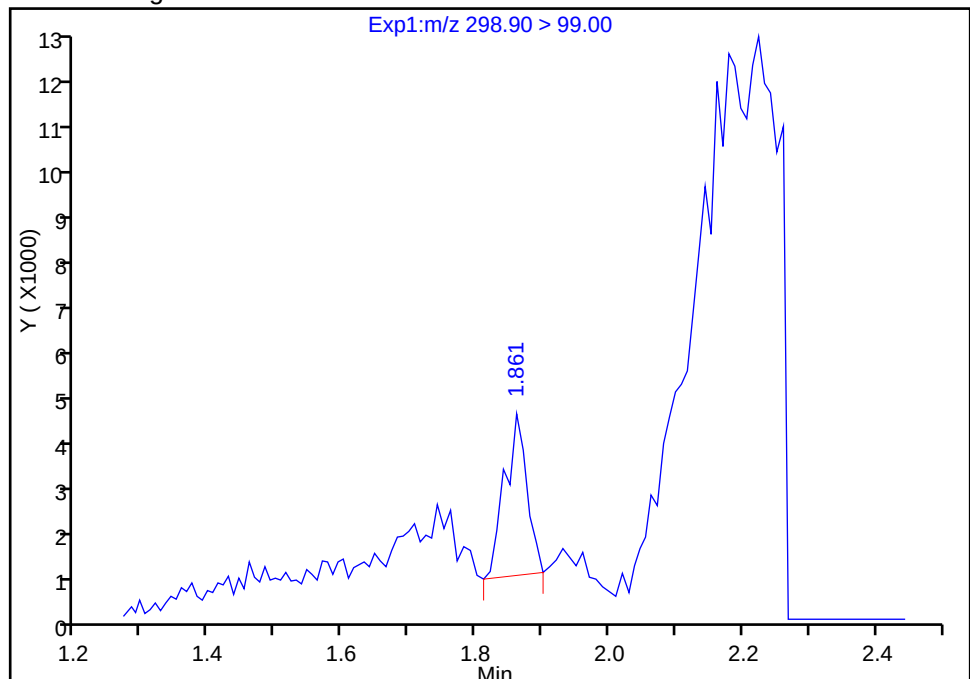
RT: 1.84
Area: 12768
Amount: 0.059066
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 7865
Amount: 0.059066
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:58:22

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA1-SB02-0204</u>	Lab Sample ID: <u>320-26011-3</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_042.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 09:55</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.08(g)</u>	Date Analyzed: <u>03/11/2017 23:42</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>26.4</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.19	J M	0.67	0.40	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.38	J M	0.67	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.53	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	48		25-150
STL00994	18O2 PFHxS	92		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
 Lims ID: 320-26011-A-3-A
 Client ID: MEAFF-FTA1-SB02-0204
 Sample Type: Client
 Inject. Date: 11-Mar-2017 23:42:59 ALS Bottle#: 35 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-3-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:58:55 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 10:44:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.852	1.861	-0.009	1.000	11668	0.0306				
298.90 > 99.00	1.852	1.861	-0.009	1.000	3353		3.48(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.468	-0.001		12600118	43.3		91.6	378331	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.825	2.818	0.007	1.000	143505	0.6964			877	M
413.00 > 169.00	2.817	2.818	-0.001	0.997	92428		1.55(0.90-1.10)		3247	M
D 14 13C4 PFOA										
417.00 > 372.00	2.817	2.826	-0.009		10085419	49.2		98.4	318722	
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.183	0.009		5490377	22.7		47.5	172045	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.192	3.192	0.0	1.000	159426	1.41			4674	M
499.00 > 99.00	3.201	3.192	0.009	1.003	30927		5.15(0.90-1.10)		641	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d

Injection Date: 11-Mar-2017 23:42:59

Instrument ID: A8_N

Lims ID: 320-26011-A-3-A

Lab Sample ID: 320-26011-3

Client ID: MEAFF-FTA1-SB02-0204

Operator ID: A8-PC\A8

ALS Bottle#: 35

Worklist Smp#: 6

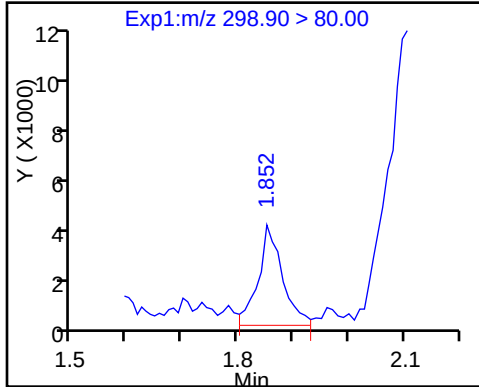
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

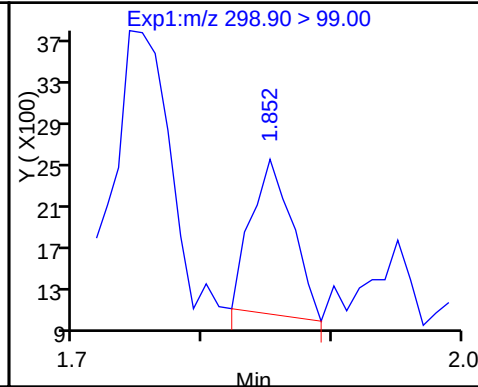
Method: A8_N

Limit Group: LC PFC_DOD ICAL

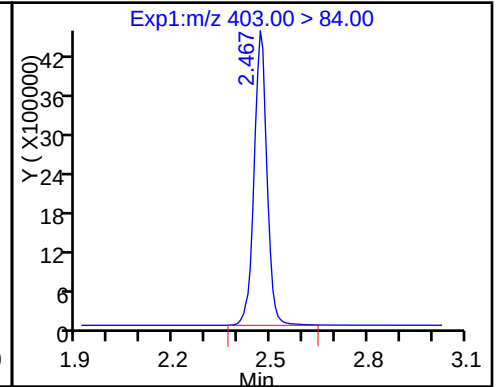
5 Perfluorobutanesulfonic acid



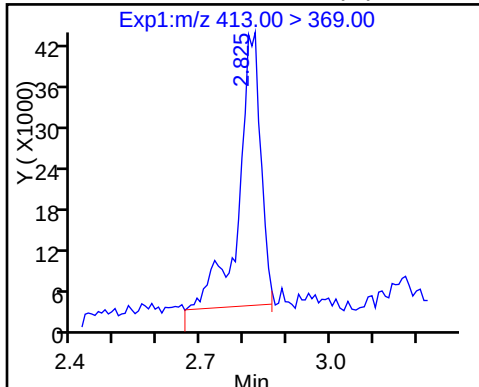
5 Perfluorobutanesulfonic acid (M)



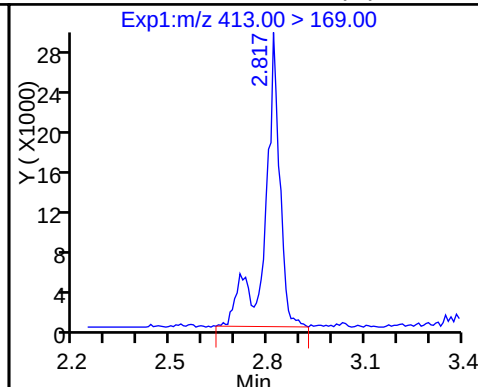
D 11 18O2 PFHxS



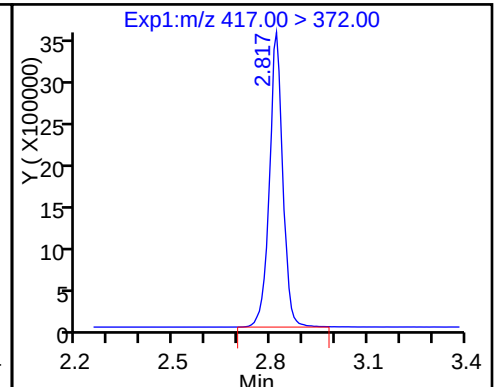
15 Perfluorooctanoic acid (M)



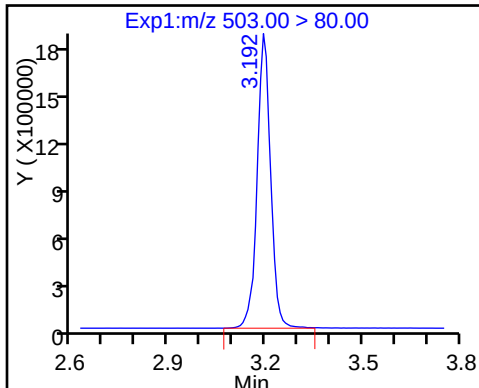
15 Perfluorooctanoic acid (M)



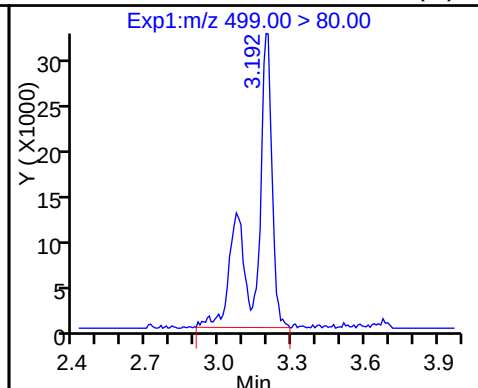
D 14 13C4 PFOA



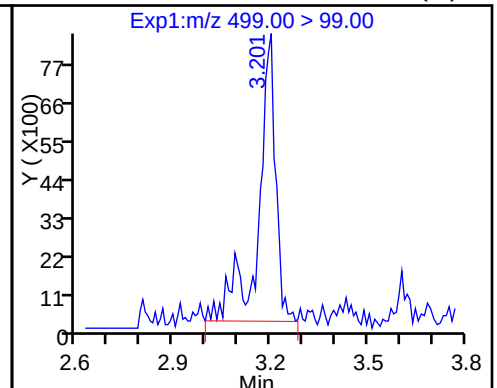
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

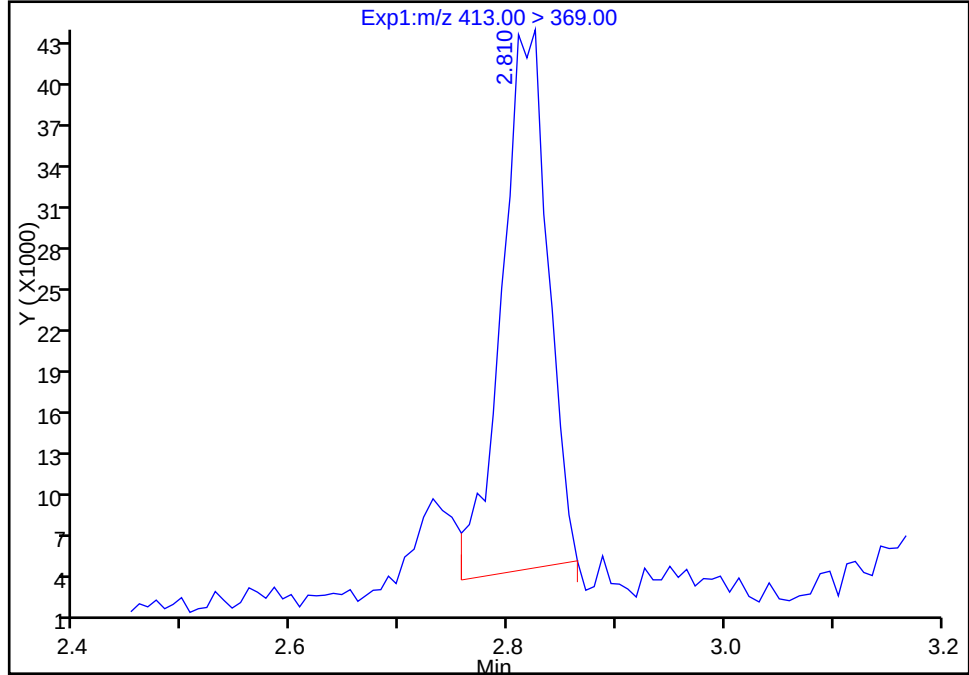
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
Injection Date: 11-Mar-2017 23:42:59 Instrument ID: A8_N
Lims ID: 320-26011-A-3-A Lab Sample ID: 320-26011-3
Client ID: MEAFF-FTA1-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

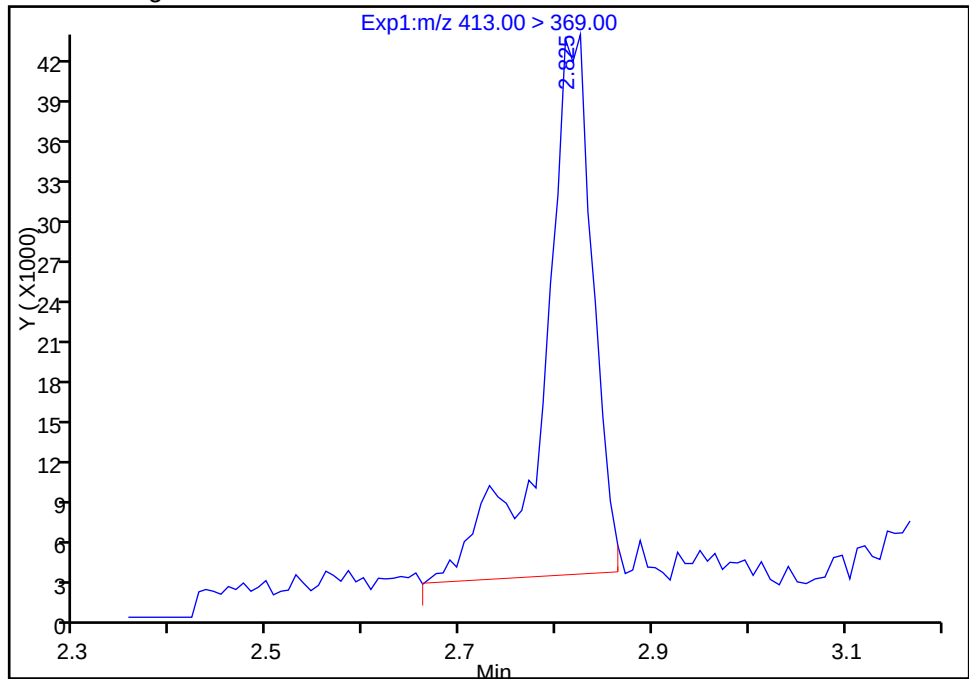
RT: 2.81
Area: 114683
Amount: 0.556505
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 143505
Amount: 0.696366
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

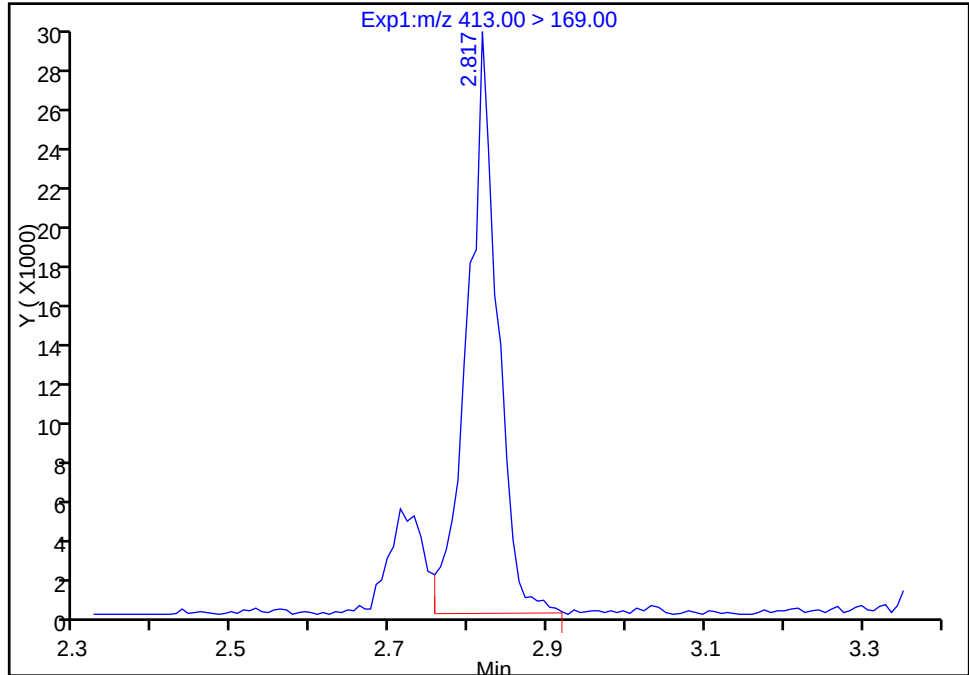
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
Injection Date: 11-Mar-2017 23:42:59 Instrument ID: A8_N
Lims ID: 320-26011-A-3-A Lab Sample ID: 320-26011-3
Client ID: MEAFF-FTA1-SB02-0204
Operator ID: A8-PCVA8 ALS Bottle#: 35 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

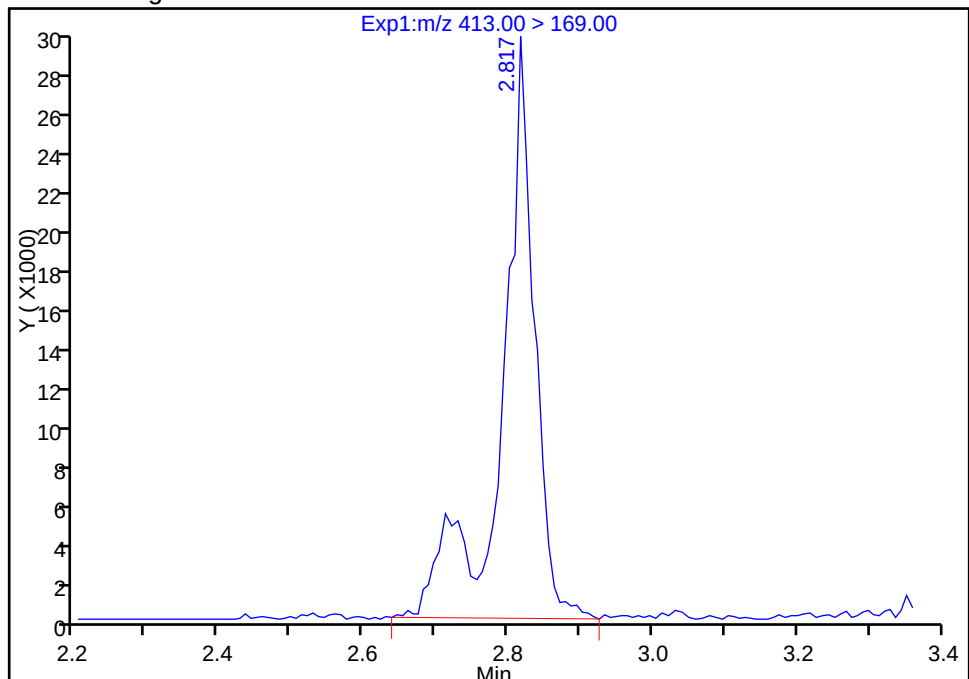
RT: 2.82
Area: 76412
Amount: 0.556505
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 92428
Amount: 0.696366
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

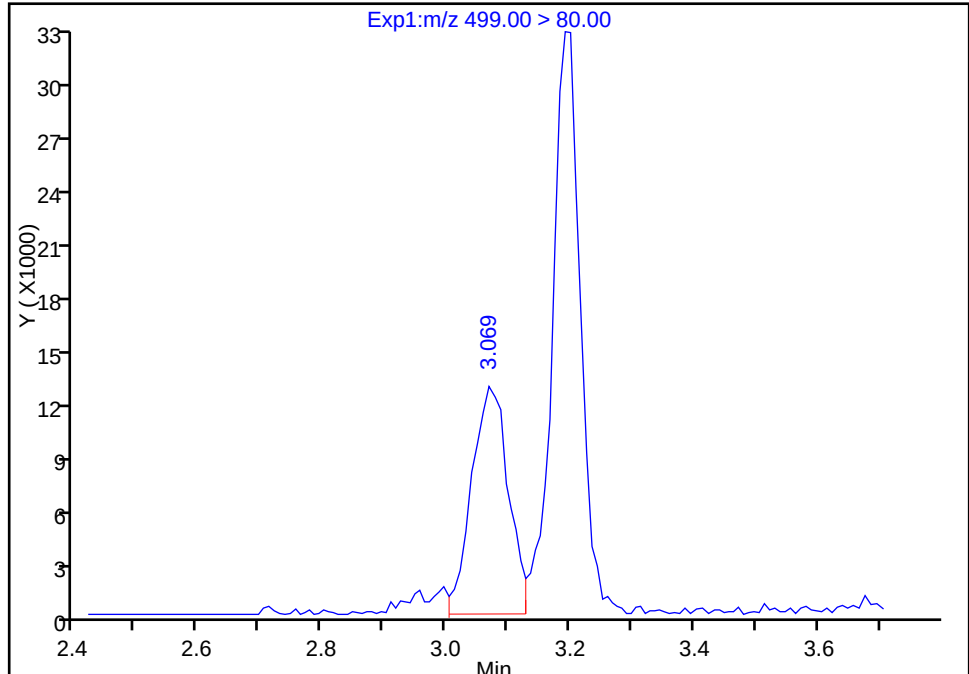
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
Injection Date: 11-Mar-2017 23:42:59 Instrument ID: A8_N
Lims ID: 320-26011-A-3-A Lab Sample ID: 320-26011-3
Client ID: MEAFF-FTA1-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. 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

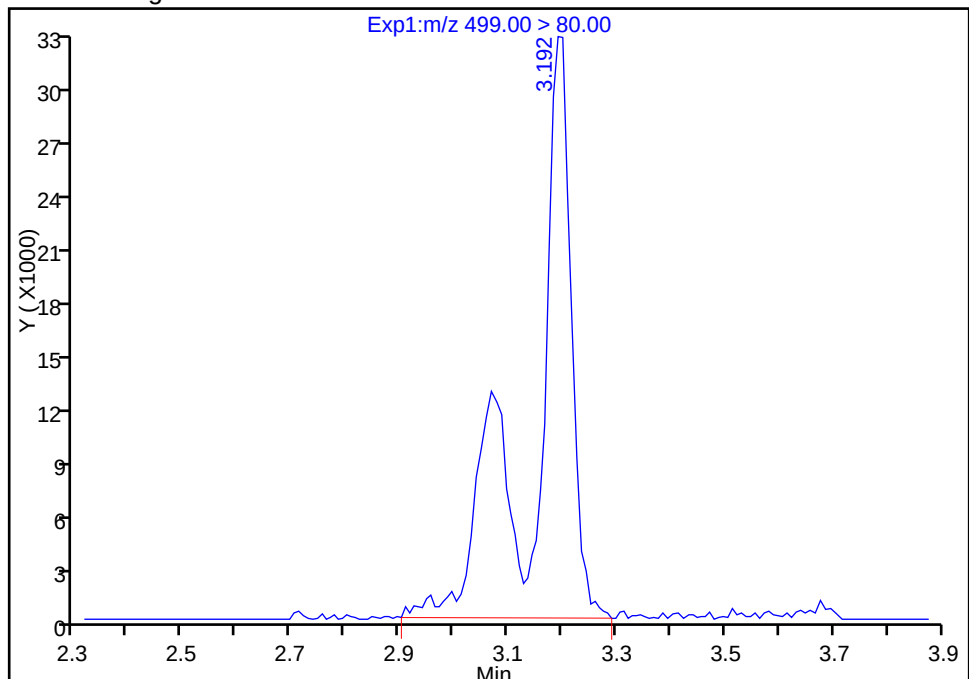
RT: 3.07
Area: 52374
Amount: 0.463634
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 159426
Amount: 1.411297
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

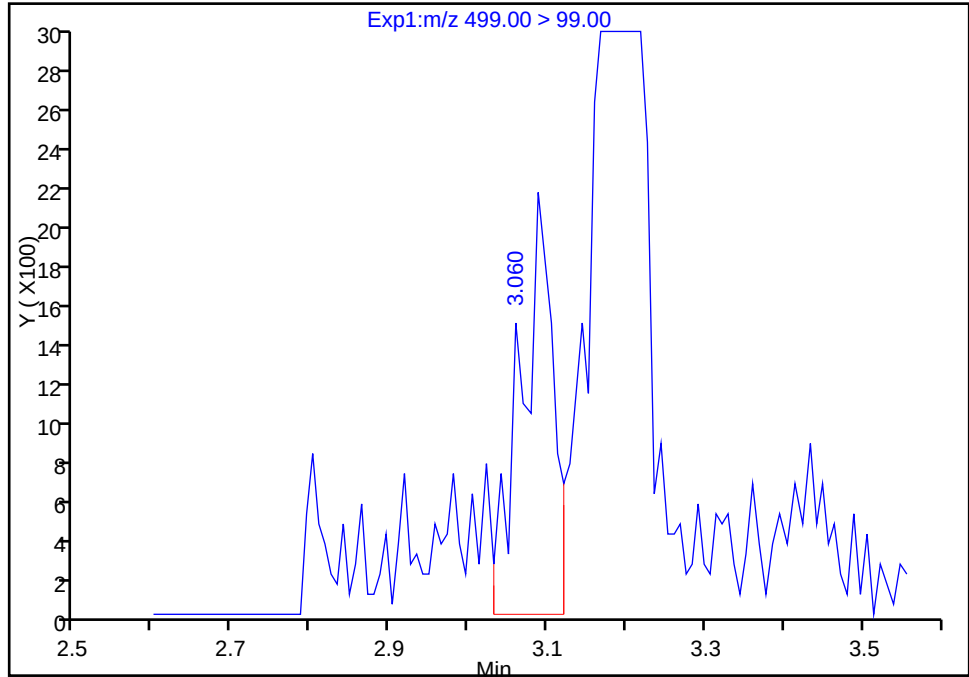
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
Injection Date: 11-Mar-2017 23:42:59 Instrument ID: A8_N
Lims ID: 320-26011-A-3-A Lab Sample ID: 320-26011-3
Client ID: MEAFF-FTA1-SB02-0204
Operator ID: A8-PCVA8 ALS Bottle#: 35 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. 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

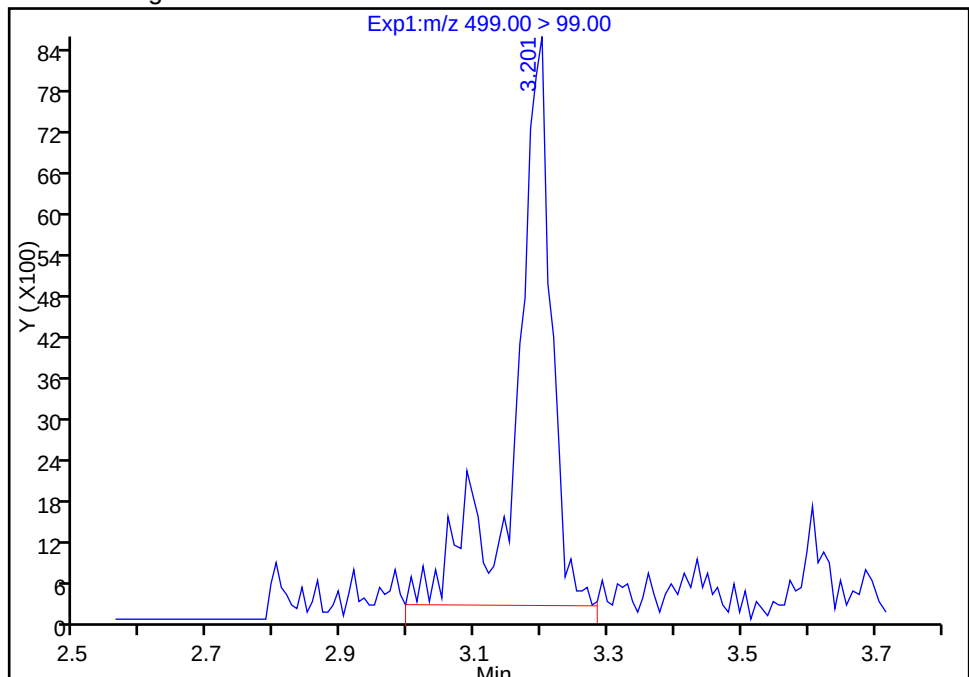
RT: 3.06
Area: 6047
Amount: 0.463634
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 30927
Amount: 1.411297
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

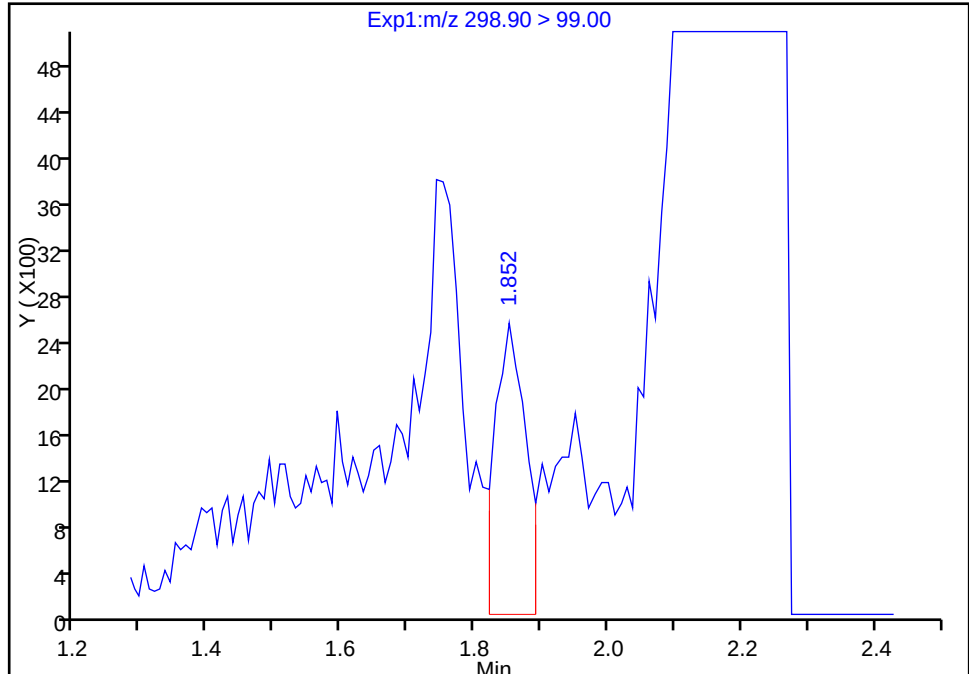
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_042.d
Injection Date: 11-Mar-2017 23:42:59 Instrument ID: A8_N
Lims ID: 320-26011-A-3-A Lab Sample ID: 320-26011-3
Client ID: MEAFF-FTA1-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

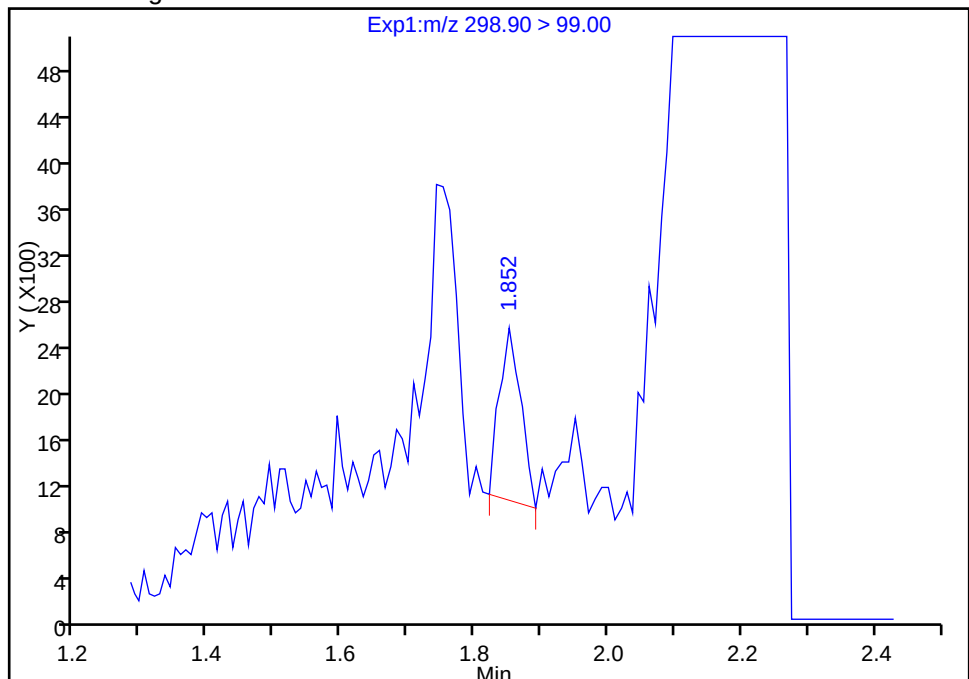
RT: 1.85
Area: 7630
Amount: 0.030576
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 3353
Amount: 0.030576
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:58:38

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4B-SB01-0001</u>	Lab Sample ID: <u>320-26011-4</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_043.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 12:47</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.00(g)</u>	Date Analyzed: <u>03/11/2017 23:50</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>19.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	M	0.62	0.37	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	M	0.62	0.37	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.50	0.37	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	62		25-150
STL00994	18O2 PFHxS	94		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
 Lims ID: 320-26011-A-4-A
 Client ID: MEAFF-SDA4B-SB01-0001
 Sample Type: Client
 Inject. Date: 11-Mar-2017 23:50:29 ALS Bottle#: 36 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-4-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:59:19 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 11:33:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.851	1.861	-0.010	1.000	44378	0.1128				M
298.90 > 99.00	1.851	1.861	-0.010	1.000	16136		2.75(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.468	-0.005		12984825	44.6		94.4	417785	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.798	2.818	-0.020	1.000	1261223	5.55			9747	M
413.00 > 169.00	2.798	2.818	-0.020	1.000	750934		1.68(0.90-1.10)		14400	M
D 14 13C4 PFOA										
417.00 > 372.00	2.798	2.826	-0.028		11117039	54.2		108	312624	
D 18 13C4 PFOS										
503.00 > 80.00	3.171	3.183	-0.012		7148202	29.6		61.9	159176	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.180	3.192	-0.012	1.000	15631907	106.3			287005	M
499.00 > 99.00	3.180	3.192	-0.012	1.000	3542576		4.41(0.90-1.10)		66740	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d

Injection Date: 11-Mar-2017 23:50:29

Instrument ID: A8_N

Lims ID: 320-26011-A-4-A

Lab Sample ID: 320-26011-4

Client ID: MEAFF-SDA4B-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 36

Worklist Smp#: 7

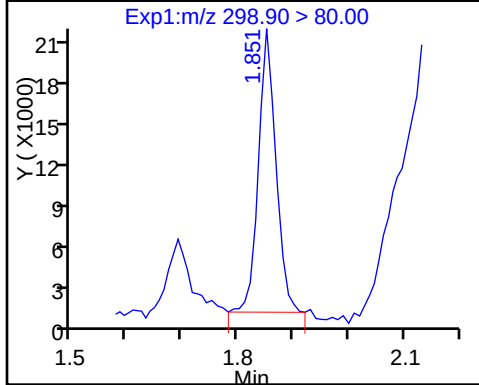
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

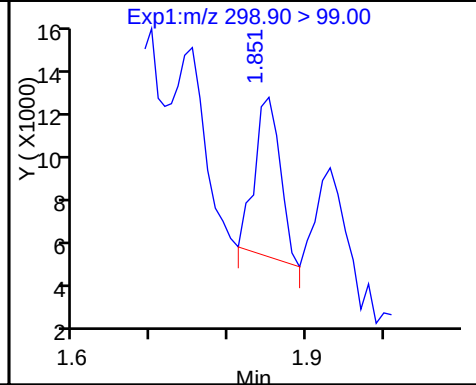
Method: A8_N

Limit Group: LC PFC_DOD ICAL

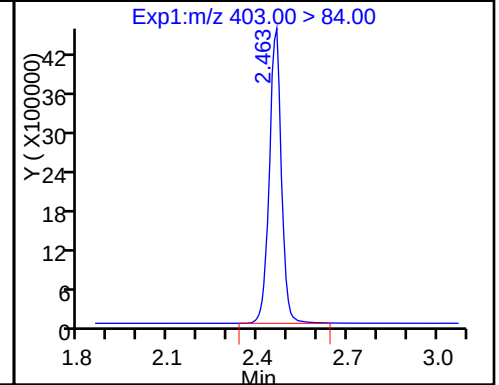
5 Perfluorobutanesulfonic acid (M)



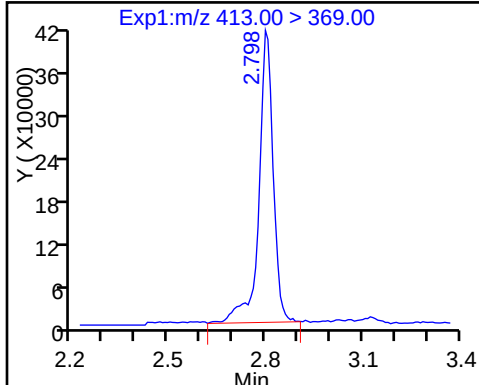
5 Perfluorobutanesulfonic acid (M)



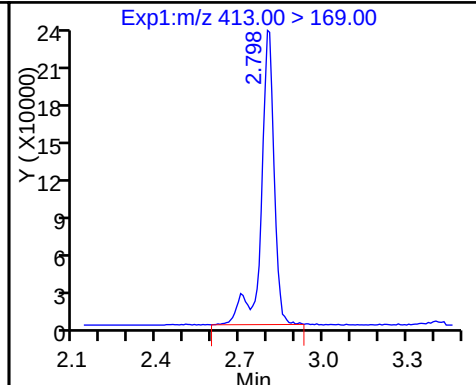
D 11 18O2 PFHxS



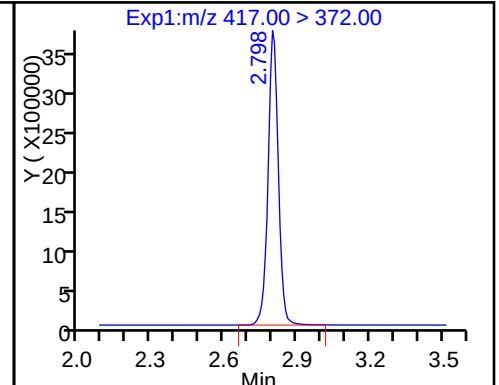
15 Perfluorooctanoic acid (M)



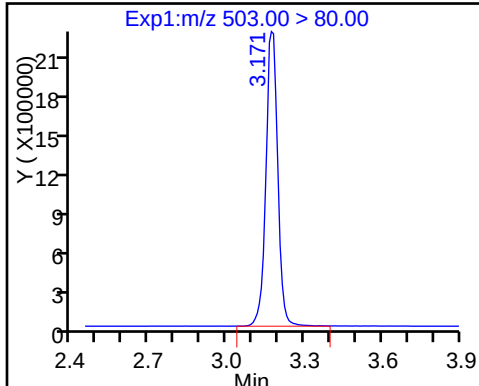
15 Perfluorooctanoic acid (M)



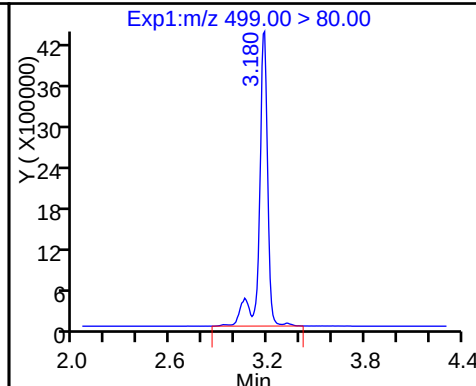
D 14 13C4 PFOA



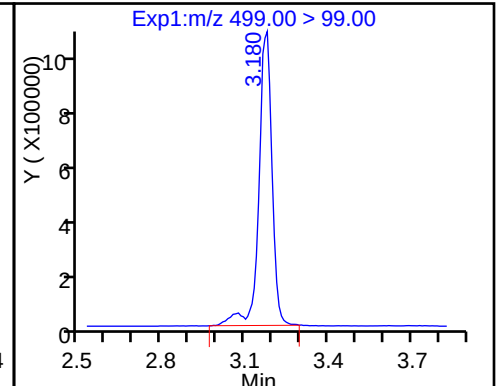
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

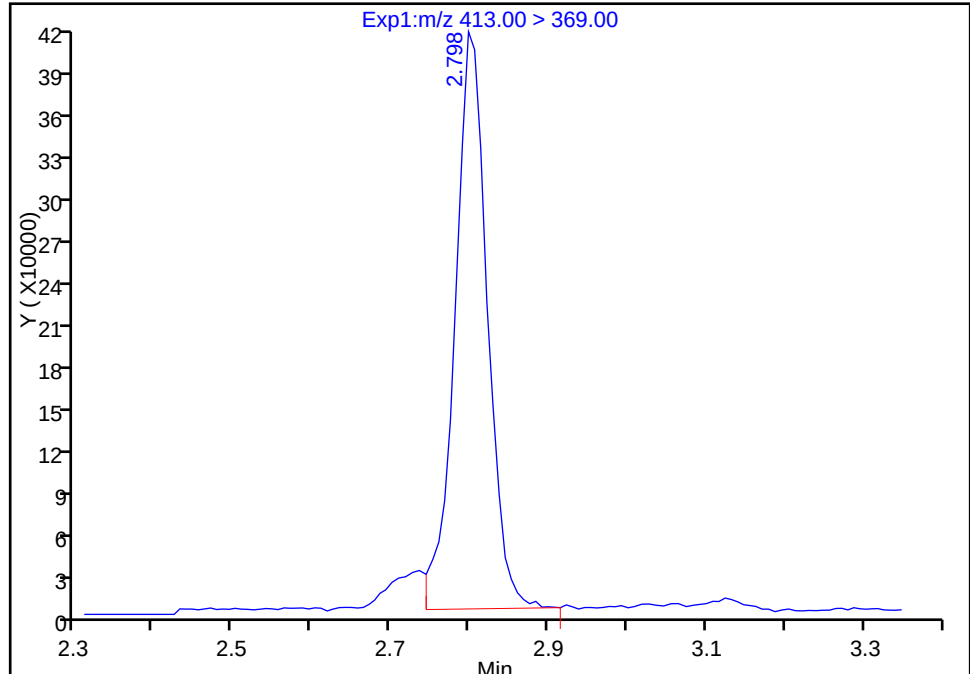
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

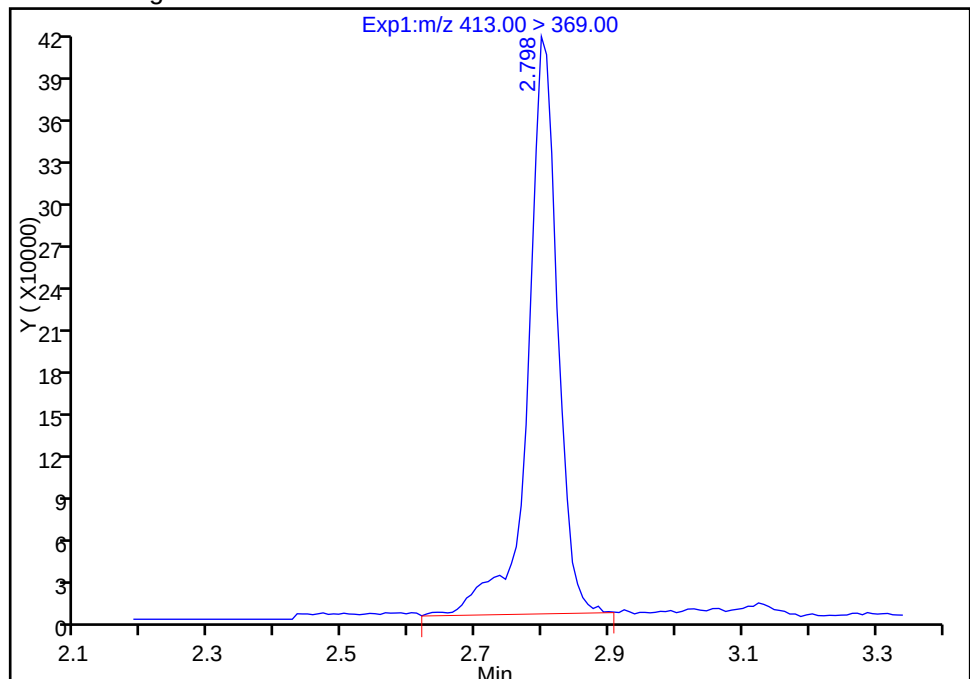
RT: 2.80
Area: 1169592
Amount: 5.148842
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 1261223
Amount: 5.552225
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:57

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

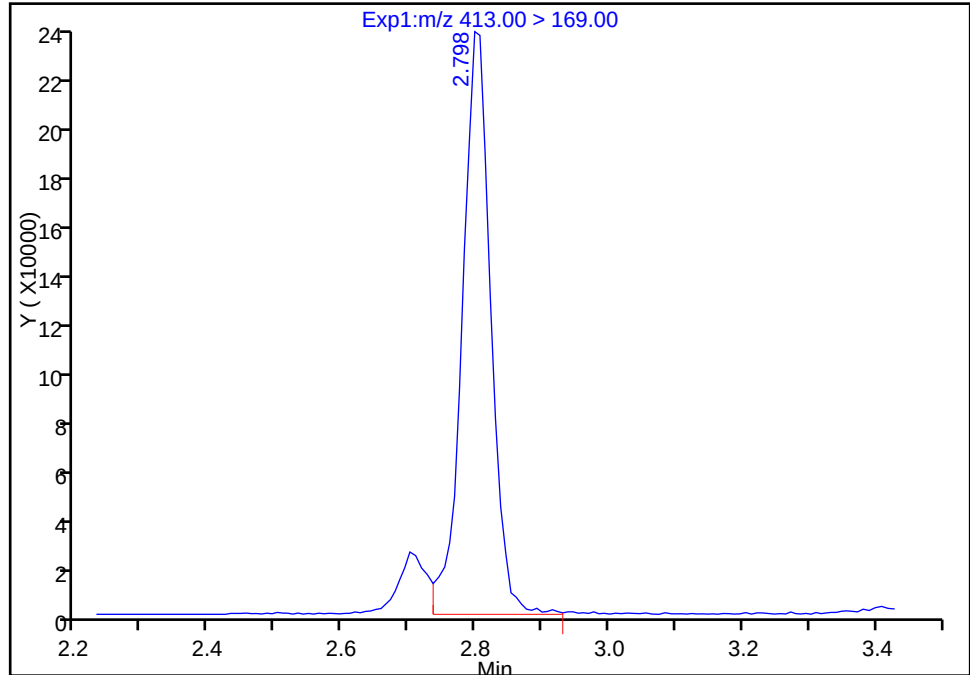
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

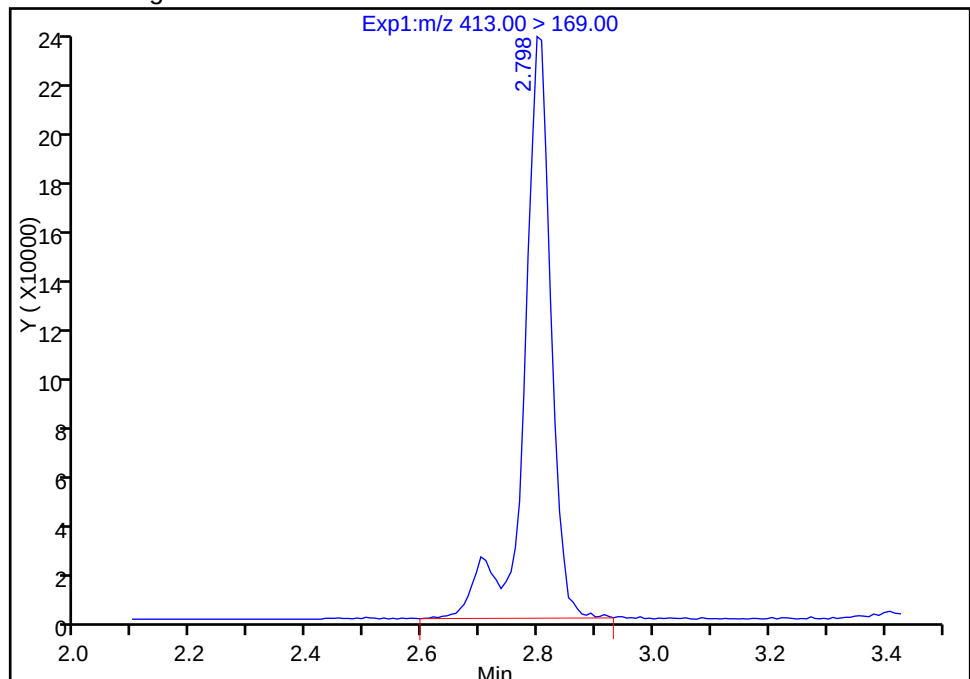
RT: 2.80
Area: 686335
Amount: 5.148842
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 750934
Amount: 5.552225
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:57

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

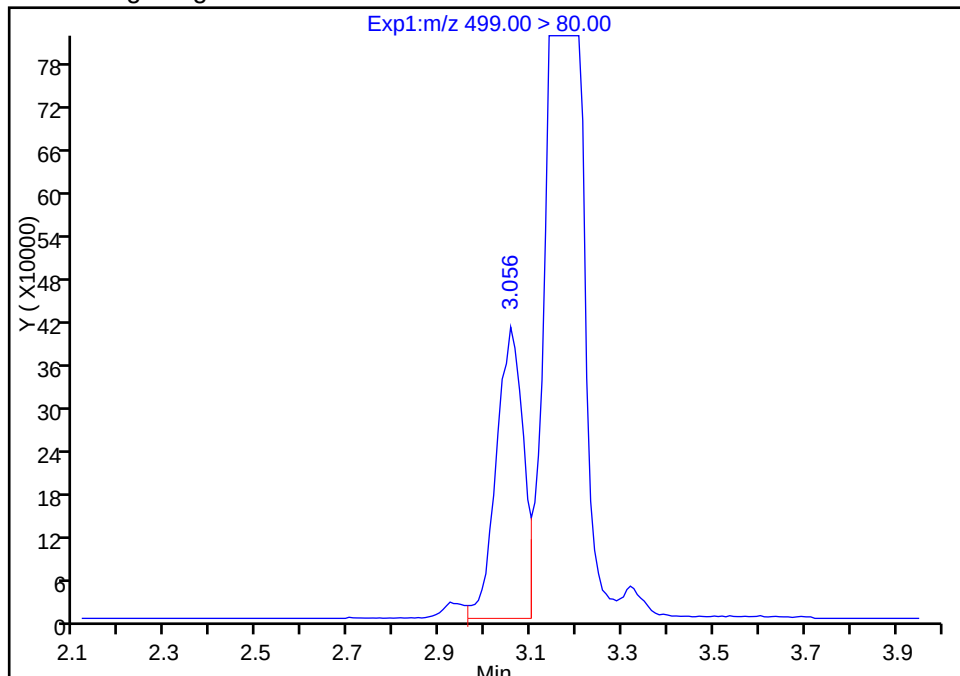
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

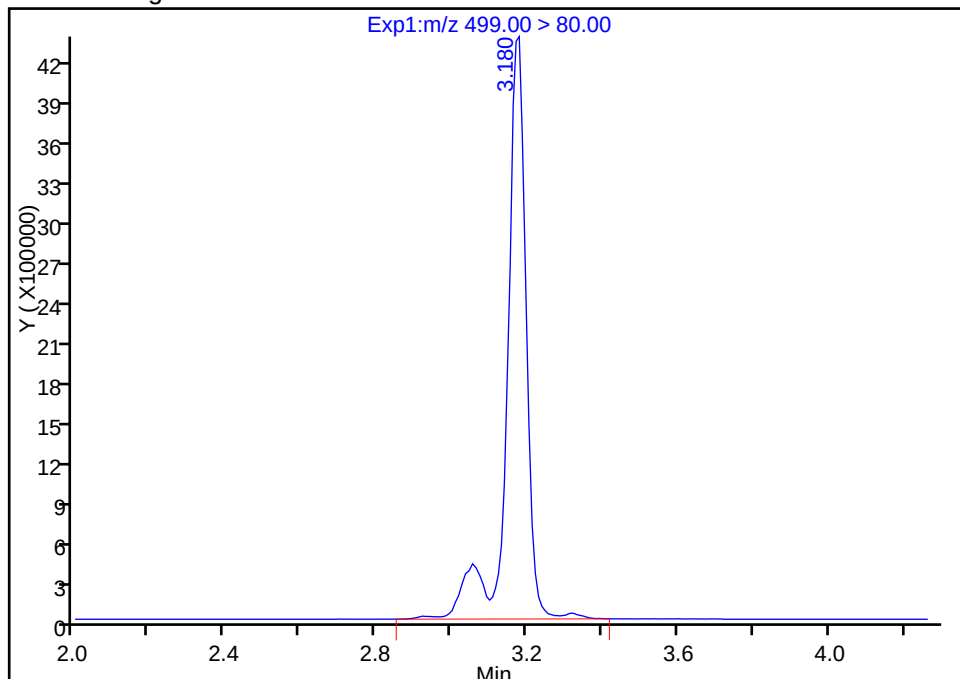
RT: 3.06
Area: 1667352
Amount: 11.336835
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 15631907
Amount: 106.2861
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:58:57

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

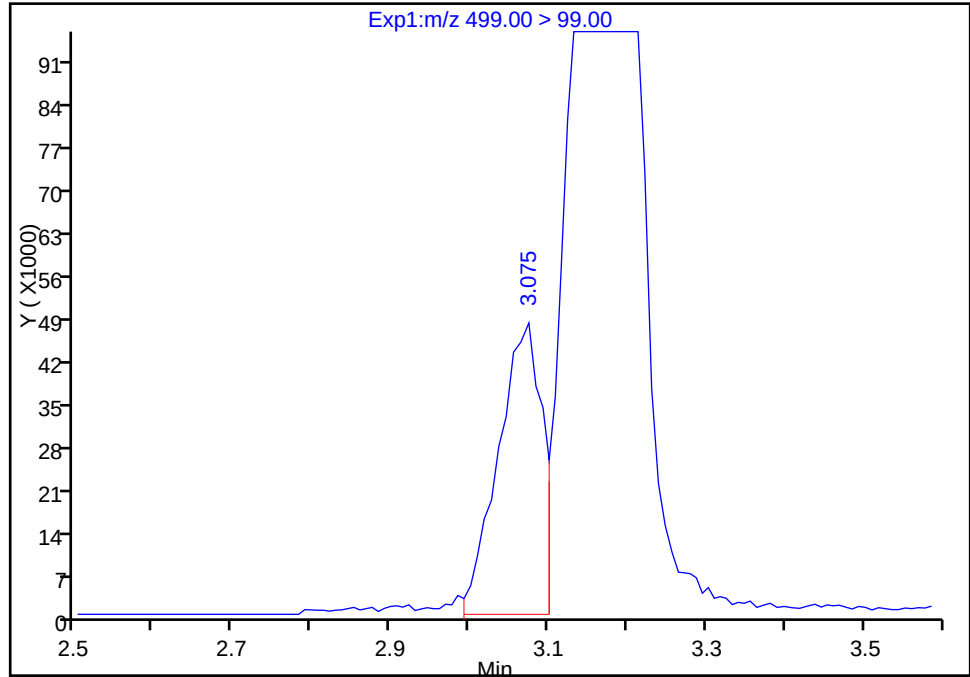
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

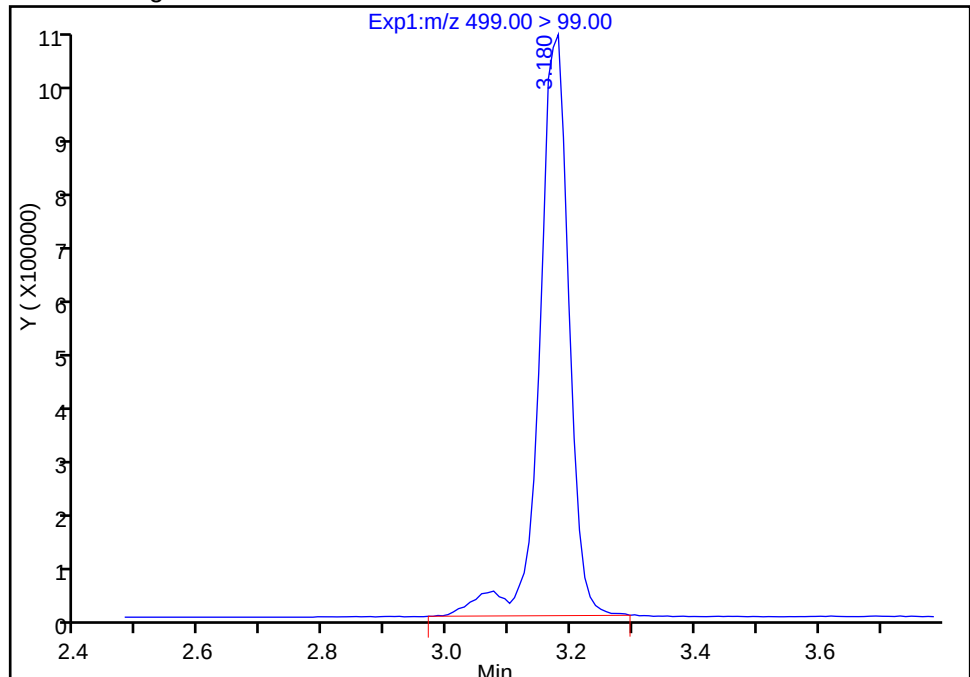
RT: 3.08
Area: 181568
Amount: 11.336835
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 3542576
Amount: 106.2861
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:58:57

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

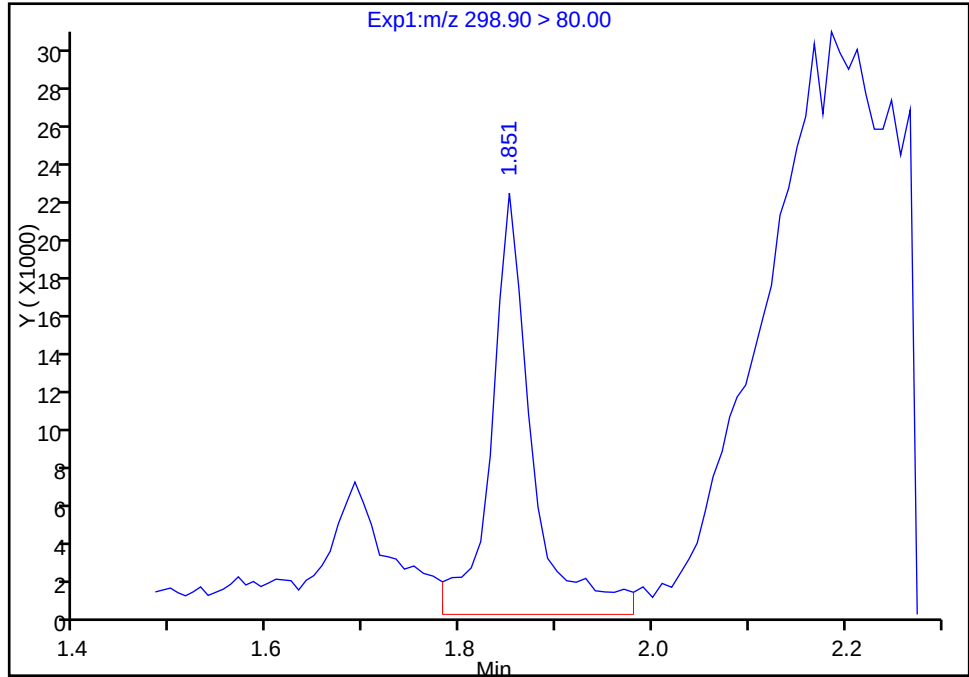
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

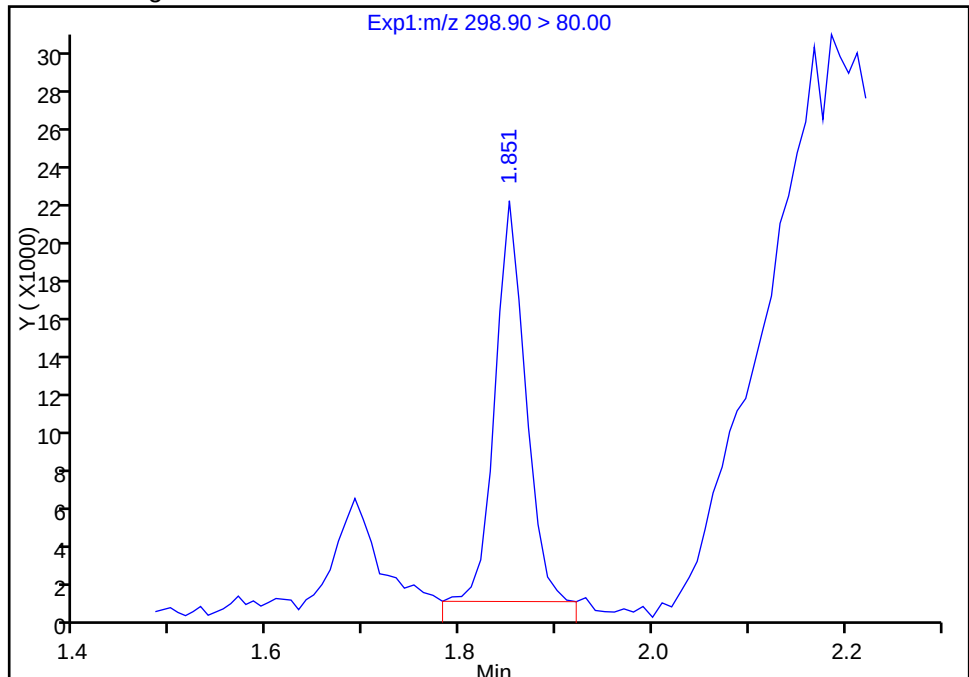
RT: 1.85
Area: 63216
Amount: 0.160752
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 44378
Amount: 0.112849
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:09

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

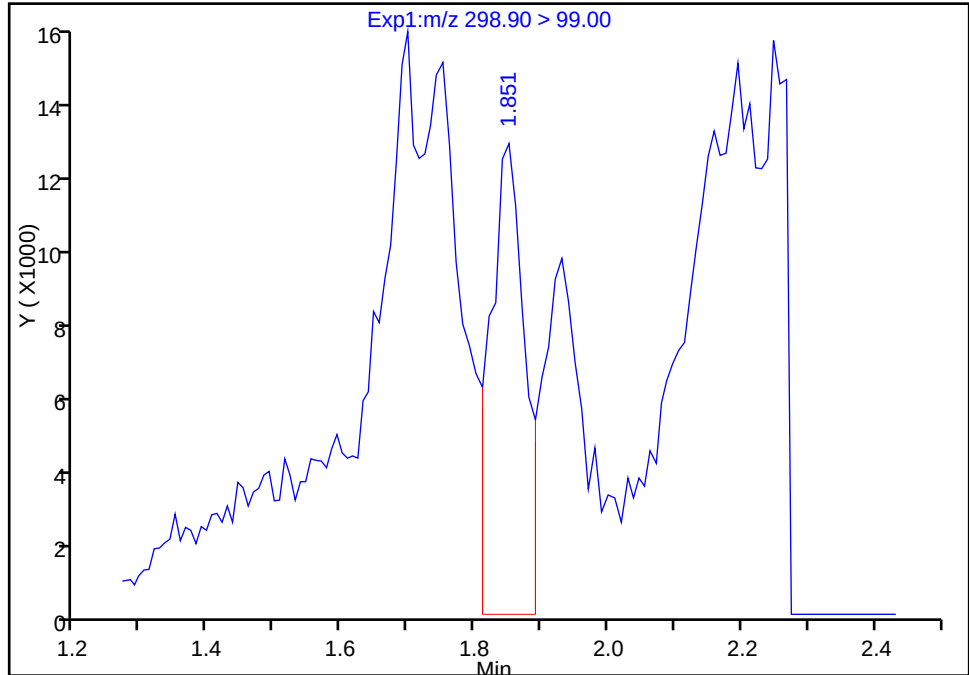
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_043.d
Injection Date: 11-Mar-2017 23:50:29 Instrument ID: A8_N
Lims ID: 320-26011-A-4-A Lab Sample ID: 320-26011-4
Client ID: MEAFF-SDA4B-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 36 Worklist Smp#: 7
Injection Vol: 2.0 ul 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

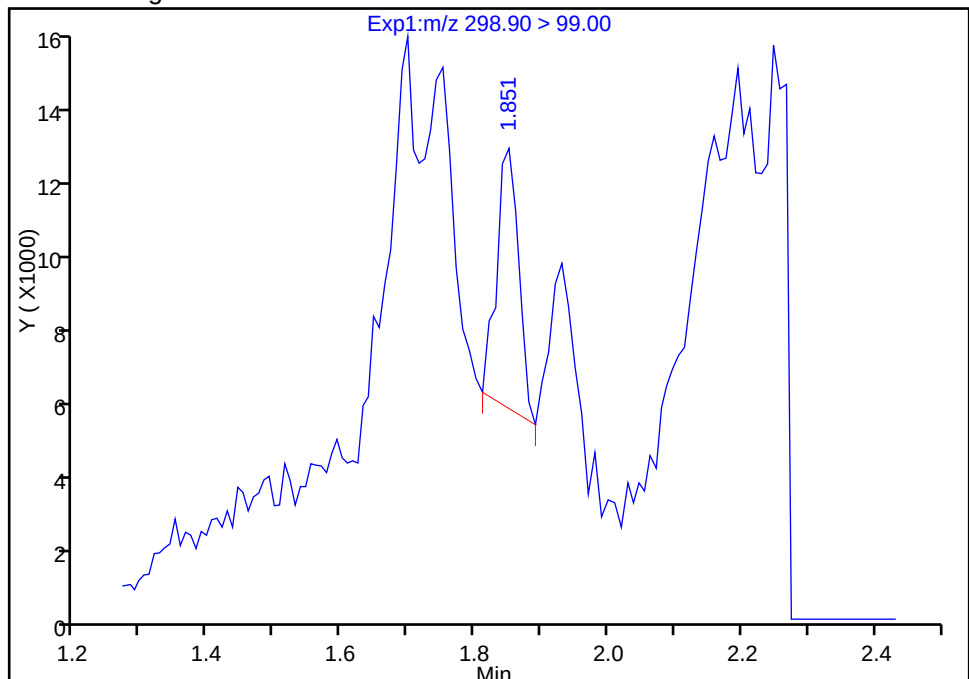
RT: 1.85
Area: 43545
Amount: 0.160752
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 16136
Amount: 0.112849
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:11

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FD02-022217</u>	Lab Sample ID: <u>320-26011-5</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_044.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 00:00</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.02(g)</u>	Date Analyzed: <u>03/11/2017 23:57</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>17.0</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.0	M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	71		25-150
STL00994	18O2 PFHxS	93		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
 Lims ID: 320-26011-A-5-A
 Client ID: MEAFF-FD02-022217
 Sample Type: Client
 Inject. Date: 11-Mar-2017 23:57:58 ALS Bottle#: 37 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-5-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:59:37 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 11:35:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.861	1.861	0.0	1.000	163272	0.4204				
298.90 > 99.00	1.861	1.861	0.0	1.000	63783		2.56(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.475	2.468	0.007		12824087	44.1		93.2	406021	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.825	2.818	0.007	1.000	3999460	16.8			32519	M
413.00 > 169.00	2.825	2.818	0.007	1.000	2439702		1.64(0.90-1.10)		64396	M
D 14 13C4 PFOA										
417.00 > 372.00	2.825	2.826	-0.001		11624059	56.7		113	339855	
D 18 13C4 PFOS										
503.00 > 80.00	3.201	3.183	0.018		8149346	33.7		70.6	233829	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.201	3.192	0.009	1.000	15915790	94.9			348160	M
499.00 > 99.00	3.201	3.192	0.009	1.000	3589888		4.43(0.90-1.10)		151684	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d

Injection Date: 11-Mar-2017 23:57:58

Instrument ID: A8_N

Lims ID: 320-26011-A-5-A

Lab Sample ID: 320-26011-5

Client ID: MEAFF-FD02-022217

Operator ID: A8-PC\A8

ALS Bottle#: 37

Worklist Smp#: 8

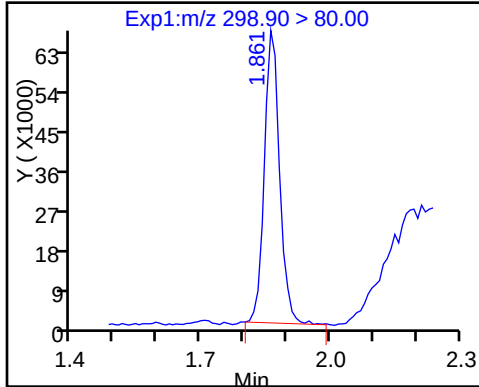
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

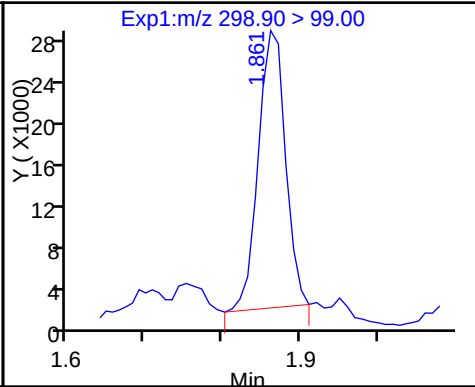
Method: A8_N

Limit Group: LC PFC_DOD ICAL

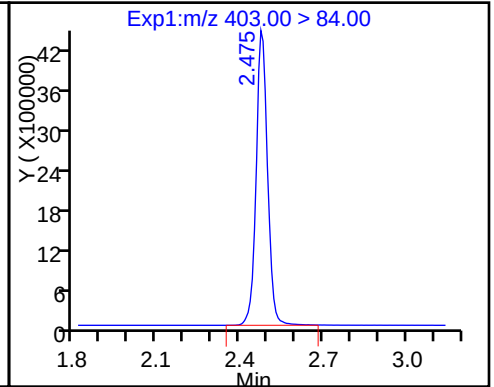
5 Perfluorobutanesulfonic acid



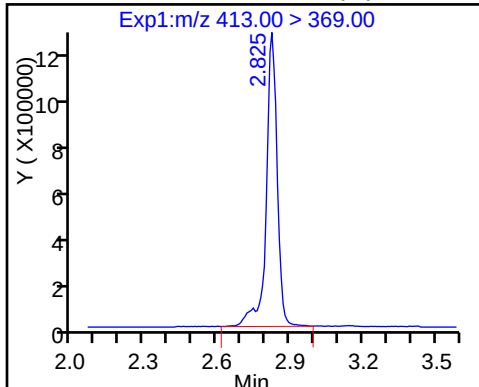
5 Perfluorobutanesulfonic acid (M)



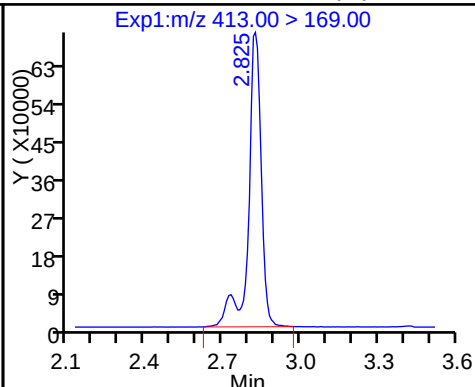
D 11 18O2 PFHxS



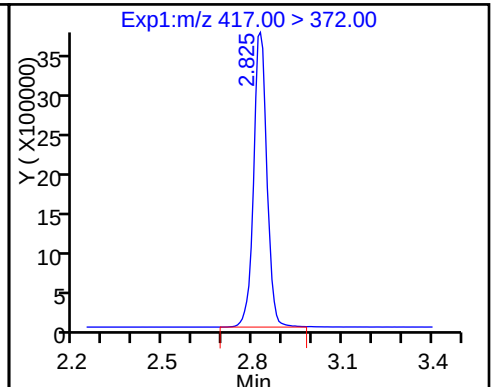
15 Perfluorooctanoic acid (M)



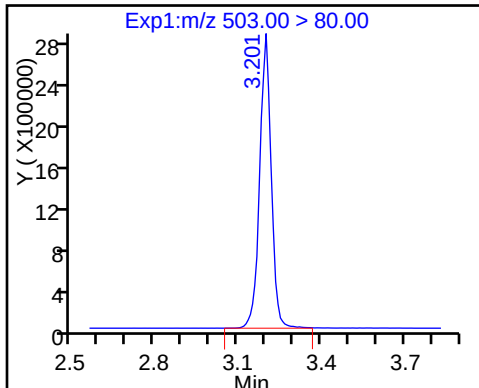
15 Perfluorooctanoic acid (M)



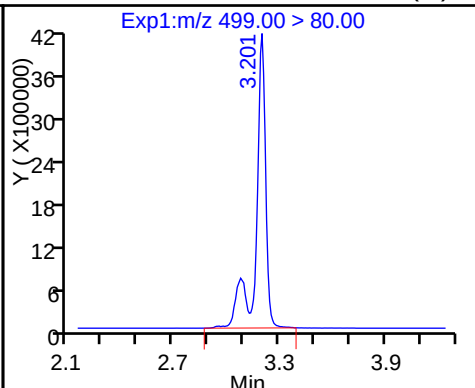
D 14 13C4 PFOA



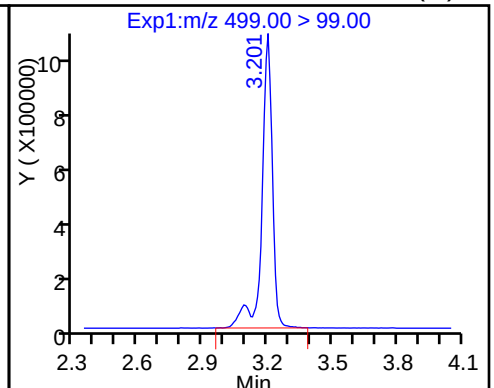
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



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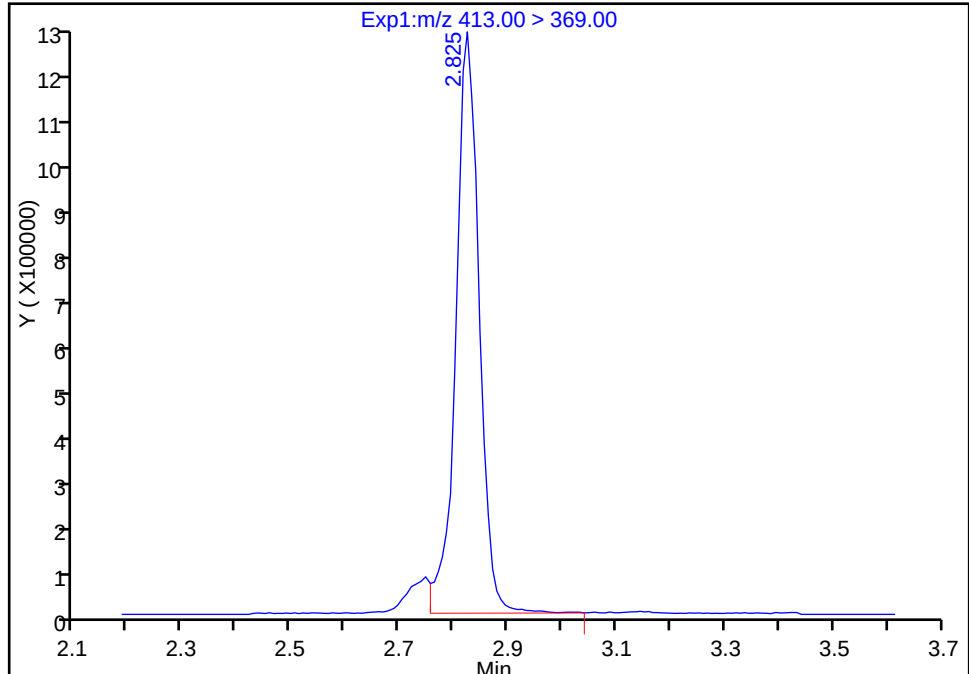
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
Injection Date: 11-Mar-2017 23:57:58 Instrument ID: A8_N
Lims ID: 320-26011-A-5-A Lab Sample ID: 320-26011-5
Client ID: MEAFF-FD02-022217
Operator ID: A8-PC\A8 ALS Bottle#: 37 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

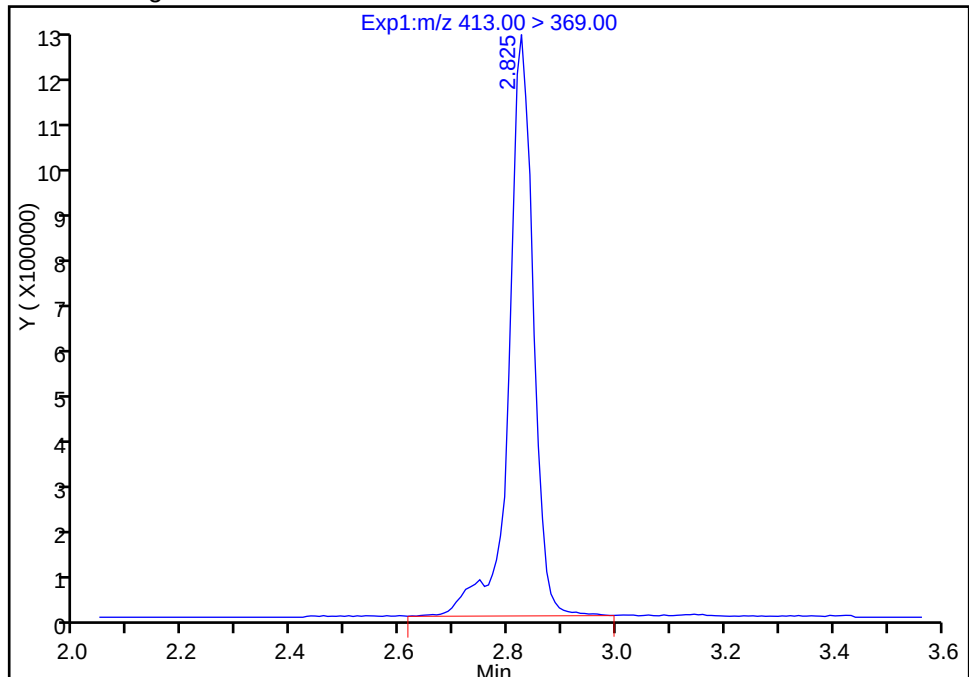
RT: 2.82
Area: 3788887
Amount: 15.952110
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 3999460
Amount: 16.838672
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:20

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

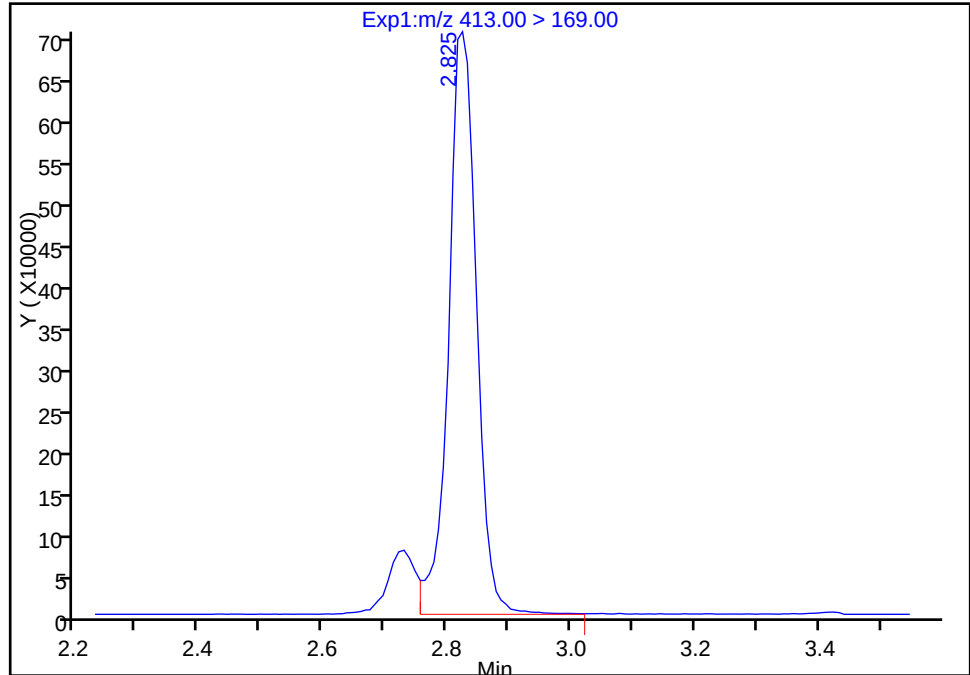
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
Injection Date: 11-Mar-2017 23:57:58 Instrument ID: A8_N
Lims ID: 320-26011-A-5-A Lab Sample ID: 320-26011-5
Client ID: MEAFF-FD02-022217
Operator ID: A8-PCVA8 ALS Bottle#: 37 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

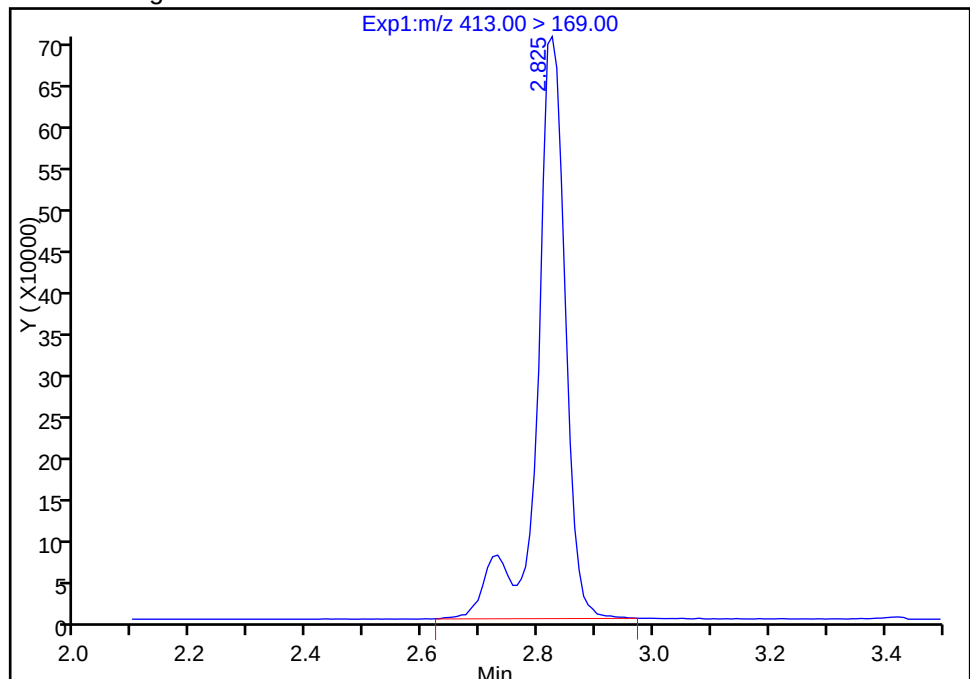
RT: 2.82
Area: 2217188
Amount: 15.952110
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 2439702
Amount: 16.838672
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:20

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

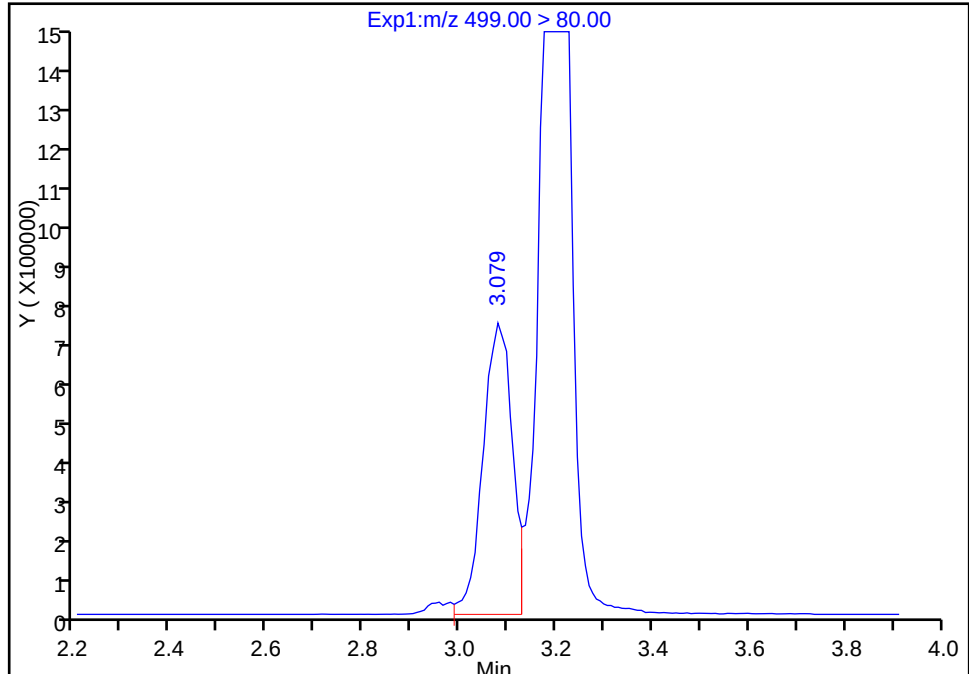
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
Injection Date: 11-Mar-2017 23:57:58 Instrument ID: A8_N
Lims ID: 320-26011-A-5-A Lab Sample ID: 320-26011-5
Client ID: MEAFF-FD02-022217
Operator ID: A8-PC\A8 ALS Bottle#: 37 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. 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

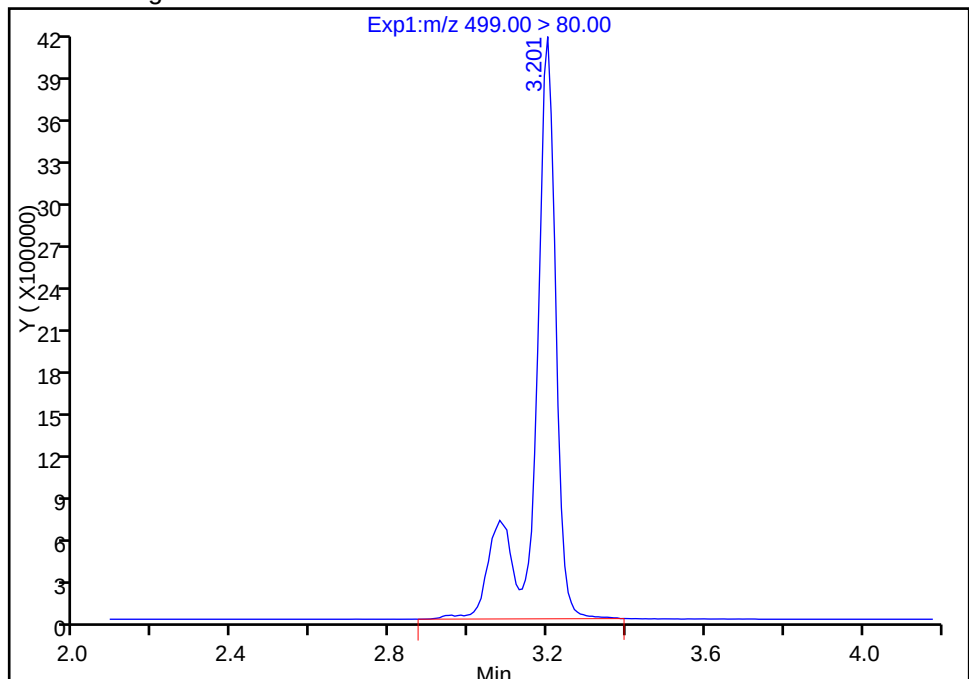
RT: 3.08
Area: 2959271
Amount: 17.649131
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 15915790
Amount: 94.921981
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:20

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

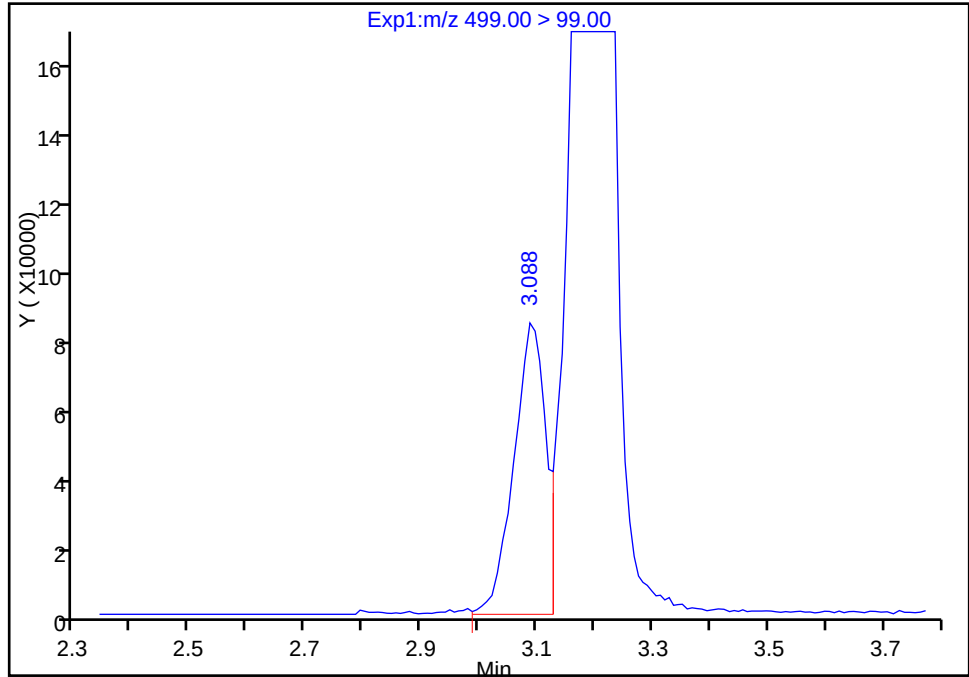
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
Injection Date: 11-Mar-2017 23:57:58 Instrument ID: A8_N
Lims ID: 320-26011-A-5-A Lab Sample ID: 320-26011-5
Client ID: MEAFF-FD02-022217
Operator ID: A8-PCVA8 ALS Bottle#: 37 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. 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

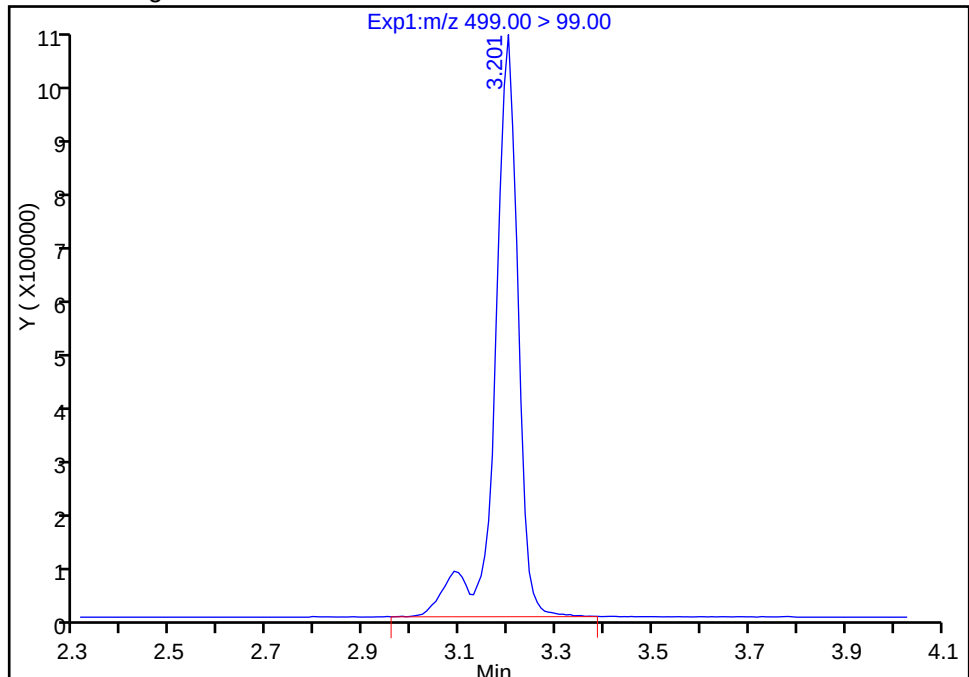
RT: 3.09
Area: 317929
Amount: 17.649131
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 3589888
Amount: 94.921981
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:20

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

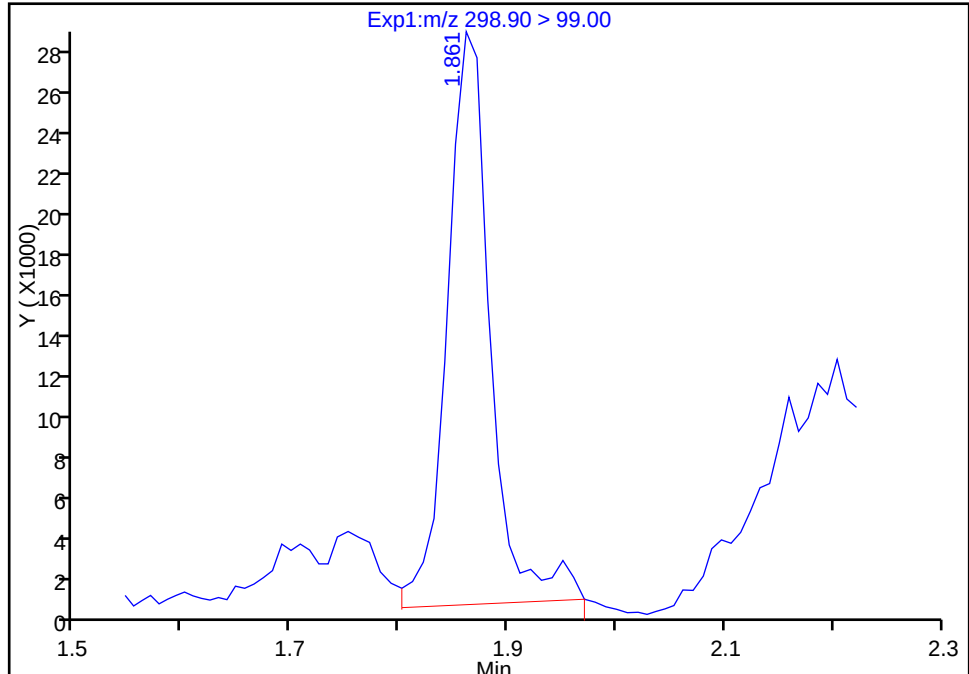
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_044.d
Injection Date: 11-Mar-2017 23:57:58 Instrument ID: A8_N
Lims ID: 320-26011-A-5-A Lab Sample ID: 320-26011-5
Client ID: MEAFF-FD02-022217
Operator ID: A8-PC\A8 ALS Bottle#: 37 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

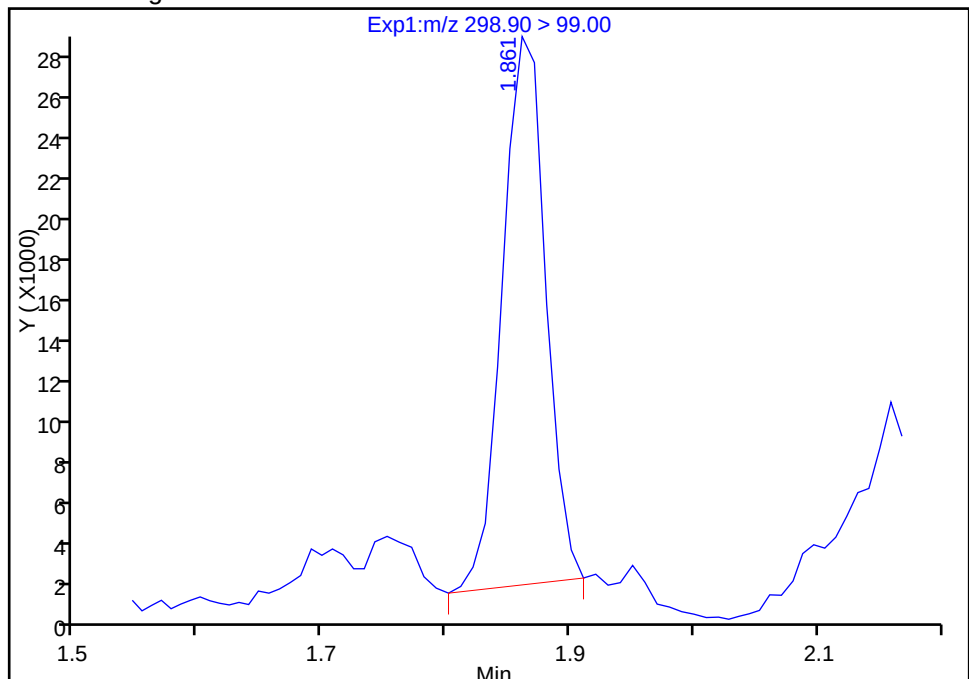
RT: 1.86
Area: 75716
Amount: 0.420388
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 63783
Amount: 0.420388
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:32

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4B-SB01-0204</u>	Lab Sample ID: <u>320-26011-6</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_045.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 12:54</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.94(g)</u>	Date Analyzed: <u>03/12/2017 00:05</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>21.5</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	3.2	M	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.3	M	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.39	U M	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	105		25-150
STL00991	13C4 PFOS	39		25-150
STL00994	18O2 PFHxS	98		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
 Lims ID: 320-26011-A-6-A
 Client ID: MEAFF-SDA4B-SB01-0204
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:05:29 ALS Bottle#: 38 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-6-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:59:54 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 11:37:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.861	1.861	0.0	1.000	48401	0.1182				
298.90 > 99.00	1.861	1.861	0.0	1.000	18109		2.67(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.483	2.468	0.015		13526283	46.5		98.3	581347	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.826	2.818	0.008	1.000	2723524	12.4			28376	M
413.00 > 169.00	2.826	2.818	0.008	1.000	1588356		1.71(0.90-1.10)		49927	M
D 14 13C4 PFOA										
417.00 > 372.00	2.826	2.826	0.0		10709170	52.3		105	416091	
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.183	0.010		4526917	18.7		39.2	170548	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.192	0.001	1.000	2287688	24.6			85255	M
499.00 > 99.00	3.193	3.192	0.001	1.000	448463		5.10(0.90-1.10)		11726	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d

Injection Date: 12-Mar-2017 00:05:29

Instrument ID: A8_N

Lims ID: 320-26011-A-6-A

Lab Sample ID: 320-26011-6

Client ID: MEAFF-SDA4B-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 38

Worklist Smp#: 9

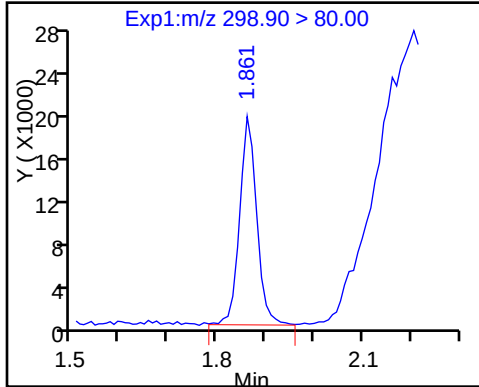
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

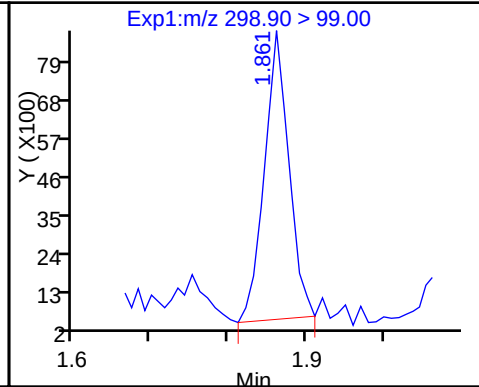
Method: A8_N

Limit Group: LC PFC_DOD ICAL

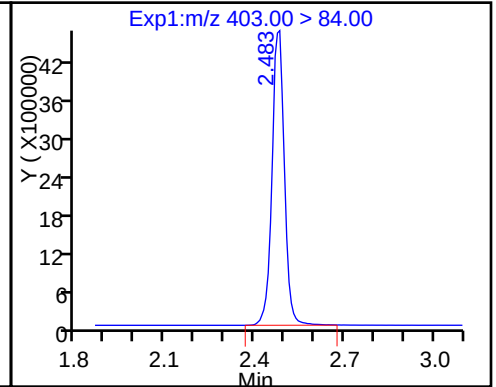
5 Perfluorobutanesulfonic acid



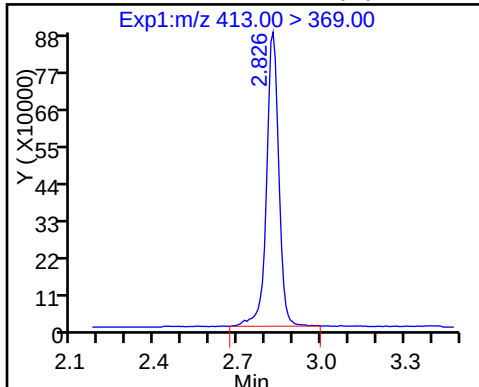
5 Perfluorobutanesulfonic acid (M)



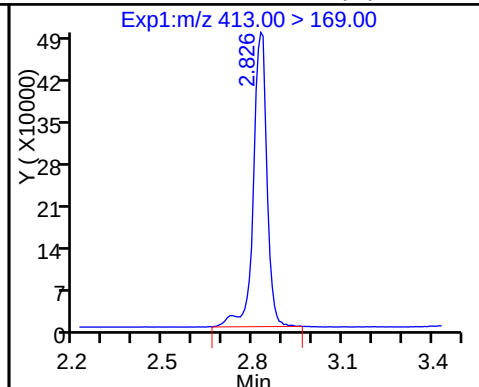
D 11 18O2 PFHxS



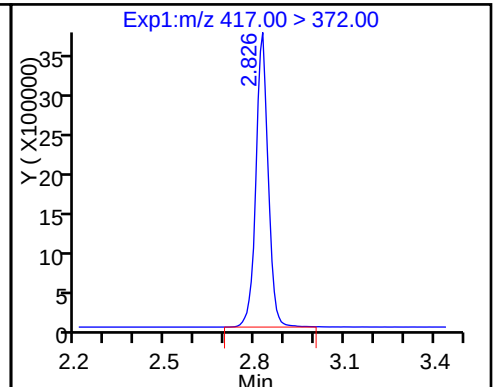
15 Perfluorooctanoic acid (M)



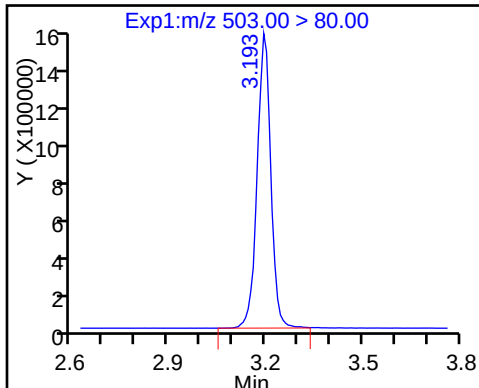
15 Perfluorooctanoic acid (M)



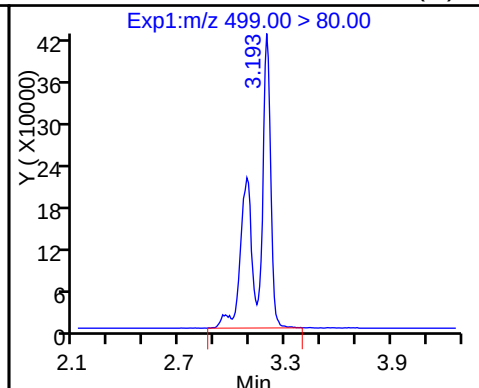
D 14 13C4 PFOA



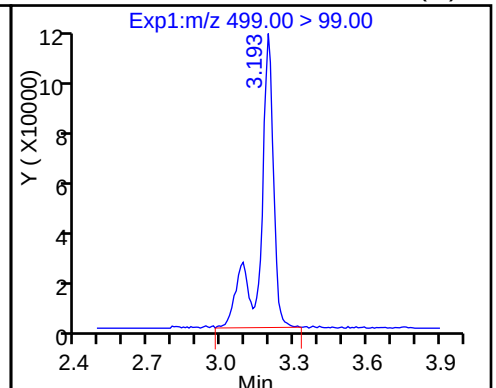
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

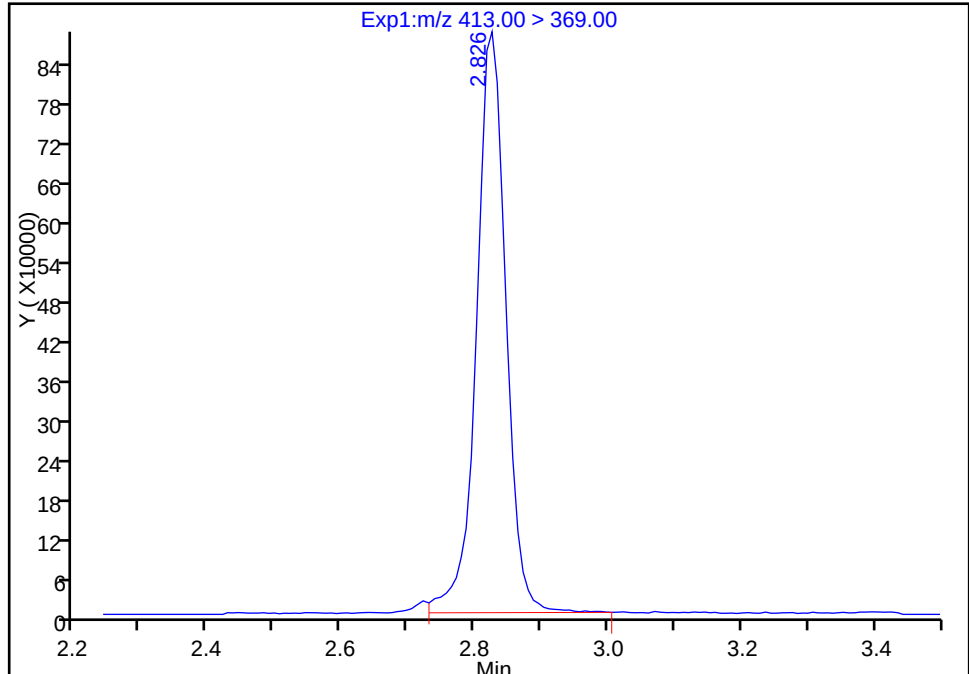
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
Injection Date: 12-Mar-2017 00:05:29 Instrument ID: A8_N
Lims ID: 320-26011-A-6-A Lab Sample ID: 320-26011-6
Client ID: MEAFF-SDA4B-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

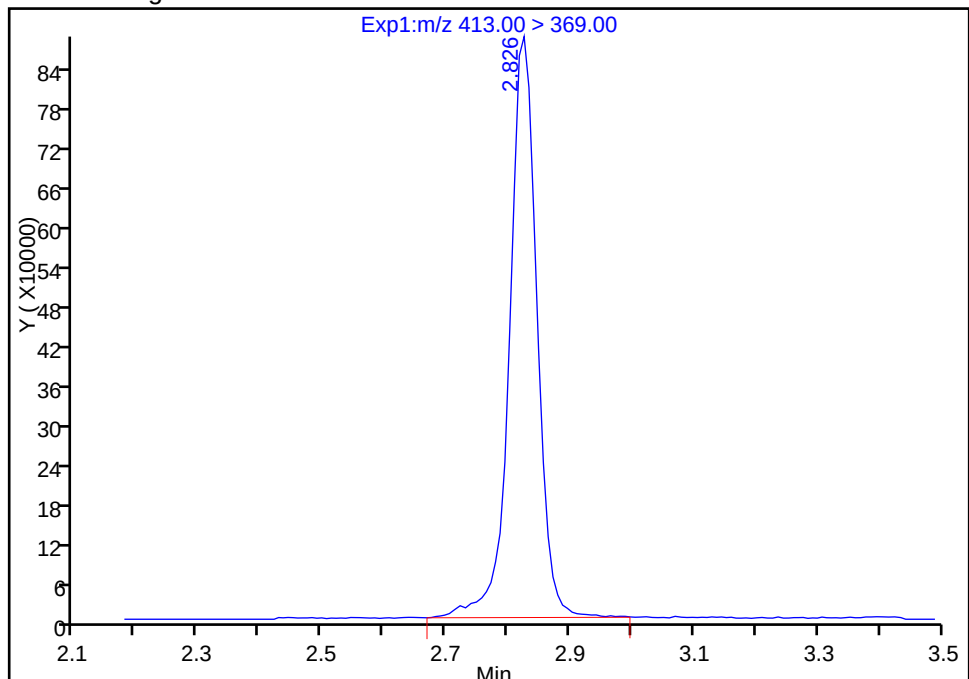
RT: 2.83
Area: 2696528
Amount: 12.322914
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 2723524
Amount: 12.446283
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

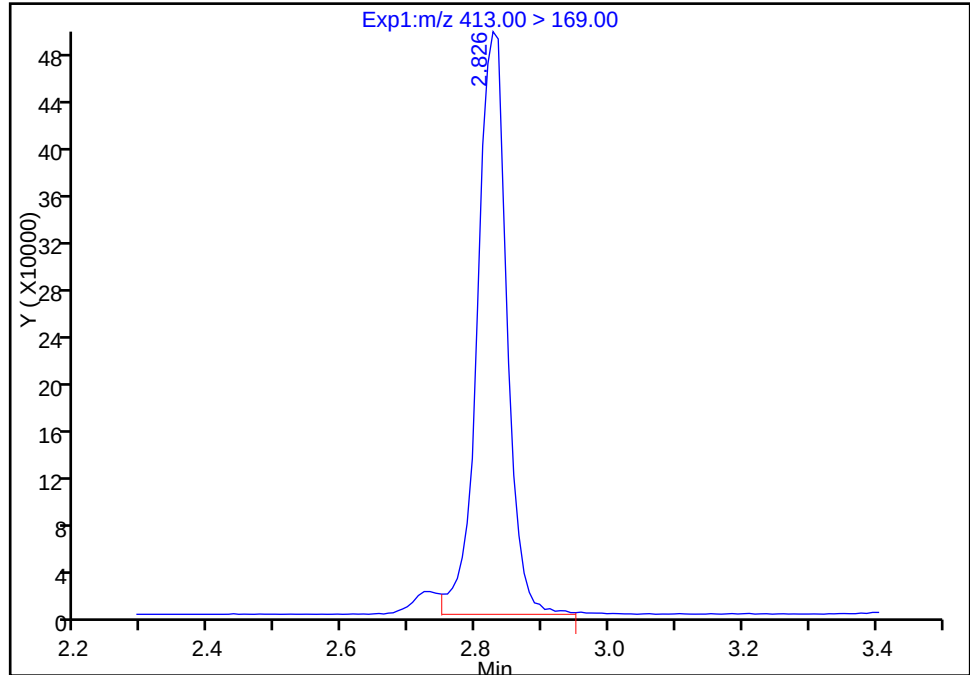
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
Injection Date: 12-Mar-2017 00:05:29 Instrument ID: A8_N
Lims ID: 320-26011-A-6-A Lab Sample ID: 320-26011-6
Client ID: MEAFF-SDA4B-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 38 Worklist Smp#: 9
Injection Vol: 2.0 ul 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

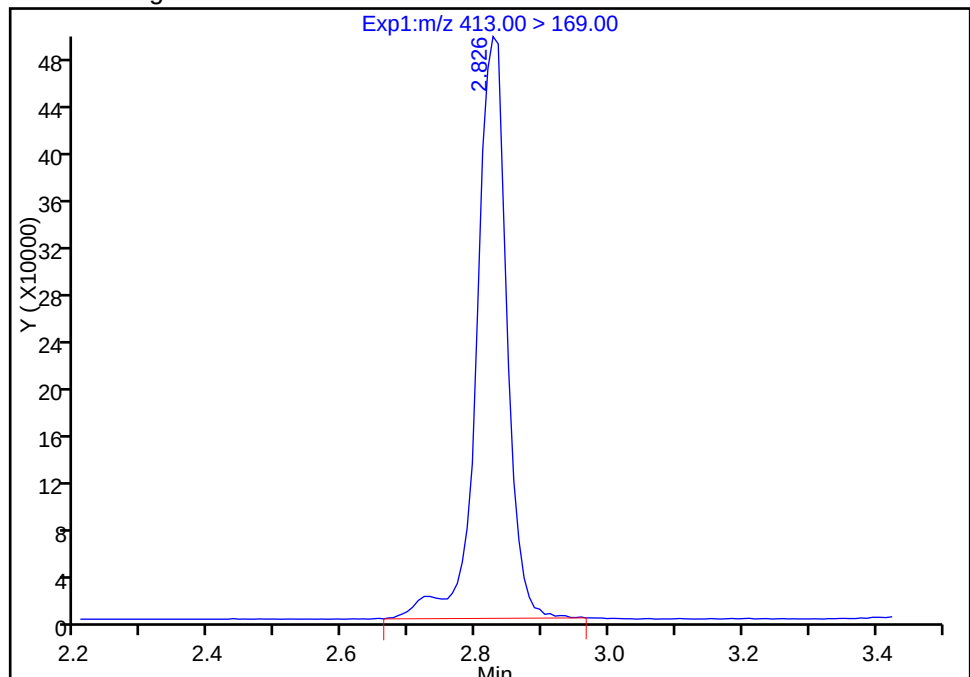
RT: 2.83
Area: 1544092
Amount: 12.322914
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 1588356
Amount: 12.446283
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

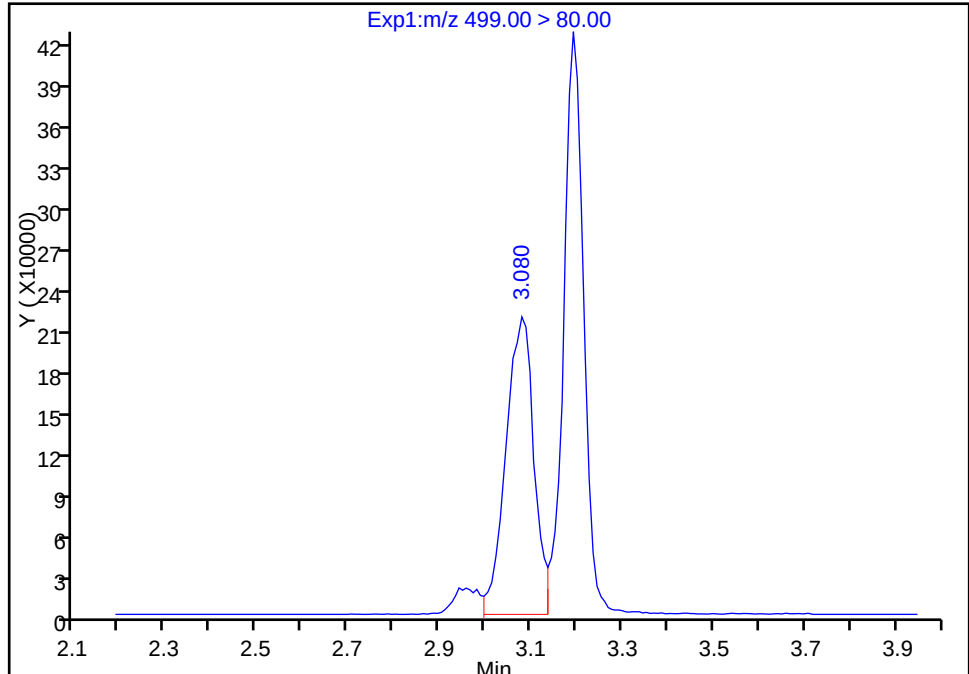
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
Injection Date: 12-Mar-2017 00:05:29 Instrument ID: A8_N
Lims ID: 320-26011-A-6-A Lab Sample ID: 320-26011-6
Client ID: MEAFF-SDA4B-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 9
Injection Vol: 2.0 ul 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

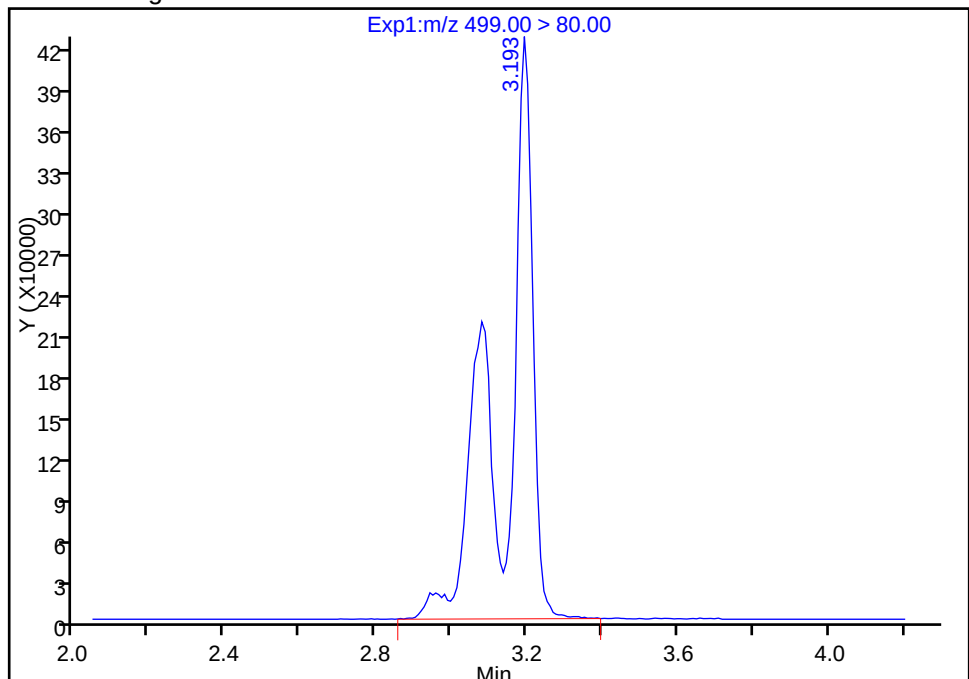
RT: 3.08
Area: 924482
Amount: 9.925612
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2287688
Amount: 24.561541
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

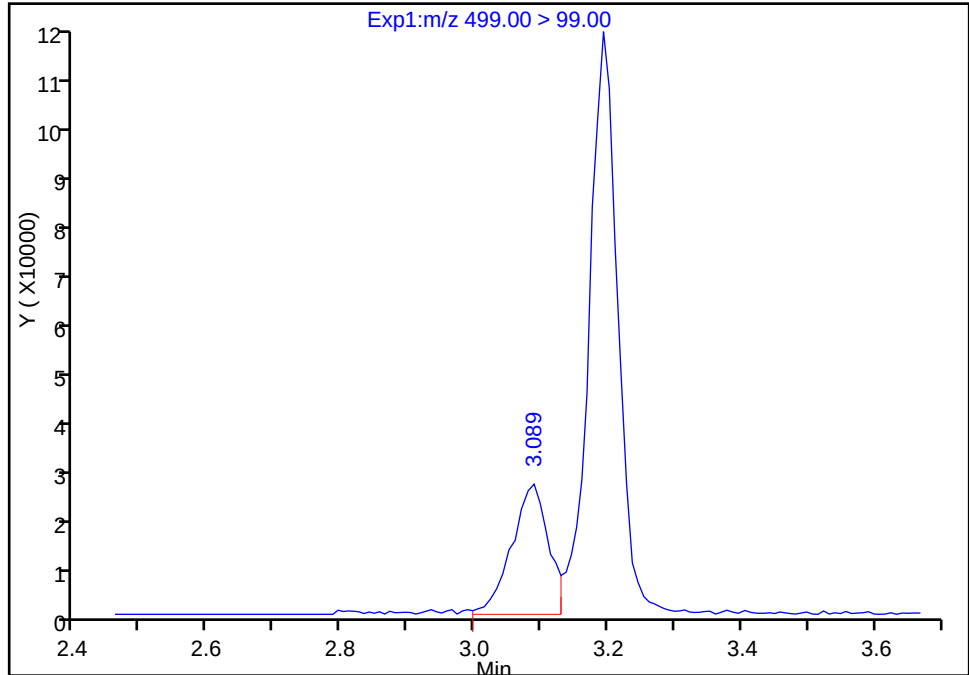
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
Injection Date: 12-Mar-2017 00:05:29 Instrument ID: A8_N
Lims ID: 320-26011-A-6-A Lab Sample ID: 320-26011-6
Client ID: MEAFF-SDA4B-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 38 Worklist Smp#: 9
Injection Vol: 2.0 ul 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

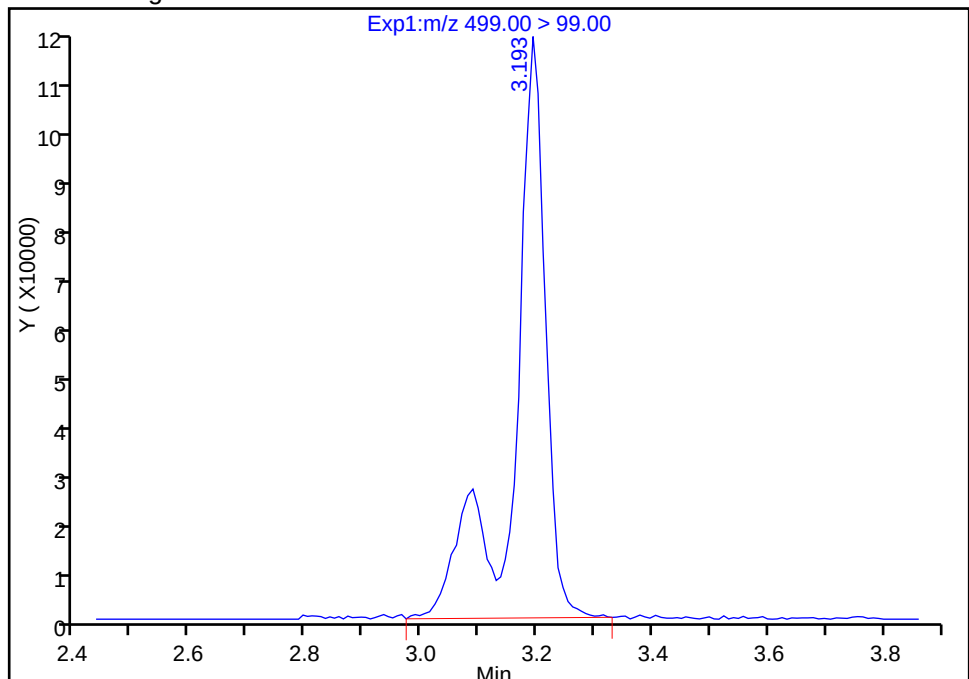
RT: 3.09
Area: 99079
Amount: 9.925612
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 448463
Amount: 24.561541
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

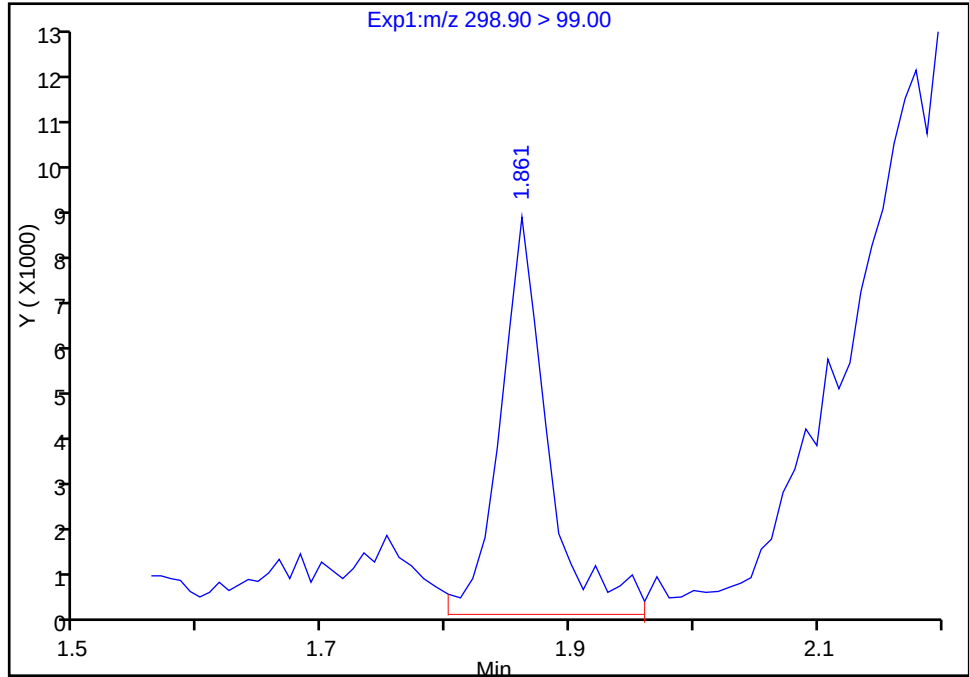
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_045.d
Injection Date: 12-Mar-2017 00:05:29 Instrument ID: A8_N
Lims ID: 320-26011-A-6-A Lab Sample ID: 320-26011-6
Client ID: MEAFF-SDA4B-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 9
Injection Vol: 2.0 ul 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

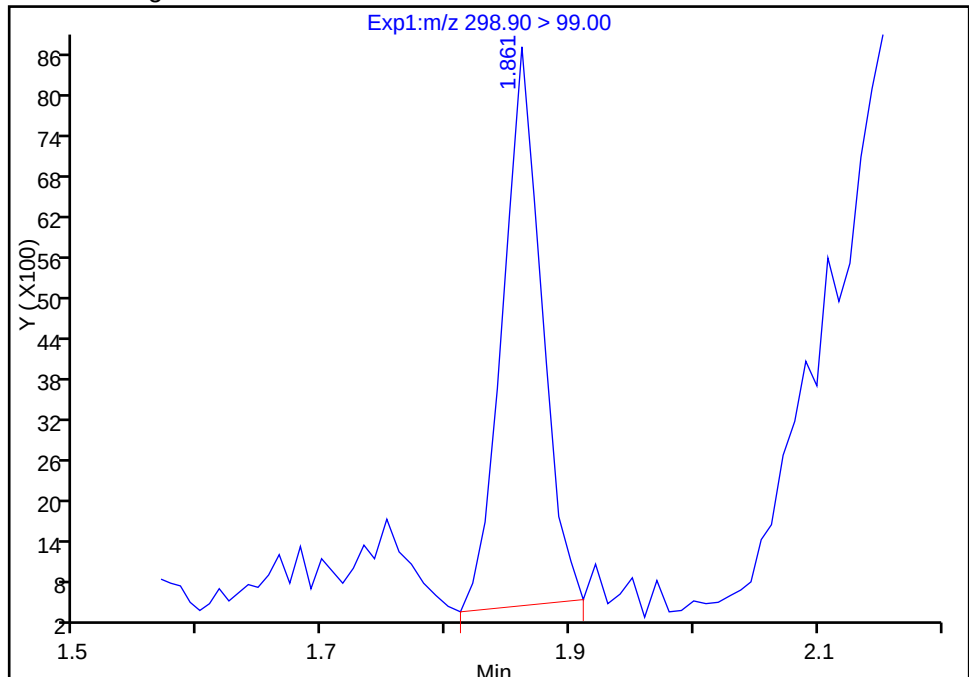
RT: 1.86
Area: 23096
Amount: 0.118152
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 18109
Amount: 0.118152
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:48

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4D-SB01-0001</u>	Lab Sample ID: <u>320-26011-7</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_046.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 13:50</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.92(g)</u>	Date Analyzed: <u>03/12/2017 00:12</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>12.8</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.19	J M	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	42		25-150
STL00994	18O2 PFHxS	91		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
 Lims ID: 320-26011-A-7-A
 Client ID: MEAFF-SDA4D-SB01-0001
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:12:59 ALS Bottle#: 39 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-7-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:00:12 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: chandrasenas

Date: 15-Mar-2017 11:42:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.862	1.861	0.001	1.000	70608	0.1867				
298.90 > 99.00	1.862	1.861	0.001	1.000	19808		3.56(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.475	2.468	0.007		12486495	42.9		90.7	327255	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.757	2.818	-0.061	1.000	178437	0.8007			690	M
413.00 > 169.00	2.825	2.818	0.007	1.025	54720		3.26(0.90-1.10)		1881	M
D 14 13C4 PFOA										
417.00 > 372.00	2.817	2.826	-0.009		10906735	53.2		106	292174	
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.183	0.009		4805588	19.9		41.6	204006	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.201	3.192	0.009	1.000	56635	0.5728			1660	M
499.00 > 99.00	3.201	3.192	0.009	1.000	14687		3.86(0.90-1.10)		387	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d

Injection Date: 12-Mar-2017 00:12:59

Instrument ID: A8_N

Lims ID: 320-26011-A-7-A

Lab Sample ID: 320-26011-7

Client ID: MEAFF-SDA4D-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 39

Worklist Smp#: 10

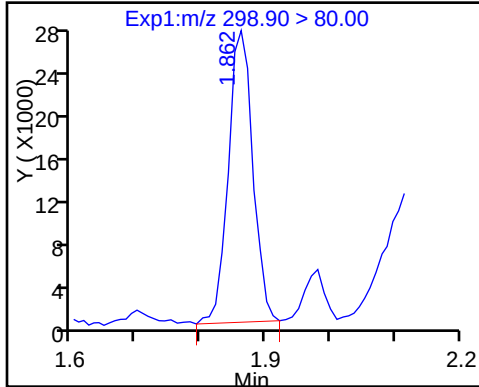
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

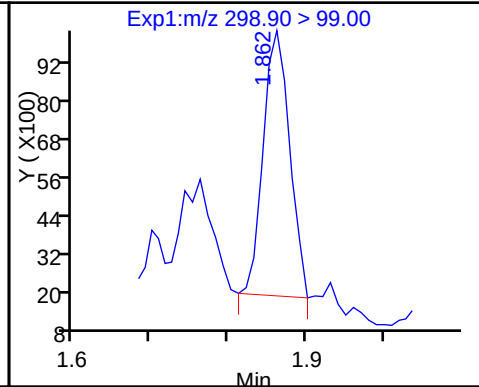
Method: A8_N

Limit Group: LC PFC_DOD ICAL

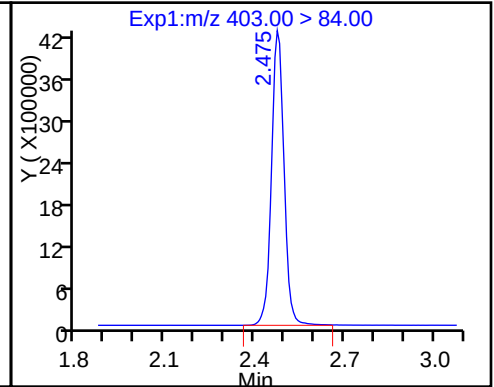
5 Perfluorobutanesulfonic acid



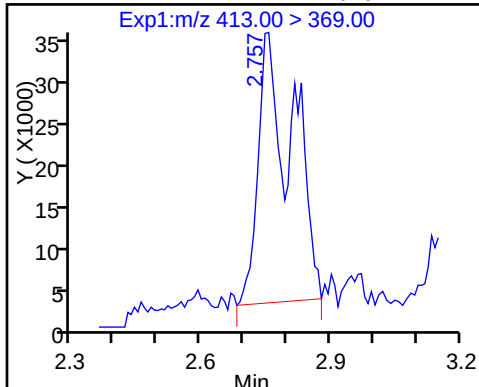
5 Perfluorobutanesulfonic acid (M)



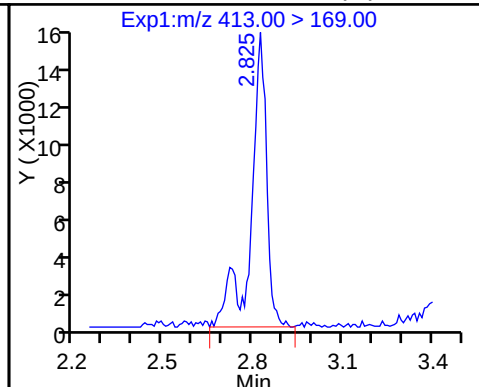
D 11 18O2 PFHxS



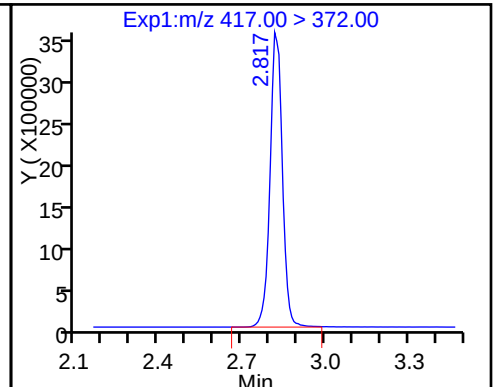
15 Perfluorooctanoic acid (M)



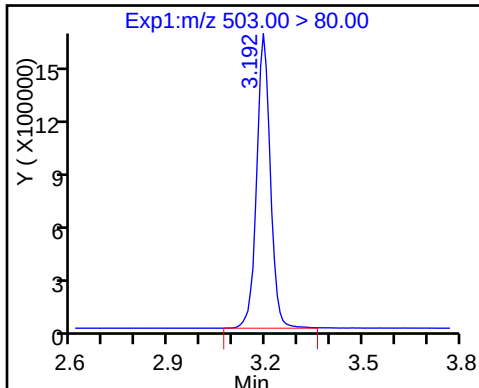
15 Perfluorooctanoic acid (M)



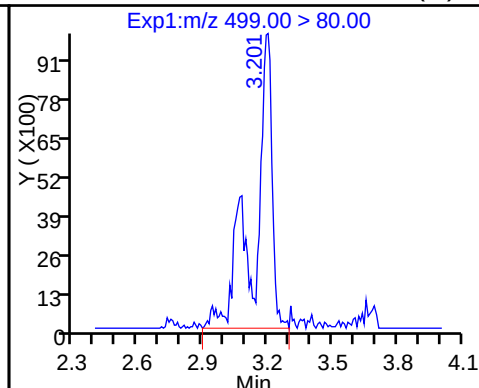
D 14 13C4 PFOA



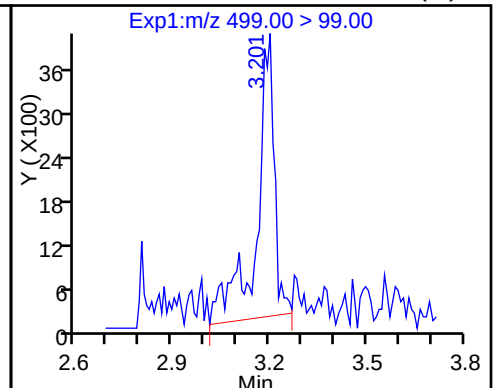
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

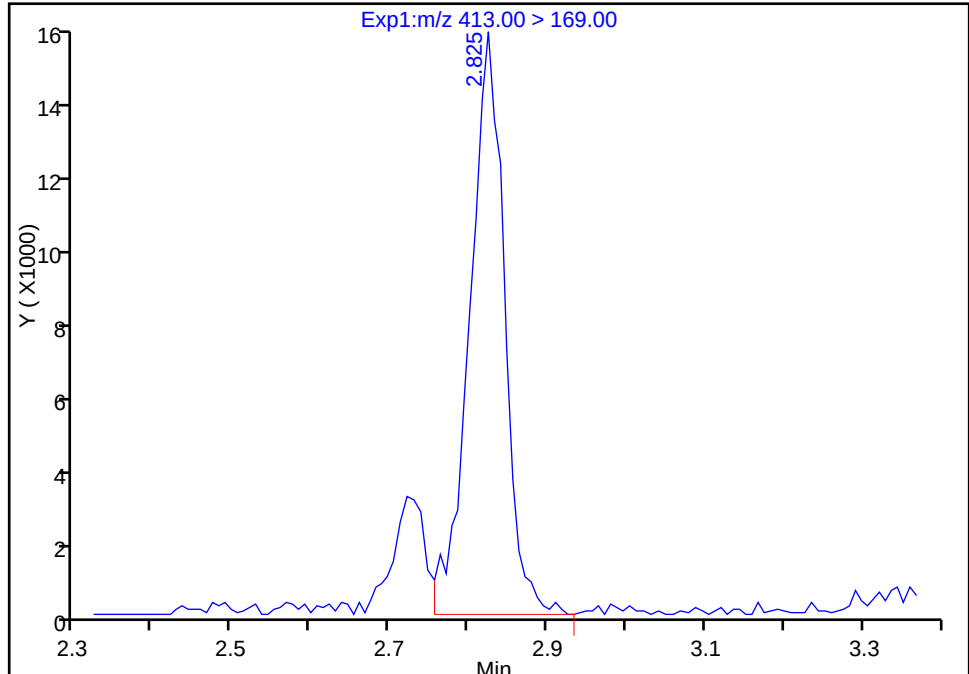
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
Injection Date: 12-Mar-2017 00:12:59 Instrument ID: A8_N
Lims ID: 320-26011-A-7-A Lab Sample ID: 320-26011-7
Client ID: MEAFF-SDA4D-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 10
Injection Vol: 2.0 ul 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

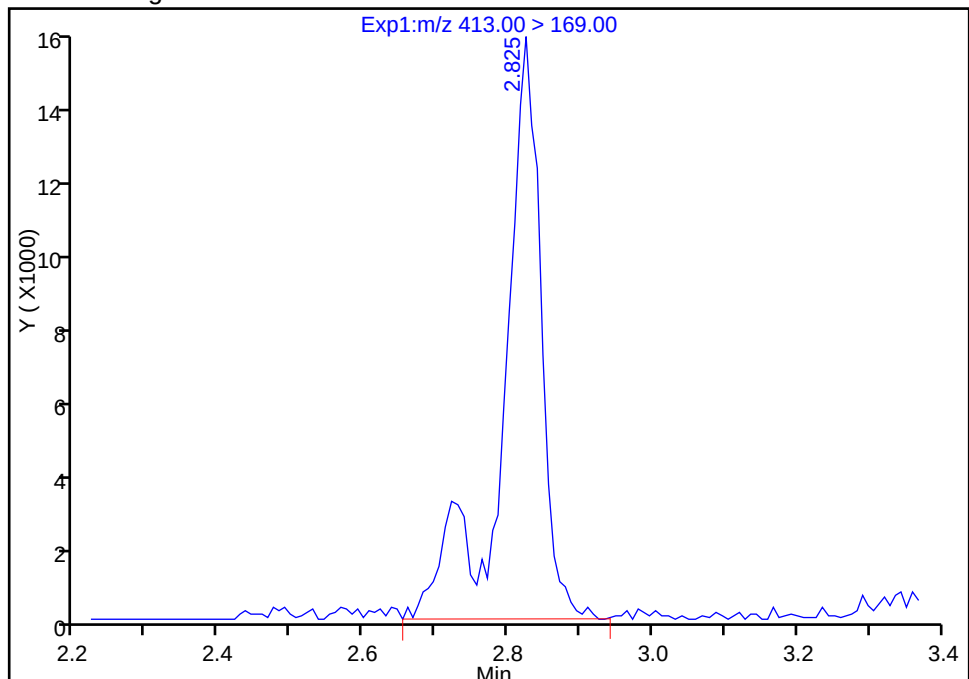
RT: 2.82
Area: 46205
Amount: 0.276291
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 54720
Amount: 0.800672
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:56

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

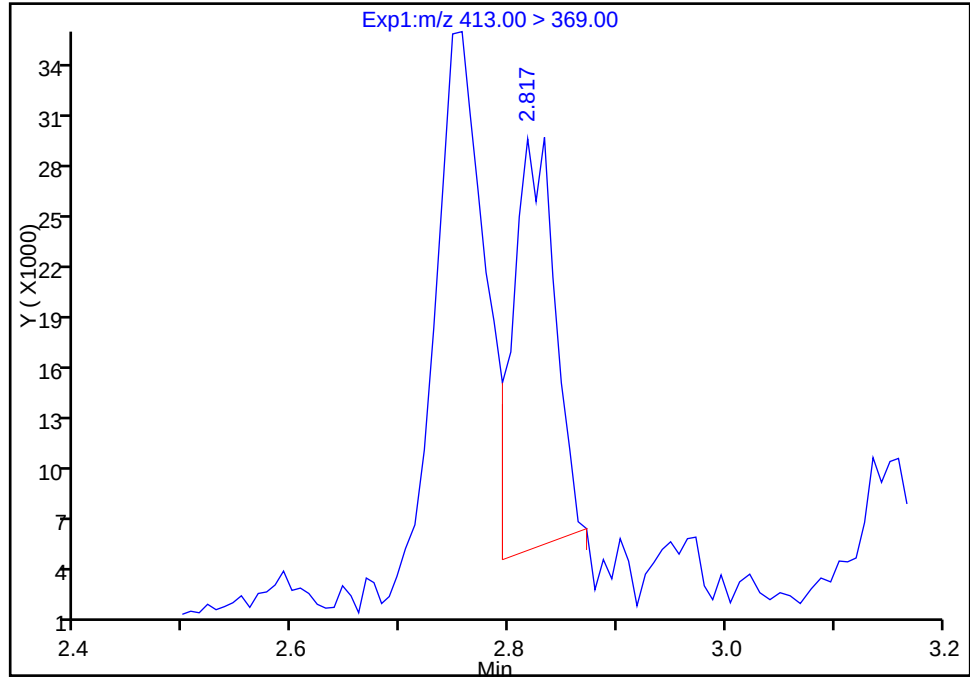
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
Injection Date: 12-Mar-2017 00:12:59 Instrument ID: A8_N
Lims ID: 320-26011-A-7-A Lab Sample ID: 320-26011-7
Client ID: MEAFF-SDA4D-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 39 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

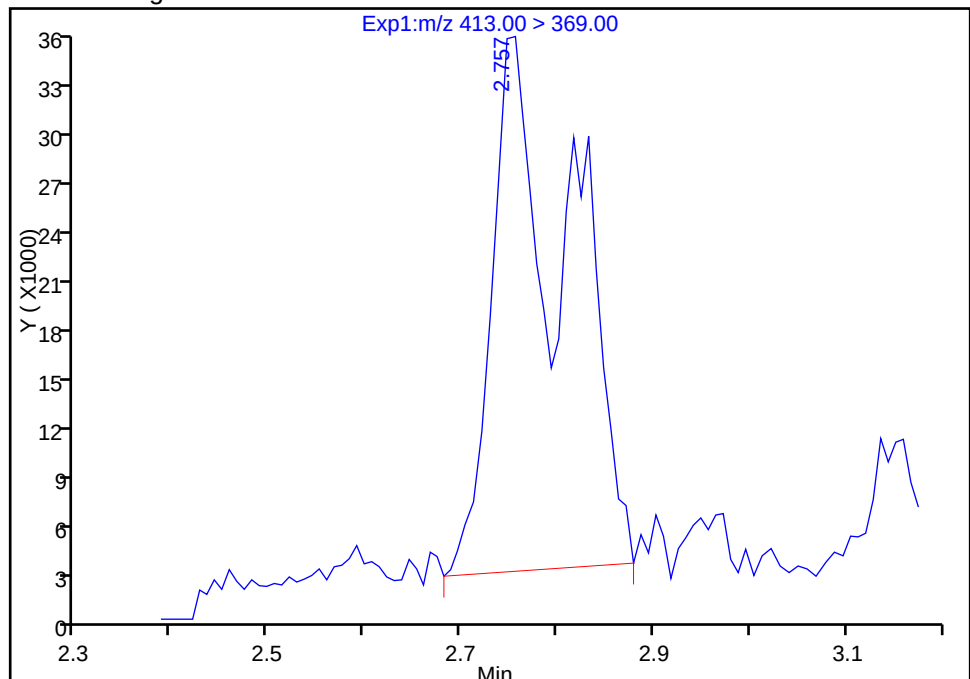
RT: 2.82
Area: 61574
Amount: 0.276291
Amount Units: ng/ml

Processing Integration Results



RT: 2.76
Area: 178437
Amount: 0.800672
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:56

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

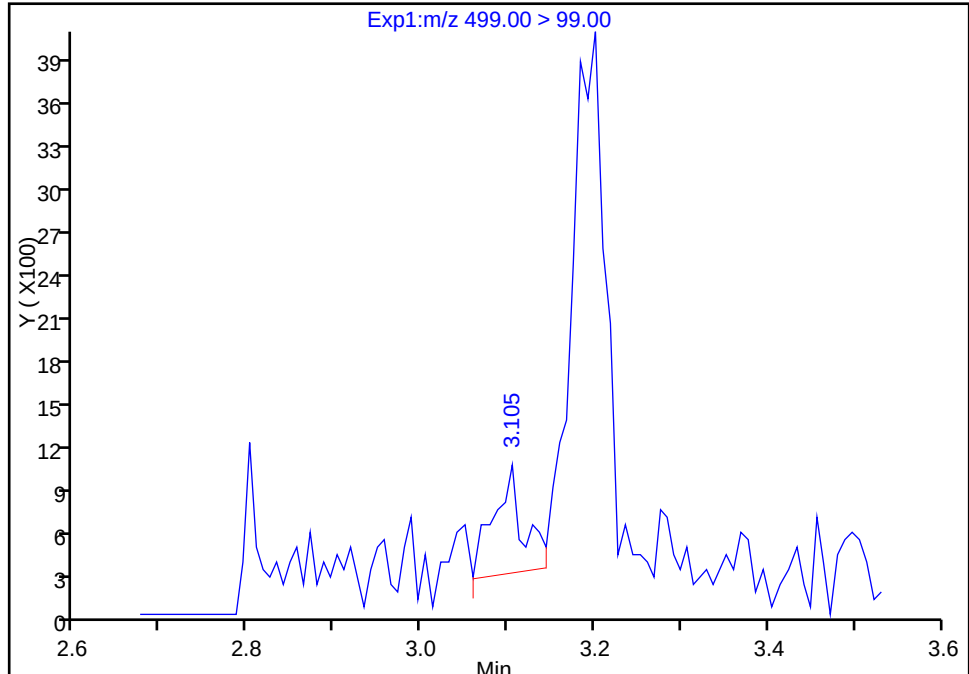
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
Injection Date: 12-Mar-2017 00:12:59 Instrument ID: A8_N
Lims ID: 320-26011-A-7-A Lab Sample ID: 320-26011-7
Client ID: MEAFF-SDA4D-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 10
Injection Vol: 2.0 ul 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

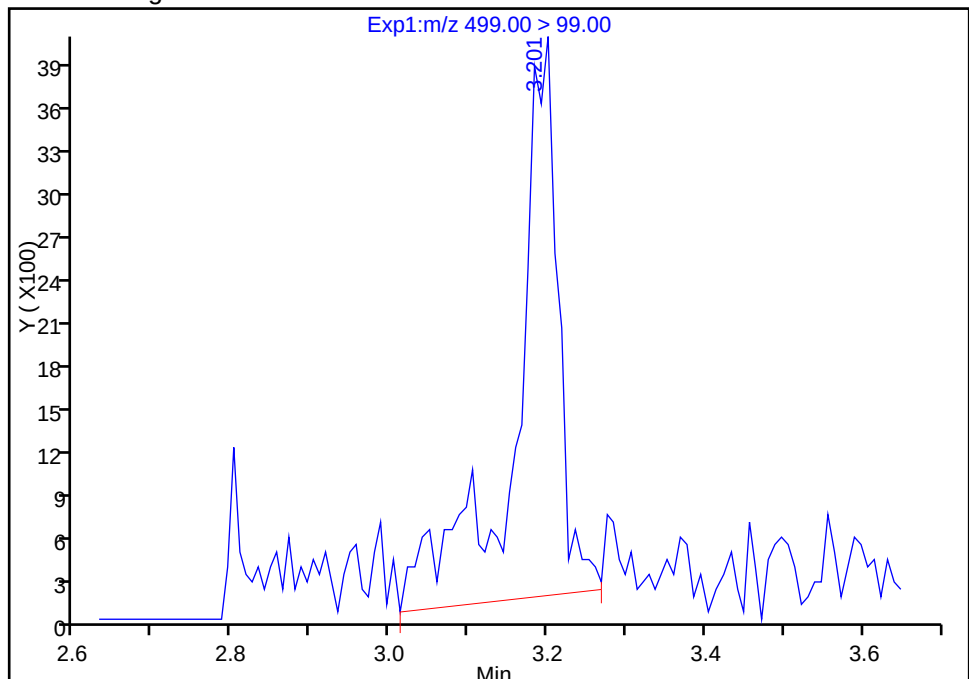
RT: 3.10
Area: 1746
Amount: 0.192081
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 14687
Amount: 0.572796
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 10:59:56

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

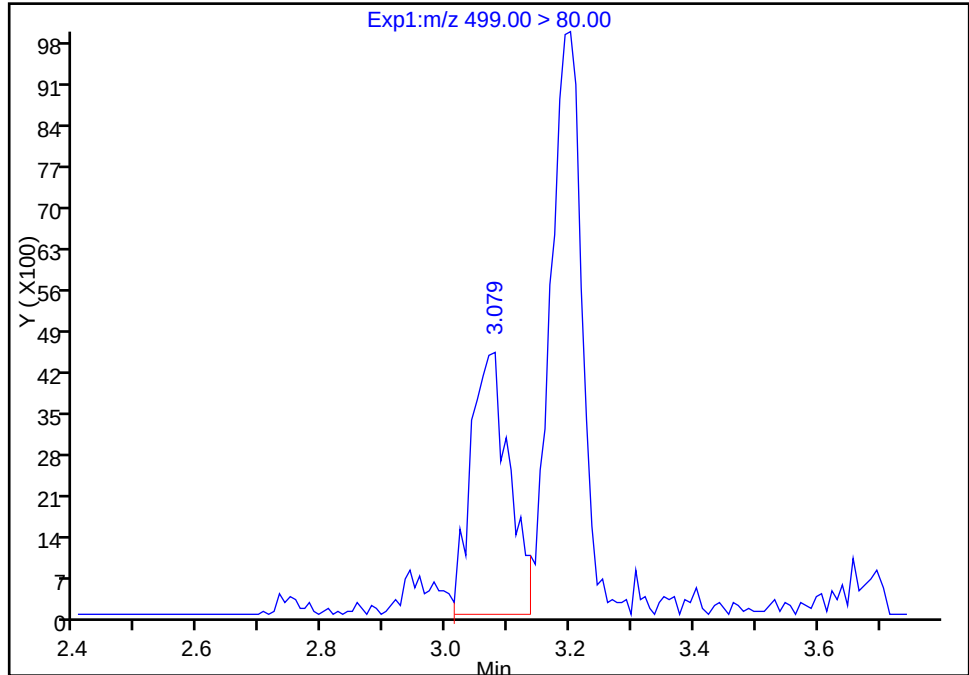
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
Injection Date: 12-Mar-2017 00:12:59 Instrument ID: A8_N
Lims ID: 320-26011-A-7-A Lab Sample ID: 320-26011-7
Client ID: MEAFF-SDA4D-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 39 Worklist Smp#: 10
Injection Vol: 2.0 ul 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

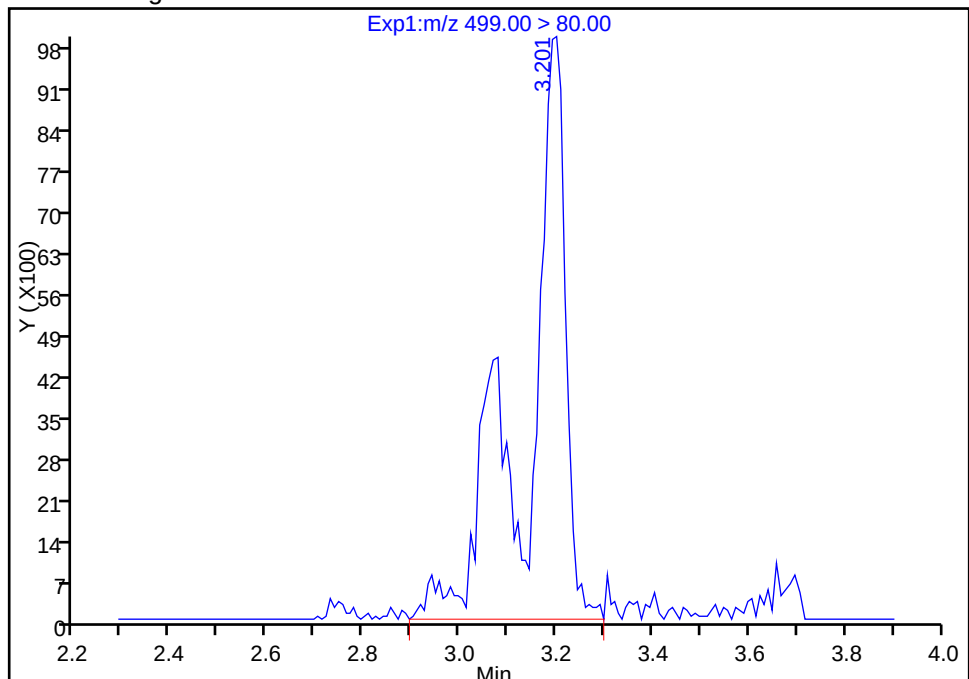
RT: 3.08
Area: 18992
Amount: 0.192081
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 56635
Amount: 0.572796
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:59:56

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

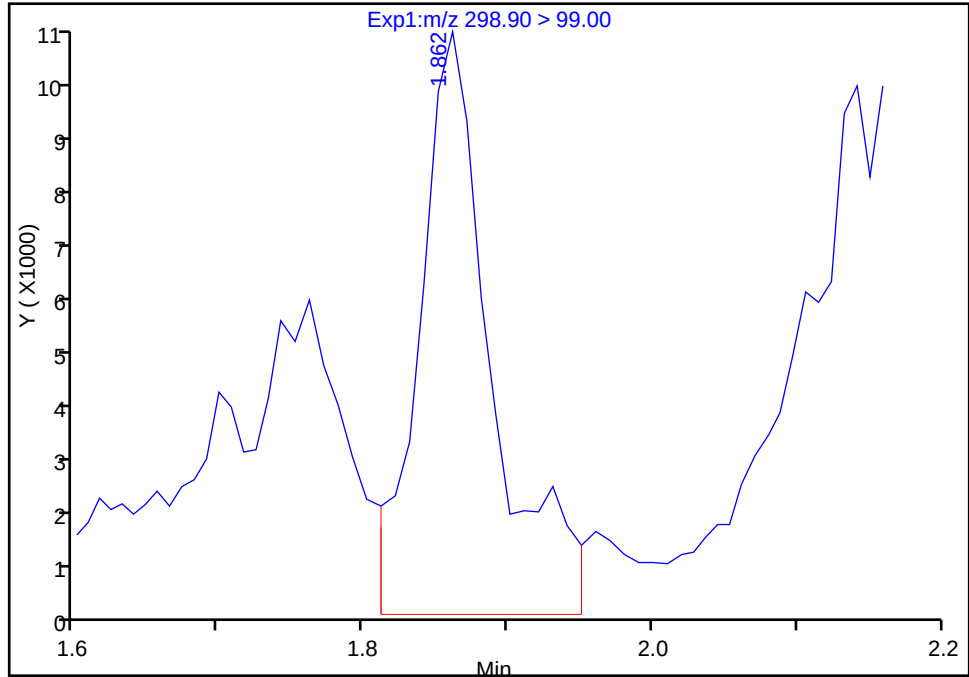
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_046.d
Injection Date: 12-Mar-2017 00:12:59 Instrument ID: A8_N
Lims ID: 320-26011-A-7-A Lab Sample ID: 320-26011-7
Client ID: MEAFF-SDA4D-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 10
Injection Vol: 2.0 ul 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

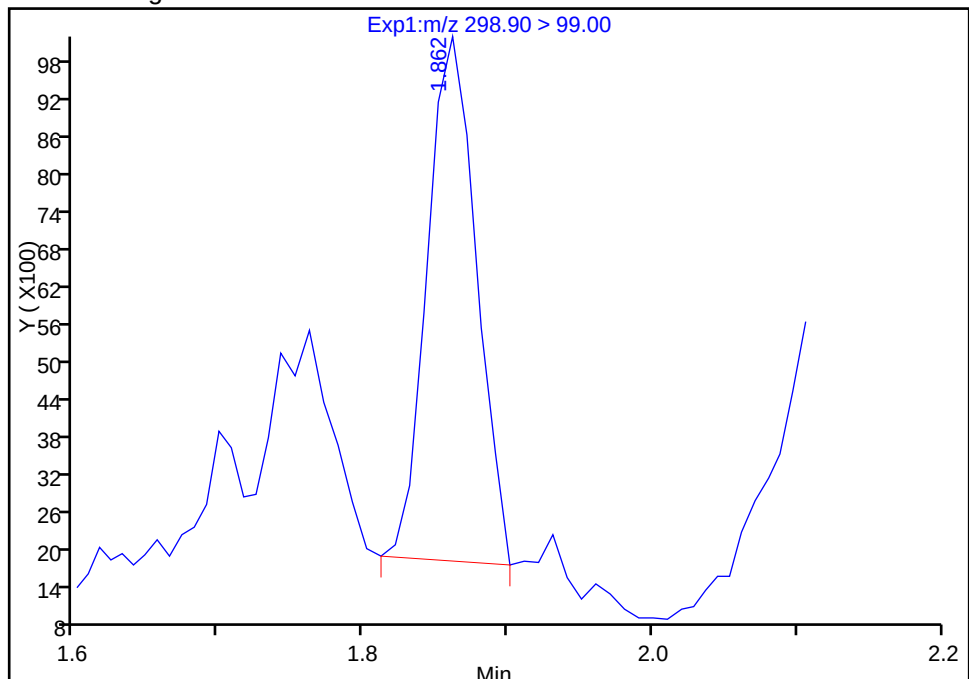
RT: 1.86
Area: 34842
Amount: 0.186714
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 19808
Amount: 0.186714
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:00:05

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FD03-022217</u>	Lab Sample ID: <u>320-26011-8</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_048.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 00:00</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.96(g)</u>	Date Analyzed: <u>03/12/2017 00:28</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>12.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.14	J M	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	64		25-150
STL00994	18O2 PFHxS	95		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
 Lims ID: 320-26011-A-8-A
 Client ID: MEAFF-FD03-022217
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:28:01 ALS Bottle#: 40 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-8-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:00:43 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:21:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.853	1.851	0.002	1.000	34832	0.0880				M
298.90 > 99.00	1.843	1.851	-0.008	0.995	12756		2.73(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.456	2.457	-0.001		13076556	45.0		95.0	411650	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.814	2.800	0.014	1.000	141414	0.6003			525	M
413.00 > 169.00	2.806	2.800	0.006	0.997	54976		2.57(0.90-1.10)		1372	M
D 14 13C4 PFOA										
417.00 > 372.00	2.806	2.800	0.006		11528881	56.3		113	282205	
D 18 13C4 PFOS										
503.00 > 80.00	3.180	3.173	0.007		7381358	30.5		63.9	246501	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.180	3.182	-0.002	1.000	94781	0.6241			2684	M
499.00 > 99.00	3.188	3.182	0.006	1.003	20823		4.55(0.90-1.10)		580	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d

Injection Date: 12-Mar-2017 00:28:01

Instrument ID: A8_N

Lims ID: 320-26011-A-8-A

Lab Sample ID: 320-26011-8

Client ID: MEAFF-FD03-022217

Operator ID: A8-PC\A8

ALS Bottle#: 40

Worklist Smp#: 12

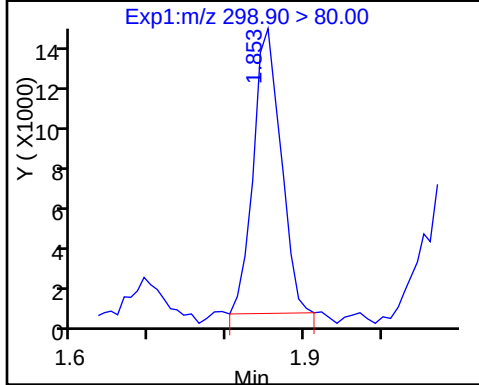
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

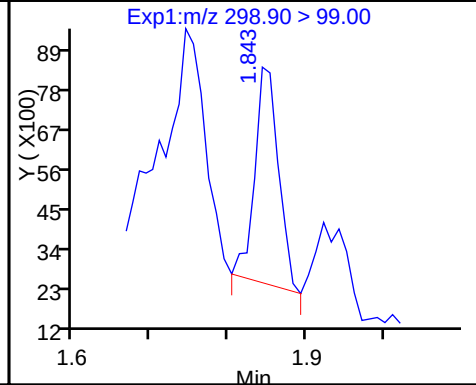
Method: A8_N

Limit Group: LC PFC_DOD ICAL

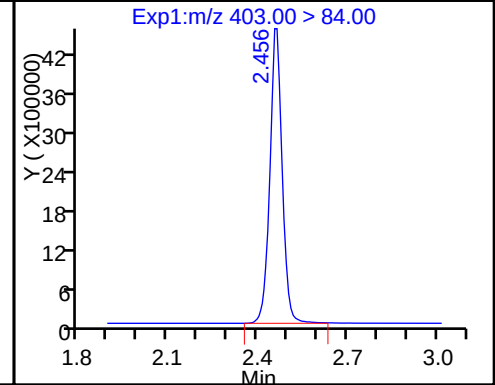
5 Perfluorobutanesulfonic acid (M)



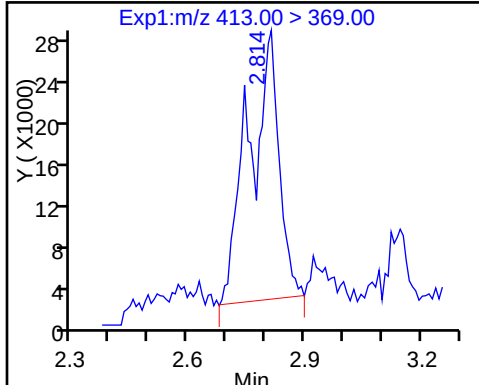
5 Perfluorobutanesulfonic acid (M)



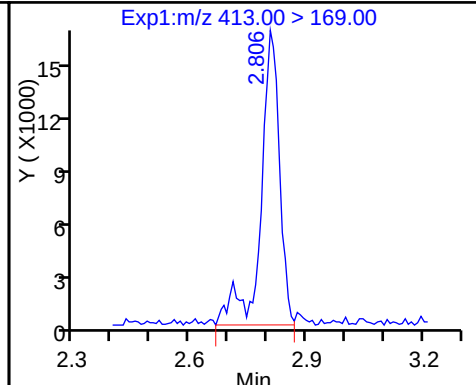
D 11 18O2 PFHxS



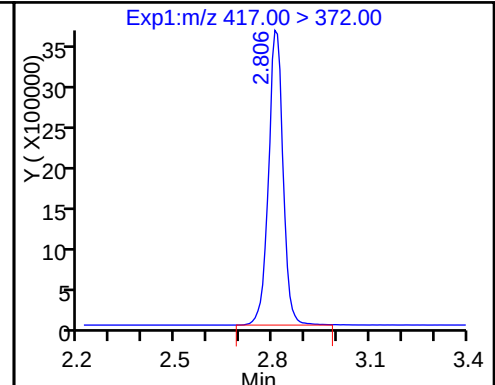
15 Perfluorooctanoic acid (M)



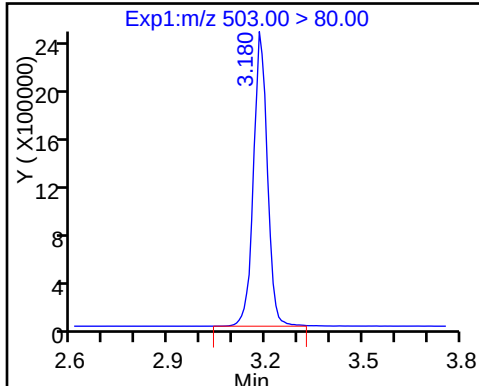
15 Perfluorooctanoic acid (M)



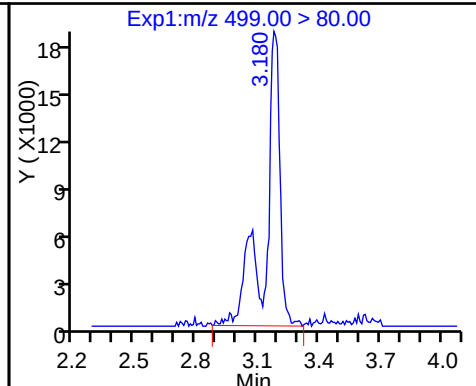
D 14 13C4 PFOA



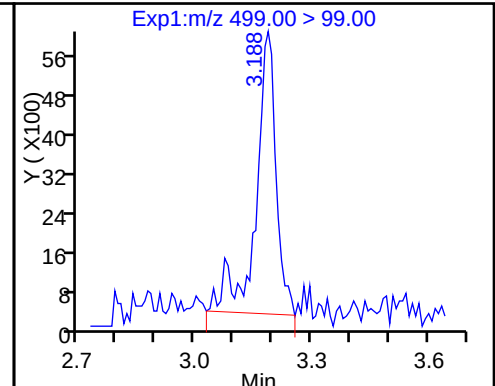
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

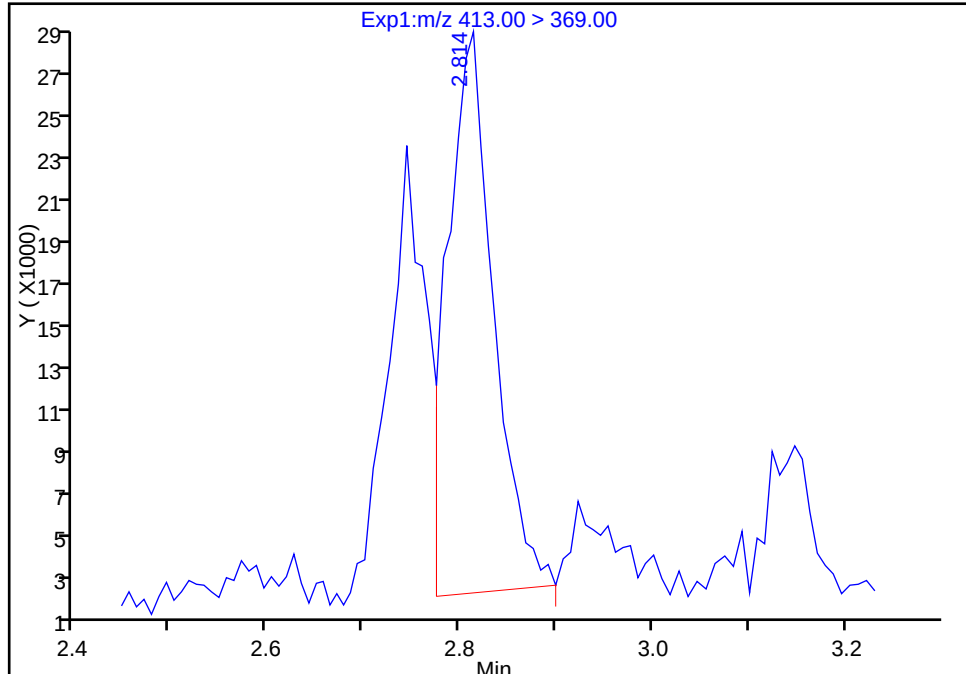
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
Injection Date: 12-Mar-2017 00:28:01 Instrument ID: A8_N
Lims ID: 320-26011-A-8-A Lab Sample ID: 320-26011-8
Client ID: MEAFF-FD03-022217
Operator ID: A8-PC\A8 ALS Bottle#: 40 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

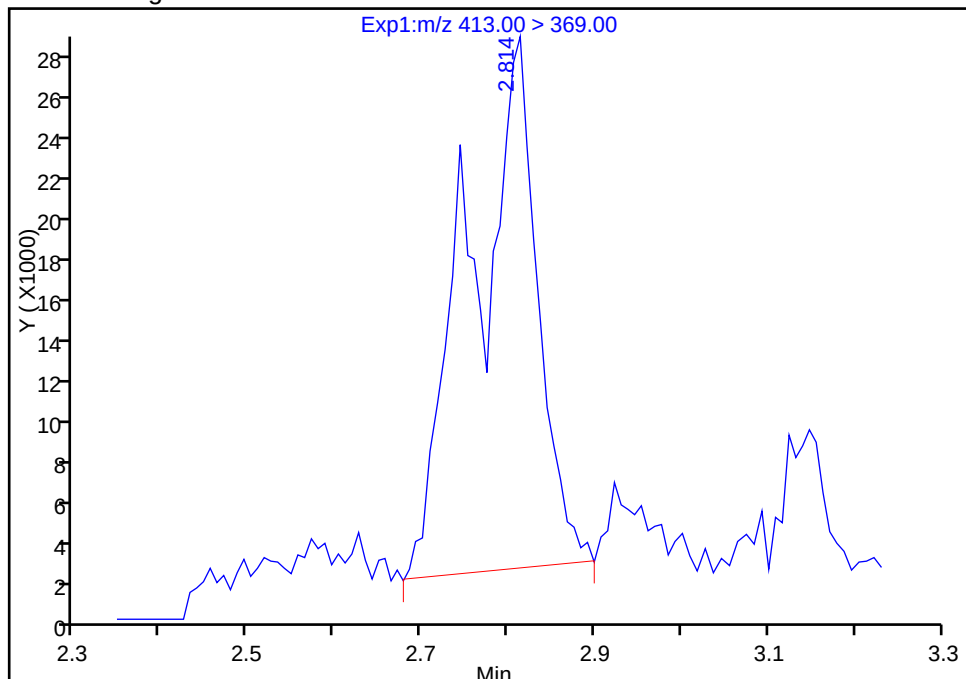
RT: 2.81
Area: 85317
Amount: 0.362170
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 141414
Amount: 0.600302
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:18

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

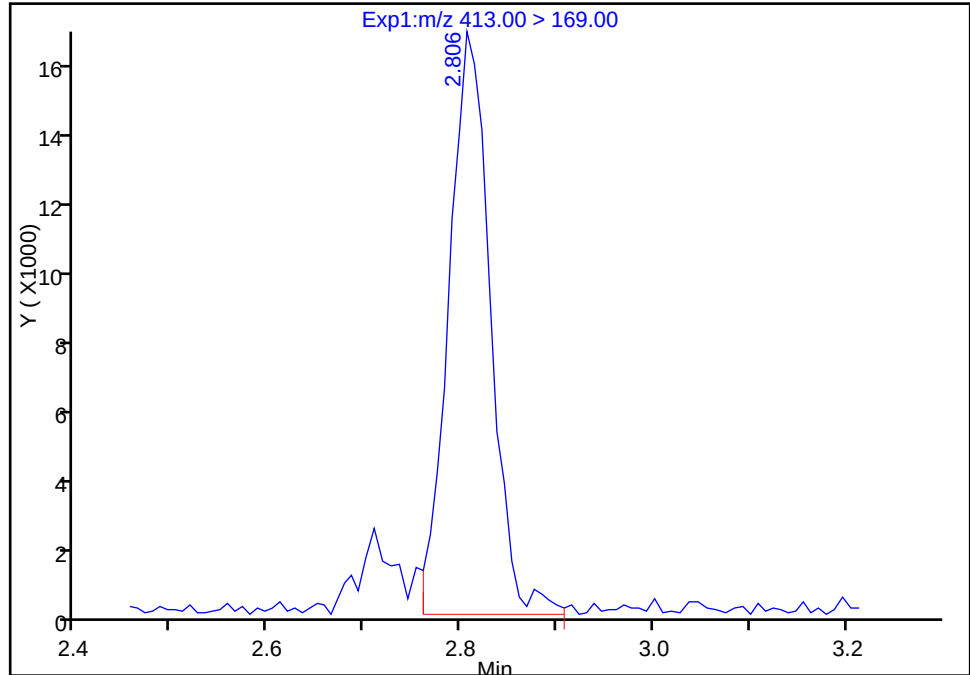
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
Injection Date: 12-Mar-2017 00:28:01 Instrument ID: A8_N
Lims ID: 320-26011-A-8-A Lab Sample ID: 320-26011-8
Client ID: MEAFF-FD03-022217
Operator ID: A8-PCVA8 ALS Bottle#: 40 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

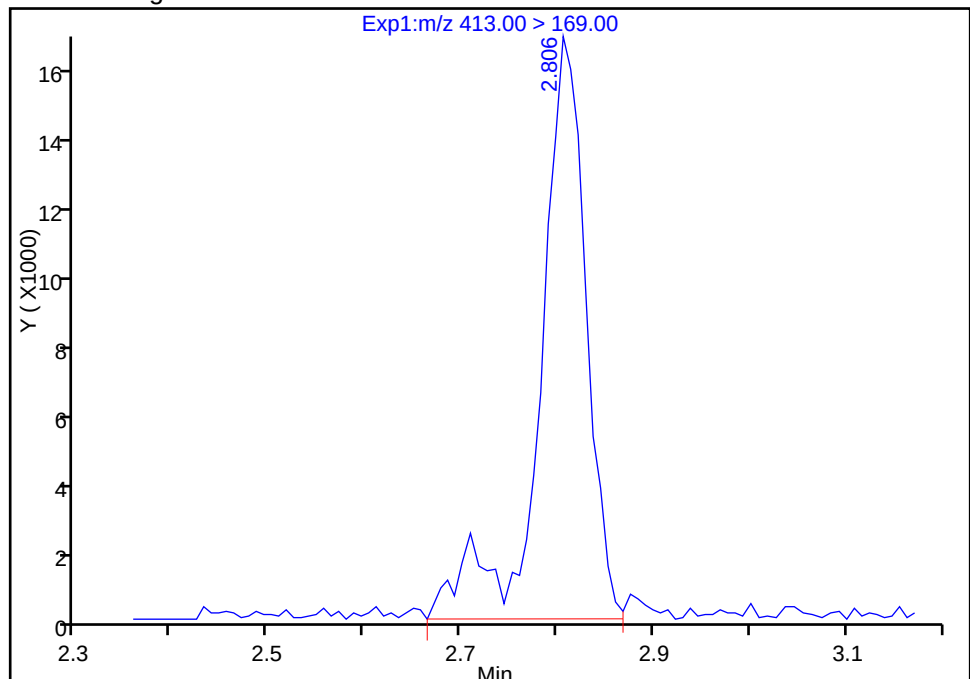
RT: 2.81
Area: 49287
Amount: 0.362170
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 54976
Amount: 0.600302
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:18

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

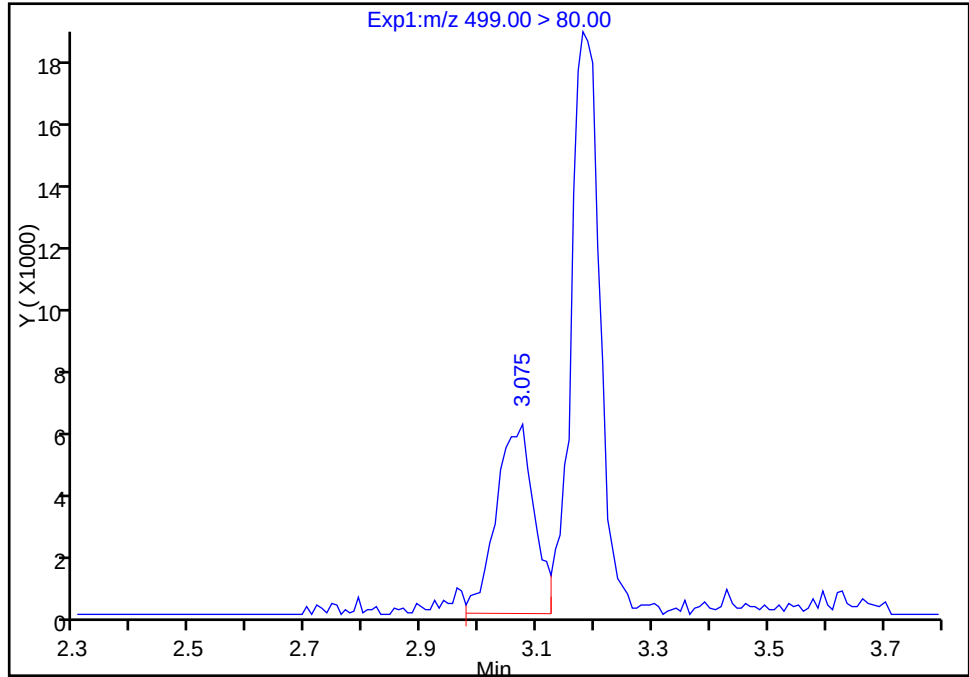
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
Injection Date: 12-Mar-2017 00:28:01 Instrument ID: A8_N
Lims ID: 320-26011-A-8-A Lab Sample ID: 320-26011-8
Client ID: MEAFF-FD03-022217
Operator ID: A8-PC\A8 ALS Bottle#: 40 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. 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

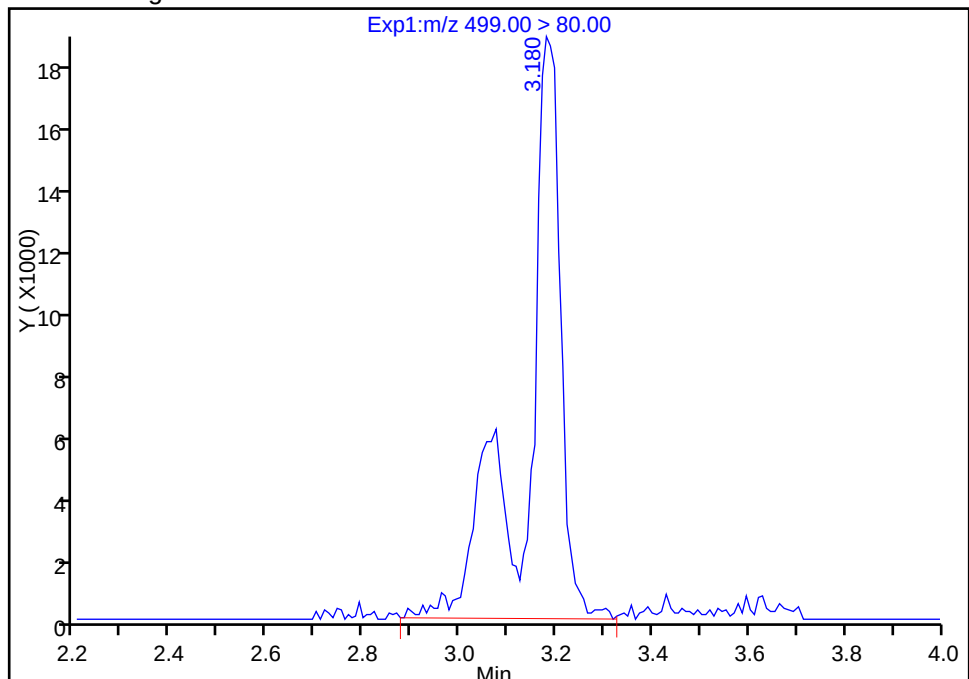
RT: 3.08
Area: 27568
Amount: 0.181522
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 94781
Amount: 0.624089
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:18

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

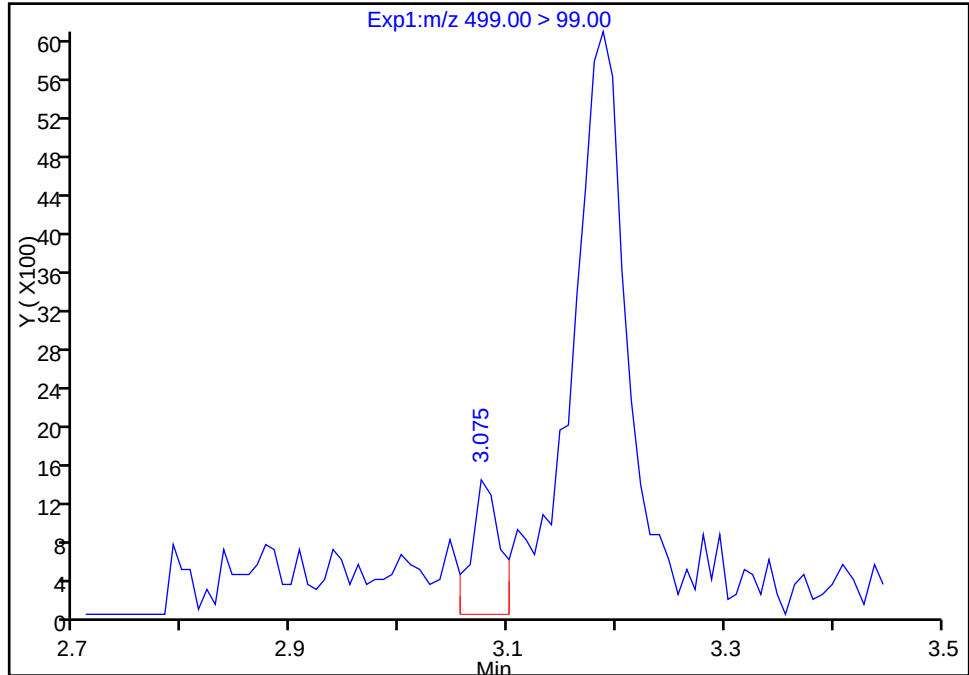
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
Injection Date: 12-Mar-2017 00:28:01 Instrument ID: A8_N
Lims ID: 320-26011-A-8-A Lab Sample ID: 320-26011-8
Client ID: MEAFF-FD03-022217
Operator ID: A8-PCVA8 ALS Bottle#: 40 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. 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

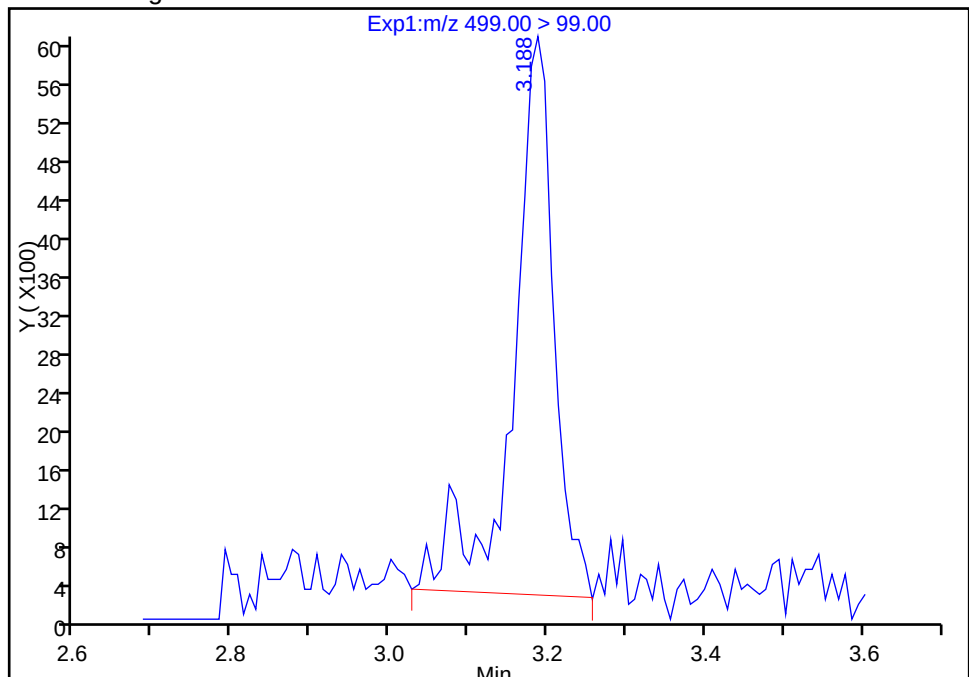
RT: 3.08
Area: 2356
Amount: 0.181522
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 20823
Amount: 0.624089
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:18

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

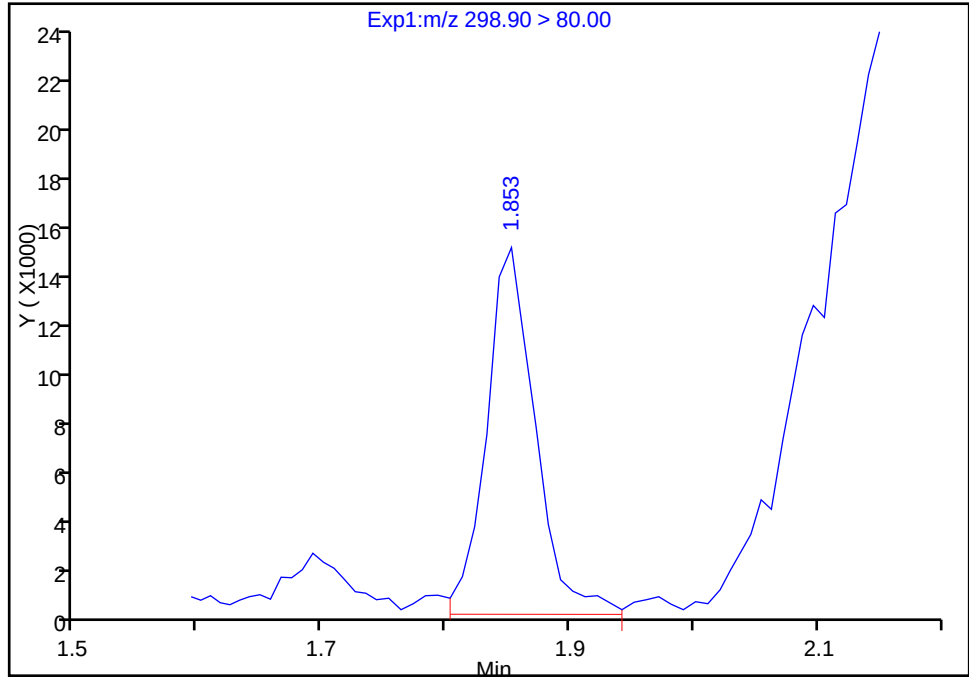
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d				
Injection Date:	12-Mar-2017 00:28:01	Instrument ID:	A8_N		
Lims ID:	320-26011-A-8-A	Lab Sample ID:	320-26011-8		
Client ID:	MEAFF-FD03-022217				
Operator ID:	A8-PC\A8	ALS Bottle#:	40	Worklist Smp#:	12
Injection Vol:	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

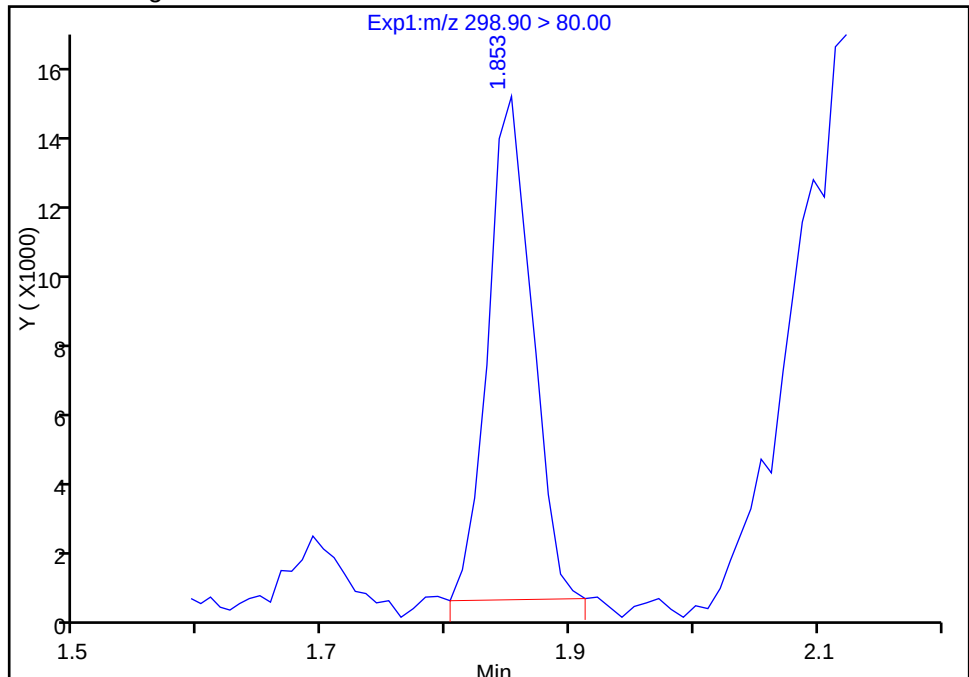
RT: 1.85
Area: 40260
Amount: 0.101659
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 34832
Amount: 0.087953
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:00:28

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

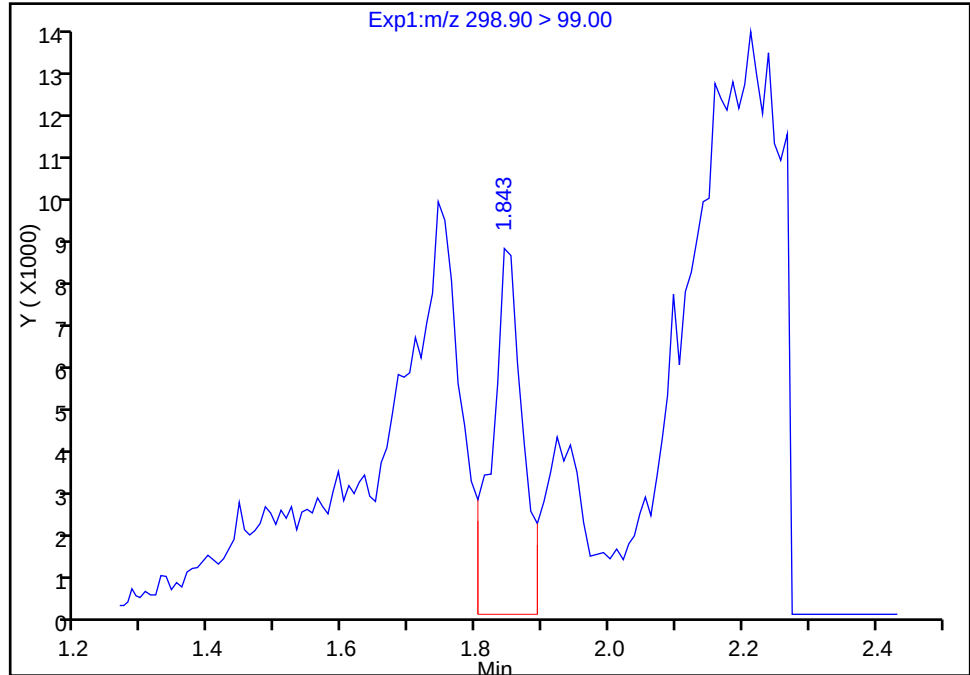
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_048.d
Injection Date: 12-Mar-2017 00:28:01 Instrument ID: A8_N
Lims ID: 320-26011-A-8-A Lab Sample ID: 320-26011-8
Client ID: MEAFF-FD03-022217
Operator ID: A8-PCVA8 ALS Bottle#: 40 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

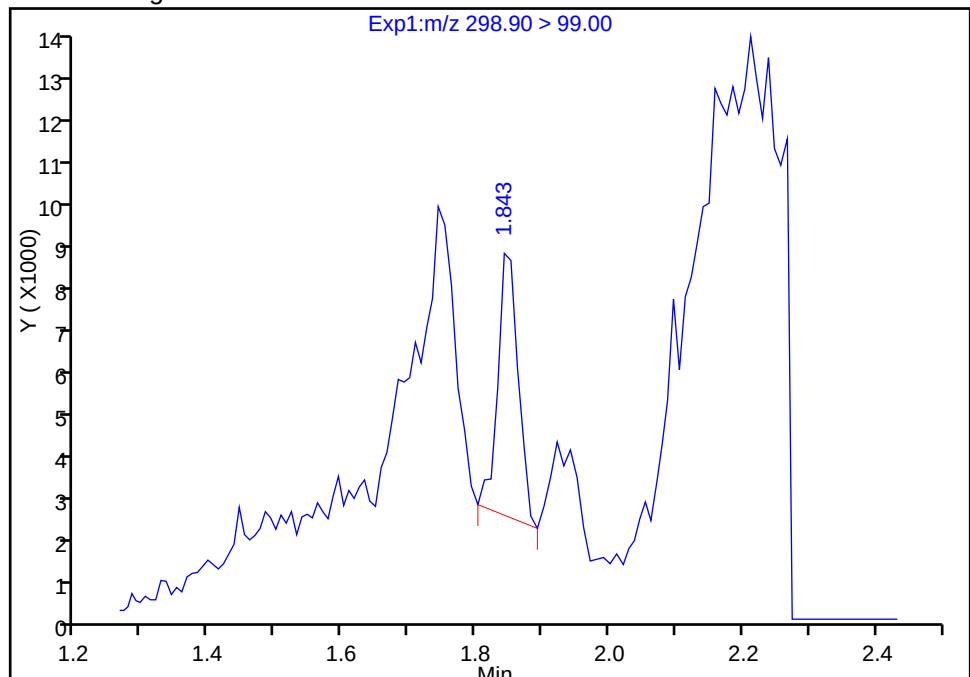
RT: 1.84
Area: 25313
Amount: 0.101659
Amount Units: ng/ml

Processing Integration Results



RT: 1.84
Area: 12756
Amount: 0.087953
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:00:35

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4D-SB01-0204</u>	Lab Sample ID: <u>320-26011-9</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_049.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 13:52</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.98(g)</u>	Date Analyzed: <u>03/12/2017 00:35</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>8.9</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U M	0.55	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	103		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	94		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
 Lims ID: 320-26011-A-9-A
 Client ID: MEAFF-SDA4D-SB01-0204
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:35:32 ALS Bottle#: 41 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-9-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:01:03 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:22:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.855	1.851	0.004	1.000	25960	0.0661				
298.90 > 99.00	1.855	1.851	0.004	1.000	8262		3.14(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.468	2.457	0.011		12967197	44.6		94.2	312122	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.818	2.800	0.018	1.000	68675	0.3182			630	M
413.00 > 169.00	2.818	2.800	0.018	1.000	35363		1.94(0.90-1.10)		870	M
D 14 13C4 PFOA										
417.00 > 372.00	2.811	2.800	0.011		10562048	51.5		103	323740	
D 18 13C4 PFOS										
503.00 > 80.00	3.184	3.173	0.011		6913881	28.6		59.9	291040	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.192	3.182	0.010	1.000	46308	0.3255			2075	M
499.00 > 99.00	3.192	3.182	0.010	1.000	9841		4.71(0.90-1.10)		315	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d

Injection Date: 12-Mar-2017 00:35:32

Instrument ID: A8_N

Lims ID: 320-26011-A-9-A

Lab Sample ID: 320-26011-9

Client ID: MEAFF-SDA4D-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 41

Worklist Smp#: 13

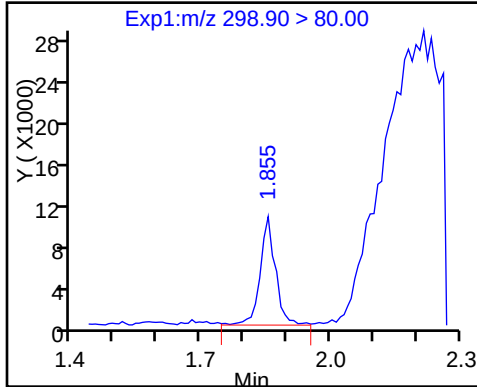
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

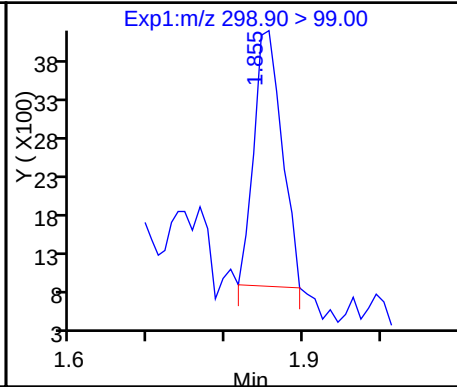
Method: A8_N

Limit Group: LC PFC_DOD ICAL

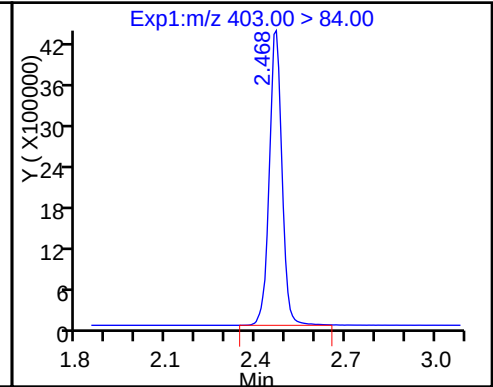
5 Perfluorobutanesulfonic acid



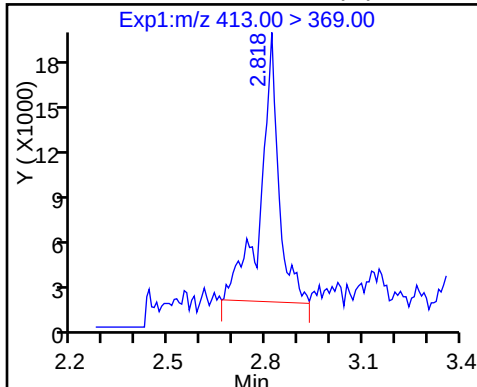
5 Perfluorobutanesulfonic acid (M)



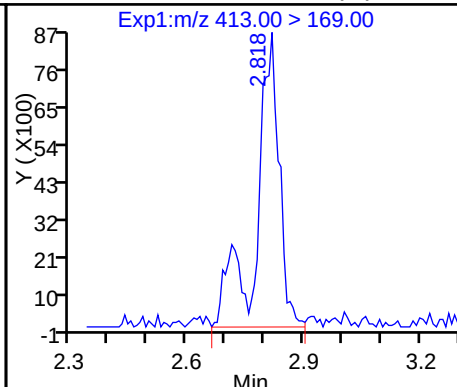
D 11 18O2 PFHxS



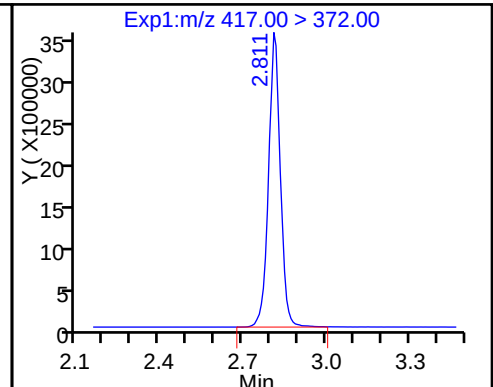
15 Perfluorooctanoic acid (M)



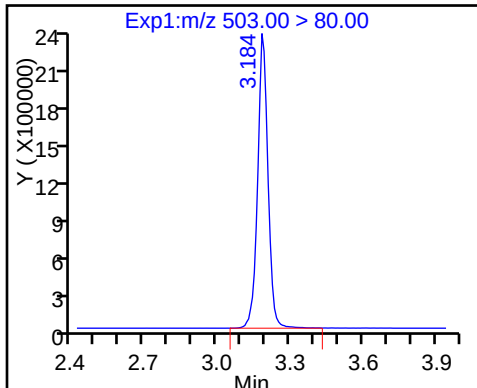
15 Perfluorooctanoic acid (M)



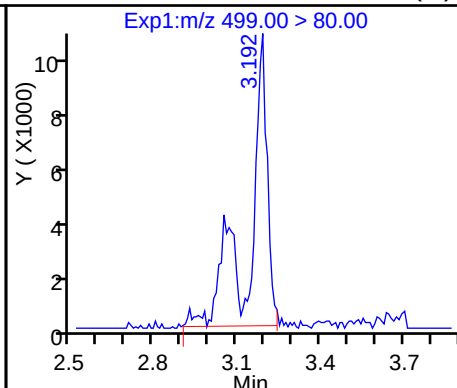
D 14 13C4 PFOA



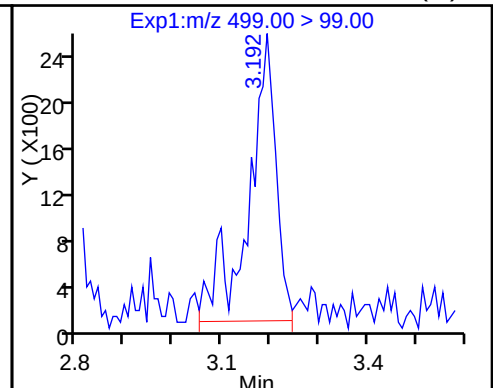
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

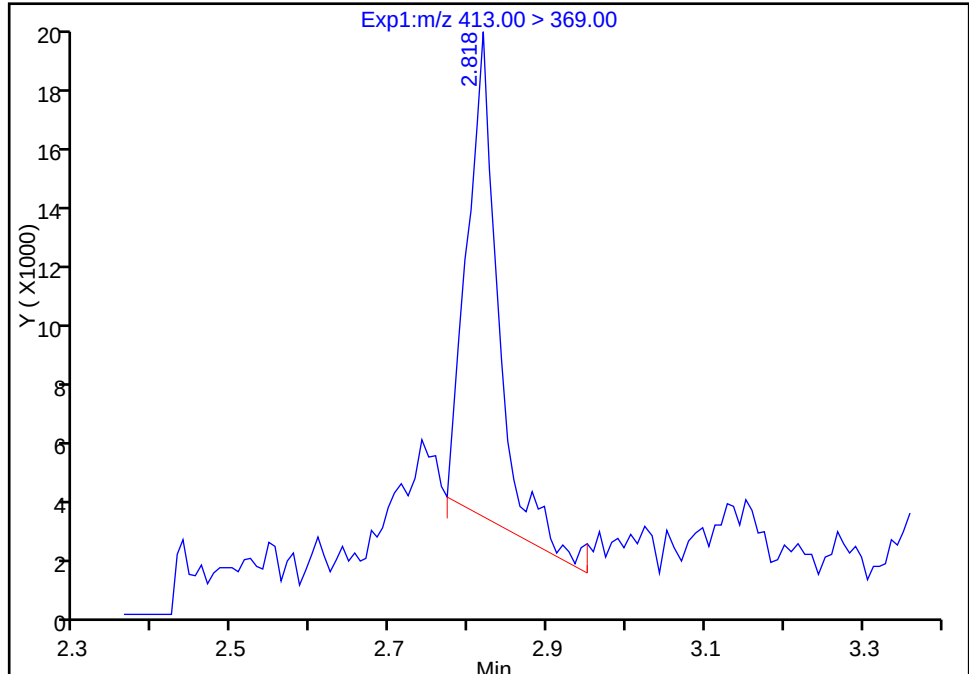
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
Injection Date: 12-Mar-2017 00:35:32 Instrument ID: A8_N
Lims ID: 320-26011-A-9-A Lab Sample ID: 320-26011-9
Client ID: MEAFF-SDA4D-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 13
Injection Vol: 2.0 ul 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

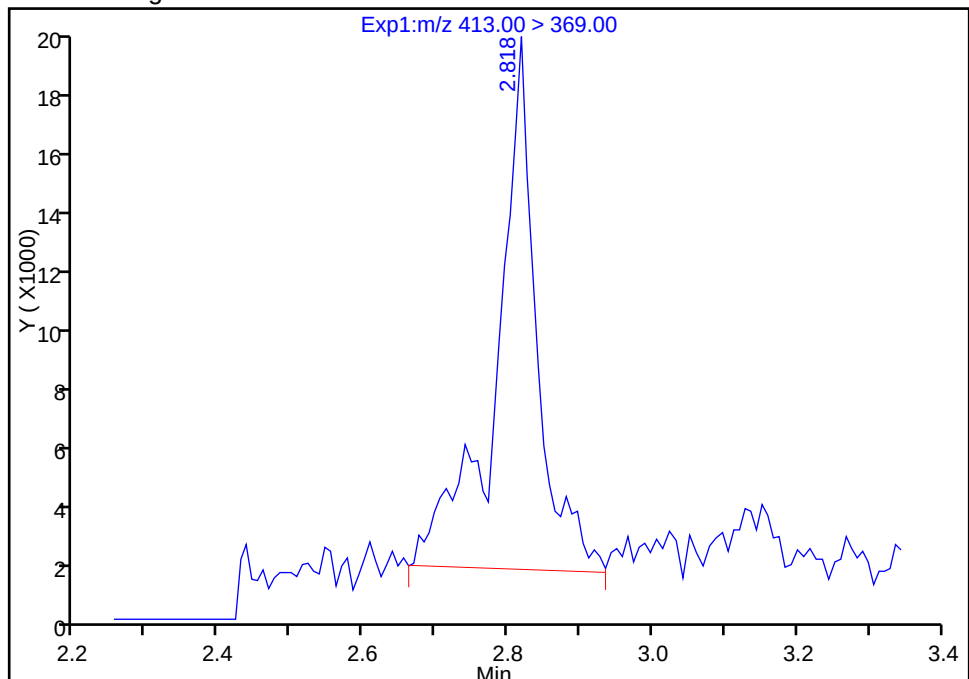
RT: 2.82
Area: 43961
Amount: 0.203697
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 68675
Amount: 0.318211
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

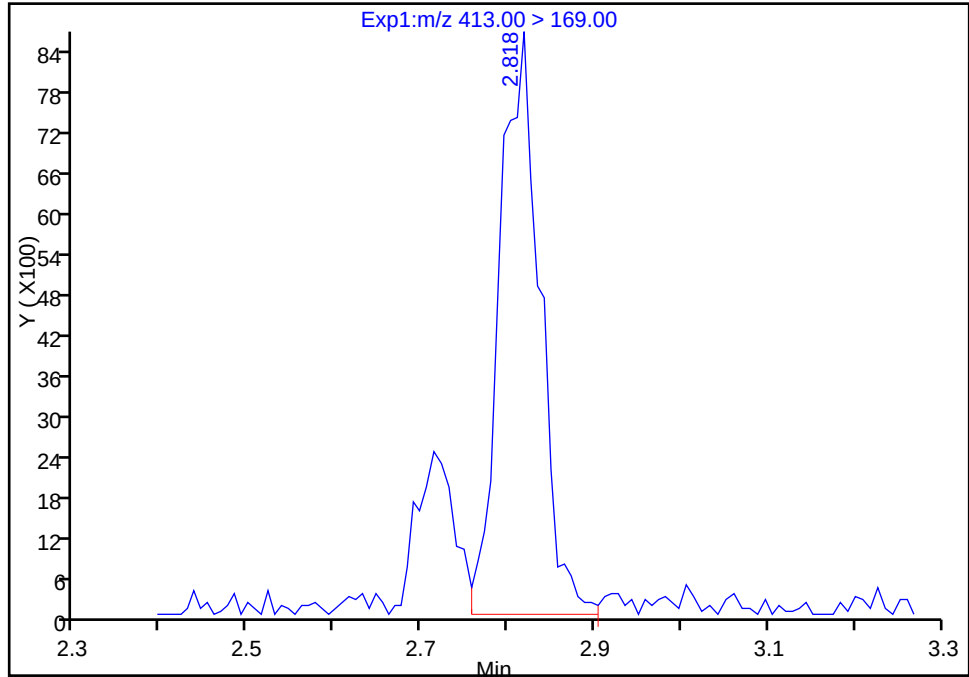
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
Injection Date: 12-Mar-2017 00:35:32 Instrument ID: A8_N
Lims ID: 320-26011-A-9-A Lab Sample ID: 320-26011-9
Client ID: MEAFF-SDA4D-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 41 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

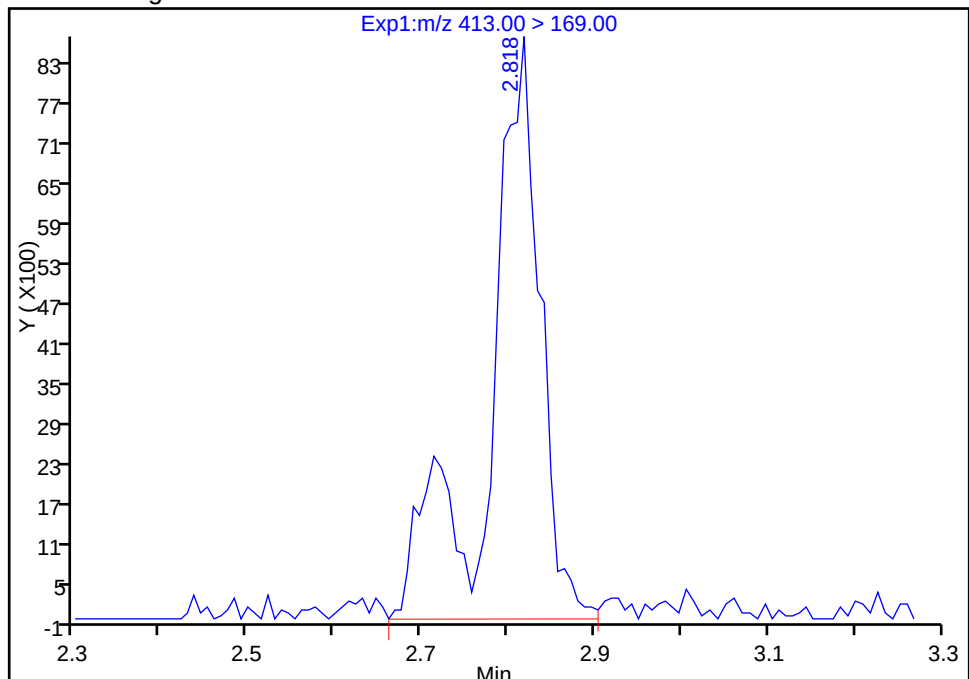
RT: 2.82
Area: 27977
Amount: 0.203697
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 35363
Amount: 0.318211
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

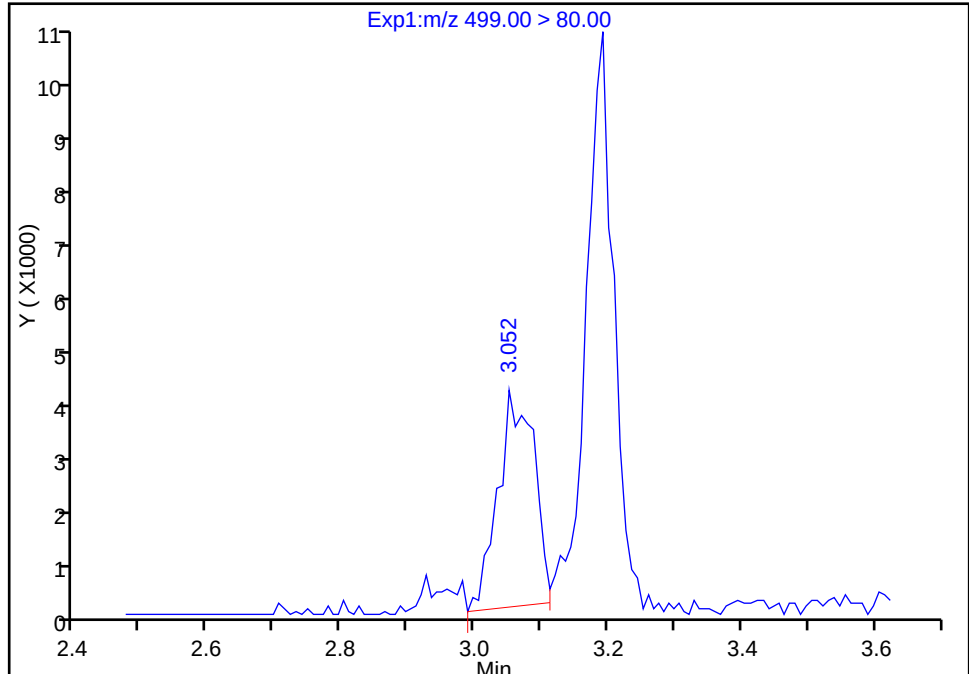
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
Injection Date: 12-Mar-2017 00:35:32 Instrument ID: A8_N
Lims ID: 320-26011-A-9-A Lab Sample ID: 320-26011-9
Client ID: MEAFF-SDA4D-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 13
Injection Vol: 2.0 ul 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

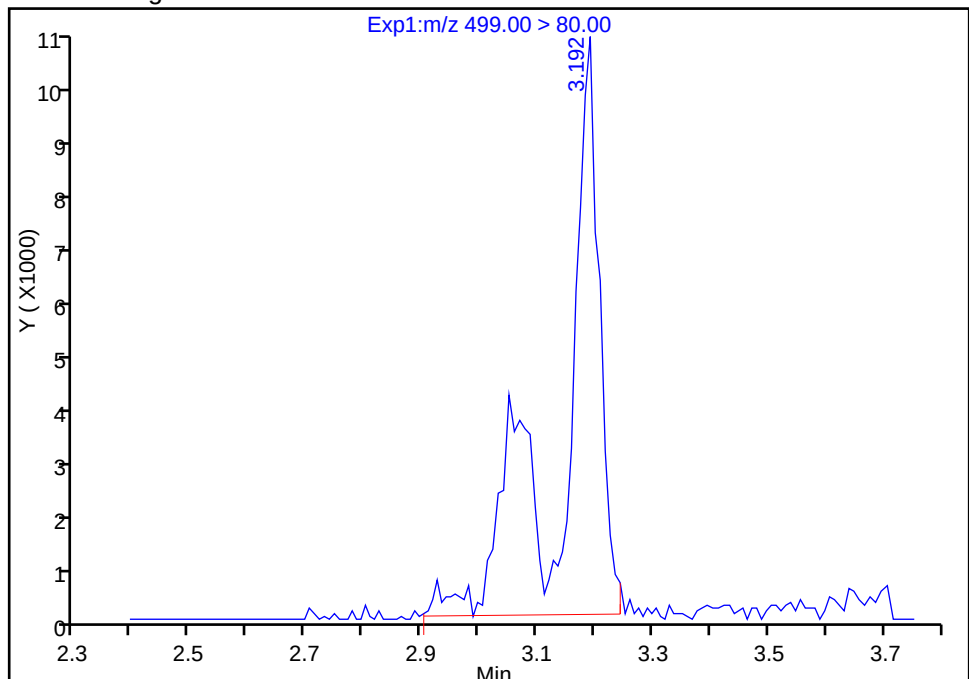
RT: 3.05
Area: 14492
Amount: 0.101875
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 46308
Amount: 0.325533
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

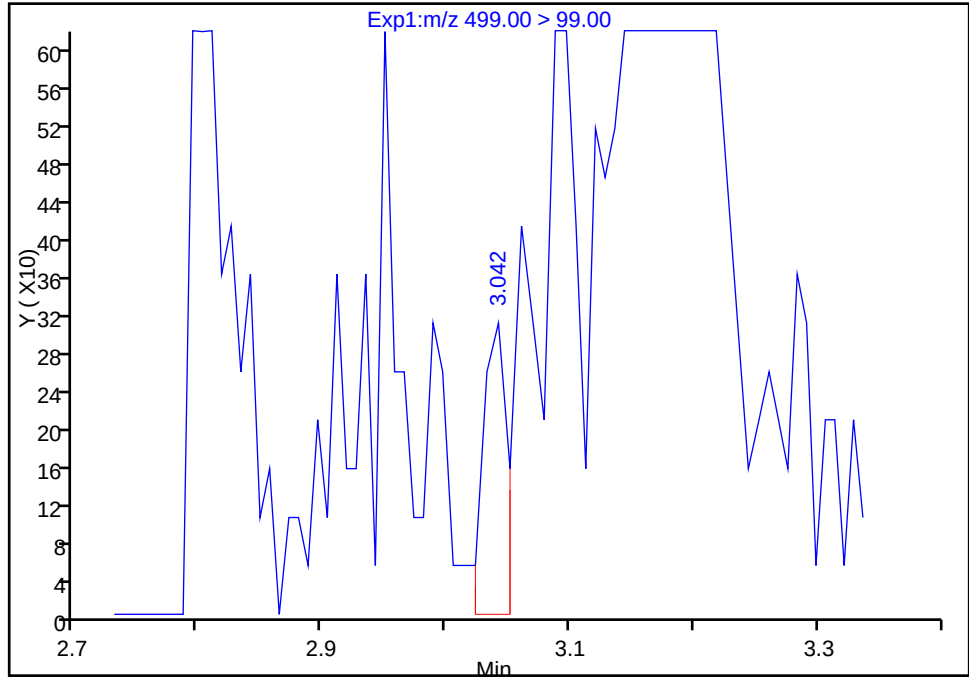
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
Injection Date: 12-Mar-2017 00:35:32 Instrument ID: A8_N
Lims ID: 320-26011-A-9-A Lab Sample ID: 320-26011-9
Client ID: MEAFF-SDA4D-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 41 Worklist Smp#: 13
Injection Vol: 2.0 ul 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

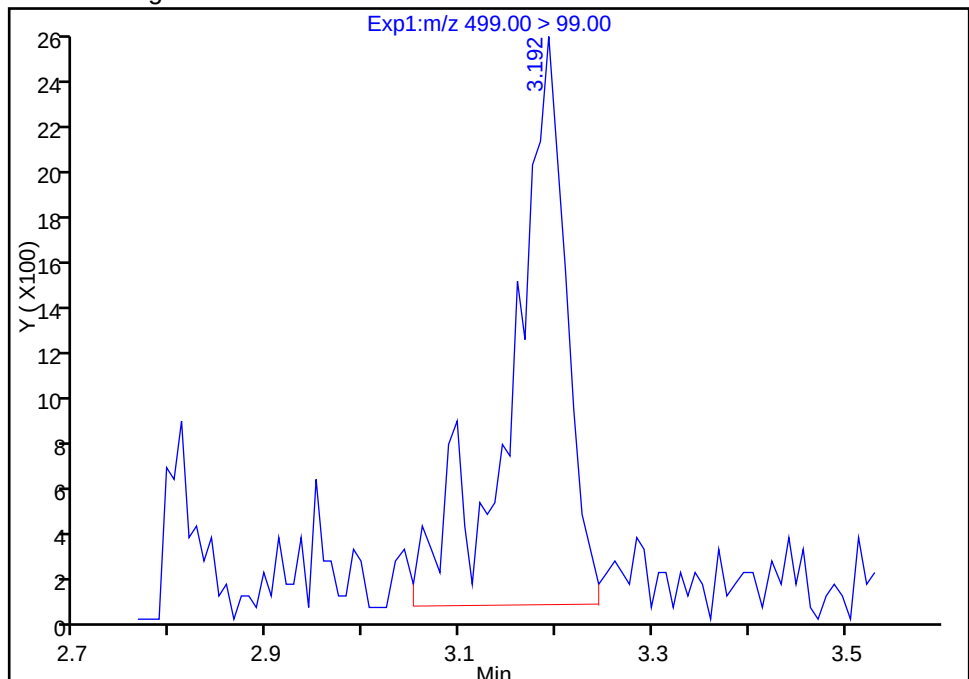
RT: 3.04
Area: 375
Amount: 0.101875
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 9841
Amount: 0.325533
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:00:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

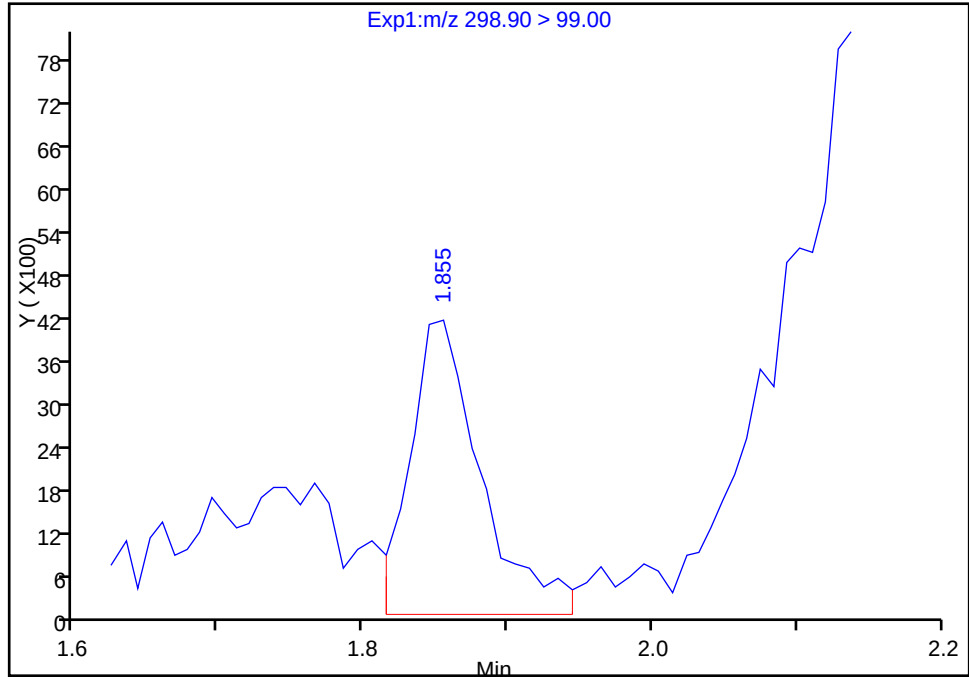
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_049.d
Injection Date: 12-Mar-2017 00:35:32 Instrument ID: A8_N
Lims ID: 320-26011-A-9-A Lab Sample ID: 320-26011-9
Client ID: MEAFF-SDA4D-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 13
Injection Vol: 2.0 ul 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

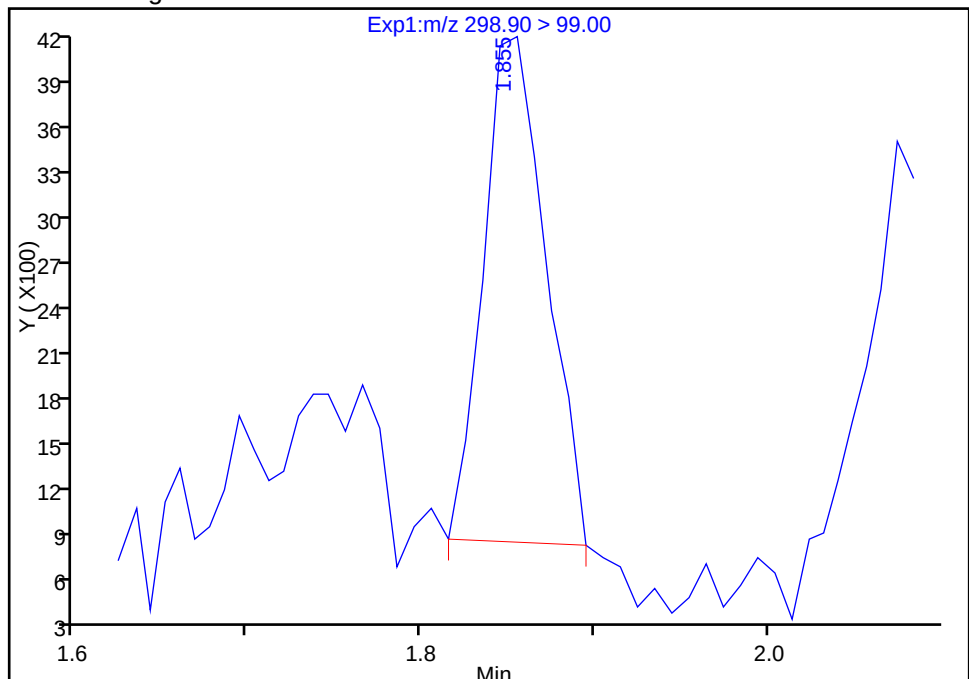
RT: 1.86
Area: 13759
Amount: 0.066103
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 8262
Amount: 0.066103
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:00:57

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB02-022217-SO Lab Sample ID: 320-26011-10
 Matrix: Water Lab File ID: 2017.03.02A_010.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:05
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 284.5 (mL) Date Analyzed: 03/02/2017 11:20
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.2	1.8	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.81

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	159	Q	25-150
STL00991	13C4 PFOS	140		25-150
STL00994	18O2 PFHxS	143		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_010.d
 Lims ID: 320-26011-A-10-A
 Client ID: MEAFF-EB02-022217-SO
 Sample Type: Client
 Inject. Date: 02-Mar-2017 11:20:18 ALS Bottle#: 7 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-10-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 09:39:03 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:30:16

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

D 11 18O2 PFHxS

403.00 > 84.00	2.478	2.483	-0.005		19696007	67.7		143	467519	

D 14 13C4 PFOA

417.00 > 372.00	2.828	2.834	-0.006		16282824	79.4		159	556397	

15 Perfluorooctanoic acid

413.00 > 369.00	2.835	2.834	0.001	1.000	38539	0.1158			305	

413.00 > 169.00	2.835	2.834	0.001	1.000	18193		2.12(0.90-1.10)		738	

17 Perfluorooctane sulfonic acid

499.00 > 80.00	3.202	3.089	0.113	1.000	208694	0.6286			11562	M

499.00 > 99.00	3.211	3.089	0.121	1.003	47312		4.41(0.90-1.10)		2535	M

D 18 13C4 PFOS

503.00 > 80.00	3.211	3.202	0.008		16136038	66.8		140	461299	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_010.d

Injection Date: 02-Mar-2017 11:20:18

Instrument ID: A8_N

Lims ID: 320-26011-A-10-A

Lab Sample ID: 320-26011-10

Client ID: MEAFF-EB02-022217-SO

Operator ID: A8-PC\A8

ALS Bottle#: 7

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

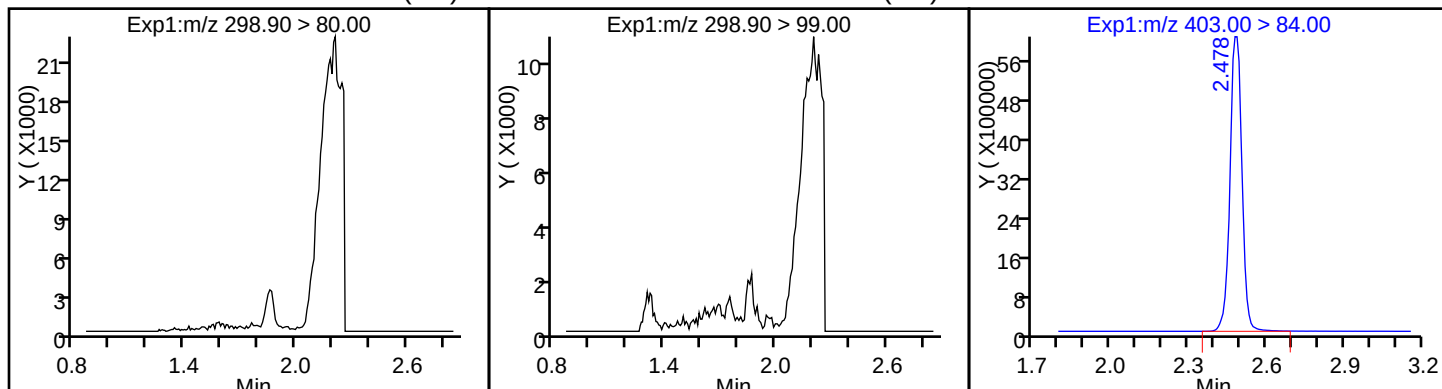
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

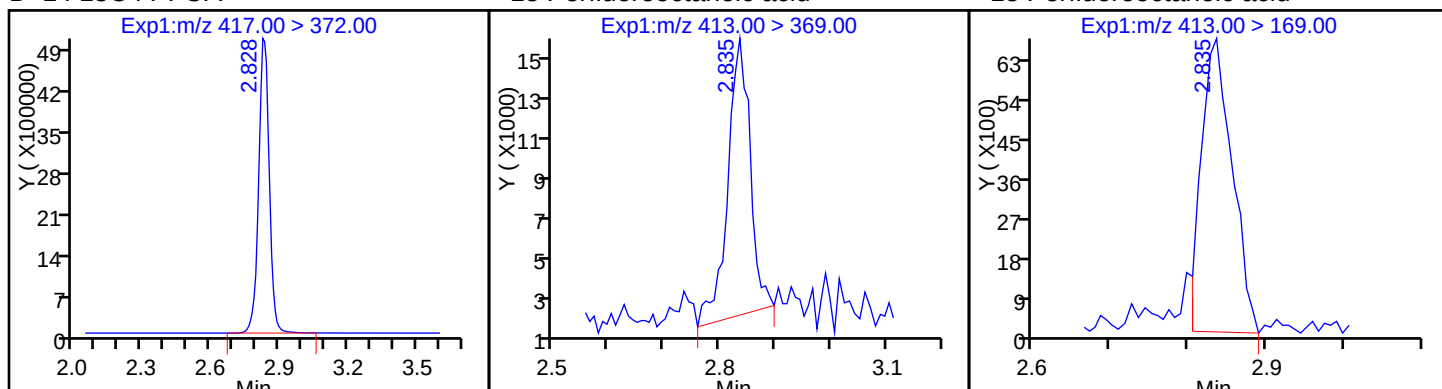
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

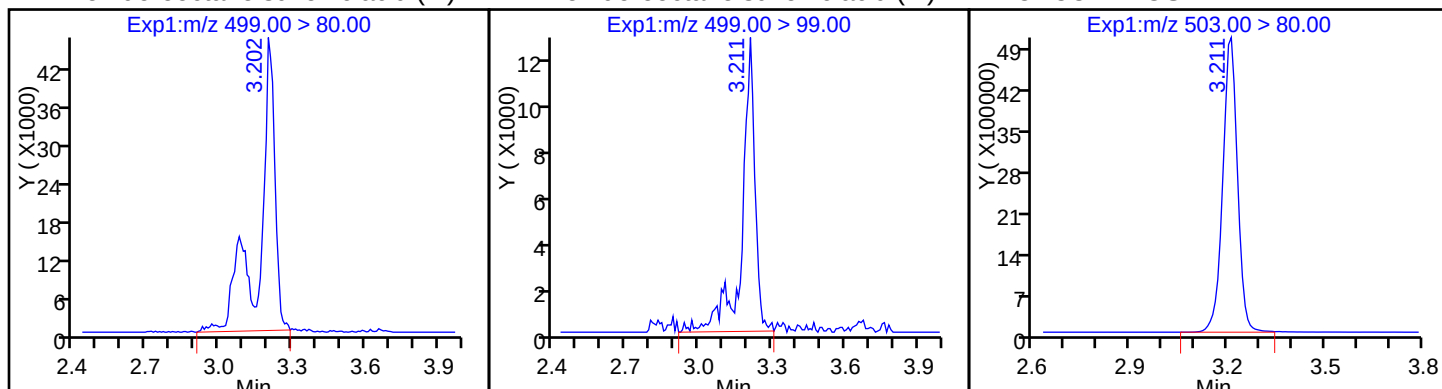
15 Perfluorooctanoic acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS



TestAmerica Sacramento

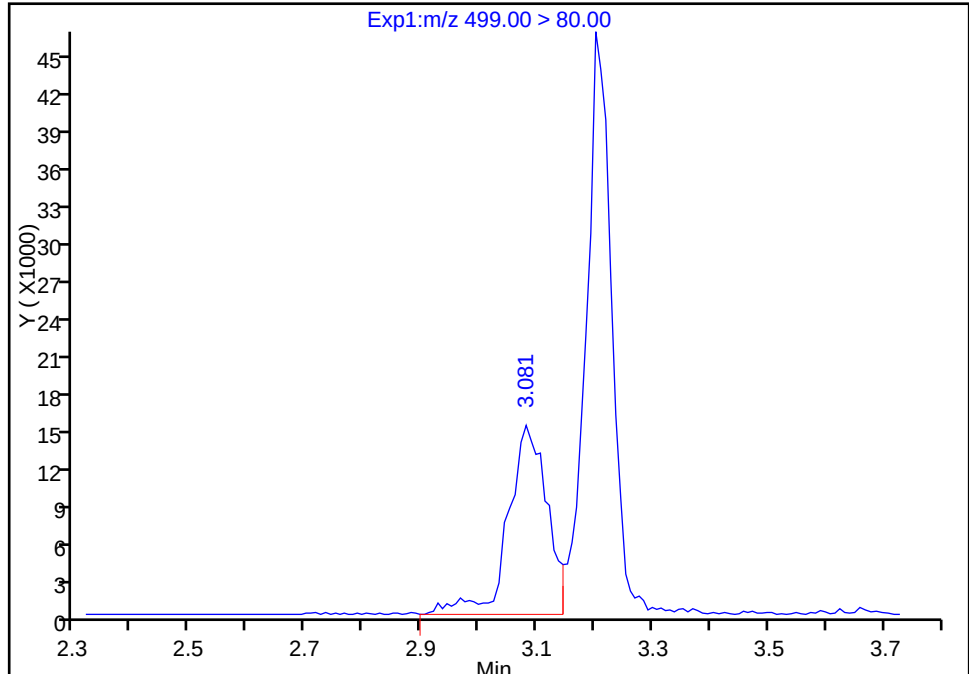
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_010.d
Injection Date: 02-Mar-2017 11:20:18 Instrument ID: A8_N
Lims ID: 320-26011-A-10-A Lab Sample ID: 320-26011-10
Client ID: MEAFF-EB02-022217-SO
Operator ID: A8-PC\A8 ALS Bottle#: 7 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

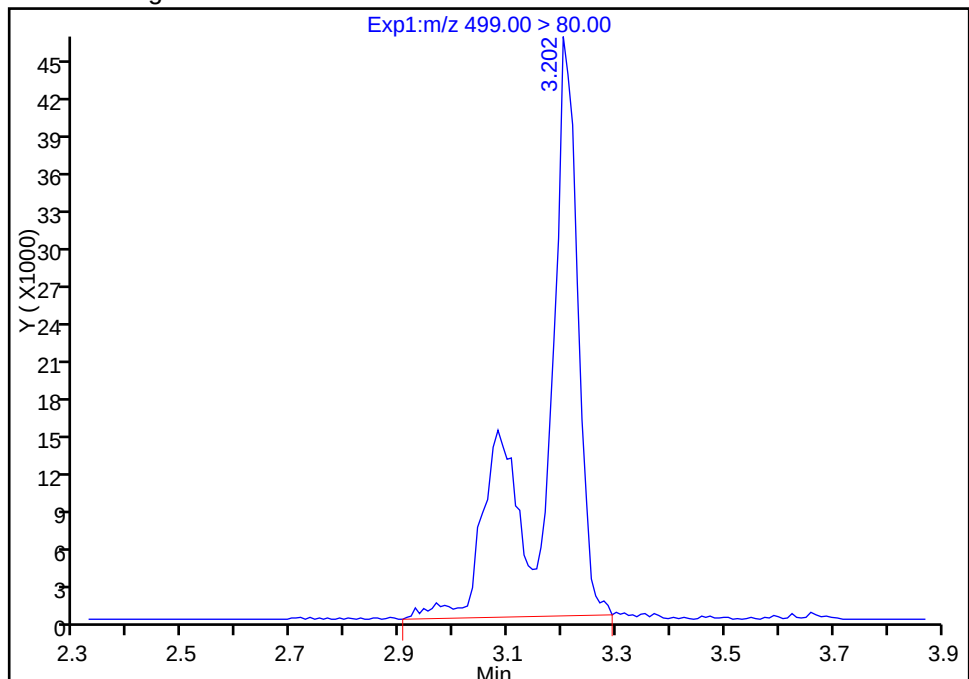
RT: 3.08
Area: 70432
Amount: 0.212146
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 208694
Amount: 0.628600
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:16

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

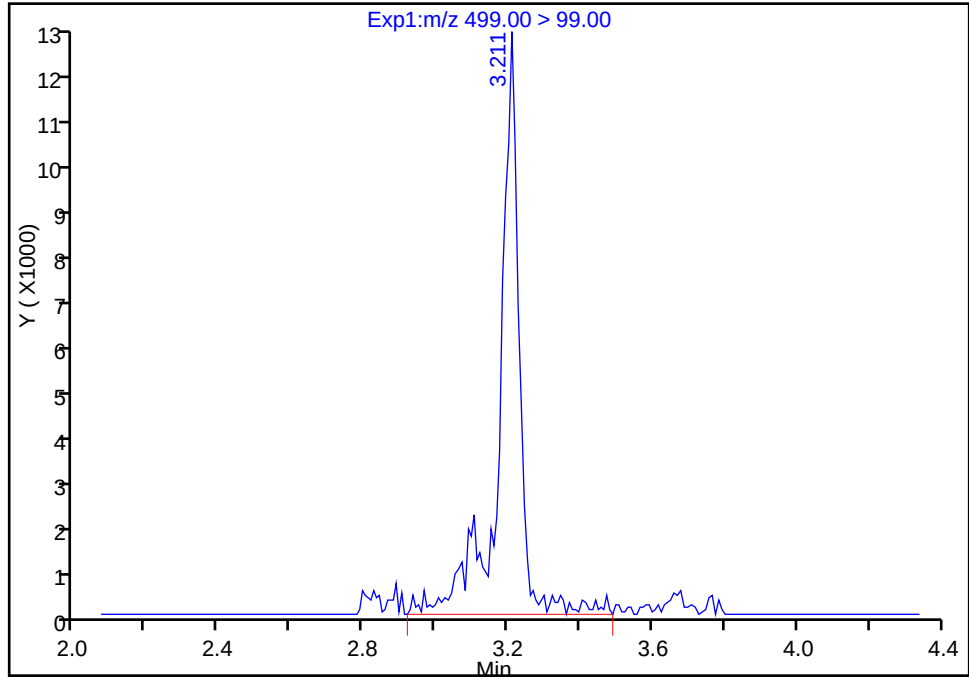
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_010.d
Injection Date: 02-Mar-2017 11:20:18 Instrument ID: A8_N
Lims ID: 320-26011-A-10-A Lab Sample ID: 320-26011-10
Client ID: MEAFF-EB02-022217-SO
Operator ID: A8-PCVA8 ALS Bottle#: 7 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

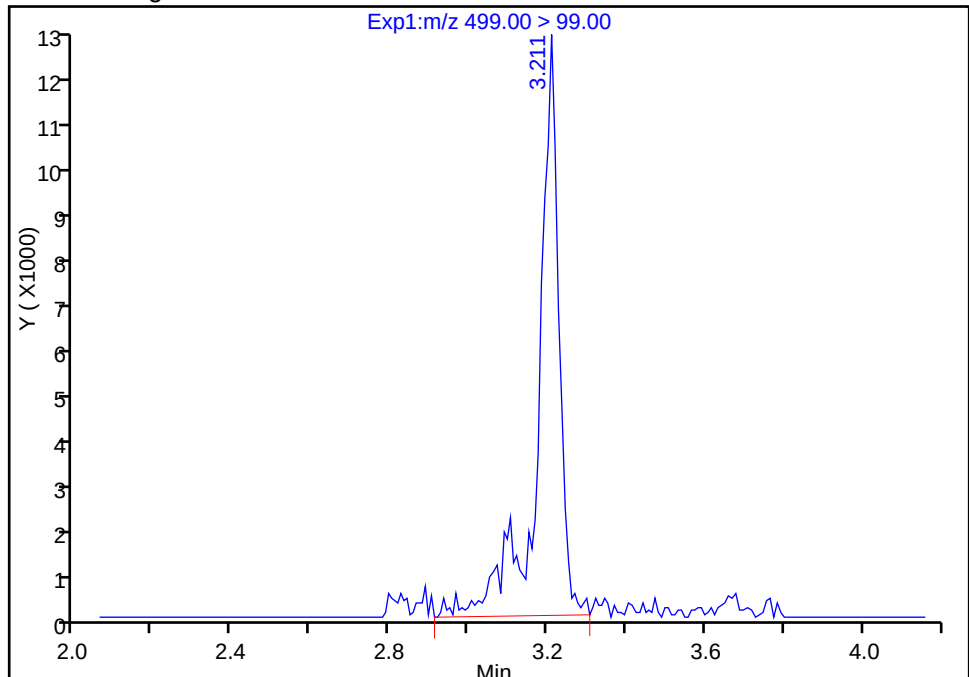
RT: 3.21
Area: 50070
Amount: 0.212146
Amount Units: ng/ml

Processing Integration Results



RT: 3.21
Area: 47312
Amount: 0.628600
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:16

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4A-SB01-0001 Lab Sample ID: 320-26011-11
 Matrix: Solid Lab File ID: 2017.03.11D_050.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:26
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.05(g) Date Analyzed: 03/12/2017 00:43
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 13.5 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	130		25-150
STL00991	13C4 PFOS	89		25-150
STL00994	18O2 PFHxS	106		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d
 Lims ID: 320-26011-A-11-A
 Client ID: MEAFF-SDA4A-SB01-0001
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:43:02 ALS Bottle#: 42 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-11-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:01:24 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:25:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.851	1.851	0.0	1.000	351643	0.7958				
298.90 > 99.00	1.851	1.851	0.0	1.000	135007		2.60(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.456	2.457	-0.001		14589839	50.2		106	374335	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.807	2.800	0.007	1.000	369523	1.36			2799	M
413.00 > 169.00	2.807	2.800	0.007	1.000	255746		1.44(0.90-1.10)		7547	M
D 14 13C4 PFOA										
417.00 > 372.00	2.807	2.800	0.007		13278085	64.8		130	385127	
D 18 13C4 PFOS										
503.00 > 80.00	3.188	3.173	0.015		10294382	42.6		89.1	259239	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.180	3.182	-0.002	1.000	586642	2.77			15953	M
499.00 > 99.00	3.188	3.182	0.006	1.003	118822		4.94(0.90-1.10)		2804	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d

Injection Date: 12-Mar-2017 00:43:02

Instrument ID: A8_N

Lims ID: 320-26011-A-11-A

Lab Sample ID: 320-26011-11

Client ID: MEAFF-SDA4A-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 42

Worklist Smp#: 14

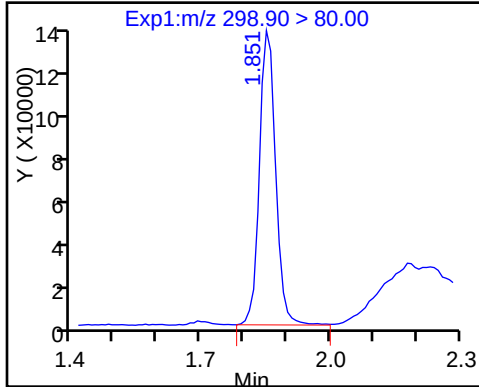
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

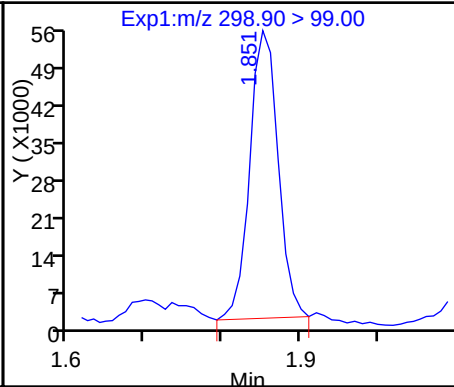
Method: A8_N

Limit Group: LC PFC_DOD ICAL

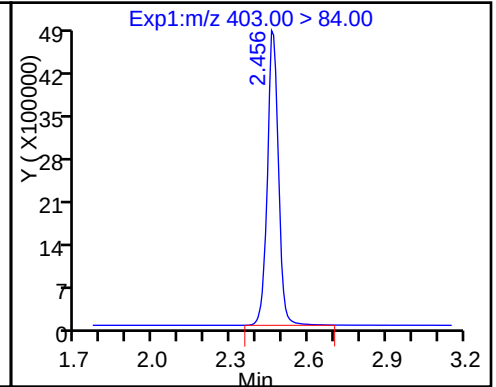
5 Perfluorobutanesulfonic acid



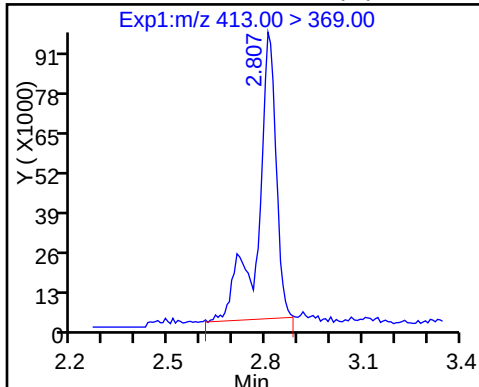
5 Perfluorobutanesulfonic acid (M)



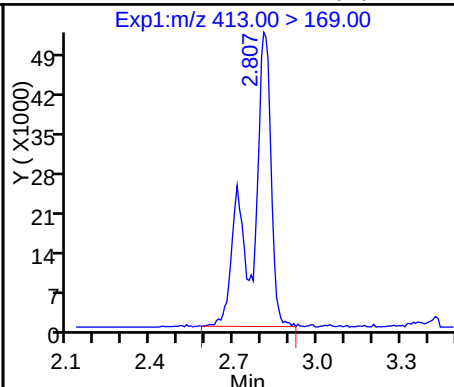
D 11 18O2 PFHxS



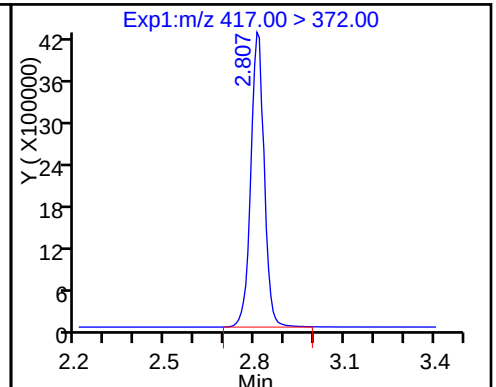
15 Perfluorooctanoic acid (M)



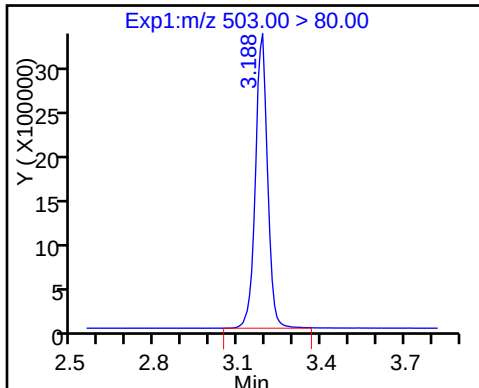
15 Perfluorooctanoic acid (M)



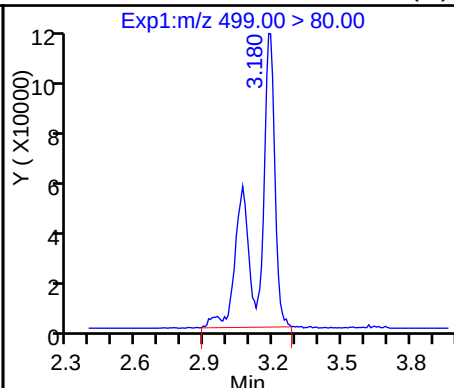
D 14 13C4 PFOA



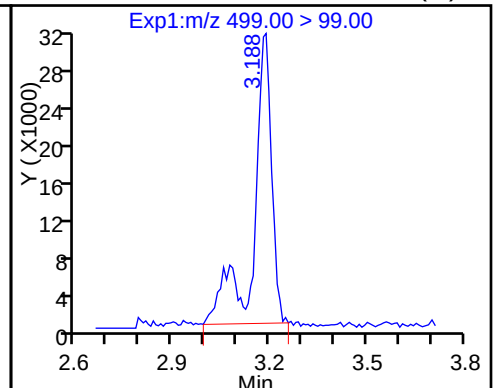
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

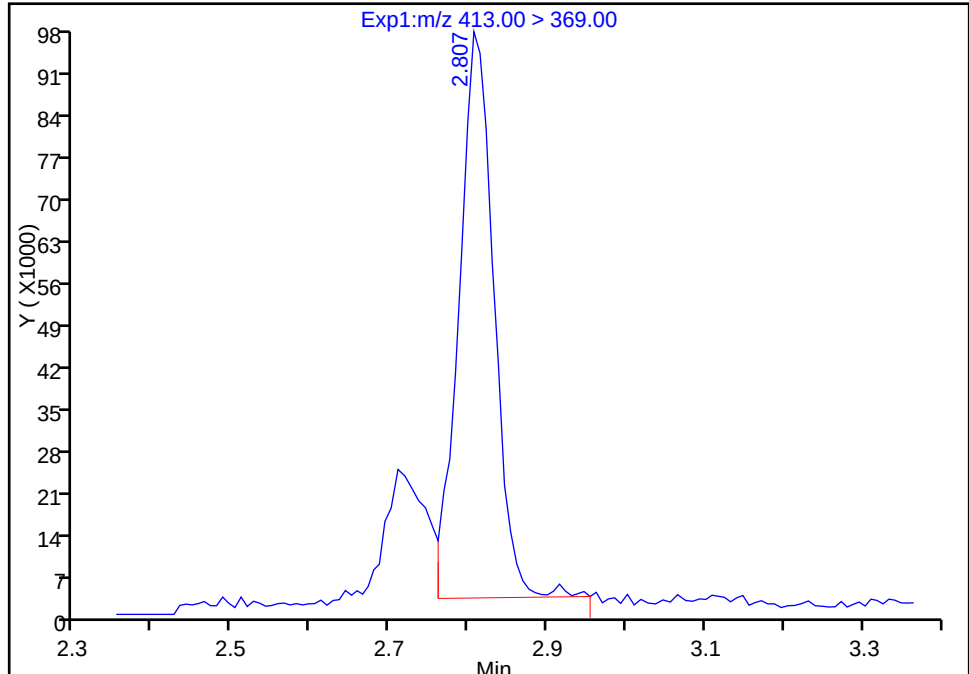
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d
Injection Date: 12-Mar-2017 00:43:02 Instrument ID: A8_N
Lims ID: 320-26011-A-11-A Lab Sample ID: 320-26011-11
Client ID: MEAFF-SDA4A-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 14
Injection Vol: 2.0 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

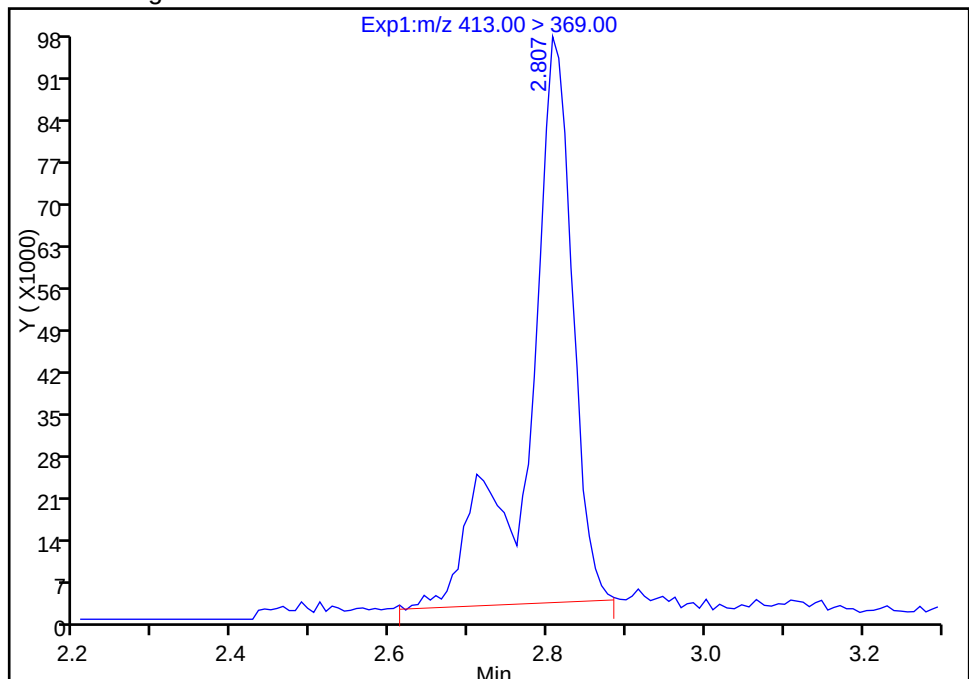
RT: 2.81
Area: 292359
Amount: 1.077570
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 369523
Amount: 1.361979
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:06

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

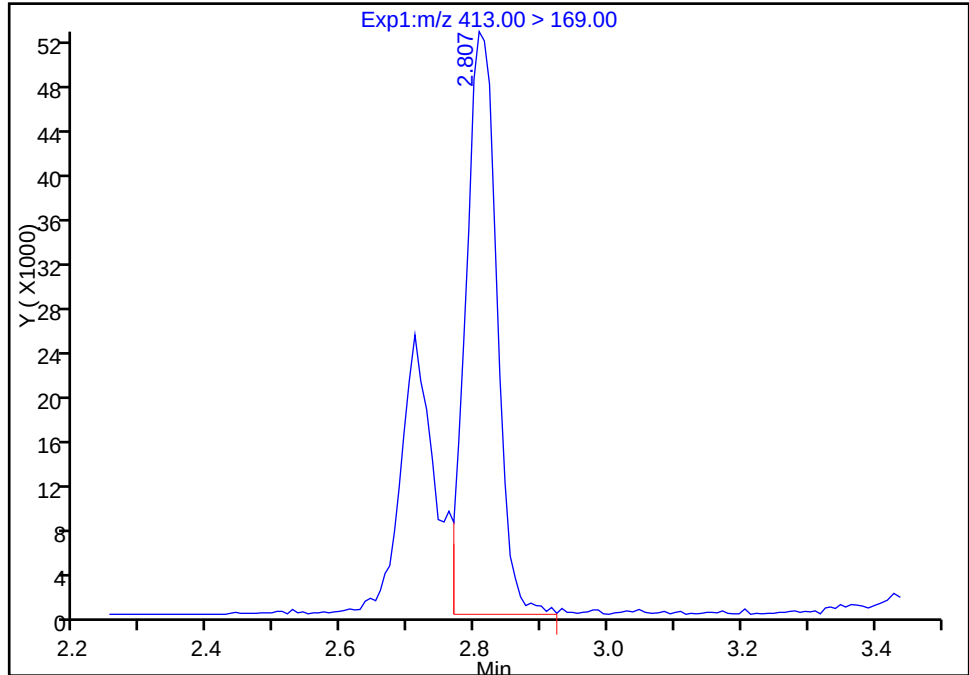
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d
Injection Date: 12-Mar-2017 00:43:02 Instrument ID: A8_N
Lims ID: 320-26011-A-11-A Lab Sample ID: 320-26011-11
Client ID: MEAFF-SDA4A-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 42 Worklist Smp#: 14
Injection Vol: 2.0 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

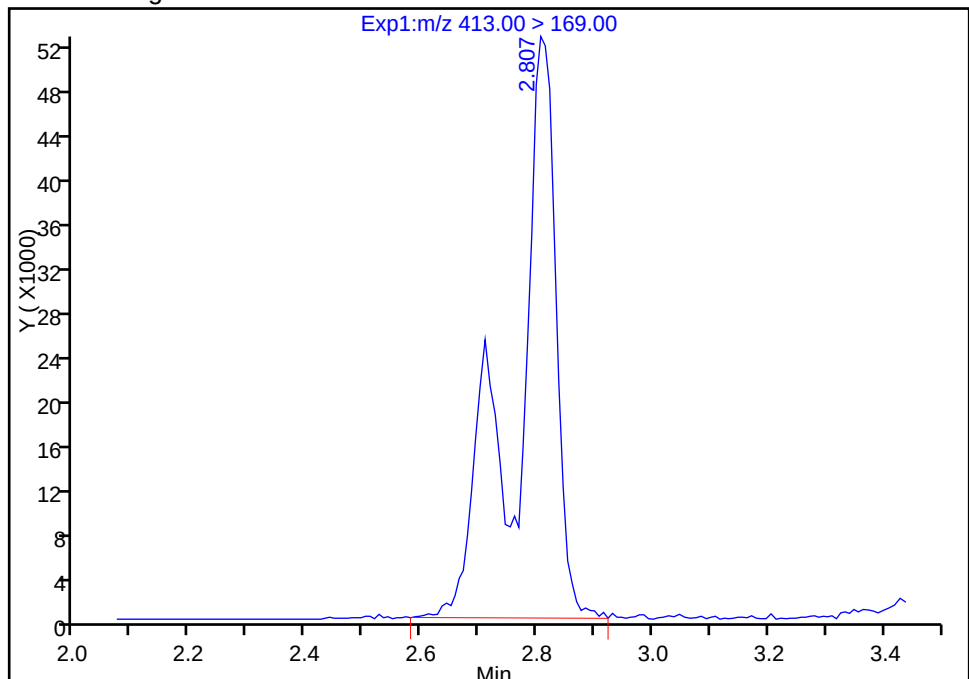
RT: 2.81
Area: 168969
Amount: 1.077570
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 255746
Amount: 1.361979
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:06

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

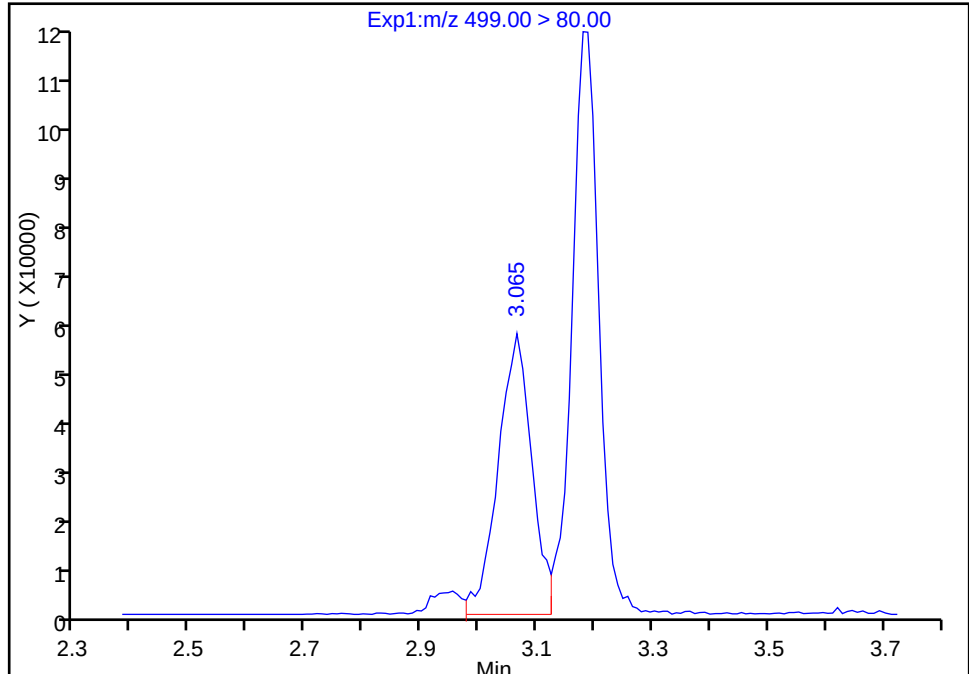
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d
Injection Date: 12-Mar-2017 00:43:02 Instrument ID: A8_N
Lims ID: 320-26011-A-11-A Lab Sample ID: 320-26011-11
Client ID: MEAFF-SDA4A-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 14
Injection Vol: 2.0 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

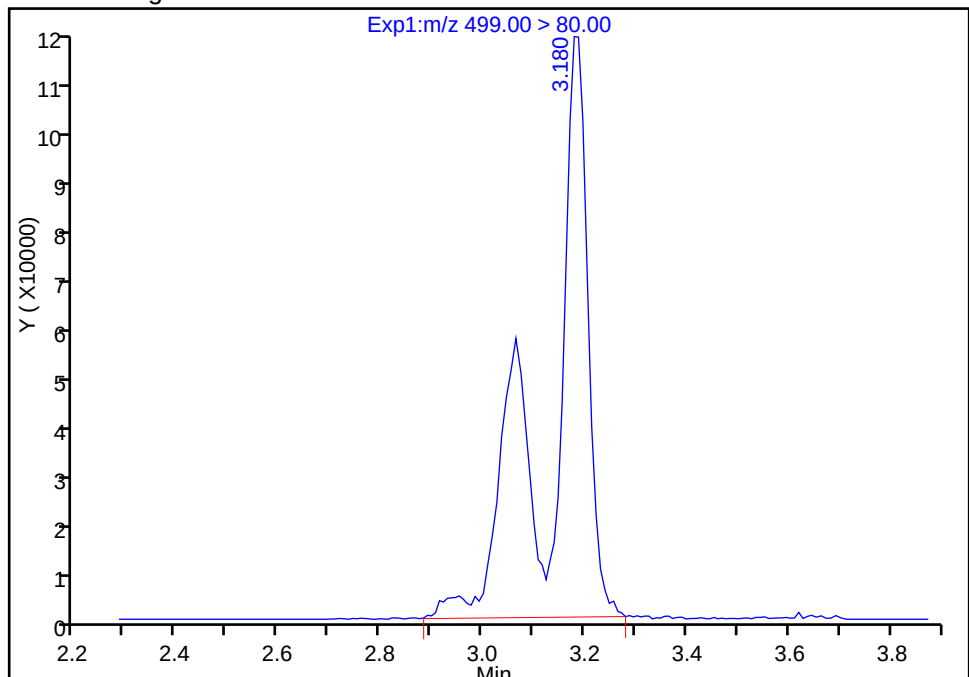
RT: 3.07
Area: 216746
Amount: 1.023322
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 586642
Amount: 2.769710
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:06
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 391 of 781

03/27/2017

TestAmerica Sacramento

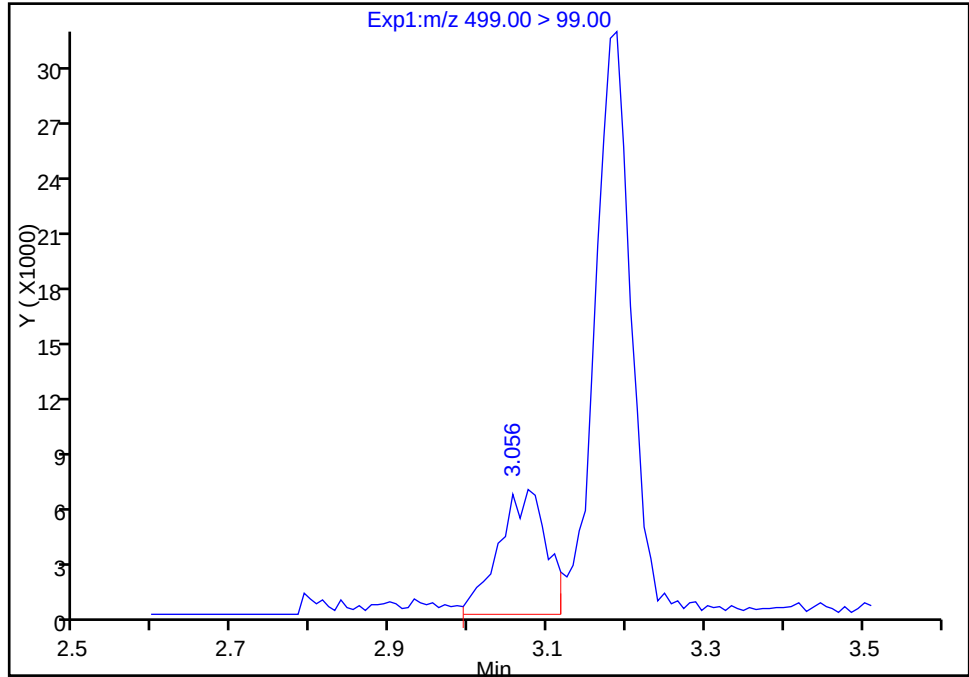
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d
Injection Date: 12-Mar-2017 00:43:02 Instrument ID: A8_N
Lims ID: 320-26011-A-11-A Lab Sample ID: 320-26011-11
Client ID: MEAFF-SDA4A-SB01-0001
Operator ID: A8-PCVA8 ALS Bottle#: 42 Worklist Smp#: 14
Injection Vol: 2.0 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

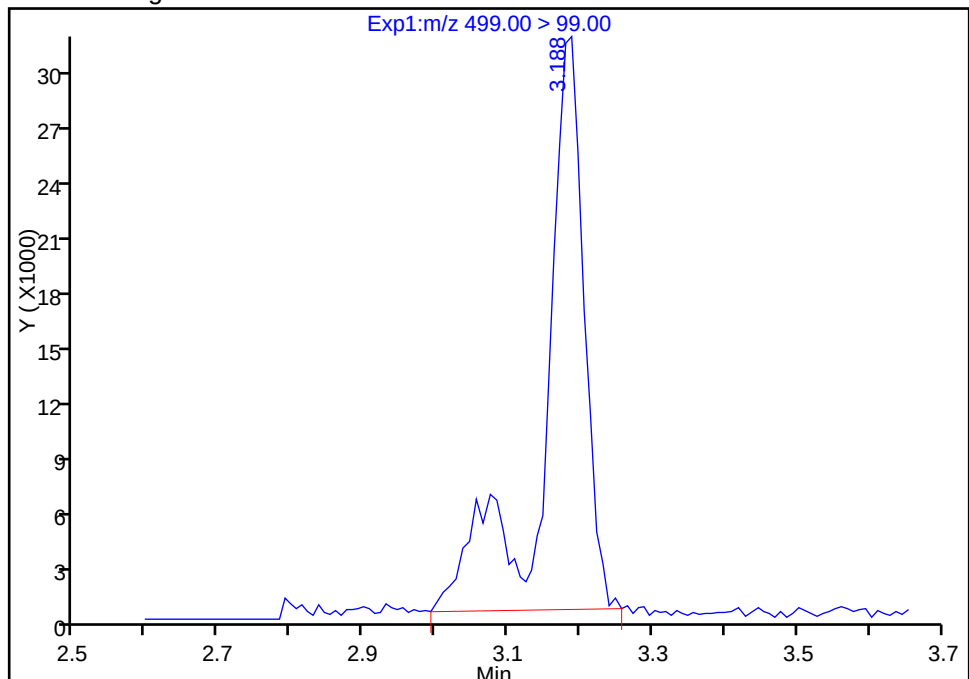
RT: 3.06
Area: 27740
Amount: 1.023322
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 118822
Amount: 2.769710
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:06

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

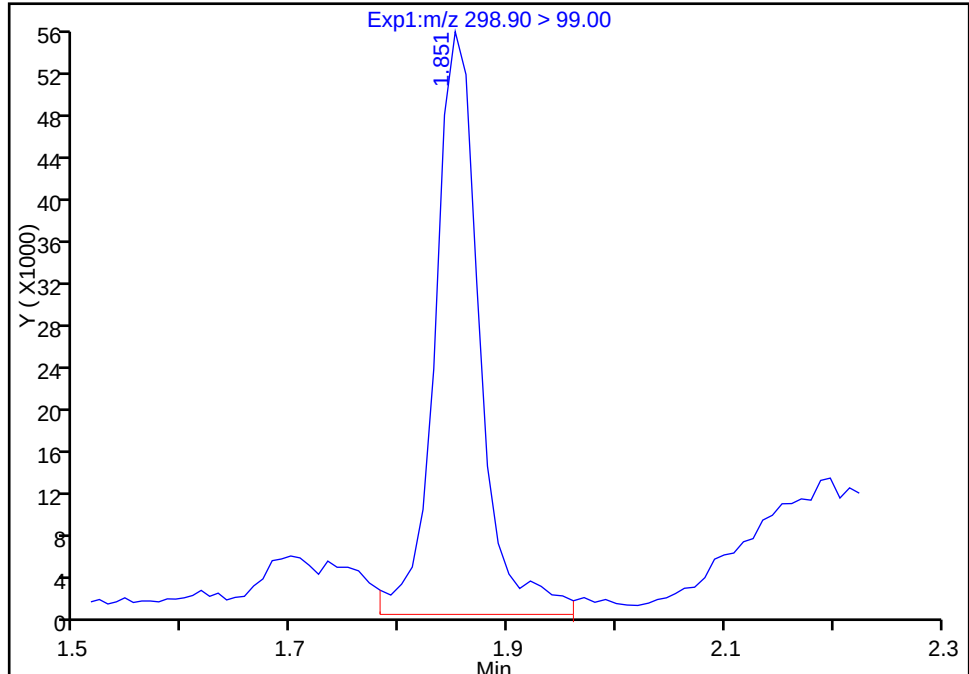
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_050.d				
Injection Date:	12-Mar-2017 00:43:02	Instrument ID:	A8_N		
Lims ID:	320-26011-A-11-A	Lab Sample ID:	320-26011-11		
Client ID:	MEAFF-SDA4A-SB01-0001				
Operator ID:	A8-PC\A8	ALS Bottle#:	42	Worklist Smp#:	14
Injection 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

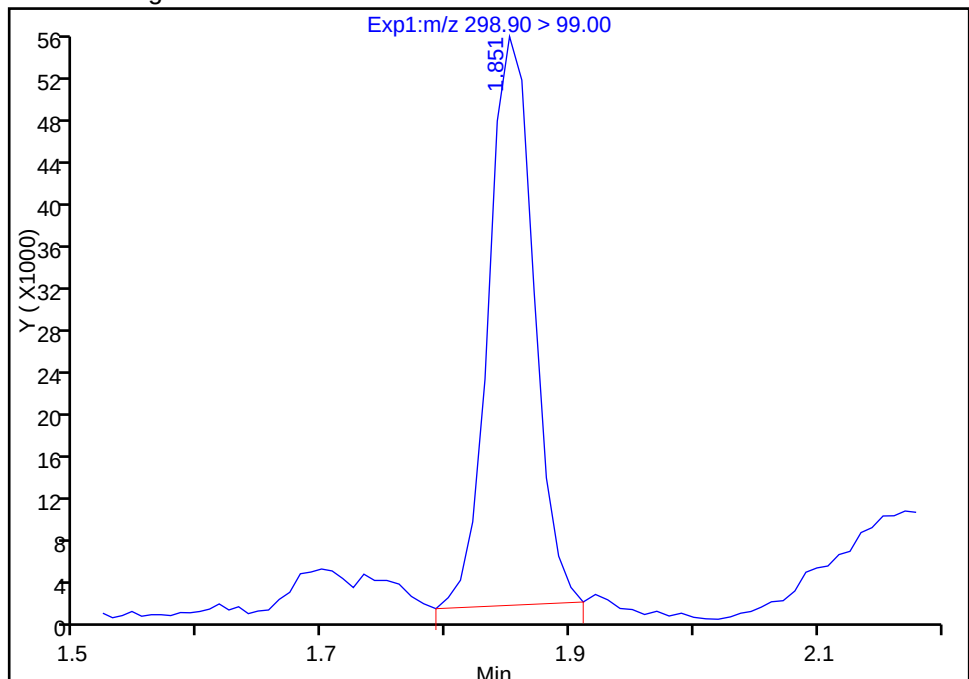
RT: 1.85
Area: 158259
Amount: 0.795822
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 135007
Amount: 0.795822
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:01:18

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4A-SB01-0204</u>	Lab Sample ID: <u>320-26011-12</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_051.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 15:33</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.96(g)</u>	Date Analyzed: <u>03/12/2017 00:50</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>14.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U M	0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	32		25-150
STL00994	18O2 PFHxS	89		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d
 Lims ID: 320-26011-A-12-A
 Client ID: MEAFF-SDA4A-SB01-0204
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:50:32 ALS Bottle#: 43 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-12-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:02:26 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:26:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.861	1.851	0.010	1.000	23674	0.0636				
298.90 > 99.00	1.861	1.851	0.010	1.000	9490		2.49(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.475	2.457	0.018		12288418	42.2		89.3	375223	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.826	2.800	0.026	1.000	51652	0.2528			477	M
413.00 > 169.00	2.826	2.800	0.026	1.000	30028		1.72(0.90-1.10)		1040	M
D 14 13C4 PFOA										
417.00 > 372.00	2.818	2.800	0.018		10000522	48.8		97.6	289698	
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.173	0.020		3643237	15.1		31.5	133084	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.182	0.011	1.000	30930	0.4126			1369	M
499.00 > 99.00	3.176	3.182	-0.006	0.995	8270		3.74(0.90-1.10)		200	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d

Injection Date: 12-Mar-2017 00:50:32

Instrument ID: A8_N

Lims ID: 320-26011-A-12-A

Lab Sample ID: 320-26011-12

Client ID: MEAFF-SDA4A-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 43

Worklist Smp#: 15

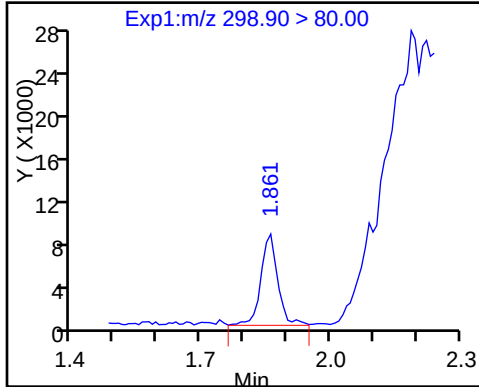
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

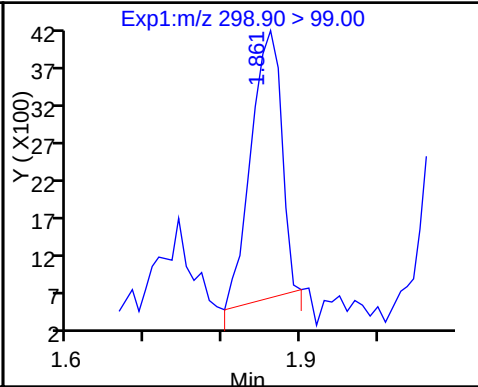
Method: A8_N

Limit Group: LC PFC_DOD ICAL

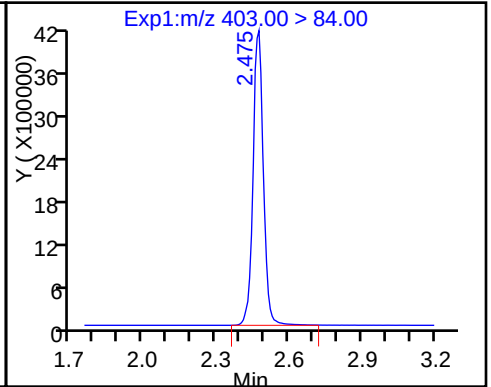
5 Perfluorobutanesulfonic acid



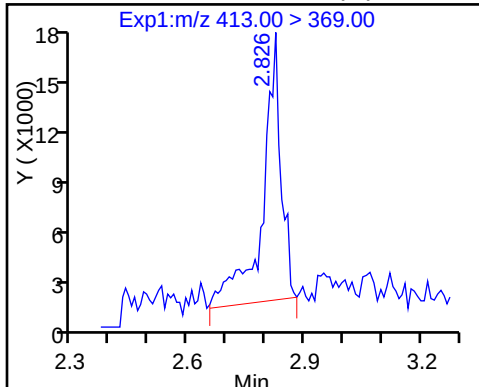
5 Perfluorobutanesulfonic acid (M)



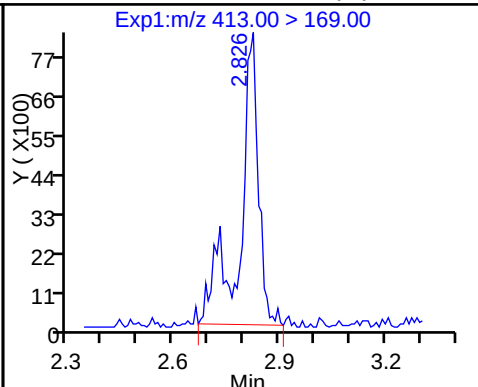
D 11 18O2 PFHxS



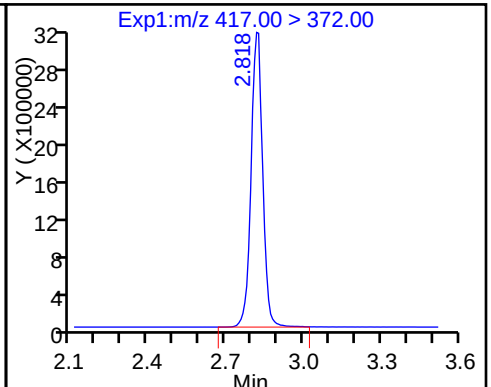
15 Perfluorooctanoic acid (M)



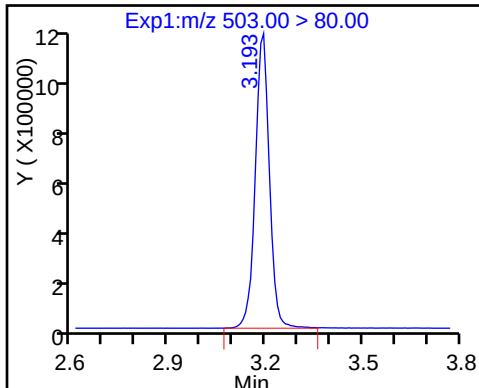
15 Perfluorooctanoic acid (M)



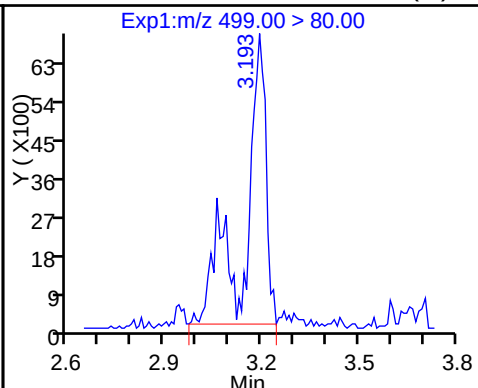
D 14 13C4 PFOA



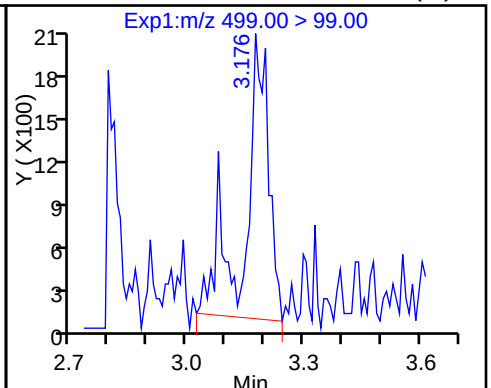
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

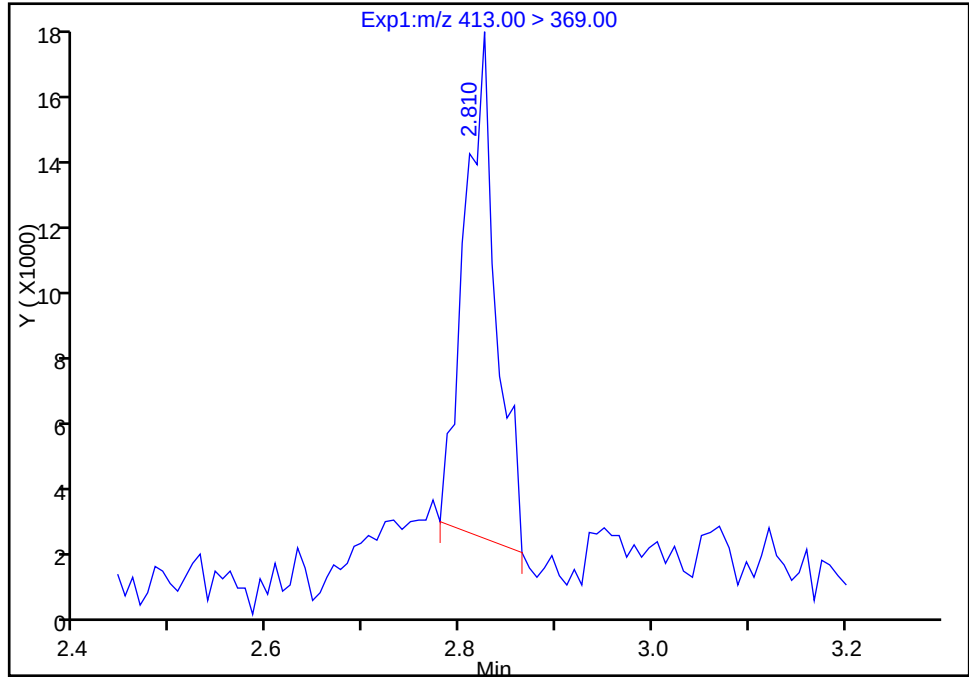
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d				
Injection Date:	12-Mar-2017 00:50:32	Instrument ID:	A8_N		
Lims ID:	320-26011-A-12-A	Lab Sample ID:	320-26011-12		
Client ID:	MEAFF-SDA4A-SB01-0204				
Operator ID:	A8-PC\A8	ALS Bottle#:	43	Worklist Smp#:	15
Injection 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

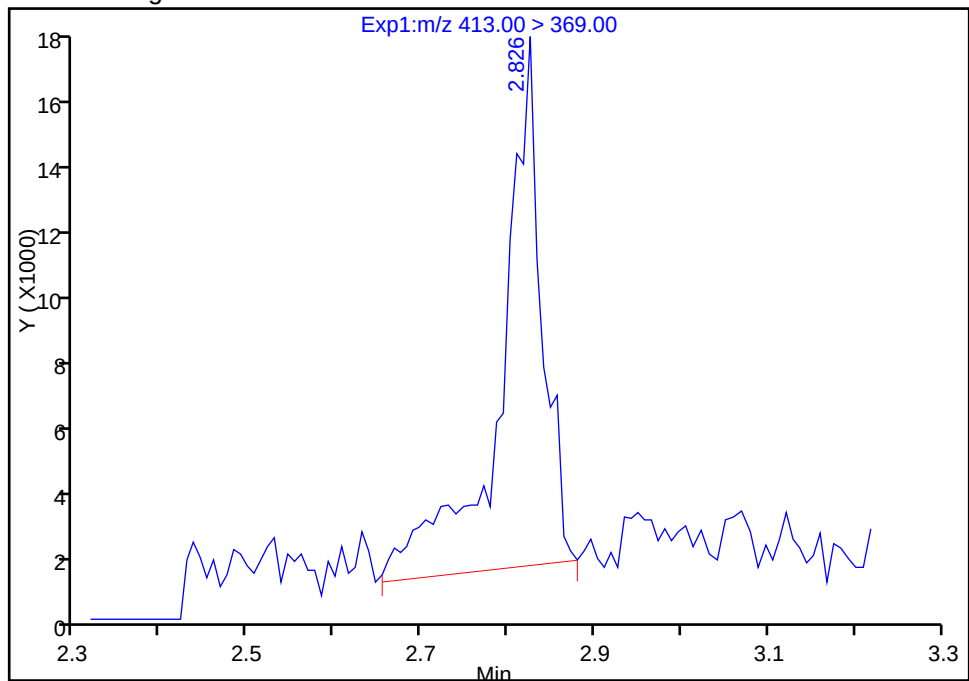
RT: 2.81
Area: 32651
Amount: 0.159786
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 51652
Amount: 0.252772
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:28

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

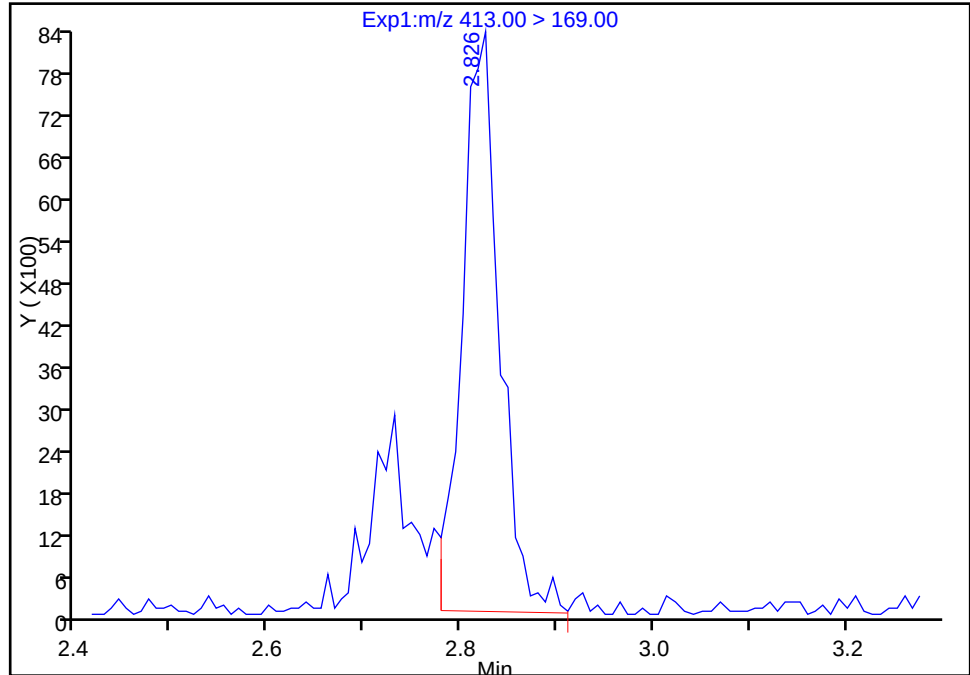
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d
Injection Date: 12-Mar-2017 00:50:32 Instrument ID: A8_N
Lims ID: 320-26011-A-12-A Lab Sample ID: 320-26011-12
Client ID: MEAFF-SDA4A-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 43 Worklist Smp#: 15
Injection Vol: 2.0 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

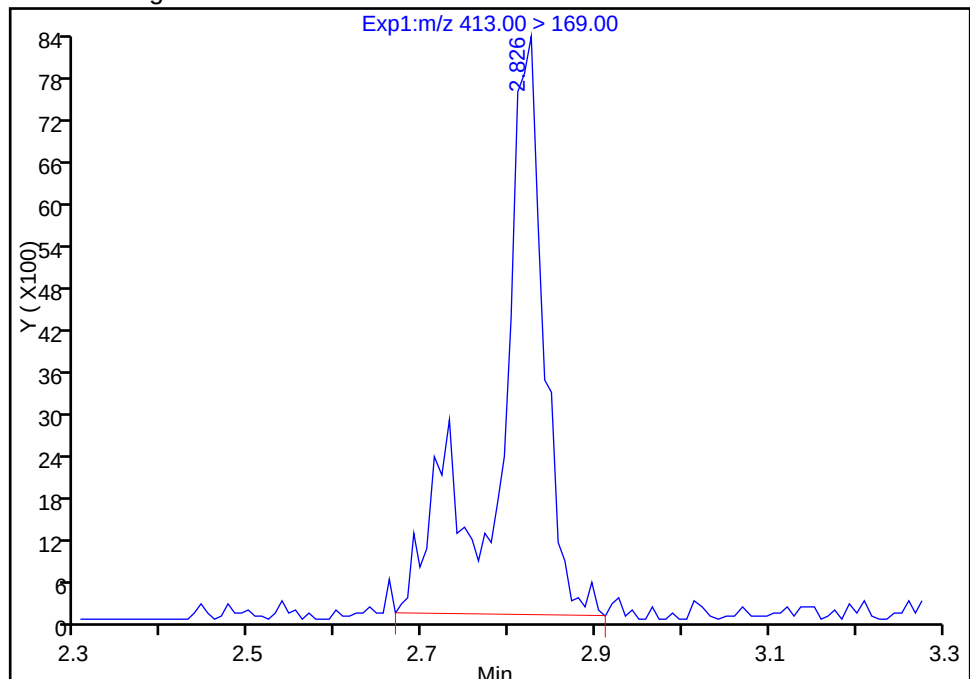
RT: 2.83
Area: 22314
Amount: 0.159786
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 30028
Amount: 0.252772
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:28

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

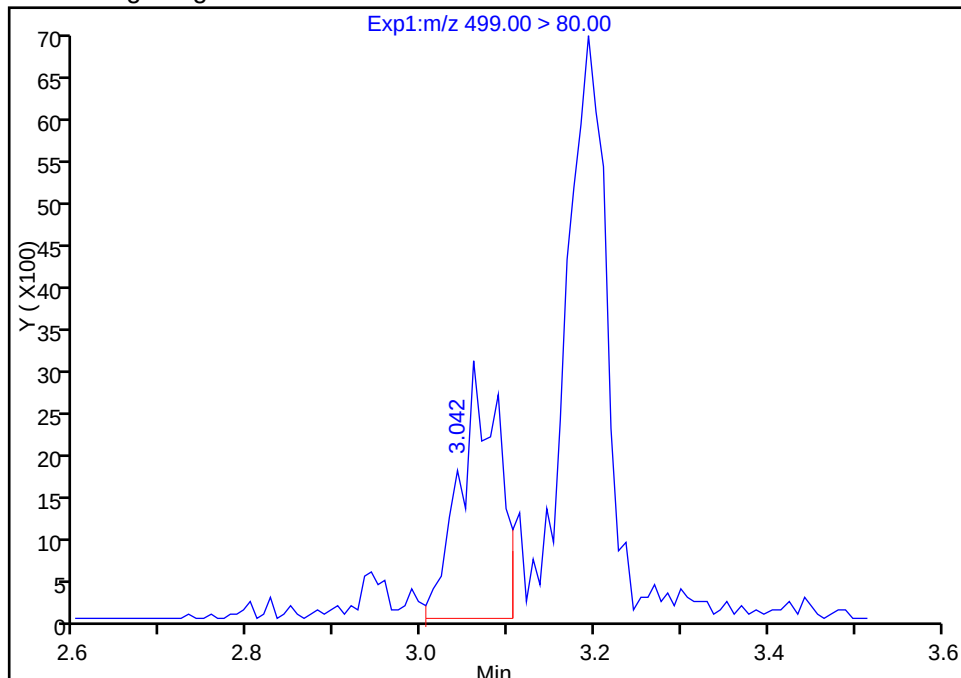
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d				
Injection Date:	12-Mar-2017 00:50:32	Instrument ID:	A8_N		
Lims ID:	320-26011-A-12-A	Lab Sample ID:	320-26011-12		
Client ID:	MEAFF-SDA4A-SB01-0204				
Operator ID:	A8-PC\A8	ALS Bottle#:	43	Worklist Smp#:	15
Injection 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

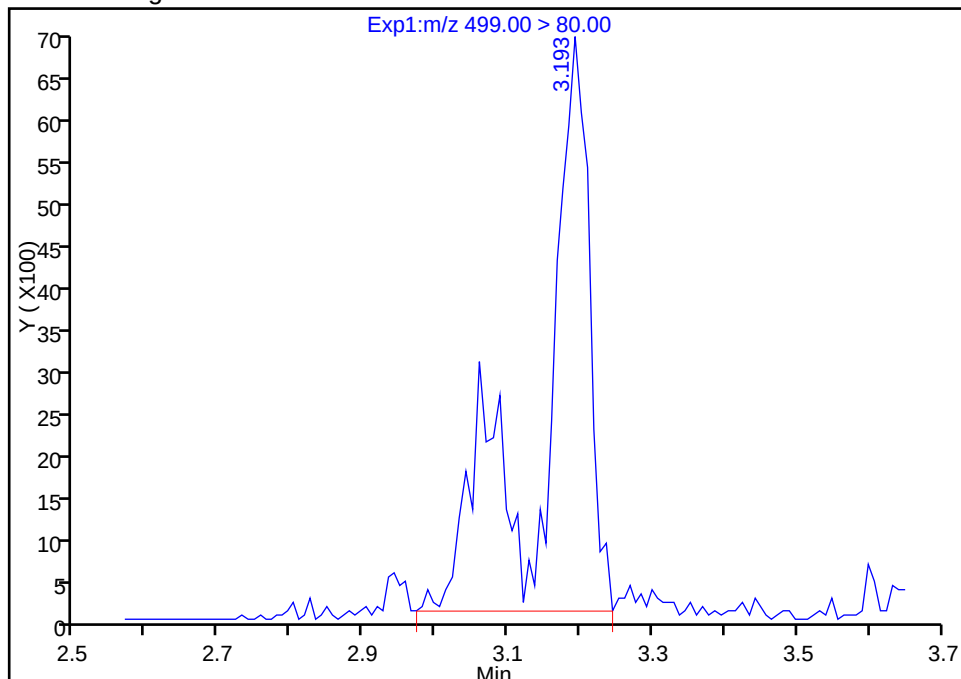
RT: 3.04
Area: 9435
Amount: 0.125868
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 30930
Amount: 0.412623
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:28

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

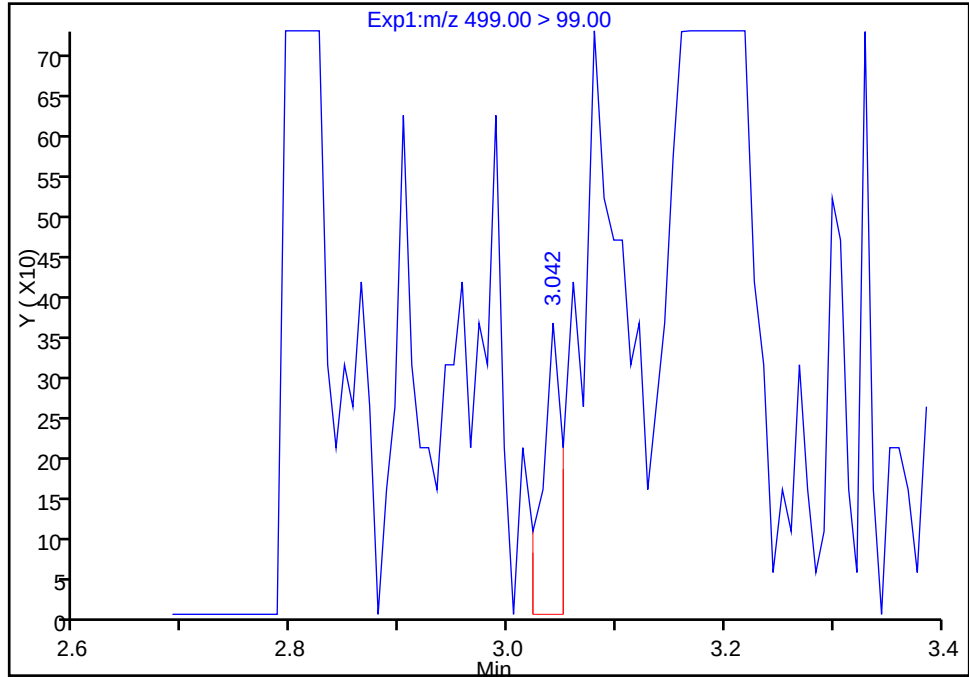
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d
Injection Date: 12-Mar-2017 00:50:32 Instrument ID: A8_N
Lims ID: 320-26011-A-12-A Lab Sample ID: 320-26011-12
Client ID: MEAFF-SDA4A-SB01-0204
Operator ID: A8-PCVA8 ALS Bottle#: 43 Worklist Smp#: 15
Injection Vol: 2.0 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

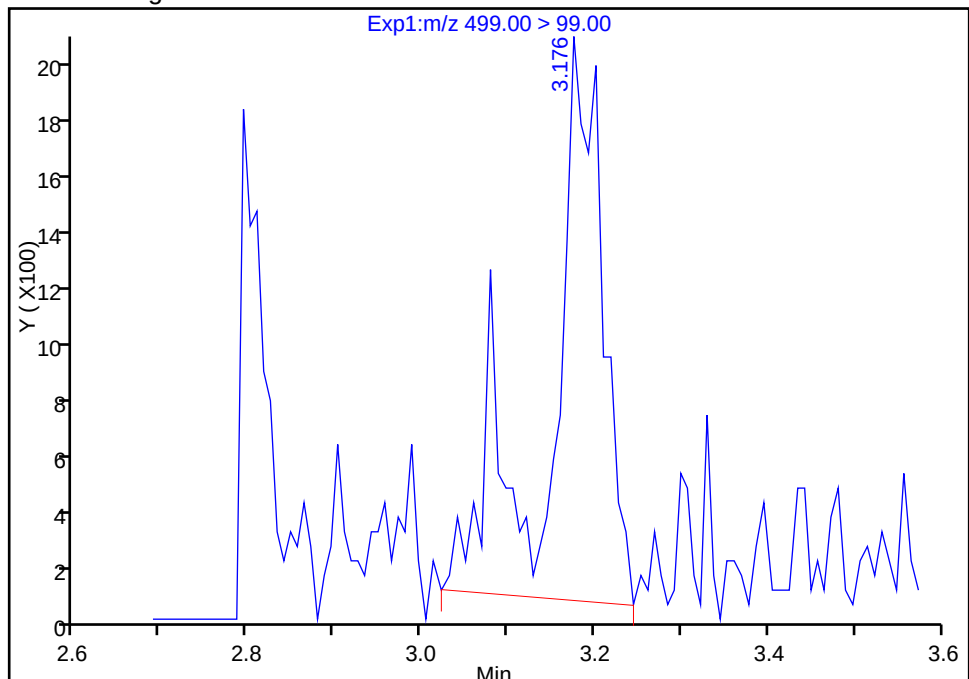
RT: 3.04
Area: 376
Amount: 0.125868
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 8270
Amount: 0.412623
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:01:28

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

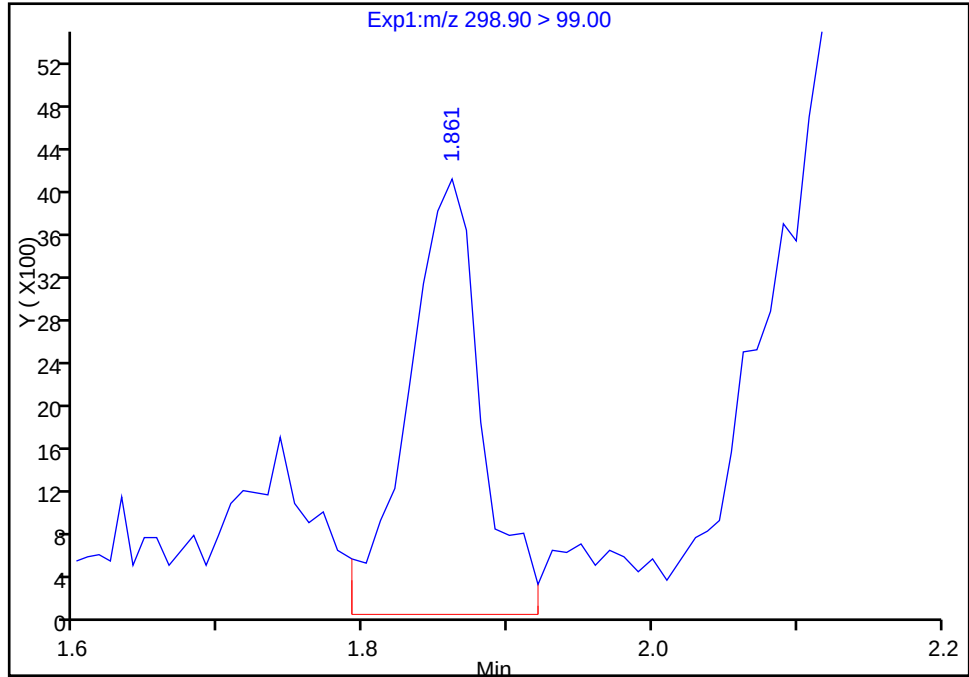
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_051.d
Injection Date: 12-Mar-2017 00:50:32 Instrument ID: A8_N
Lims ID: 320-26011-A-12-A Lab Sample ID: 320-26011-12
Client ID: MEAFF-SDA4A-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 43 Worklist Smp#: 15
Injection Vol: 2.0 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

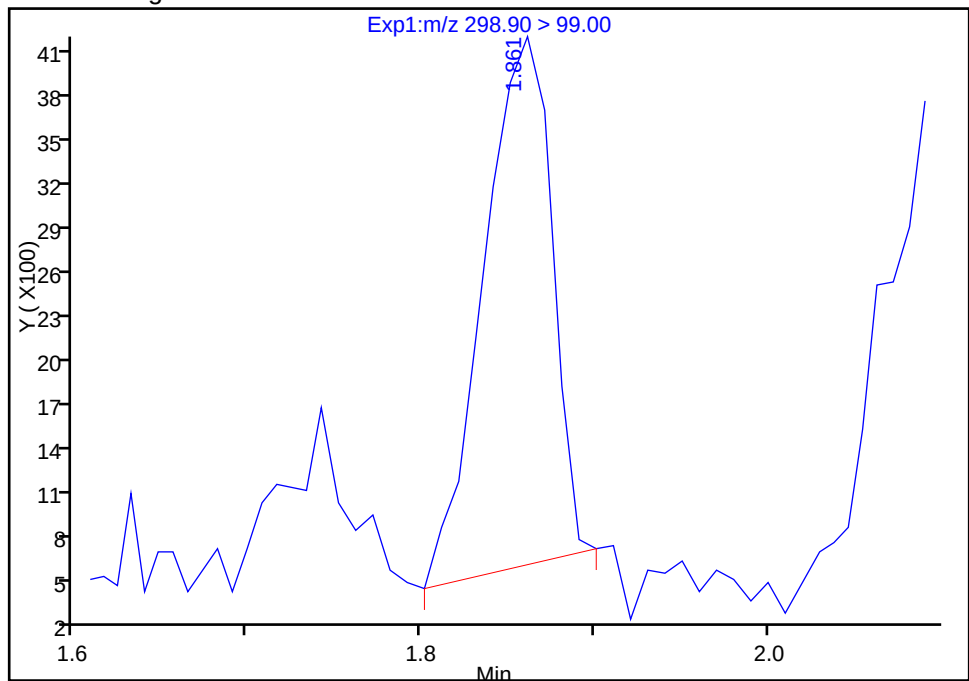
RT: 1.86
Area: 14203
Amount: 0.063612
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 9490
Amount: 0.063612
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:02:19

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4A-SB02-0001</u>	Lab Sample ID: <u>320-26011-13</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_052.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 15:39</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.06(g)</u>	Date Analyzed: <u>03/12/2017 00:58</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3(mm)</u>
% Moisture: <u>19.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.26	J M	0.61	0.37	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	M	0.61	0.37	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	U M	0.49	0.37	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	128		25-150
STL00991	13C4 PFOS	74		25-150
STL00994	18O2 PFHxS	95		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
 Lims ID: 320-26011-A-13-A
 Client ID: MEAFF-SDA4A-SB02-0001
 Sample Type: Client
 Inject. Date: 12-Mar-2017 00:58:02 ALS Bottle#: 44 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-13-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:02:53 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:28:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.861	1.851	0.010	1.000	11636	0.0293				M
298.90 > 99.00	1.861	1.851	0.010	1.000	6025		1.93(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.476	2.457	0.019		13129326	45.1		95.4	399514	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.834	2.800	0.034	1.000	281581	1.05			767	M
413.00 > 169.00	2.826	2.800	0.026	0.997	133515		2.11(0.90-1.10)		4448	M
D 14 13C4 PFOA										
417.00 > 372.00	2.826	2.800	0.026		13116059	64.0		128	367131	
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.173	0.020		8551706	35.4		74.0	192070	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.182	0.011	1.000	14887179	84.6			247639	M
499.00 > 99.00	3.193	3.182	0.011	1.000	3451861		4.31(0.90-1.10)		67655	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d

Injection Date: 12-Mar-2017 00:58:02

Instrument ID: A8_N

Lims ID: 320-26011-A-13-A

Lab Sample ID: 320-26011-13

Client ID: MEAFF-SDA4A-SB02-0001

Operator ID: A8-PC\A8

ALS Bottle#: 44

Worklist Smp#: 16

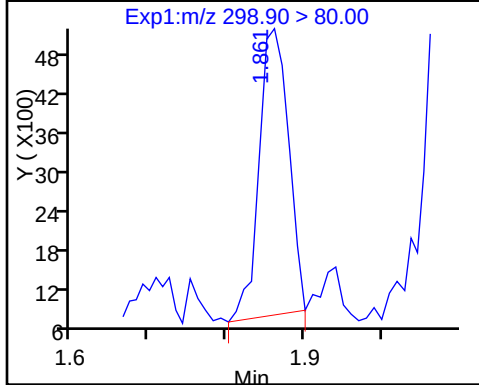
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

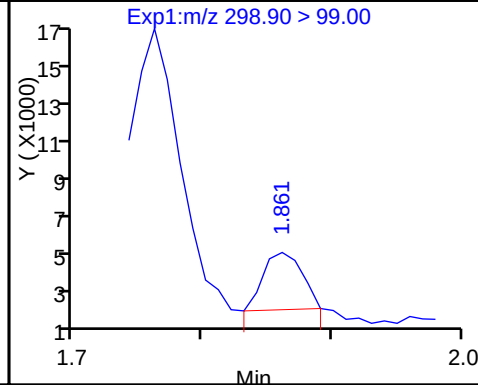
Method: A8_N

Limit Group: LC PFC_DOD ICAL

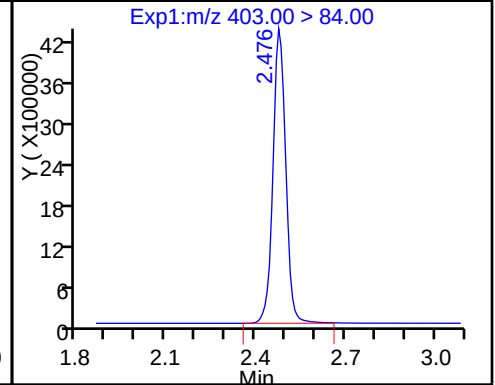
5 Perfluorobutanesulfonic acid (M)



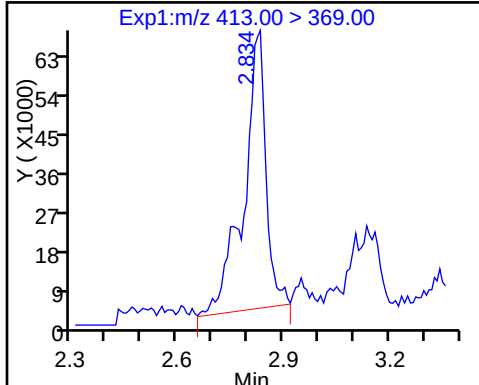
5 Perfluorobutanesulfonic acid (M)



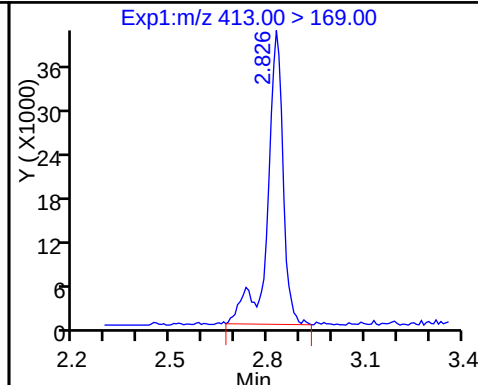
D 11 18O2 PFHxS



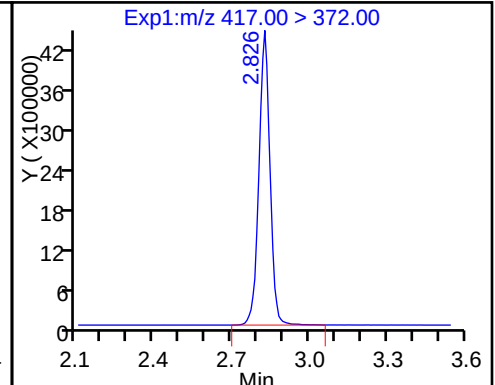
15 Perfluorooctanoic acid (M)



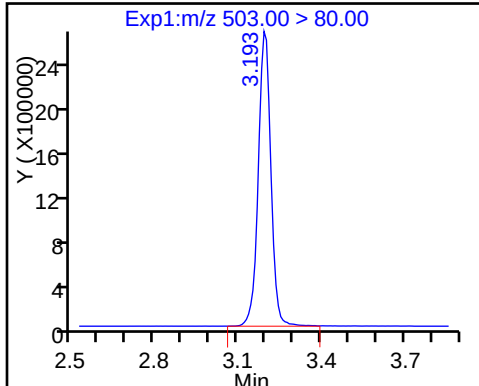
15 Perfluorooctanoic acid (M)



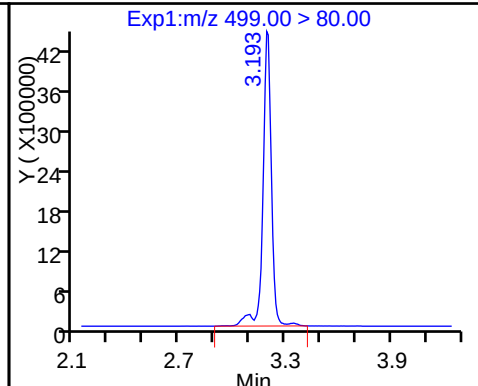
D 14 13C4 PFOA



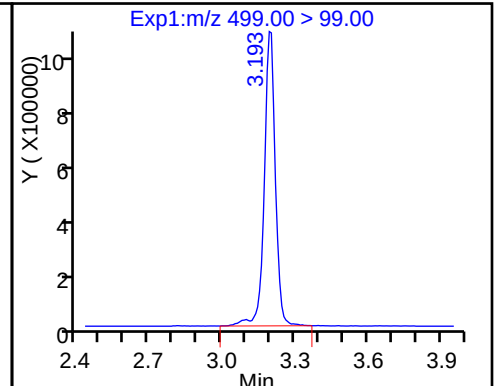
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

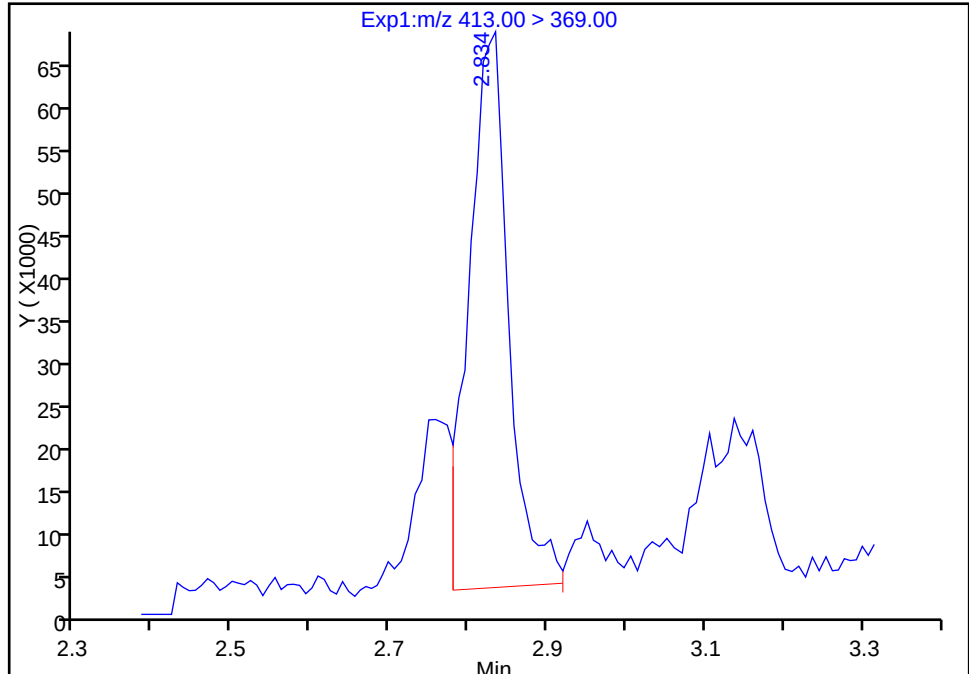
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
Injection Date: 12-Mar-2017 00:58:02 Instrument ID: A8_N
Lims ID: 320-26011-A-13-A Lab Sample ID: 320-26011-13
Client ID: MEAFF-SDA4A-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 44 Worklist Smp#: 16
Injection Vol: 2.0 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

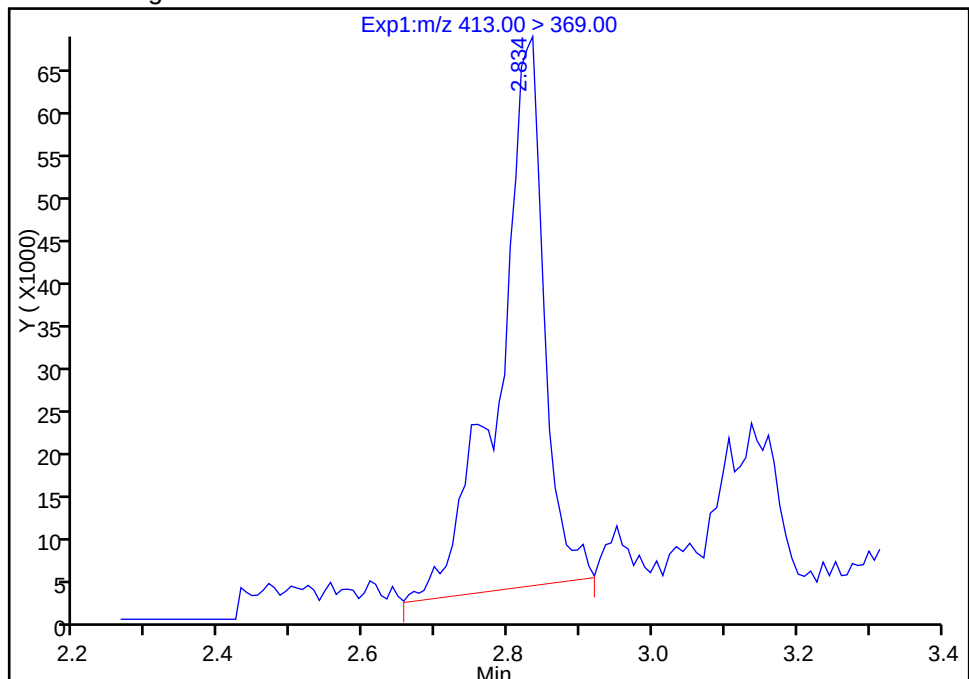
RT: 2.83
Area: 224797
Amount: 0.838787
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 281581
Amount: 1.050665
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:31

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

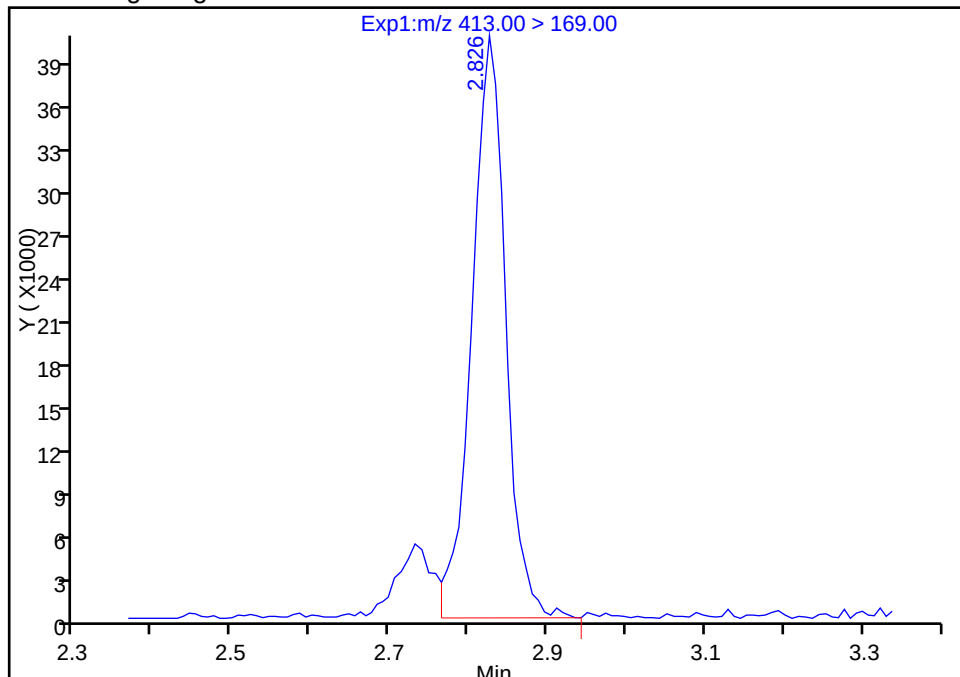
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
Injection Date: 12-Mar-2017 00:58:02 Instrument ID: A8_N
Lims ID: 320-26011-A-13-A Lab Sample ID: 320-26011-13
Client ID: MEAFF-SDA4A-SB02-0001
Operator ID: A8-PCVA8 ALS Bottle#: 44 Worklist Smp#: 16
Injection Vol: 2.0 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

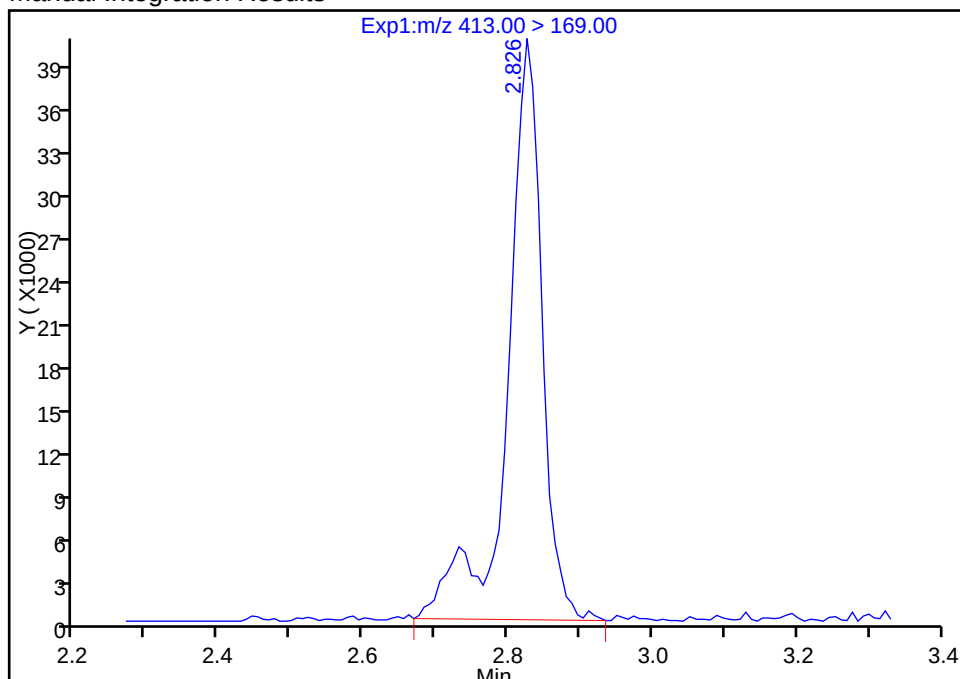
RT: 2.83
Area: 119213
Amount: 0.838787
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 133515
Amount: 1.050665
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:31

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

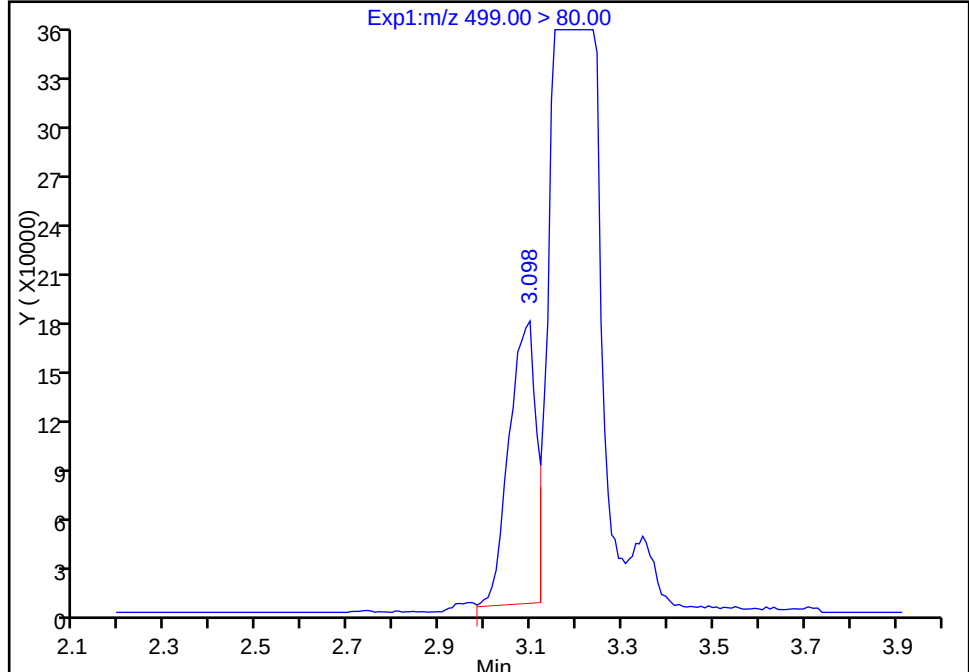
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
Injection Date: 12-Mar-2017 00:58:02 Instrument ID: A8_N
Lims ID: 320-26011-A-13-A Lab Sample ID: 320-26011-13
Client ID: MEAFF-SDA4A-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 44 Worklist Smp#: 16
Injection Vol: 2.0 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

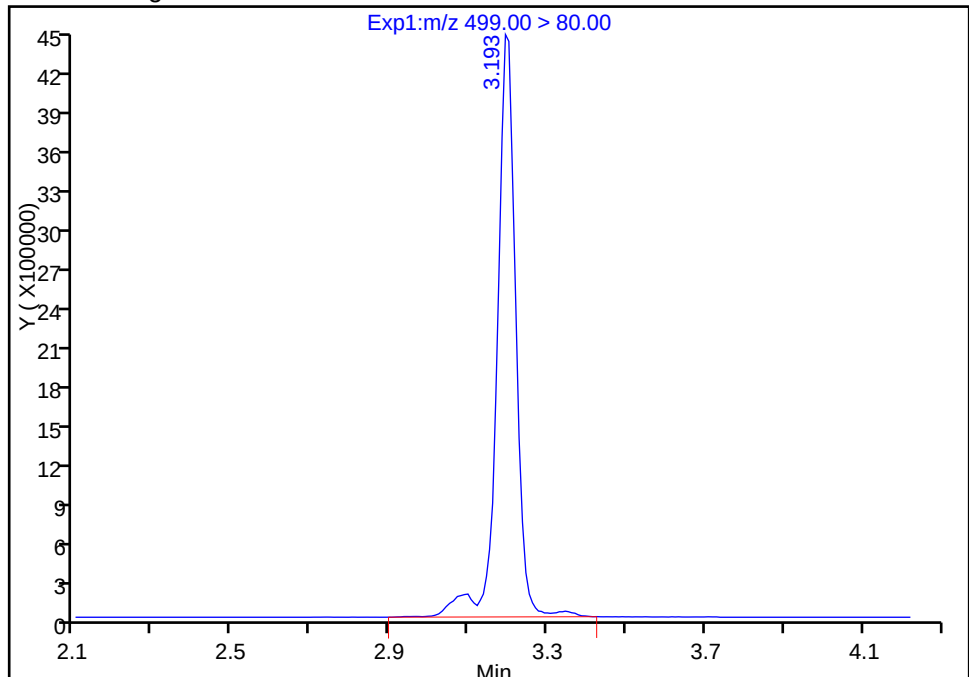
RT: 3.10
Area: 698204
Amount: 3.968176
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 14887179
Amount: 84.609864
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:31

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

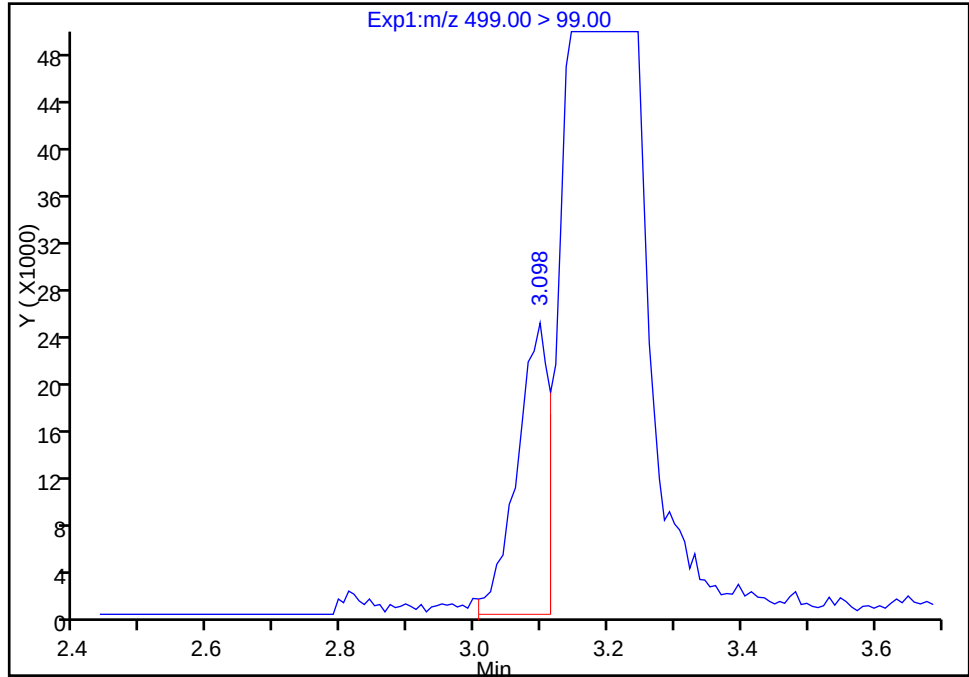
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
Injection Date: 12-Mar-2017 00:58:02 Instrument ID: A8_N
Lims ID: 320-26011-A-13-A Lab Sample ID: 320-26011-13
Client ID: MEAFF-SDA4A-SB02-0001
Operator ID: A8-PCVA8 ALS Bottle#: 44 Worklist Smp#: 16
Injection Vol: 2.0 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

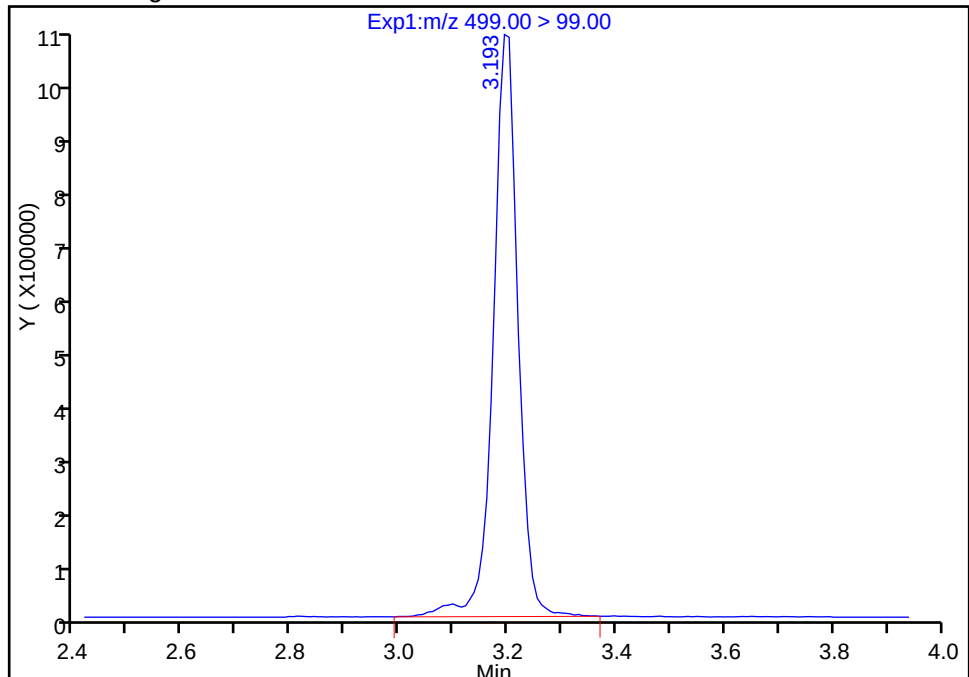
RT: 3.10
Area: 78373
Amount: 3.968176
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 3451861
Amount: 84.609864
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:31

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

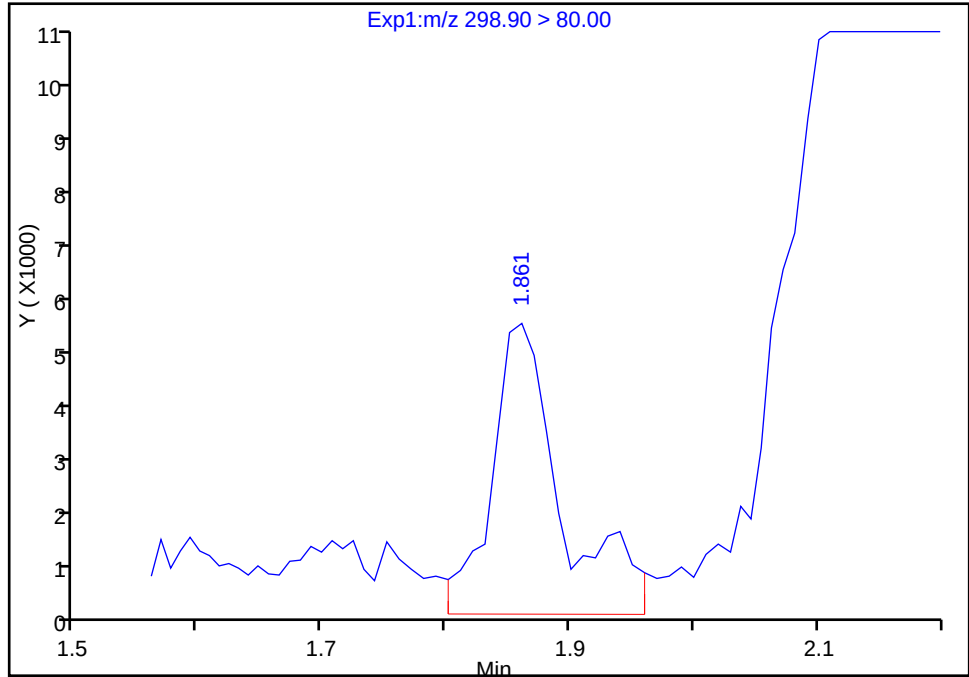
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d				
Injection Date:	12-Mar-2017 00:58:02	Instrument ID:	A8_N		
Lims ID:	320-26011-A-13-A	Lab Sample ID:	320-26011-13		
Client ID:	MEAFF-SDA4A-SB02-0001				
Operator ID:	A8-PC\A8	ALS Bottle#:	44	Worklist Smp#:	16
Injection 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

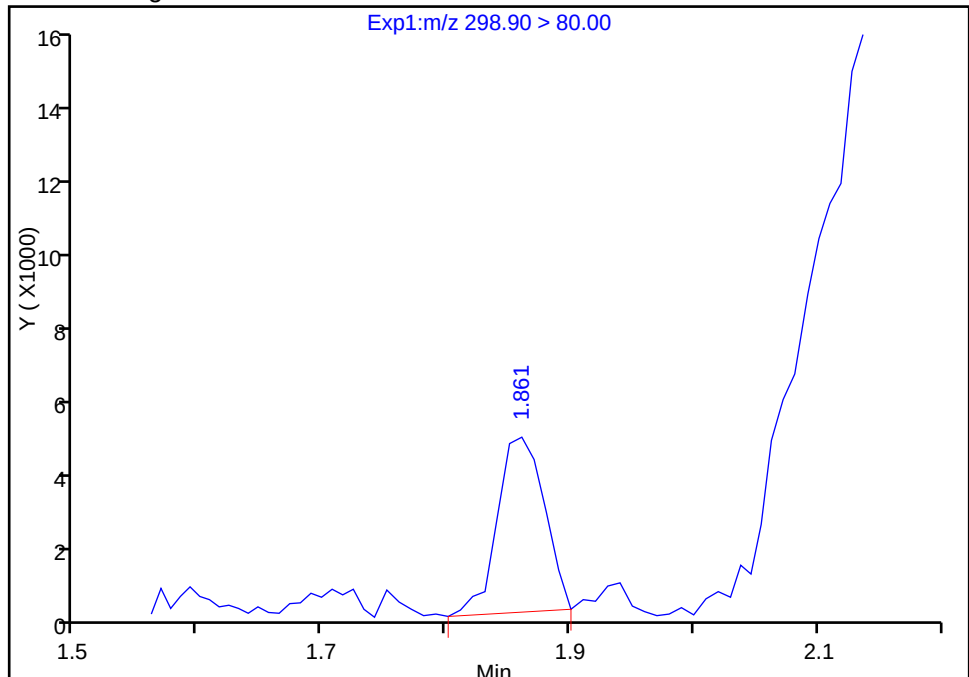
RT: 1.86
Area: 19652
Amount: 0.049423
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 11636
Amount: 0.029263
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:02:42

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

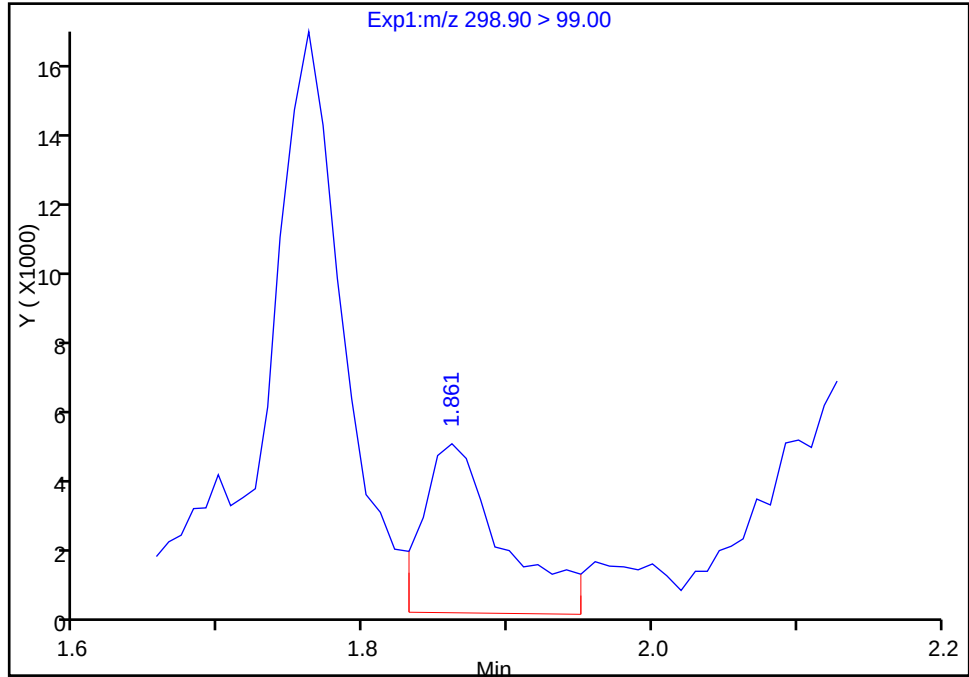
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_052.d
Injection Date: 12-Mar-2017 00:58:02 Instrument ID: A8_N
Lims ID: 320-26011-A-13-A Lab Sample ID: 320-26011-13
Client ID: MEAFF-SDA4A-SB02-0001
Operator ID: A8-PCVA8 ALS Bottle#: 44 Worklist Smp#: 16
Injection Vol: 2.0 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

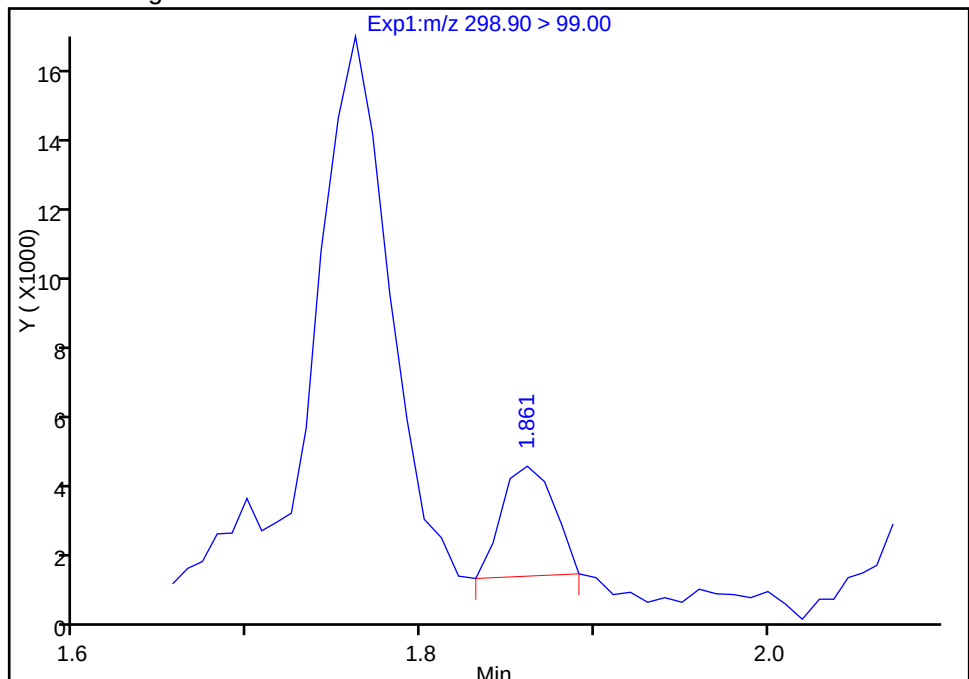
RT: 1.86
Area: 17029
Amount: 0.049423
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 6025
Amount: 0.029263
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:02:48

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4A-SB02-0204</u>	Lab Sample ID: <u>320-26011-14</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_053.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 15:43</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.07(g)</u>	Date Analyzed: <u>03/12/2017 01:05</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>14.9</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	37		25-150
STL00994	18O2 PFHxS	91		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
 Lims ID: 320-26011-A-14-A
 Client ID: MEAFF-SDA4A-SB02-0204
 Sample Type: Client
 Inject. Date: 12-Mar-2017 01:05:32 ALS Bottle#: 45 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-14-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:03:22 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:30:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.851	1.851	0.0	1.000	18436	0.0486				M
298.90 > 99.00	1.851	1.851	0.0	1.000	9071		2.03(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.456	2.457	-0.001		12527697	43.1		91.0	447664	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.806	2.800	0.006	1.000	1282815	6.06			12528	M
413.00 > 169.00	2.799	2.800	-0.001	0.997	759828		1.69(0.90-1.10)		19627	M
D 14 13C4 PFOA										
417.00 > 372.00	2.806	2.800	0.006		10357731	50.5		101	412066	
D 18 13C4 PFOS										
503.00 > 80.00	3.180	3.173	0.007		4306469	17.8		37.3	154413	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.172	3.182	-0.010	1.000	7913695	89.3			187622	M
499.00 > 99.00	3.172	3.182	-0.010	1.000	1665262		4.75(0.90-1.10)		50333	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d

Injection Date: 12-Mar-2017 01:05:32

Instrument ID: A8_N

Lims ID: 320-26011-A-14-A

Lab Sample ID: 320-26011-14

Client ID: MEAFF-SDA4A-SB02-0204

Operator ID: A8-PC\A8

ALS Bottle#: 45

Worklist Smp#: 17

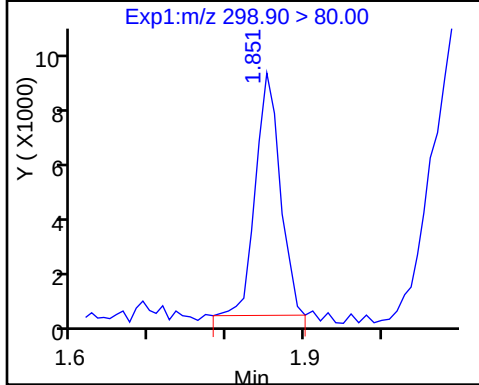
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

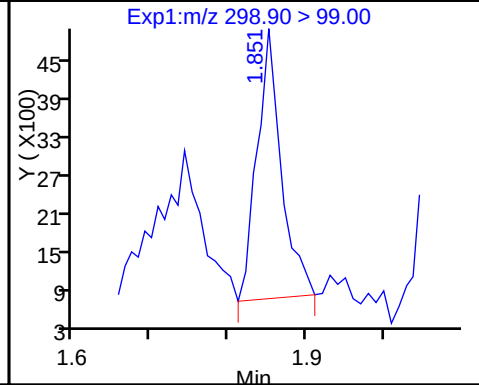
Method: A8_N

Limit Group: LC PFC_DOD ICAL

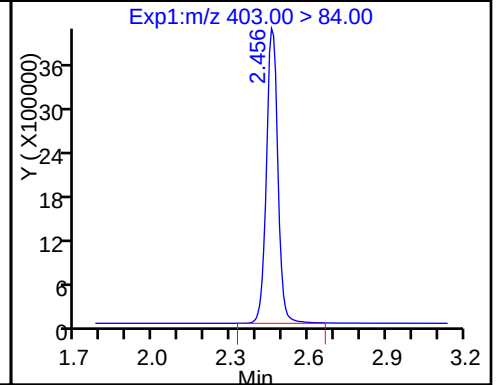
5 Perfluorobutanesulfonic acid (M)



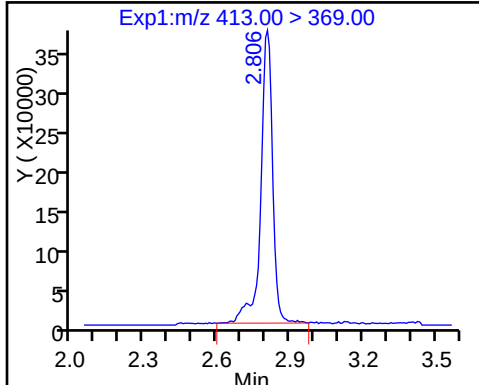
5 Perfluorobutanesulfonic acid (M)



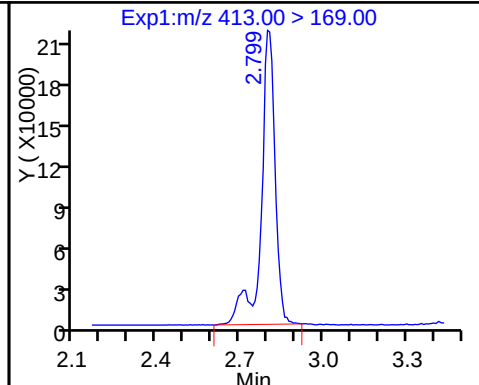
D 11 18O2 PFHxS



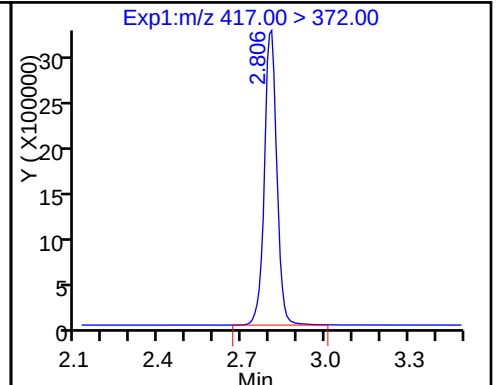
15 Perfluorooctanoic acid (M)



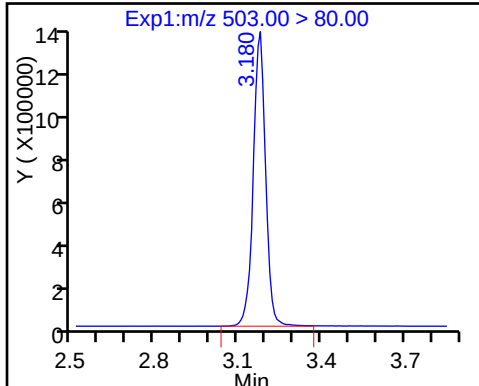
15 Perfluorooctanoic acid (M)



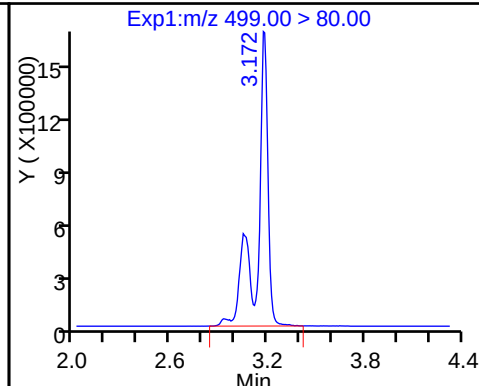
D 14 13C4 PFOA



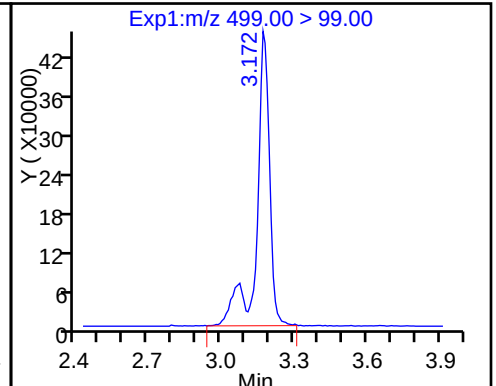
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

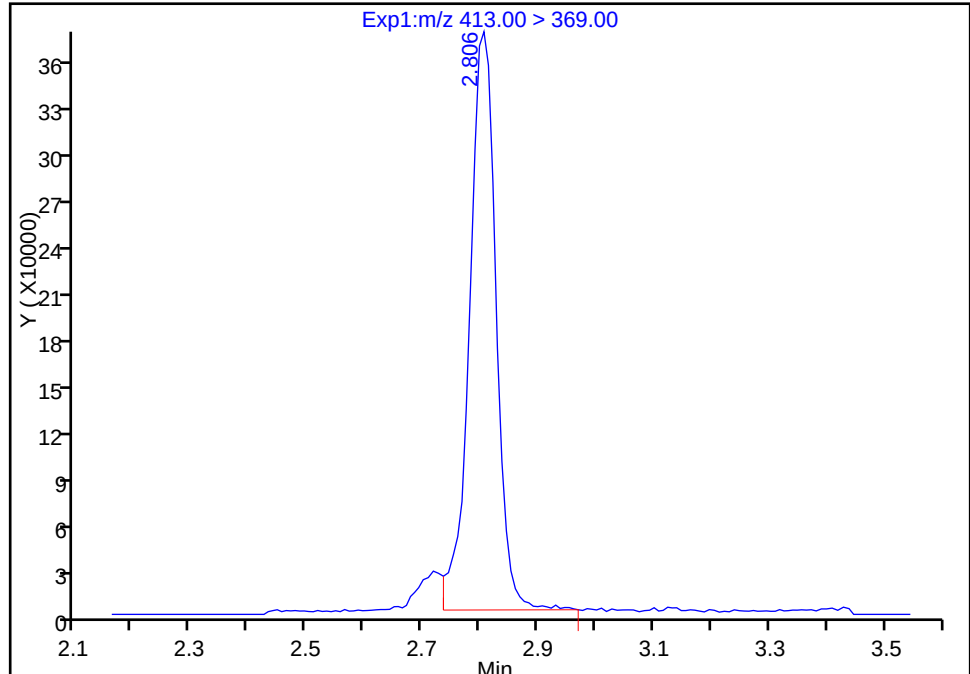
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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: 1

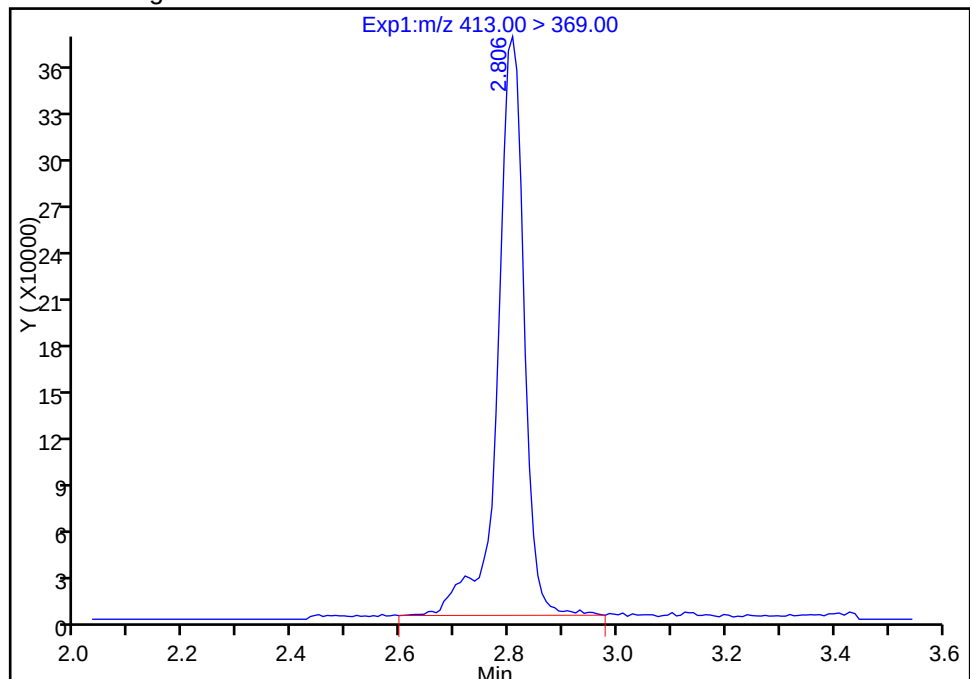
RT: 2.81
Area: 1203528
Amount: 5.686642
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 1282815
Amount: 6.061271
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

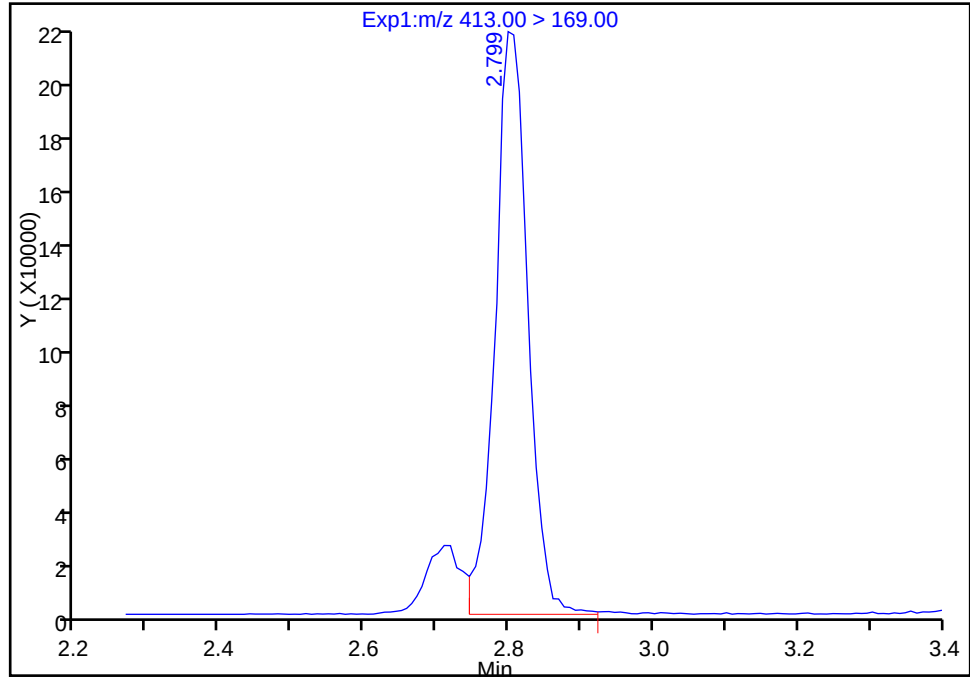
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PCVA8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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

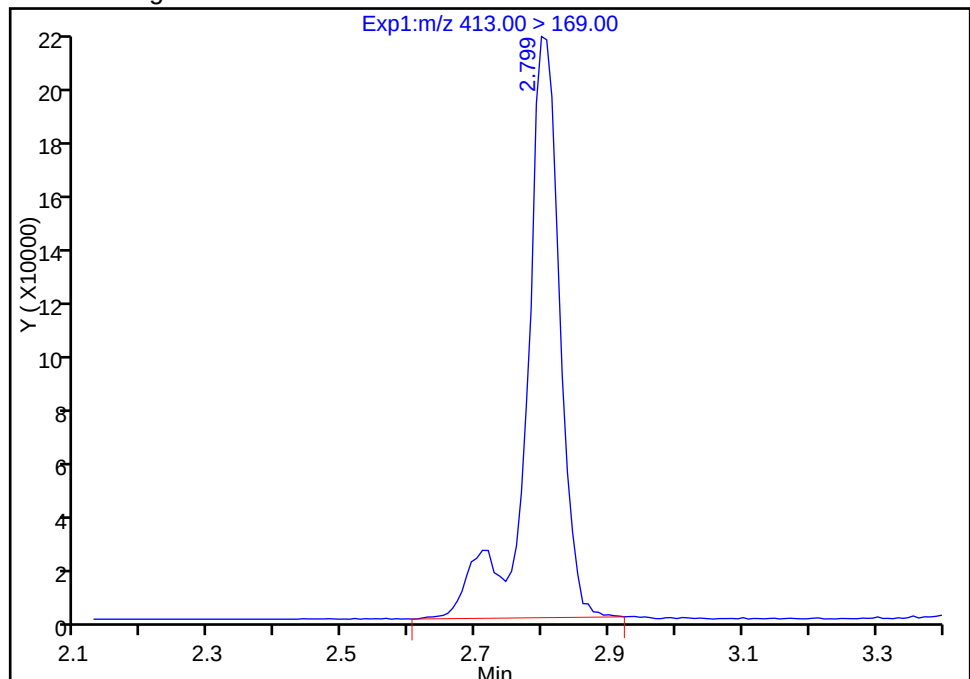
RT: 2.80
Area: 681049
Amount: 5.686642
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 759828
Amount: 6.061271
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

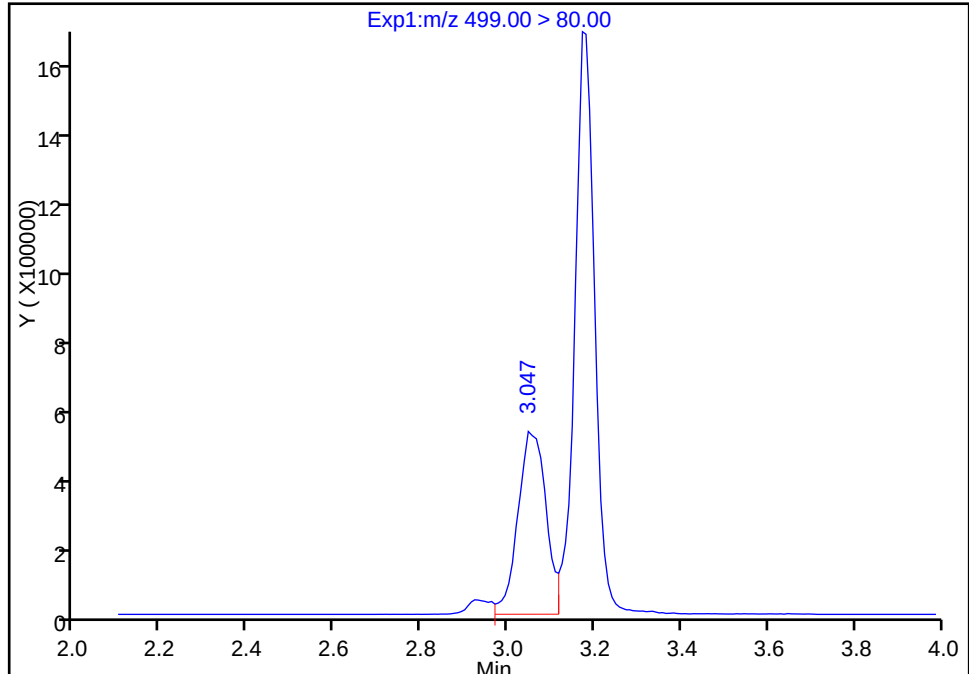
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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

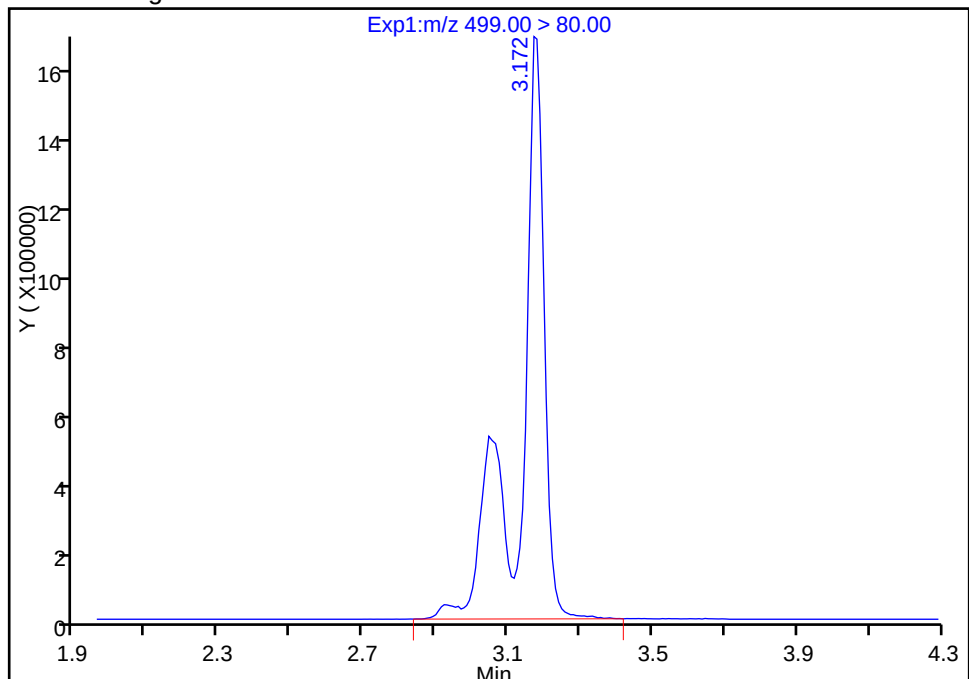
RT: 3.05
Area: 2384485
Amount: 26.911296
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 7913695
Amount: 89.313958
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

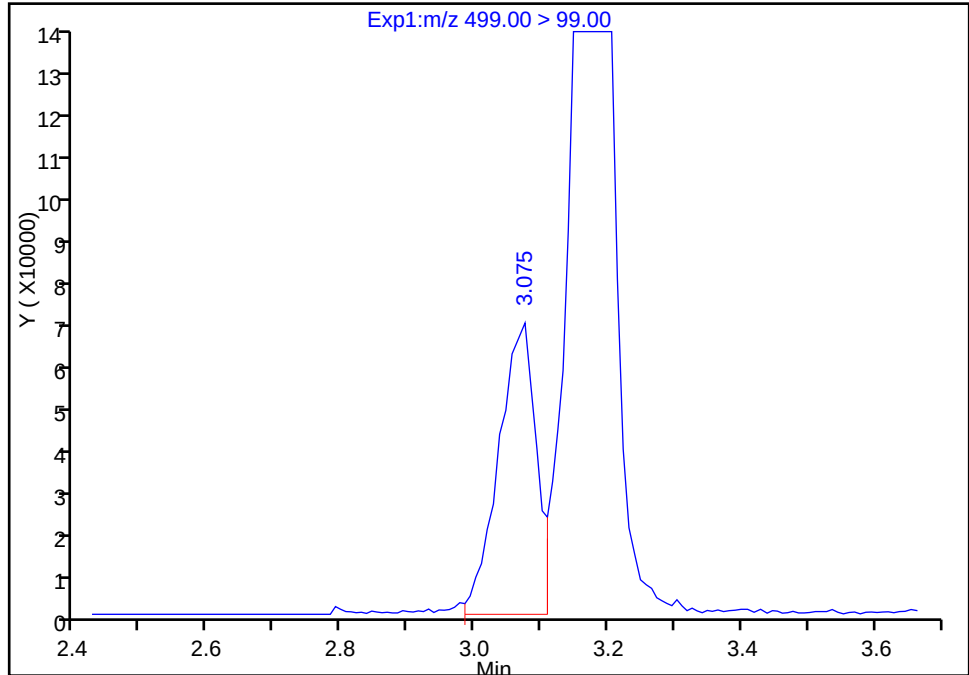
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PCVA8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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: 2

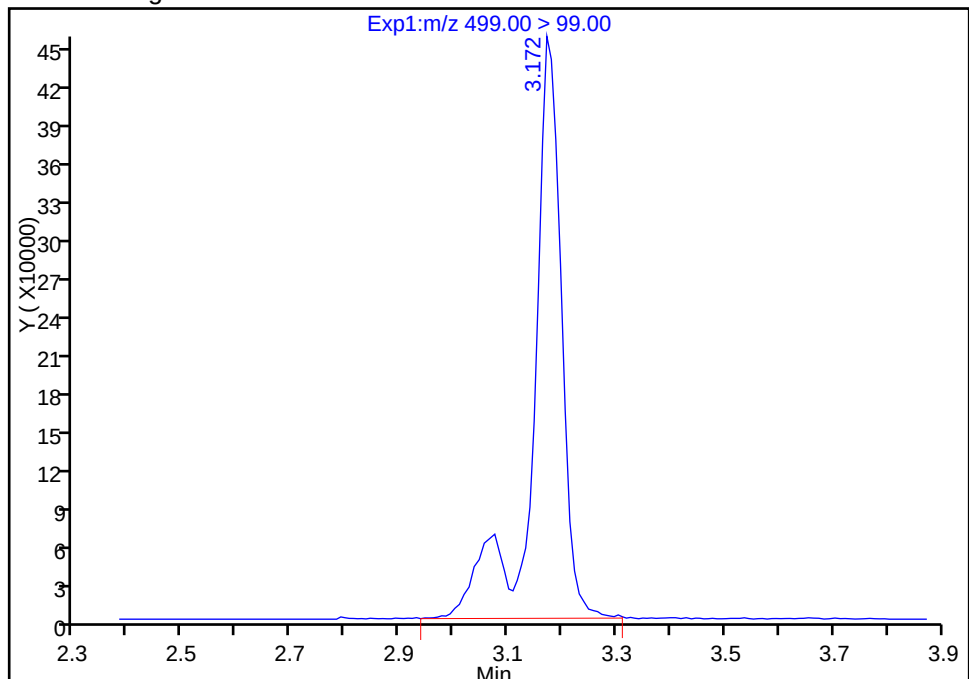
RT: 3.08
Area: 256551
Amount: 26.911296
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 1665262
Amount: 89.313958
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:02:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

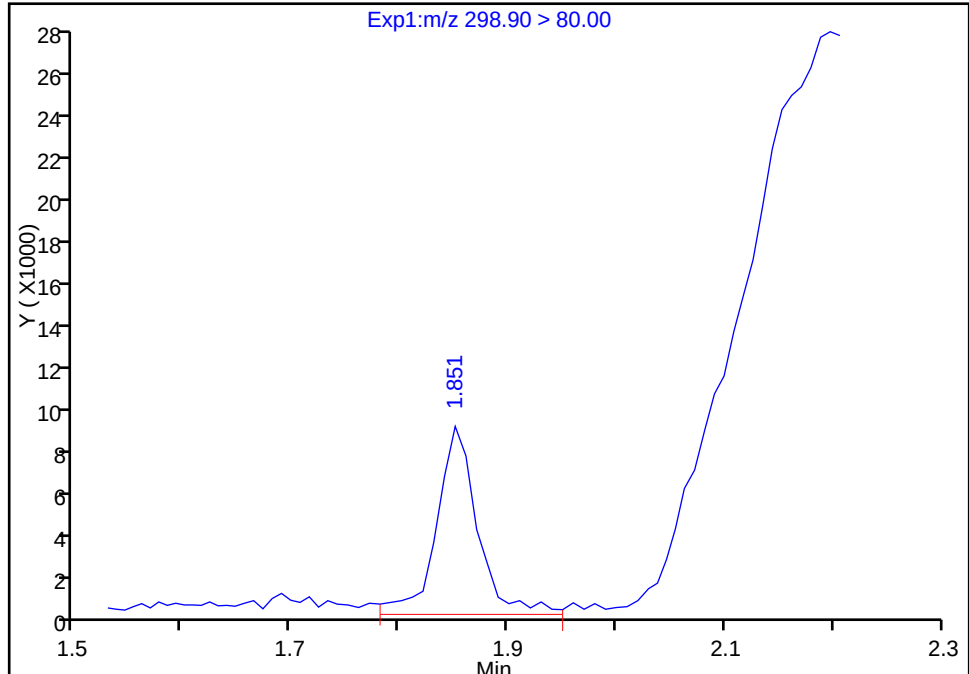
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PC\A8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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

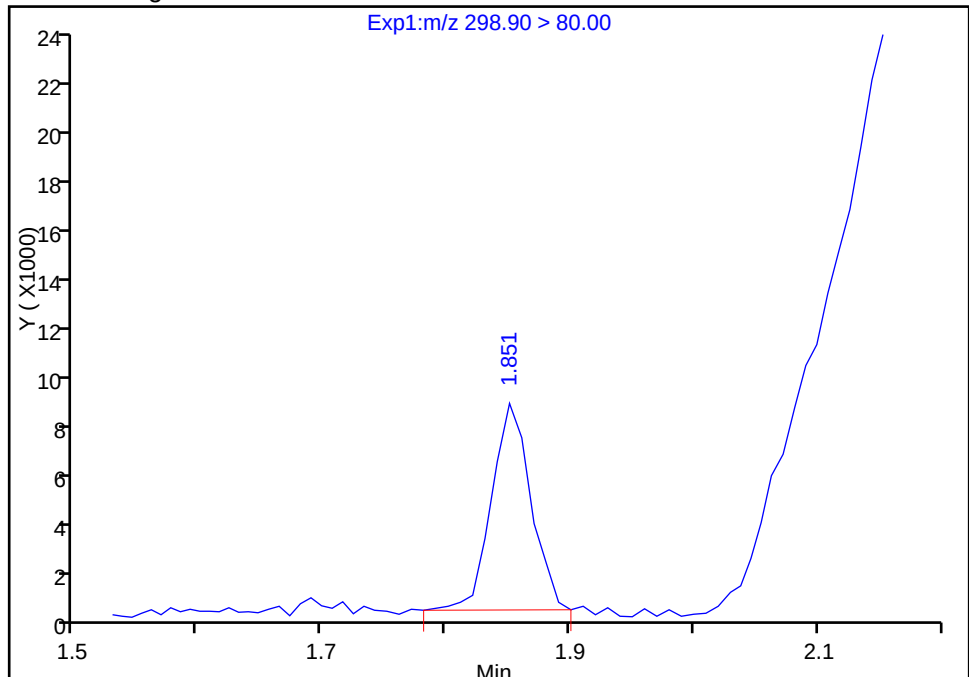
RT: 1.85
Area: 23227
Amount: 0.061219
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 18436
Amount: 0.048591
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:03:11

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

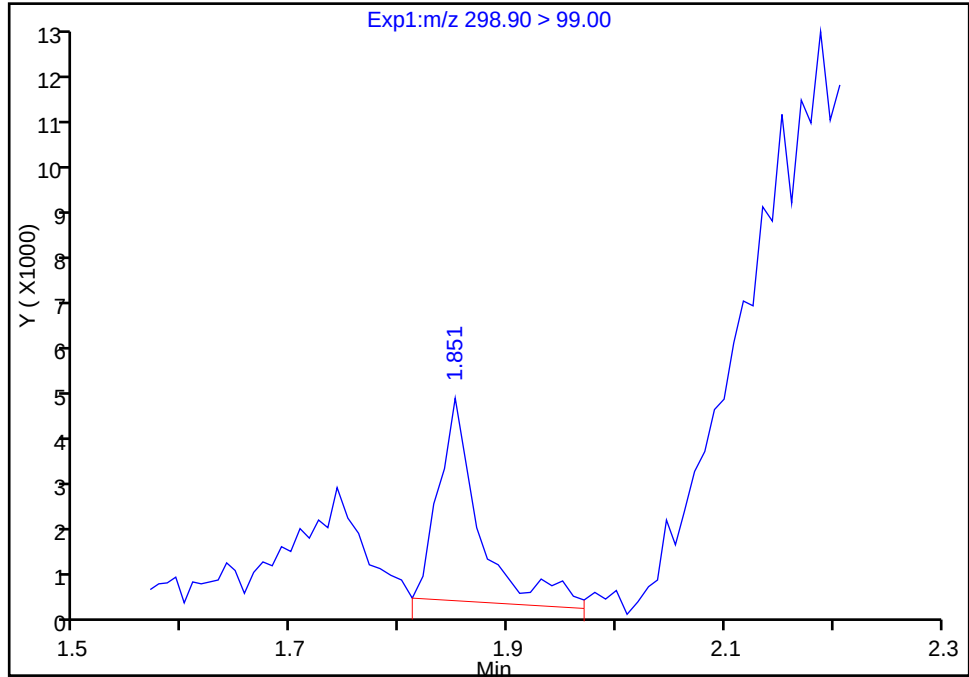
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_053.d
Injection Date: 12-Mar-2017 01:05:32 Instrument ID: A8_N
Lims ID: 320-26011-A-14-A Lab Sample ID: 320-26011-14
Client ID: MEAFF-SDA4A-SB02-0204
Operator ID: A8-PCVA8 ALS Bottle#: 45 Worklist Smp#: 17
Injection Vol: 2.0 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

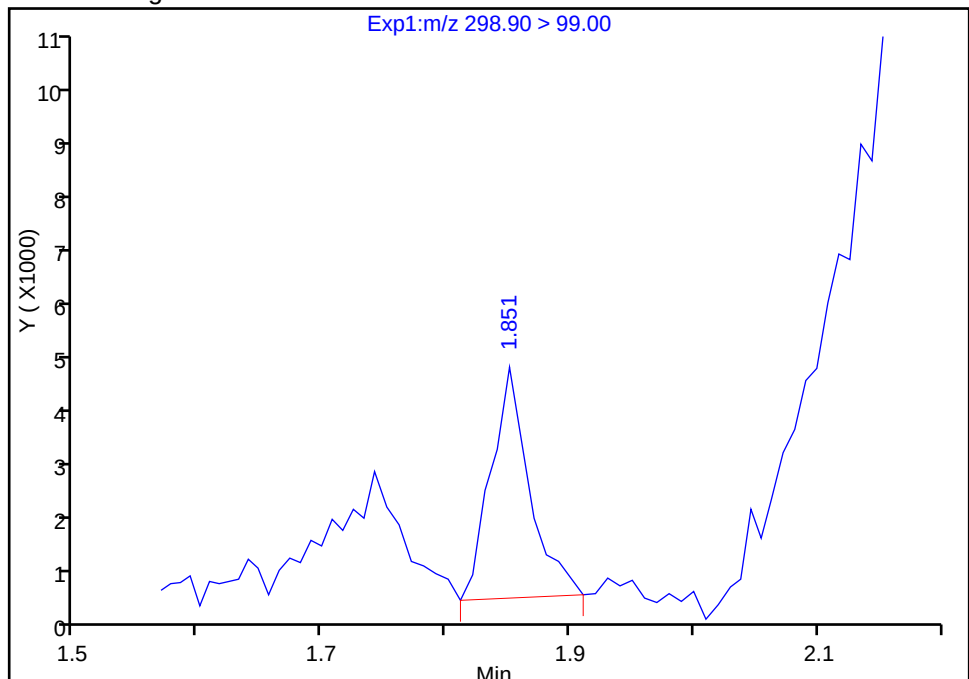
RT: 1.85
Area: 11136
Amount: 0.061219
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 9071
Amount: 0.048591
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:03:17

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-WWTP-SB01-1012</u>	Lab Sample ID: <u>320-26011-15</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_054.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 11:25</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.08(g)</u>	Date Analyzed: <u>03/12/2017 01:13</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>17.5</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.72	M	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	98		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d
 Lims ID: 320-26011-A-15-A
 Client ID: MEAFF-WWTP-SB01-1012
 Sample Type: Client
 Inject. Date: 12-Mar-2017 01:13:01 ALS Bottle#: 46 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-15-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:05:32 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:31:30

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

D 11 18O2 PFHxS

403.00 > 84.00	2.464	2.457	0.007		13541015	46.5		98.4	363816	

15 Perfluorooctanoic acid

M

413.00 > 369.00	2.806	2.800	0.006	1.000	80237	0.3538			712	M

413.00 > 169.00	2.806	2.800	0.006	1.000	48371		1.66(0.90-1.10)		1981	M

D 14 13C4 PFOA

417.00 > 372.00	2.806	2.800	0.006		11098922	54.2		108	302945	

D 18 13C4 PFOS

503.00 > 80.00	3.171	3.173	-0.002		5904264	24.4		51.1	173114	

17 Perfluorooctane sulfonic acid

M

499.00 > 80.00	3.171	3.182	-0.011	1.000	366033	3.01			11419	M

499.00 > 99.00	3.164	3.182	-0.018	0.998	84159		4.35(0.90-1.10)		3382	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d

Injection Date: 12-Mar-2017 01:13:01

Instrument ID: A8_N

Lims ID: 320-26011-A-15-A

Lab Sample ID: 320-26011-15

Client ID: MEAFF-WWTP-SB01-1012

Operator ID: A8-PC\A8

ALS Bottle#: 46

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

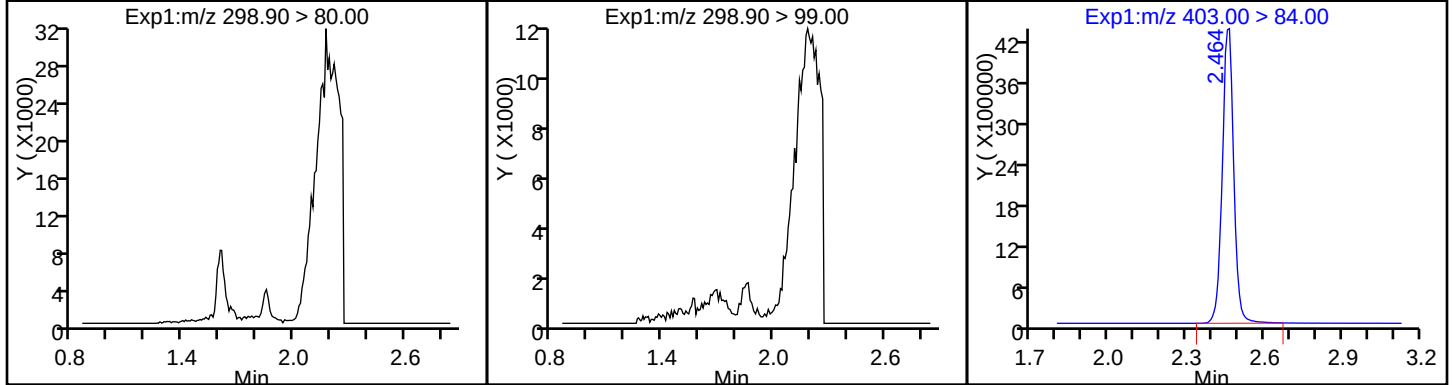
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

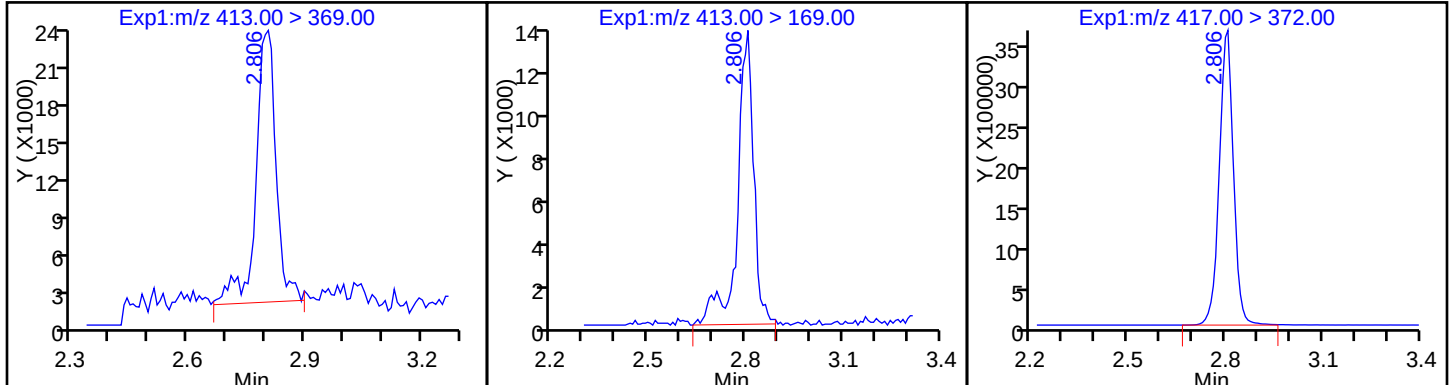
D 11 18O2 PFHxS



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid (M)

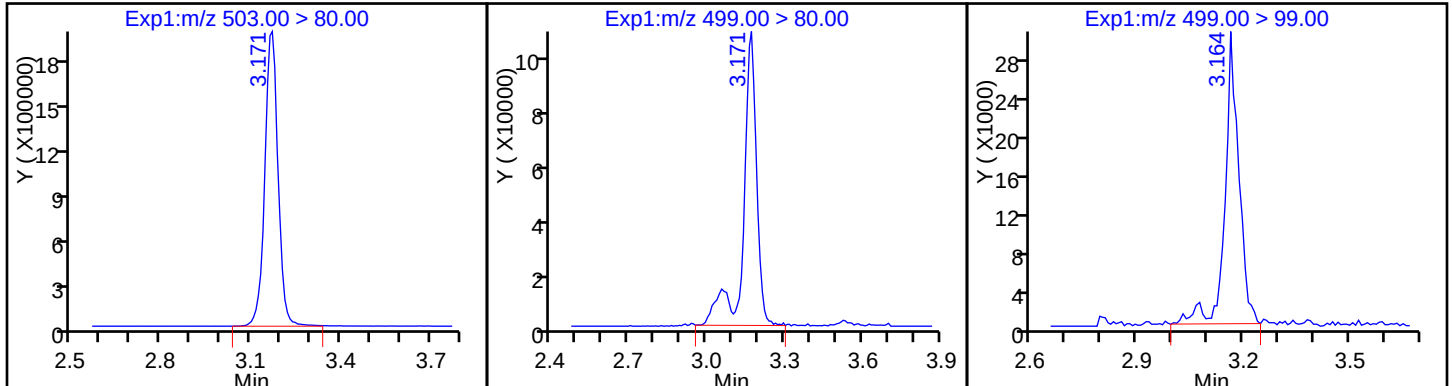
D 14 13C4 PFOA



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

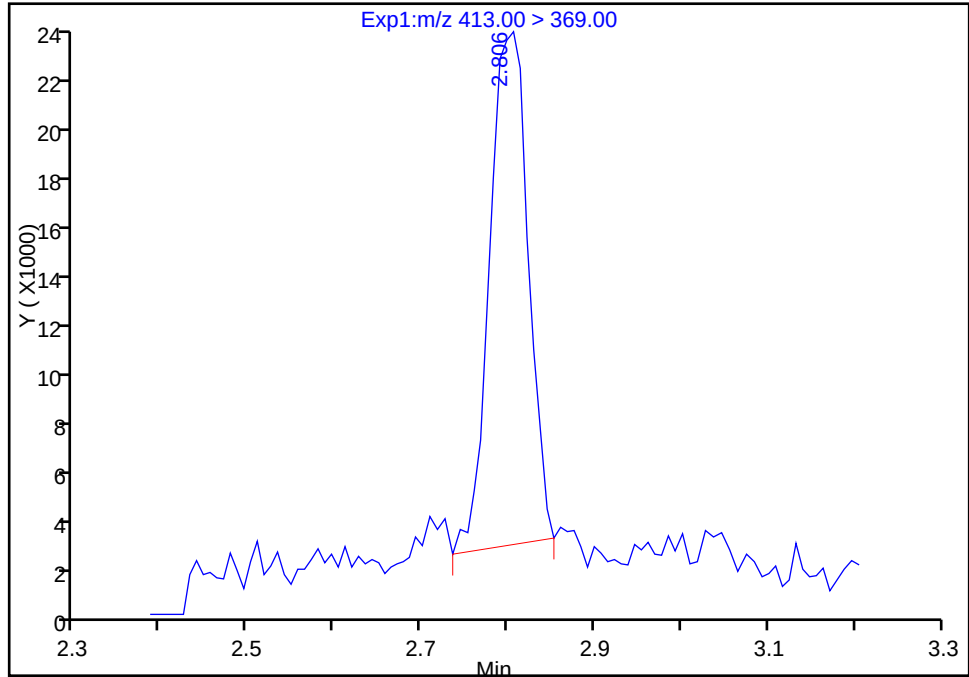
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d
Injection Date: 12-Mar-2017 01:13:01 Instrument ID: A8_N
Lims ID: 320-26011-A-15-A Lab Sample ID: 320-26011-15
Client ID: MEAFF-WWTP-SB01-1012
Operator ID: A8-PC\A8 ALS Bottle#: 46 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

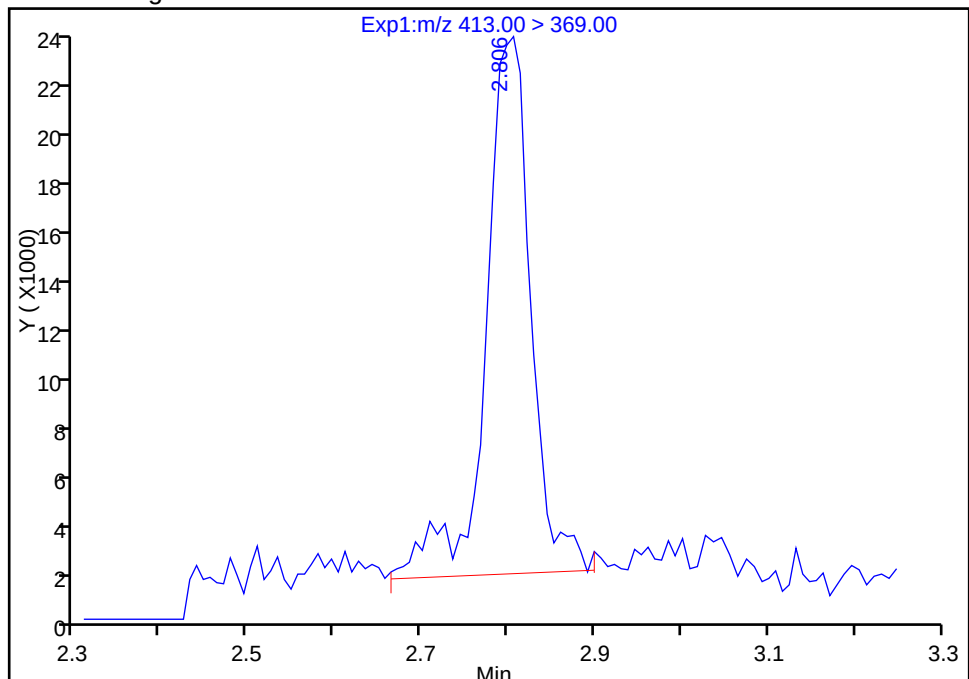
RT: 2.81
Area: 65287
Amount: 0.287879
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 80237
Amount: 0.353800
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:03:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

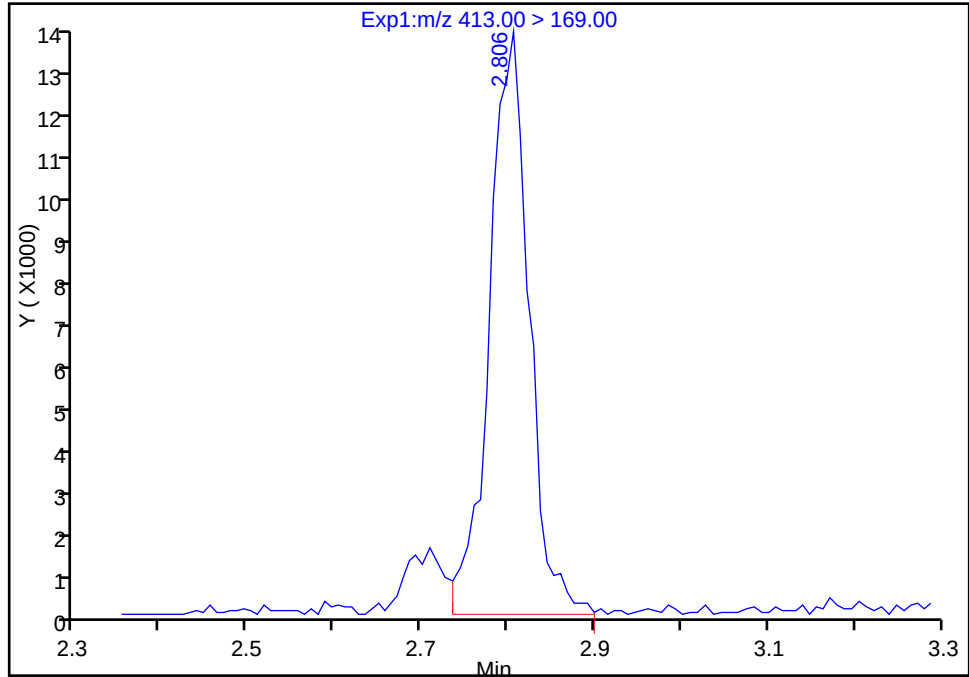
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d
Injection Date: 12-Mar-2017 01:13:01 Instrument ID: A8_N
Lims ID: 320-26011-A-15-A Lab Sample ID: 320-26011-15
Client ID: MEAFF-WWTP-SB01-1012
Operator ID: A8-PCVA8 ALS Bottle#: 46 Worklist Smp#: 18
Injection Vol: 2.0 ul 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

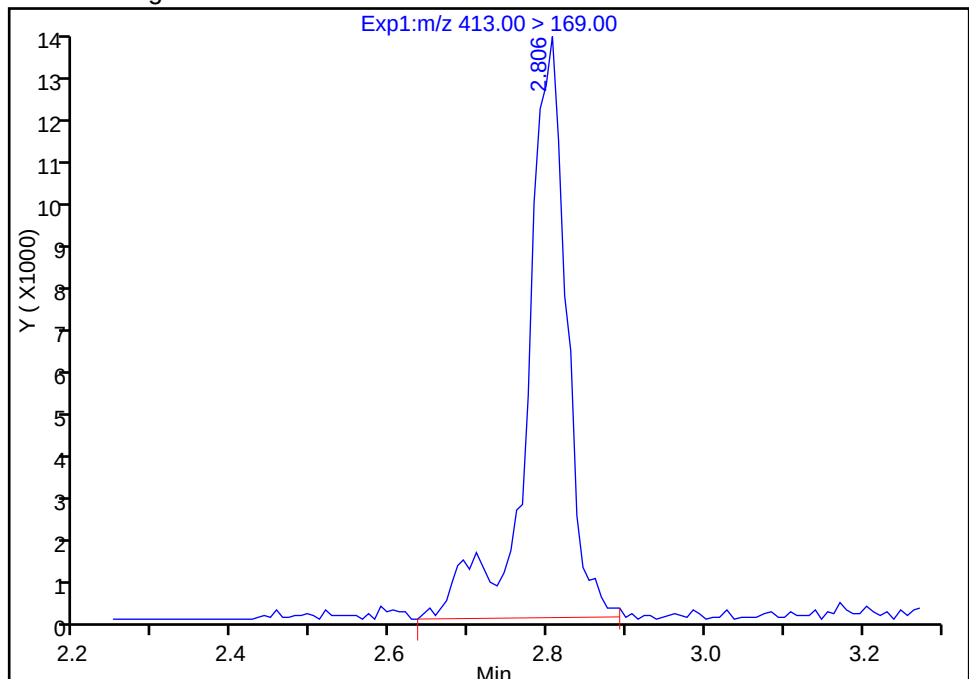
RT: 2.81
Area: 44069
Amount: 0.287879
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 48371
Amount: 0.353800
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:03:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

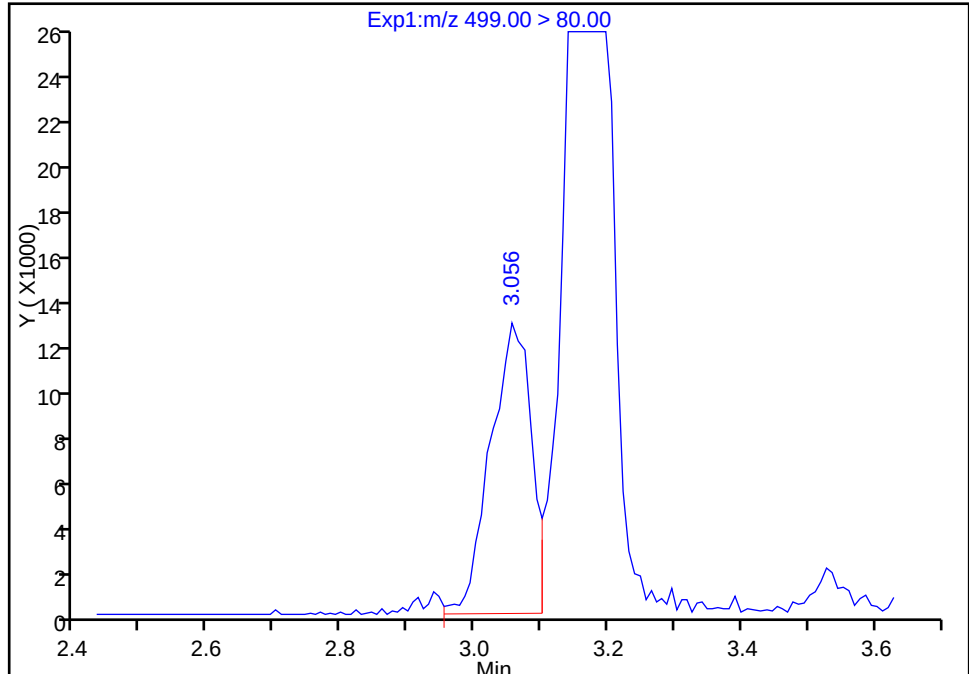
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d
Injection Date: 12-Mar-2017 01:13:01 Instrument ID: A8_N
Lims ID: 320-26011-A-15-A Lab Sample ID: 320-26011-15
Client ID: MEAFF-WWTP-SB01-1012
Operator ID: A8-PC\A8 ALS Bottle#: 46 Worklist Smp#: 18
Injection Vol: 2.0 ul 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

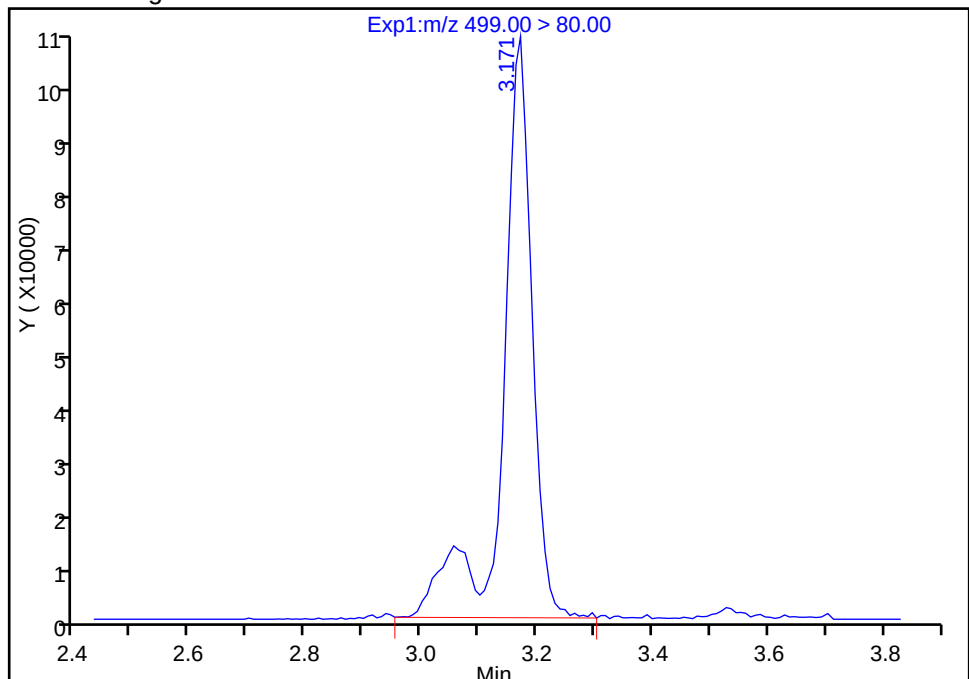
RT: 3.06
Area: 54490
Amount: 0.448552
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 366033
Amount: 3.013116
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:03:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

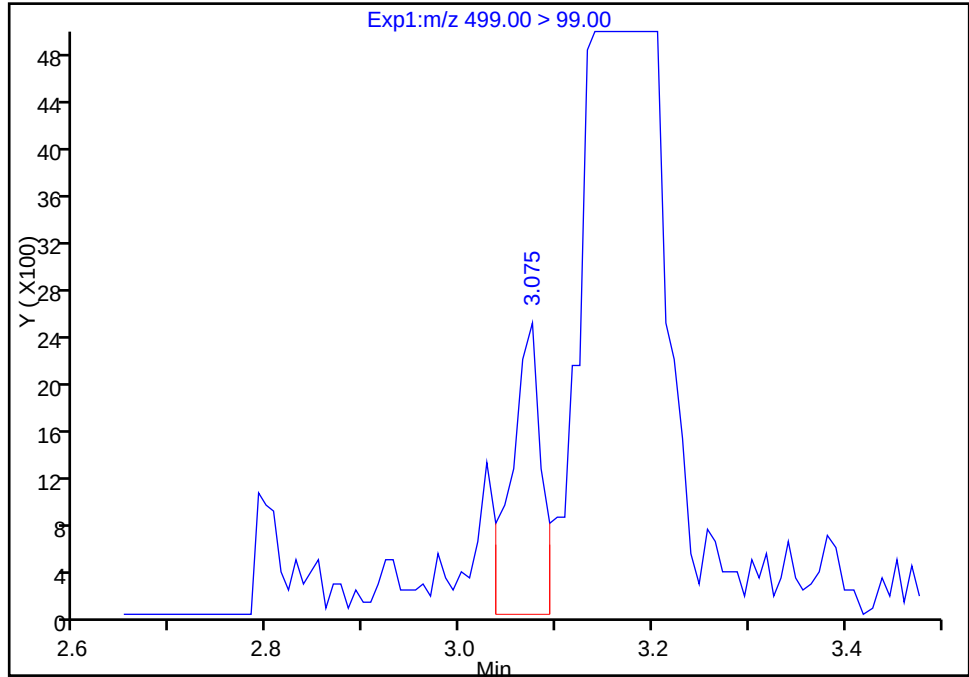
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_054.d
Injection Date: 12-Mar-2017 01:13:01 Instrument ID: A8_N
Lims ID: 320-26011-A-15-A Lab Sample ID: 320-26011-15
Client ID: MEAFF-WWTP-SB01-1012
Operator ID: A8-PCVA8 ALS Bottle#: 46 Worklist Smp#: 18
Injection Vol: 2.0 ul 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

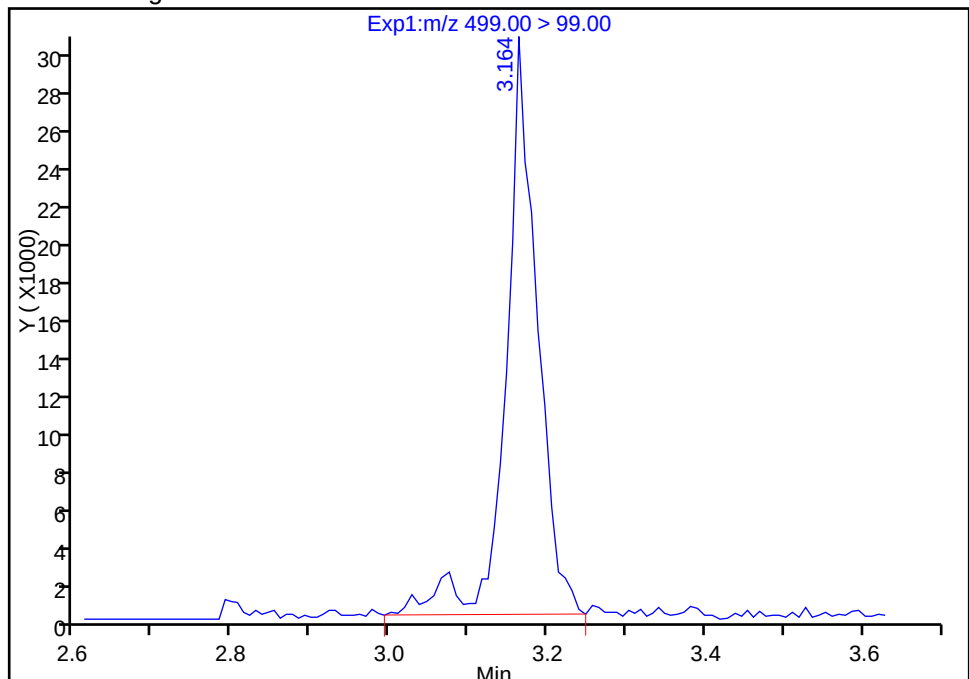
RT: 3.08
Area: 4984
Amount: 0.448552
Amount Units: ng/ml

Processing Integration Results



RT: 3.16
Area: 84159
Amount: 3.013116
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:03:26

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-WWTP-SB03-0608</u>	Lab Sample ID: <u>320-26011-16</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_055.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 13:55</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>4.92(g)</u>	Date Analyzed: <u>03/12/2017 01:20</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>24.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.40	U M	0.67	0.40	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.4	M	0.67	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U M	0.54	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	110		25-150
STL00991	13C4 PFOS	56		25-150
STL00994	18O2 PFHxS	98		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d
 Lims ID: 320-26011-A-16-A
 Client ID: MEAFF-WWTP-SB03-0608
 Sample Type: Client
 Inject. Date: 12-Mar-2017 01:20:32 ALS Bottle#: 47 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-16-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:05:51 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:33:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.841	1.851	-0.010	1.000	8618	0.0212				
298.90 > 99.00	1.831	1.851	-0.020	0.995	3531		2.44(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.455	2.457	-0.002		13428672	46.2		97.6	298869	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.805	2.800	0.005	1.000	49837	0.2172			370	M
413.00 > 169.00	2.805	2.800	0.005	1.000	31276		1.59(0.90-1.10)		877	M
D 14 13C4 PFOA										
417.00 > 372.00	2.797	2.800	-0.003		11231936	54.8		110	257017	
D 18 13C4 PFOS										
503.00 > 80.00	3.170	3.173	-0.003		6511090	26.9		56.4	198697	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.170	3.182	-0.012	1.000	695689	5.19			24476	M
499.00 > 99.00	3.162	3.182	-0.020	0.998	160897		4.32(0.90-1.10)		7639	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d

Injection Date: 12-Mar-2017 01:20:32

Instrument ID: A8_N

Lims ID: 320-26011-A-16-A

Lab Sample ID: 320-26011-16

Client ID: MEAFF-WWTP-SB03-0608

Operator ID: A8-PC\A8

ALS Bottle#: 47

Worklist Smp#: 19

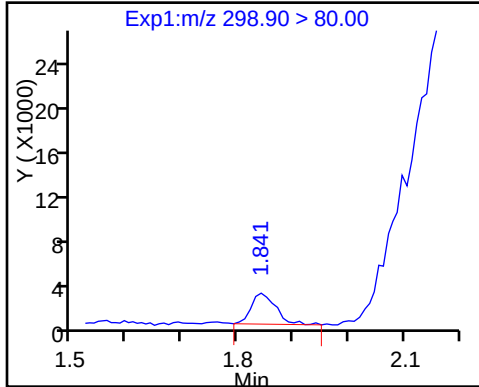
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

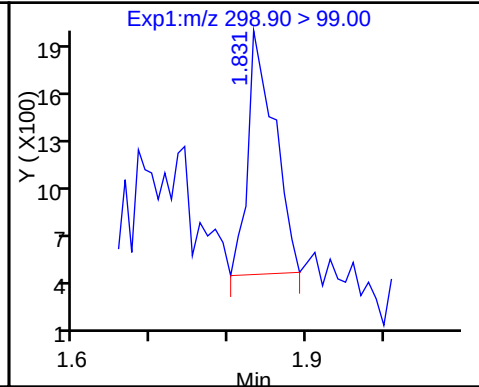
Method: A8_N

Limit Group: LC PFC_DOD ICAL

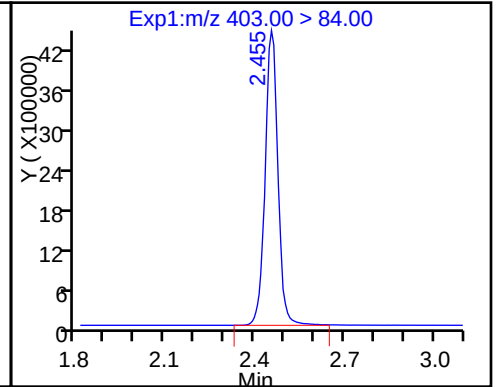
5 Perfluorobutanesulfonic acid



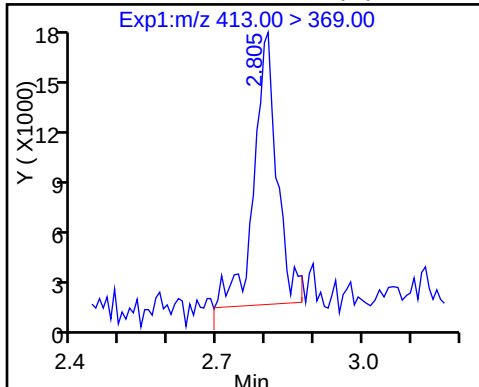
5 Perfluorobutanesulfonic acid (M)



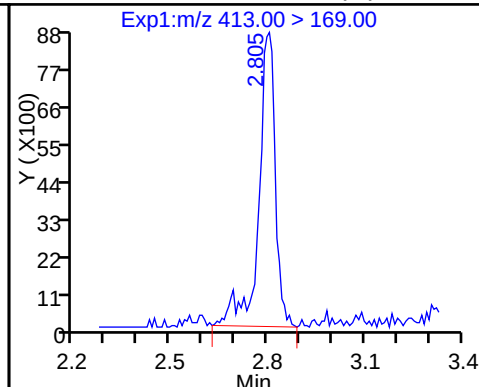
D 11 18O2 PFHxS



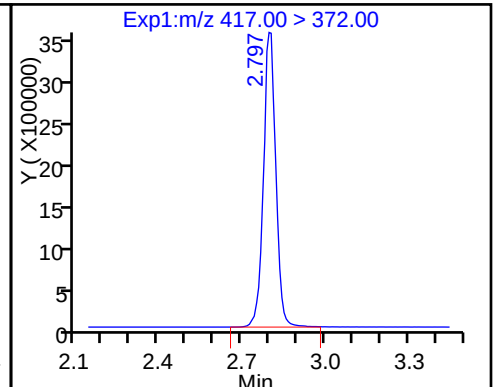
15 Perfluorooctanoic acid (M)



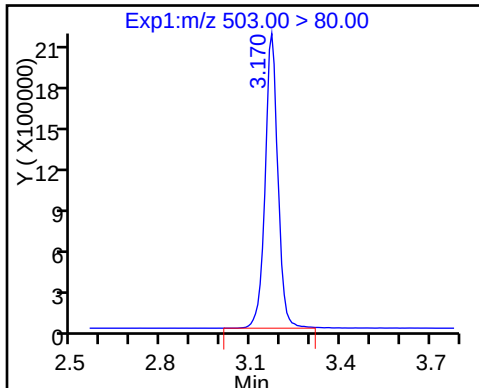
15 Perfluorooctanoic acid (M)



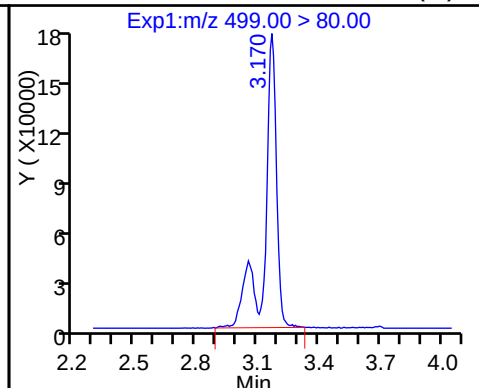
D 14 13C4 PFOA



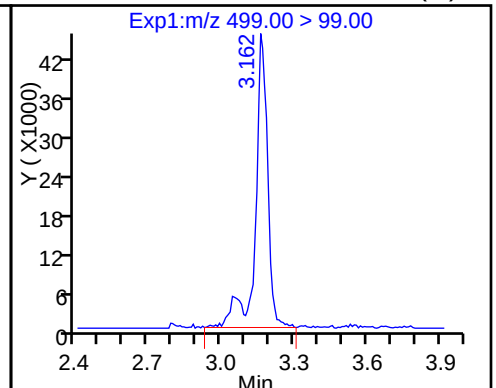
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

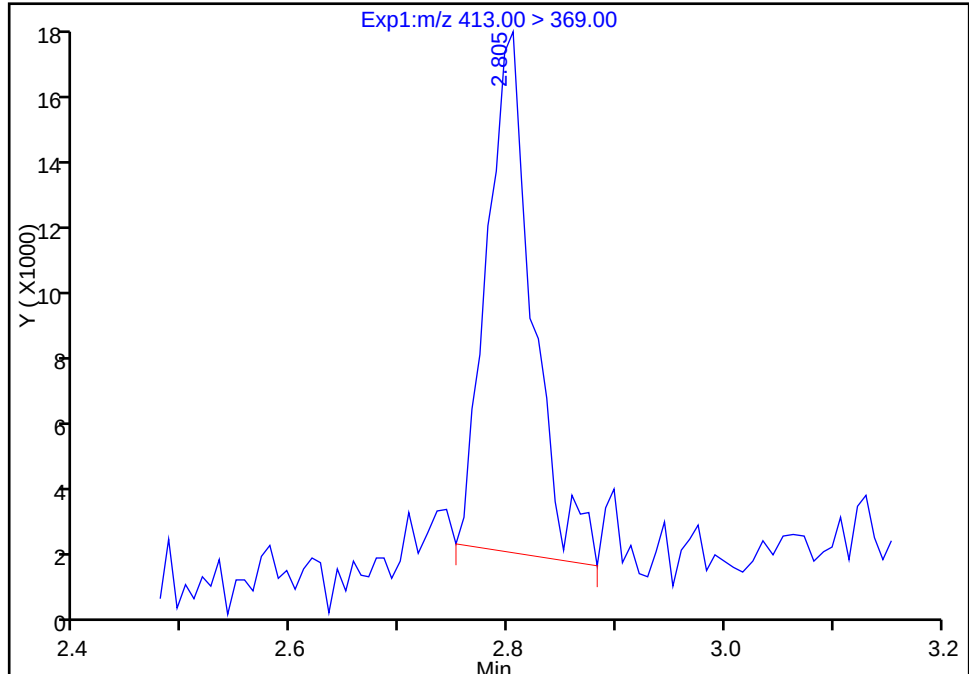
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d
Injection Date: 12-Mar-2017 01:20:32 Instrument ID: A8_N
Lims ID: 320-26011-A-16-A Lab Sample ID: 320-26011-16
Client ID: MEAFF-WWTP-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 47 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

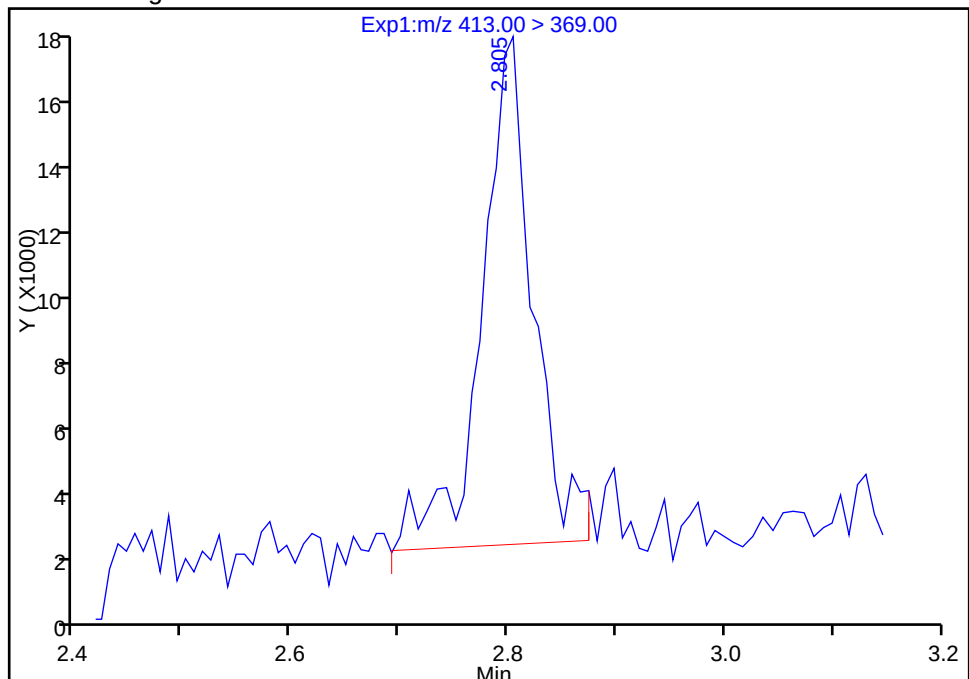
RT: 2.80
Area: 43051
Amount: 0.187583
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 49837
Amount: 0.217151
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:05:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

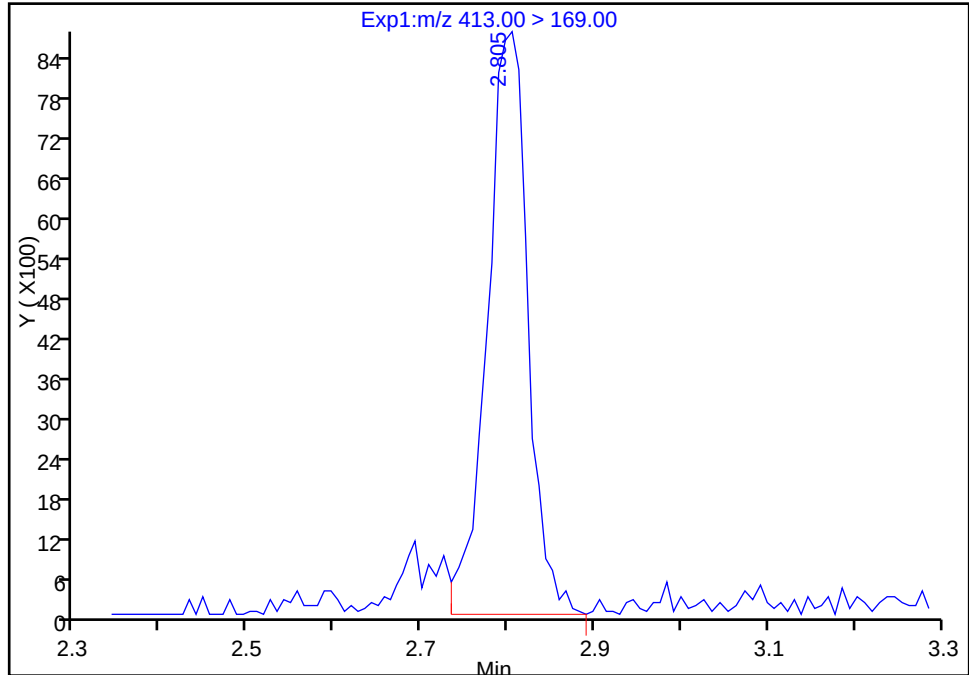
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d				
Injection Date:	12-Mar-2017 01:20:32	Instrument ID:	A8_N		
Lims ID:	320-26011-A-16-A	Lab Sample ID:	320-26011-16		
Client ID:	MEAFF-WWTP-SB03-0608				
Operator ID:	A8-PCVA8	ALS Bottle#:	47	Worklist Smp#:	19
Injection 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

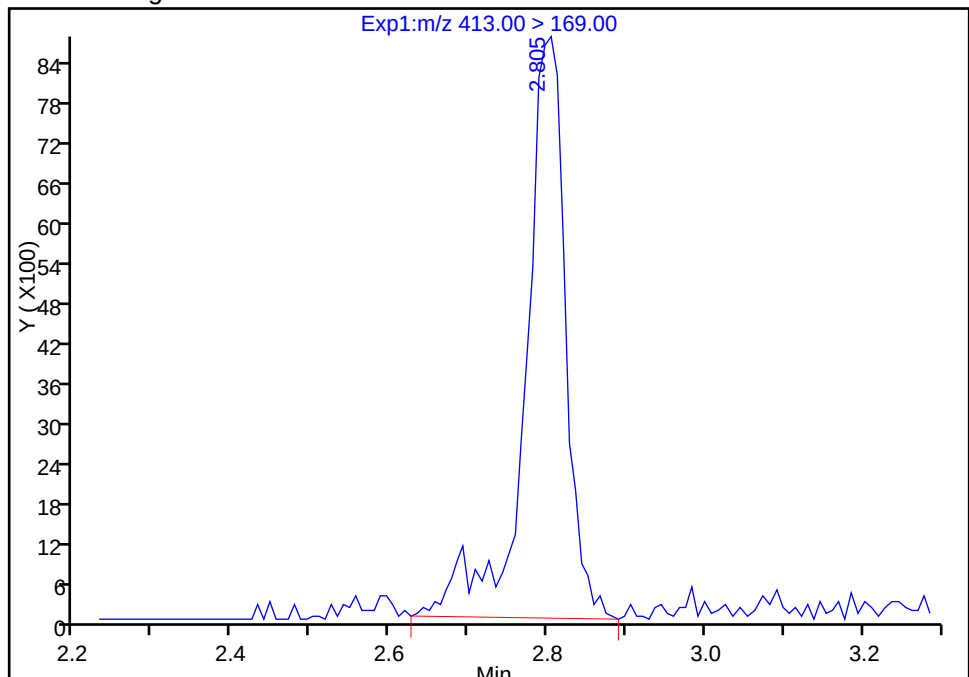
RT: 2.80
Area: 28485
Amount: 0.187583
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 31276
Amount: 0.217151
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:05:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

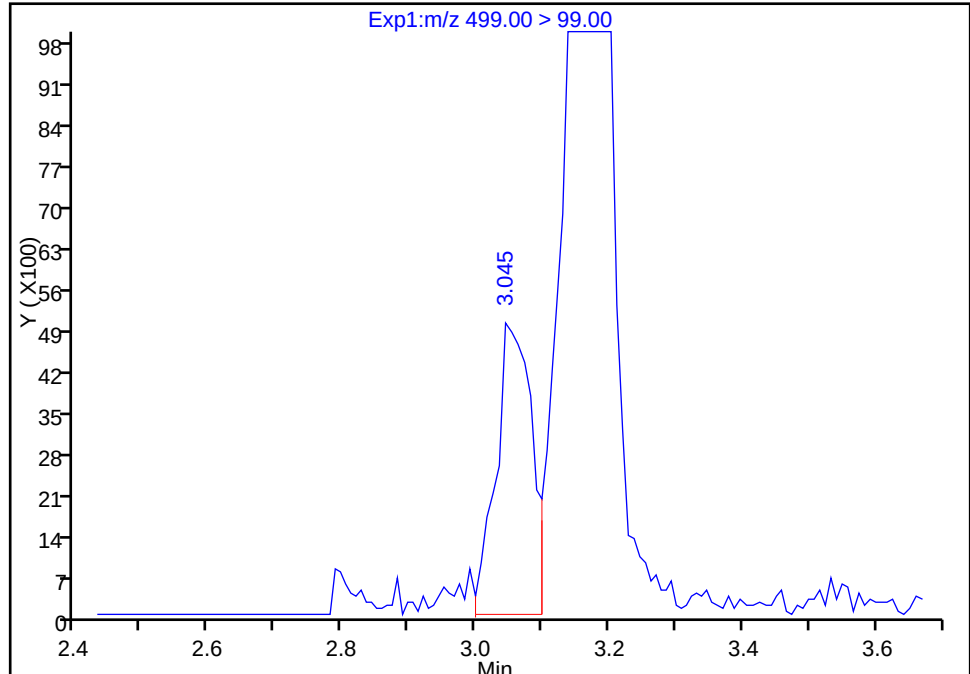
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d
Injection Date: 12-Mar-2017 01:20:32 Instrument ID: A8_N
Lims ID: 320-26011-A-16-A Lab Sample ID: 320-26011-16
Client ID: MEAFF-WWTP-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 47 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

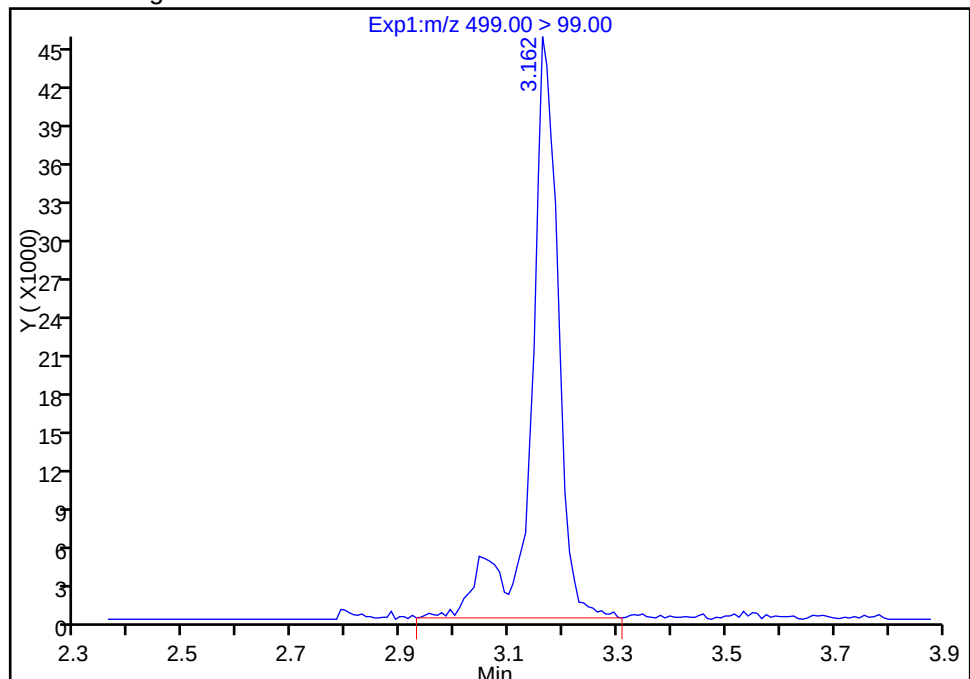
RT: 3.04
Area: 18127
Amount: 1.198049
Amount Units: ng/ml

Processing Integration Results



RT: 3.16
Area: 160897
Amount: 5.193053
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:05:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

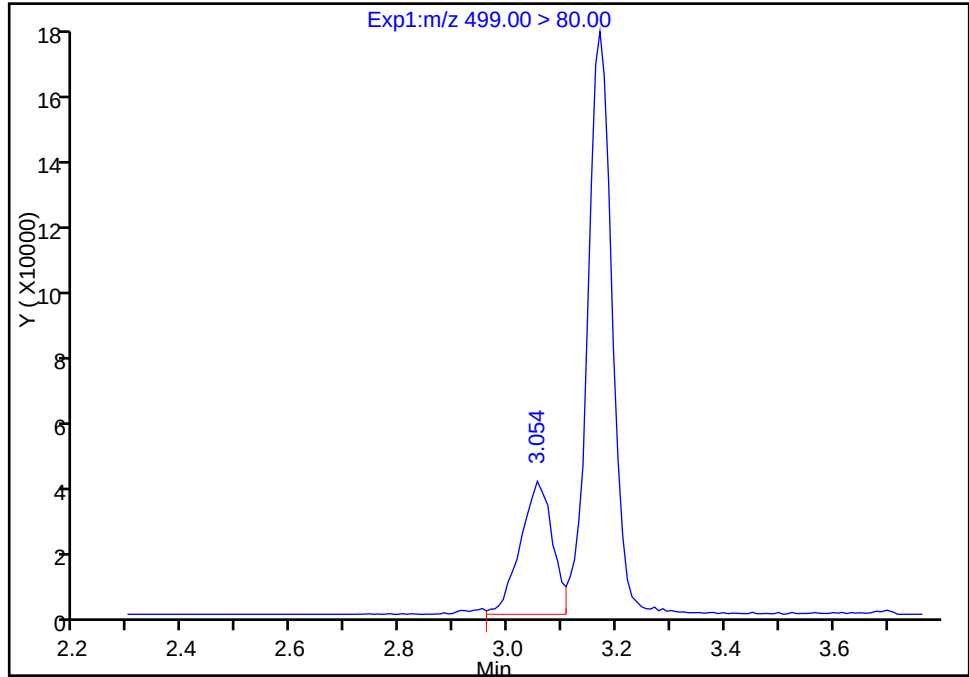
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d
Injection Date: 12-Mar-2017 01:20:32 Instrument ID: A8_N
Lims ID: 320-26011-A-16-A Lab Sample ID: 320-26011-16
Client ID: MEAFF-WWTP-SB03-0608
Operator ID: A8-PCVA8 ALS Bottle#: 47 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

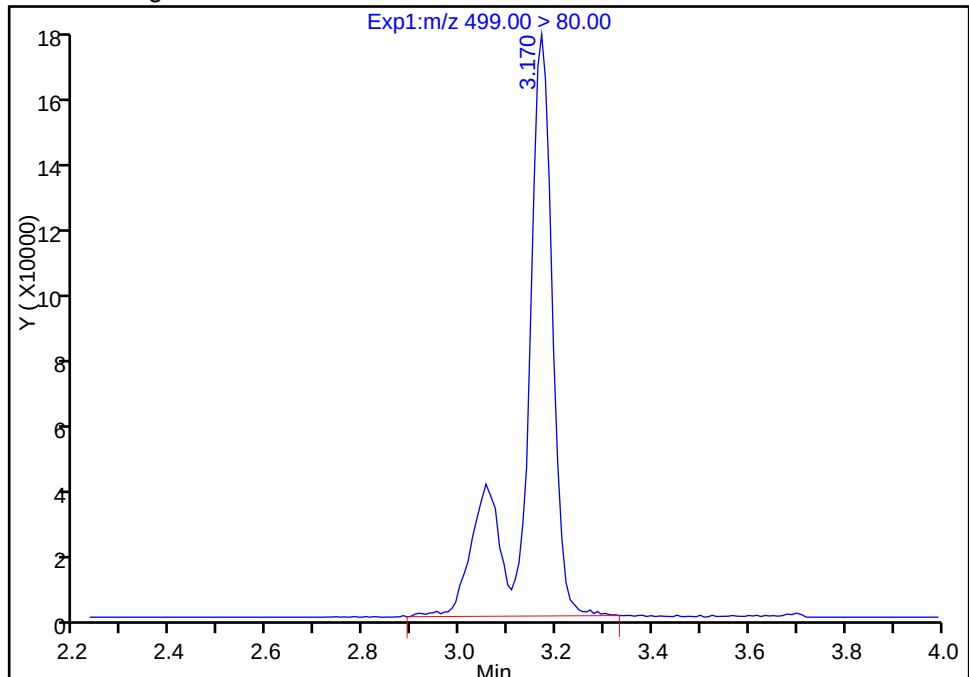
RT: 3.05
Area: 160497
Amount: 1.198049
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 695689
Amount: 5.193053
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:05:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

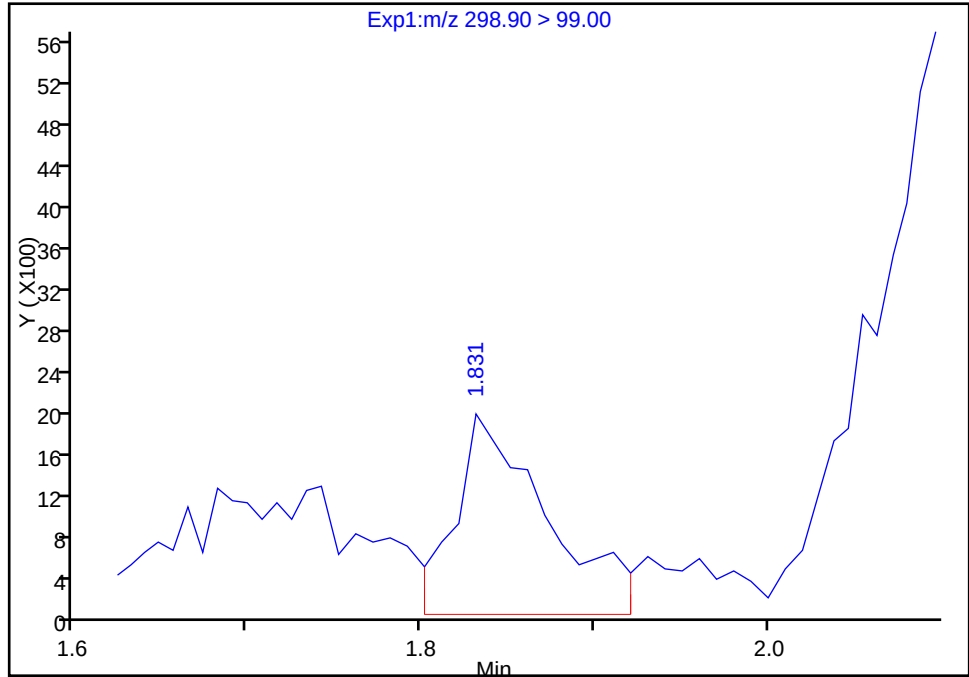
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_055.d
Injection Date: 12-Mar-2017 01:20:32 Instrument ID: A8_N
Lims ID: 320-26011-A-16-A Lab Sample ID: 320-26011-16
Client ID: MEAFF-WWTP-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 47 Worklist Smp#: 19
Injection Vol: 2.0 ul 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

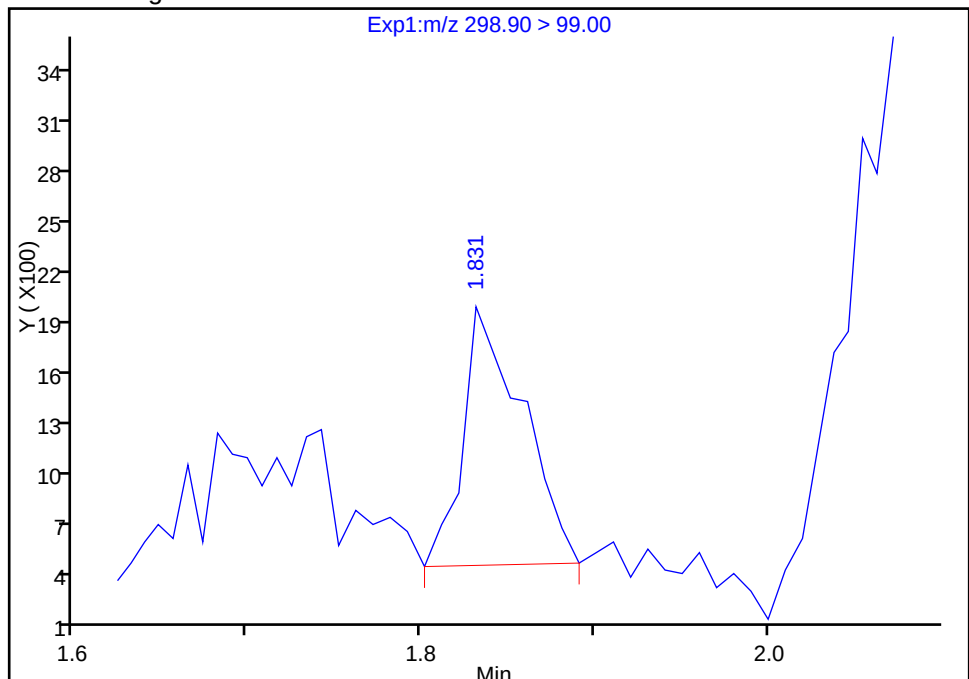
RT: 1.83
Area: 7010
Amount: 0.021190
Amount Units: ng/ml

Processing Integration Results



RT: 1.83
Area: 3531
Amount: 0.021190
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:05:46

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-WWTP-SB02-1012</u>	Lab Sample ID: <u>320-26011-17</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_056.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 14:30</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.00(g)</u>	Date Analyzed: <u>03/12/2017 01:28</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>28.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.42	U M	0.70	0.42	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.20	J M	0.70	0.42	0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.42	U	0.56	0.42	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	107		25-150
STL00991	13C4 PFOS	52		25-150
STL00994	18O2 PFHxS	99		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_056.d
 Lims ID: 320-26011-A-17-A
 Client ID: MEAFF-WWTP-SB02-1012
 Sample Type: Client
 Inject. Date: 12-Mar-2017 01:28:03 ALS Bottle#: 48 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-17-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 12:38:10 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:38:10

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	1.539	1.530	0.009	15978409	54.7		109	1074235	
2 Perfluorobutyric acid	212.90 > 169.00	1.539	1.538	0.001	113578	0.4195			565	
D 3 13C5-PFPeA	267.90 > 223.00	1.812	1.812	0.0	14137100	60.9		122	640483	
4 Perfluoropentanoic acid	262.90 > 219.00	1.822	1.812	0.010	95094	0.3437			548	
D 47 13C3-PFBS	301.90 > 83.00	1.931	1.851	0.080	794	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.852	1.851	0.001	26415	0.0641				
	298.90 > 99.00	1.862	1.851	0.011	10235		2.58(0.00-0.00)			
D 60 M2-4:2FTS	329.00 > 309.00	2.053	2.082	-0.029	6613	NC				
D 7 13C2 PFHxA	315.00 > 270.00	2.115	2.106	0.009	10880655	51.6		103	372896	
6 Perfluorohexanoic acid	313.00 > 269.00	2.115	2.106	0.009	50282	0.2598			590	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.444	2.442	0.002	32640	0.1492			311	
D 9 13C4-PFHpA	367.00 > 322.00	2.451	2.442	0.009	11305673	58.6		117	347690	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.459	2.457	0.002	173194	0.5853				M M
D 11 18O2 PFHxS	403.00 > 84.00	2.459	2.457	0.002	13610383	46.8		98.9	410873	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	2.786	2.769	0.017	160189	NR				

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	2.779	2.777	0.002		8667	0.1123		0.0		
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.802	2.800	0.002	1.000	38513	0.1720			333	M
413.00 > 169.00	2.802	2.800	0.002	1.000	25086		1.54(0.90-1.10)		1088	M
D 14 13C4 PFOA										
417.00 > 372.00	2.809	2.800	0.009		10960183	53.5		107	408316	
D 18 13C4 PFOS										
503.00 > 80.00	3.181	3.173	0.008		6019490	24.9		52.1	163363	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.172	3.182	-0.010	1.000	88063	0.7110			3370	M
499.00 > 99.00	3.181	3.182	-0.001	1.003	23686		3.72(0.90-1.10)		755	M
D 19 13C5 PFNA										
468.00 > 423.00	3.189	3.182	0.007		7377873	41.5		83.0	263279	
20 Perfluorononanoic acid										
463.00 > 419.00	3.157	3.182	-0.025	1.000	18875	0.1415			172	
D 21 13C8 FOSA										
506.00 > 78.00	3.528	3.516	0.012		4856050	13.2		26.5	176092	M
22 Perfluorooctane Sulfonamide										M
498.00 > 78.00	3.528	3.516	0.012	1.000	13904	0.1593			987	M
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.528	3.533	-0.005	1.005	25954	NR				
D 26 M2-8:2FTS										
529.00 > 509.00	3.511	3.533	-0.022		1167	0.0126		0.0		
D 23 13C2 PFDA										
515.00 > 470.00	3.545	3.541	0.004		4042654	24.3		48.5	103135	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.693	3.689	0.004		731	0.008581		0.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.713	3.699	0.014	1.006	21567	NR				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.856	3.862	-0.006		2472	0.0304		0.0		
D 30 13C2 PFUnA										
565.00 > 520.00	3.865	3.870	-0.005		2167155	16.6		33.1	145228	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.207	3.870	0.337	1.091	364	NR				
D 34 d-N-MeFOSA-M										
515.00 > 169.00	3.873	4.013	-0.140		504	0.005728		0.0		
D 36 13C2 PFDaA										
615.00 > 570.00	4.159	4.154	0.005		1308089	10.6		21.1	46714	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.658	4.657	0.001		1529965	5.90		11.8	103729	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.694	4.657	0.037	1.000	55129	1.07			737	
713.00 > 169.00	4.648	4.657	-0.009	0.990	717		76.89(0.00-0.00)		255	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.077	5.070	0.007		709290	5.67		11.3	50159	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_056.d

Injection Date: 12-Mar-2017 01:28:03

Instrument ID: A8_N

Lims ID: 320-26011-A-17-A

Lab Sample ID: 320-26011-17

Client ID: MEAFF-WWTP-SB02-1012

Operator ID: A8-PC\A8

ALS Bottle#: 48

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

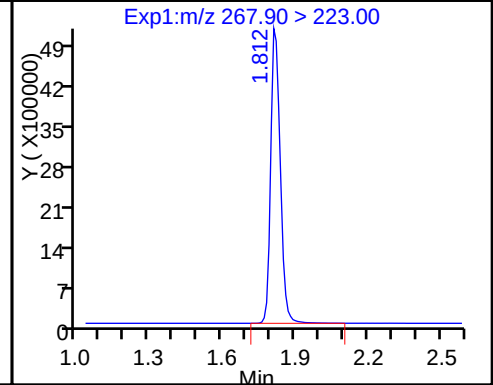
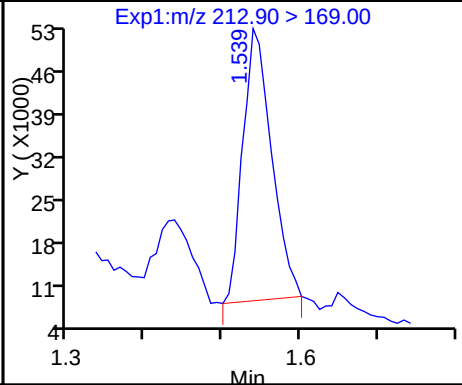
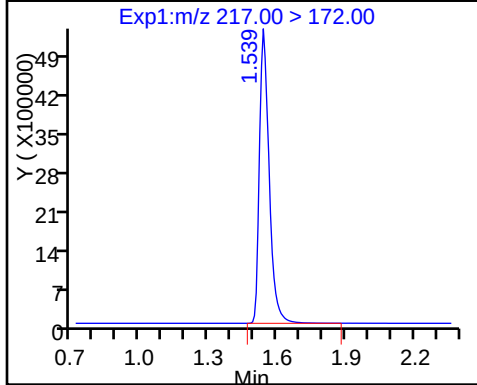
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

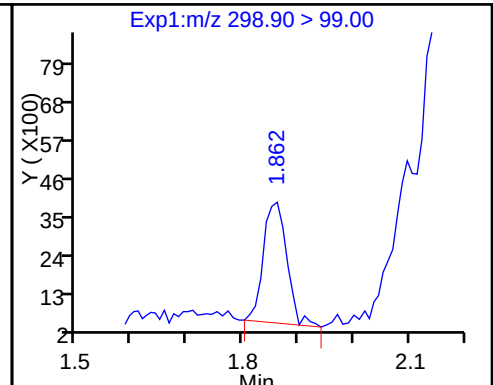
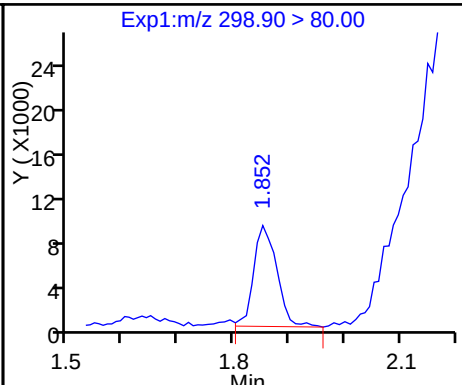
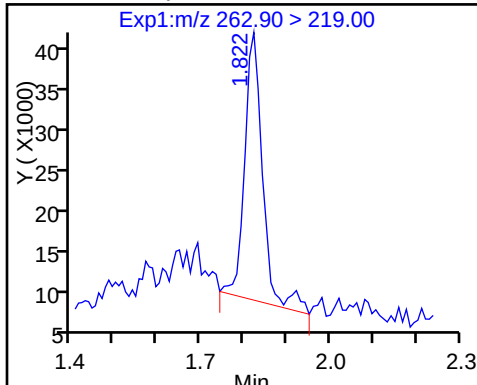
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

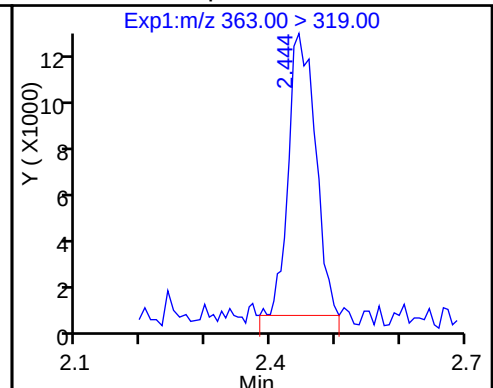
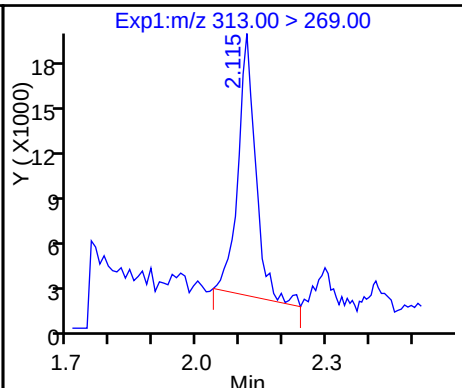
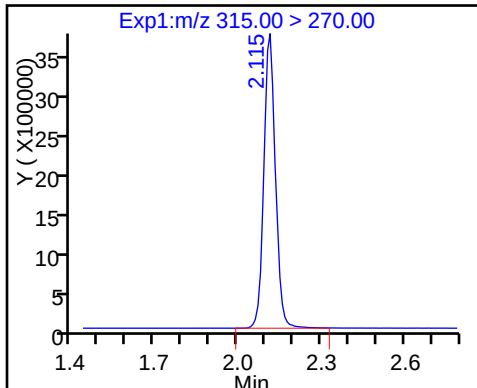
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

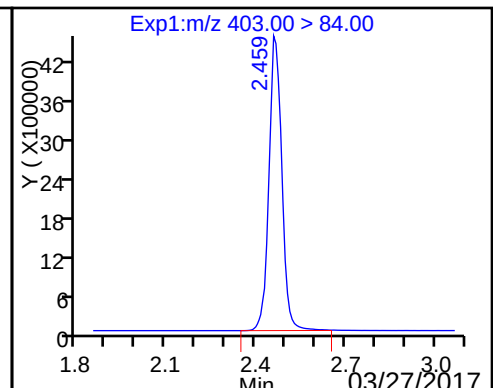
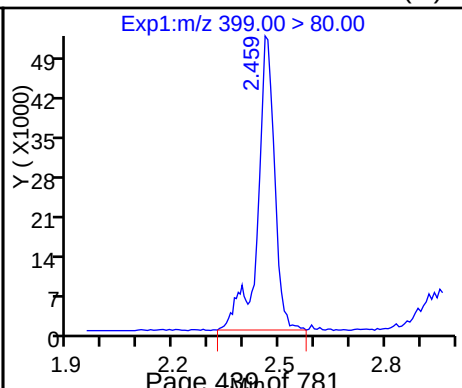
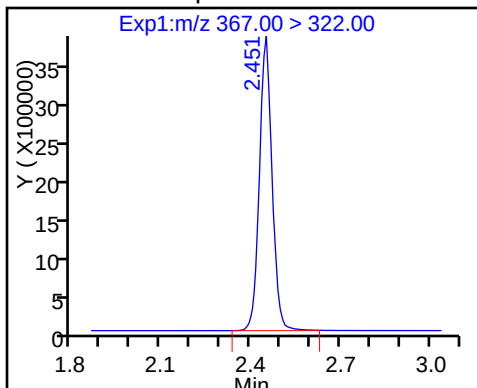
10 Perfluoroheptanoic acid



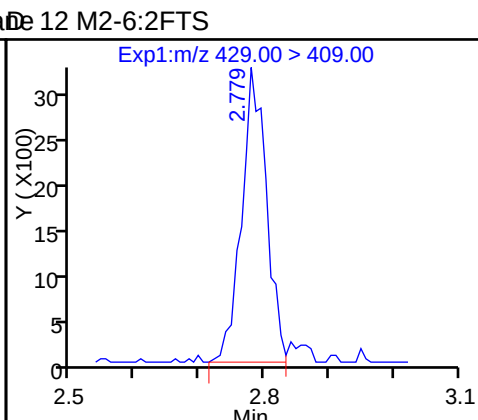
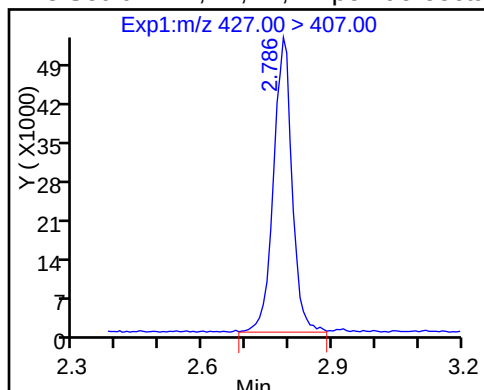
D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

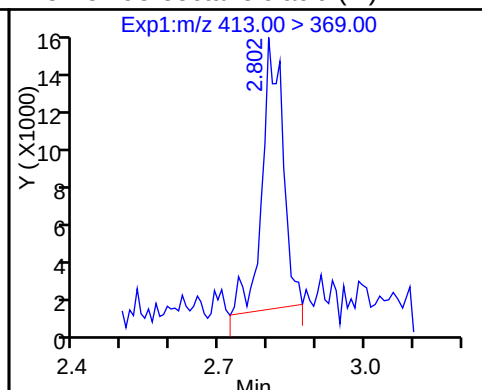
D 11 18O2 PFHxS



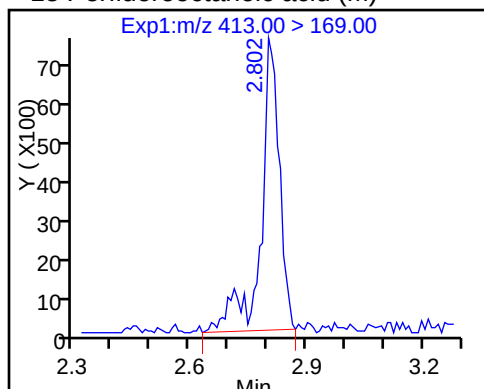
13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS



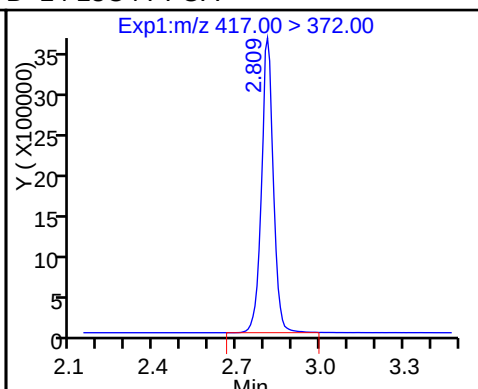
15 Perfluorooctanoic acid (M)



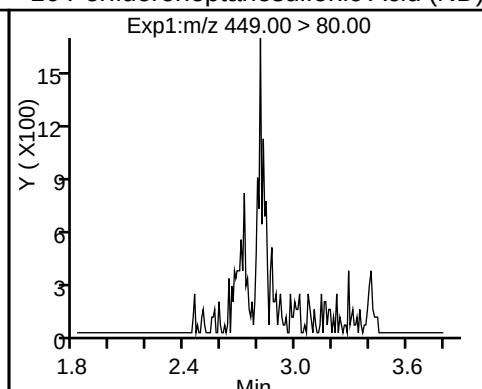
15 Perfluorooctanoic acid (M)



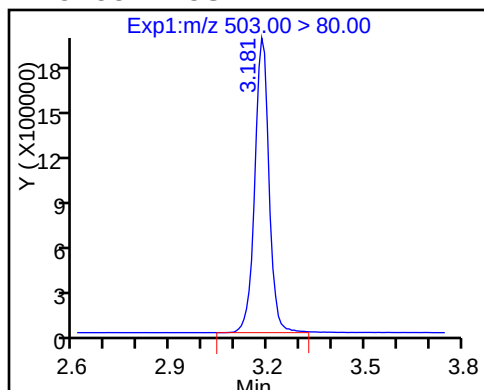
D 14 13C4 PFOA



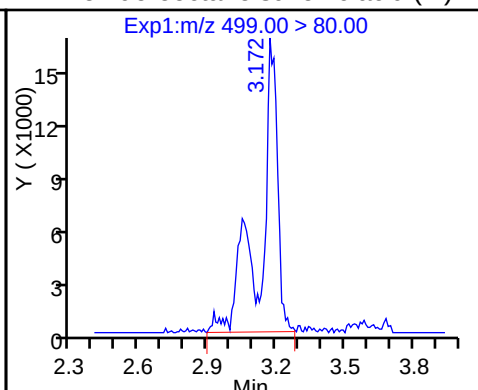
16 Perfluoroheptanesulfonic Acid (ND)



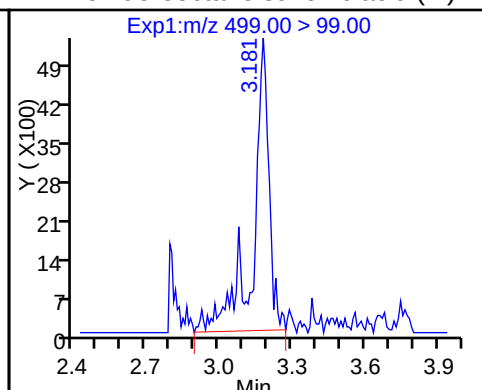
D 18 13C4 PFOS



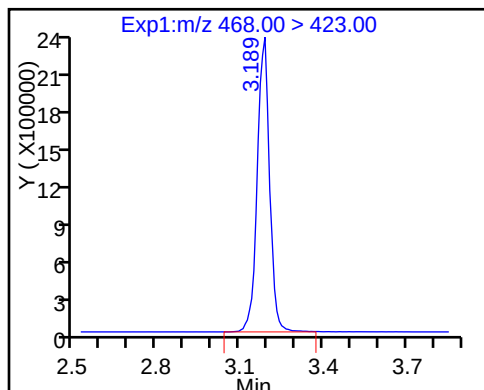
17 Perfluorooctane sulfonic acid (M)



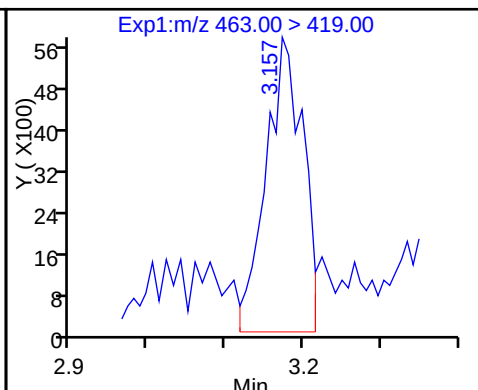
17 Perfluorooctane sulfonic acid (M)



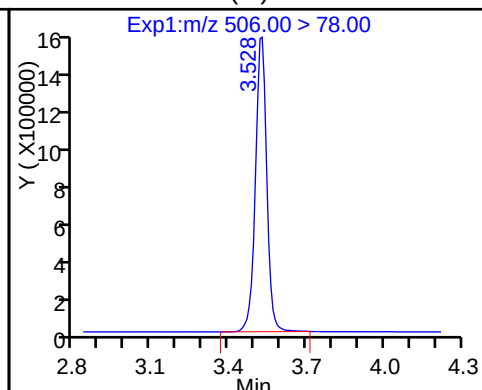
D 19 13C5 PFNA



20 Perfluorononanoic acid



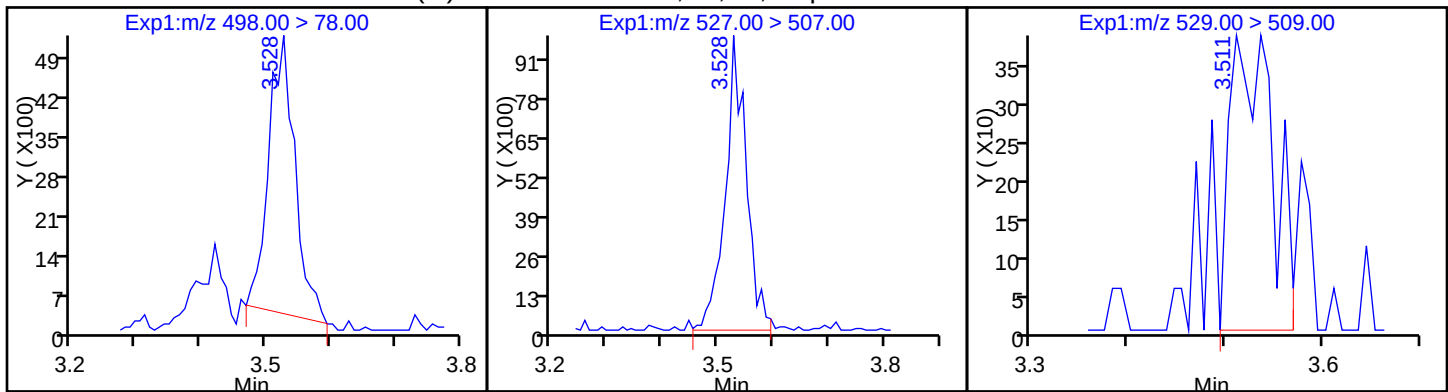
D 21 13C8 FOSA (M)



22 Perfluorooctane Sulfonamide (M)

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

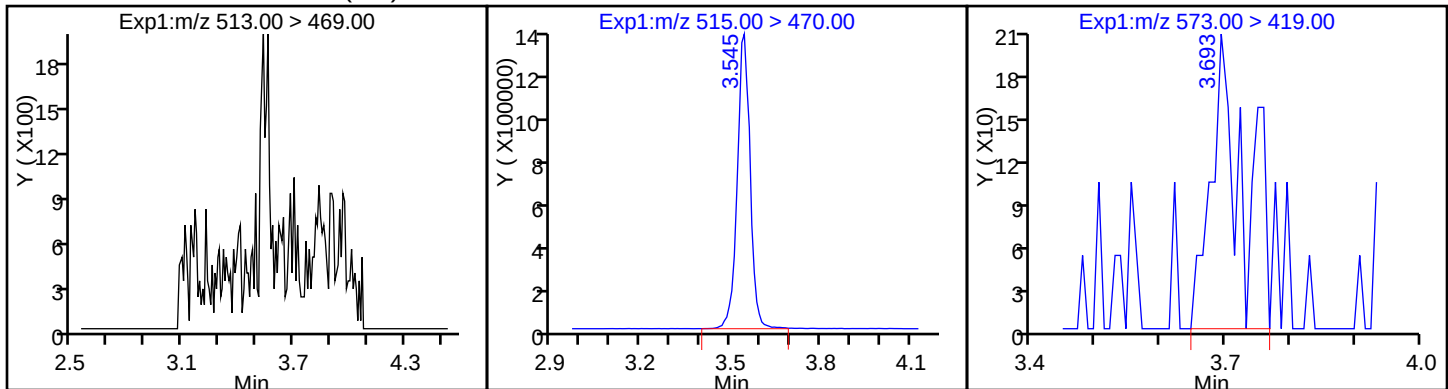
26 M2-8:2FTS



24 Perfluorodecanoic acid (ND)

D 23 13C2 PFDA

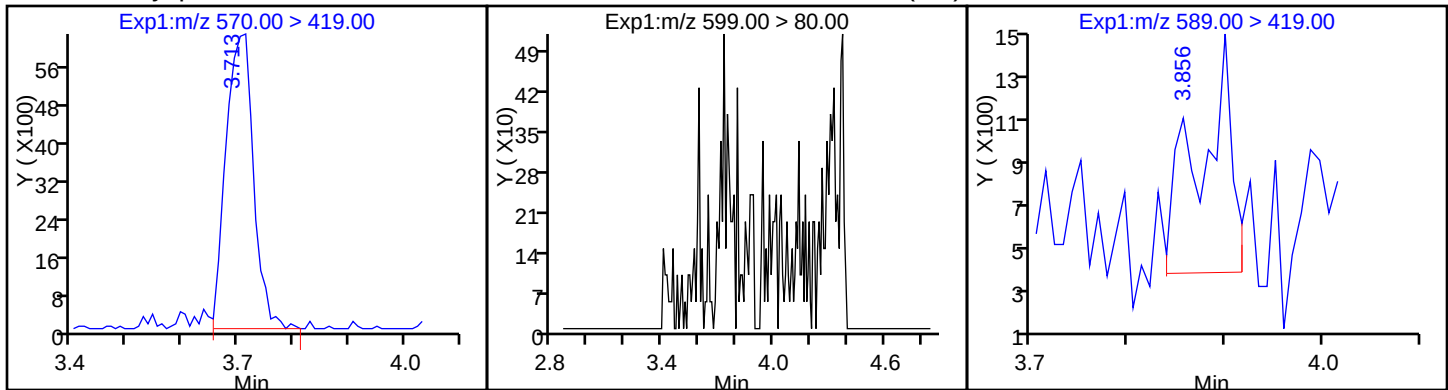
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid (ND)

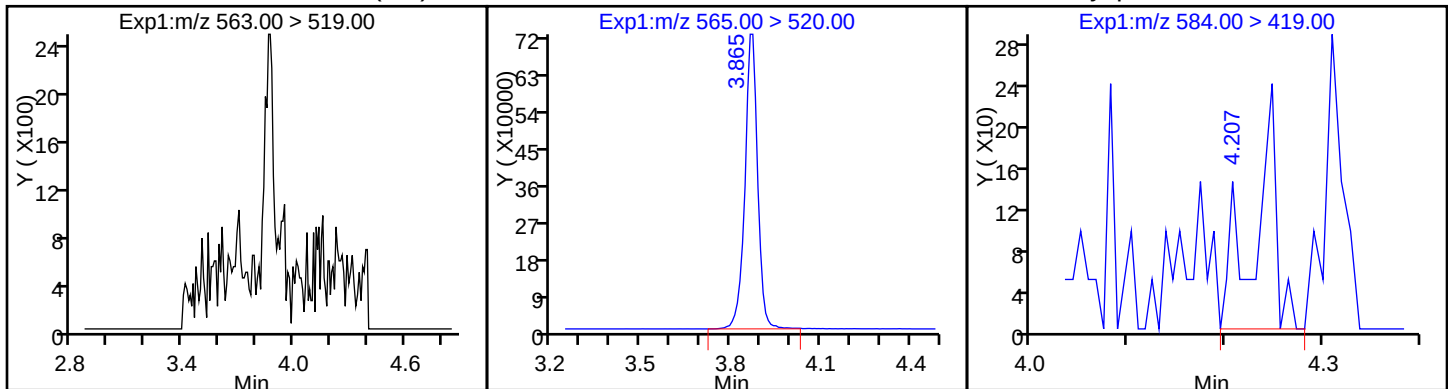
D 32 d5-NEtFOSAA



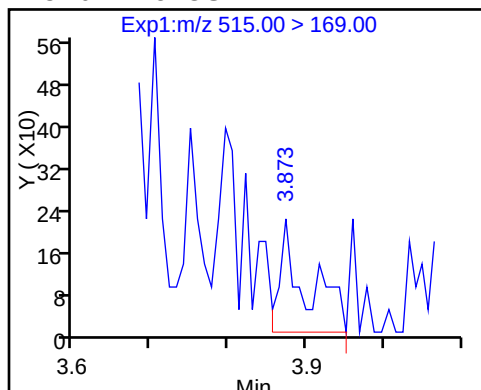
31 Perfluoroundecanoic acid (ND)

D 30 13C2 PFUnA

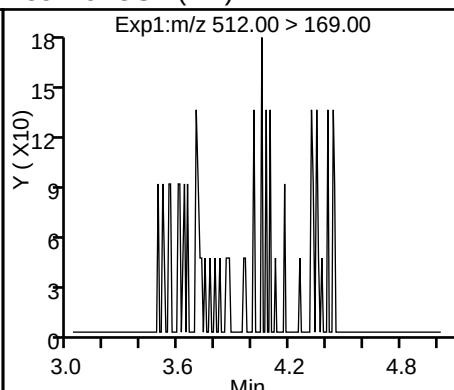
33 N-ethyl perfluorooctane sulfonamid



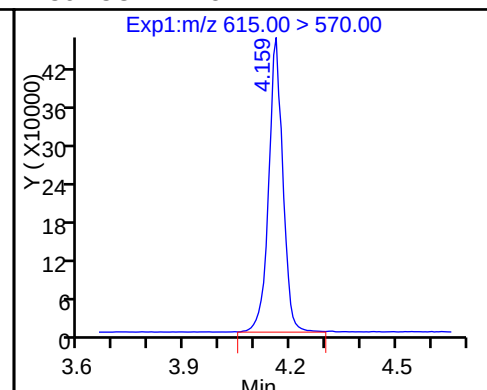
D 34 d-N-MeFOSA-M



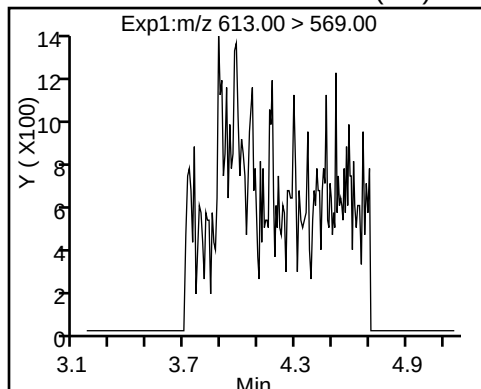
35 MeFOSA (ND)



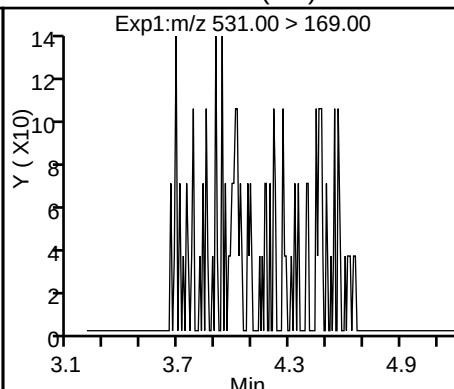
D 36 13C2 PFDaA



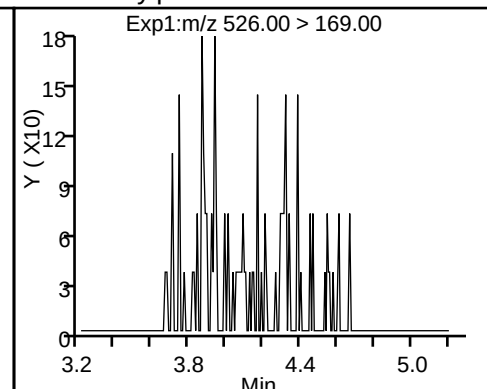
37 Perfluorododecanoic acid (ND)



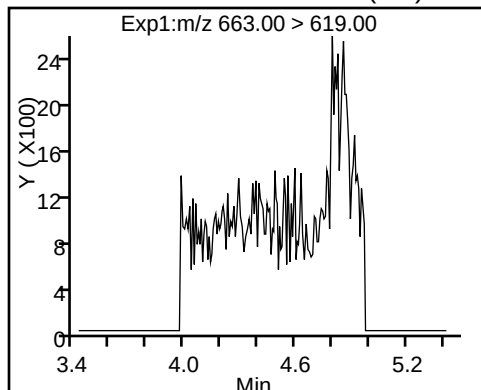
D 38 d-N-EtFOSA-M (ND)



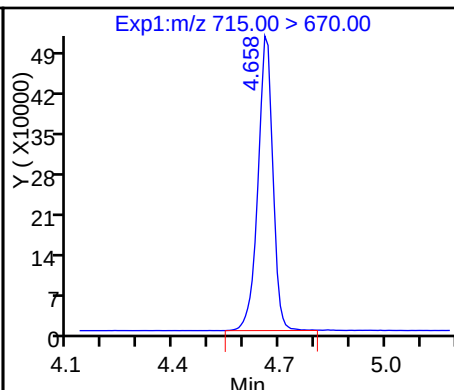
39 N-ethylperfluoro-1-octanesulfonami (ND)



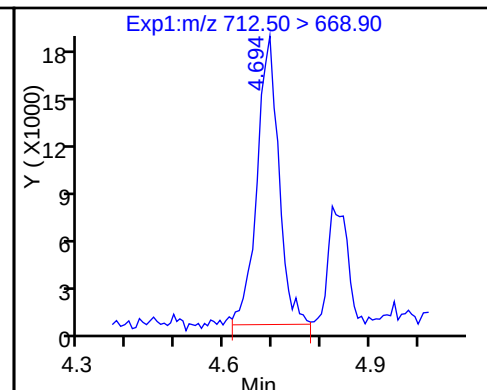
41 Perfluorotridecanoic acid (ND)



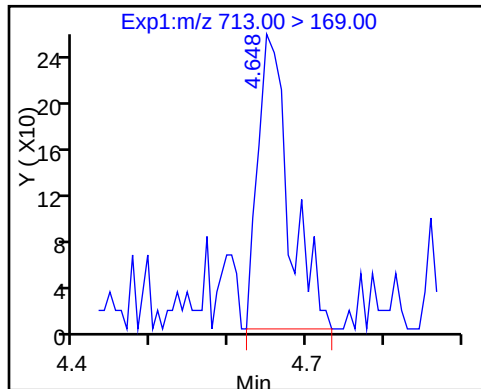
D 43 13C2-PFTeDA



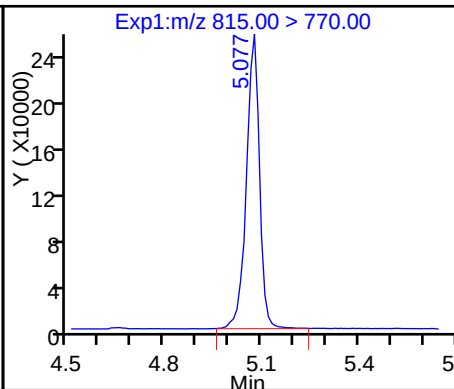
42 Perfluorotetradecanoic acid



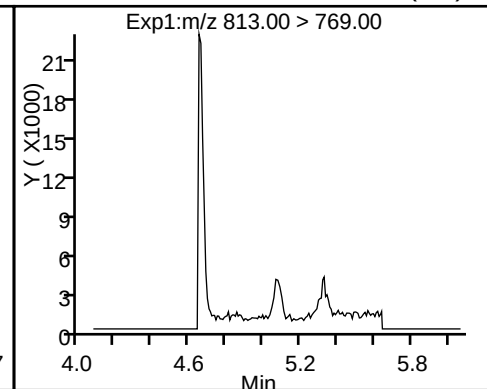
42 Perfluorotetradecanoic acid



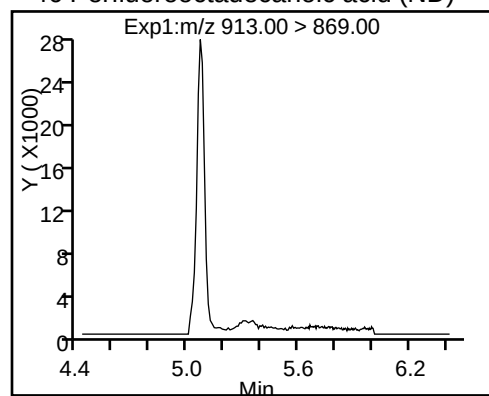
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid (ND)



46 Perfluorooctadecanoic acid (ND)



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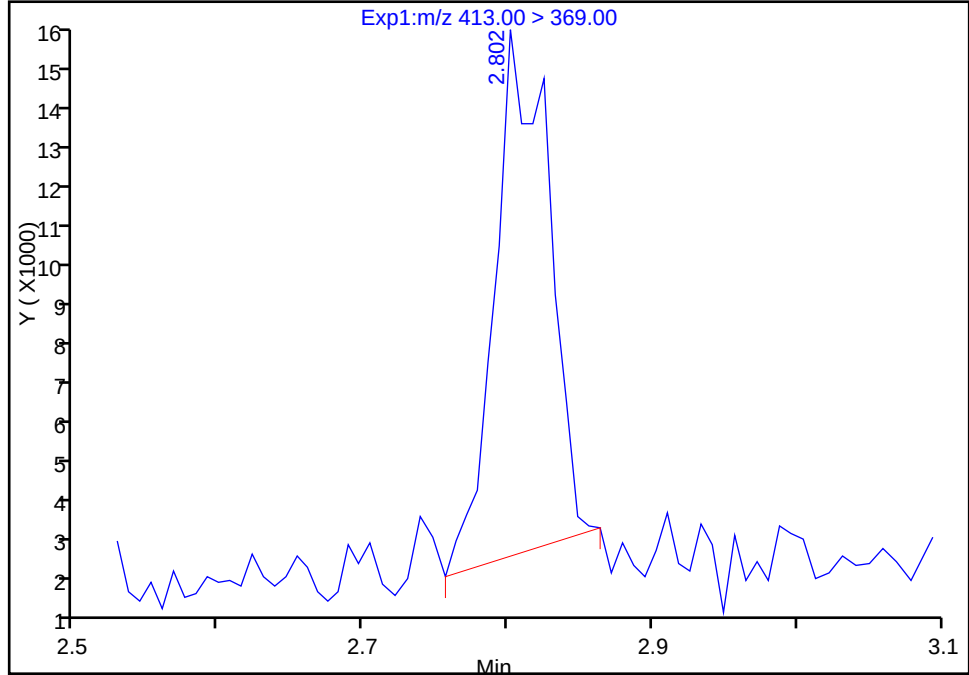
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Injection Date: 12-Mar-2017 01:28:03 Instrument ID: A8_N
Lims ID: 320-26011-A-17-A Lab Sample ID: 320-26011-17
Client ID: MEAFF-WWTP-SB02-1012
Operator ID: A8-PC\A8 ALS Bottle#: 48 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

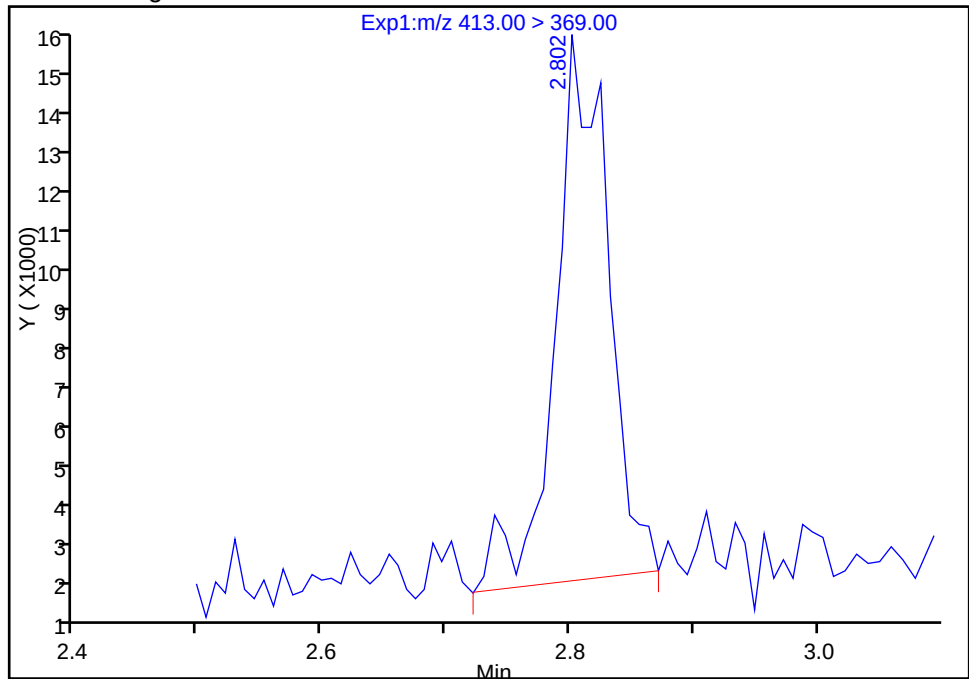
RT: 2.80
Area: 31970
Amount: 0.142754
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 38513
Amount: 0.171970
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:33:59

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

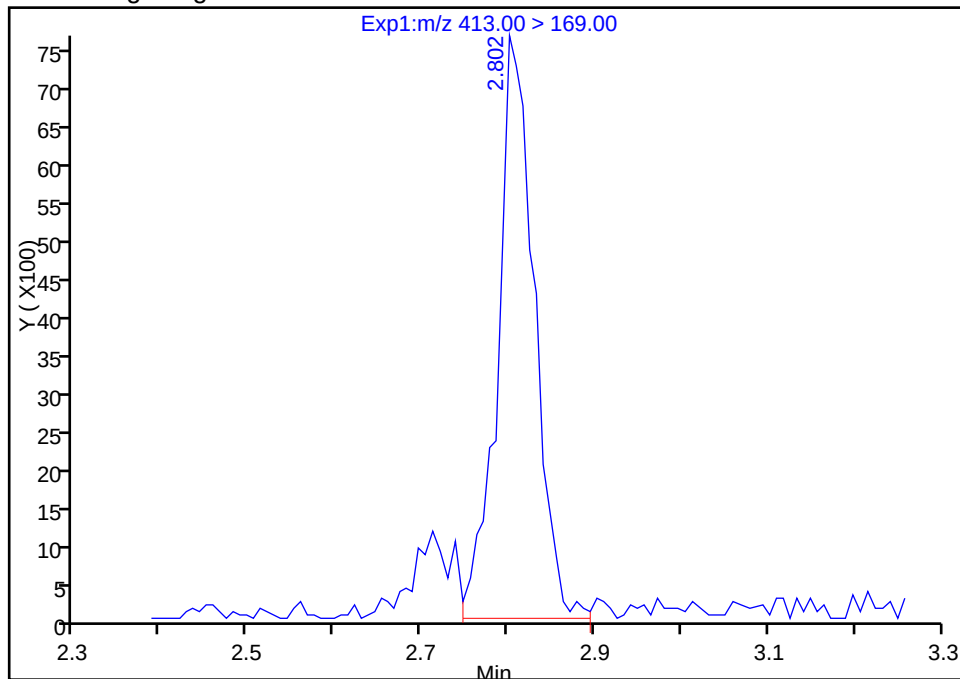
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Injection Date: 12-Mar-2017 01:28:03 Instrument ID: A8_N
Lims ID: 320-26011-A-17-A Lab Sample ID: 320-26011-17
Client ID: MEAFF-WWTP-SB02-1012
Operator ID: A8-PCVA8 ALS Bottle#: 48 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

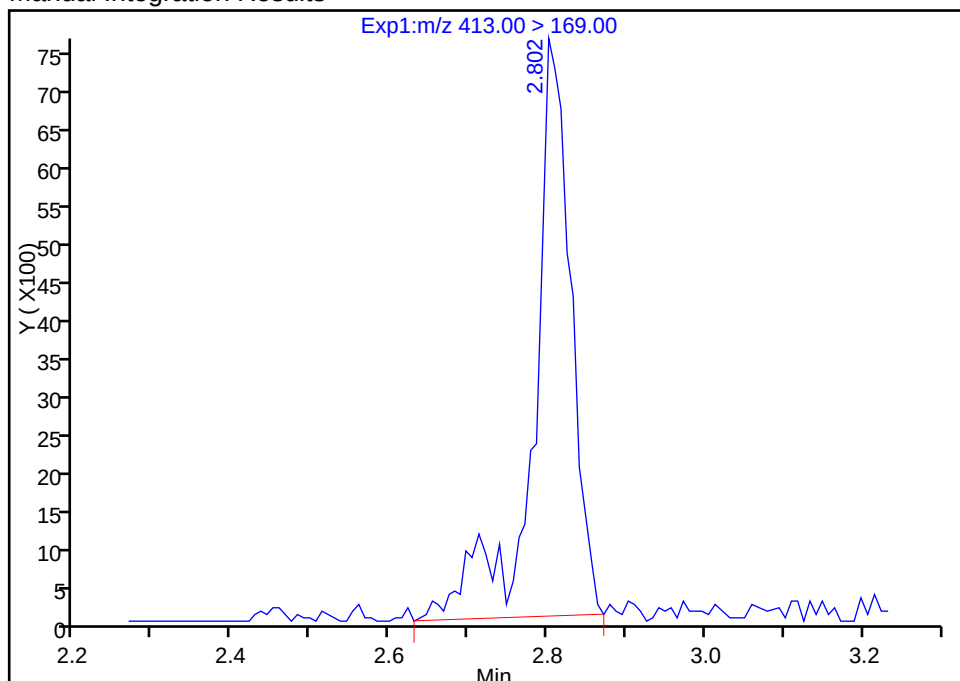
RT: 2.80
Area: 22438
Amount: 0.142754
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 25086
Amount: 0.171970
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:34:06

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

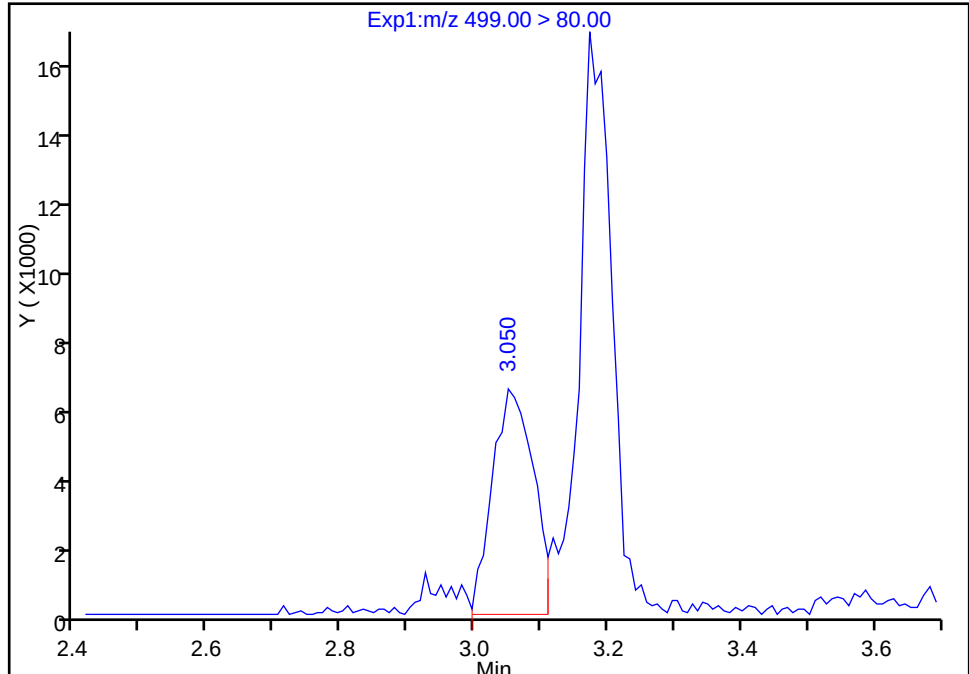
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Injection Date: 12-Mar-2017 01:28:03 Instrument ID: A8_N
Lims ID: 320-26011-A-17-A Lab Sample ID: 320-26011-17
Client ID: MEAFF-WWTP-SB02-1012
Operator ID: A8-PC\A8 ALS Bottle#: 48 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

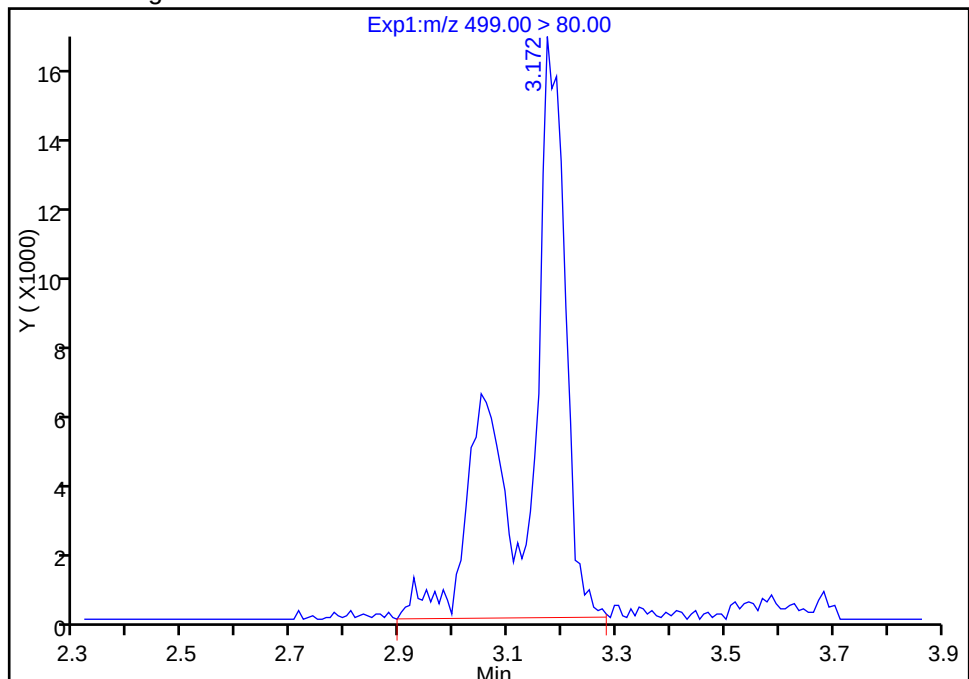
RT: 3.05
Area: 27697
Amount: 0.223632
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 88063
Amount: 0.711042
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:33:25

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

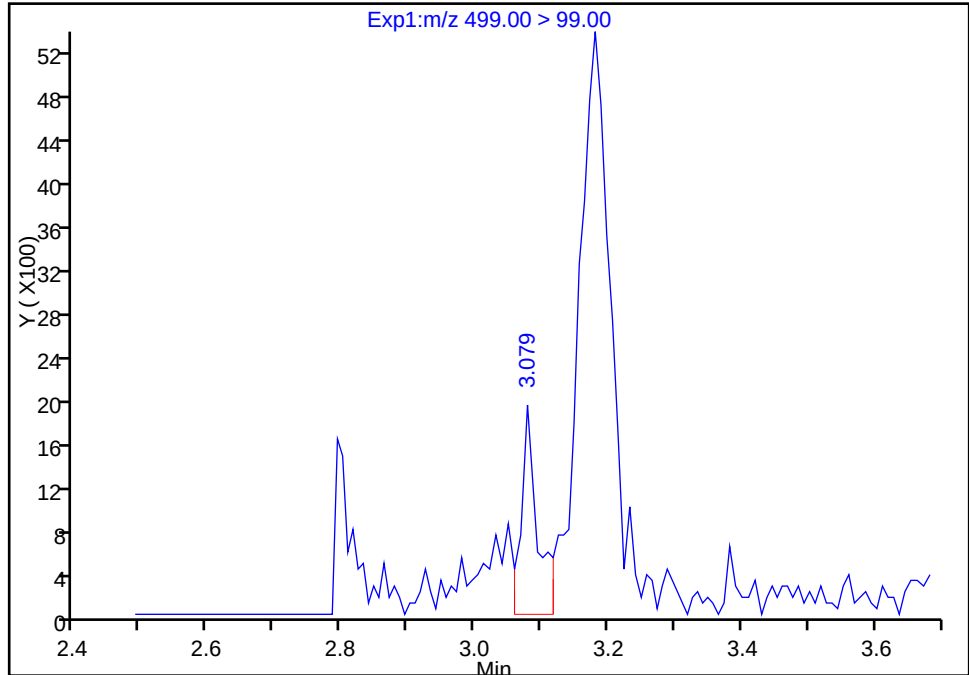
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Injection Date: 12-Mar-2017 01:28:03 Instrument ID: A8_N
Lims ID: 320-26011-A-17-A Lab Sample ID: 320-26011-17
Client ID: MEAFF-WWTP-SB02-1012
Operator ID: A8-PCVA8 ALS Bottle#: 48 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

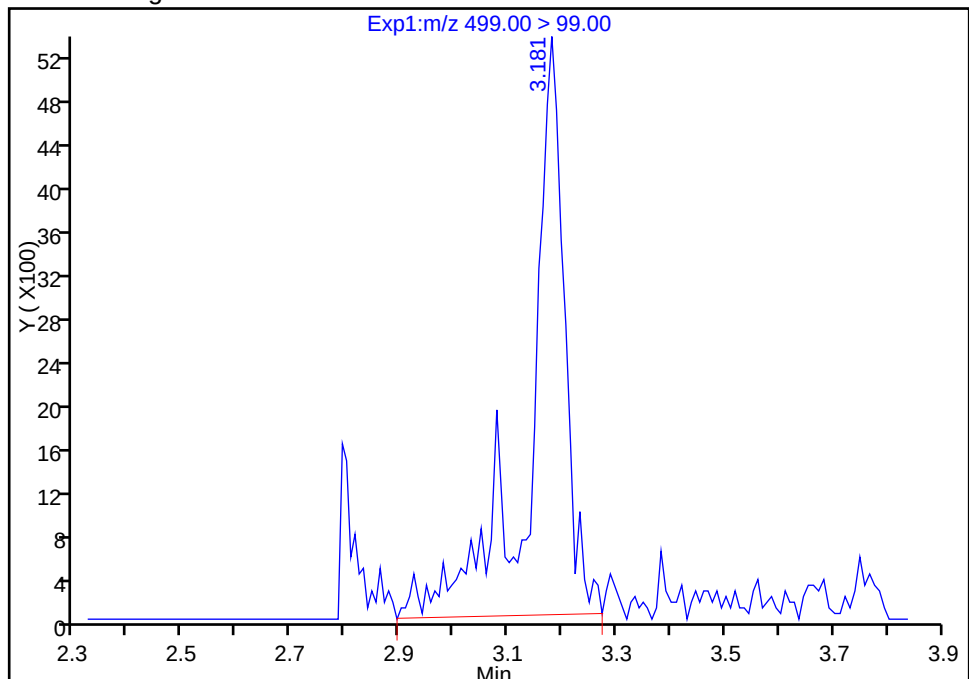
RT: 3.08
Area: 3007
Amount: 0.223632
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 23686
Amount: 0.711042
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:34:52

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-UNKNOWN22-SB01-0001 Lab Sample ID: 320-26011-18
 Matrix: Solid Lab File ID: 2017.03.11D_060.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:45
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.00(g) Date Analyzed: 03/12/2017 01:58
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 15.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U	0.59	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.59	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.47	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	86		25-150
STL00991	13C4 PFOS	46		25-150
STL00994	18O2 PFHxS	78		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_060.d
 Lims ID: 320-26011-A-18-A
 Client ID: MEAFF-UNKNOWN22-SB01-0001
 Sample Type: Client
 Inject. Date: 12-Mar-2017 01:58:05 ALS Bottle#: 51 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-18-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:06:28 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:57:13

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

5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.852	1.851	0.001	1.000	12489	0.0385				
298.90 > 99.00	1.842	1.851	-0.009	0.995	6703		1.86(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.470	2.468	0.002		10722473	36.9		77.9	277192	
D 14 13C4 PFOA										
417.00 > 372.00	2.813	2.811	0.002		8826251	43.1		86.1	212256	
D 18 13C4 PFOS										
503.00 > 80.00	3.186	3.185	0.001		5361065	22.2		46.4	238863	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_060.d

Injection Date: 12-Mar-2017 01:58:05

Instrument ID: A8_N

Lims ID: 320-26011-A-18-A

Lab Sample ID: 320-26011-18

Client ID: MEAFF-UNKNOWN22-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 51

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

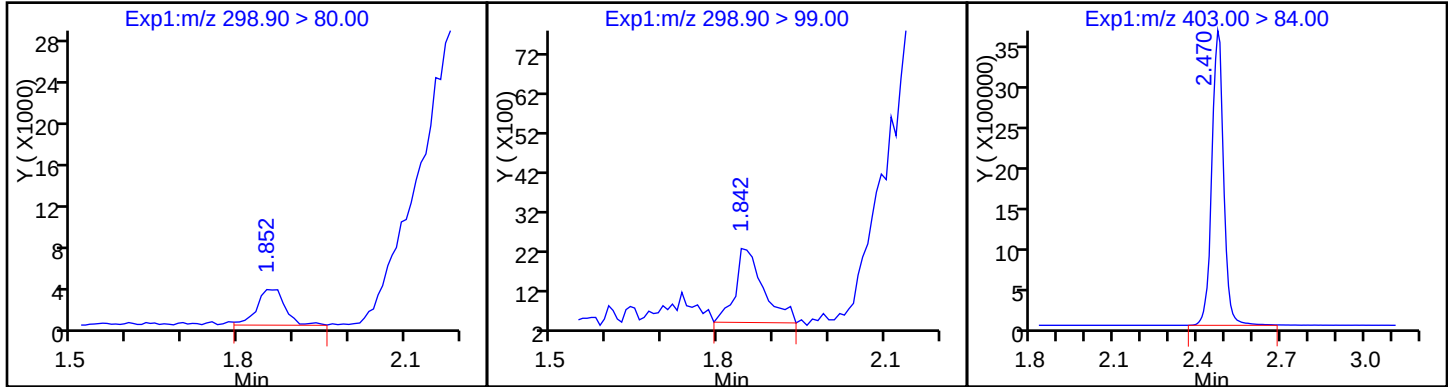
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

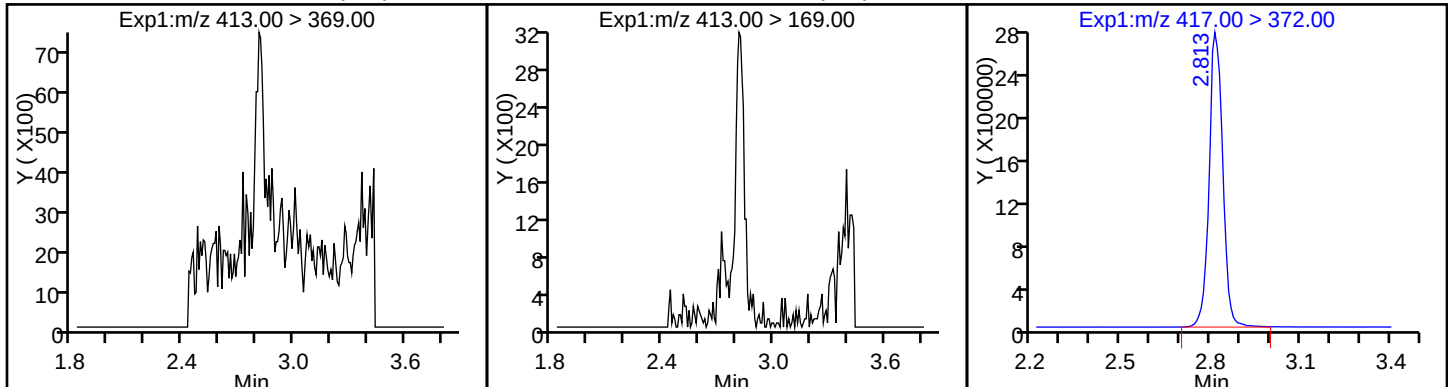
D 11 18O2 PFHxS



15 Perfluorooctanoic acid (ND)

15 Perfluorooctanoic acid (ND)

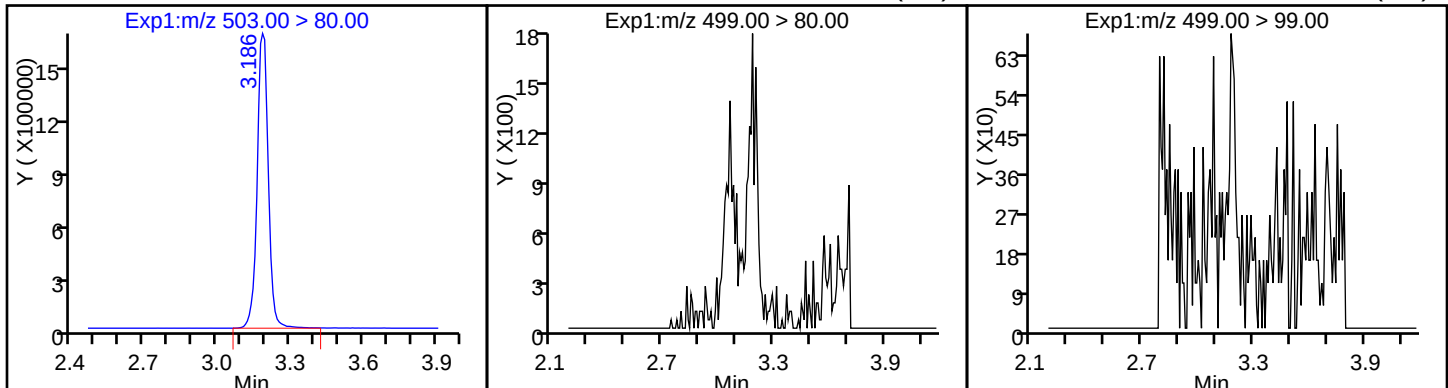
D 14 13C4 PFOA



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

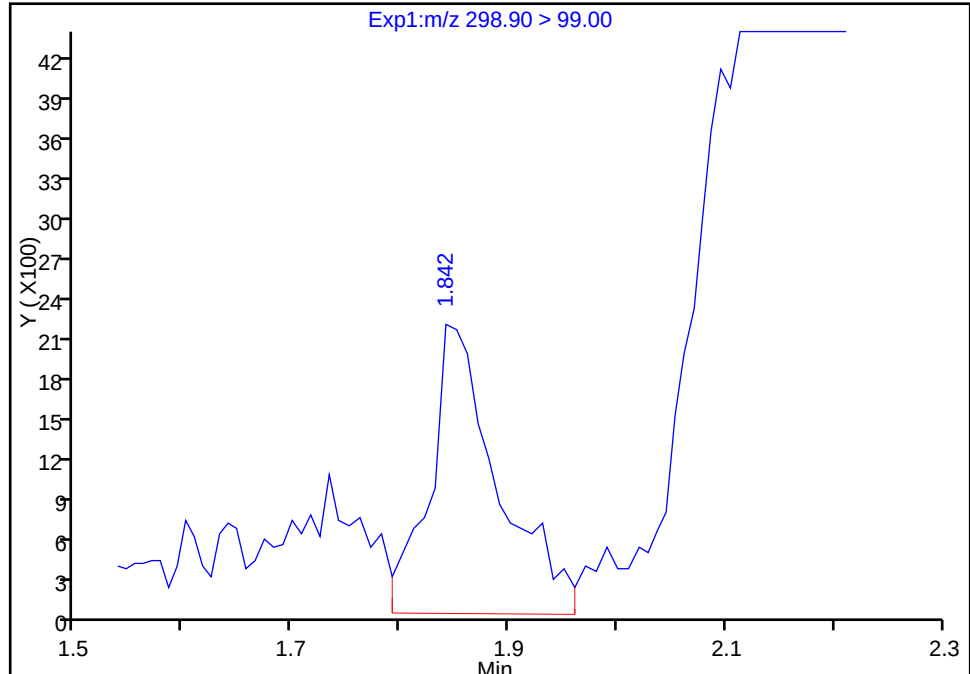
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_060.d
Injection Date: 12-Mar-2017 01:58:05 Instrument ID: A8_N
Lims ID: 320-26011-A-18-A Lab Sample ID: 320-26011-18
Client ID: MEAFF-UNKNOWN22-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 51 Worklist Smp#: 24
Injection Vol: 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

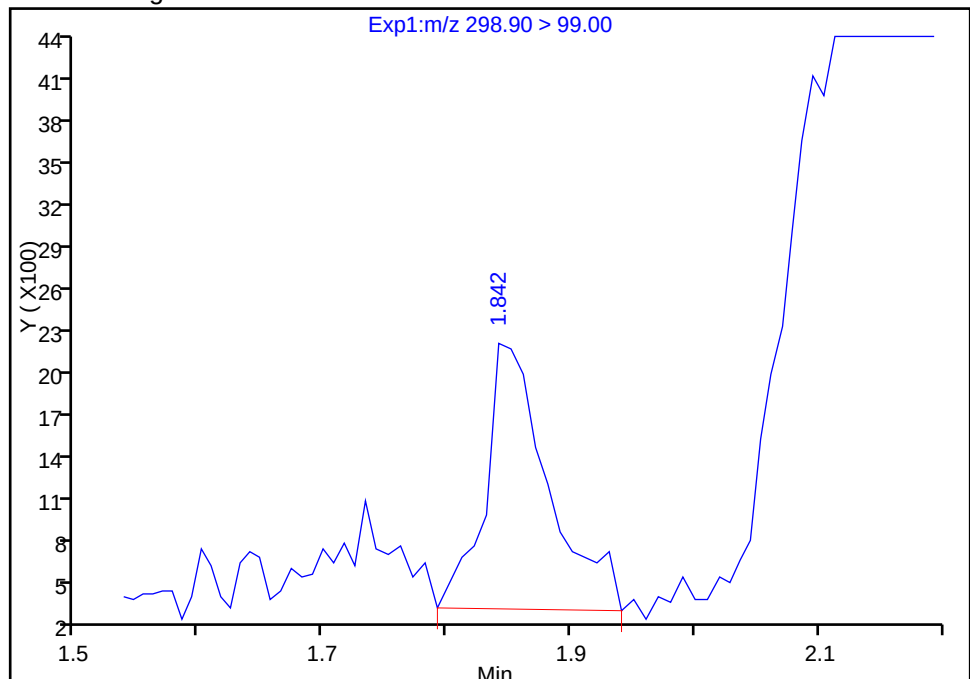
RT: 1.84
Area: 9422
Amount: 0.038459
Amount Units: ng/ml

Processing Integration Results



RT: 1.84
Area: 6703
Amount: 0.038459
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:06:23

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-UNKNOWN22-SB01-0204 Lab Sample ID: 320-26011-19
 Matrix: Solid Lab File ID: 2017.03.11D_061.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:50
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.09(g) Date Analyzed: 03/12/2017 03:05
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 15.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	39		25-150
STL00994	18O2 PFHxS	80		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_061.d
 Lims ID: 320-26011-A-19-A
 Client ID: MEAFF-UNKNOWN22-SB01-0204
 Sample Type: Client
 Inject. Date: 12-Mar-2017 03:05:36 ALS Bottle#: 52 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-19-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:06:39 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:57:26

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

D 11 18O2 PFHxS

403.00 > 84.00 2.468 2.468 0.0 10962651 37.7 79.7 265657

D 14 13C4 PFOA

417.00 > 372.00 2.818 2.811 0.007 8250222 40.3 80.5 262919

D 18 13C4 PFOS

503.00 > 80.00 3.176 3.185 -0.009 4516360 18.7 39.1 185001

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_061.d

Injection Date: 12-Mar-2017 03:05:36

Instrument ID: A8_N

Lims ID: 320-26011-A-19-A

Lab Sample ID: 320-26011-19

Client ID: MEAFF-UNKNOWN22-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 52

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

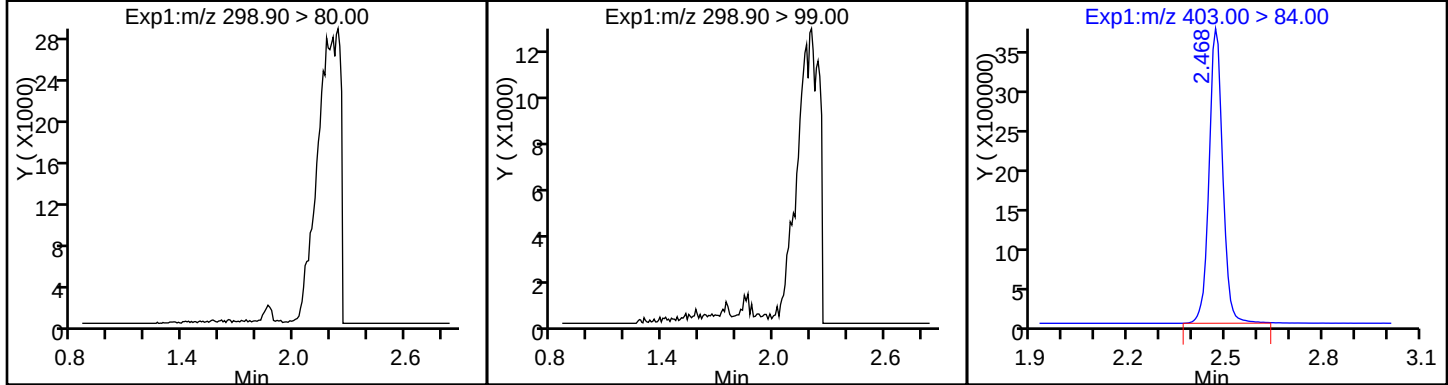
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

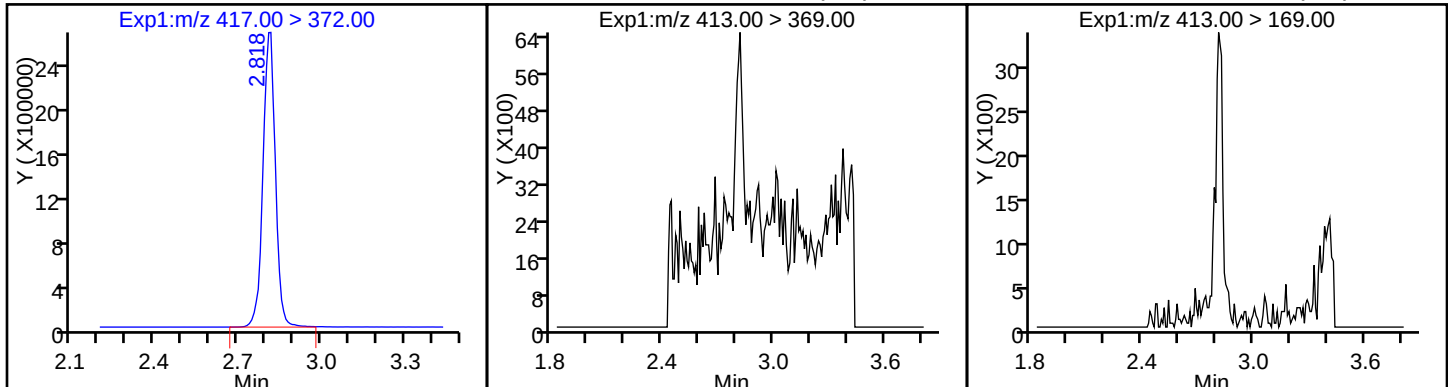
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (ND)

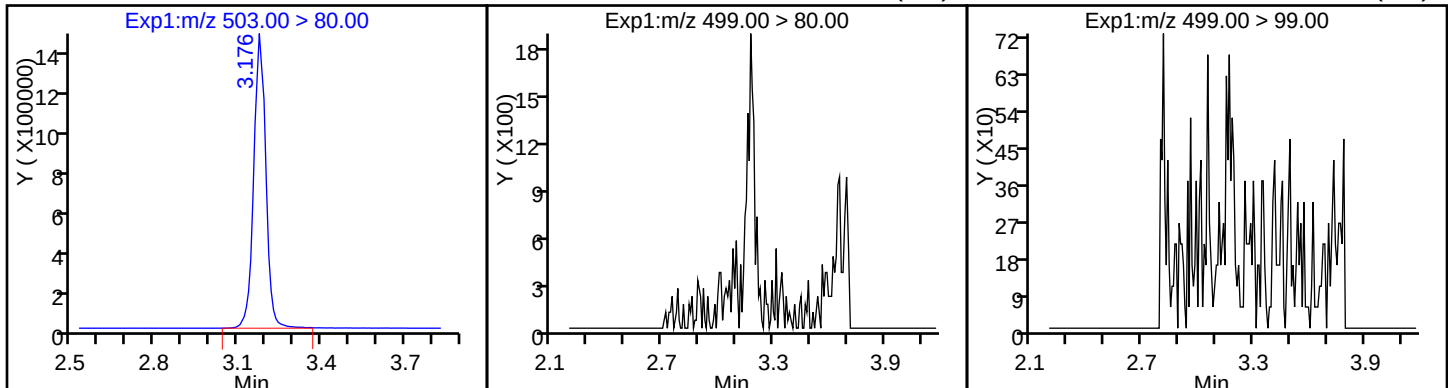
15 Perfluorooctanoic acid (ND)



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>HYDRANT BLANK-022217</u>	Lab Sample ID: <u>320-26011-20</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.03.02A_011.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 08:35</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>02/28/2017 16:42</u>
Sample wt/vol: <u>277.1 (mL)</u>	Date Analyzed: <u>03/02/2017 11:27</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</u> ID: <u>3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>152836</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.3	1.8	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	132		25-150
STL00994	18O2 PFHxS	135		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_011.d
 Lims ID: 320-26011-A-20-A
 Client ID: HYDRANT BLANK-022217
 Sample Type: Client
 Inject. Date: 02-Mar-2017 11:27:48 ALS Bottle#: 8 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-20-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 09:39:31 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: chandrasenas Date: 02-Mar-2017 12:30:51

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

D 11 18O2 PFHxS
 403.00 > 84.00 2.480 2.483 -0.003 18558497 63.8 135 554546

D 14 13C4 PFOA
 417.00 > 372.00 2.830 2.834 -0.004 10016683 48.9 97.7 352041

15 Perfluorooctanoic acid M
 413.00 > 369.00 2.822 2.834 -0.012 1.000 75257 0.3677 273 M
 413.00 > 169.00 2.830 2.834 -0.004 1.003 42144 1.79(0.90-1.10) 920 M

D 18 13C4 PFOS
 503.00 > 80.00 3.205 3.202 0.003 15287013 63.3 132 143560

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_011.d

Injection Date: 02-Mar-2017 11:27:48

Instrument ID: A8_N

Lims ID: 320-26011-A-20-A

Lab Sample ID: 320-26011-20

Client ID: HYDRANT BLANK-022217

Operator ID: A8-PC\A8

ALS Bottle#: 8

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

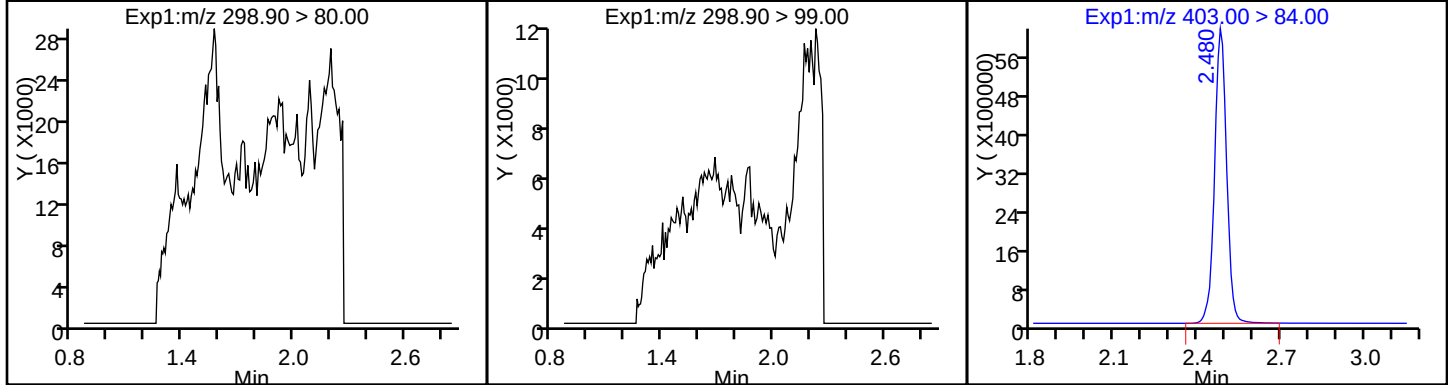
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

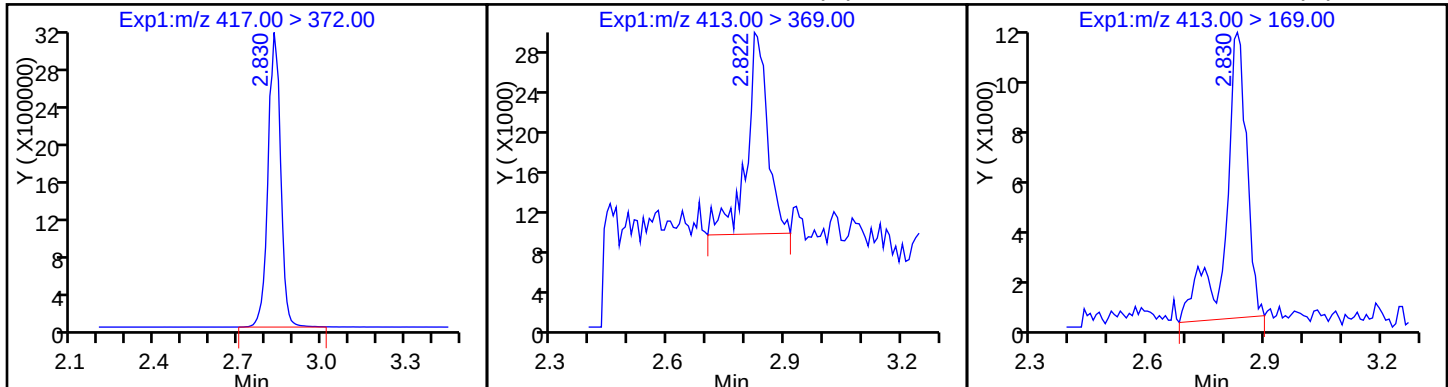
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

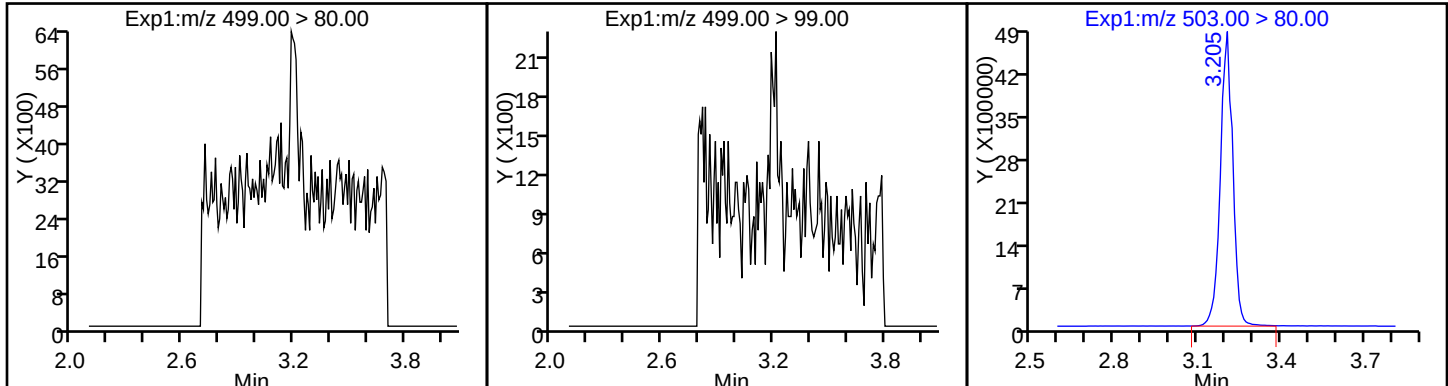
15 Perfluorooctanoic acid (M)



17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS



TestAmerica Sacramento

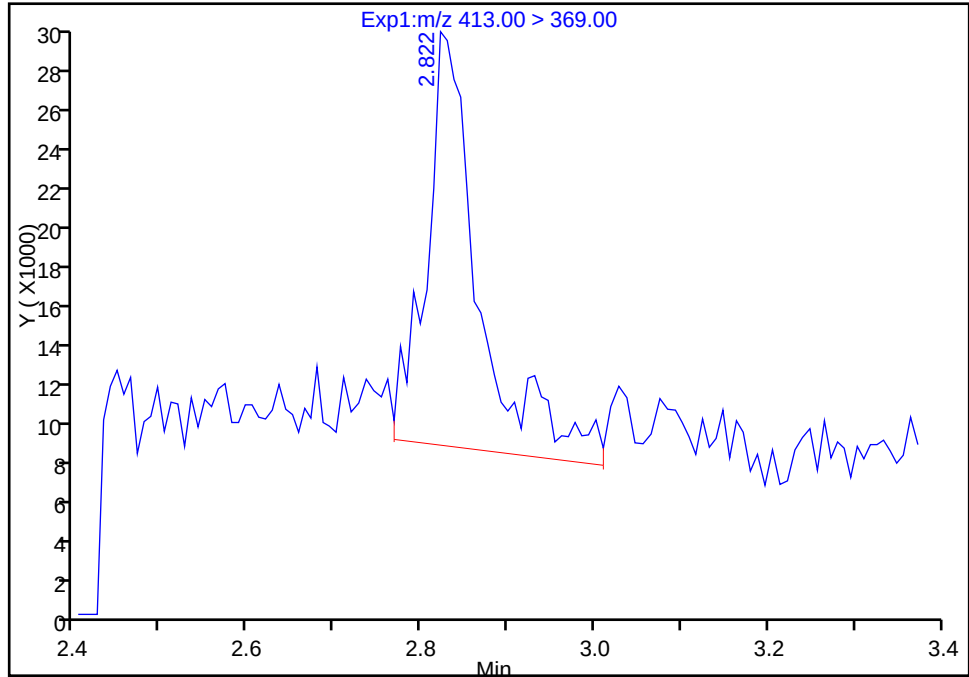
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_011.d
Injection Date: 02-Mar-2017 11:27:48 Instrument ID: A8_N
Lims ID: 320-26011-A-20-A Lab Sample ID: 320-26011-20
Client ID: HYDRANT BLANK-022217
Operator ID: A8-PC\A8 ALS Bottle#: 8 Worklist Smp#: 20
Injection Vol: 2.0 ul 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

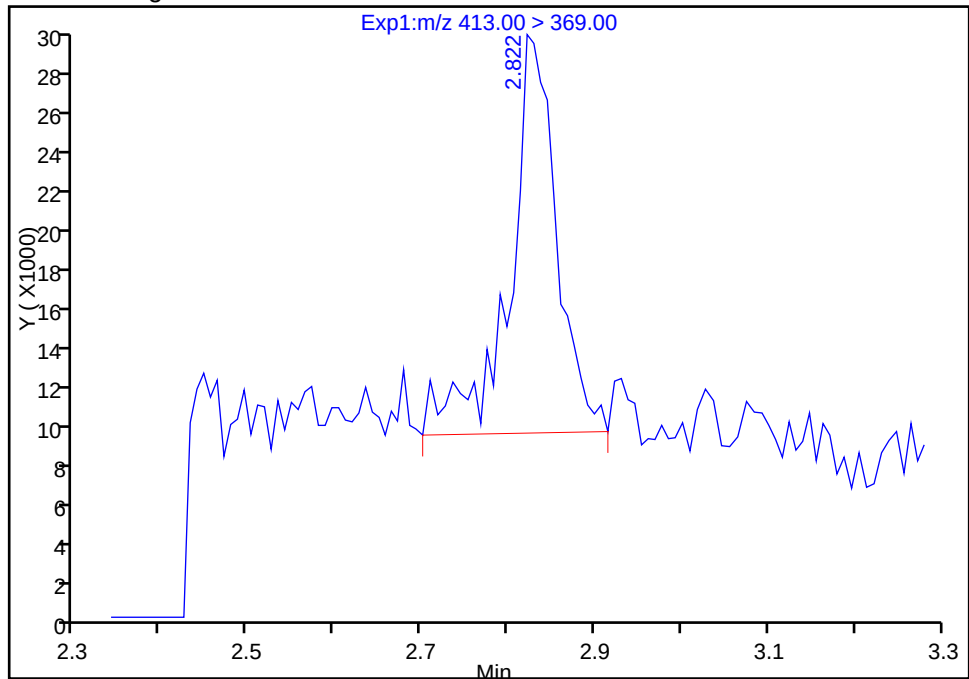
RT: 2.82
Area: 87571
Amount: 0.427859
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 75257
Amount: 0.367695
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:23

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

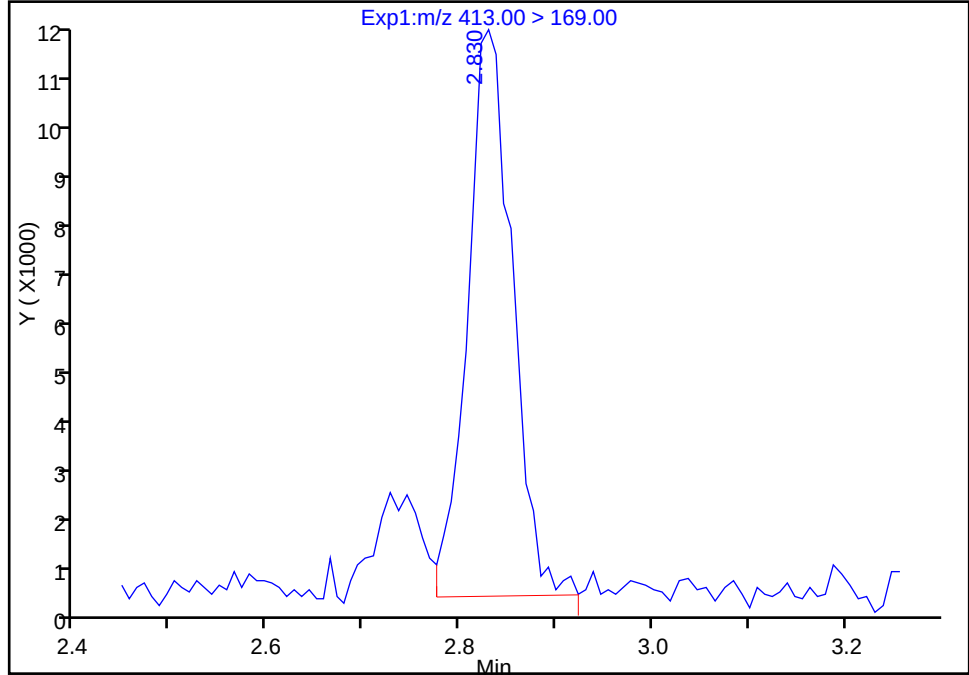
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_011.d
Injection Date: 02-Mar-2017 11:27:48 Instrument ID: A8_N
Lims ID: 320-26011-A-20-A Lab Sample ID: 320-26011-20
Client ID: HYDRANT BLANK-022217
Operator ID: A8-PCVA8 ALS Bottle#: 8 Worklist Smp#: 20
Injection Vol: 2.0 ul 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

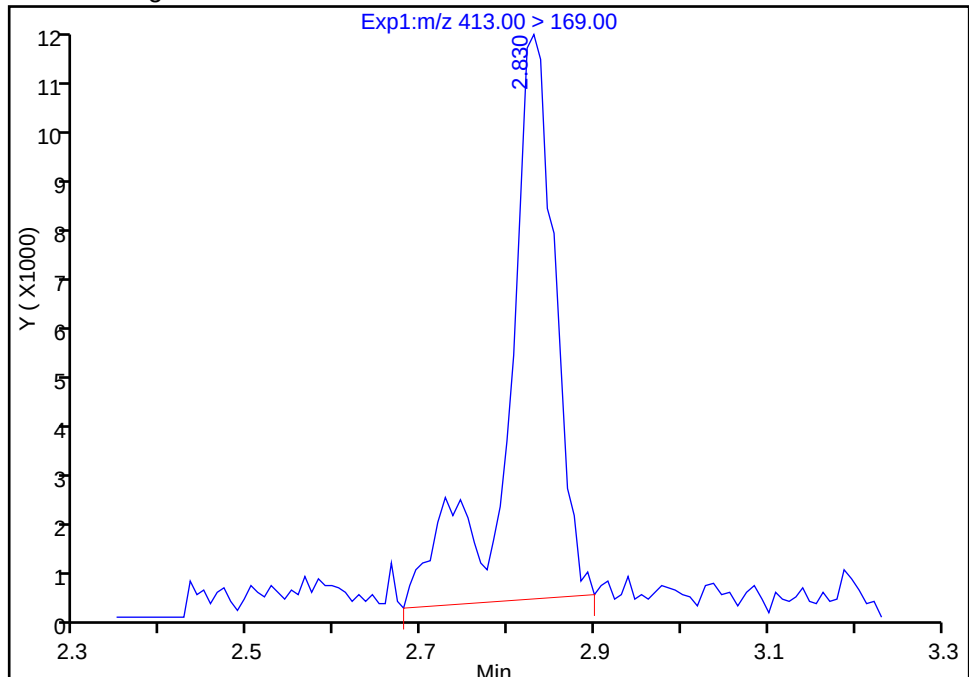
RT: 2.83
Area: 35695
Amount: 0.427859
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 42144
Amount: 0.367695
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:23

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: GROUT TANK BLANK-022217 Lab Sample ID: 320-26011-21
 Matrix: Water Lab File ID: 2017.03.02A_012.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 09:20
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 291.7(mL) Date Analyzed: 03/02/2017 11:35
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	1.7	0.64
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.7	U	2.1	1.7	0.79

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	138		25-150
STL00994	18O2 PFHxS	138		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_012.d
 Lims ID: 320-26011-A-21-A
 Client ID: GROUT TANK BLANK-022217
 Sample Type: Client
 Inject. Date: 02-Mar-2017 11:35:18 ALS Bottle#: 9 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-21-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 09:39:40 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK006

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:31:27

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

D 11 18O2 PFHxS

403.00 > 84.00 2.480 2.483 -0.003 18922109 65.0 138 407280

D 14 13C4 PFOA

417.00 > 372.00 2.830 2.834 -0.004 11551028 56.4 113 448900

15 Perfluorooctanoic acid

413.00 > 369.00 2.830 2.834 -0.004 1.000 105698 0.4478 355 M

413.00 > 169.00 2.837 2.834 0.003 1.003 69421 1.52(0.90-1.10) 1534 M

D 18 13C4 PFOS

503.00 > 80.00 3.214 3.202 0.012 15907539 65.8 138 127337

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_012.d

Injection Date: 02-Mar-2017 11:35:18

Instrument ID: A8_N

Lims ID: 320-26011-A-21-A

Lab Sample ID: 320-26011-21

Client ID: GROUT TANK BLANK-022217

Operator ID: A8-PC\A8

ALS Bottle#: 9

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

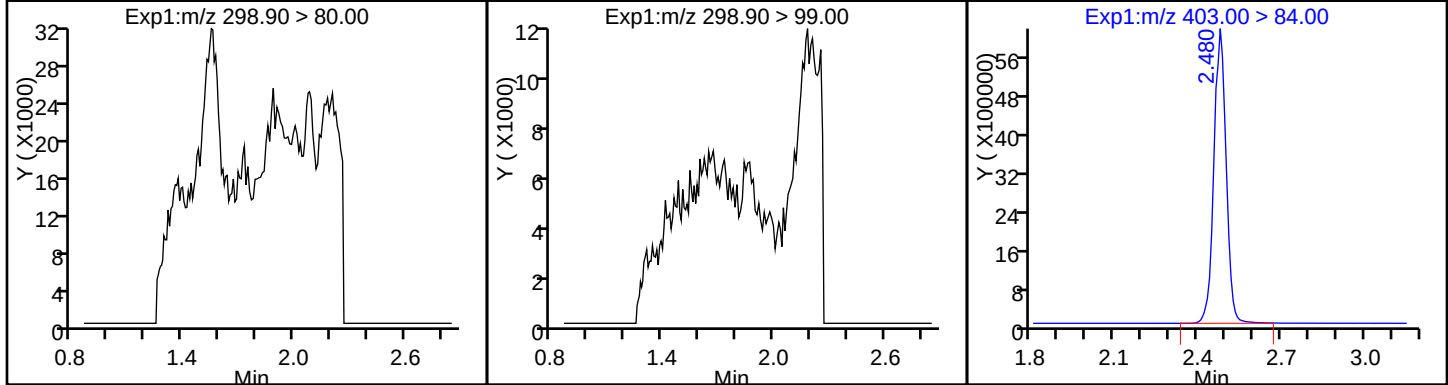
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

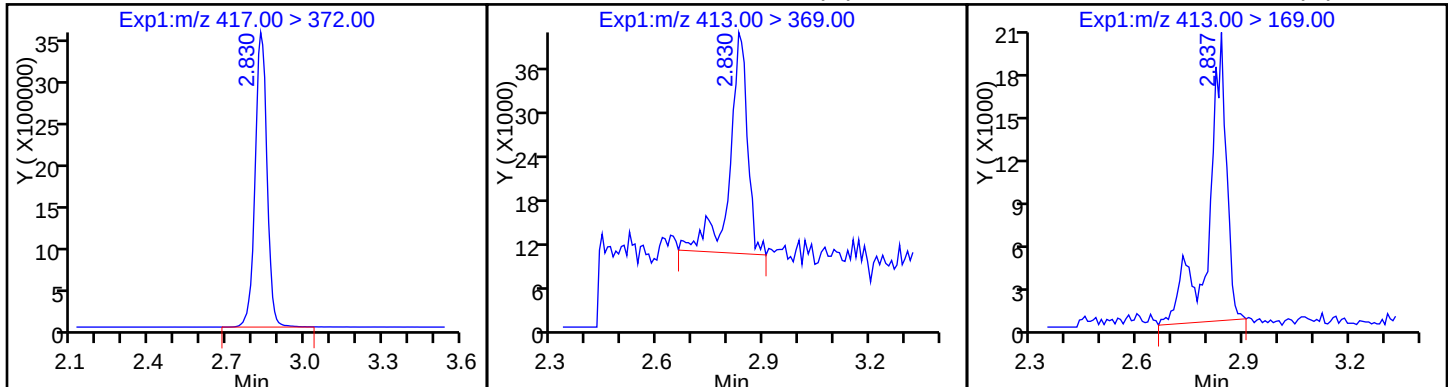
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

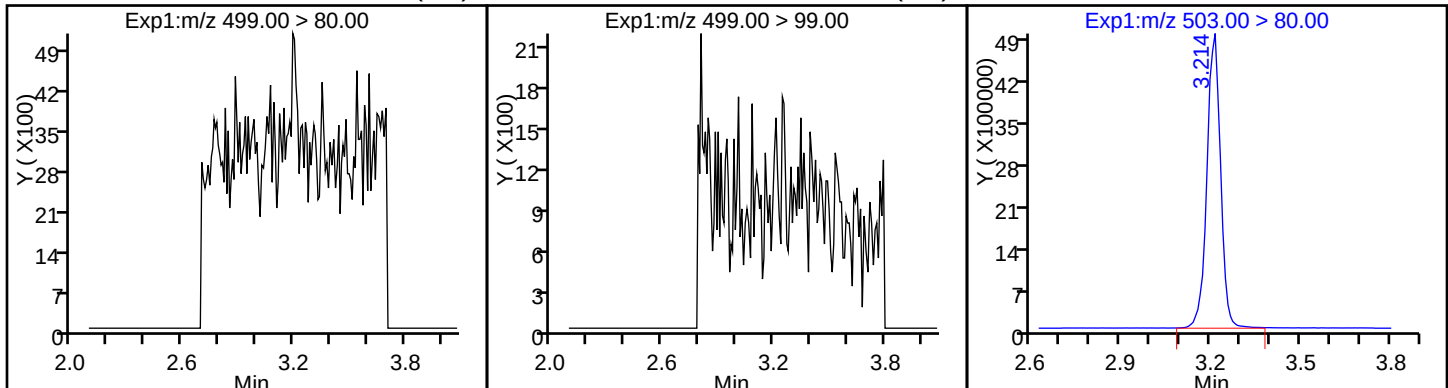
15 Perfluorooctanoic acid (M)



17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS



TestAmerica Sacramento

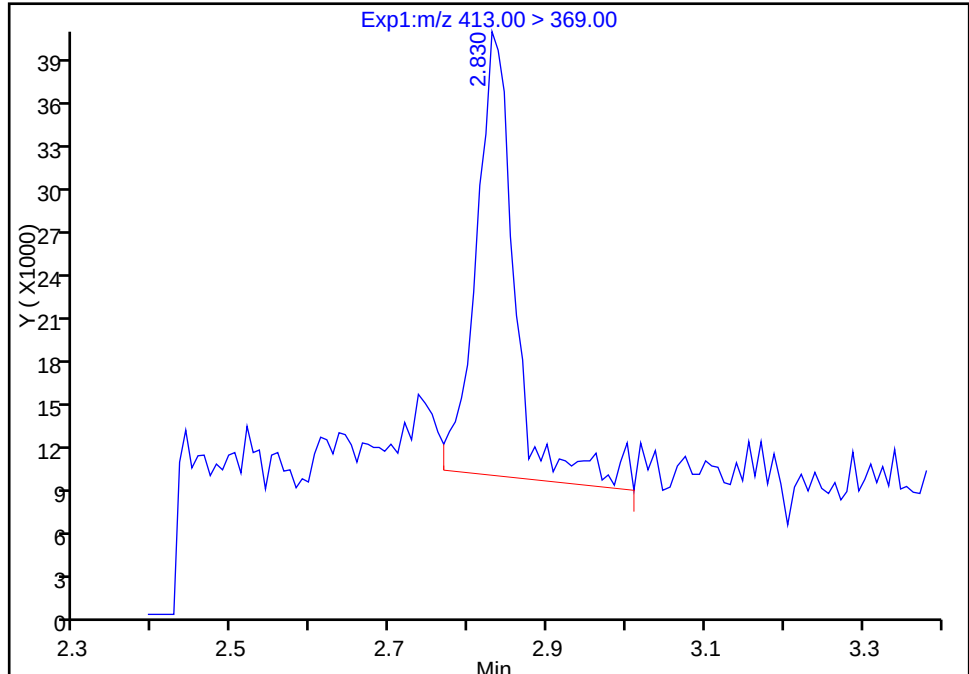
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_012.d
Injection Date: 02-Mar-2017 11:35:18 Instrument ID: A8_N
Lims ID: 320-26011-A-21-A Lab Sample ID: 320-26011-21
Client ID: GROUT TANK BLANK-022217
Operator ID: A8-PC\A8 ALS Bottle#: 9 Worklist Smp#: 21
Injection Vol: 2.0 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

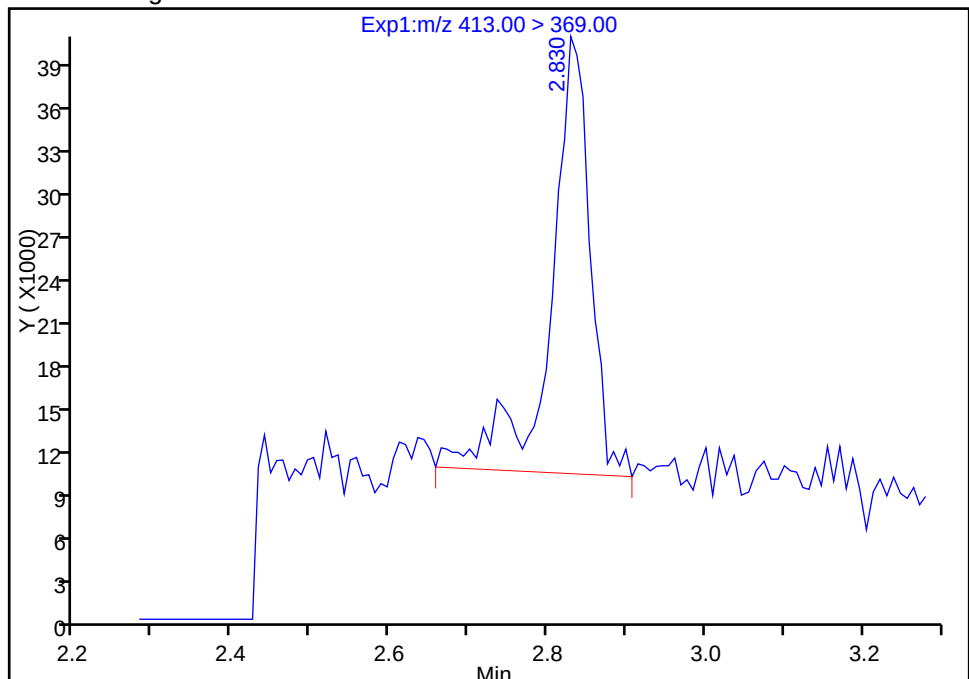
RT: 2.83
Area: 104709
Amount: 0.443637
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 105698
Amount: 0.447827
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:32

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

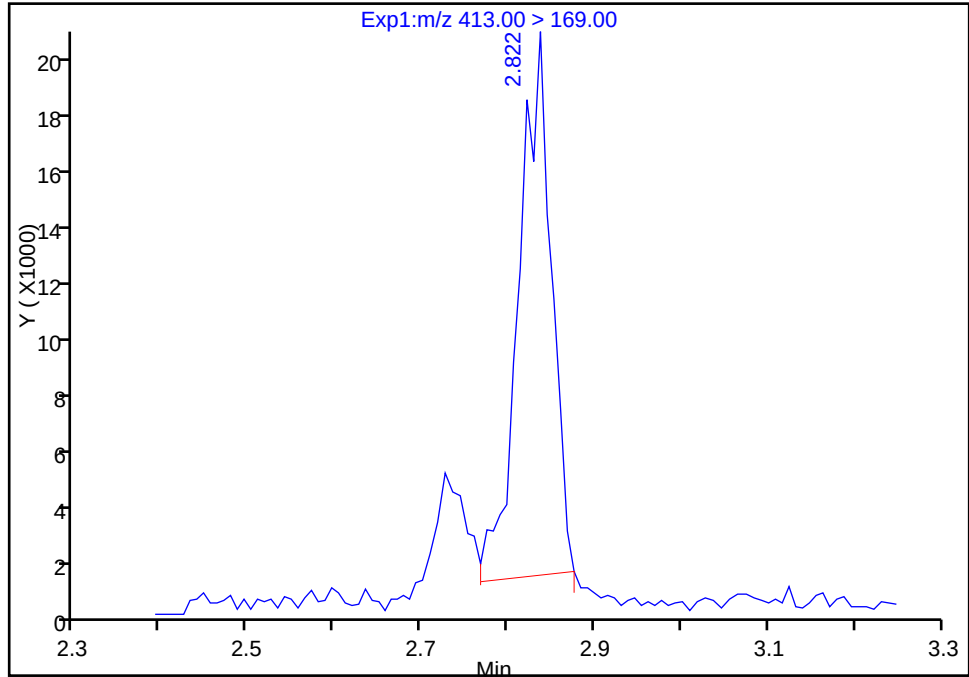
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_012.d
Injection Date: 02-Mar-2017 11:35:18 Instrument ID: A8_N
Lims ID: 320-26011-A-21-A Lab Sample ID: 320-26011-21
Client ID: GROUT TANK BLANK-022217
Operator ID: A8-PCVA8 ALS Bottle#: 9 Worklist Smp#: 21
Injection Vol: 2.0 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

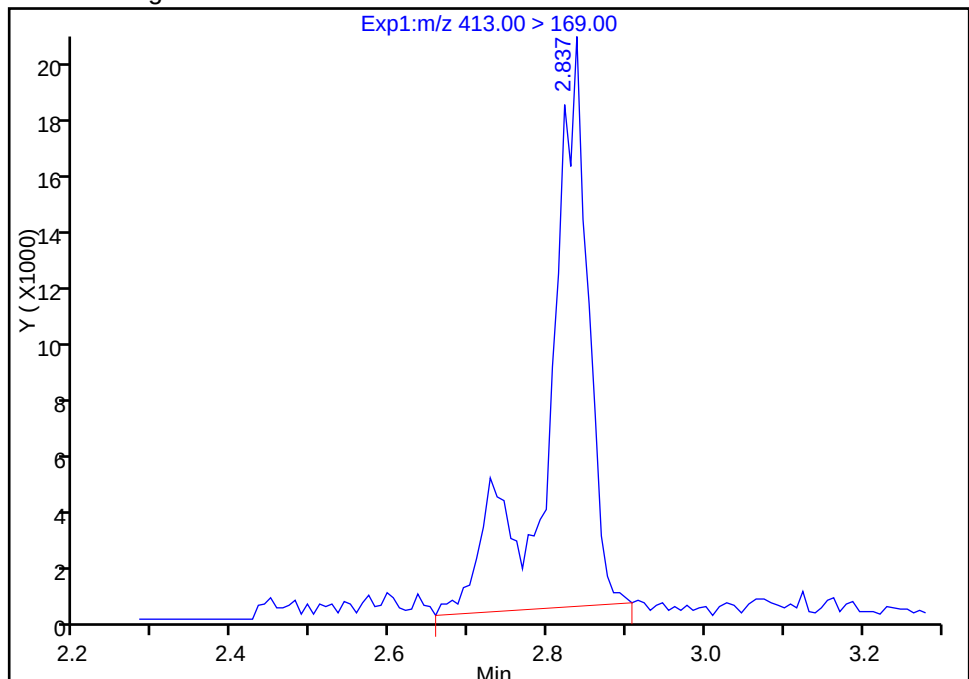
RT: 2.82
Area: 49620
Amount: 0.443637
Amount Units: ng/ml

Processing Integration Results



RT: 2.84
Area: 69421
Amount: 0.447827
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:32

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.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.563	1.562	1.555	1.562	1.554	1.554					1.308 - 1.808	1.558
Perfluoropentanoic acid (PFPeA)	1.843	1.842	1.833	1.841	1.831	1.822					1.585 - 2.085	1.835
Perfluorobutanesulfonic acid (PFBS)	1.883	1.872	1.873	1.871	1.871	1.861					1.692 - 2.052	1.872
Perfluorohexanoic acid (PFHxA)	2.139	2.145	2.129	2.134	2.127	2.122					1.883 - 2.383	2.133
Perfluoroheptanoic acid (PFHpA)	2.491	2.484	2.471	2.471	2.466	2.461					2.224 - 2.724	2.474
Perfluorohexanesulfonic acid (PFHxS)	++++	2.500	2.456	2.487	2.481	2.478					2.235 - 2.735	2.480
6:2FTS	2.833	2.818	2.798	2.806	2.793	2.797					2.557 - 3.057	2.808
Perfluorooctanoic acid (PFOA)	++++	2.841	2.829	2.837	2.824	2.820					2.585 - 3.085	2.830
Perfluoroheptanesulfonic Acid (PFHpS)	2.856	2.857	2.845	2.837	2.831	2.828					2.592 - 3.092	2.842
Perfluorooctanesulfonic acid (PFOS)	3.227	3.105	3.171	3.093	3.087	3.186					2.895 - 3.395	3.145
Perfluorononanoic acid (PFNA)	3.218	3.209	3.205	3.205	3.191	3.186					2.952 - 3.452	3.202
8:2FTS	3.569	3.561	3.539	3.539	3.543	3.523					3.296 - 3.796	3.546
Perfluorodecanoic acid (PFDA)	3.578	3.569	3.556	3.556	3.552	3.548					3.310 - 3.810	3.560
Perfluorooctane Sulfonamide (FOSA)	3.569	3.561	3.556	3.565	3.560	3.557					3.311 - 3.811	3.561
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	3.723	3.723	3.707	3.717	3.702	3.707					3.463 - 3.963	3.713
Perfluorodecanesulfonic acid (PFDS)	3.886	3.876	3.861	3.862	3.859	3.853					3.616 - 4.116	3.866
Perfluoroundecanoic acid (PFUnA)	3.894	3.885	3.878	3.879	3.867	3.862					3.628 - 4.128	3.878
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	3.903	3.885	3.878	3.888	3.876	3.871					3.633 - 4.133	3.884
MeFOSA	4.055	4.064	4.056	4.059	4.058	4.051					3.807 - 4.307	4.057
Perfluorododecanoic acid (PFDoA)	4.176	4.175	4.161	4.165	4.157	4.138					3.912 - 4.412	4.162
N-EtFOSA-M	4.247	4.246	4.237	4.249	4.241	4.236					3.992 - 4.492	4.243
Perfluorotridecanoic Acid (PFTriA)	4.447	4.430	4.421	4.418	4.418	4.407					4.174 - 4.674	4.424
Perfluorotetradecanoic acid (PFTeA)	4.679	4.667	4.655	4.652	4.651	4.635					4.407 - 4.907	4.657
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++	5.070	5.057	5.057	5.049	5.046					4.809 - 5.309	5.056
Perfluoro-n-octadecanoic acid (PFODA)	5.428	5.414	5.398	5.398	5.383	5.375					5.149 - 5.649	5.399
13C4 PFBA	1.563	1.554	1.555	1.554	1.546	1.546					1.303 - 1.803	1.553
13C5-PFPeA	1.843	1.842	1.833	1.832	1.821	1.822					1.582 - 2.082	1.832
13C2 PFHxA	2.147	2.136	2.138	2.134	2.127	2.122					1.884 - 2.384	2.134
13C4-PFHpA	2.491	2.484	2.471	2.479	2.466	2.461					2.225 - 2.725	2.475
18O2 PFHxS	2.498	2.500	2.487	2.487	2.481	2.478					2.239 - 2.739	2.489
M2-6:2FTS	2.817	2.810	2.806	2.814	2.793	2.789					2.555 - 3.055	2.805
13C4 PFOA	2.848	2.849	2.829	2.837	2.824	2.820					2.585 - 3.085	2.835
13C4 PFOS	3.218	3.218	3.196	3.205	3.199	3.186					2.954 - 3.454	3.204

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

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 Analy Batch No.: 152681
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
13C5 PFNA	3.218	3.218	3.205	3.214	3.199	3.195					2.958 - 3.458	3.208
M2-8:2FTS	3.569	3.553	3.548	3.539	3.535	3.523					3.295 - 3.795	3.545
13C8 FOSA	3.561	3.561	3.556	3.565	3.560	3.548					3.309 - 3.809	3.559
13C2 PFDA	3.569	3.569	3.556	3.565	3.552	3.548					3.310 - 3.810	3.560
d3-NMeFOSAA	3.723	3.723	3.707	3.707	3.702	3.696					3.460 - 3.960	3.710
d5-NEtFOSAA	3.894	3.885	3.869	3.870	3.867	3.862					3.625 - 4.125	3.875
13C2 PFUnA	3.894	3.885	3.869	3.879	3.867	3.862					3.626 - 4.126	3.876
d-N-MeFOSA-M	4.055	4.055	4.047	4.050	4.048	4.042					3.800 - 4.300	4.050
13C2 PFDoA	4.176	4.175	4.161	4.165	4.157	4.152					3.914 - 4.414	4.164
d-N-EtFOSA-M	4.238	4.237	4.228	4.240	4.241	4.227					3.985 - 4.485	4.235
13C2-PFTeDA	4.679	4.667	4.655	4.652	4.641	4.635					4.405 - 4.905	4.655
13C2-PFHxDA	5.077	5.070	5.057	5.057	5.049	5.035					4.807 - 5.307	5.058

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

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.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 4		B	M1	M2								
13C4 PFBA	295570 298823	282103 245371	289131	342453	Ave		292241.860				10.7		50.0			
13C5-PFPeA	243840 228800	230536 186413	230743	272822	Ave		232192.393				12.0		50.0			
13C2 PFHxA	216513 214399	203387 180899	205221	244884	Ave		210883.903				9.9		50.0			
13C4-PFHpA	196625 198881	194053 153158	196340	218699	Ave		192959.403				11.1		50.0			
18O2 PFHxS	303886 295000	286708 235682	287749	336370	Ave		290899.232				11.2		50.0			
M2-6:2FTS	77170 76852	74128 71775	76996	86146	Ave		77177.6947				6.3		50.0			
13C4 PFOA	218643 200396	211258 153770	209474	236176	Ave		204953.003				13.6		50.0			
13C4 PFOS	248546 248262	230373 208908	237852	275881	Ave		241637.026				9.2		50.0			
13C5 PFNA	187340 178740	181023 139672	176430	203992	Ave		177866.177				11.9		50.0			
M2-8:2FTS	96352 91038	94980 76400	95104	101739	Ave		92601.9868				9.3		50.0			
13C8 FOSA	389836 371174	361792 303762	377175	397768	Ave		366917.947				9.1		50.0			
13C2 PFDA	175335 161485	171862 124531	173776	193236	Ave		166704.327				13.8		50.0			
d3-NMeFOSAA	80206 88198	79979 82300	85034	95399	Ave		85185.7867				6.9		50.0			
d5-NEtFOSAA	85322 82165	81954 62458	86013	90318	Ave		81371.4600				12.0		50.0			
13C2 PFUnA	144662 128397	134819 95431	134602	146921	Ave		130805.323				14.3		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.: 320-26011-1 Analy Batch No.: 152681
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

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 4		B	M1	M2								
d-N-MeFOSA-M	86833 90989	81090 88671	88728	91589	Ave		87983.4500				4.3		50.0			
13C2 PFDoA	134509 123176	120646 106418	126789	132125	Ave		123944.073				8.1		50.0			
d-N-EtFOSA-M	83930 87690	78408 88518	85474	87472	Ave		85248.5033				4.4		50.0			
13C2-PFTeDA	274175 265148	246188 227078	269935	272468	Ave		259165.203				7.2		50.0			
13C2-PFHxDA	131614 132135	114843 117588	127568	126617	Ave		125060.687				5.8		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.: 320-26011-1 Analy Batch No.: 152681
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.8141 0.7696	0.8385	0.8902	0.8682	0.9030	AveID		0.8473				5.9		35.0			
Perfluoropentanoic acid (PFPeA)	1.0168 0.8556	1.0140	1.0095	0.9684	1.0070	AveID		0.9785				6.4		35.0			
Perfluorobutanesulfonic acid (PFBS)	1.4512 1.1477	1.4372	1.5643	1.5194	1.4753	AveID		1.4325				10.3		50.0			
Perfluorohexanoic acid (PFHxA)	0.8937 0.8394	0.9003	0.9420	0.8558	0.9058	AveID		0.8895				4.1		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0535 0.9266	0.9536	0.9588	0.9499	0.9613	AveID		0.9673				4.5		35.0			
Perfluorohexanesulfonic acid (PFHxS)	++++ 0.9823	1.1299	1.0303	0.9734	1.0264	AveID		1.0284				6.0		35.0			
6:2FTS	1.1310 0.8276	1.0222	0.9530	0.9038	0.8939	L2ID	0.1204	0.8859							0.9980		0.9900
Perfluorooctanoic acid (PFOA)	++++ 0.9671	1.0714	1.0527	0.9847	1.0323	AveID		1.0217				4.3		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	0.9372 0.9122	1.0436	1.1203	1.0793	1.0932	AveID		1.0310				8.4		50.0			
Perfluorooctanesulfonic acid (PFOS)	0.9378 1.0254	0.9696	0.9901	0.9549	1.0231	AveID		0.9835				3.7		35.0			
Perfluorononanoic acid (PFNA)	0.8479 0.9328	0.8440	0.9730	0.8905	0.9356	AveID		0.9040				5.8		35.0			
8:2FTS	1.0958 0.8348	0.9785	0.9767	0.9909	0.9344	L2ID	0.0783	0.9239							0.9960		0.9900
Perfluorodecanoic acid (PFDA)	0.8578 0.9743	0.8868	0.9034	0.8481	0.9635	AveID		0.9057				5.8		35.0			
Perfluorooctane Sulfonamide (FOSA)	0.8943 0.7850	0.9384	0.9267	0.9035	0.9430	AveID		0.8985				6.5		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0472 0.9897	0.9816	0.9980	0.8887	0.9213	AveID		0.9711				5.9		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.5889 0.6126	0.5647	0.6260	0.5646	0.6173	AveID		0.5957				4.5		50.0			
Perfluoroundecanoic acid (PFUnA)	1.1887 0.9783	1.0233	1.0049	0.8914	0.9951	AveID		1.0136				9.6		35.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.9144 0.9531	0.9405	0.8966	0.8892	0.8680	AveID		0.9103				3.5		35.0			
MeFOSA	1.0035 0.9709	0.9265	0.9122	0.9123	0.8877	AveID		0.9355				4.6		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.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorododecanoic acid (PFDoA)	0.8688 0.9119	0.9386	0.9128	0.8906	0.9644	AveID		0.9145				3.7		35.0			
N-EtFOSA-M	1.0272 0.9831	1.0085	0.9951	0.9583	0.9298	AveID		0.9837				3.6		35.0			
Perfluorotridecanoic Acid (PFTriA)	0.8807 0.8636	0.8542	0.8873	0.8354	0.9194	AveID		0.8734				3.3		50.0			
Perfluorotetradecanoic acid (PFTeA)	1.9494 1.8544	1.9776	2.0893	1.8773	2.0509	AveID		1.9665				4.7		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 0.9462	1.4217	1.0035	0.7837	0.9248	LlID	0.3491	0.9270							0.9970		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	0.6950 0.8378	0.6764	0.7116	0.6387	0.7456	AveID		0.7175				9.6		50.0			

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.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
13C4 PFBA	Ave	14778495 12268568	14105138	14456536	17122661	14941160	50.0 50.0	50.0	50.0	50.0	50.0
13C5-PFPeA	Ave	12192014 9320645	11526786	11537165	13641103	11440005	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFHxA	Ave	10825655 9044966	10169363	10261028	12244217	10719942	50.0 50.0	50.0	50.0	50.0	50.0
13C4-PFHpA	Ave	9831264 7657909	9702633	9817002	10934944	9944069	50.0 50.0	50.0	50.0	50.0	50.0
18O2 PFHxS	Ave	14373798 11147782	13561303	13610529	15910284	13953506	47.3 47.3	47.3	47.3	47.3	47.3
M2-6:2FTS	Ave	3665572 3409307	3521088	3657293	4091935	3650448	47.5 47.5	47.5	47.5	47.5	47.5
13C4 PFOA	Ave	10932126 7688496	10562914	10473721	11808824	10019820	50.0 50.0	50.0	50.0	50.0	50.0
13C4 PFOS	Ave	11880498 9985826	11011810	11369327	13187105	11866933	47.8 47.8	47.8	47.8	47.8	47.8
13C5 PFNA	Ave	9367003 6983620	9051156	8821496	10199601	8936977	50.0 50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	4615245 3659550	4549526	4555474	4873285	4360731	47.9 47.9	47.9	47.9	47.9	47.9
13C8 FOSA	Ave	19491823 15188110	18089578	18858766	19888389	18558718	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFDA	Ave	8766735 6226569	8593124	8688810	9661817	8074243	50.0 50.0	50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	4010288 4115011	3998931	4251681	4769931	4409894	50.0 50.0	50.0	50.0	50.0	50.0
d5-NETFOSAA	Ave	4266080 3122900	4097675	4300641	4515915	4108227	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	7233118 4771549	6740958	6730080	7346047	6419845	50.0 50.0	50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	4341649 4433562	4054503	4436424	4579449	4549448	50.0 50.0	50.0	50.0	50.0	50.0

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

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
13C2 PFDoA	Ave	6725474 5320903	6032319	6339474	6606261	6158791	50.0 50.0	50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	4196476 4425922	3920378	4273681	4373613	4384481	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	13708730 11353892	12309406	13496732	13623388	13257413	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	6580685 5879424	5742128	6378393	6330845	6606731	50.0 50.0	50.0	50.0	50.0	50.0

Curve Type Legend:

Ave = Average

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

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 Analy Batch No.: 152681

SDG No.: _____

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	120309 37767596	236552	1286888	5946494	13491384	0.500 200	1.00	5.00	20.0	50.0
Perfluoropentanoic acid (PFPeA)		AveID	123967 31900088	233761	1164625	5283919	11520213	0.500 200	1.00	5.00	20.0	50.0
Perfluorobutanesulfonic acid (PFBS)		AveID	194922 47824719	364249	1989498	9035699	19236596	0.442 177	0.884	4.42	17.7	44.2
Perfluorohexanoic acid (PFHxA)		AveID	96748 30367858	183108	966638	4191655	9710439	0.500 200	1.00	5.00	20.0	50.0
Perfluoroheptanoic acid (PFHpA)		AveID	103569 28382869	185040	941301	4154809	9559143	0.500 200	1.00	5.00	20.0	50.0
Perfluorohexanesulfonic acid (PFHxS)		AveID	++++ 42133990	294799	1348890	5958886	13776740	++++ 182	0.910	4.55	18.2	45.5
6:2FTS		L2ID	41369 11262289	71833	347809	1476276	3256270	0.474 190	0.948	4.74	19.0	47.4
Perfluorooctanoic acid (PFOA)		AveID	++++ 29743583	226350	1102619	4651144	10343315	++++ 200	1.00	5.00	20.0	50.0
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	110873 36282267	228885	1268398	5669268	12919018	0.476 190	0.952	4.76	19.0	47.6
Perfluorooctanesulfonic acid (PFOS)		AveID	108156 39756569	207277	1092724	4889351	11786011	0.464 186	0.928	4.64	18.6	46.4
Perfluorononanoic acid (PFNA)		AveID	79419 26057481	152789	858327	3633207	8361339	0.500 200	1.00	5.00	20.0	50.0
8:2FTS		L2ID	50574 12220206	89032	444929	1931499	4074481	0.479 192	0.958	4.79	19.2	47.9
Perfluorodecanoic acid (PFDA)		AveID	75200 24265114	152408	784974	3277760	7779706	0.500 200	1.00	5.00	20.0	50.0
Perfluorooctane Sulfonamide (FOSA)		AveID	174325 47690261	339522	1747629	7187955	17500489	0.500 200	1.00	5.00	20.0	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	41996 16290792	78506	424299	1695690	4062831	0.500 200	1.00	5.00	20.0	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	70554 24675284	125403	717648	3002868	7386234	0.482 193	0.964	4.82	19.3	48.2

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

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 Analy Batch No.: 152681
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluoroundecanoic acid (PFUnA)		AveID	85977 18672321	137967	676308	2619295	6388091	0.500 200	1.00	5.00	20.0	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	39009 11906031	77078	385576	1606146	3565748	0.500 200	1.00	5.00	20.0	50.0
MeFOSA		AveID	43568 17219029	75129	404698	1671133	4038740	0.500 200	1.00	5.00	20.0	50.0
Perfluorododecanoic acid (PFDoA)		AveID	58428 19408225	113238	578671	2353395	5939325	0.500 200	1.00	5.00	20.0	50.0
N-EtFOSA-M		AveID	43107 17404238	79073	425282	1676481	4076562	0.500 200	1.00	5.00	20.0	50.0
Perfluorotridecanoic Acid (PFTriA)		AveID	59233 18379771	103052	562473	2207561	5662375	0.500 200	1.00	5.00	20.0	50.0
Perfluorotetradecanoic acid (PFTeA)		AveID	131104 39468467	238596	1324493	4960846	12631200	0.500 200	1.00	5.00	20.0	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	++++ 20137749	171523	636153	2071027	5695645	++++ 200	1.00	5.00	20.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)		AveID	46744 17831844	81601	451116	1687895	4591929	0.500 200	1.00	5.00	20.0	50.0

Curve Type Legend:

AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
 Lims ID: IC L1 Full
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 01-Mar-2017 11:08:52 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:05 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 12:00:05

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	1.563	1.553	0.010		14778495	50.6		101	654817	
2 Perfluorobutyric acid										
212.90 > 169.00	1.563	1.558	0.005	1.000	120309	0.4804		96.1	1068	
D 3 13C5-PFPeA										
267.90 > 223.00	1.843	1.832	0.011		12192014	52.5		105	525740	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.843	1.835	0.008	1.000	123967	0.5195		104	1065	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.883	1.872	0.011	1.000	194922	0.4478		101		
298.90 > 99.00	1.883	1.872	0.011	1.000	77860		2.50(0.00-0.00)	101		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.139	2.133	0.006	1.000	96748	0.5024		100	3614	
D 7 13C2 PFHxA										
315.00 > 270.00	2.147	2.134	0.013		10825655	51.3		103	238427	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.491	2.474	0.017	1.000	103569	0.5446		109	891	
D 9 13C4-PFHpA										
367.00 > 322.00	2.491	2.475	0.016		9831264	50.9		102	345749	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.506	2.485	0.021	1.000	182218	0.5830		128		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.498	2.489	0.009		14373798	49.4		104	411887	
D 12 M2-6:2FTS										
429.00 > 409.00	2.817	2.805	0.012		3665572	47.5		100.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.833	2.807	0.026	1.000	41369	0.4692		99.0		

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	2.856	2.835	0.021	1.000	120388	0.5389		108	1162	
413.00 > 169.00	2.848	2.835	0.013	0.997	71985		1.67(0.90-1.10)	108	2853	M
D 14 13C4 PFOA										
417.00 > 372.00	2.848	2.835	0.013		10932126	53.3		107	336385	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.856	2.842	0.014	1.000	110873	0.4327		90.9		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.227	3.145	0.082	1.000	108156	0.4425		95.4	8683	M
499.00 > 99.00	3.218	3.145	0.073	0.997	27348		3.95(0.90-1.10)	95.4	2308	
20 Perfluorononanoic acid										
463.00 > 419.00	3.218	3.202	0.016	1.000	79419	0.4690		93.8	1607	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.204	0.014		11880498	49.2		103	335475	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.208	0.010		9367003	52.7		105	245715	
D 26 M2-8:2FTS										
529.00 > 509.00	3.569	3.545	0.024		4615245	49.8		104		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.569	3.546	0.023	1.000	50574	0.4834		101		
D 21 13C8 FOSA										
506.00 > 78.00	3.561	3.559	0.002		19491823	53.1		106	285934	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.578	3.560	0.018	1.000	75200	0.4736		94.7	2610	
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.560	0.009		8766735	52.6		105	186190	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.569	3.561	0.008	1.000	174325	0.4977		99.5	18811	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.723	3.710	0.013		4010288	47.1		94.2		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.723	3.713	0.010	1.000	41996	0.5392		108		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.886	3.866	0.020	1.000	70554	0.4765		98.9		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.894	3.875	0.019		4266080	52.4		105		
D 30 13C2 PFUnA										
565.00 > 520.00	3.894	3.876	0.018		7233118	55.3		111	181410	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.894	3.878	0.016	1.000	85977	0.5863		117	2231	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.903	3.883	0.020	1.002	39009	0.5023		100		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.055	4.050	0.005		4341649	49.3		98.7		
35 MeFOSA										
512.00 > 169.00	4.055	4.057	-0.002	1.000	43568	0.5363		107		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.176	4.162	0.014	1.000	58428	0.4750		95.0	471	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.176	4.164	0.012		6725474	54.3		109	175924	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.238	4.235	0.003		4196476	49.2		98.5		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.247	4.242	0.005	1.000	43107	0.5221		104		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.447	4.424	0.023	1.000	59233	0.5042		101	1171	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.679	4.655	0.024		13708730	52.9		106	527093	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.679	4.657	0.022	1.000	131104	0.4956		99.1	372	
713.00 > 169.00	4.670	4.657	0.013	0.998	21850		6.00(0.00-0.00)	99.1	7867	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.077	5.057	0.020		6580685	52.6		105	118608	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.077	5.059	0.018	1.000	146592	0.7991		160	190	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.428	5.399	0.029	1.000	46744	0.4843		96.9	91.5	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L1_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d

Injection Date: 01-Mar-2017 11:08:52

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 28

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

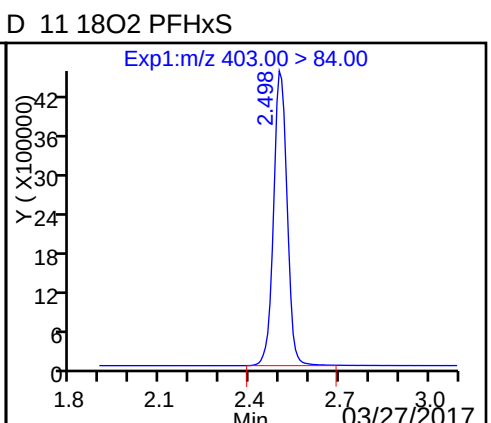
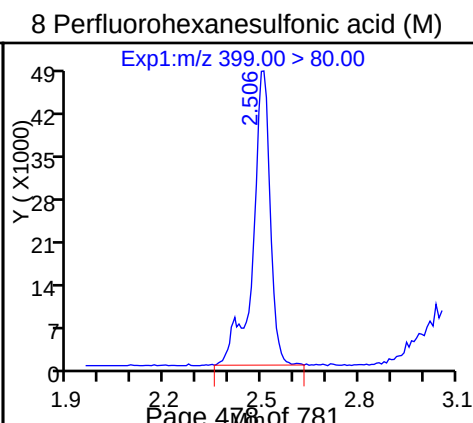
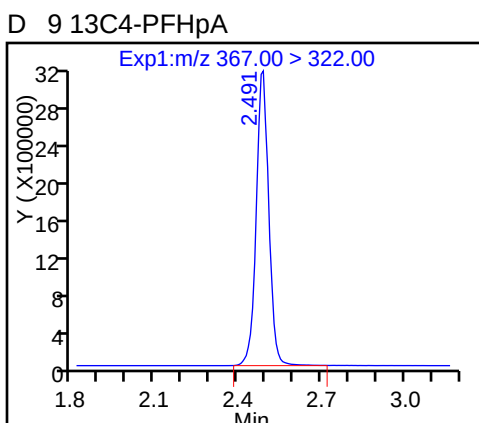
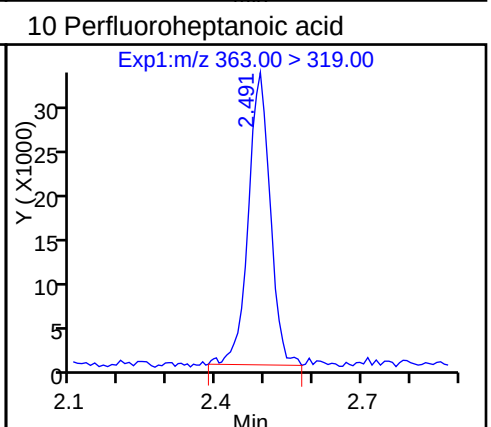
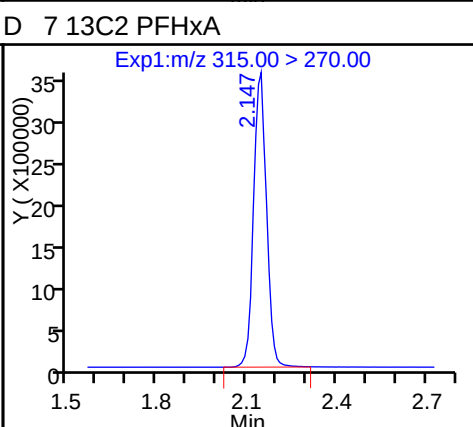
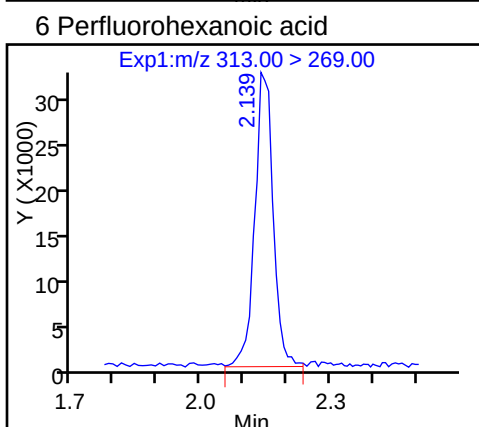
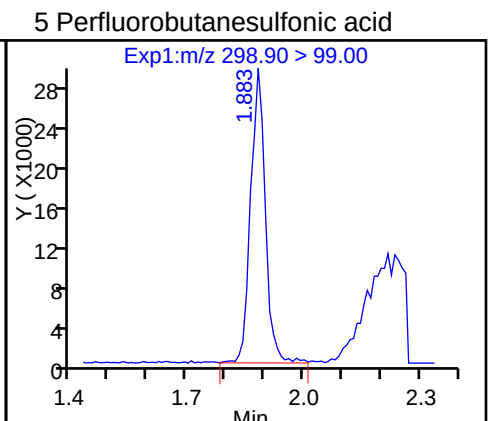
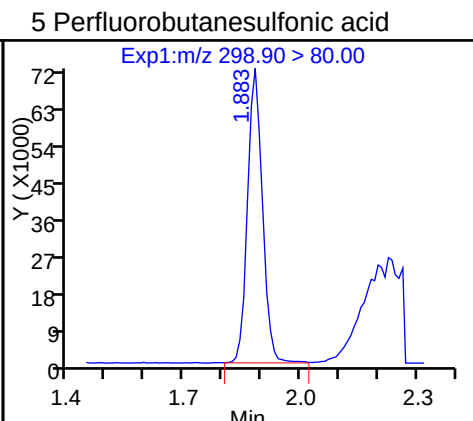
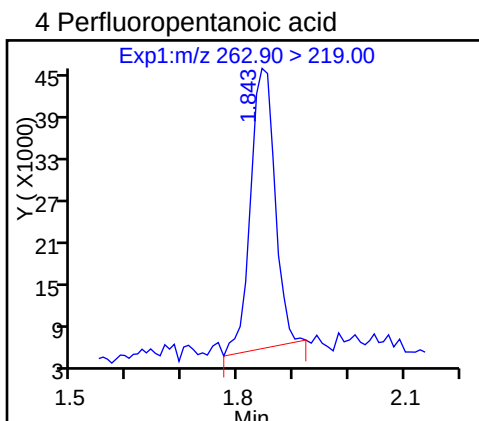
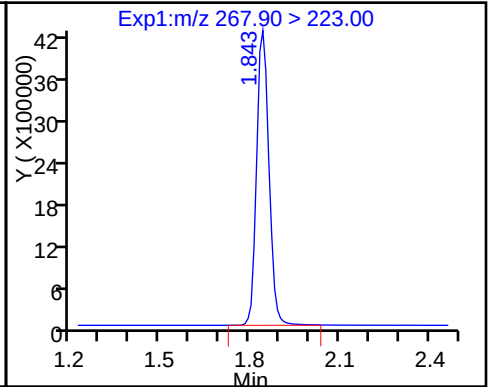
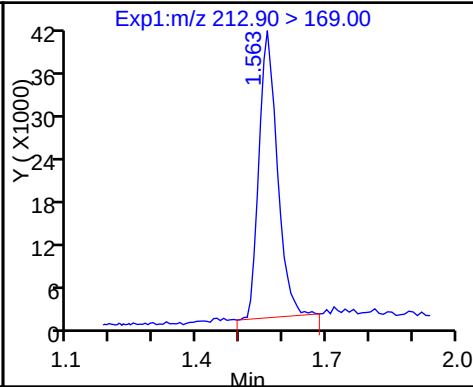
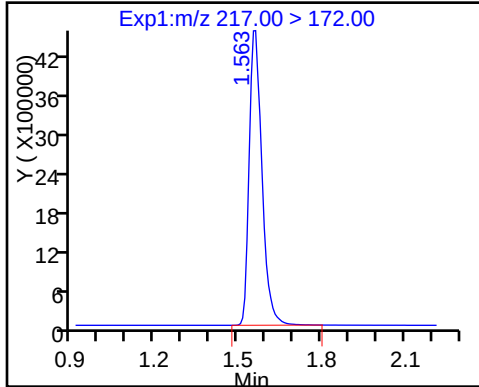
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

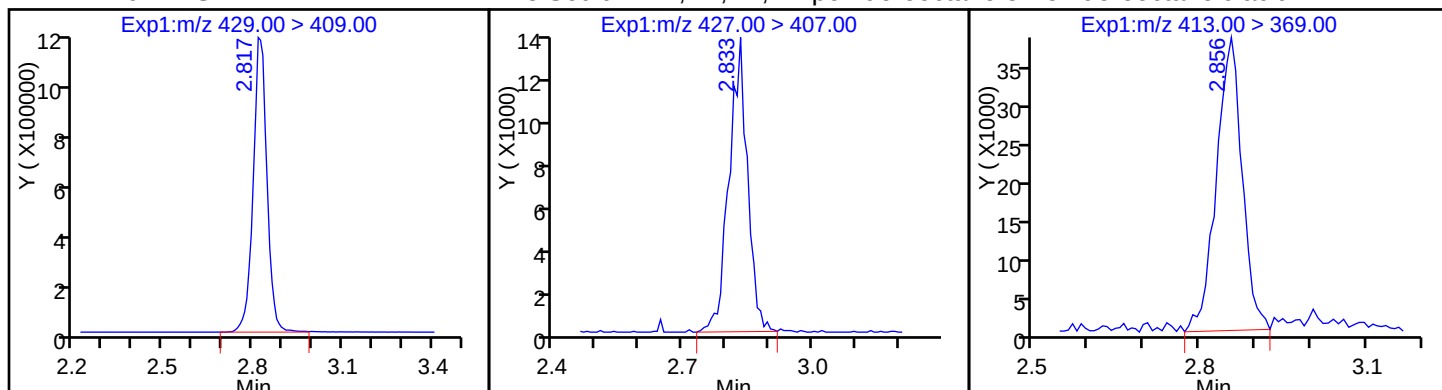
2 Perfluorobutyric acid

D 3 13C5-PFPeA



D 12 M2-6:2FTS

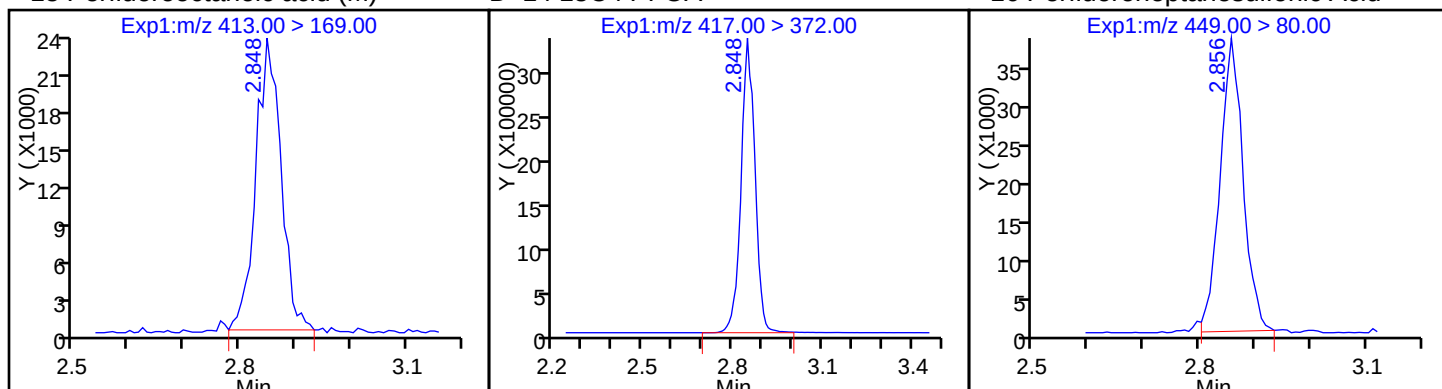
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

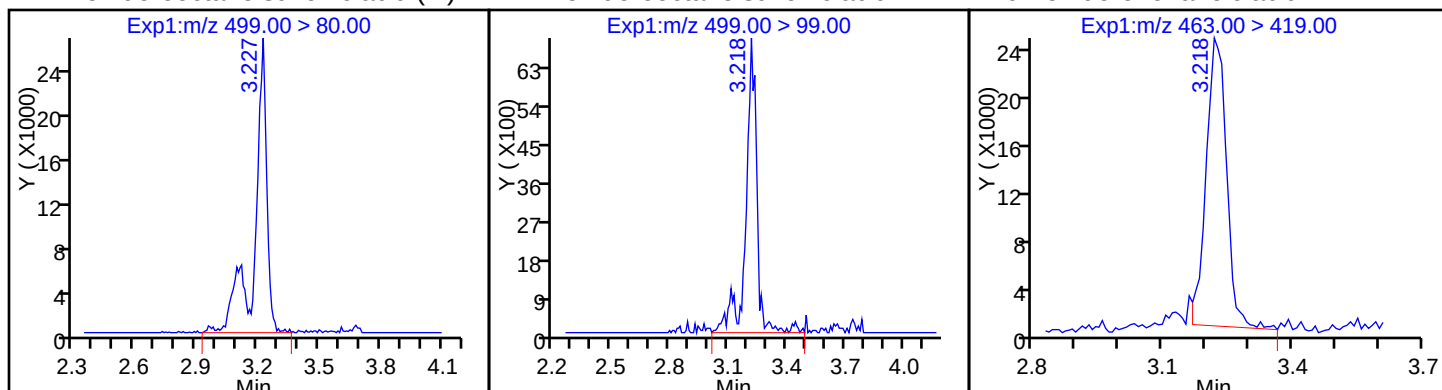
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

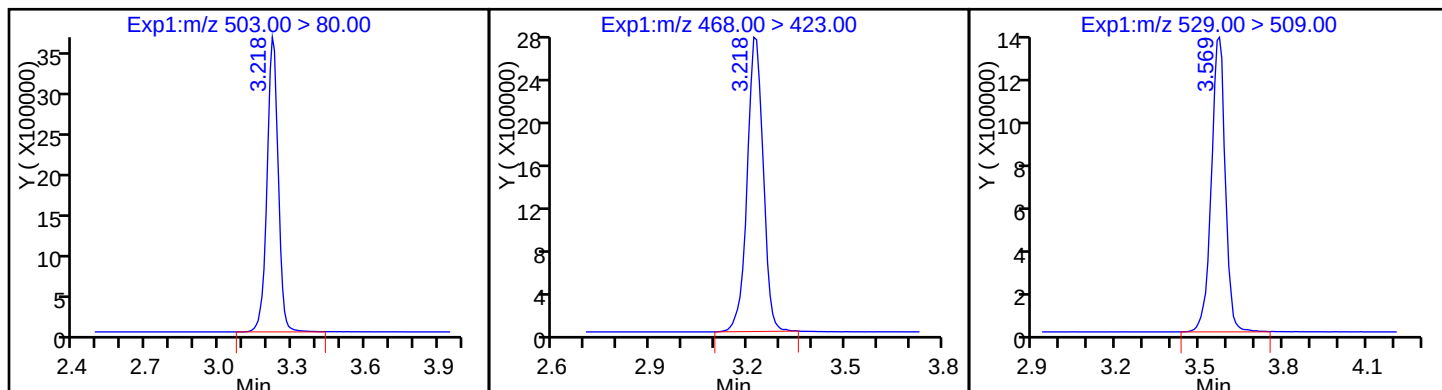
20 Perfluorononanoic acid



D 18 13C4 PFOS

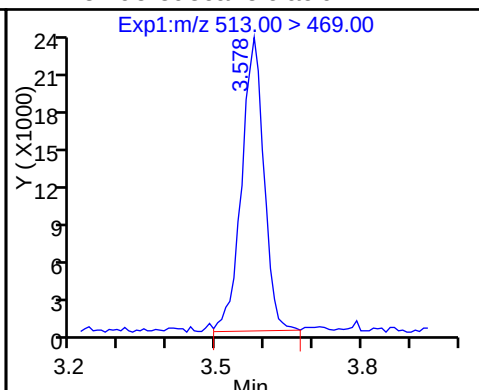
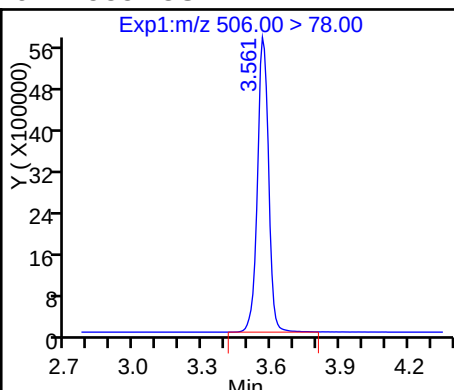
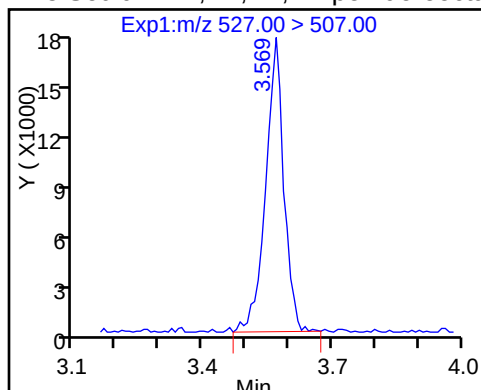
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

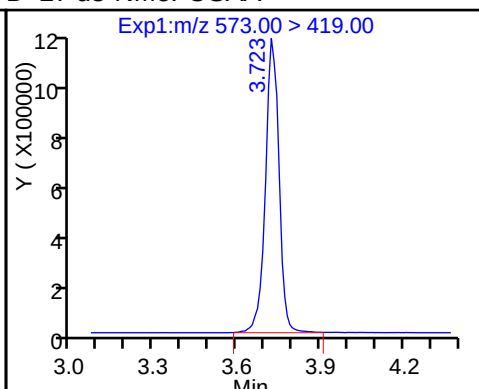
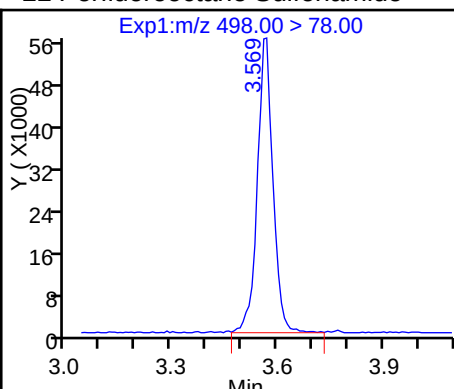
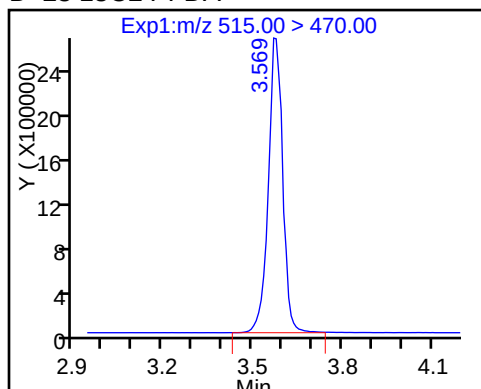
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

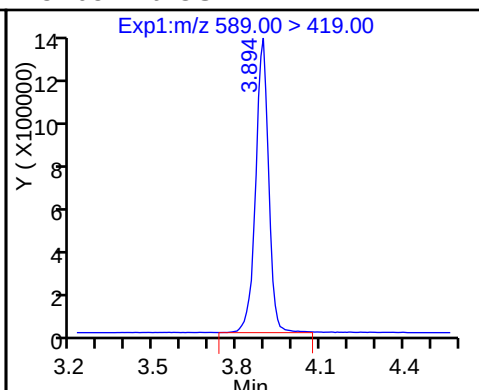
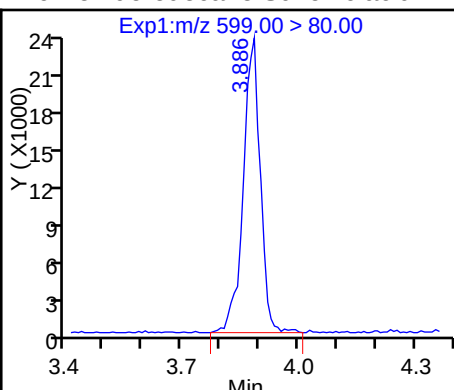
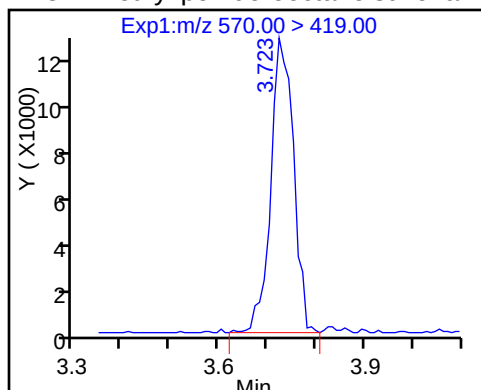
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

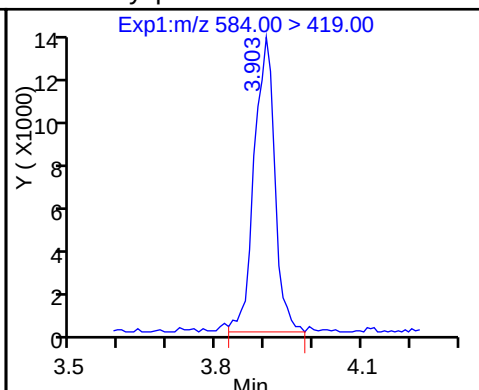
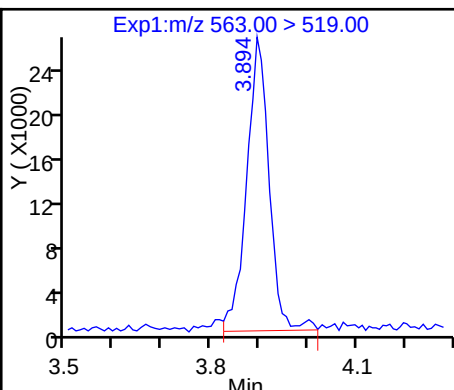
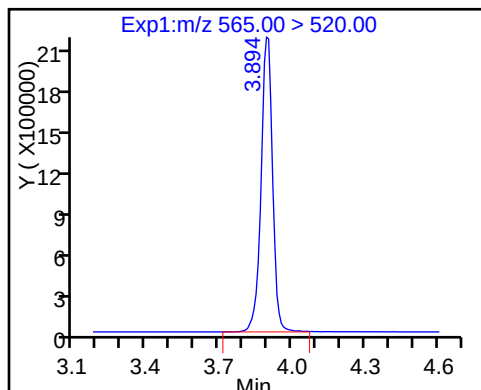
D 32 d5-NEtFOSAA



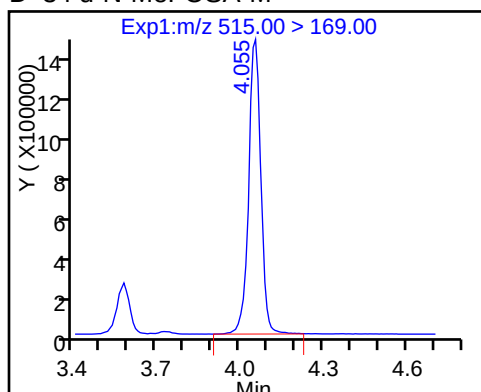
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

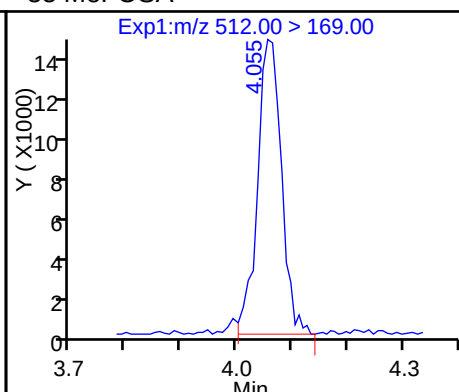
33 N-ethyl perfluorooctane sulfonamid



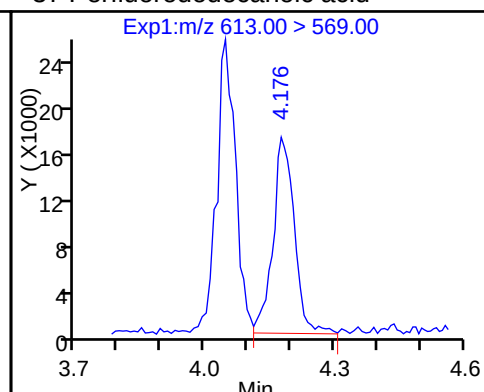
D 34 d-N-MeFOSA-M



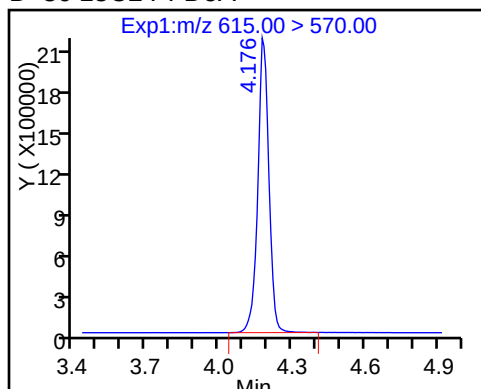
35 MeFOSA



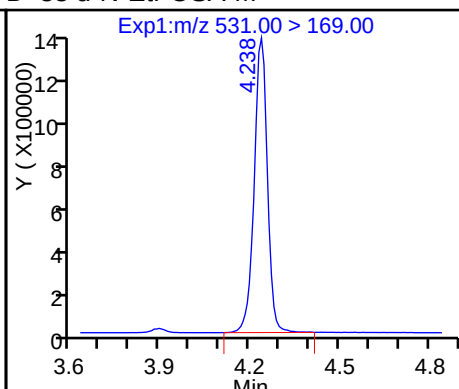
37 Perfluorododecanoic acid



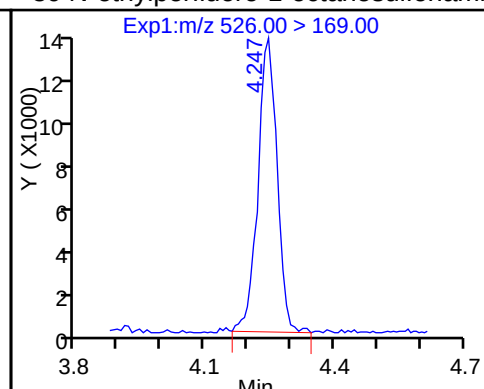
D 36 13C2 PFDaA



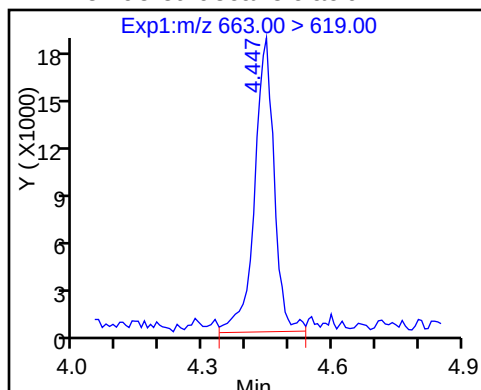
D 38 d-N-EtFOSA-M



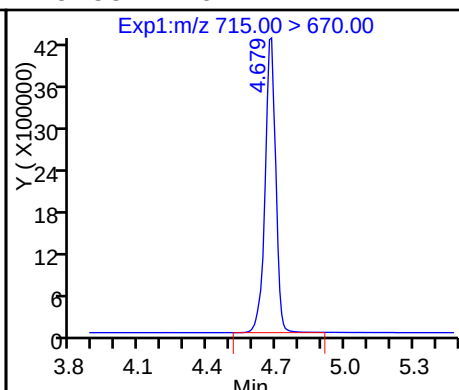
39 N-ethylperfluoro-1-octanesulfonami



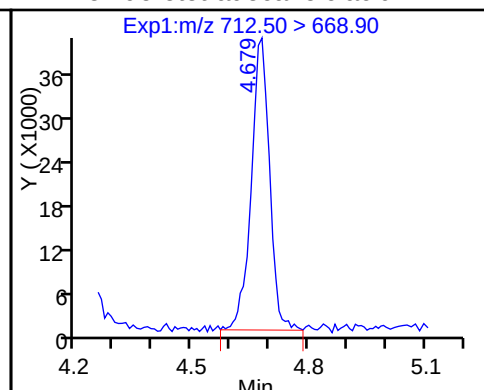
41 Perfluorotridecanoic acid



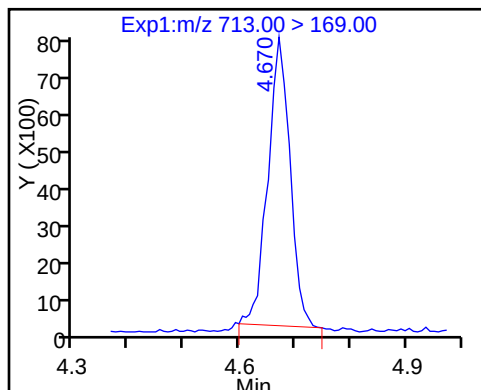
D 43 13C2-PFTeDA



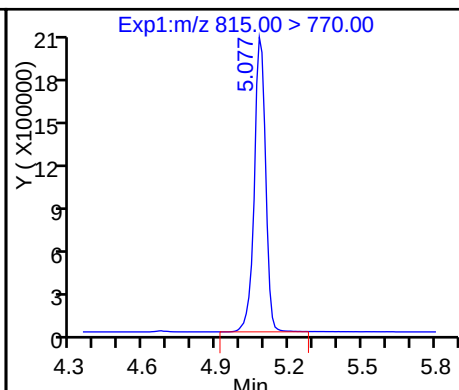
42 Perfluorotetradecanoic acid



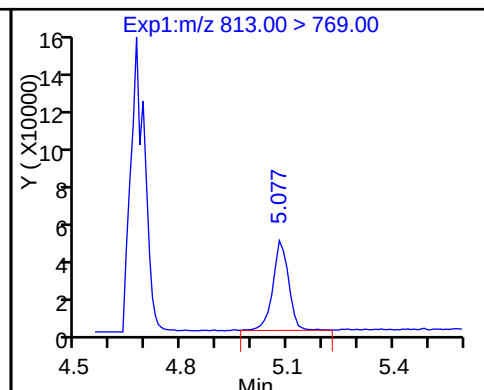
42 Perfluorotetradecanoic acid



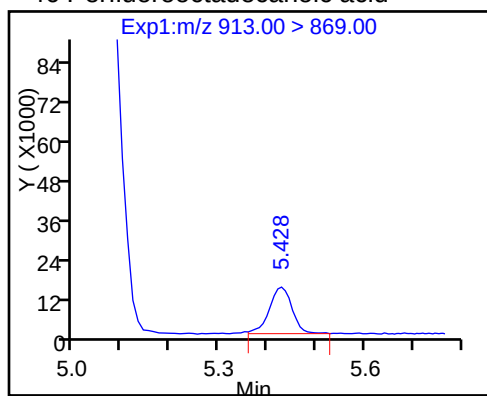
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d

Injection Date: 01-Mar-2017 11:08:52

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#:

28

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

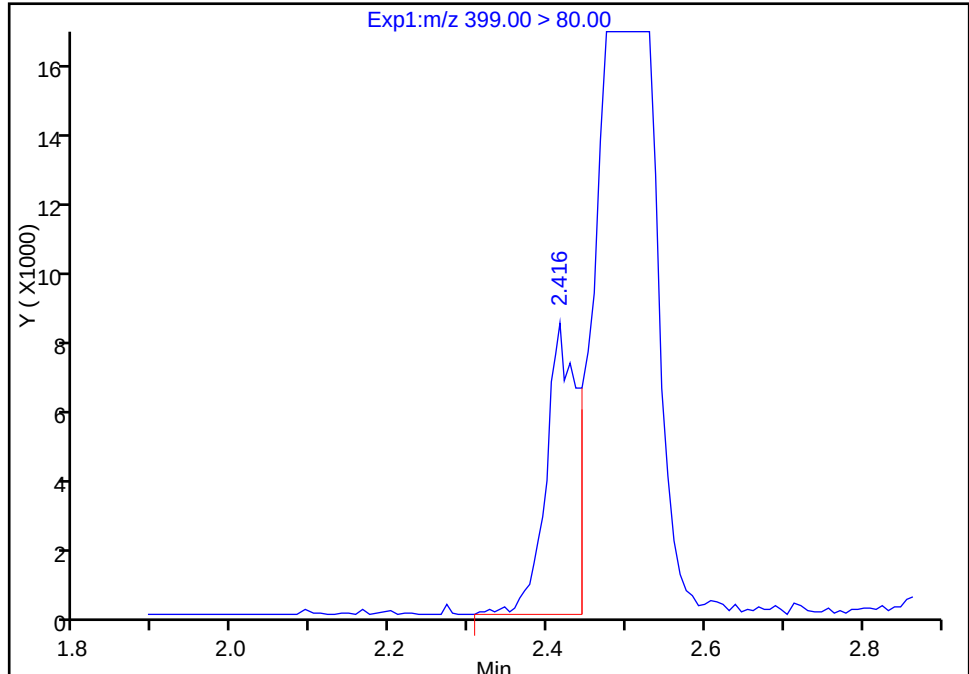
Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

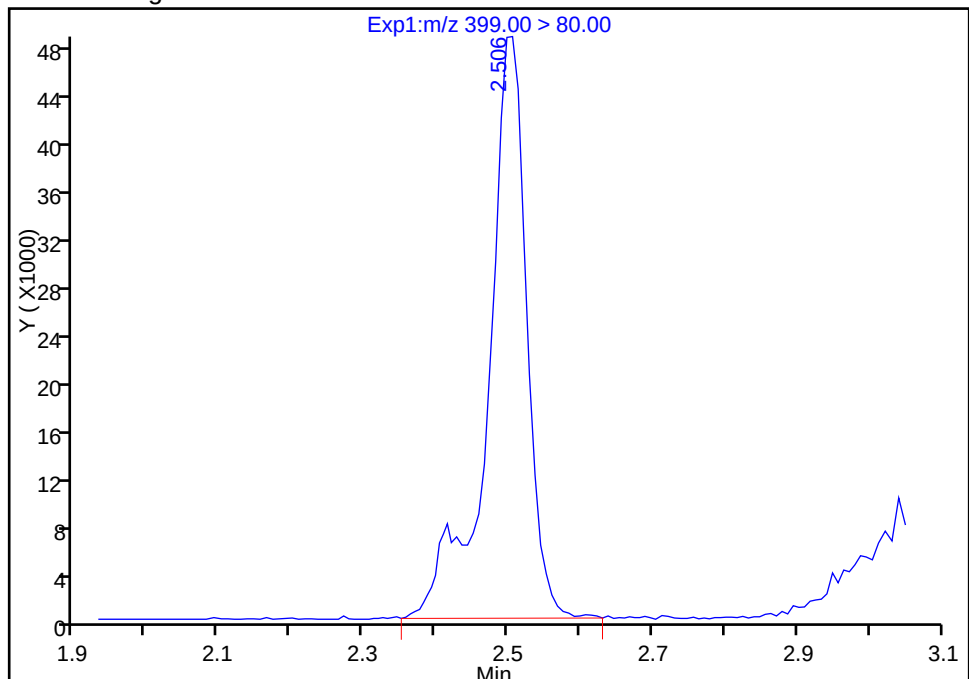
RT: 2.42
Area: 21187
Amount: 0.082505
Amount Units: ng/ml

Processing Integration Results



RT: 2.51
Area: 182218
Amount: 0.583043
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

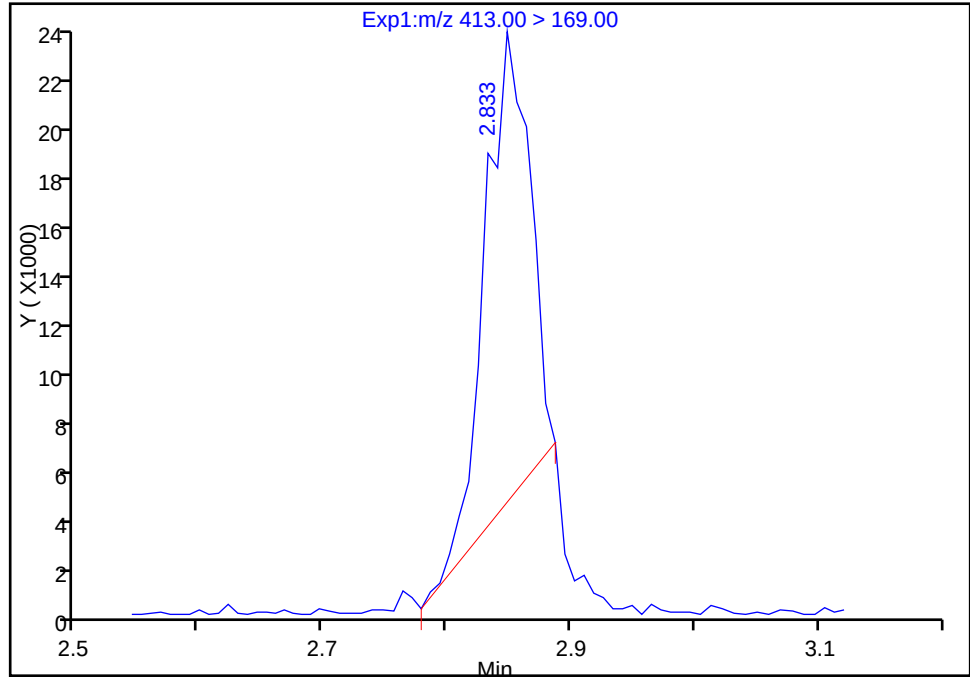
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

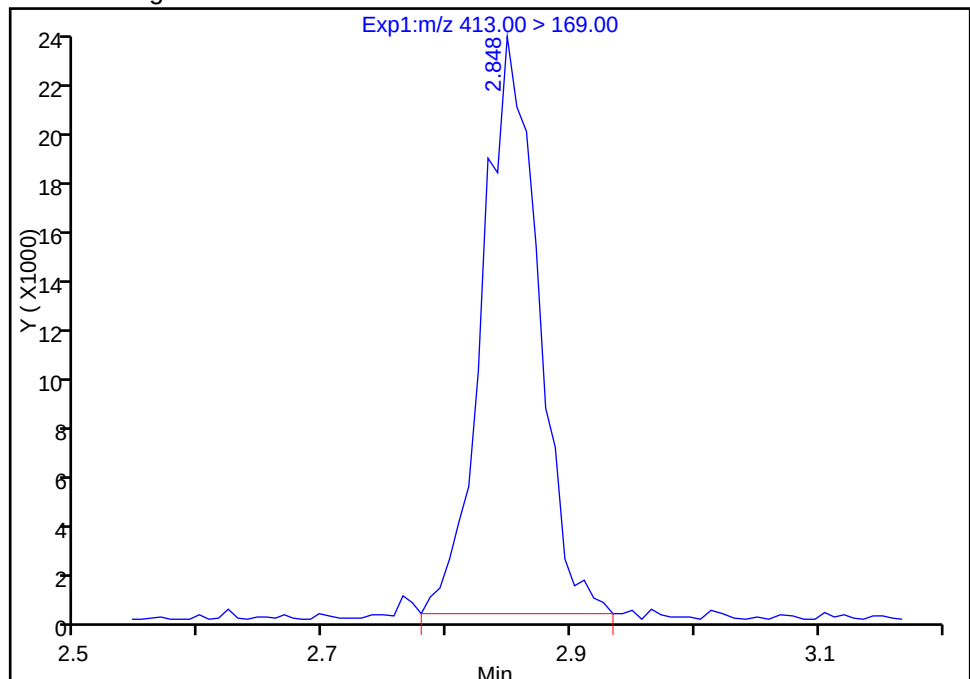
RT: 2.83
Area: 46440
Amount: 0.535520
Amount Units: ng/ml

Processing Integration Results



RT: 2.85
Area: 71985
Amount: 0.538943
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d

Injection Date: 01-Mar-2017 11:08:52

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 28 Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

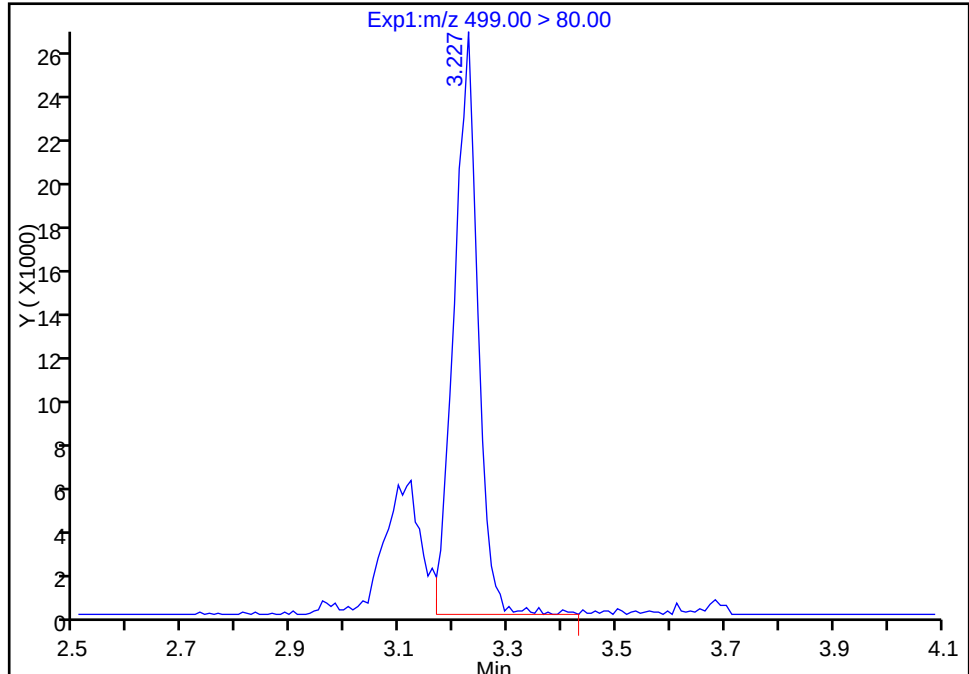
Detector EXP1

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

Signal: 1

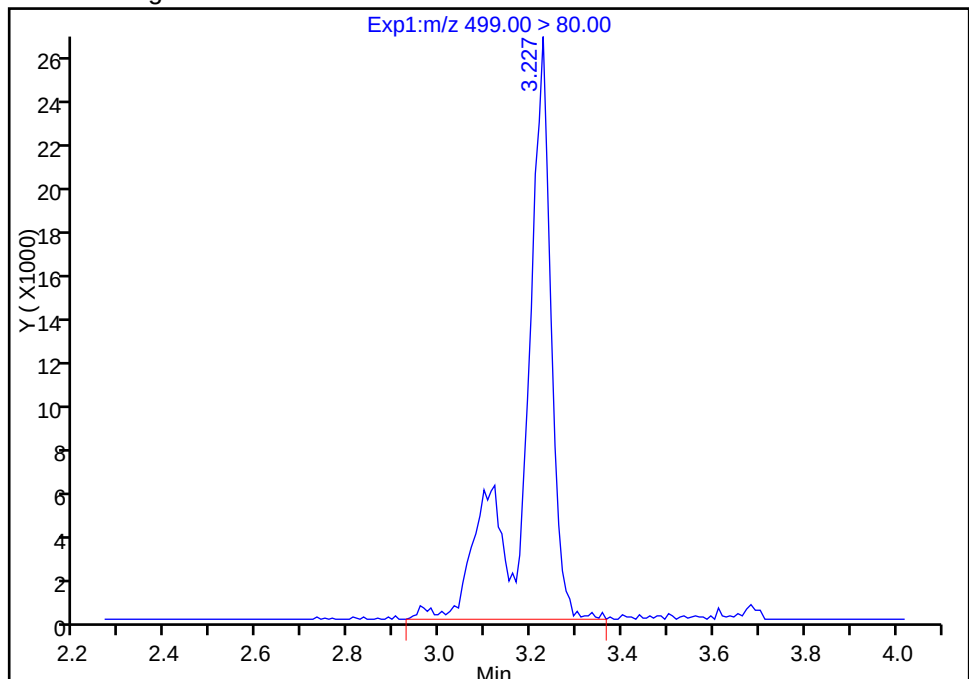
RT: 3.23
Area: 79141
Amount: 0.356104
Amount Units: ng/ml

Processing Integration Results



RT: 3.23
Area: 108156
Amount: 0.442463
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d
 Lims ID: IC L2 Full
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 01-Mar-2017 11:16:22 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:08 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 12:00:43

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 1.554 1.553 0.001 14105138 48.3 96.5 750485

2 Perfluorobutyric acid

212.90 > 169.00 1.562 1.558 0.004 1.000 236552 0.9897 99.0 2199

D 3 13C5-PFPeA

267.90 > 223.00 1.842 1.832 0.010 11526786 49.6 99.3 662915

4 Perfluoropentanoic acid

262.90 > 219.00 1.842 1.835 0.007 1.000 233761 1.04 104 2126

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.872 1.872 0.0 1.000 364249 0.8869 100

298.90 > 99.00 1.881 1.872 0.009 1.005 152095 2.39(0.00-0.00) 100

6 Perfluorohexanoic acid

313.00 > 269.00 2.145 2.133 0.012 1.000 183108 1.01 101 6537

D 7 13C2 PFHxA

315.00 > 270.00 2.136 2.134 0.002 10169363 48.2 96.4 286031

10 Perfluoroheptanoic acid

363.00 > 319.00 2.484 2.474 0.010 1.000 185040 0.9858 98.6 1690

D 9 13C4-PFHpA

367.00 > 322.00 2.484 2.475 0.009 9702633 50.3 101 436206

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.500 2.485 0.015 1.000 294799 1.00 110

D 11 18O2 PFHxS

403.00 > 84.00 2.500 2.489 0.011 13561303 46.6 98.6 442791

D 12 M2-6:2FTS

429.00 > 409.00 2.810 2.805 0.005 3521088 45.6 96.0

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

427.00 > 407.00 2.818 2.807 0.011 1.000 71833 0.9579 101

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.849	2.835	0.014		10562914	51.5		103	412762	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.841	2.835	0.006	1.000	226350	1.05		105	2696	
413.00 > 169.00	2.849	2.835	0.014	1.003	125043		1.81(0.90-1.10)	105	5452	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.857	2.842	0.015	1.000	228885	0.9637		101		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.105	3.145	-0.040	1.000	207277	0.9149		98.6	3256	
499.00 > 99.00	3.105	3.145	-0.040	1.000	49944		4.15(0.90-1.10)	98.6	444	
20 Perfluorononanoic acid										
463.00 > 419.00	3.209	3.202	0.007	1.000	152789	0.9337		93.4	2607	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.204	0.014		11011810	45.6		95.3	389996	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.208	0.010		9051156	50.9		102	347551	
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.545	0.008		4549526	49.1		103		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.561	3.546	0.015	1.002	89032	0.9299		97.1		
D 21 13C8 FOSA										
506.00 > 78.00	3.561	3.559	0.002		18089578	49.3		98.6	237400	
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.560	0.009		8593124	51.5		103	177955	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.569	3.560	0.009	1.000	152408	0.9792		97.9	5902	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.561	3.561	0.0	1.000	339522	1.04		104	20364	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.723	3.710	0.013		3998931	46.9		93.9		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.723	3.713	0.010	1.000	78506	1.01		101		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.876	3.866	0.010	1.000	125403	0.9138		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.885	3.875	0.010		4097675	50.4		101		
D 30 13C2 PFUnA										
565.00 > 520.00	3.885	3.876	0.009		6740958	51.5		103	252062	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.885	3.878	0.007	1.000	137967	1.01		101	3114	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.883	0.002	1.000	77078	1.03		103		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.055	4.050	0.005		4054503	46.1		92.2		
35 MeFOSA										
512.00 > 169.00	4.064	4.057	0.007	1.000	75129	0.99		99.0		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.175	4.162	0.013	1.000	113238	1.03		103	1051	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.175	4.164	0.011		6032319	48.7		97.3	172379	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.237	4.235	0.002		3920378	46.0		92.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.246	4.242	0.004	1.000	79073	1.03		103		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.430	4.424	0.006	1.000	103052	0.9780		97.8	2577	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.667	4.655	0.012		12309406	47.5		95.0	383508	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.667	4.657	0.010	1.000	238596	1.01		101	1077	
713.00 > 169.00	4.667	4.657	0.010	1.000	36141		6.60(0.00-0.00)	101	11217	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.070	5.057	0.013		5742128	45.9		91.8	84169	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.070	5.059	0.011	1.000	171523	1.16		116	217	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.414	5.399	0.015	1.000	81601	0.9426		94.3	179	

Reagents:

LCPFC_FULL-L2_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d

Injection Date: 01-Mar-2017 11:16:22

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 29

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

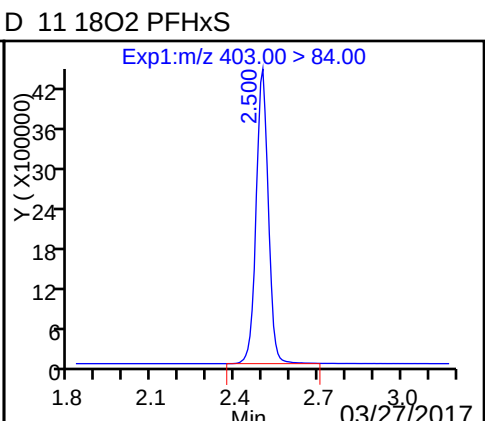
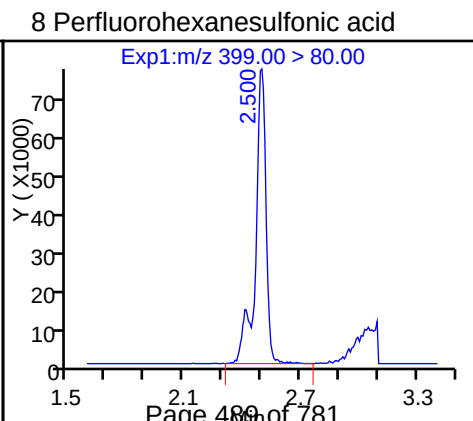
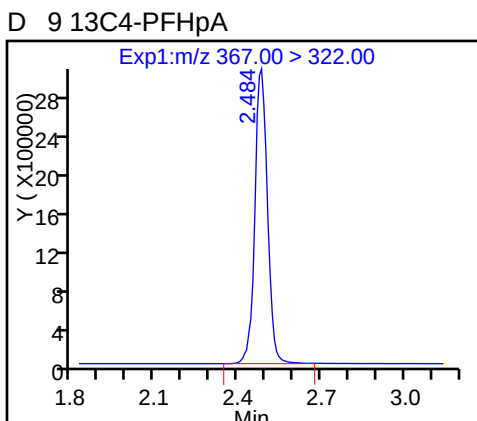
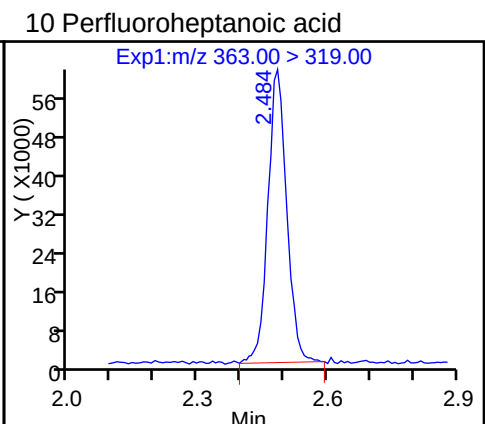
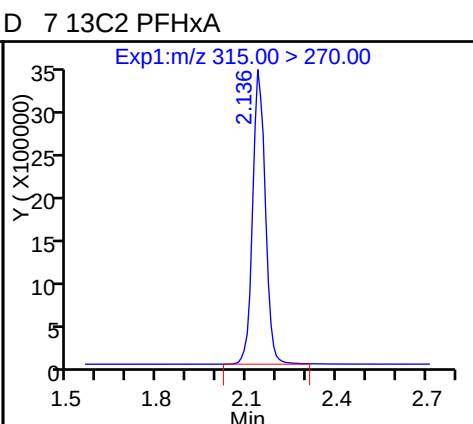
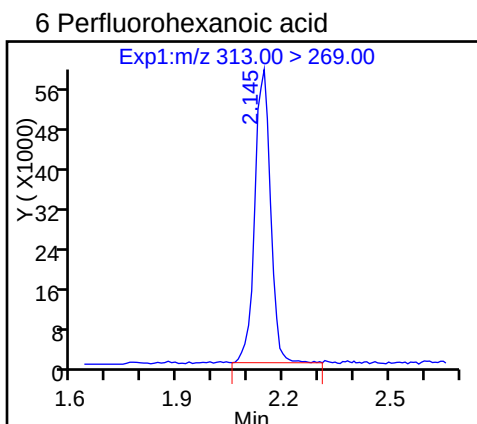
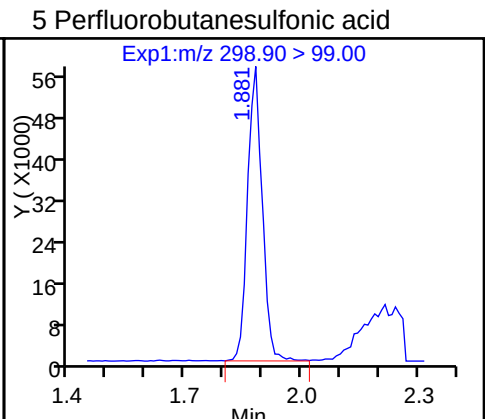
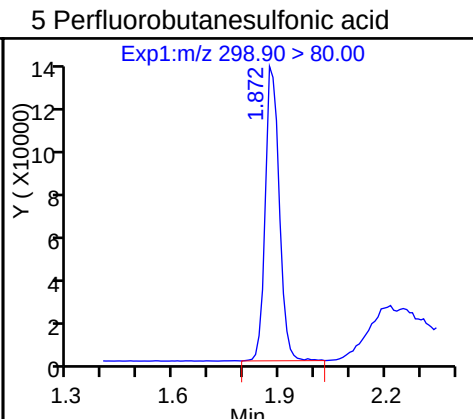
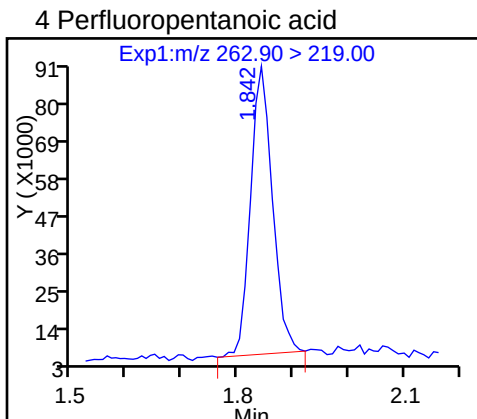
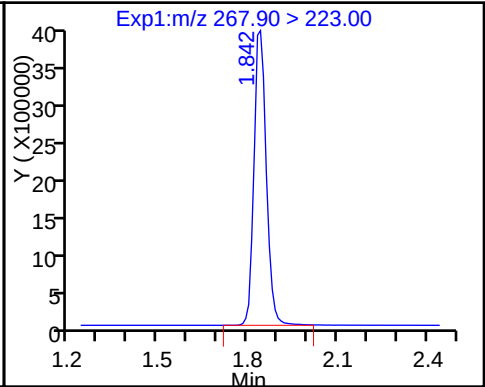
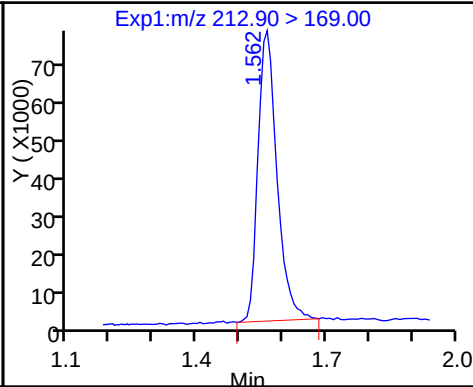
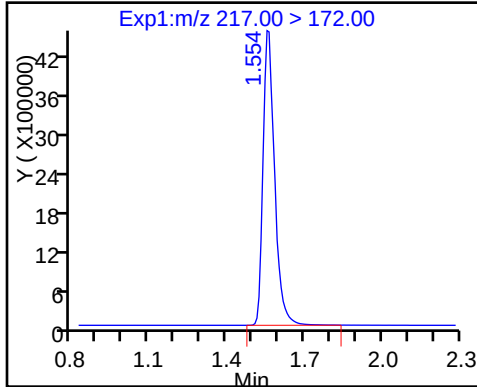
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

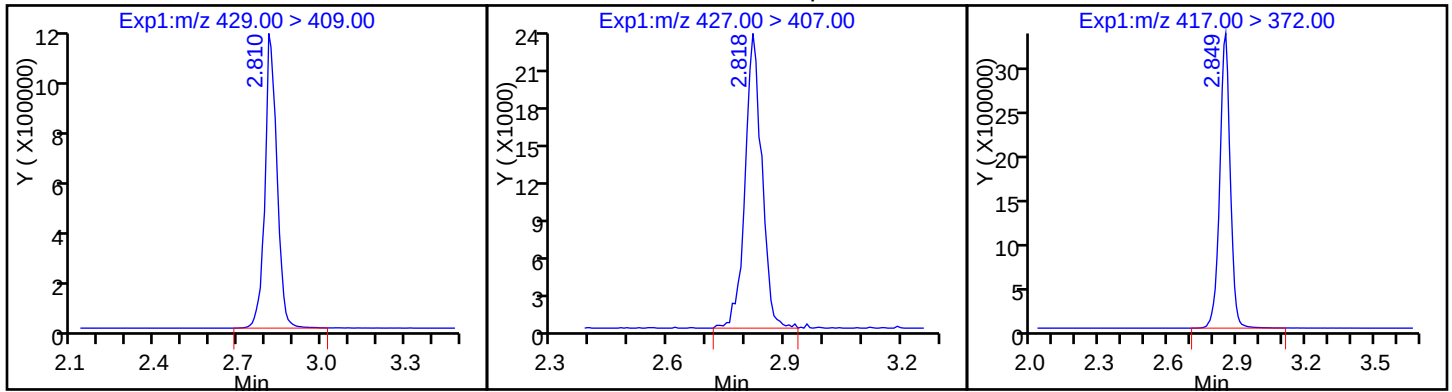
D 3 13C5-PFPeA



D 12 M2-6:2FTS

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

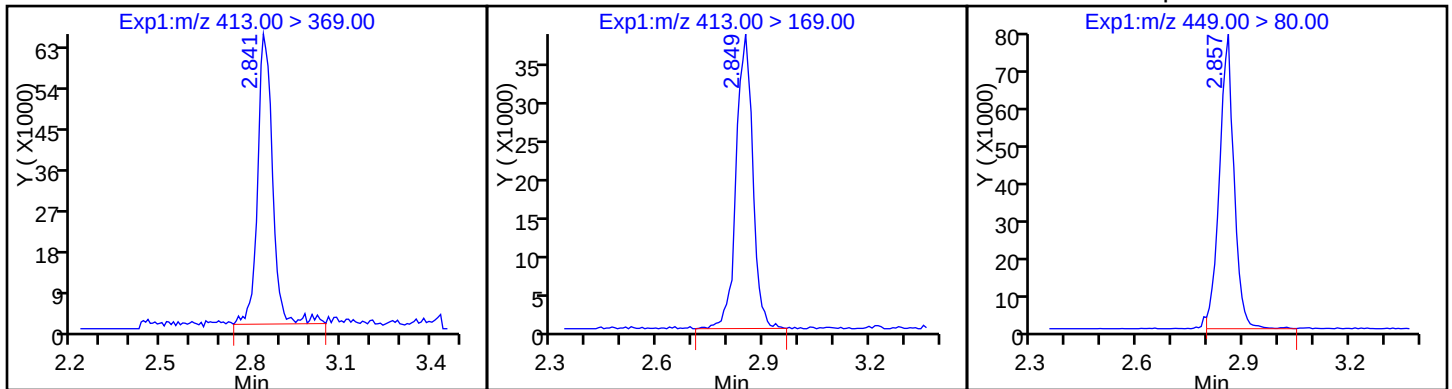
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

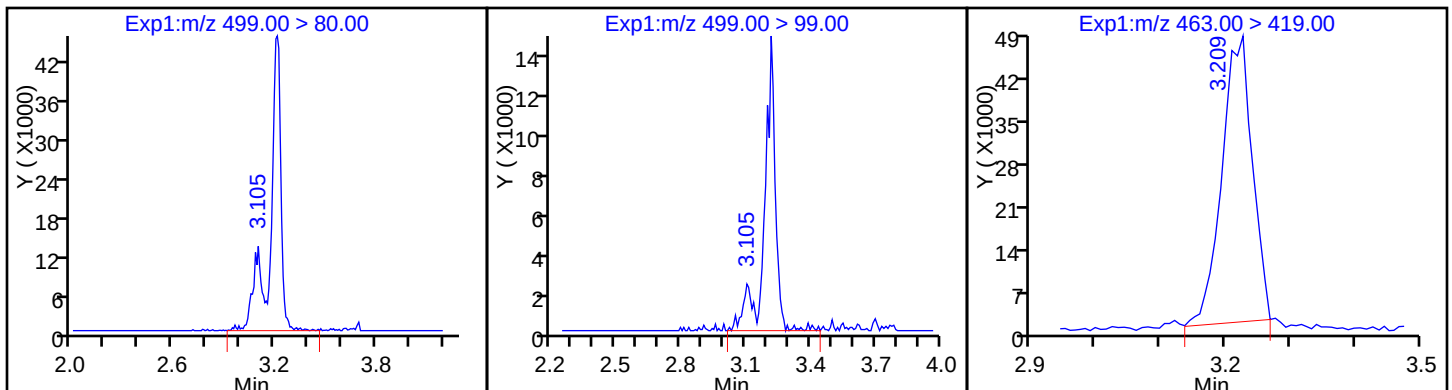
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

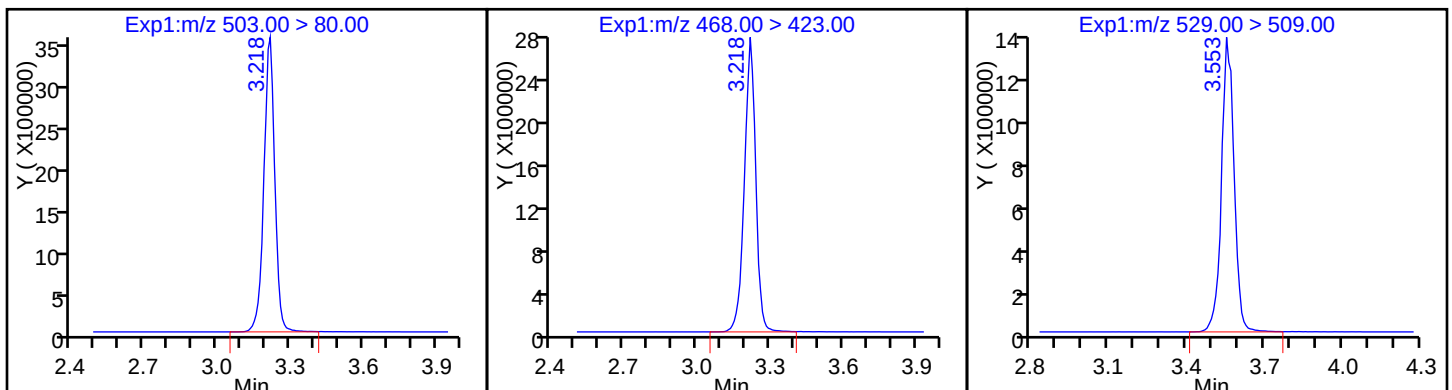
20 Perfluorononanoic acid



D 18 13C4 PFOS

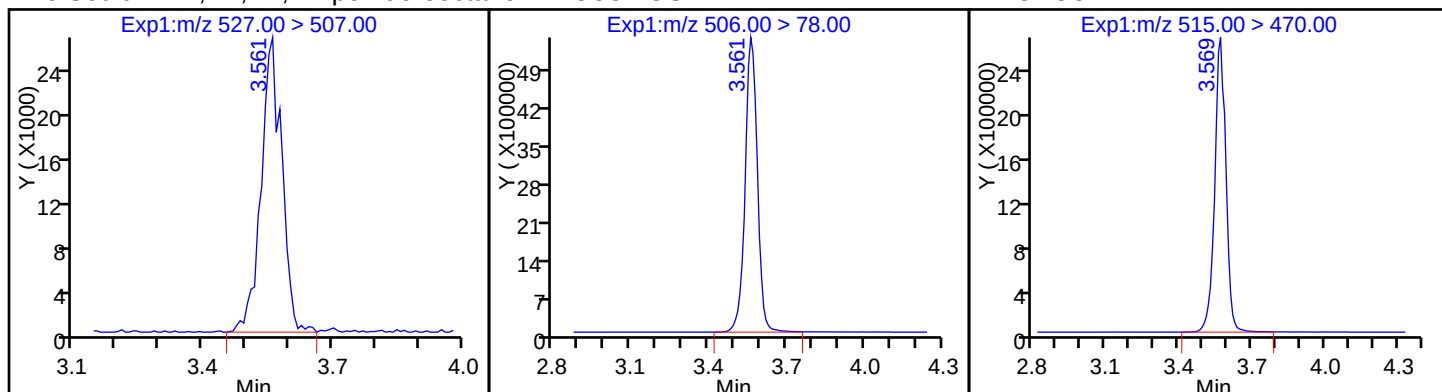
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

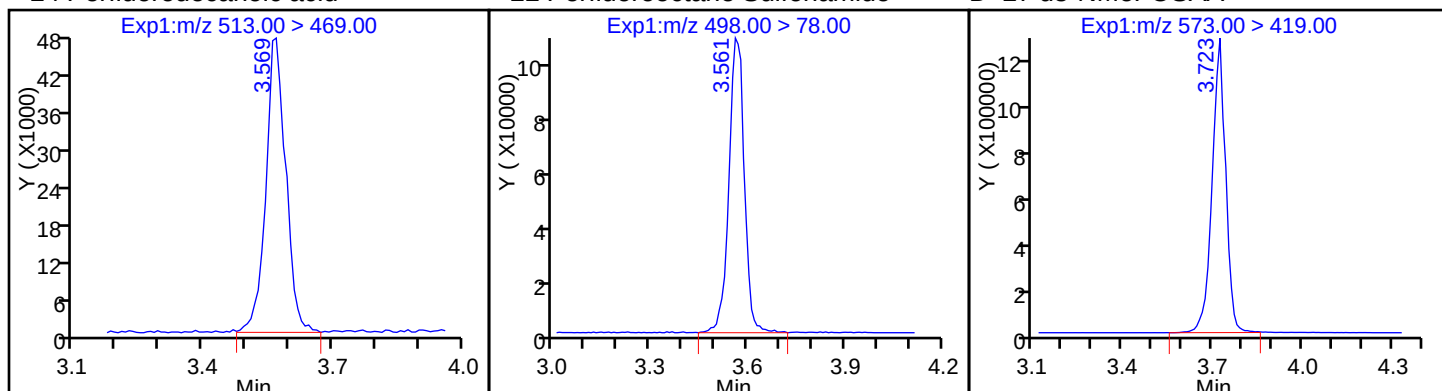
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

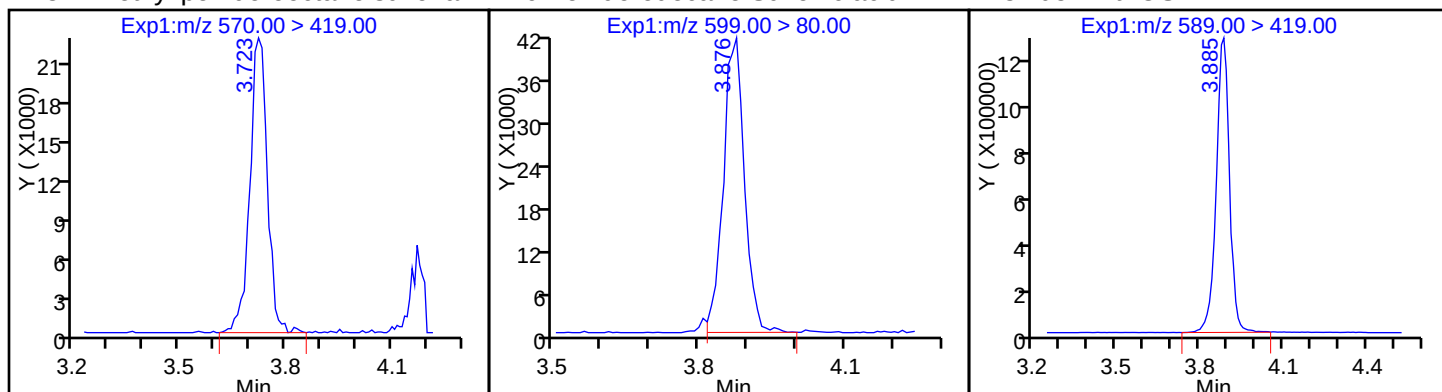
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

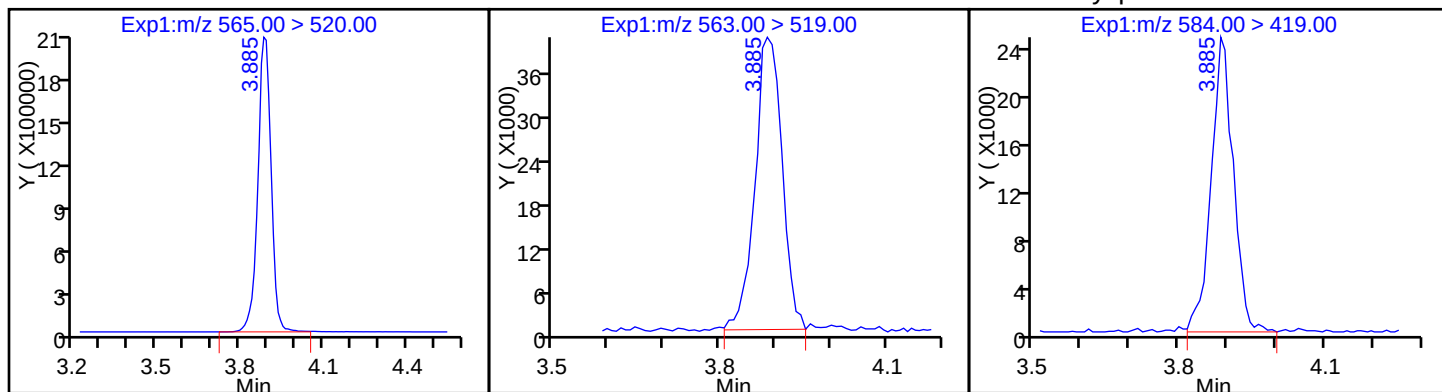
D 32 d5-NEtFOSAA



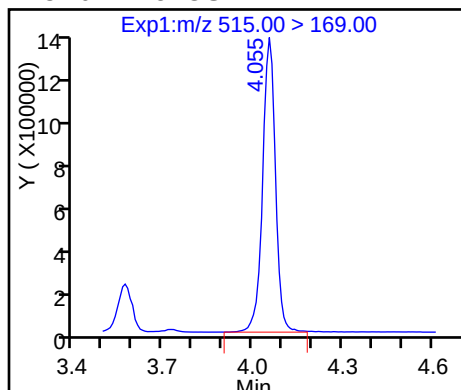
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

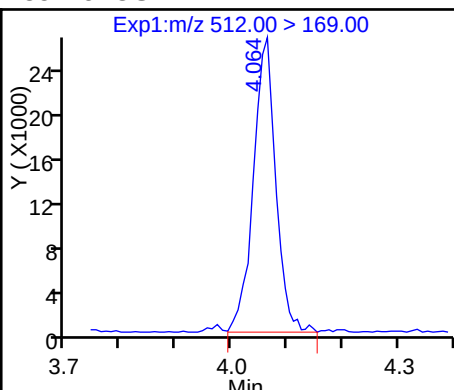
33 N-ethyl perfluorooctane sulfonamid



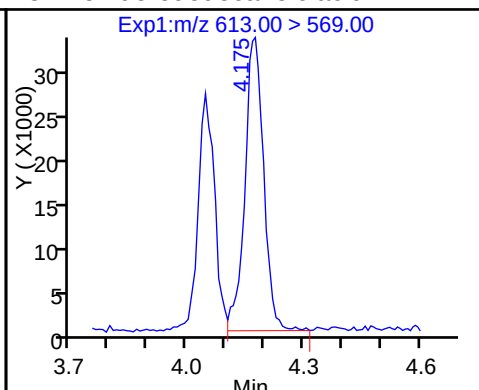
D 34 d-N-MeFOSA-M



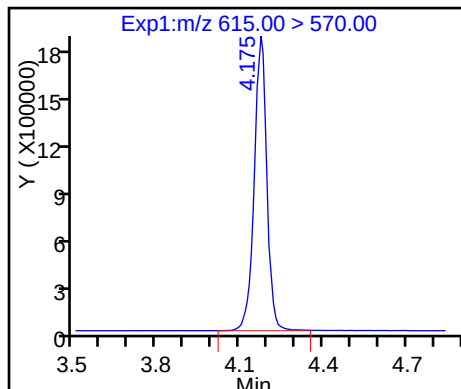
35 MeFOSA



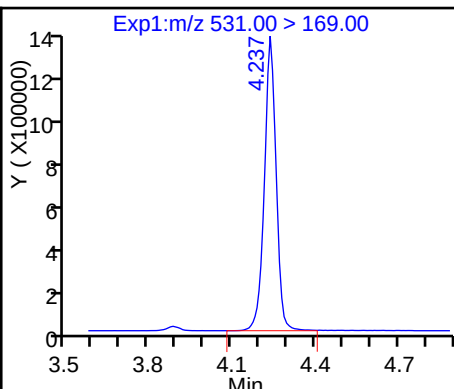
37 Perfluorododecanoic acid



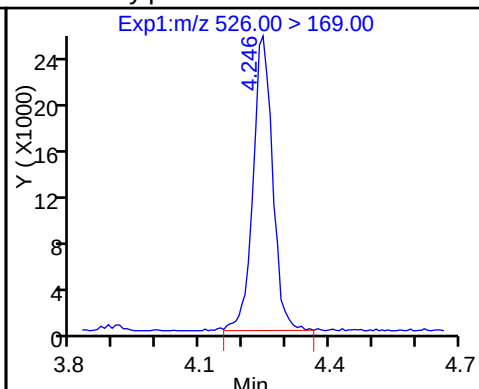
D 36 13C2 PFDaA



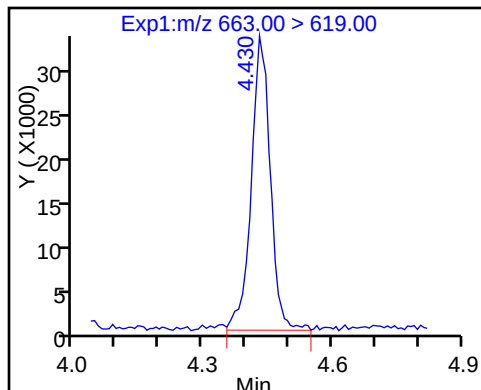
D 38 d-N-EtFOSA-M



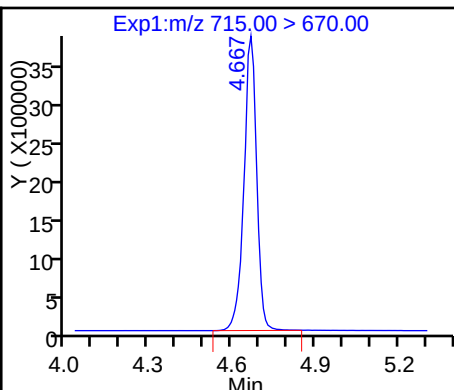
39 N-ethylperfluoro-1-octanesulfonami



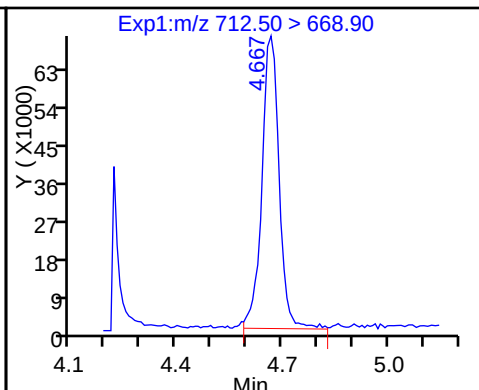
41 Perfluorotridecanoic acid



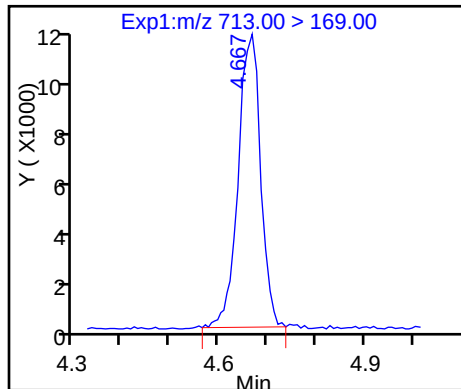
D 43 13C2-PFTeDA



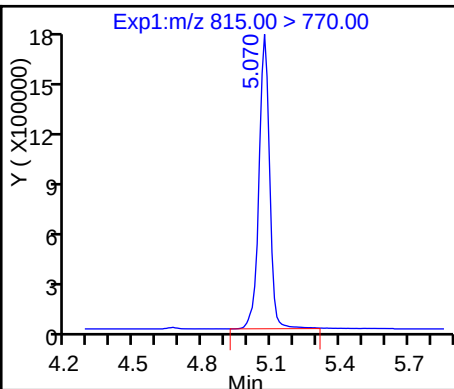
42 Perfluorotetradecanoic acid



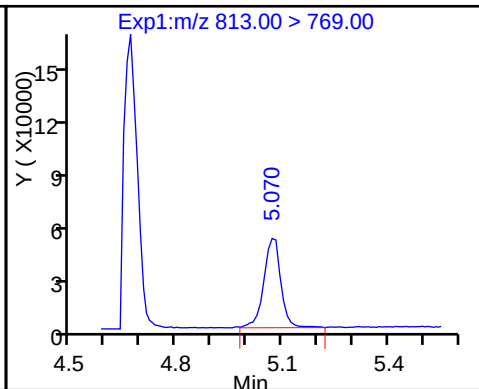
42 Perfluorotetradecanoic acid



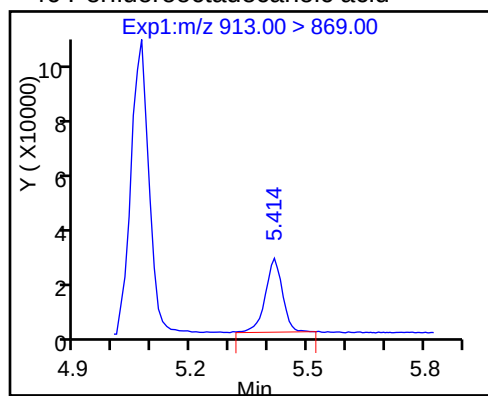
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
 Lims ID: IC L3 Full
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 01-Mar-2017 11:23:51 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:10 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 12:01:48

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	1.555	1.553	0.002		14456536	49.5		98.9	922551	
2 Perfluorobutyric acid										
212.90 > 169.00	1.555	1.558	-0.003	1.000	1286888	5.25		105	14254	
D 3 13C5-PFPeA										
267.90 > 223.00	1.833	1.832	0.001		11537165	49.7		99.4	809835	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.833	1.835	-0.002	1.000	1164625	5.16		103	11285	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.873	1.872	0.001	1.000	1989498	4.83		109		
298.90 > 99.00	1.873	1.872	0.001	1.000	781702		2.55(0.00-0.00)	109		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.129	2.133	-0.004	1.000	966638	5.30		106	49503	
D 7 13C2 PFHxA										
315.00 > 270.00	2.138	2.134	0.004		10261028	48.7		97.3	342136	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.471	2.474	-0.003	1.000	941301	4.96		99.1	8016	
D 9 13C4-PFHpA										
367.00 > 322.00	2.471	2.475	-0.004		9817002	50.9		102	288379	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.456	2.485	-0.029	1.000	1348890	4.56		100		
D 11 18O2 PFHxS										
403.00 > 84.00	2.487	2.489	-0.002		13610529	46.8		98.9	351937	
D 12 M2-6:2FTS										
429.00 > 409.00	2.806	2.805	0.001		3657293	47.4		99.8		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.798	2.807	-0.009	1.000	347809	4.96		105		

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	2.829	2.835	-0.006	1.000	1102619	5.15		103	10643	M
413.00 > 169.00	2.829	2.835	-0.006	1.000	620161		1.78(0.90-1.10)	103	22054	M
D 14 13C4 PFOA										
417.00 > 372.00	2.829	2.835	-0.006		10473721	51.1		102	311740	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.845	2.842	0.003	1.000	1268398	5.17		109		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.171	3.145	0.026	1.000	1092724	4.67		101	18758	
499.00 > 99.00	3.196	3.145	0.051	1.008	254615		4.29(0.90-1.10)	101	16421	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	858327	5.38		108	23748	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.204	-0.008		11369327	47.1		98.4	321748	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.208	-0.003		8821496	49.6		99.2	242559	
D 26 M2-8:2FTS										
529.00 > 509.00	3.548	3.545	0.003		4555474	49.2		103		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	0.998	444929	4.98		104		
D 21 13C8 FOSA										
506.00 > 78.00	3.556	3.559	-0.003		18858766	51.4		103	371997	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	784974	4.99		99.8	29400	
D 23 13C2 PFDA										
515.00 > 470.00	3.556	3.560	-0.004		8688810	52.1		104	216415	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.556	3.561	-0.005	1.000	1747629	5.16		103	92835	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.707	3.710	-0.003		4251681	49.9		99.8		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.707	3.713	-0.006	1.000	424299	5.14		103		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.861	3.866	-0.005	1.000	717648	5.07		105		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.869	3.875	-0.006		4300641	52.9		106		
D 30 13C2 PFUnA										
565.00 > 520.00	3.869	3.876	-0.007		6730080	51.5		103	147236	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.878	3.878	0.0	1.000	676308	4.96		99.1	20230	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.878	3.883	-0.005	1.002	385576	4.92		98.5		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.047	4.050	-0.003		4436424	50.4		101		
35 MeFOSA										
512.00 > 169.00	4.056	4.057	-0.001	1.000	404698	4.88		97.5		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.161	4.162	-0.001	1.000	578671	4.99		99.8	4705	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.161	4.164	-0.003		6339474	51.1		102	145230	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.228	4.235	-0.007		4273681	50.1		100		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.237	4.242	-0.005	1.000	425282	5.06		101		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.421	4.424	-0.003	1.000	562473	5.08		102	11889	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.655	4.655	0.0		13496732	52.1		104	332789	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.655	4.657	-0.002	1.000	1324493	5.31		106	11007	
713.00 > 169.00	4.645	4.657	-0.012	0.998	177791		7.45(0.00-0.00)	106	28707	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.057	5.057	0.0		6378393	51.0		102	93636	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.057	5.059	-0.002	1.000	636153	5.04		101	676	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.398	5.399	-0.001	1.000	451116	4.96		99.2	634	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L3_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d

Injection Date: 01-Mar-2017 11:23:51

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 30

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

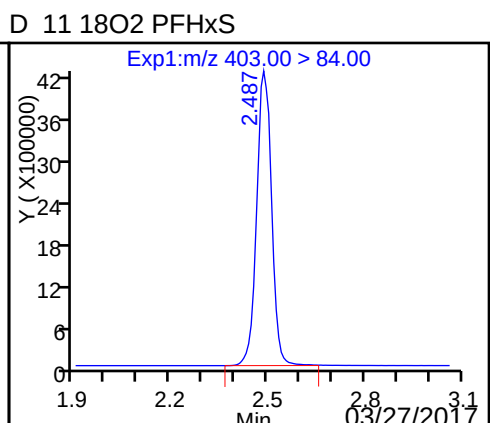
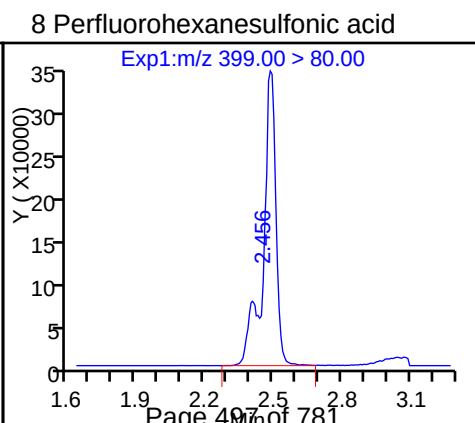
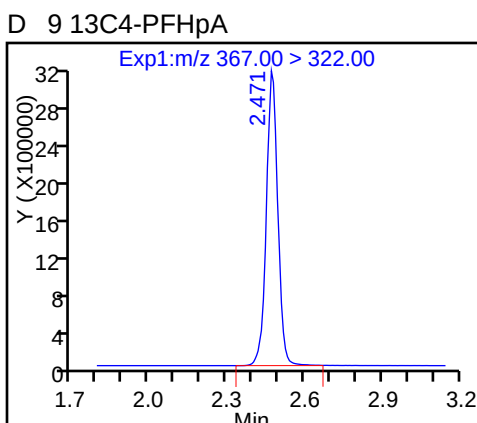
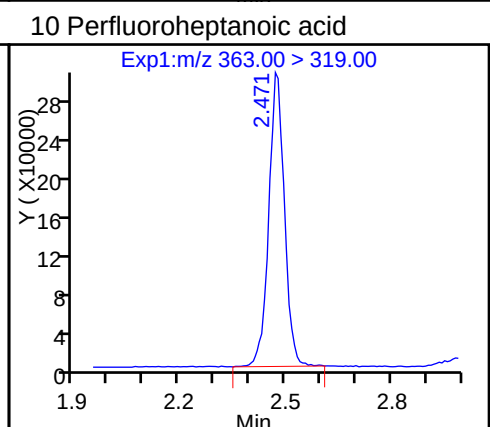
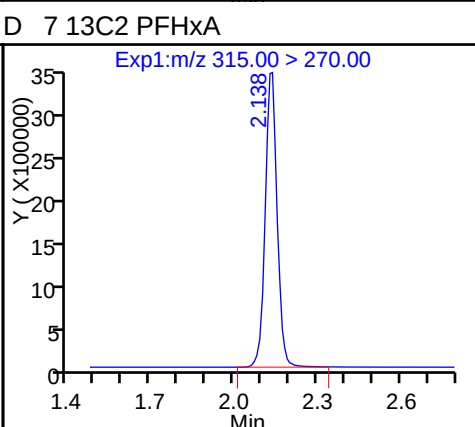
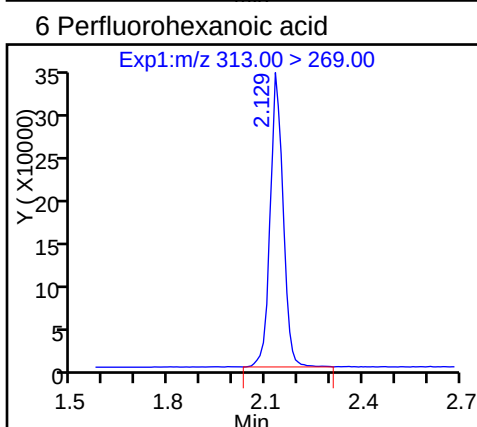
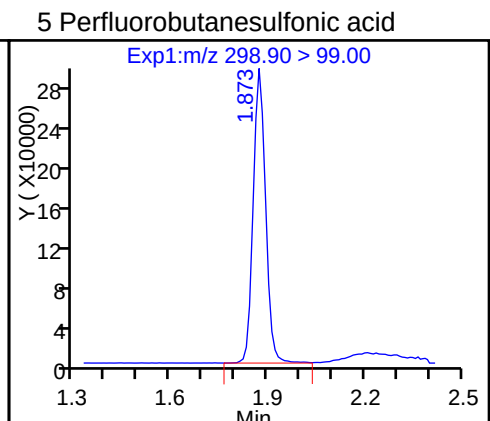
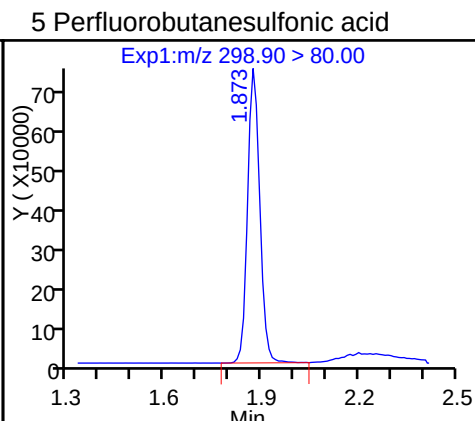
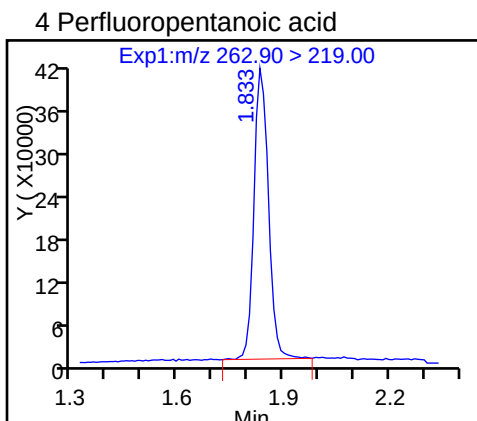
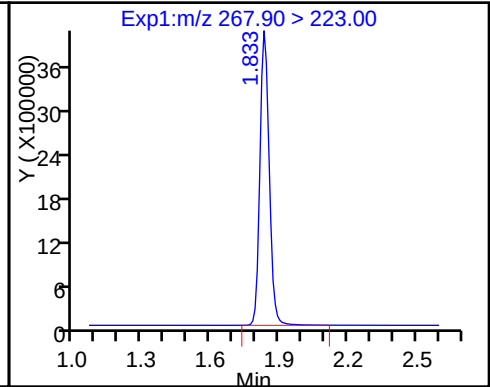
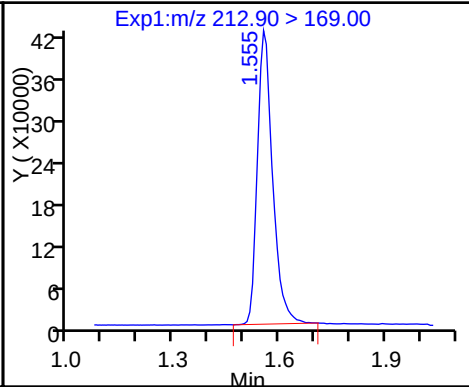
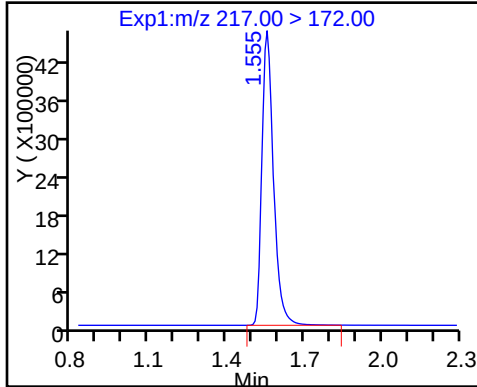
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

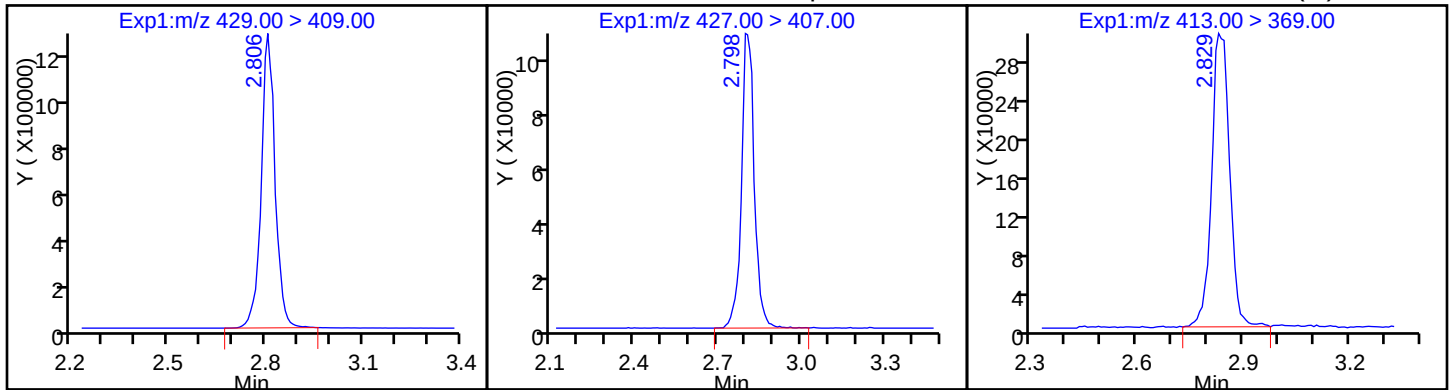
2 Perfluorobutyric acid

D 3 13C5-PFPeA



D 12 M2-6:2FTS

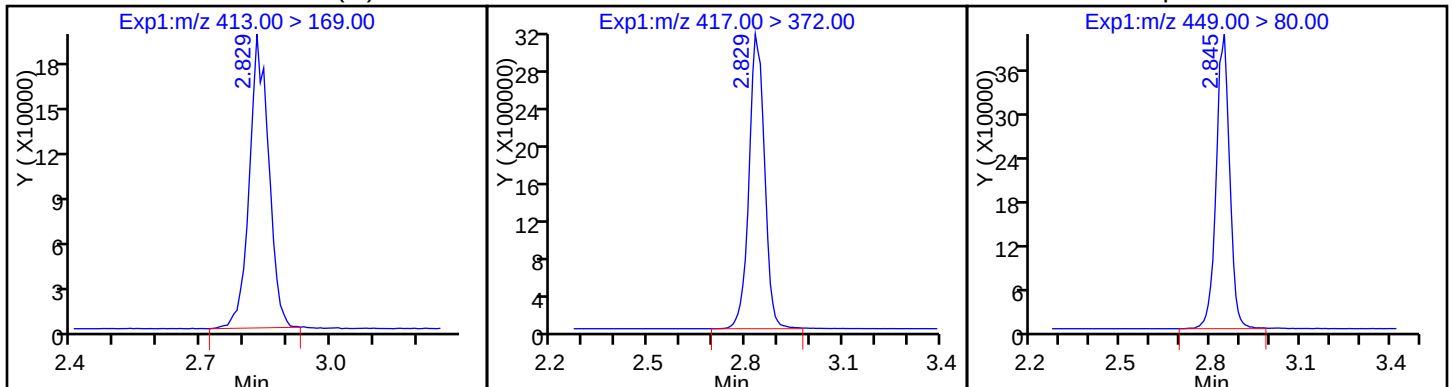
13 Sodium 1H,1H,2H,2H-perfluorooctan-15 Perfluorooctanoic acid (M)



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

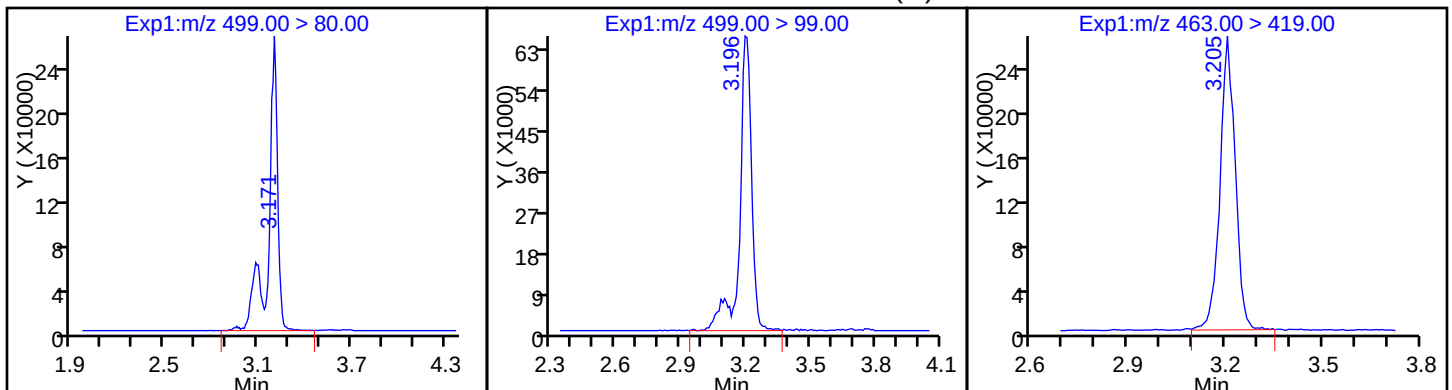
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid (M)

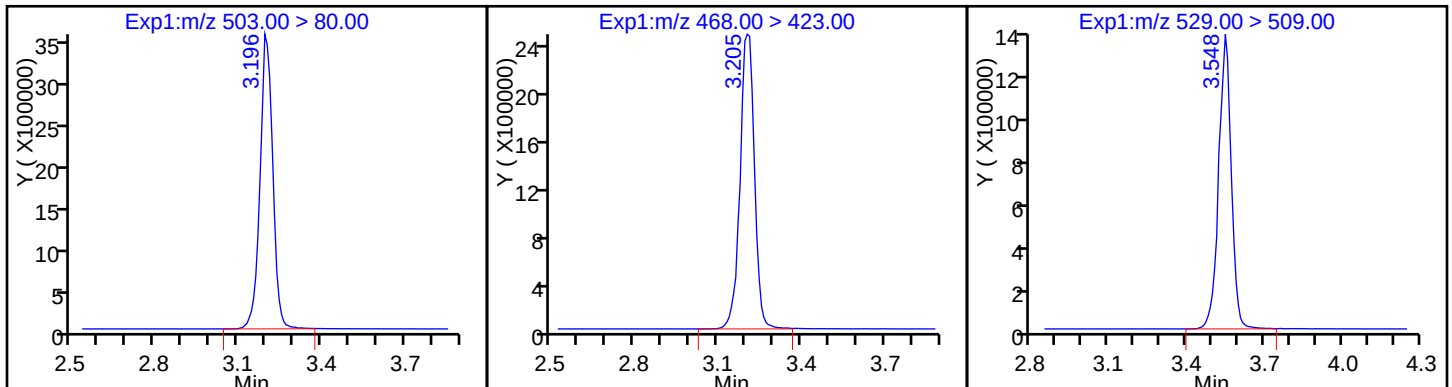
20 Perfluorononanoic acid



D 18 13C4 PFOS

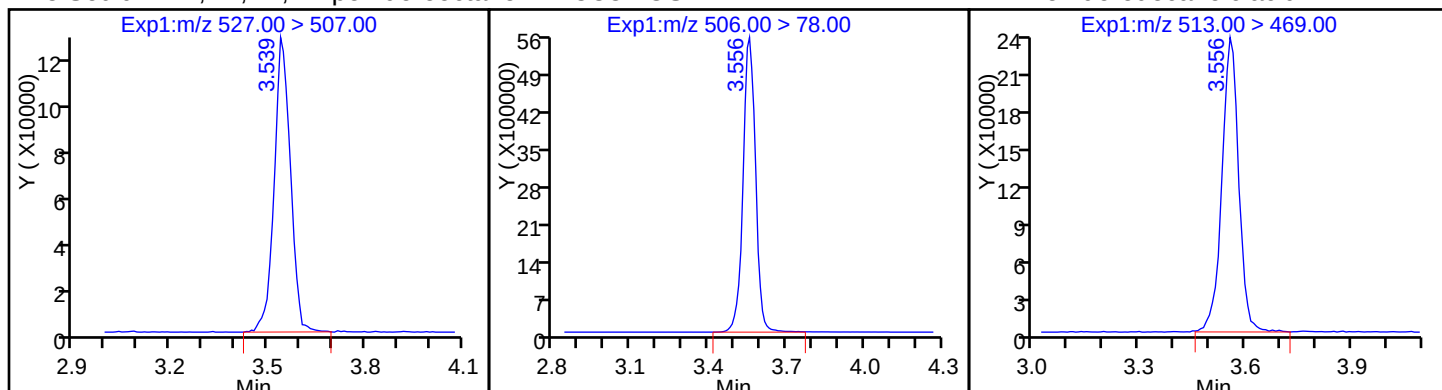
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

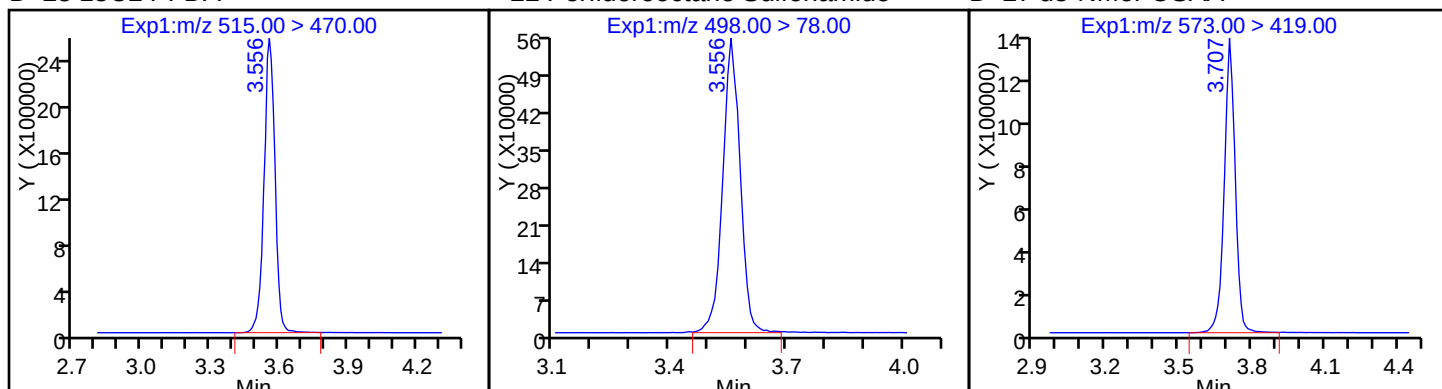
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

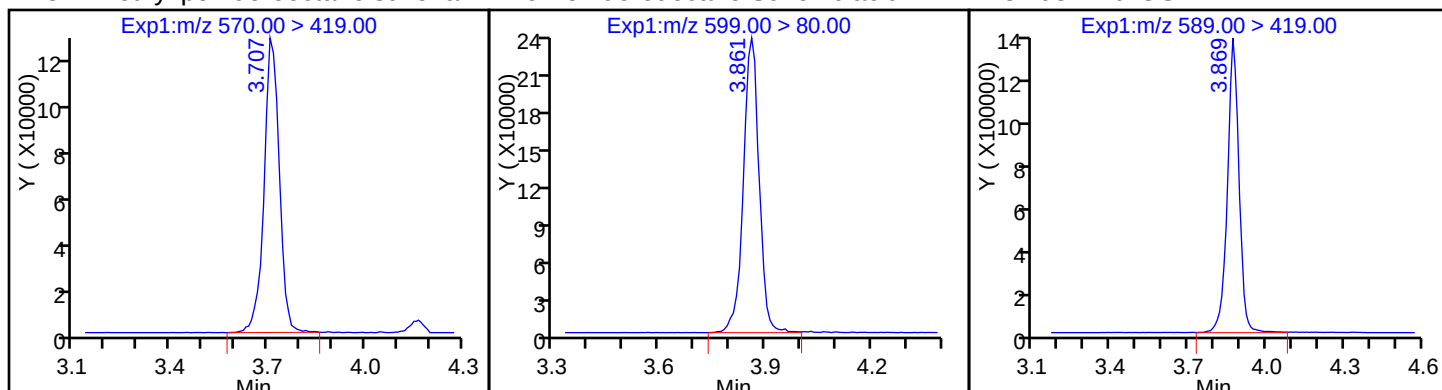
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

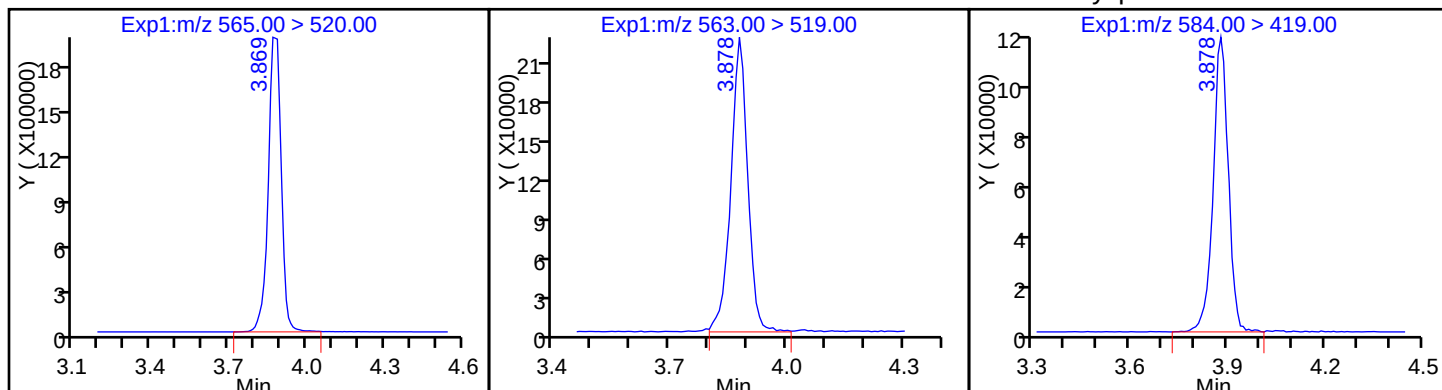
D 32 d5-NEtFOSAA



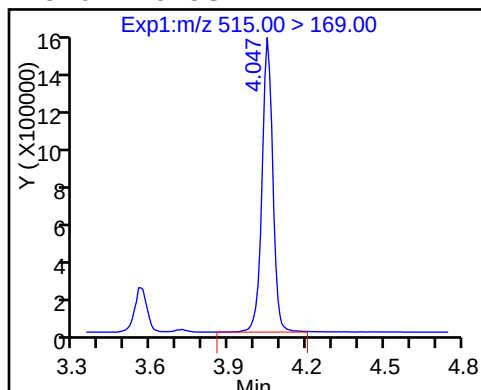
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

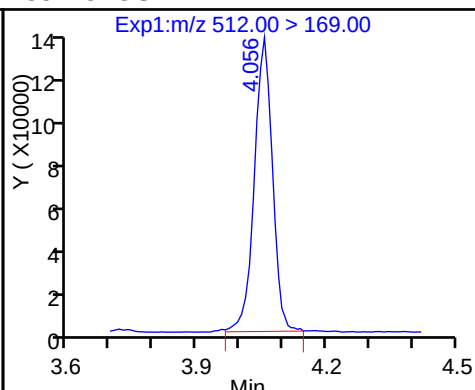
33 N-ethyl perfluorooctane sulfonamid



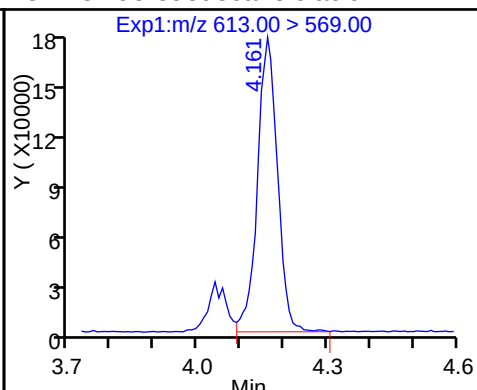
D 34 d-N-MeFOSA-M



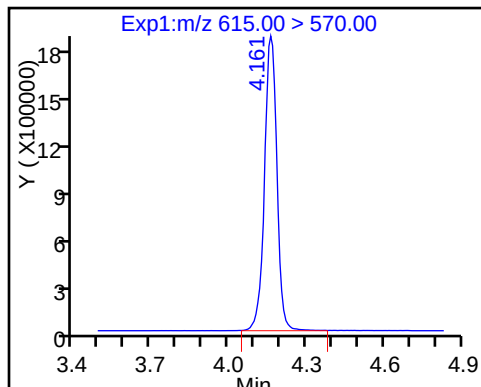
35 MeFOSA



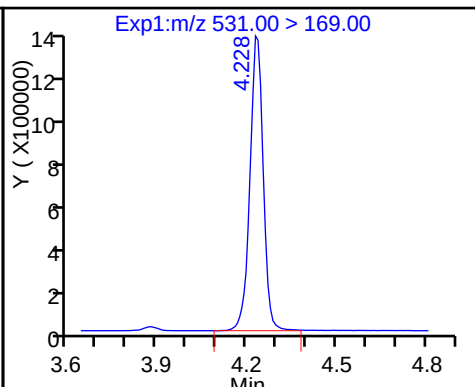
37 Perfluorododecanoic acid



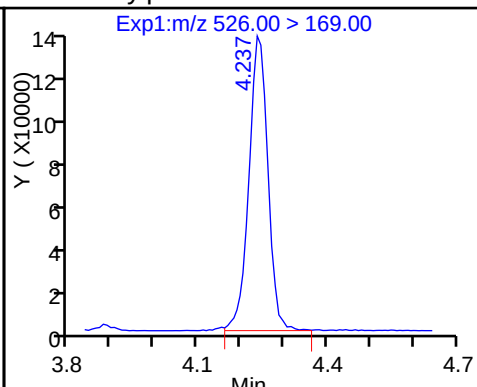
D 36 13C2 PFDaA



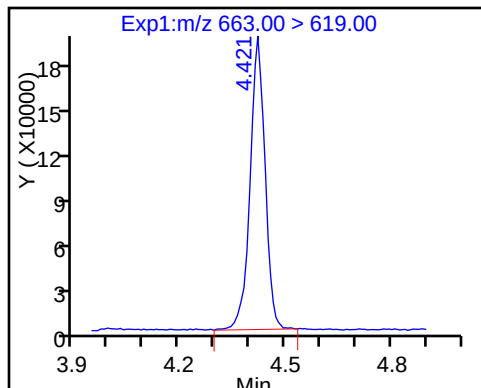
D 38 d-N-EtFOSA-M



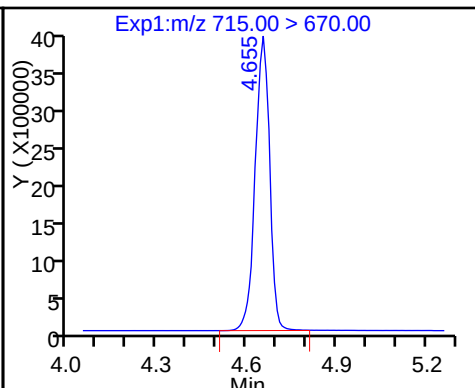
39 N-ethylperfluoro-1-octanesulfonami



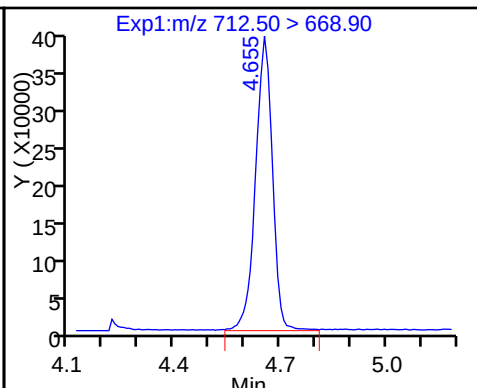
41 Perfluorotridecanoic acid



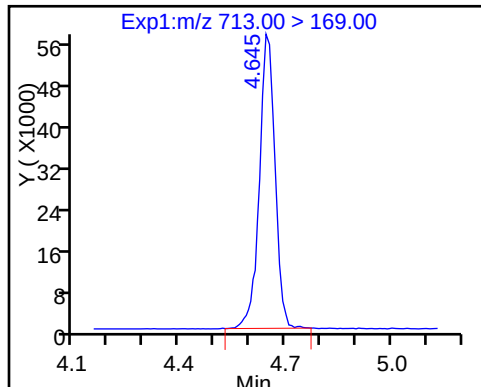
D 43 13C2-PFTeDA



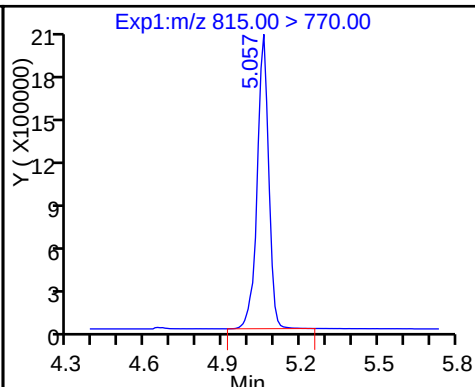
42 Perfluorotetradecanoic acid



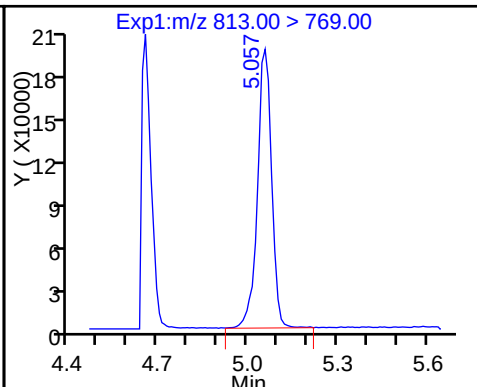
42 Perfluorotetradecanoic acid



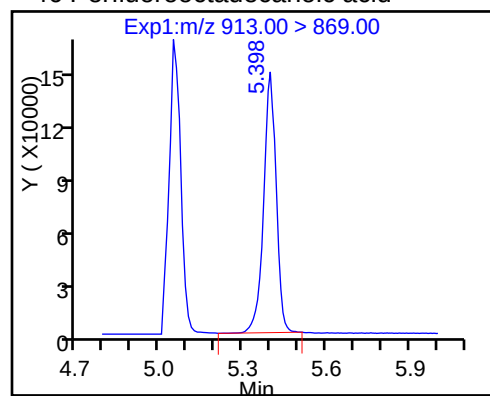
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

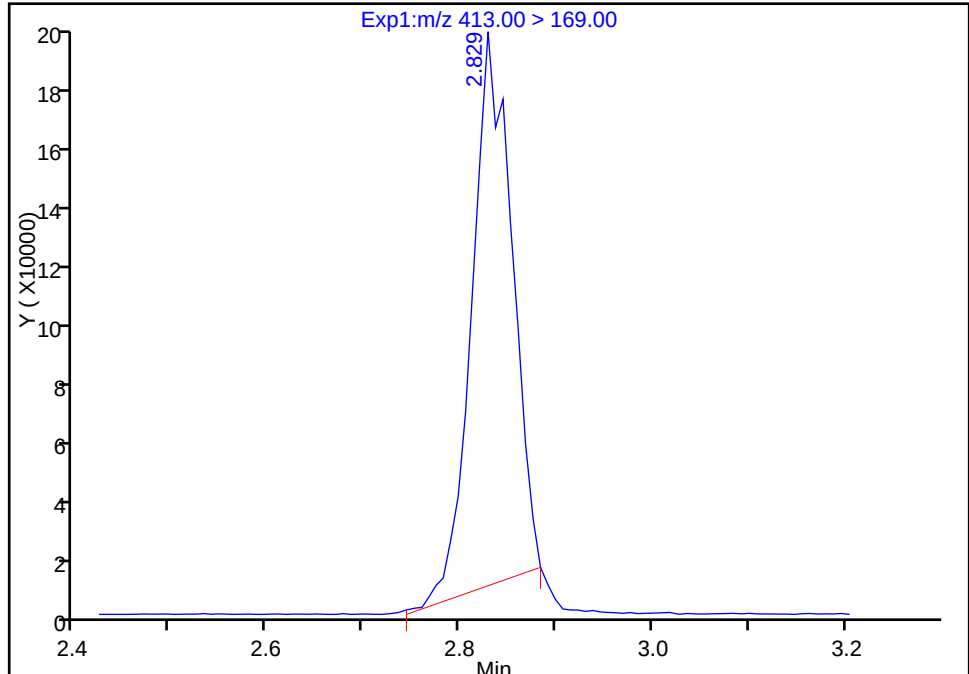
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

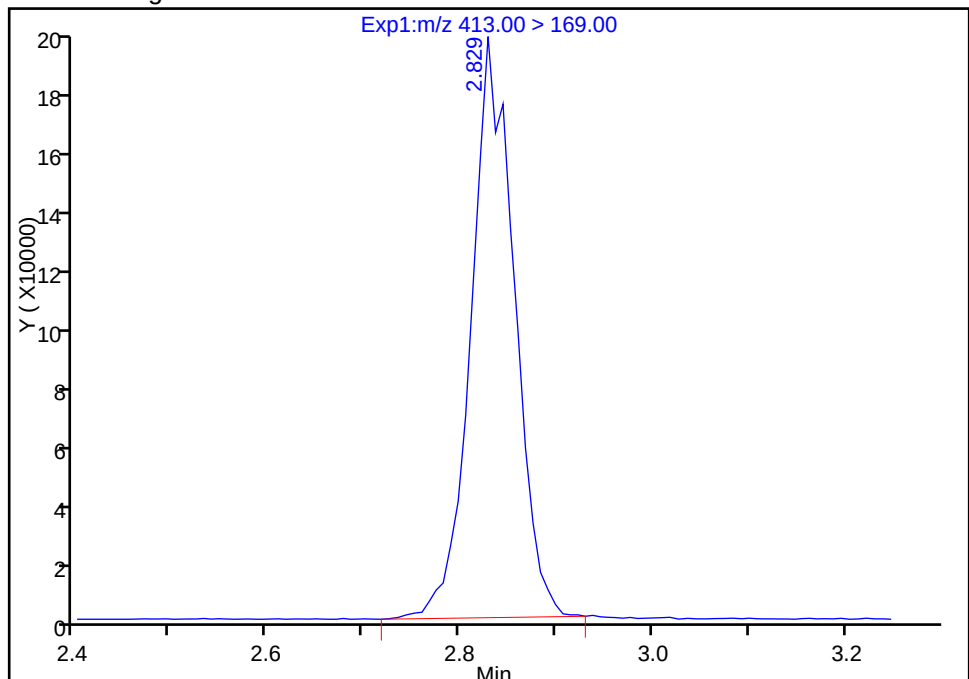
RT: 2.83
Area: 545337
Amount: 5.278222
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 620161
Amount: 5.152153
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

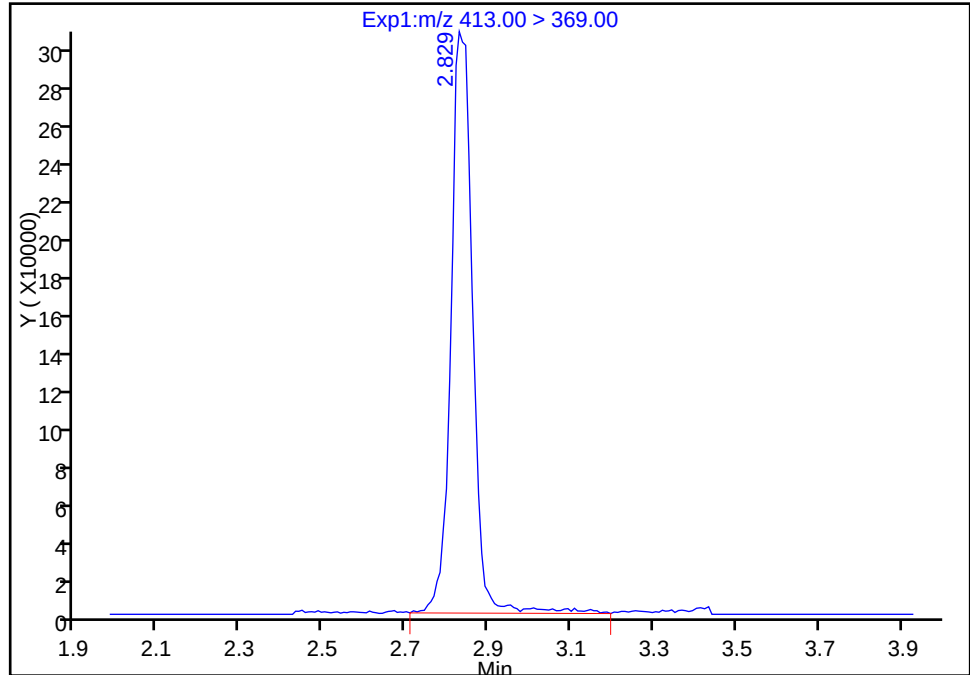
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

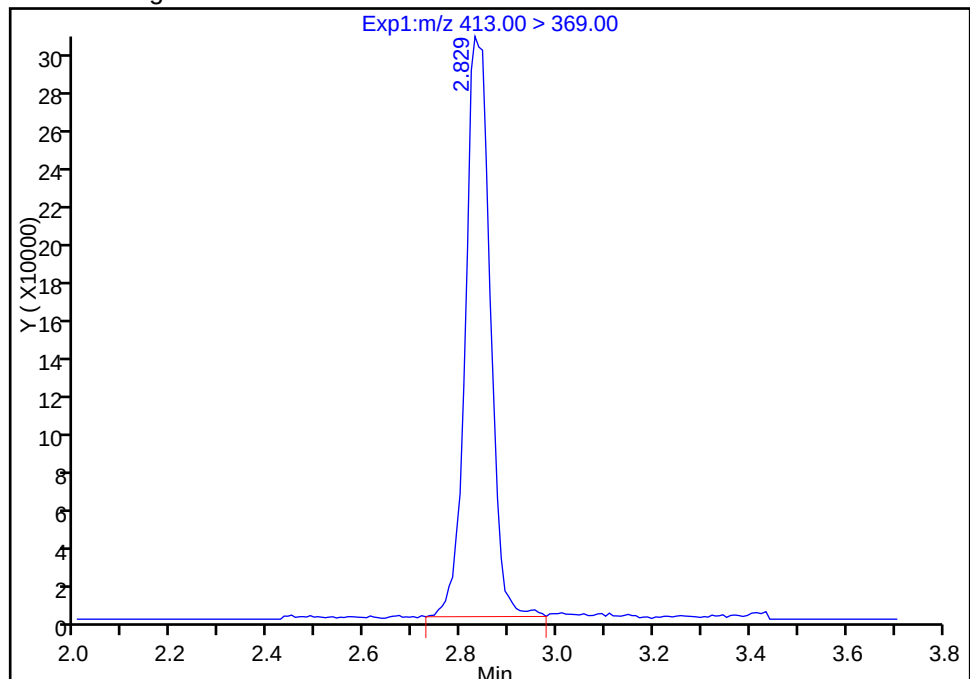
RT: 2.83
Area: 1136820
Amount: 5.278222
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 1102619
Amount: 5.152153
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d

Injection Date: 01-Mar-2017 11:23:51

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 30 Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

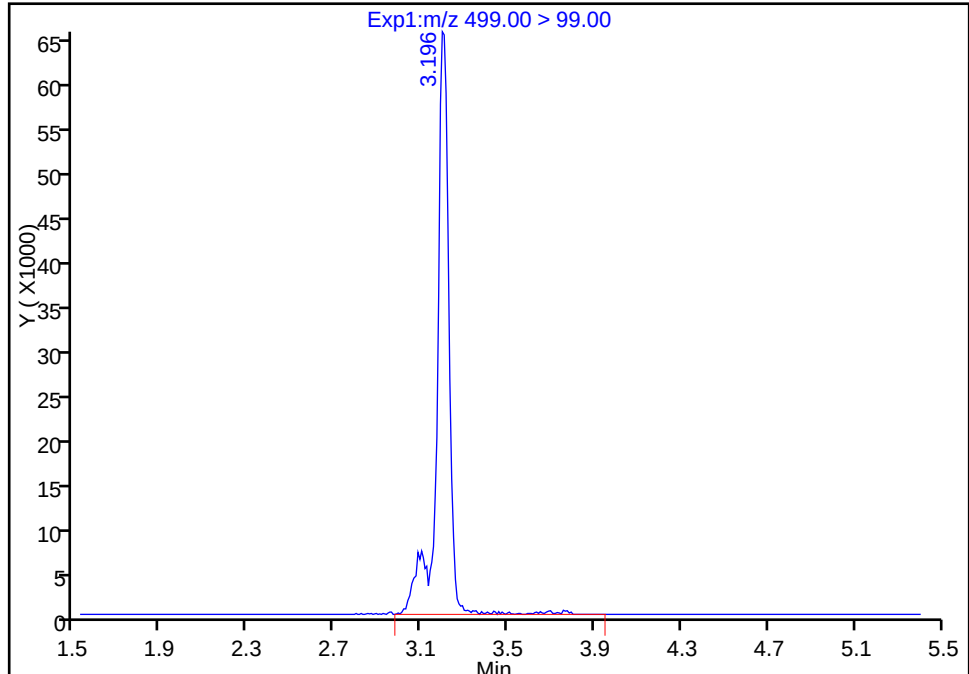
Detector EXP1

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

Signal: 2

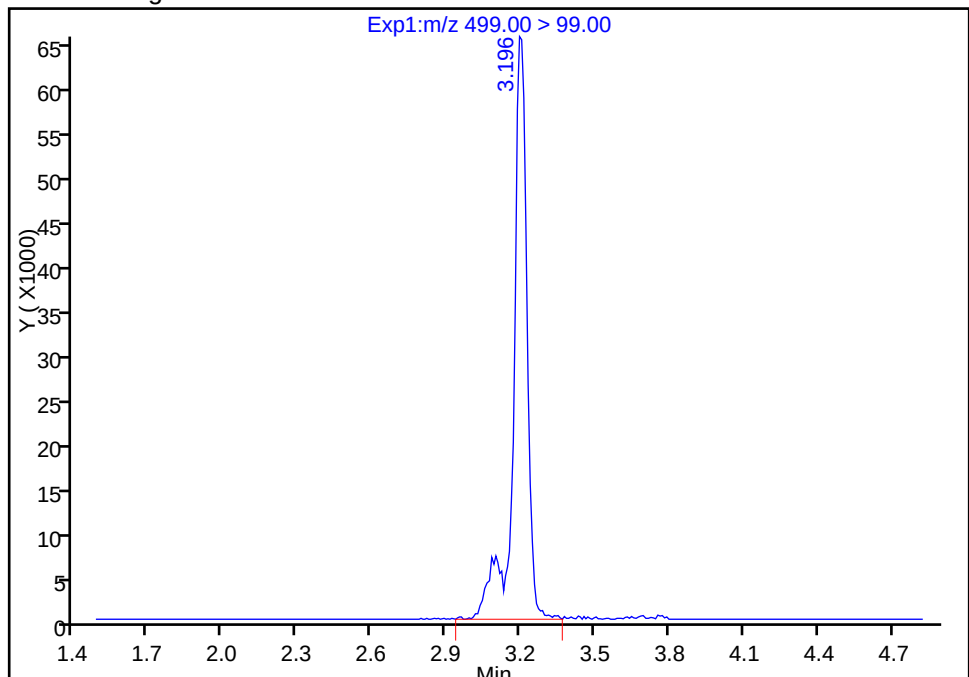
RT: 3.20
Area: 258504
Amount: 4.907745
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 254615
Amount: 4.671293
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 01-Mar-2017 11:31:20 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:13 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 11:58:53

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 1.554 1.553 0.001 17122661 58.6 117 1074272

2 Perfluorobutyric acid

212.90 > 169.00 1.562 1.558 0.004 1.000 5946494 20.5 102 65761

D 3 13C5-PFPeA

267.90 > 223.00 1.832 1.832 0.0 13641103 58.7 117 917353

4 Perfluoropentanoic acid

262.90 > 219.00 1.841 1.835 0.006 1.000 5283919 19.8 99.0 51812

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.871 1.872 -0.001 1.000 9035699 18.8 106

298.90 > 99.00 1.871 1.872 -0.001 1.000 3688779 2.45(0.00-0.00) 106

6 Perfluorohexanoic acid

313.00 > 269.00 2.134 2.133 0.001 1.000 4191655 19.2 96.2 152557

D 7 13C2 PFHxA

315.00 > 270.00 2.134 2.134 0.0 12244217 58.1 116 400533

10 Perfluoroheptanoic acid

363.00 > 319.00 2.471 2.474 -0.003 1.000 4154809 19.6 98.2 36084

D 9 13C4-PFHpA

367.00 > 322.00 2.479 2.475 0.004 10934944 56.7 113 304443

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.487 2.485 0.002 1.000 5958886 17.2 94.6 M

D 11 18O2 PFHxS

403.00 > 84.00 2.487 2.489 -0.002 15910284 54.7 116 422002

D 12 M2-6:2FTS

429.00 > 409.00 2.814 2.805 0.009 4091935 53.0 112

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

427.00 > 407.00 2.806 2.807 -0.001 1.000 1476276 19.2 101

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		11808824	57.6		115	419758	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	4651144	19.3		96.4	85963	
413.00 > 169.00	2.837	2.835	0.002	1.000	2647754		1.76(0.90-1.10)	96.4	107757	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	5669268	19.9		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.093	3.145	-0.052	1.000	4889351	18.0		97.1	37486	
499.00 > 99.00	3.163	3.145	0.018	1.023	1125132		4.35(0.90-1.10)	97.1	16340	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	3633207	19.7		98.5	58134	
D 18 13C4 PFOS										
503.00 > 80.00	3.205	3.204	0.001		13187105	54.6		114	308342	
D 19 13C5 PFNA										
468.00 > 423.00	3.214	3.208	0.006		10199601	57.3		115	340360	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4873285	52.6		110		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	1931499	20.5		107		
D 21 13C8 FOSA										
506.00 > 78.00	3.565	3.559	0.006		19888389	54.2		108	344996	
D 23 13C2 PFDA										
515.00 > 470.00	3.565	3.560	0.005		9661817	58.0		116	234911	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	3277760	18.7		93.6	124974	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.565	3.561	0.004	1.000	7187955	20.1		101	199090	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.707	3.710	-0.003		4769931	56.0		112		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.717	3.713	0.004	1.003	1695690	18.3		91.5		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	3002868	18.3		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.870	3.875	-0.005		4515915	55.5		111		
D 30 13C2 PFUnA										
565.00 > 520.00	3.879	3.876	0.003		7346047	56.2		112	177174	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.879	3.878	0.001	1.000	2619295	17.6		87.9	88246	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.888	3.883	0.005	1.004	1606146	19.5		97.7		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.050	4.050	0.0		4579449	52.0		104		
35 MeFOSA										
512.00 > 169.00	4.059	4.057	0.002	1.000	1671133	19.5		97.5		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.165	4.162	0.003	1.000	2353395	19.5		97.4	29732	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.165	4.164	0.001		6606261	53.3		107	130372	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.240	4.235	0.005		4373613	51.3		103		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.249	4.242	0.007	1.000	1676481	19.5		97.4		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.424	-0.006	1.000	2207561	19.1		95.6	38950	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.652	4.655	-0.003		13623388	52.6		105	303779	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.652	4.657	-0.005	1.000	4960846	19.1		95.5	38169	
713.00 > 169.00	4.652	4.657	-0.005	1.000	658342		7.54(0.00-0.00)	95.5	69558	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.057	5.057	0.0		6330845	50.6		101	91907	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.057	5.059	-0.002	1.000	2071027	16.5		82.7	2327	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.398	5.399	-0.001	1.000	1687895	17.8		89.0	2245	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d

Injection Date: 01-Mar-2017 11:31:20

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

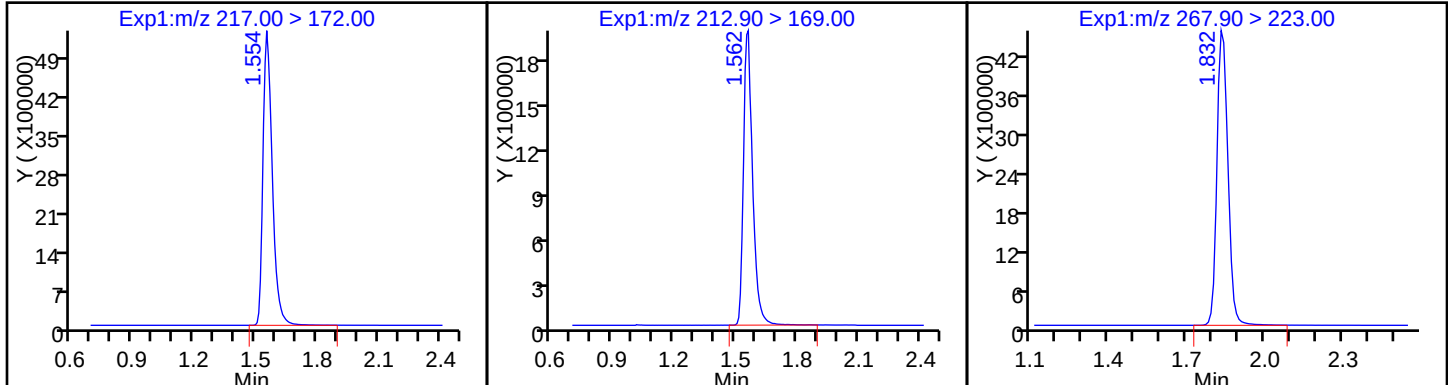
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

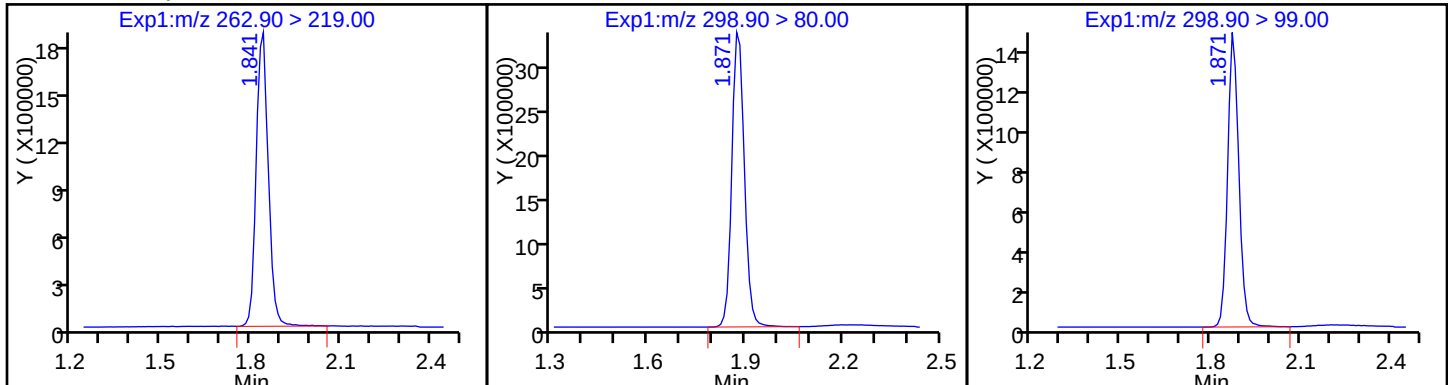
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

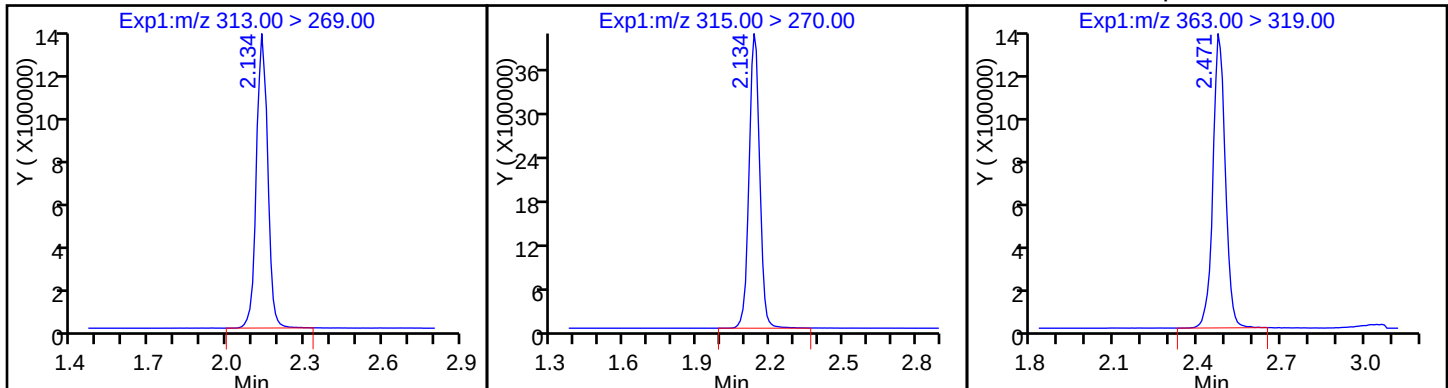
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

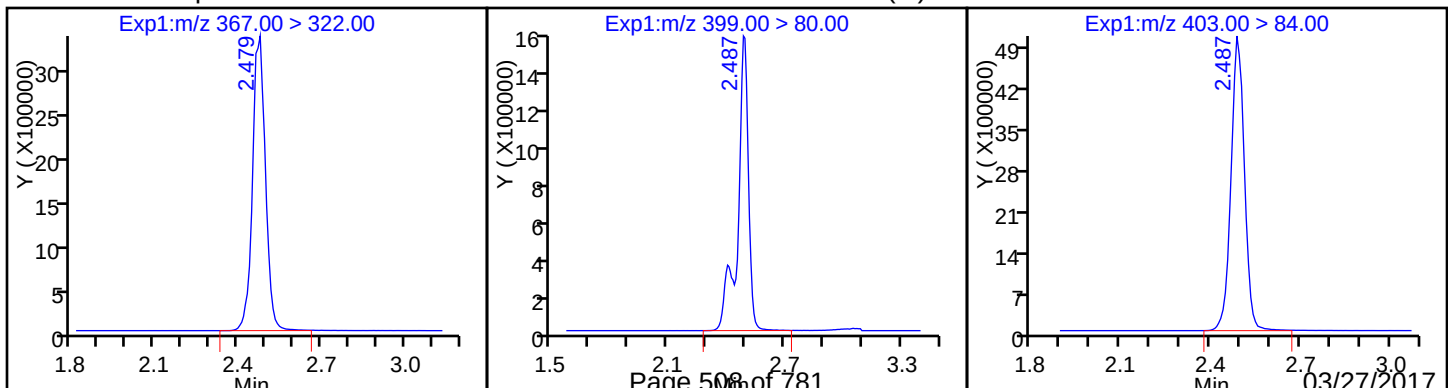
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

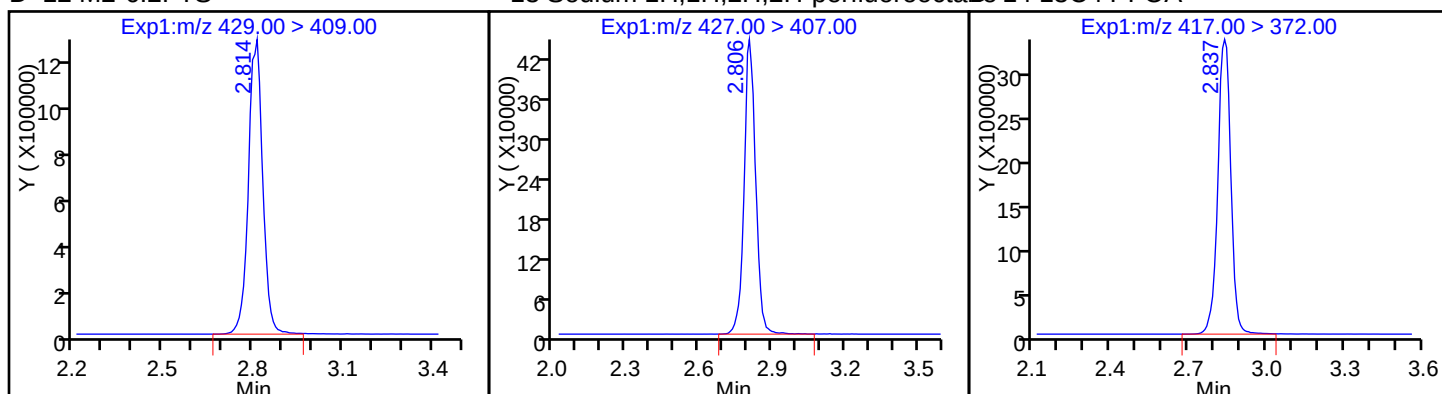
D 11 18O2 PFHxS



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadec-11-ynoate

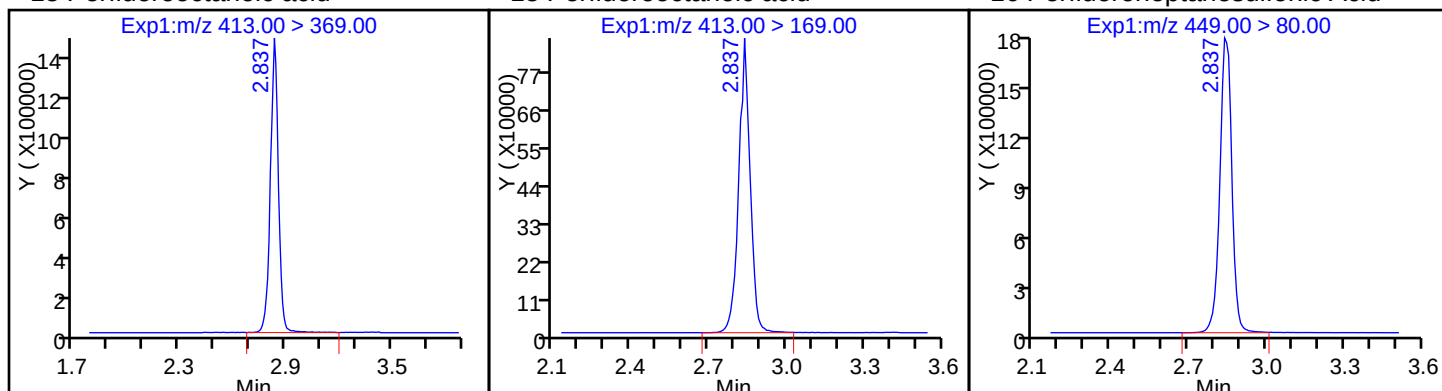
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

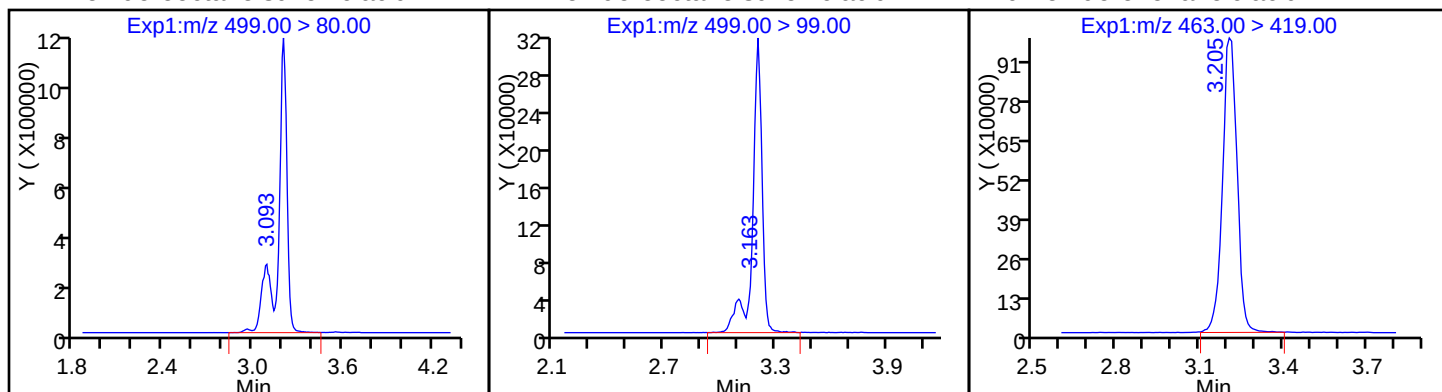
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

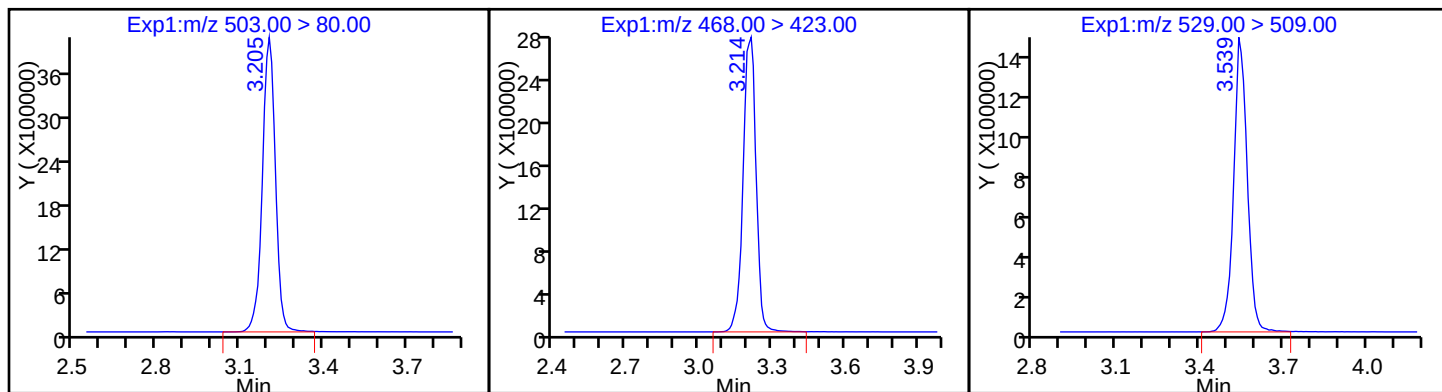
20 Perfluorononanoic acid



D 18 13C4 PFOS

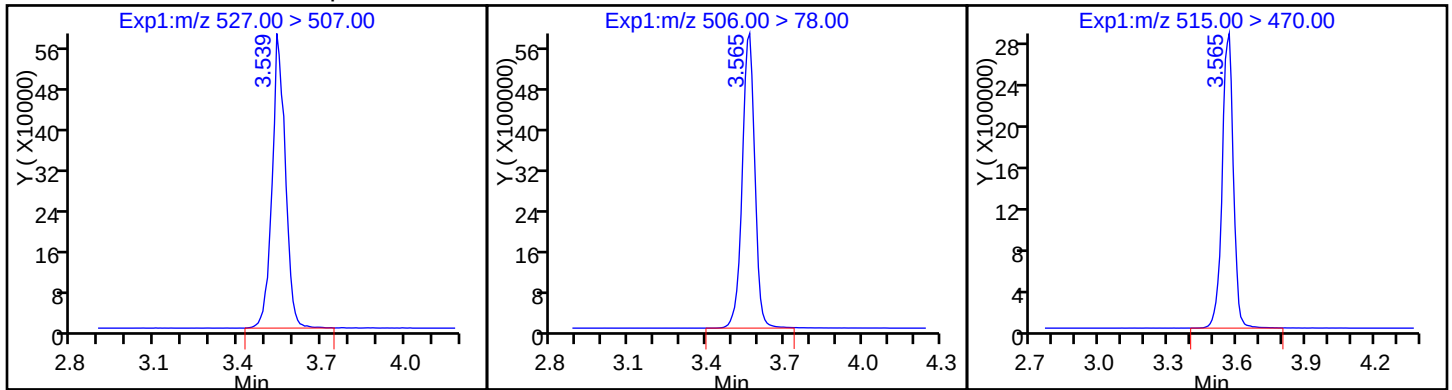
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

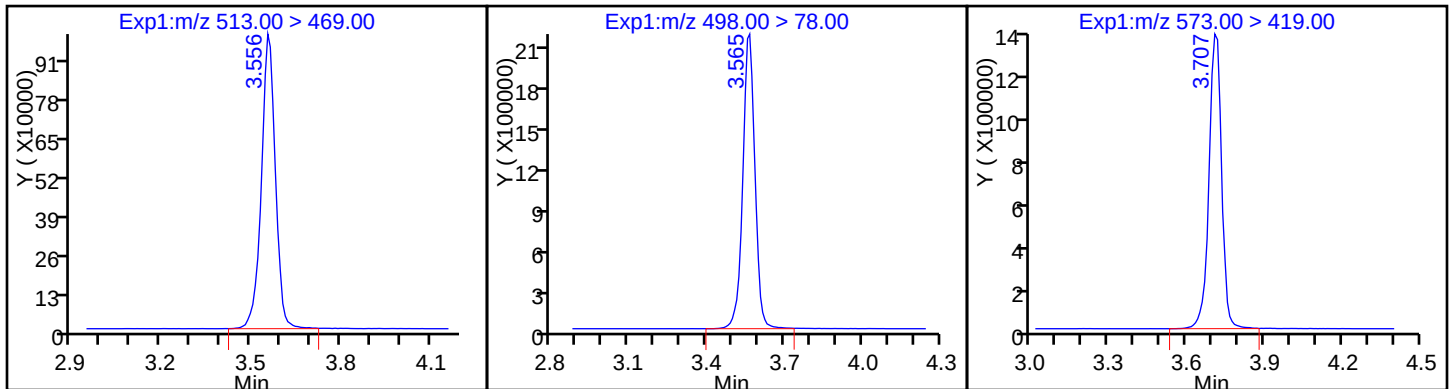
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

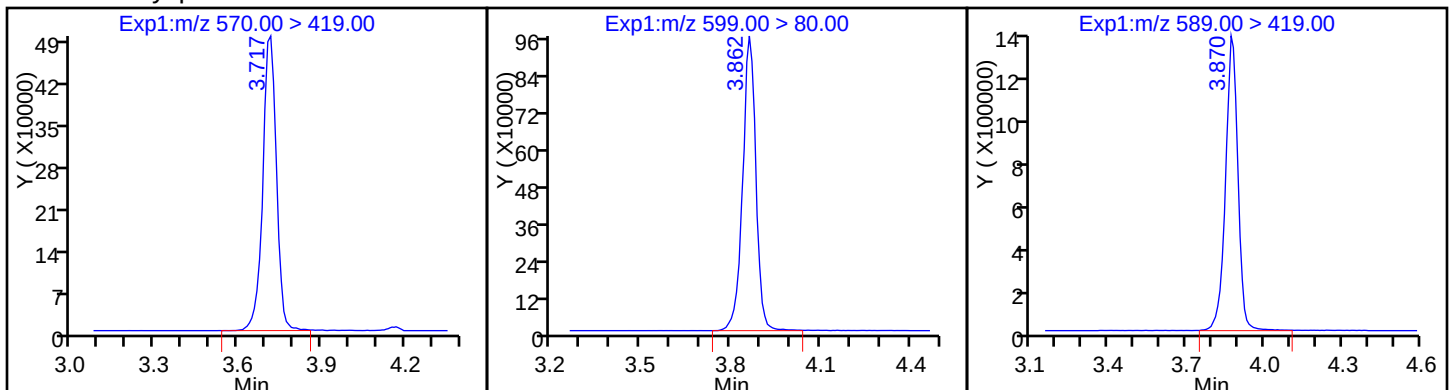
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

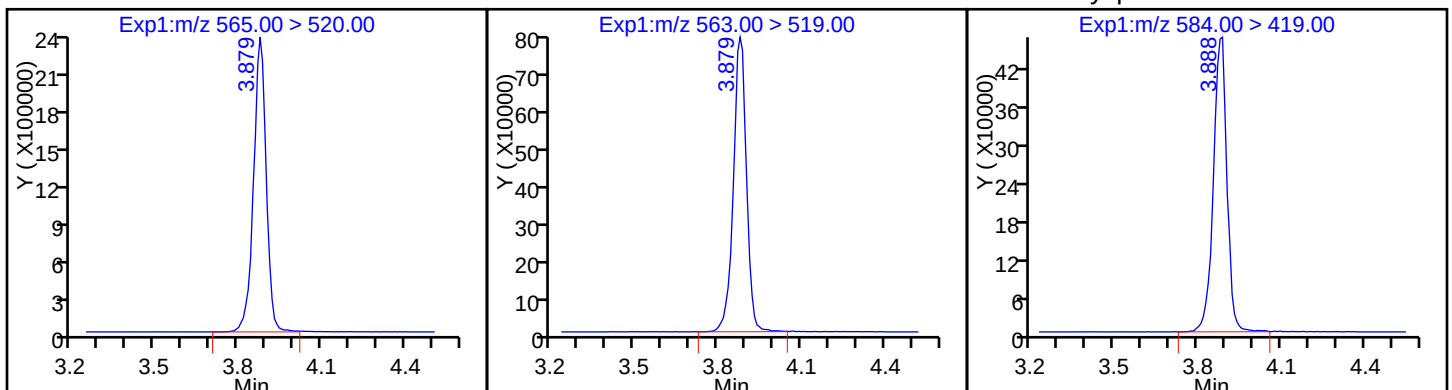
D 32 d5-NEtFOSAA



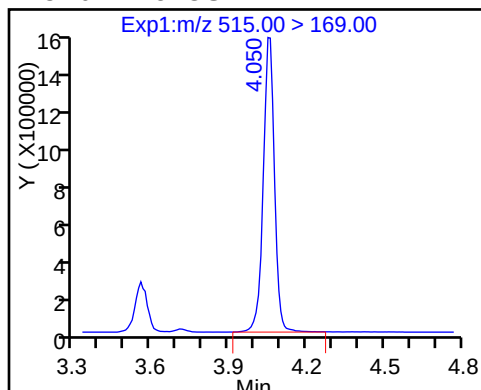
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

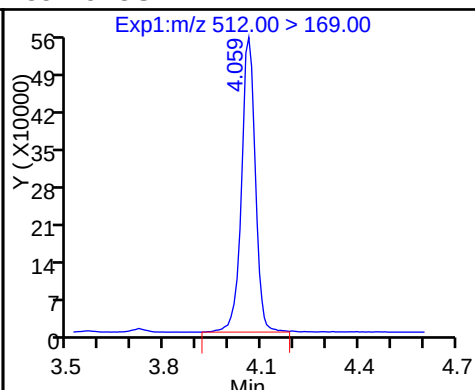
33 N-ethyl perfluorooctane sulfonamid



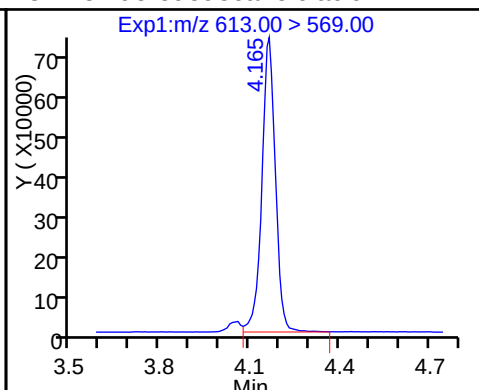
D 34 d-N-MeFOSA-M



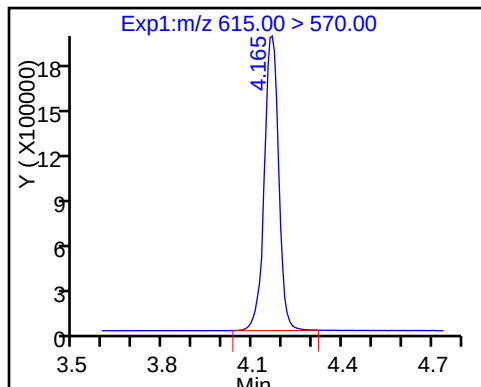
35 MeFOSA



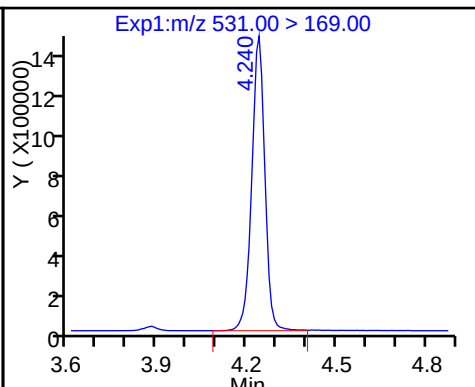
37 Perfluorododecanoic acid



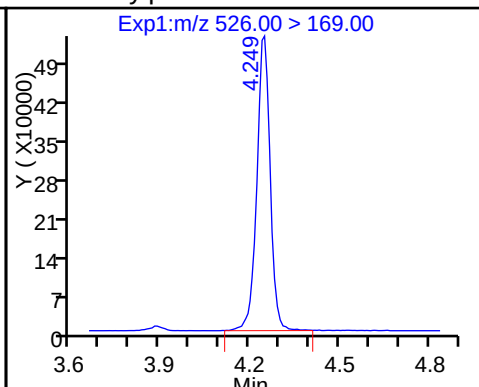
D 36 13C2 PFDaA



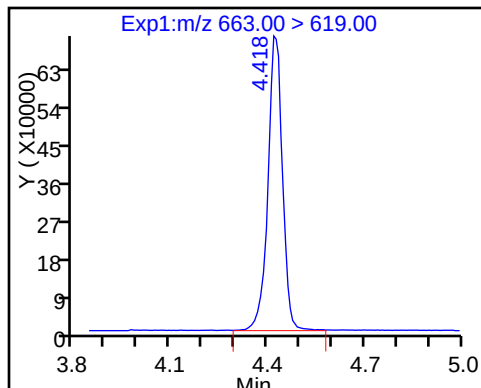
D 38 d-N-EtFOSA-M



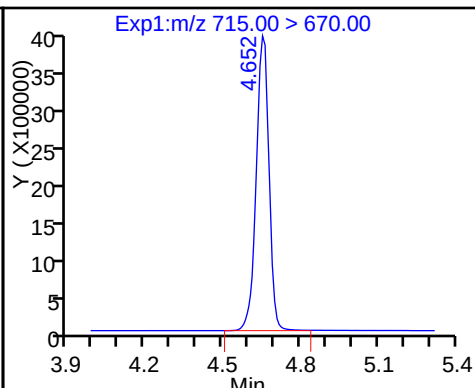
39 N-ethylperfluoro-1-octanesulfonami



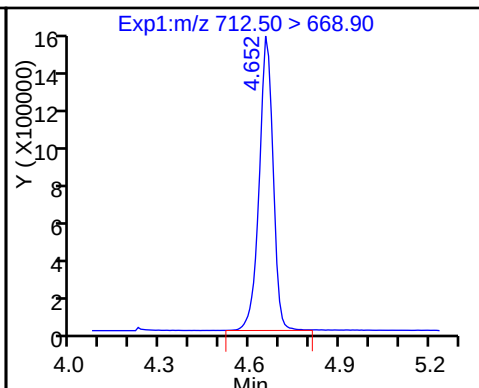
41 Perfluorotridecanoic acid



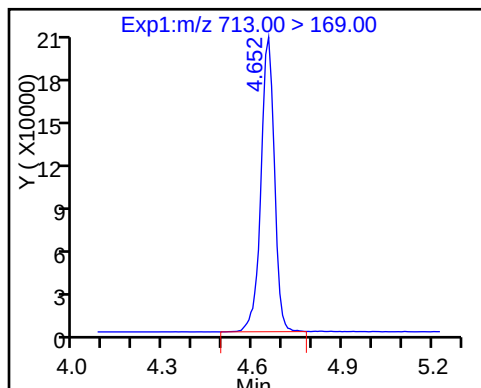
D 43 13C2-PFTeDA



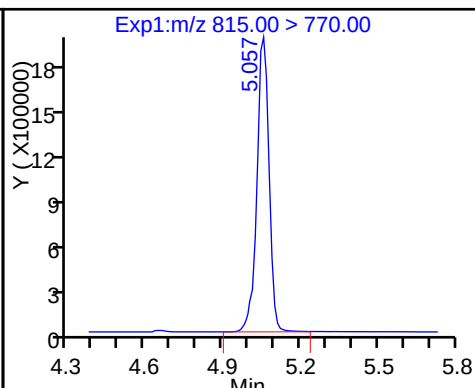
42 Perfluorotetradecanoic acid



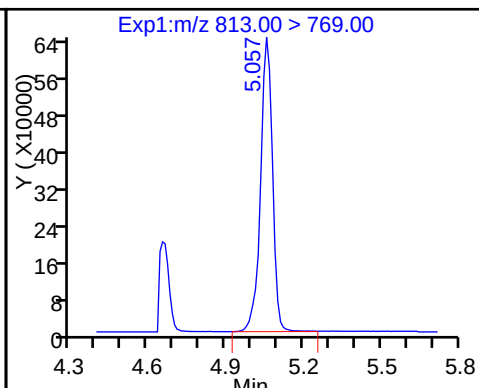
42 Perfluorotetradecanoic acid



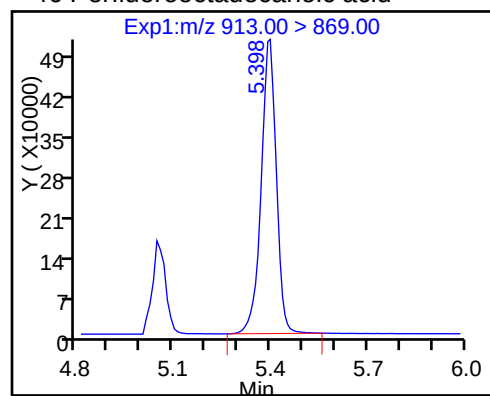
D 44 13C2-PFHxDa



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

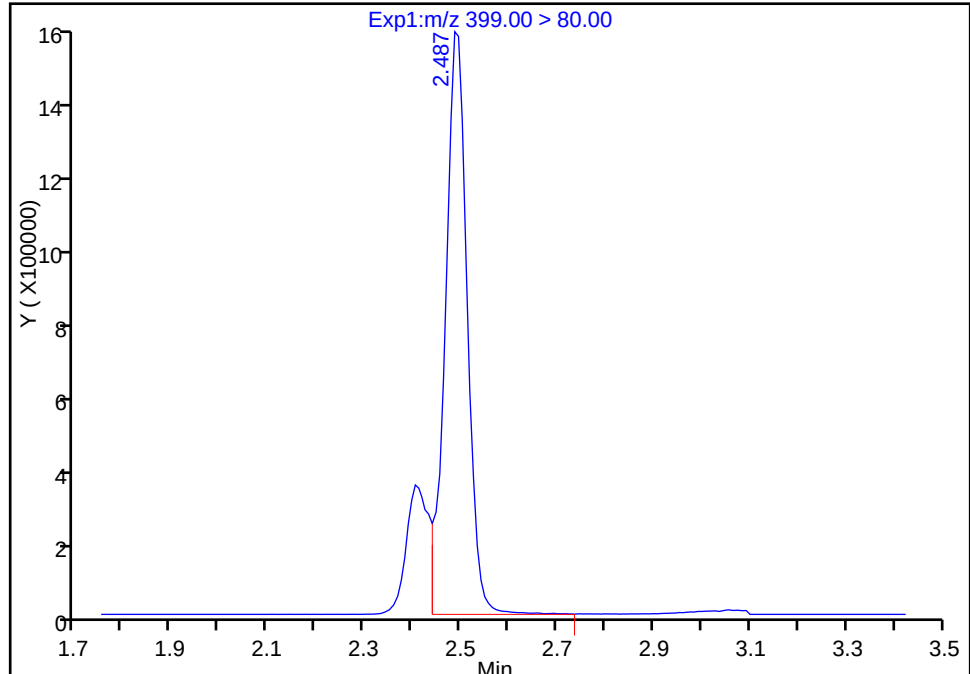
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
Injection Date: 01-Mar-2017 11:31:20 Instrument ID: A8_N
Lims ID: IC L4 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

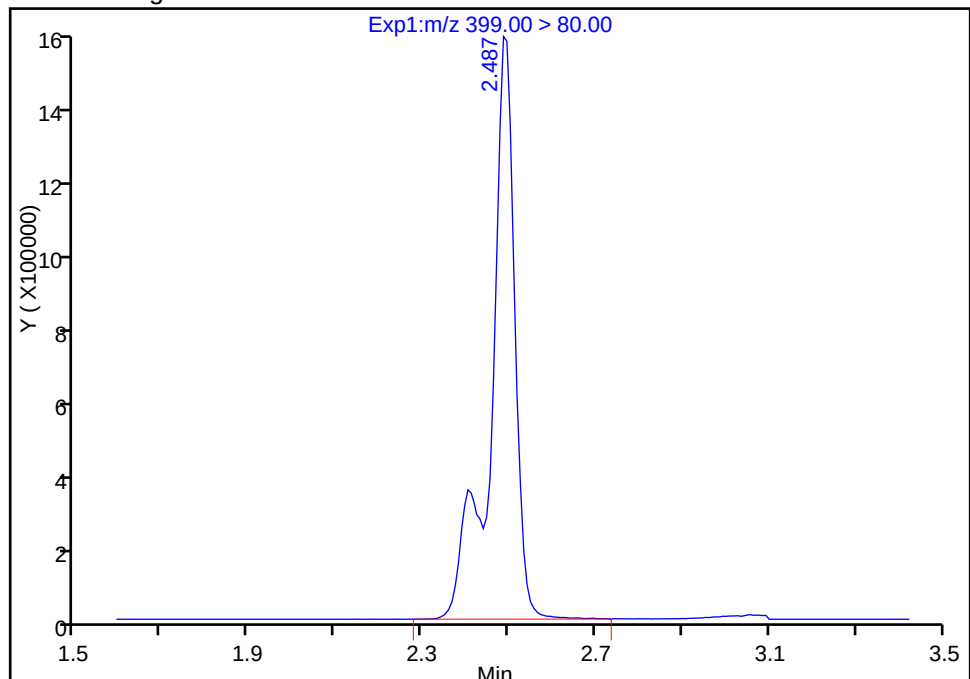
RT: 2.49
Area: 4875110
Amount: 17.771425
Amount Units: ng/ml

Processing Integration Results



RT: 2.49
Area: 5958886
Amount: 17.225343
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:13

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
 Lims ID: IC L5 Full
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 01-Mar-2017 11:38:49 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:16 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 12:02:47

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	1.546	1.553	-0.007		14941160	51.1		102	667479	
2 Perfluorobutyric acid										
212.90 > 169.00	1.554	1.558	-0.004	1.000	13491384	53.3		107	127406	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.832	-0.011		11440005	49.3		98.5	626699	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.831	1.835	-0.004	1.000	11520213	51.5		103	120087	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.871	1.872	-0.001	1.000	19236596	45.5		103		
298.90 > 99.00	1.871	1.872	-0.001	1.000	8170789		2.35(0.00-0.00)	103		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.127	2.133	-0.006	1.000	9710439	50.9		102	233505	
D 7 13C2 PFHxA										
315.00 > 270.00	2.127	2.134	-0.007		10719942	50.8		102	387004	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.466	2.474	-0.008	1.000	9559143	49.7		99.4	84389	
D 9 13C4-PFHpA										
367.00 > 322.00	2.466	2.475	-0.009		9944069	51.5		103	332028	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.481	2.485	-0.004	1.000	13776740	45.4		99.8		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.481	2.489	-0.008		13953506	48.0		101	272613	
D 12 M2-6:2FTS										
429.00 > 409.00	2.793	2.805	-0.012		3650448	47.3		99.6		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.793	2.807	-0.014	1.000	3256270	47.7		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.824	2.835	-0.011	1.000	10343315	50.5		101	113108	
413.00 > 169.00	2.824	2.835	-0.011	1.000	6136507		1.69(0.90-1.10)	101	139975	
D 14 13C4 PFOA										
417.00 > 372.00	2.824	2.835	-0.011		10019820	48.9		97.8	414712	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.831	2.842	-0.011	1.000	12919018	50.5		106		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.087	3.145	-0.058	1.000	11786011	48.3		104	66281	
499.00 > 99.00	3.199	3.145	0.054	1.037	2666087		4.42(0.90-1.10)	104	7715	
20 Perfluorononanoic acid										
463.00 > 419.00	3.191	3.202	-0.011	1.000	8361339	51.7		103	164244	
D 18 13C4 PFOS										
503.00 > 80.00	3.199	3.204	-0.005		11866933	49.1		103	197438	
D 19 13C5 PFNA										
468.00 > 423.00	3.199	3.208	-0.009		8936977	50.2		100	263744	
D 26 M2-8:2FTS										
529.00 > 509.00	3.535	3.545	-0.010		4360731	47.1		98.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.543	3.546	-0.003	1.002	4074481	48.4		101		
D 21 13C8 FOSA										
506.00 > 78.00	3.560	3.559	0.001		18558718	50.6		101	247034	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.552	3.560	-0.008	1.000	7779706	53.2		106	168568	
D 23 13C2 PFDA										
515.00 > 470.00	3.552	3.560	-0.008		8074243	48.4		96.9	187283	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.560	3.561	-0.001	1.000	17500489	52.5		105	422956	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.702	3.710	-0.008		4409894	51.8		104		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.702	3.713	-0.011	1.000	4062831	47.4		94.9		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.859	3.866	-0.007	1.000	7386234	49.9		104		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.867	3.875	-0.008		4108227	50.5		101		
D 30 13C2 PFUnA										
565.00 > 520.00	3.867	3.876	-0.009		6419845	49.1		98.2	215302	M
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.867	3.878	-0.011	1.000	6388091	49.1		98.2	145481	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.876	3.883	-0.007	1.002	3565748	47.7		95.3		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.048	4.050	-0.002		4549448	51.7		103		
35 MeFOSA										
512.00 > 169.00	4.058	4.057	0.001	1.000	4038740	47.4		94.9		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.157	4.162	-0.005	1.000	5939325	52.7		105	93610	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.157	4.164	-0.007		6158791	49.7		99.4	157158	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.241	4.235	0.006		4384481	51.4		103		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.241	4.242	-0.001	1.000	4076562	47.3		94.5		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.424	-0.006	1.000	5662375	52.6		105	111159	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.641	4.655	-0.014		13257413	51.2		102	430727	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.651	4.657	-0.006	1.000	12631200	52.1		104	118223	
713.00 > 169.00	4.651	4.657	-0.006	1.000	1664503		7.59(0.00-0.00)	104	123601	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.049	5.057	-0.008		6606731	52.8		106	93567	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.049	5.059	-0.010	1.000	5695645	49.5		99.0	5357	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.383	5.399	-0.016	1.000	4591929	52.0		104	6139	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d

Injection Date: 01-Mar-2017 11:38:49

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

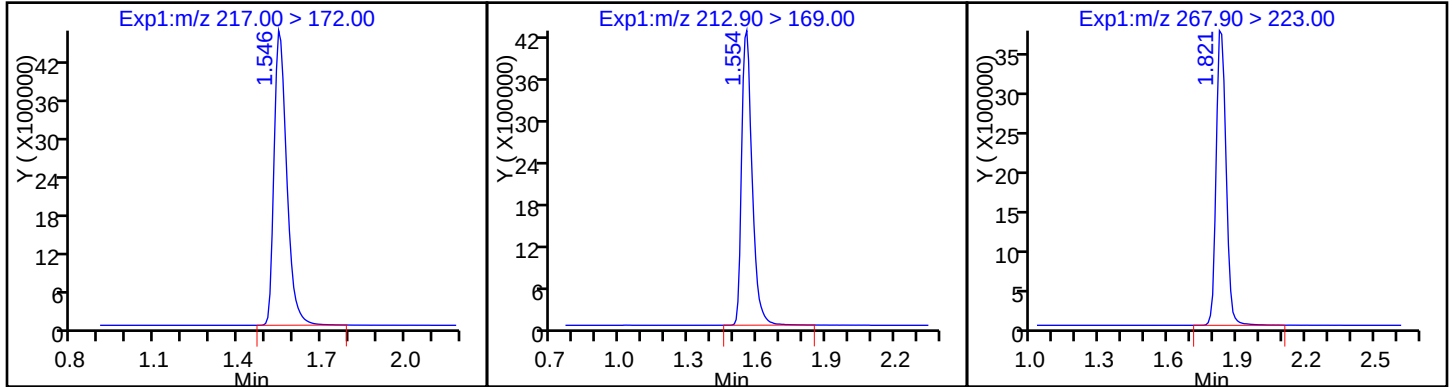
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

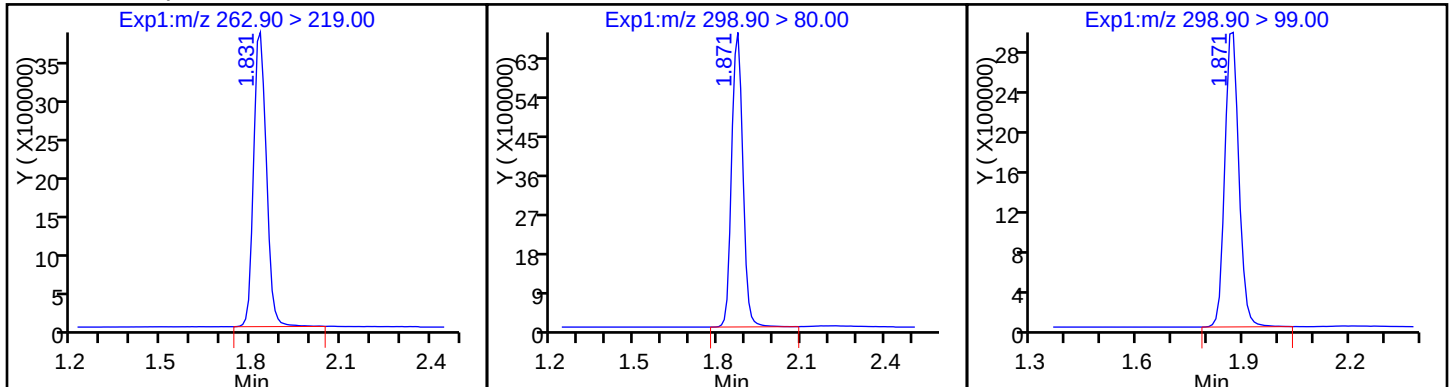
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

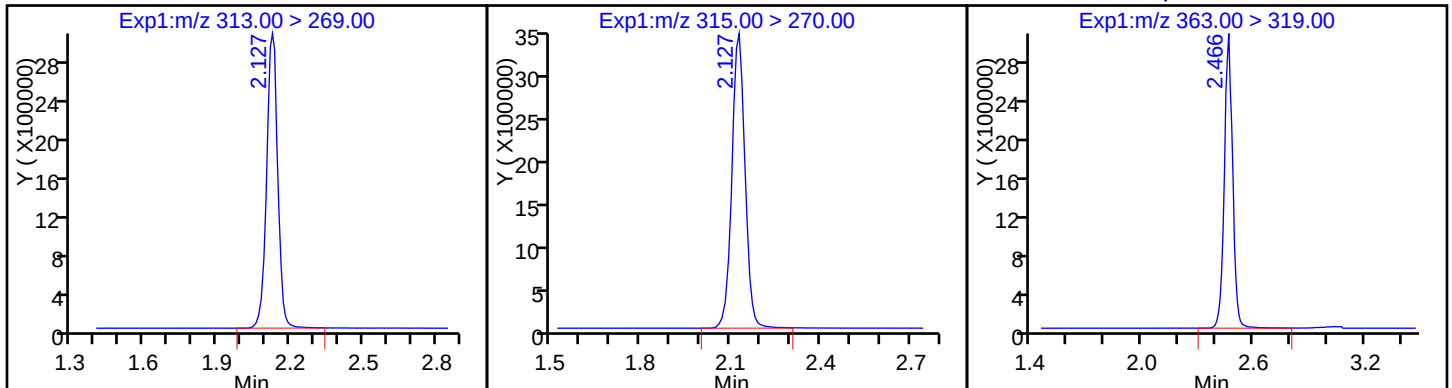
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

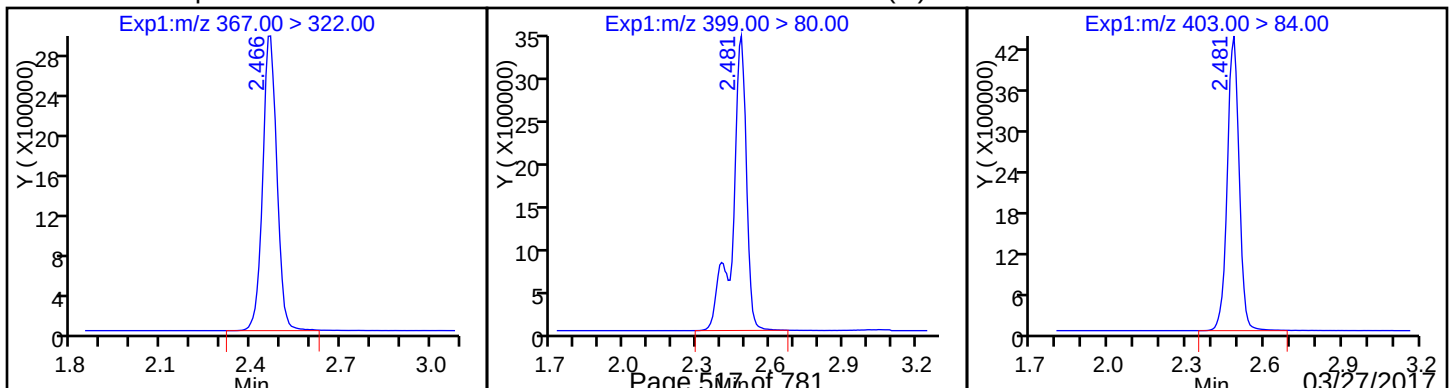
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

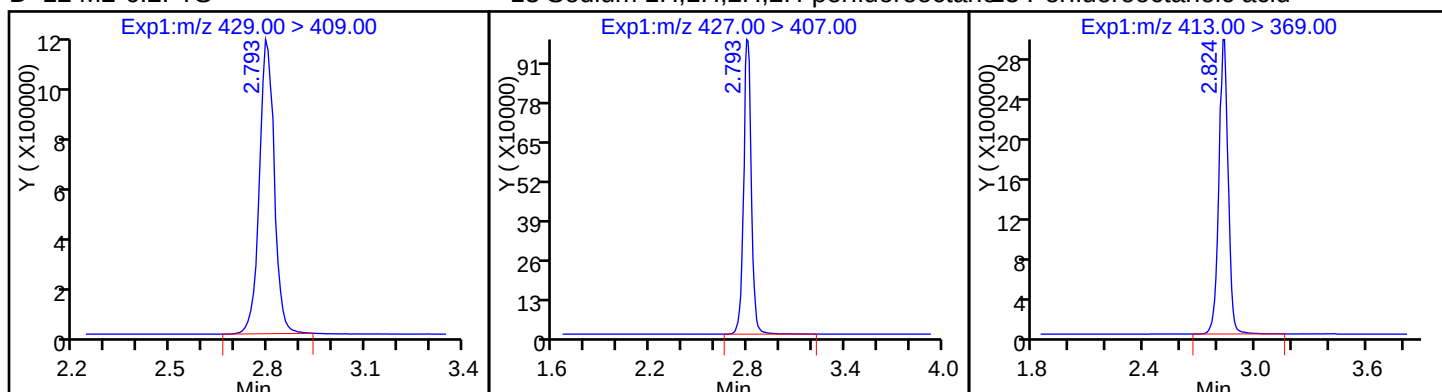
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



D 12 M2-6:2FTS

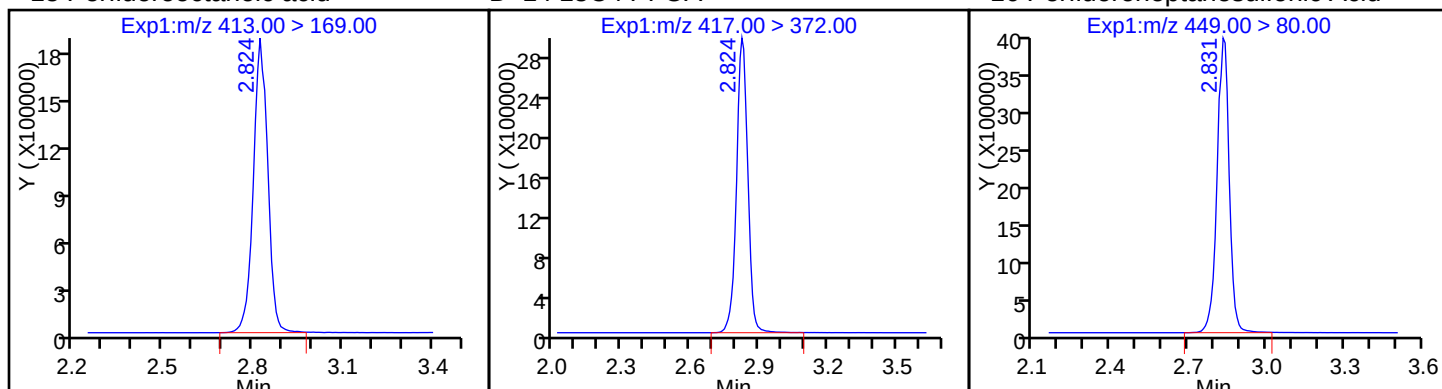
13 Sodium 1H,1H,2H,2H-perfluorooctane



15 Perfluorooctanoic acid

D 14 13C4 PFOA

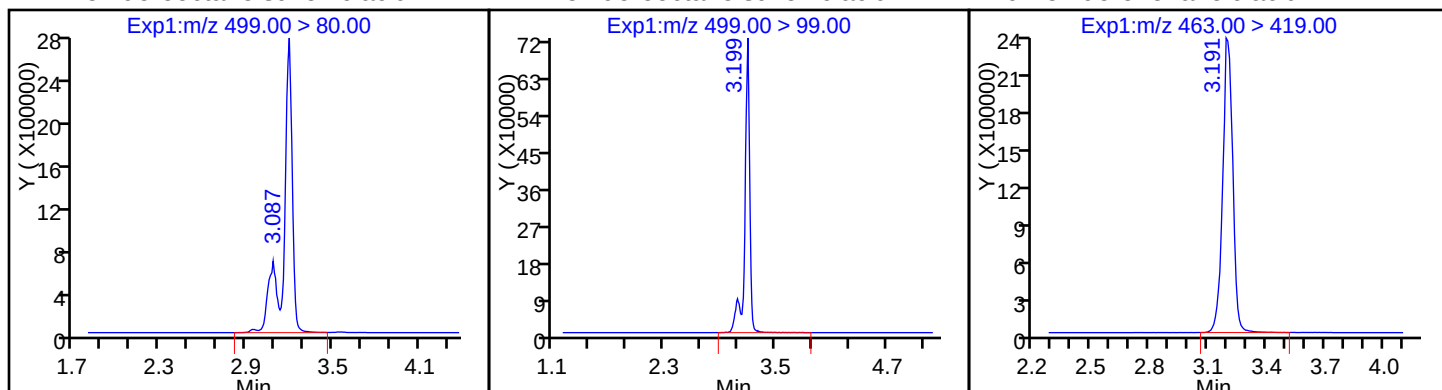
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

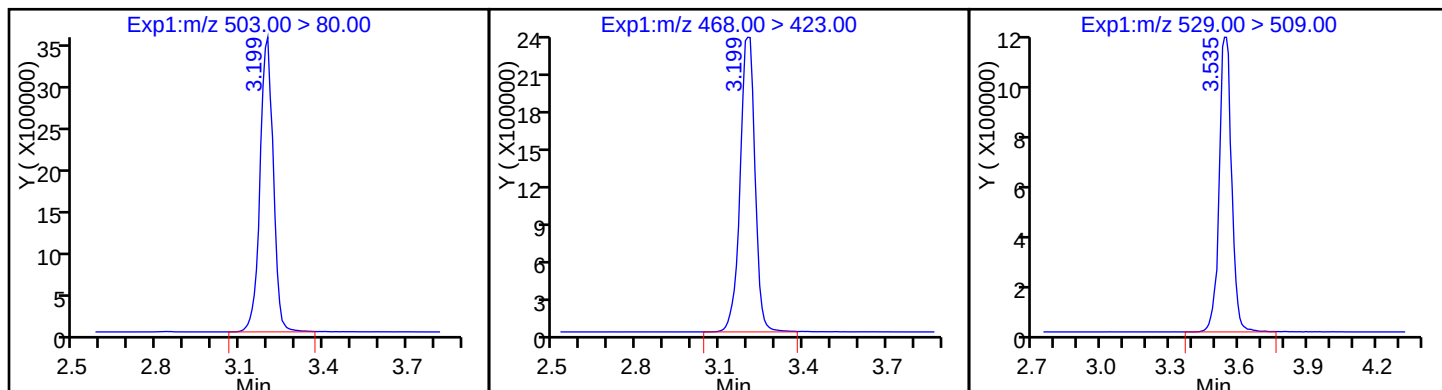
20 Perfluorononanoic acid



D 18 13C4 PFOS

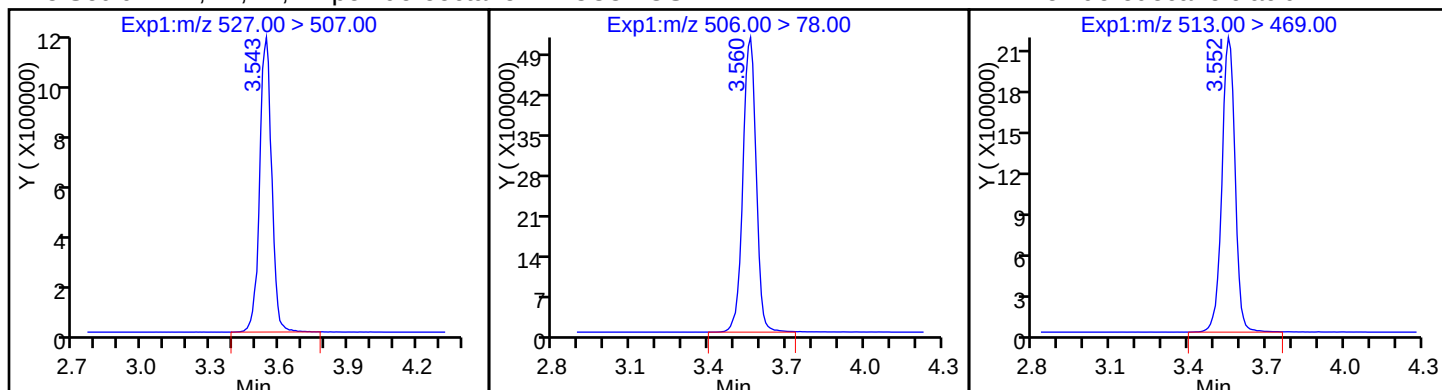
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

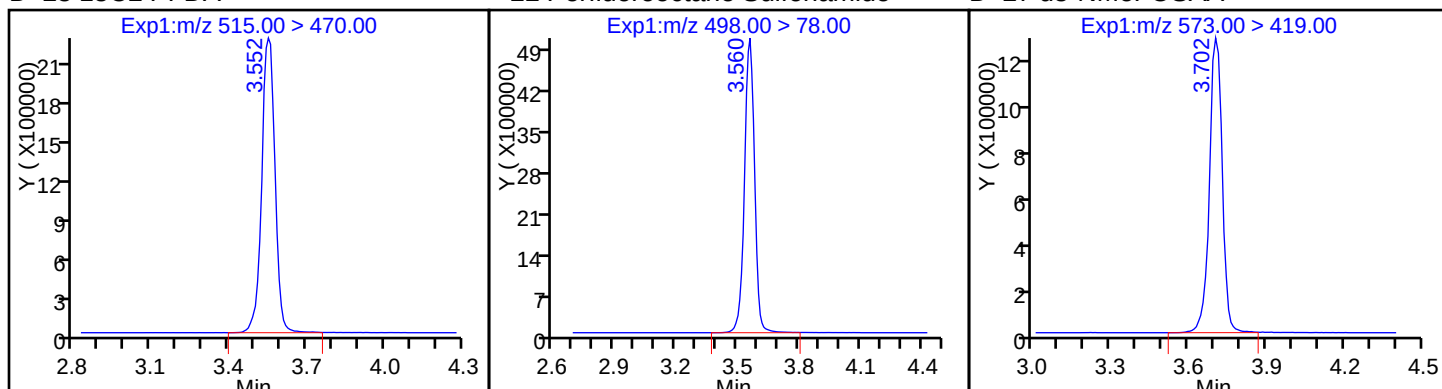
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

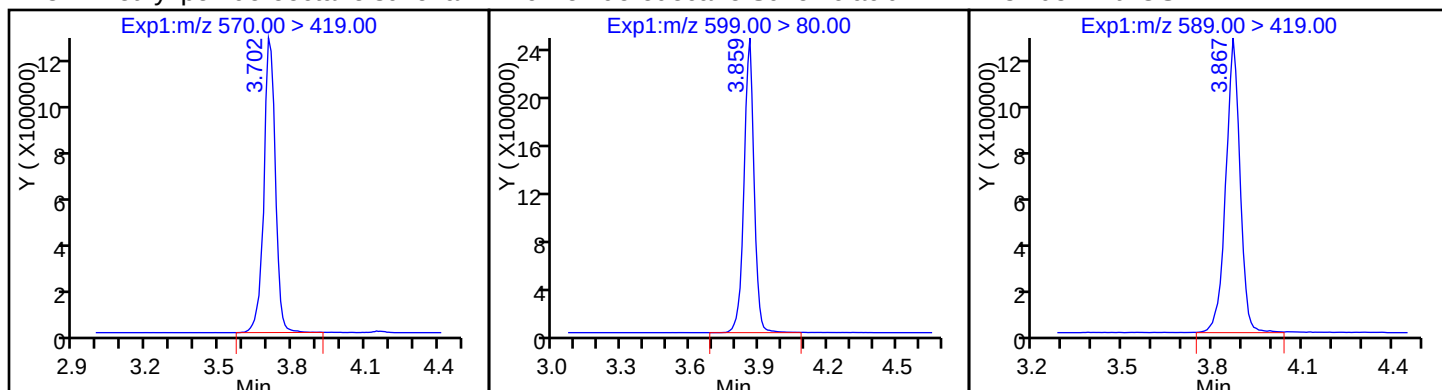
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

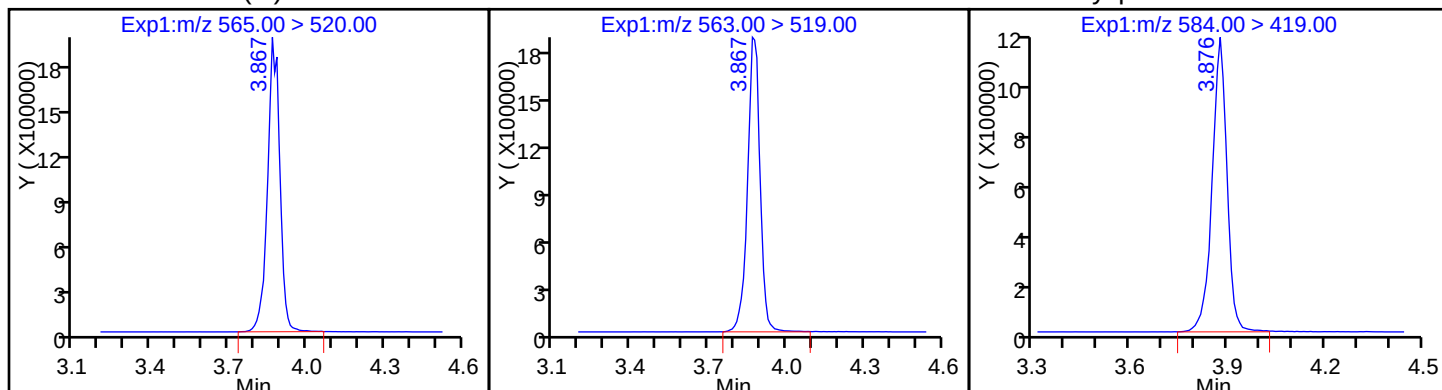
D 32 d5-NEtFOSAA



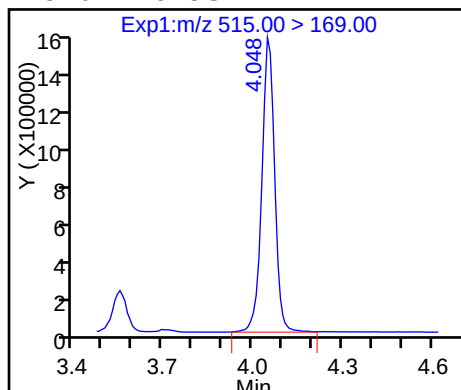
D 30 13C2 PFUnA (M)

31 Perfluoroundecanoic acid

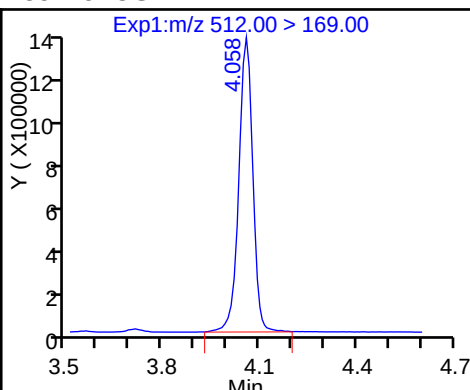
33 N-ethyl perfluorooctane sulfonamid



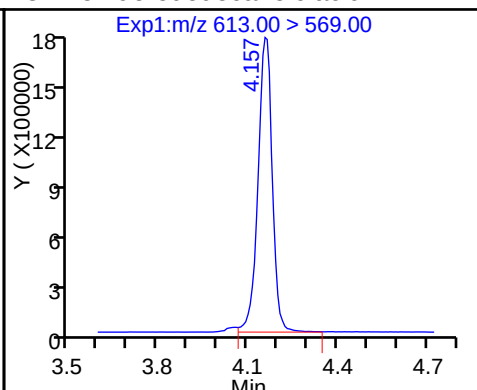
D 34 d-N-MeFOSA-M



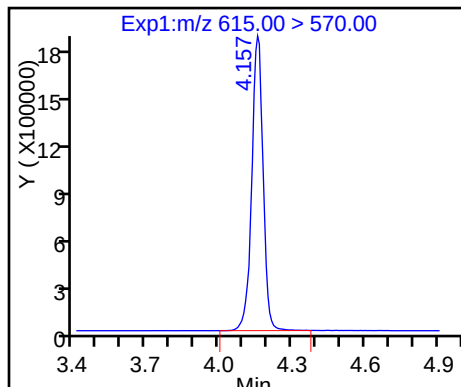
35 MeFOSA



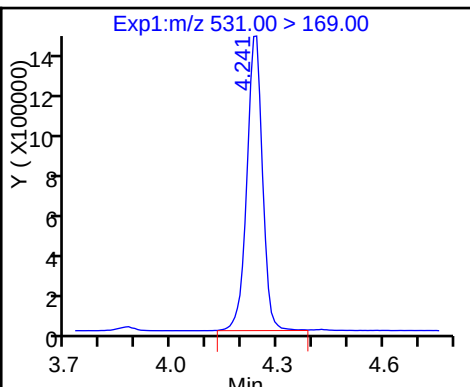
37 Perfluorododecanoic acid



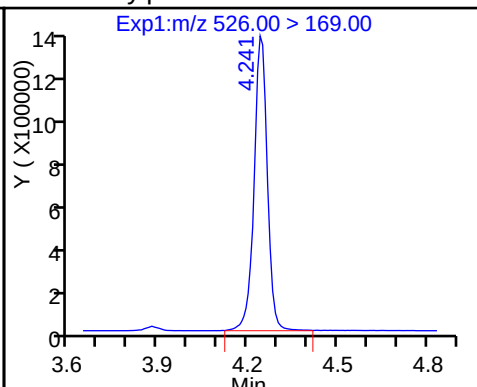
D 36 13C2 PFDaA



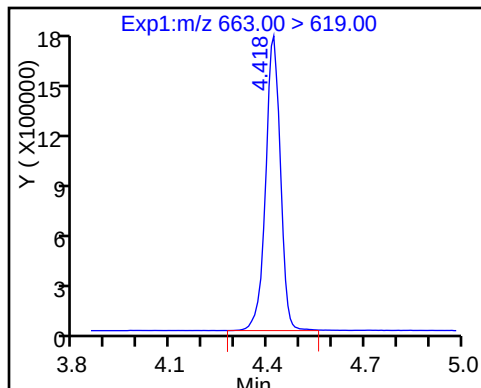
D 38 d-N-EtFOSA-M



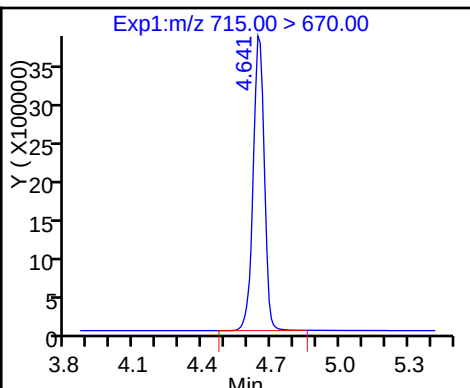
39 N-ethylperfluoro-1-octanesulfonami



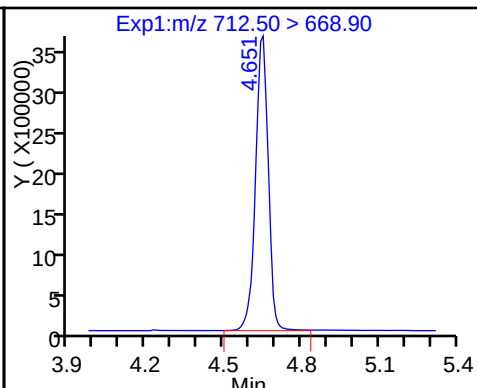
41 Perfluorotridecanoic acid



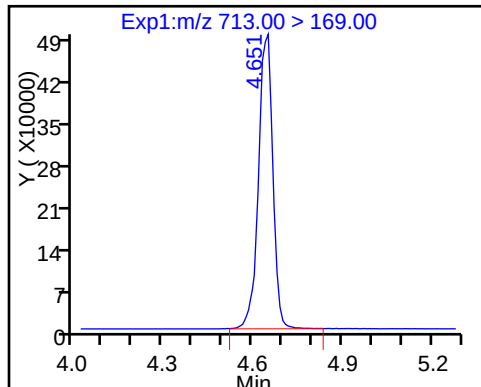
D 43 13C2-PFTeDA



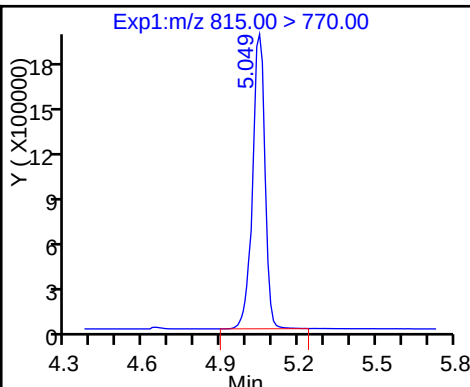
42 Perfluorotetradecanoic acid



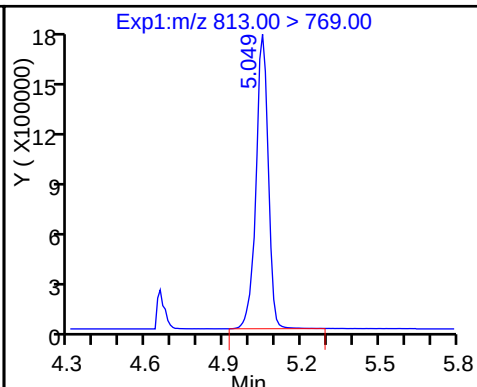
42 Perfluorotetradecanoic acid



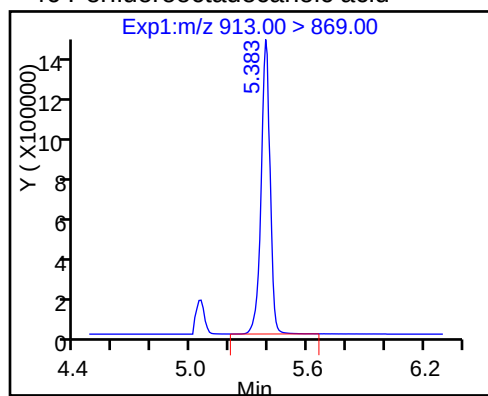
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

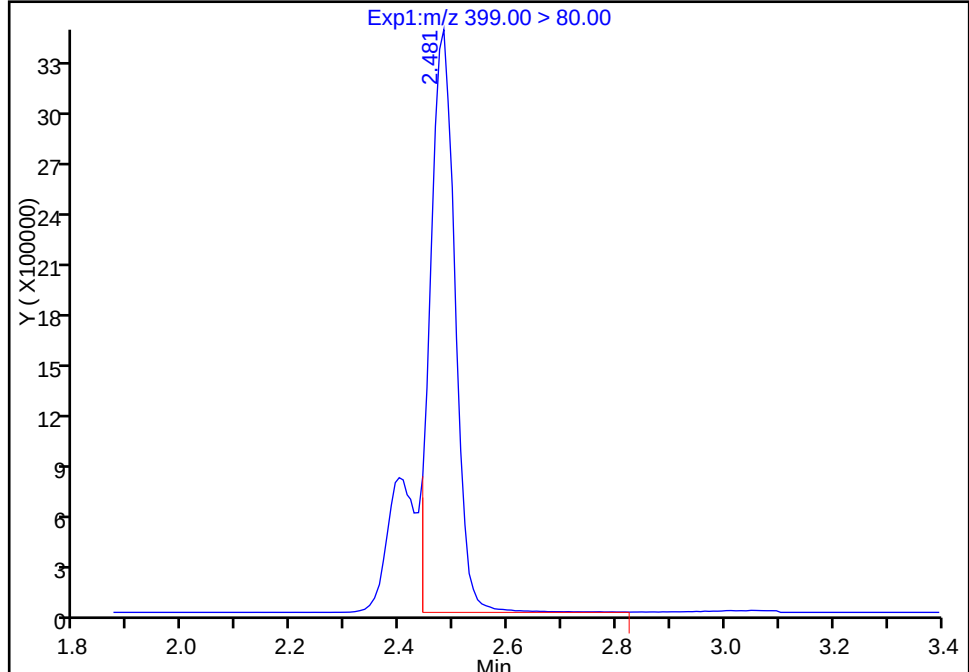
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

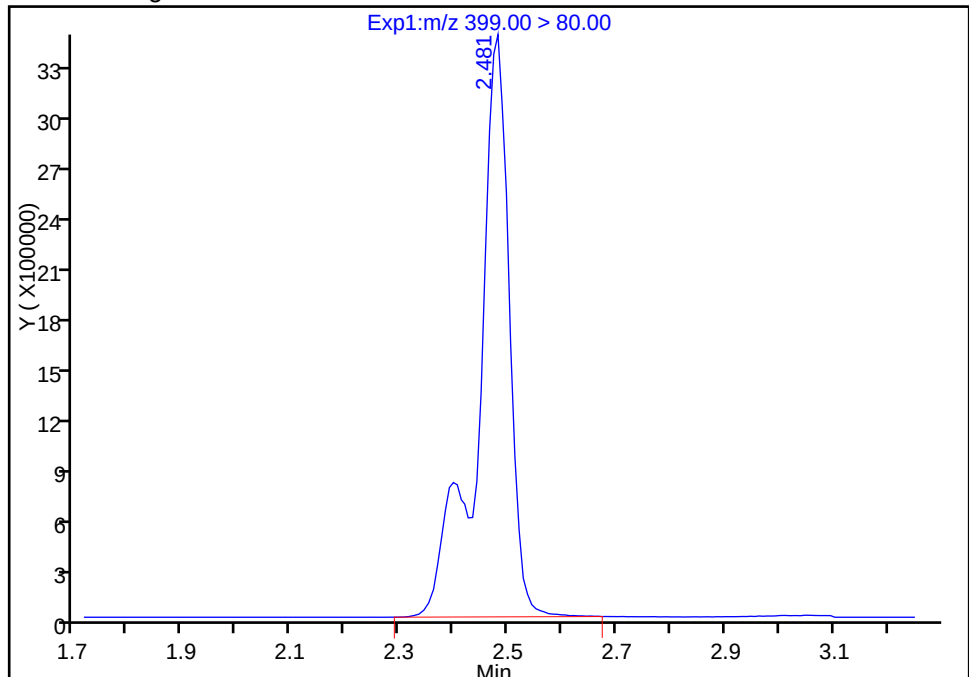
RT: 2.48
Area: 10754320
Amount: 35.081839
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 13776740
Amount: 45.409199
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:15

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d

Injection Date: 01-Mar-2017 11:38:49

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32 Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

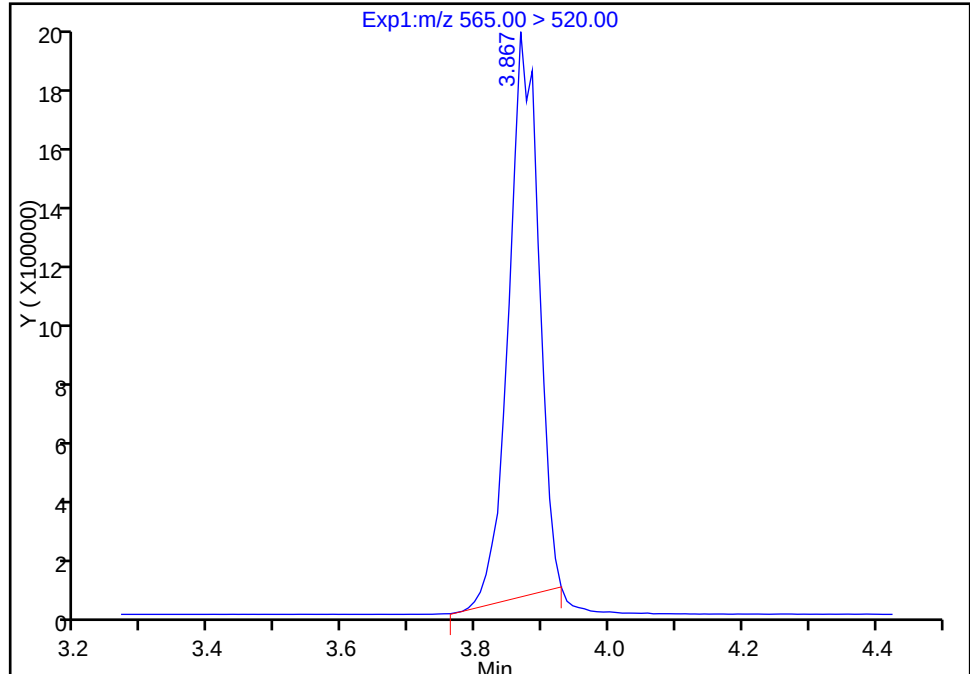
Detector: EXP1

D 30 13C2 PFUnA, CAS: STL00997

Signal: 1

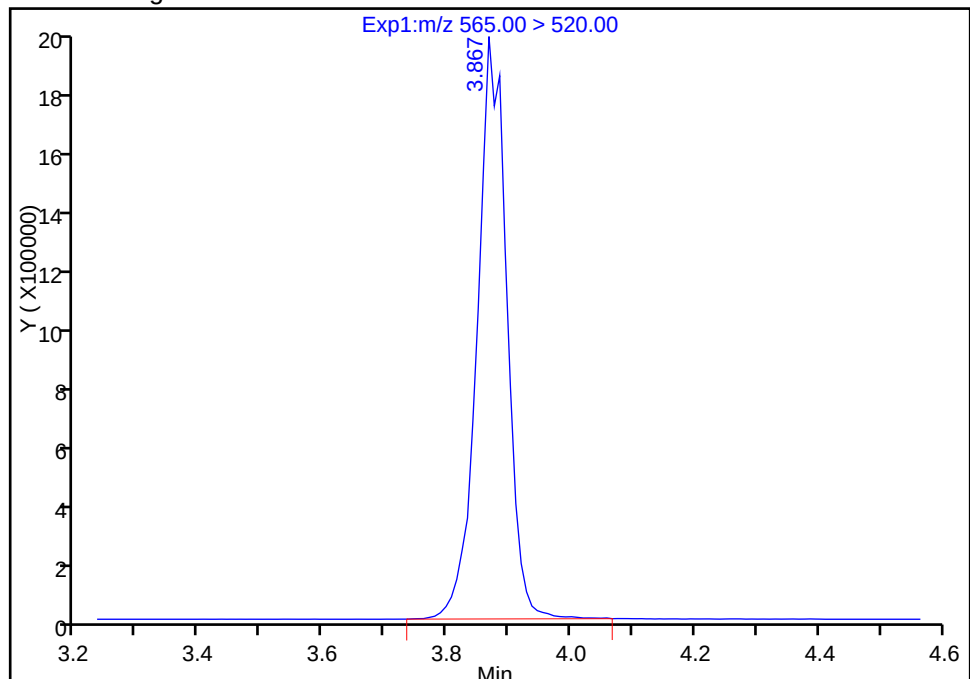
RT: 3.87
Area: 5863845
Amount: 45.473087
Amount Units: ng/ml

Processing Integration Results



RT: 3.87
Area: 6419845
Amount: 49.079386
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:15

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 01-Mar-2017 11:46:18 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:18 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 12:04:21

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	1.546	1.553	-0.007		12268568	42.0		84.0	717990	
2 Perfluorobutyric acid										
212.90 > 169.00	1.554	1.558	-0.004	1.000	37767596	181.7		90.8	312656	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.832	-0.010		9320645	40.1		80.3	792870	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.835	-0.013	1.000	31900088	174.9		87.4	249960	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.872	-0.011	1.000	47824719	141.7		80.1		
298.90 > 99.00	1.861	1.872	-0.011	1.000	24392241		1.96(0.00-0.00)	80.1		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.122	2.133	-0.011	1.000	30367858	188.7		94.4	703737	
D 7 13C2 PFHxA										
315.00 > 270.00	2.122	2.134	-0.012		9044966	42.9		85.8	272049	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.461	2.474	-0.013	1.000	28382869	191.6		95.8	225664	
D 9 13C4-PFHpA										
367.00 > 322.00	2.461	2.475	-0.014		7657909	39.7		79.4	207490	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.478	2.485	-0.007	1.000	42133990	173.8		95.5		
D 11 18O2 PFHxS										
403.00 > 84.00	2.478	2.489	-0.011		11147782	38.3		81.0	329095	
D 12 M2-6:2FTS										
429.00 > 409.00	2.789	2.805	-0.016		3409307	44.2		93.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.797	2.807	-0.010	1.000	11262289	177.0		93.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.820	2.835	-0.015		7688496	37.5		75.0	192123	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.820	2.835	-0.015	1.000	29743583	189.3		94.7	342015	
413.00 > 169.00	2.813	2.835	-0.022	0.997	18781119		1.58(0.90-1.10)	94.7	380819	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.828	2.842	-0.014	1.000	36282267	168.5		88.5		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.186	3.145	0.041	1.000	39756569	193.5		104	230631	M
499.00 > 99.00	3.195	3.145	0.050	1.003	9596909		4.14(0.90-1.10)	104	294050	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.186	3.202	-0.016	1.000	26057481	206.4		103	338058	
D 18 13C4 PFOS										
503.00 > 80.00	3.186	3.204	-0.018		9985826	41.3		86.5	102426	
D 19 13C5 PFNA										
468.00 > 423.00	3.195	3.208	-0.013		6983620	39.3		78.5	207659	
D 26 M2-8:2FTS										
529.00 > 509.00	3.523	3.545	-0.022		3659550	39.5		82.5		M
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.523	3.546	-0.023	1.000	12220206	173.0		90.3		M
D 21 13C8 FOSA										
506.00 > 78.00	3.548	3.559	-0.011		15188110	41.4		82.8	281288	
D 23 13C2 PFDA										
515.00 > 470.00	3.548	3.560	-0.012		6226569	37.4		74.7	124238	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.548	3.560	-0.012	1.000	24265114	215.2		108	364832	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.557	3.561	-0.004	1.000	47690261	174.7		87.4	485165	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.696	3.710	-0.014		4115011	48.3		96.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.707	3.713	-0.006	1.003	16290792	203.8		102		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.853	3.866	-0.013	1.000	24675284	198.3		103		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.862	3.875	-0.013		3122900	38.4		76.8		
D 30 13C2 PFUnA										
565.00 > 520.00	3.862	3.876	-0.014		4771549	36.5		73.0	166160	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.878	-0.016	1.000	18672321	193.0		96.5	304259	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.871	3.883	-0.012	1.002	11906031	209.4		105		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.042	4.050	-0.008		4433562	50.4		101		
35 MeFOSA										
512.00 > 169.00	4.051	4.057	-0.006	1.000	17219029	207.6		104		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.138	4.162	-0.024	1.000	19408225	199.4		99.7	329427	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										M
615.00 > 570.00	4.152	4.164	-0.012		5320903	42.9		85.9	133785	M
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.227	4.235	-0.008		4425922	51.9		104		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.236	4.242	-0.006	1.000	17404238	199.9		99.9		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.407	4.424	-0.017	1.000	18379771	197.7		98.9	284610	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.635	4.655	-0.020		11353892	43.8		87.6	278458	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.635	4.657	-0.022	1.000	39468467	188.6		94.3	283243	
713.00 > 169.00	4.635	4.657	-0.022	1.000	6001611		6.58(0.00-0.00)	94.3	215597	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.035	5.057	-0.022		5879424	47.0		94.0	81025	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.046	5.059	-0.013	1.000	20137749	203.8		102	23053	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.375	5.399	-0.024	1.000	17831844	233.5		117	22435	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L6_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d

Injection Date: 01-Mar-2017 11:46:18

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

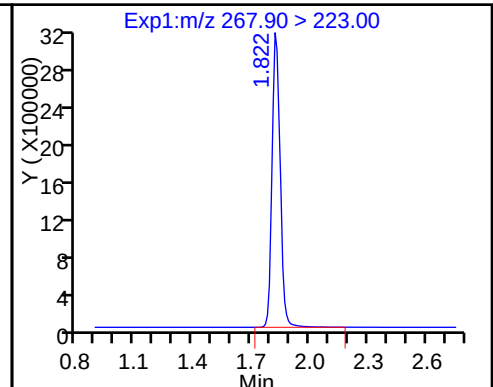
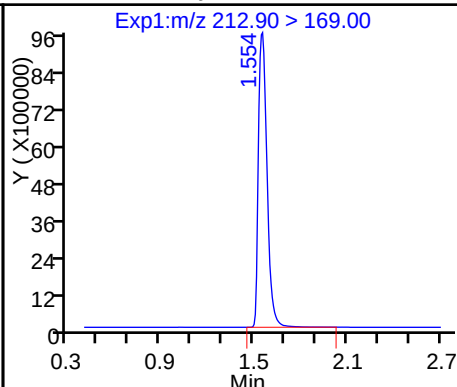
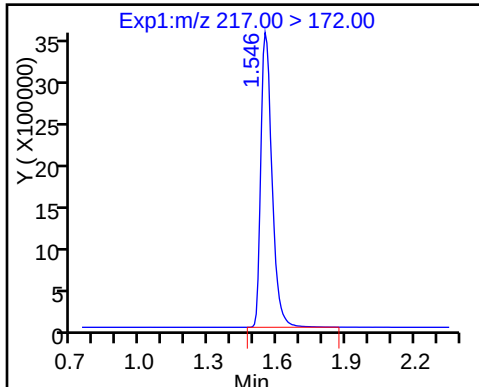
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

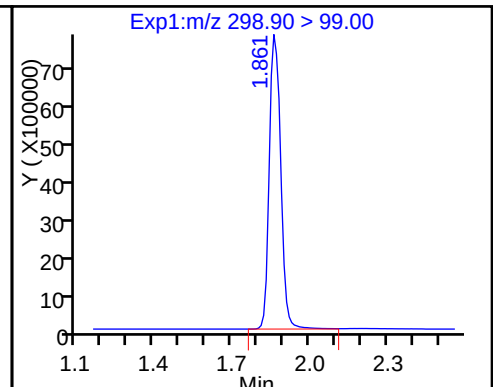
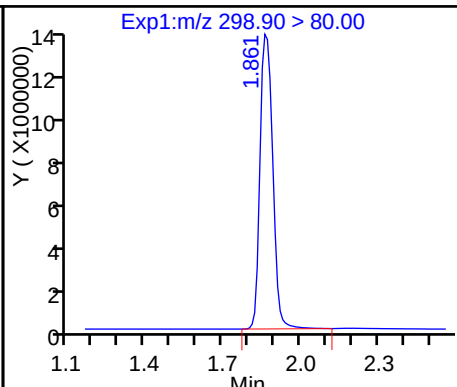
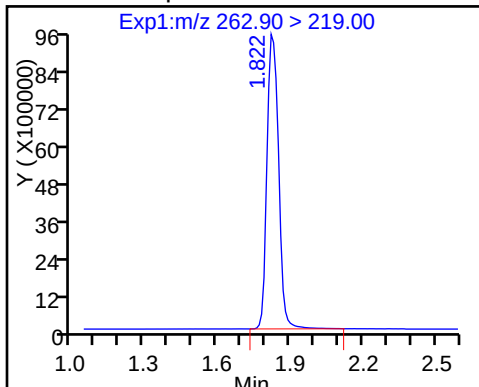
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

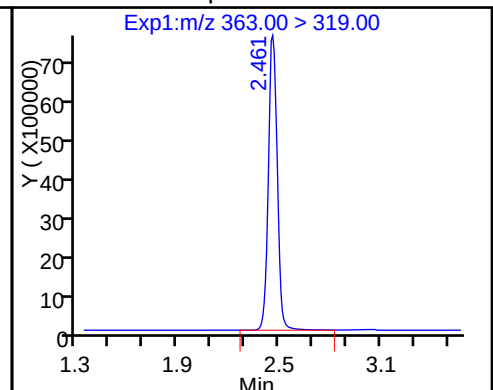
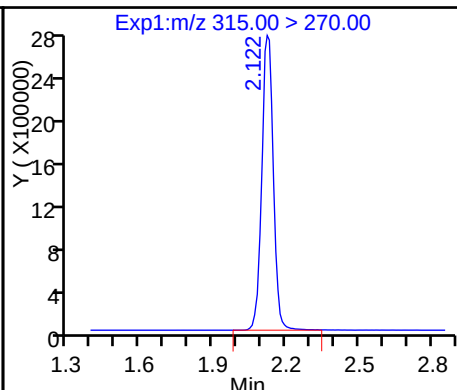
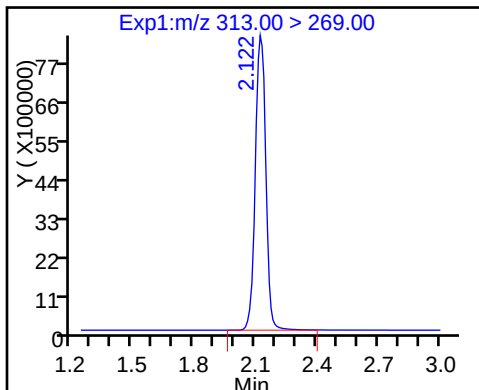
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

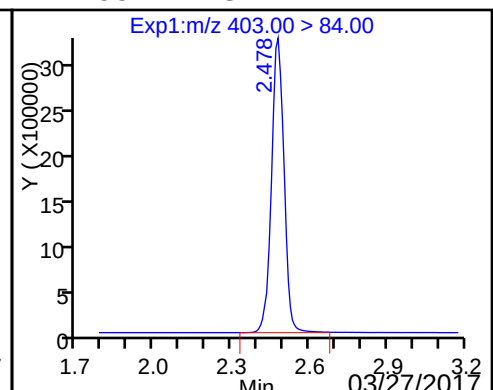
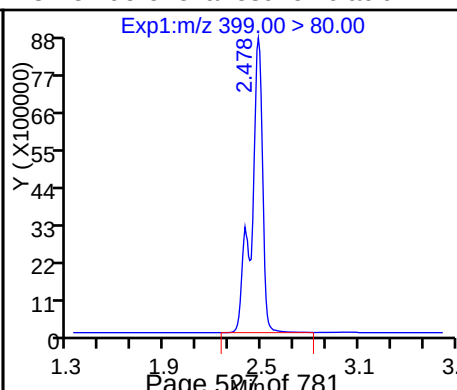
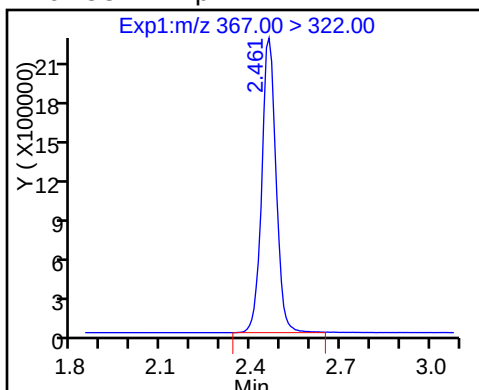
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

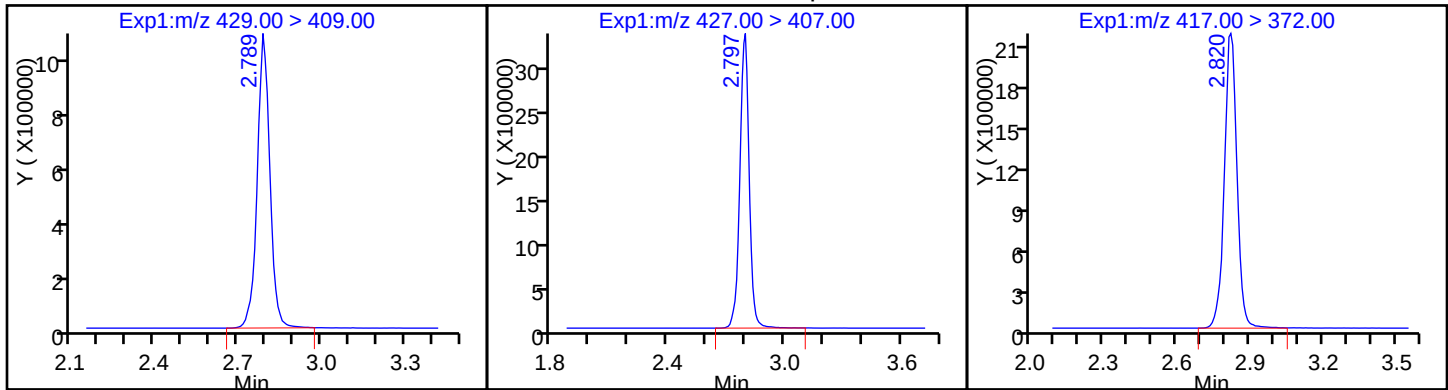
D 11 18O2 PFHxS



D 12 M2-6:2FTS

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

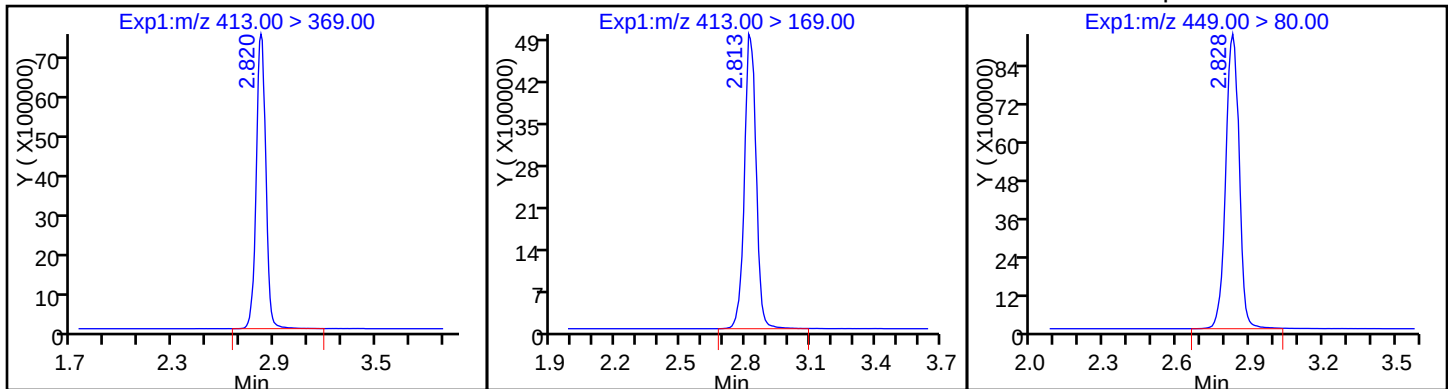
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

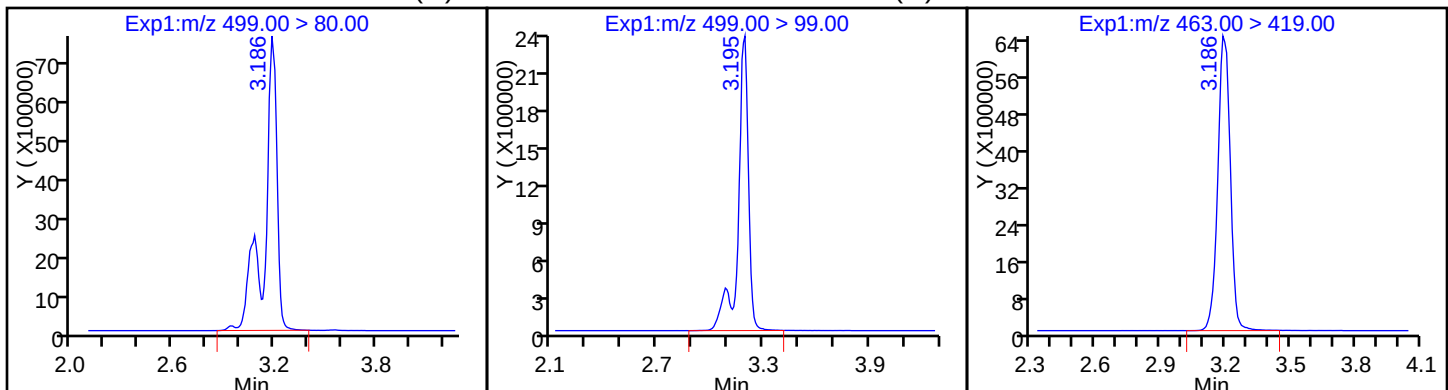
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

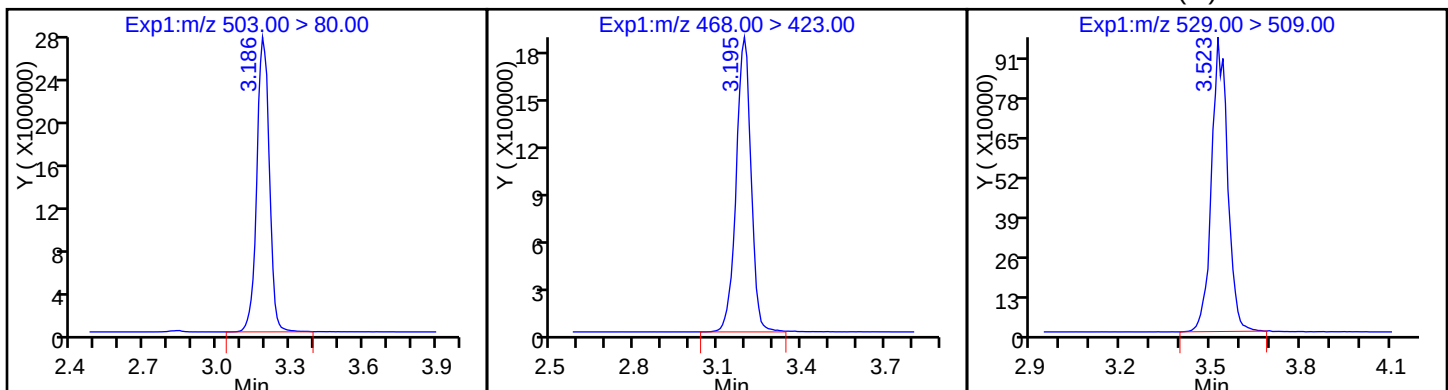
20 Perfluorononanoic acid



D 18 13C4 PFOS

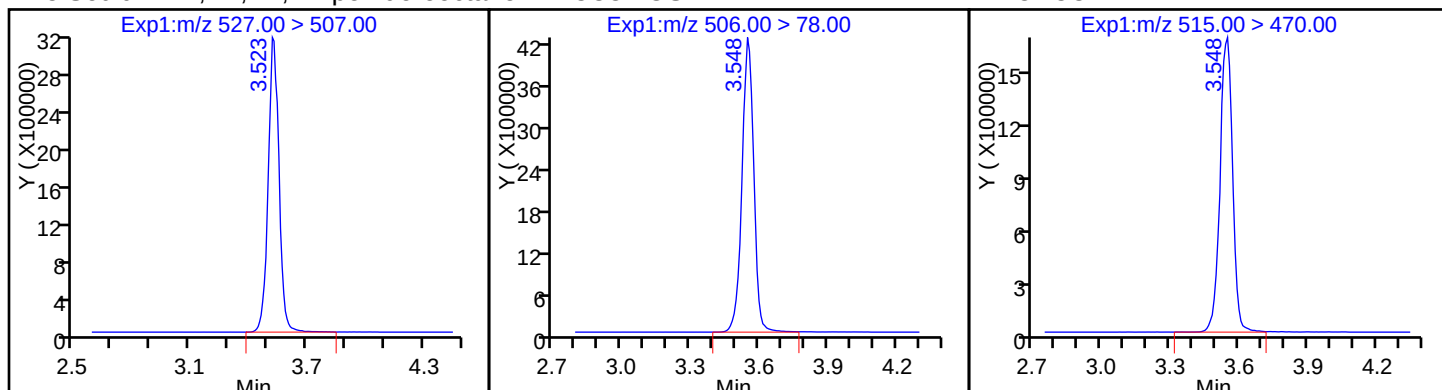
D 19 13C5 PFNA

D 26 M2-8:2FTS (M)



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

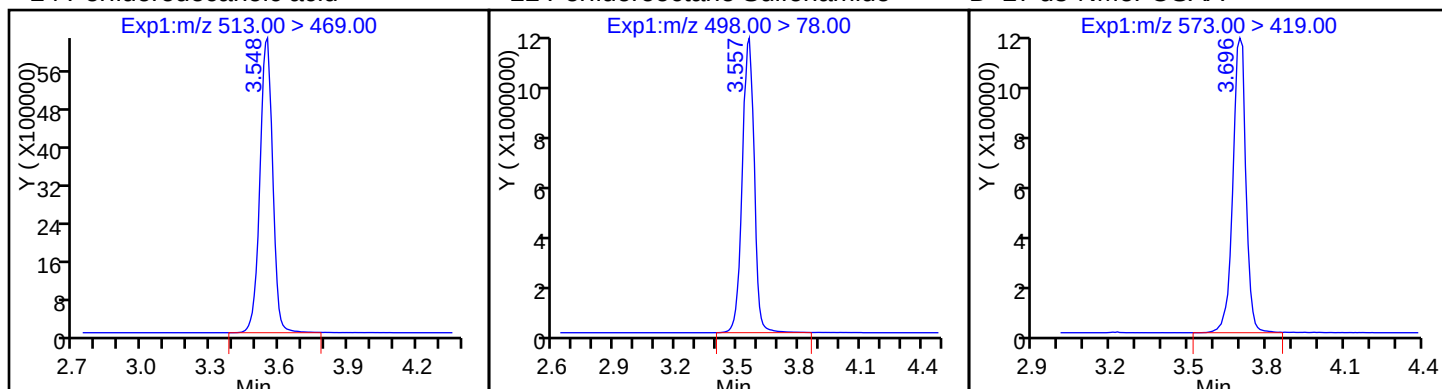
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

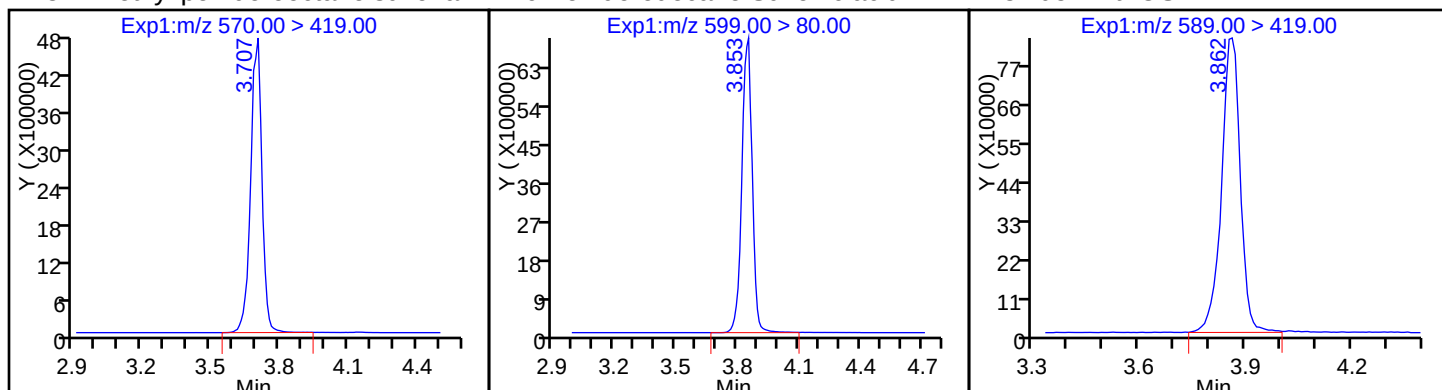
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

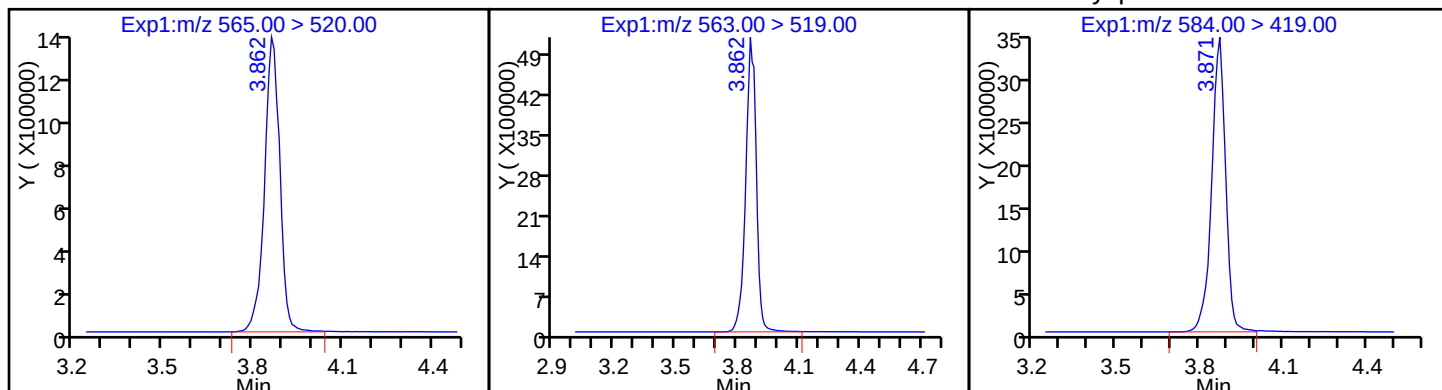
D 32 d5-NEtFOSAA



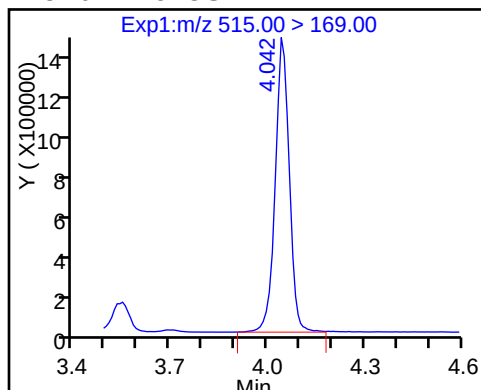
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

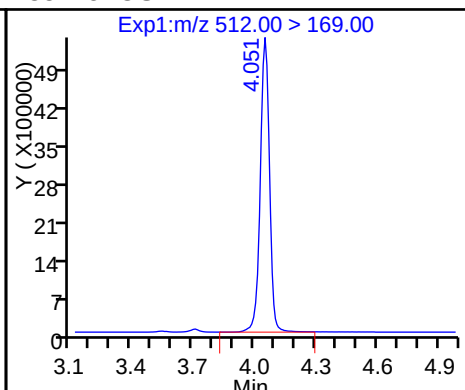
33 N-ethyl perfluorooctane sulfonamid



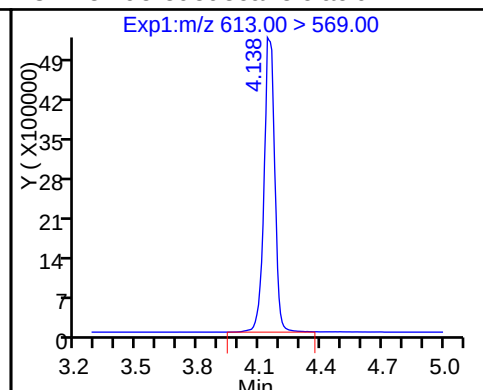
D 34 d-N-MeFOSA-M



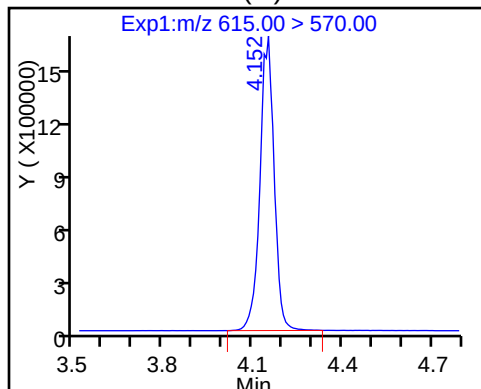
35 MeFOSA



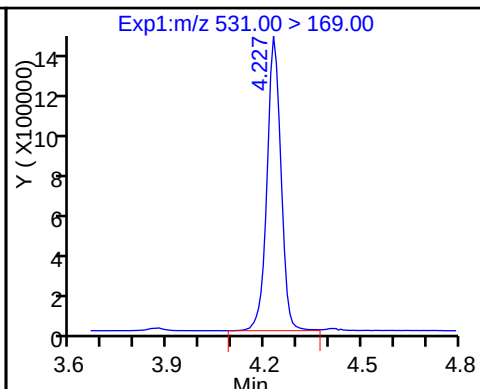
37 Perfluorododecanoic acid



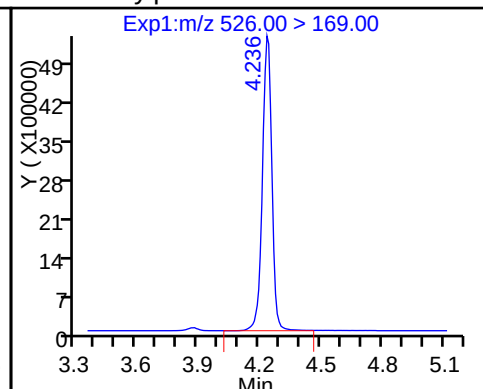
D 36 13C2 PFDa (M)



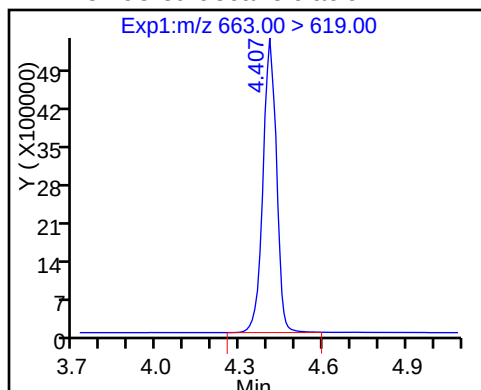
D 38 d-N-EtFOSA-M



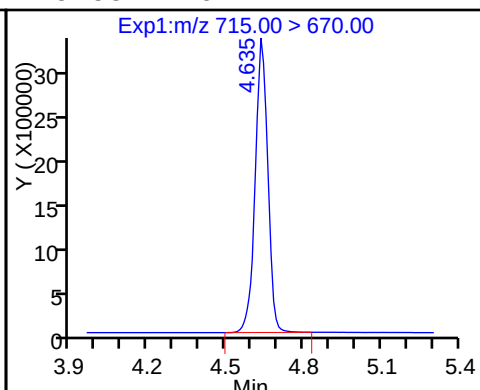
39 N-ethylperfluoro-1-octanesulfonami



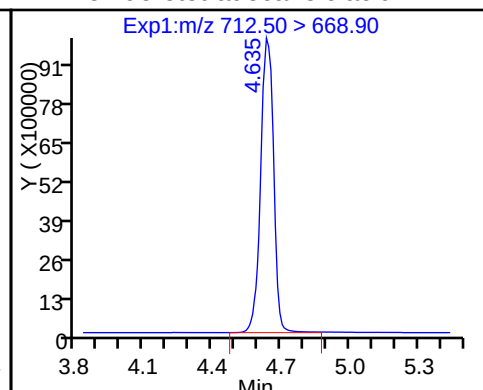
41 Perfluorotridecanoic acid



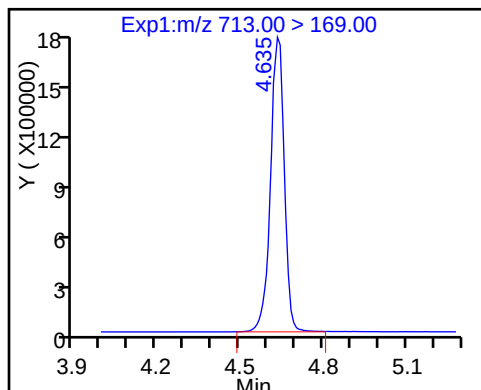
D 43 13C2-PFTeDA



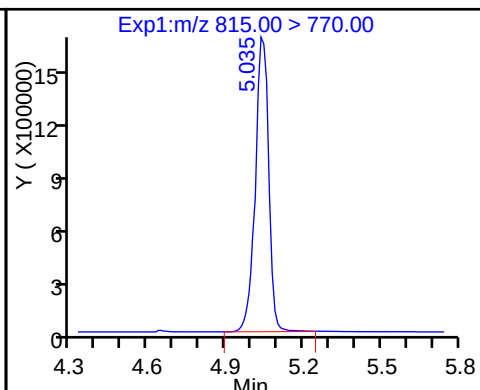
42 Perfluorotetradecanoic acid



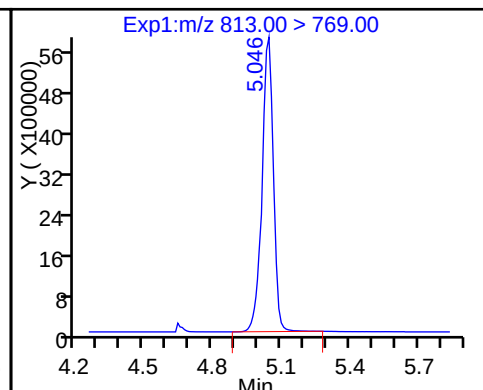
42 Perfluorotetradecanoic acid



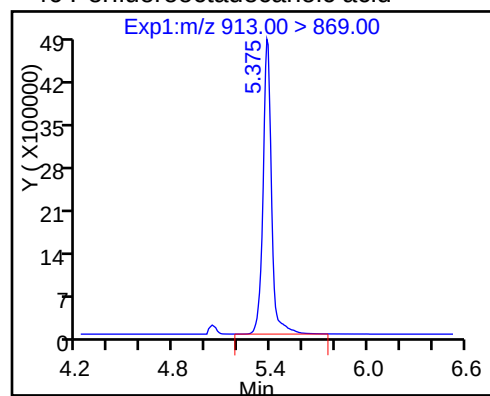
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d

Injection Date: 01-Mar-2017 11:46:18

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#:

33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

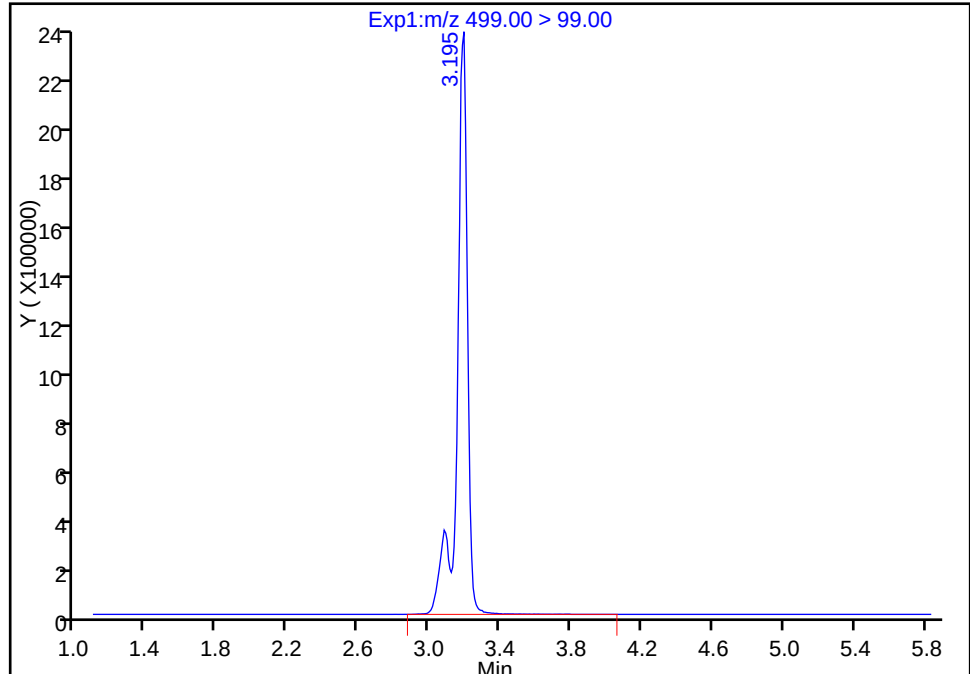
Detector EXP1

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

Signal: 2

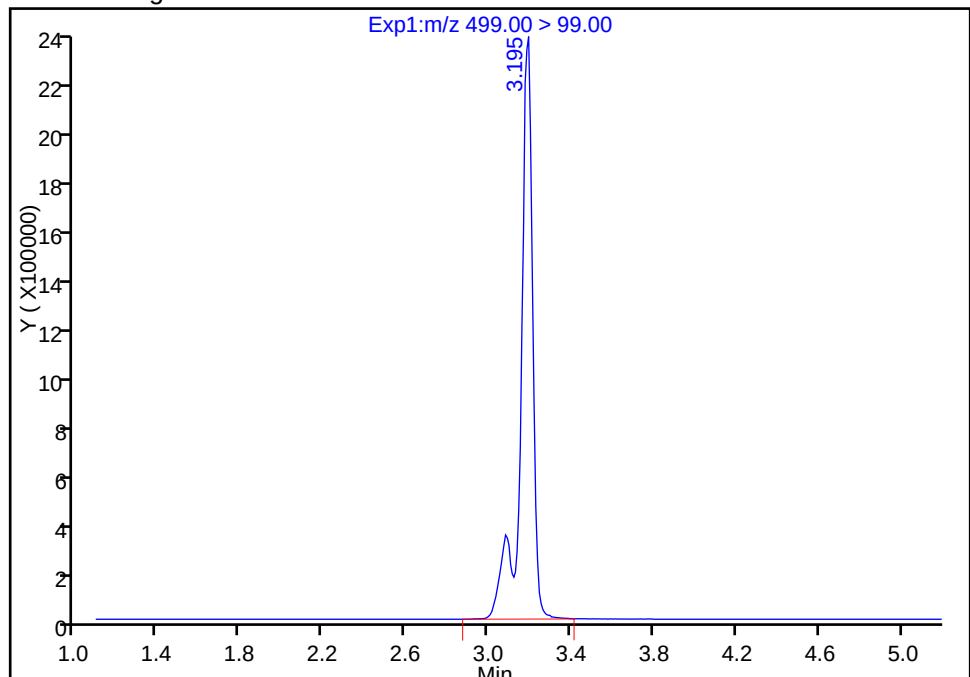
RT: 3.19
Area: 9641533
Amount: 146.9287
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 9596909
Amount: 193.5024
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d

Injection Date: 01-Mar-2017 11:46:18

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: A8-PCVA8

ALS Bottle#: 33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

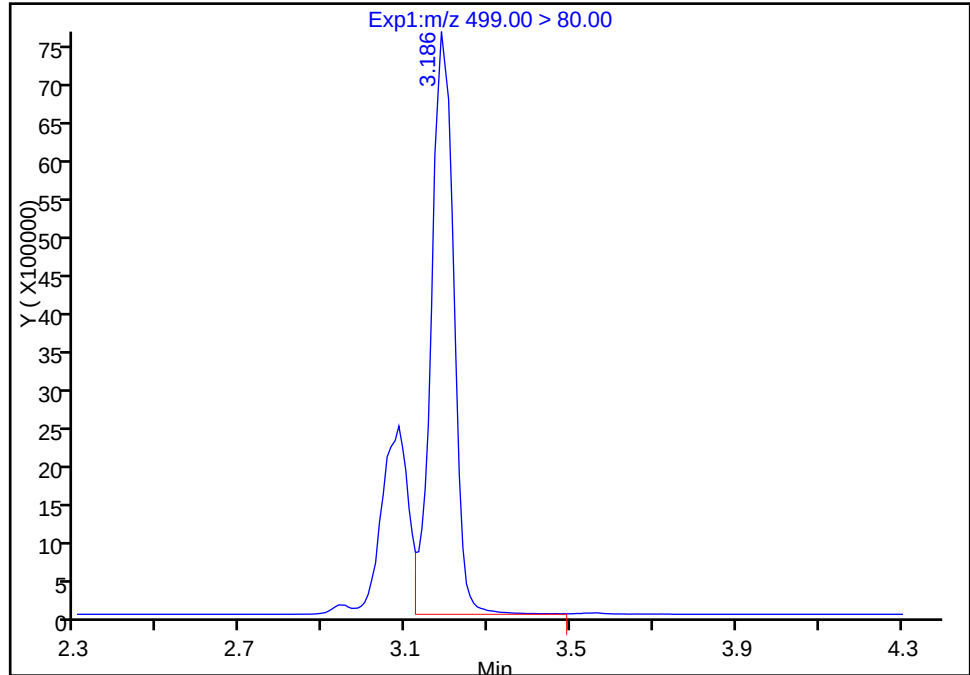
Detector EXP1

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

Signal: 1

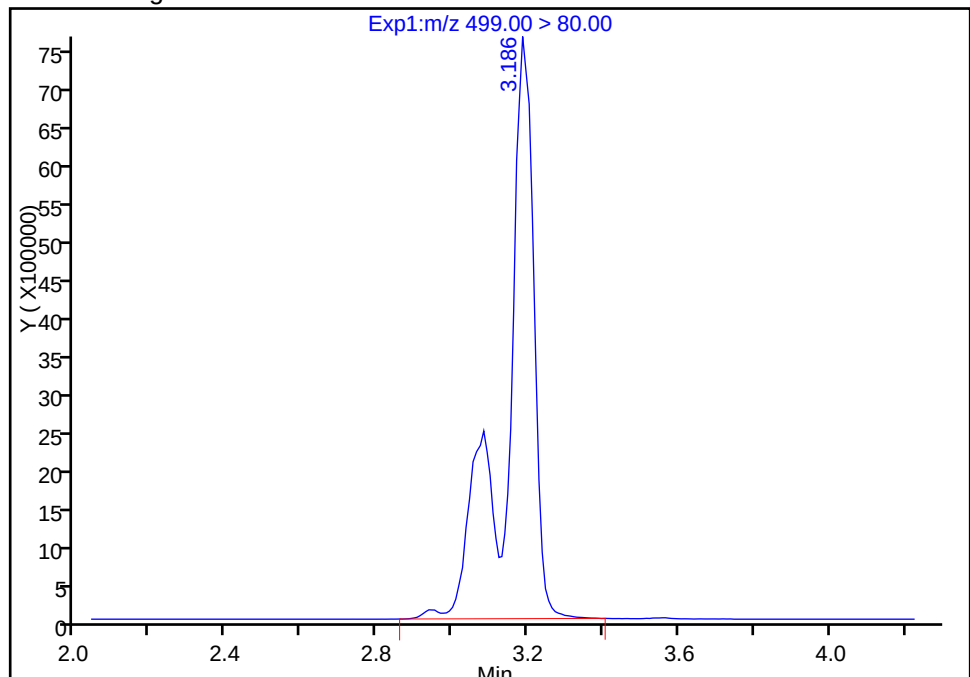
RT: 3.19
Area: 28733218
Amount: 146.9287
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 39756569
Amount: 193.5024
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

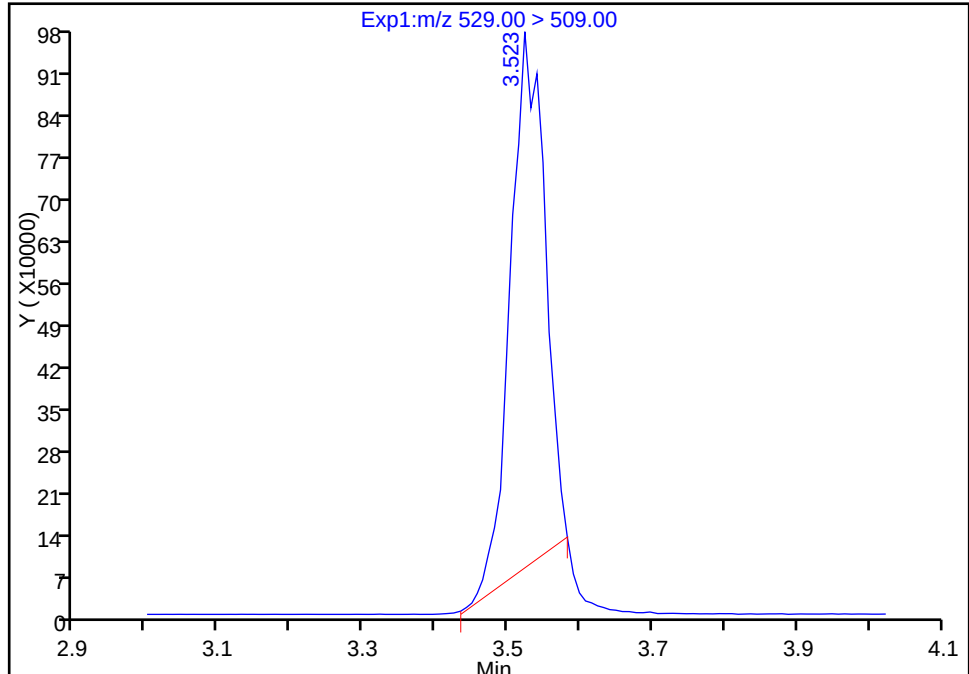
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 26 M2-8:2FTS, CAS: STL02280

Signal: 1

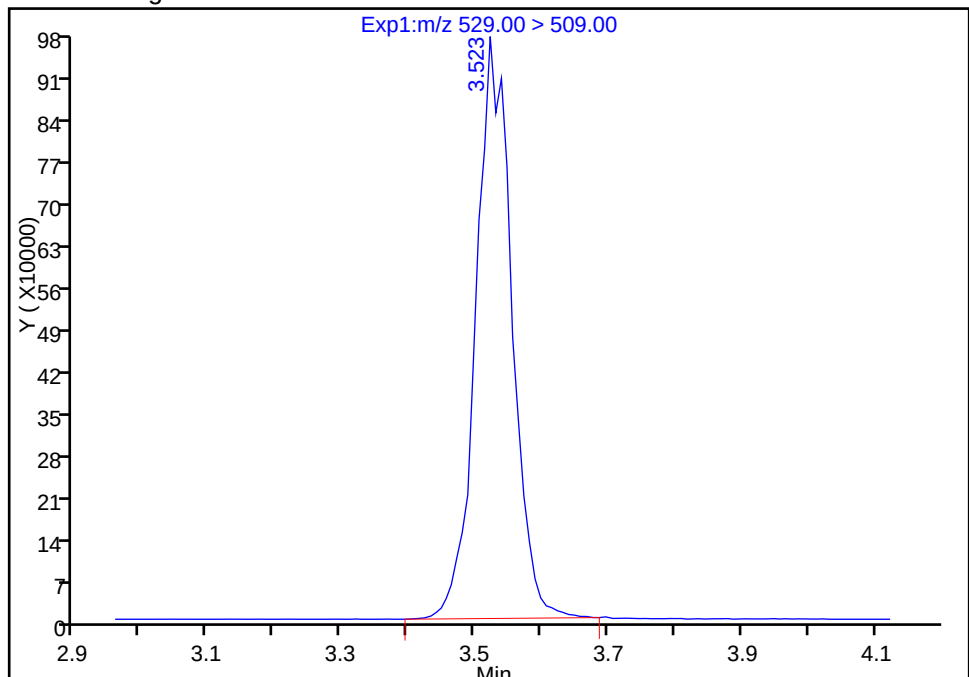
RT: 3.52
Area: 2972144
Amount: 32.946881
Amount Units: ng/ml

Processing Integration Results



RT: 3.52
Area: 3659550
Amount: 39.519130
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

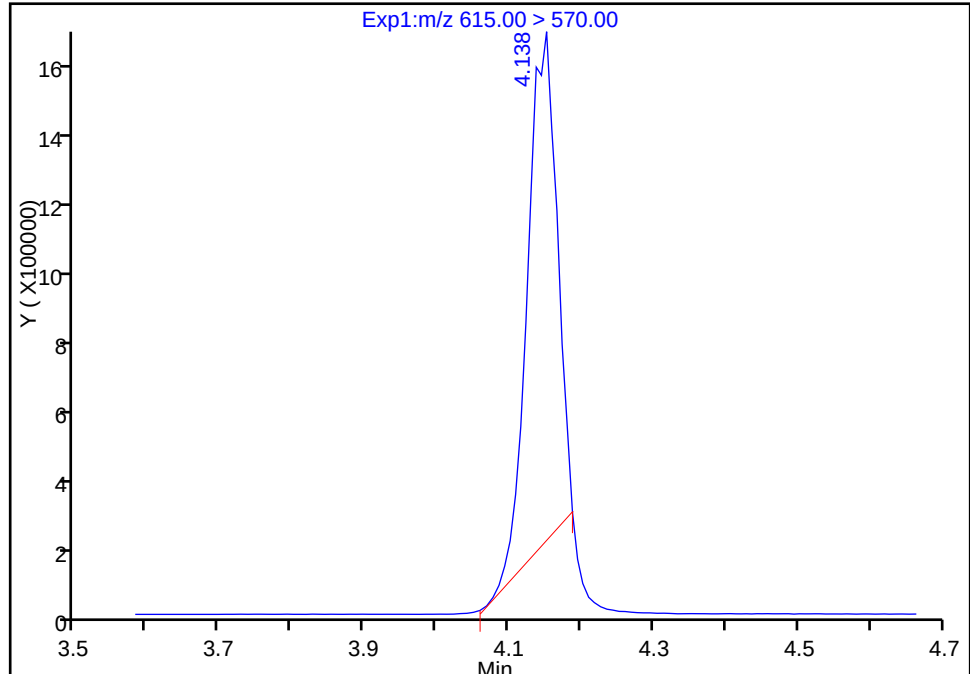
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 36 13C2 PFD_oA, CAS: STL00998

Signal: 1

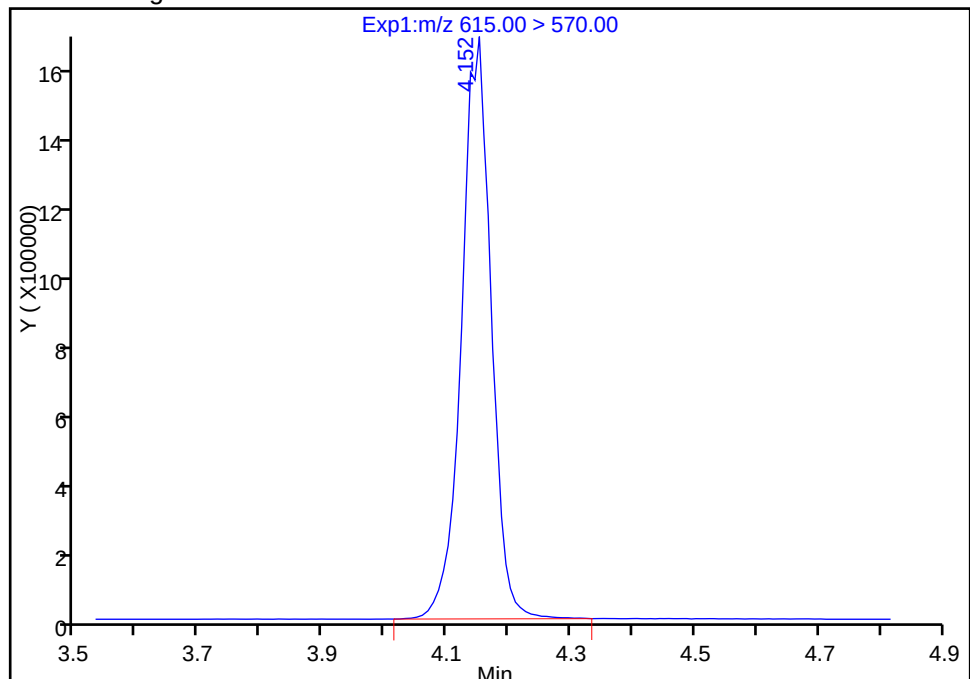
RT: 4.14
Area: 3992056
Amount: 33.402250
Amount Units: ng/ml

Processing Integration Results



RT: 4.15
Area: 5320903
Amount: 42.929870
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: ICV 320-152681/13 Calibration Date: 03/01/2017 12:31

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.01CURVE_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.9133		53.9	50.0	7.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.035		52.9	50.0	5.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.526		47.1	44.3	6.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9703		54.5	50.0	9.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	1.045		54.0	50.0	8.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.022		47.0	47.3	-0.6	25.0
6:2FTS	L2ID		0.9688		51.7	47.4	9.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.089		50.3	47.6	5.6	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.032		50.5	50.0	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	1.016		56.2	50.0	12.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9166		44.5	47.8	-6.8	25.0
8:2FTS	L2ID		0.9785		50.6	47.9	5.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9538		52.7	50.0	5.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9140		50.9	50.0	1.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	1.014		52.2	50.0	4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6364		51.6	48.3	6.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9789		48.3	50.0	-3.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.998		54.8	50.0	9.7	25.0
MeFOSA	AveID	0.9355	0.9755		52.1	50.0	4.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9493		51.9	50.0	3.8	25.0
N-EtFOSA-M	AveID	0.9837	1.027		52.2	50.0	4.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9439		54.0	50.0	8.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	2.200		55.9	50.0	11.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9762		52.3	50.0	4.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.8478		59.1	50.0	18.2	25.0
13C4 PFBA	Ave	292242	262151		44.9	50.0	-10.3	50.0
13C5-PFPeA	Ave	232192	201954		43.5	50.0	-13.0	50.0
13C2 PFHxA	Ave	210884	190101		45.1	50.0	-9.9	50.0
13C4-PFHpA	Ave	192959	172560		44.7	50.0	-10.6	50.0
18O2 PFHxS	Ave	290899	261134		42.5	47.3	-10.2	50.0
M2-6:2FTS	Ave	77178	67962		41.8	47.5	-11.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: ICV 320-152681/13 Calibration Date: 03/01/2017 12:31
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.01CURVE_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	183068		44.7	50.0	-10.7	50.0
13C4 PFOS	Ave	241637	218953		43.3	47.8	-9.4	50.0
13C5 PFNA	Ave	177866	156812		44.1	50.0	-11.8	50.0
M2-8:2FTS	Ave	92602	84040		43.5	47.9	-9.2	50.0
13C2 PFDA	Ave	166704	144616		43.4	50.0	-13.3	50.0
13C8 FOSA	Ave	366918	337473		46.0	50.0	-8.0	50.0
d3-NMeFOSAA	Ave	85186	77141		45.3	50.0	-9.4	50.0
d5-NEtFOSAA	Ave	81371	71203		43.8	50.0	-12.5	50.0
13C2 PFUnA	Ave	130805	114237		43.7	50.0	-12.7	50.0
d-N-MeFOSA-M	Ave	87983	80006		45.5	50.0	-9.1	50.0
13C2 PFDoA	Ave	123944	108741		43.9	50.0	-12.3	50.0
d-N-EtFOSA-M	Ave	85249	76986		45.2	50.0	-9.7	50.0
13C2-PFTeDA	Ave	259165	236701		45.7	50.0	-8.7	50.0
13C2-PFHxDA	Ave	125061	112974		45.2	50.0	-9.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_014.d
 Lims ID: ICV Full
 Client ID:
 Sample Type: ICV
 Inject. Date: 01-Mar-2017 12:31:14 ALS Bottle#: 36 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:02 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas

Date: 01-Mar-2017 14:14:09

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 1.555 1.553 0.002 13107554 44.9 89.7 571827

2 Perfluorobutyric acid

212.90 > 169.00 1.555 1.558 -0.003 1.000 11971584 53.9 121786

D 3 13C5-PFPeA

267.90 > 223.00 1.833 1.832 0.001 10097715 43.5 87.0 496223

4 Perfluoropentanoic acid

262.90 > 219.00 1.833 1.835 -0.002 1.000 10448730 52.9 87028

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.873 1.872 0.001 1.000 17632155 47.1
 298.90 > 99.00 1.873 1.872 0.001 1.000 7534911 2.34(0.00-0.00)

6 Perfluorohexanoic acid

313.00 > 269.00 2.131 2.133 -0.002 1.000 9222580 54.5 268407

D 7 13C2 PFHxA

315.00 > 270.00 2.131 2.134 -0.003 9505049 45.1 90.1 530814

10 Perfluoroheptanoic acid

363.00 > 319.00 2.472 2.474 -0.002 1.000 9017371 54.0 66655

D 9 13C4-PFHpA

367.00 > 322.00 2.472 2.475 -0.003 8627993 44.7 89.4 271737

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.487 2.485 0.002 1.000 12611730 47.0

D 11 18O2 PFHxS

403.00 > 84.00 2.487 2.489 -0.002 12351647 42.5 89.8 385748

D 12 M2-6:2FTS

429.00 > 409.00 2.806 2.805 0.001 3228217 41.8 88.1

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

427.00 > 407.00 2.814 2.807 0.007 1.000 3120919 51.7

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	9449558	50.5			213564	
413.00 > 169.00	2.837	2.835	0.002	1.000	5623231		1.68(0.90-1.10)		140434	
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		9153420	44.7		89.3	333609	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	11351727	50.3				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.205	3.145	0.060	1.000	9582813	44.5			334324	
499.00 > 99.00	3.205	3.145	0.060	1.000	2425871		3.95(0.90-1.10)		705291	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	7968593	56.2			153203	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.204	-0.008		10465937	43.3		90.6	197571	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.208	-0.003		7840582	44.1		88.2	207818	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4025496	43.5		90.8		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	3938788	50.6				
D 21 13C8 FOSA										
506.00 > 78.00	3.573	3.559	0.014		16873653	46.0		92.0	313140	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	6896912	52.7			187300	
D 23 13C2 PFDA										
515.00 > 470.00	3.556	3.560	-0.004		7230800	43.4		86.8	175077	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.573	3.561	0.012	1.000	15422698	50.9			322048	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.706	3.710	-0.004		3857056	45.3		90.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.706	3.713	-0.007	1.000	3910569	52.2				
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	6723491	51.6				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.871	3.875	-0.004		3560139	43.8		87.5		
D 30 13C2 PFUnA										
565.00 > 520.00	3.880	3.876	0.004		5711825	43.7		87.3	216355	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.871	3.878	-0.007	1.000	5591035	48.3			127404	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.880	3.883	-0.003	1.002	3554390	54.8				
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.062	4.050	0.012		4000304	45.5		90.9		
35 MeFOSA										
512.00 > 169.00	4.070	4.057	0.013	1.000	3902092	52.1				
37 Perfluorododecanoic acid										
613.00 > 569.00	4.155	4.162	-0.007	1.000	5161221	51.9			95672	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.155	4.164	-0.009		5437061	43.9		87.7	128920	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.247	4.235	0.012		3849308	45.2		90.3		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.256	4.242	0.014	1.000	3953838	52.2				
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.417	4.424	-0.007	1.000	5131863	54.0			76799	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.651	4.655	-0.004		11835060	45.7		91.3	267097	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.651	4.657	-0.006	1.000	11961738	55.9			110355	
713.00 > 169.00	4.641	4.657	-0.016	0.998	1569975		7.62(0.00-0.00)		118035	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.049	5.057	-0.008		5648694	45.2		90.3	81356	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.049	5.059	-0.010	1.000	5307447	52.3			5849	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.384	5.399	-0.015	1.000	4609565	59.1			5082	

Reagents:

LCPFCIC_FULL_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_014.d

Injection Date: 01-Mar-2017 12:31:14

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 36

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

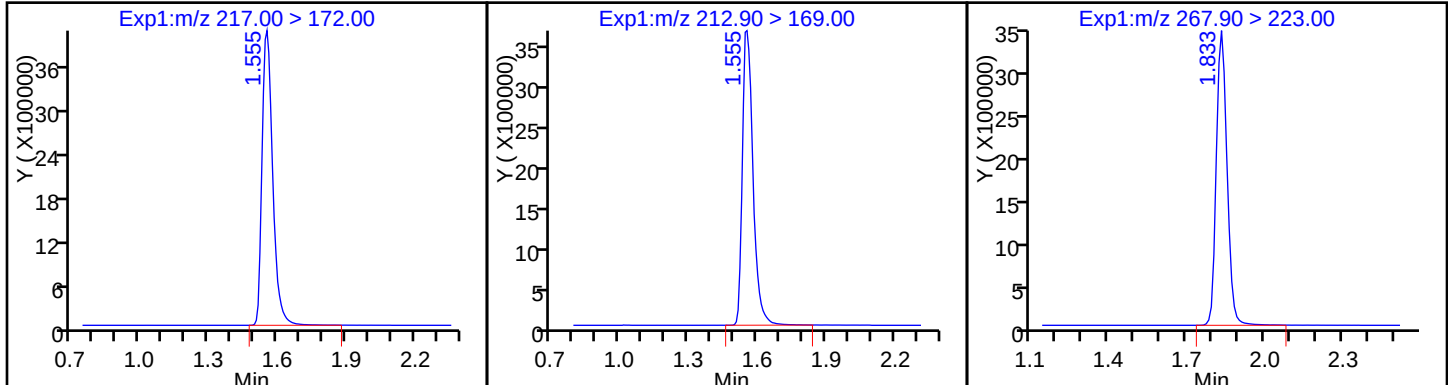
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

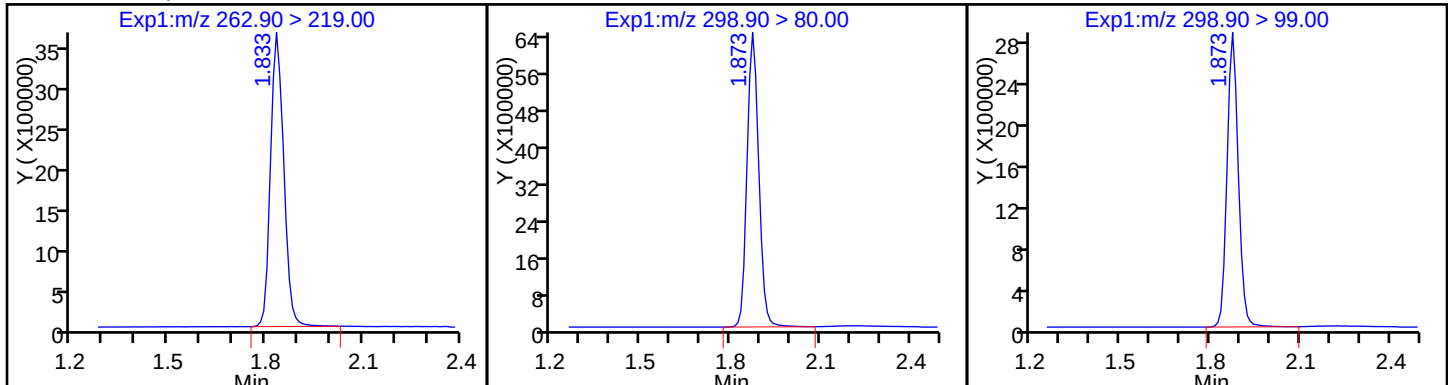
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

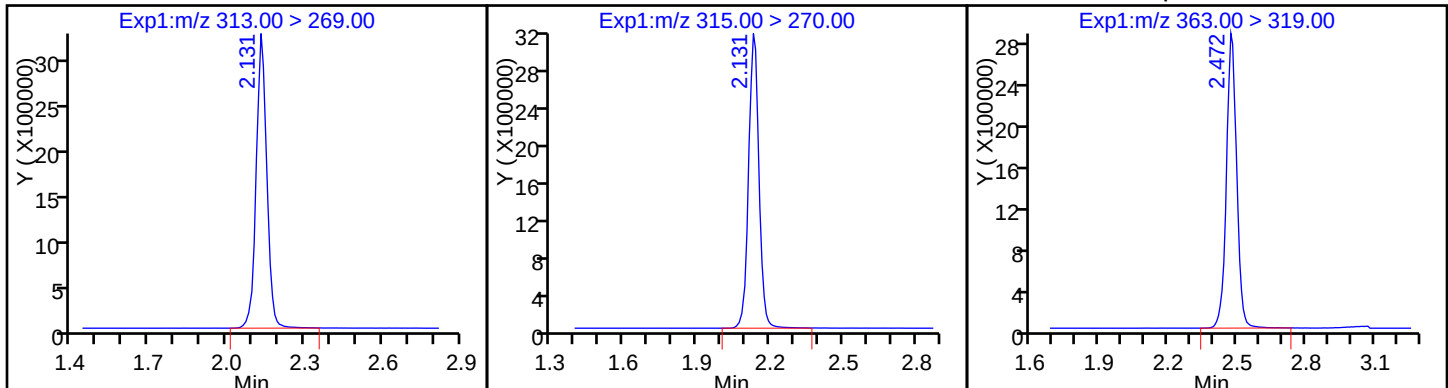
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

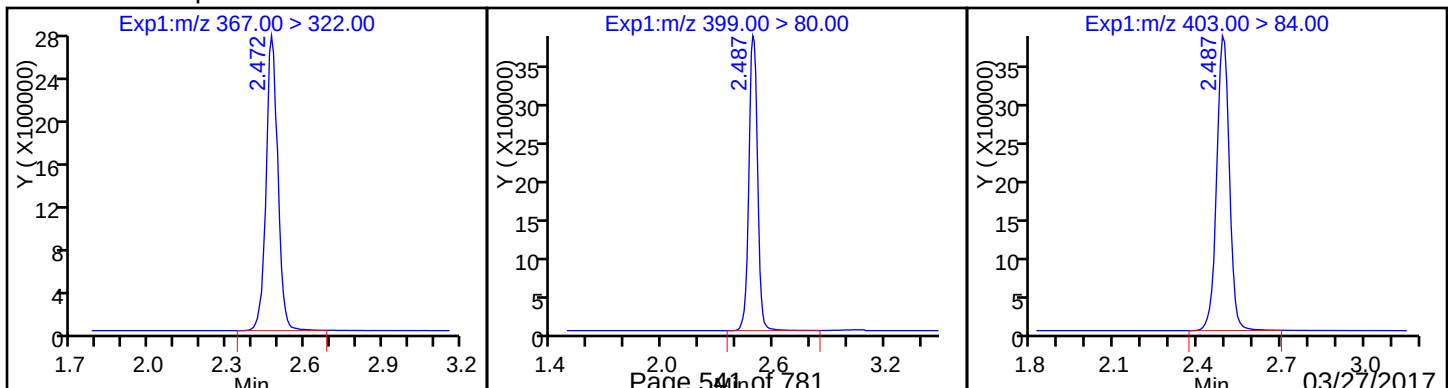
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

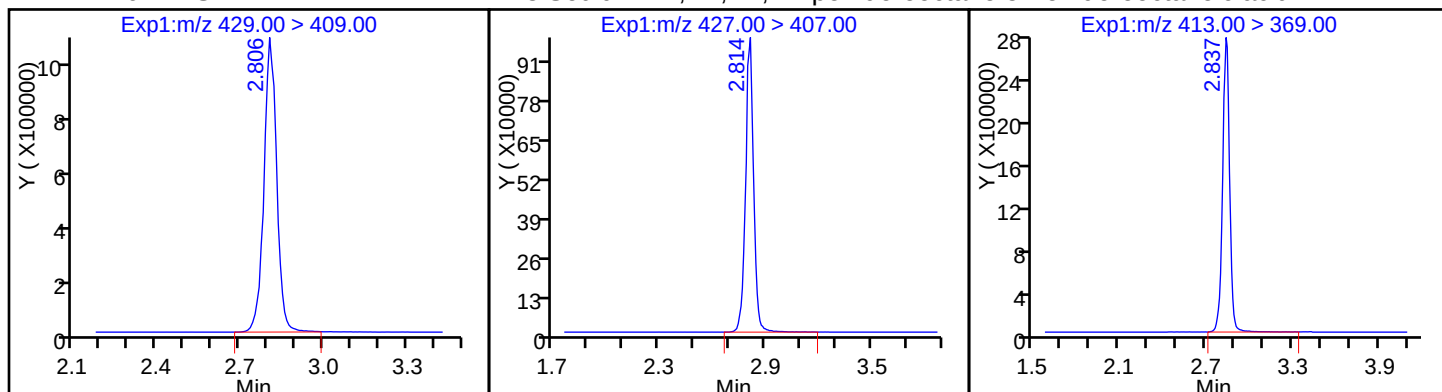
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



D 12 M2-6:2FTS

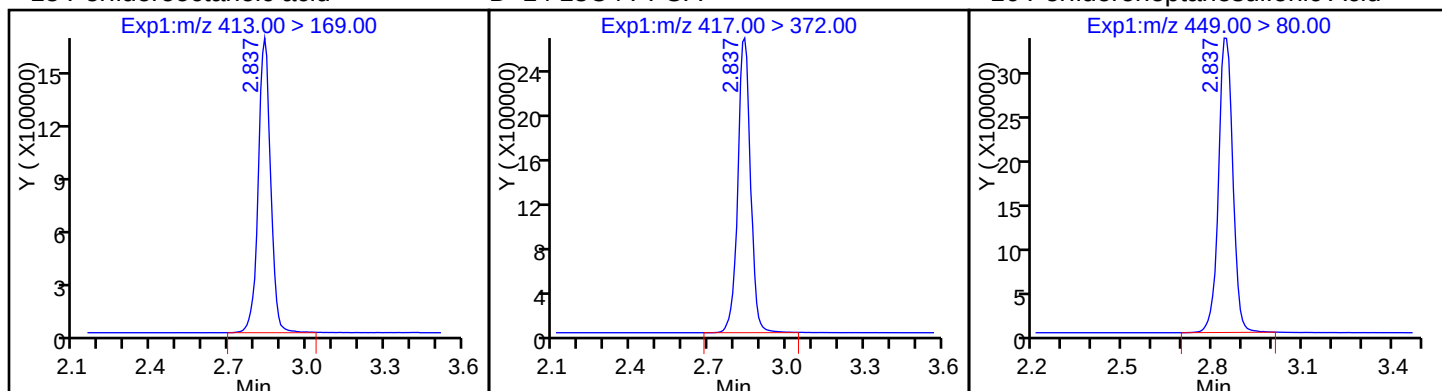
13 Sodium 1H,1H,2H,2H-perfluorooctane



15 Perfluorooctanoic acid

D 14 13C4 PFOA

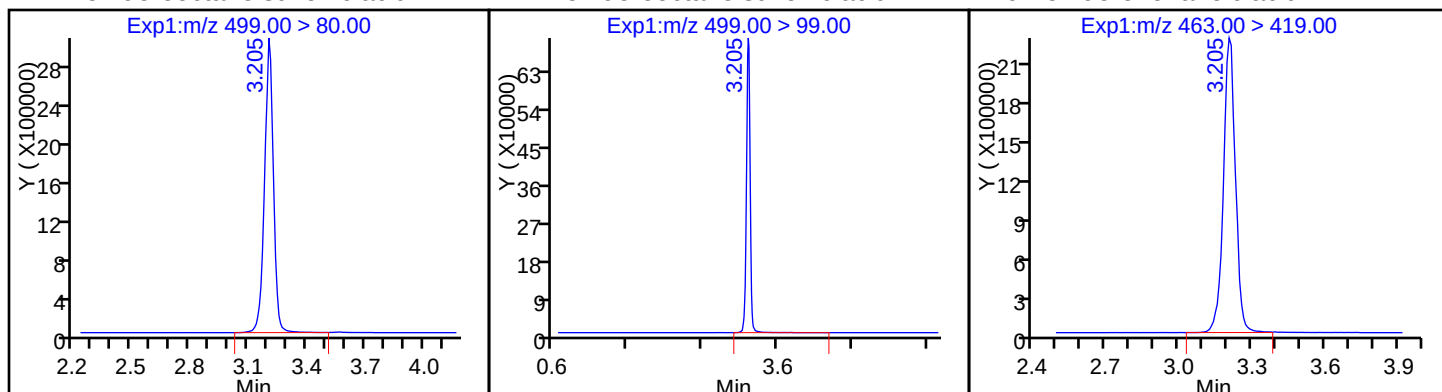
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

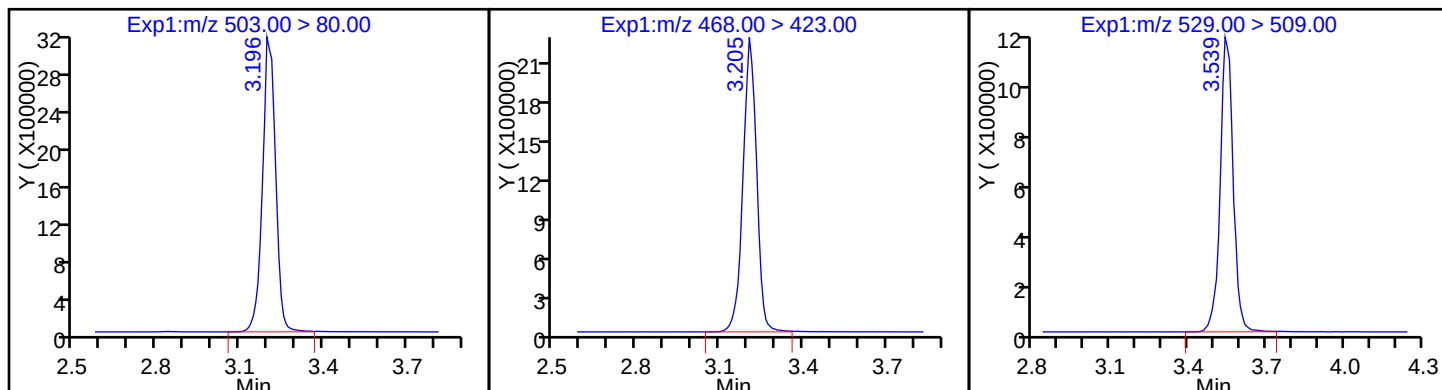
20 Perfluorononanoic acid



D 18 13C4 PFOS

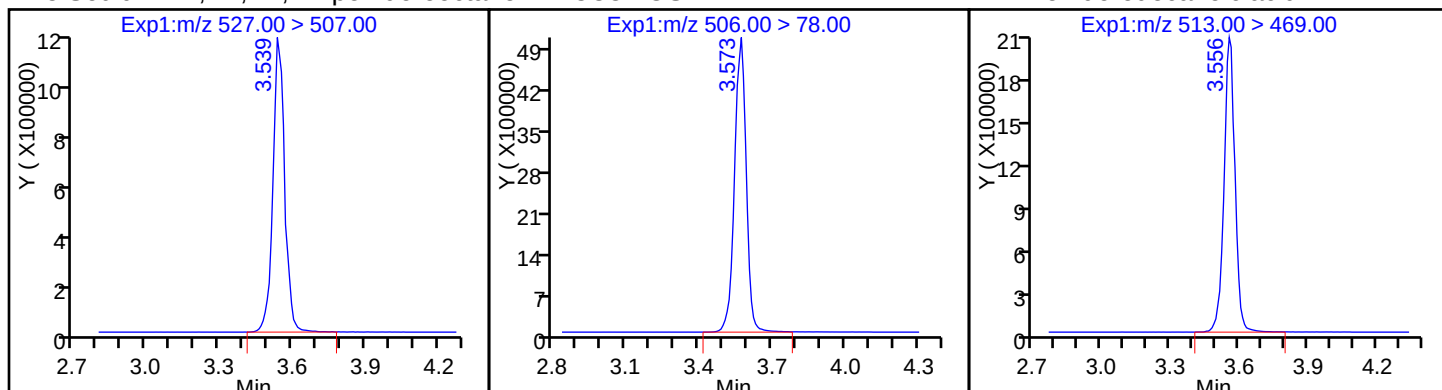
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

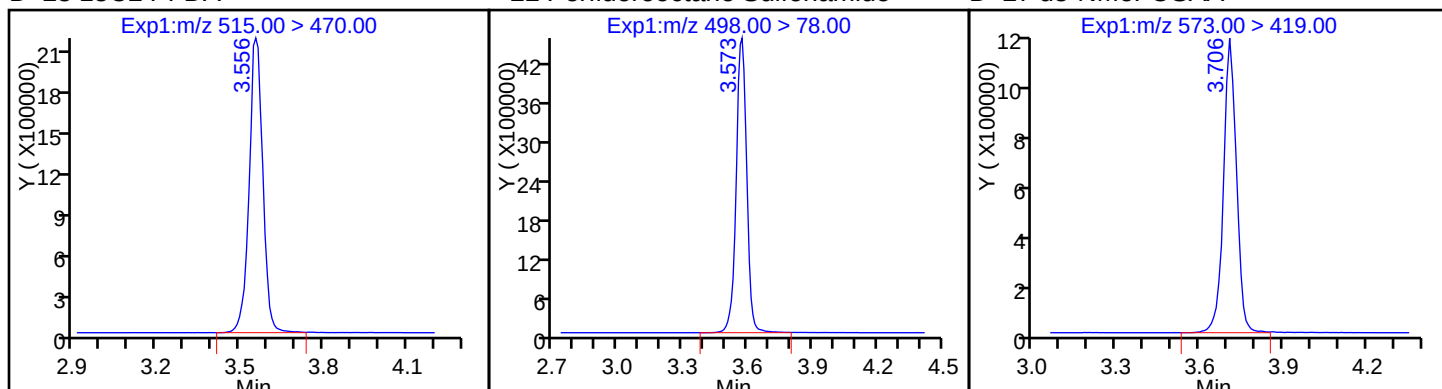
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

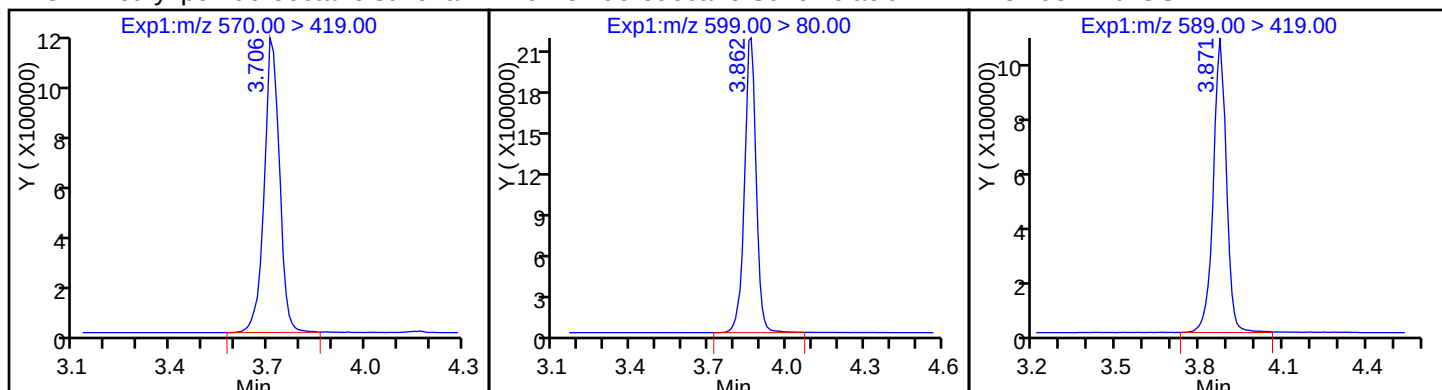
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

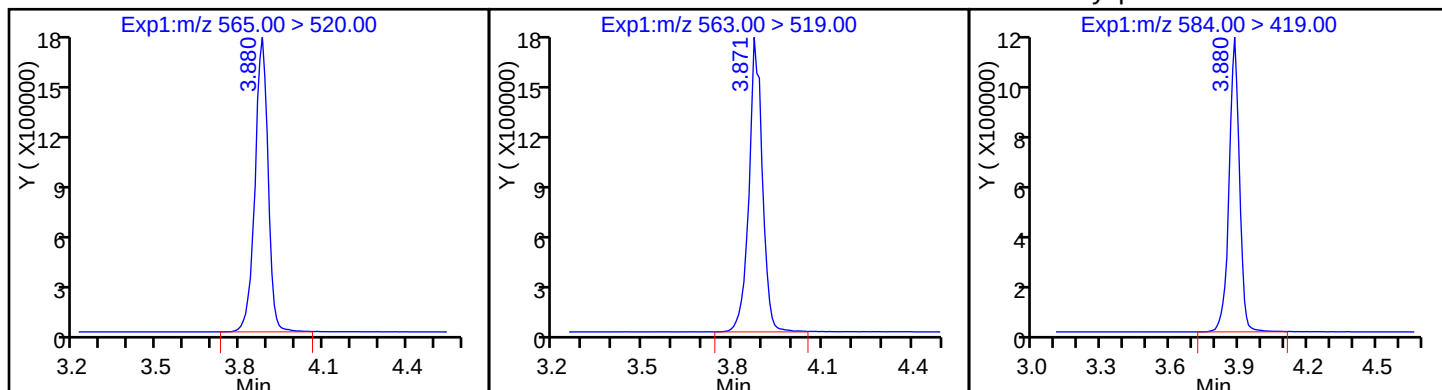
D 32 d5-NEtFOSAA



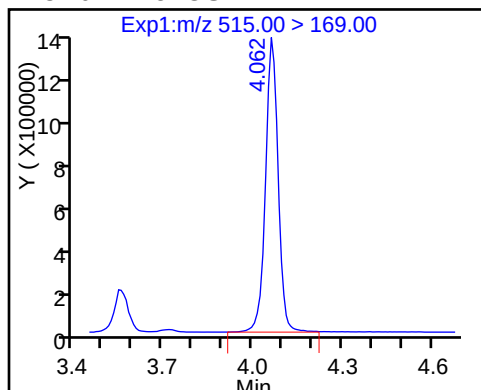
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

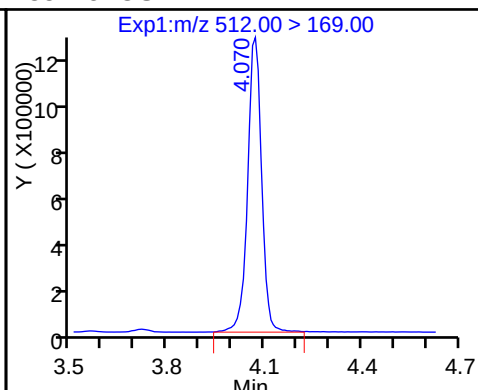
33 N-ethyl perfluorooctane sulfonamid



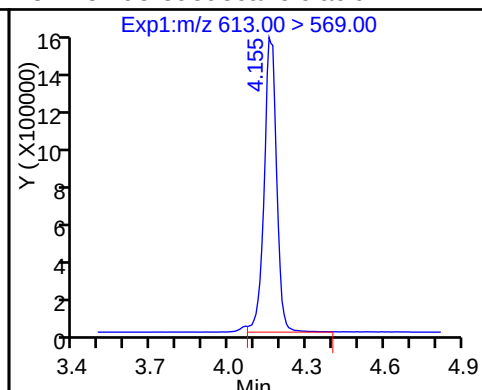
D 34 d-N-MeFOSA-M



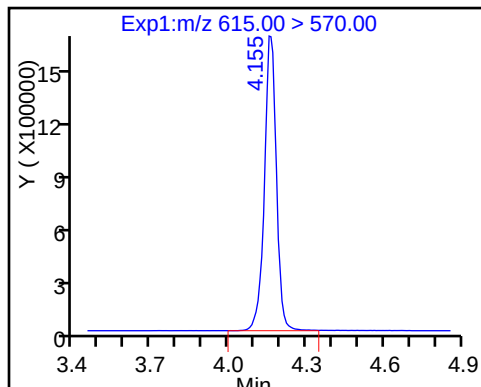
35 MeFOSA



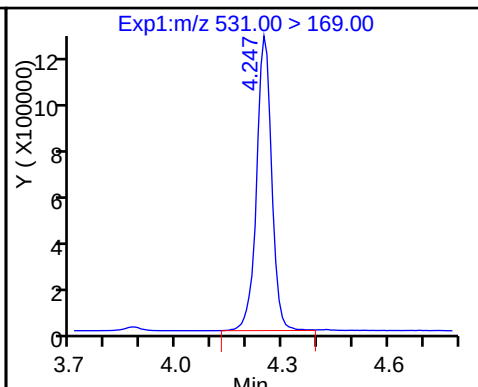
37 Perfluorododecanoic acid



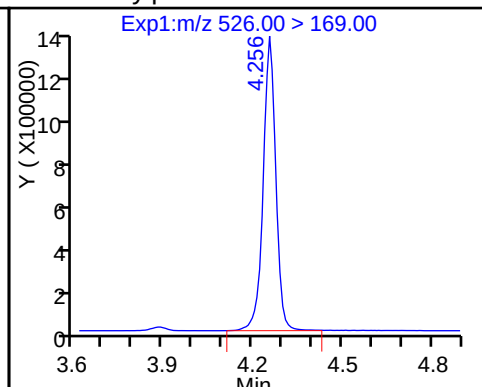
D 36 13C2 PFDa



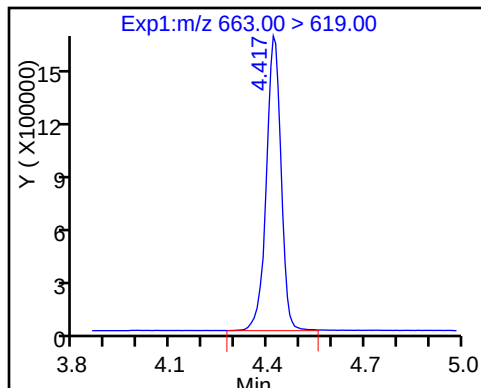
D 38 d-N-EtFOSA-M



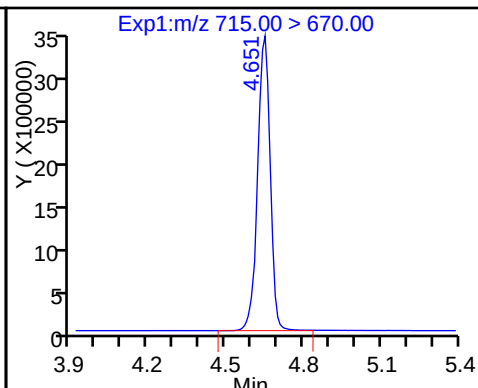
39 N-ethylperfluoro-1-octanesulfonami



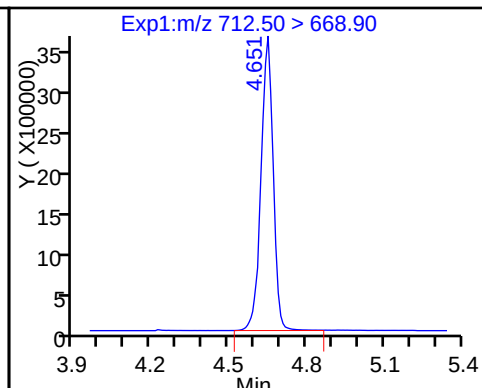
41 Perfluorotridecanoic acid



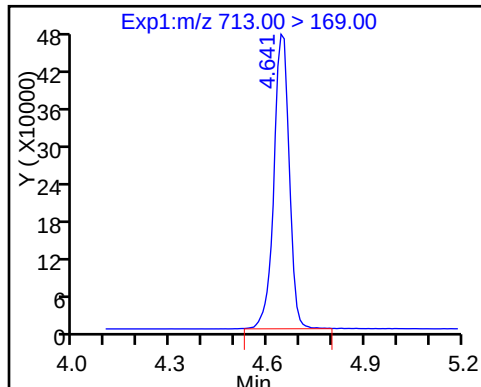
D 43 13C2-PFTeDa



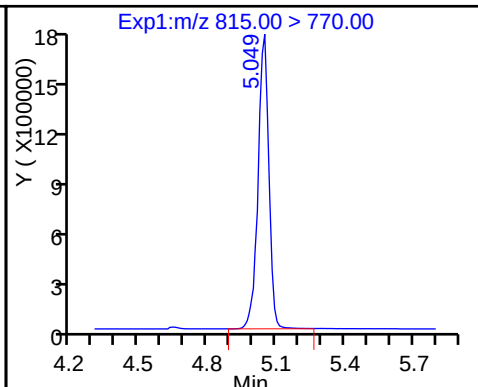
42 Perfluorotetradecanoic acid



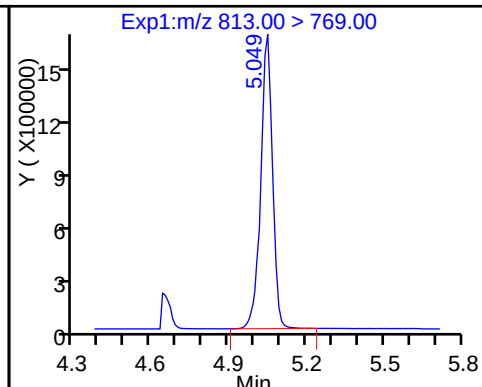
42 Perfluorotetradecanoic acid



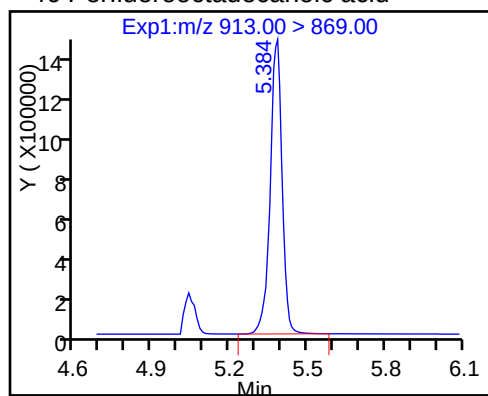
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-152836/10 Calibration Date: 03/02/2017 10:12

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.02A_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	0.8473	0.8709		1.03	1.00	2.8	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.178		1.20	1.00	20.4	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.589		0.981	0.884	10.9	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8907		1.00	1.00	0.1	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9531		0.985	1.00	-1.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.129		0.999	0.910	9.8	50.0
6:2FTS	L2ID		1.187		1.13	0.948	19.7	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.103		1.02	0.952	7.0	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.103		1.08	1.00	8.0	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9285		1.03	1.00	2.7	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9269		0.875	0.928	-5.8	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8939		0.995	1.00	-0.5	50.0
8:2FTS	L2ID		0.998		0.950	0.958	-0.8	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8869		0.979	1.00	-2.1	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9220		0.949	1.00	-5.1	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5874		0.951	0.964	-1.4	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.066		1.05	1.00	5.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.9205		1.01	1.00	1.1	50.0
MeFOSA	AveID	0.9355	0.9537		1.02	1.00	1.9	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8711		0.953	1.00	-4.7	50.0
N-EtFOSA-M	AveID	0.9837	0.9767		0.993	1.00	-0.7	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9423		1.08	1.00	7.9	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	2.049		1.04	1.00	4.2	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.637		1.39	1.00	38.9	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.8767		1.22	1.00	22.2	50.0
13C4 PFBA	Ave	292242	303085		51.9	50.0	3.7	50.0
13C5-PFPeA	Ave	232192	243710		52.5	50.0	5.0	50.0
13C2 PFHxA	Ave	210884	225943		53.6	50.0	7.1	50.0
13C4-PFHpA	Ave	192959	211066		54.7	50.0	9.4	50.0
18O2 PFHxS	Ave	290899	283155		46.0	47.3	-2.7	50.0
M2-6:2FTS	Ave	77178	84371		51.9	47.5	9.3	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152836/10 Calibration Date: 03/02/2017 10:12
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.02A_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	204611		49.9	50.0	-0.2	50.0
13C4 PFOS	Ave	241637	228603		45.2	47.8	-5.4	50.0
13C5 PFNA	Ave	177866	159686		44.9	50.0	-10.2	50.0
13C8 FOSA	Ave	366918	366512		49.9	50.0	-0.1	50.0
M2-8:2FTS	Ave	92602	87201		45.1	47.9	-5.8	50.0
13C2 PFDA	Ave	166704	148326		44.5	50.0	-11.0	50.0
d3-NMeFOSAA	Ave	85186	50414		29.6	50.0	-40.8	50.0
d5-NEtFOSAA	Ave	81371	50925		31.3	50.0	-37.4	50.0
13C2 PFUnA	Ave	130805	116606		44.6	50.0	-10.9	50.0
d-N-MeFOSA-M	Ave	87983	82263		46.7	50.0	-6.5	50.0
13C2 PFDoA	Ave	123944	110773		44.7	50.0	-10.6	50.0
d-N-EtFOSA-M	Ave	85249	81641		47.9	50.0	-4.2	50.0
13C2-PFTeDA	Ave	259165	236024		45.5	50.0	-8.9	50.0
13C2-PFHxDA	Ave	125061	122244		48.9	50.0	-2.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
 Lims ID: CCV L2
 Client ID:
 Sample Type: CCVL
 Inject. Date: 02-Mar-2017 10:12:44 ALS Bottle#: 29 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 09:41:25 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK006

First Level Reviewer: chandrasenas

Date: 27-Mar-2017 09:41:25

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	1.538	1.546	-0.008	1.000	263963	1.03		103	1678	
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.546	-0.015		15154274	51.9		104	992373	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.821	-0.009		12185493	52.5		105	627629	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.821	0.001	1.000	287091	1.20		120	2499	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.851	1.861	-0.010	1.000	397788	0.9807		111		
298.90 > 99.00	1.851	1.861	-0.010	1.000	161991		2.46(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.115	2.122	-0.007		11297146	53.6		107	351347	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.115	2.131	-0.016	1.000	201243	1.00		100	6875	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.454	2.471	-0.017	1.000	201161	0.9853		98.5	2650	
D 9 13C4-PFHpA										
367.00 > 322.00	2.454	2.471	-0.017		10553294	54.7		109	407982	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.478	2.407	0.071	1.000	290855	1.00		110		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.478	2.487	-0.009		13393249	46.0		97.3	386661	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.804	2.812	-0.008	1.000	94949	1.13		120		
D 12 M2-6:2FTS										
429.00 > 409.00	2.789	2.812	-0.023		4007645	51.9		109		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.828	2.836	-0.008		10230536	49.9		99.8	343374	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.828	2.844	-0.016	1.000	225716	1.08		108	2239	
413.00 > 169.00	2.828	2.844	-0.016	1.000	127154		1.78(0.90-1.10)		6016	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.828	2.851	-0.023	1.000	240122	1.02		107		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.193	3.099	0.094	1.000	196625	0.8746		94.2	15282	M
499.00 > 99.00	3.193	3.099	0.094	1.000	44821		4.39(0.90-1.10)		2501	M
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.220	-0.027		10927227	45.2		94.6	427675	
D 19 13C5 PFNA										
468.00 > 423.00	3.193	3.220	-0.027		7984281	44.9		89.8	228284	
20 Perfluorononanoic acid										
463.00 > 419.00	3.193	3.220	-0.027	1.000	148263	1.03		103	3241	
D 21 13C8 FOSA										
506.00 > 78.00	3.529	3.547	-0.018		18325592	49.9		99.9	283918	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.529	3.547	-0.018	1.000	327613	0.99		99.5	27115	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.546	3.572	-0.026	1.000	83379	0.9502		99.2		
D 26 M2-8:2FTS										
529.00 > 509.00	3.546	3.572	-0.026		4176937	45.1		94.2		
D 23 13C2 PFDA										
515.00 > 470.00	3.563	3.581	-0.018		7416278	44.5		89.0	253454	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.554	3.581	-0.027	1.000	131555	0.9793		97.9	4848	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.705	3.727	-0.022		2520676	29.6		59.2		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.715	3.737	-0.022	1.003	46481	0.9494		94.9		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.859	3.888	-0.029	1.000	129457	0.9507		98.6		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.868	3.896	-0.028		2546257	31.3		62.6		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.905	-0.020	1.004	46877	1.01		101		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.876	3.905	-0.029	1.000	124292	1.05		105	2797	
D 30 13C2 PFUnA										
565.00 > 520.00	3.876	3.905	-0.029		5830278	44.6		89.1	168776	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.019	4.041	-0.022		4113167	46.7		93.5		
35 MeFOSA										
512.00 > 169.00	4.019	4.041	-0.022	1.000	78452	1.02		102		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.165	4.194	-0.029	1.000	96492	0.9525		95.3	972	M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.165	4.187	-0.022		5538643	44.7		89.4	110918	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.199	4.222	-0.023		4082033	47.9		95.8		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.213	4.230	-0.017	1.000	79734	0.99		99.3		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.429	4.461	-0.032	1.000	104381	1.08		108	3378	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.672	4.695	-0.023		11801191	45.5		91.1	366715	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.672	4.695	-0.023	1.000	226988	1.04		104	1407	M
713.00 > 169.00	4.672	4.695	-0.023	1.000	37053		6.13(0.00-0.00)		5899	M
D 44 13C2-PFHxDA										
815.00 > 770.00	5.094	5.103	-0.009		6112206	48.9		97.7	168460	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.094	5.114	-0.020	1.000	181303	1.39		139	529	M
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.446	5.469	-0.023	1.000	97111	1.22		122	400	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L2_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d

Injection Date: 02-Mar-2017 10:12:44

Instrument ID: A8_N

Lims ID: CCV L2

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 29

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

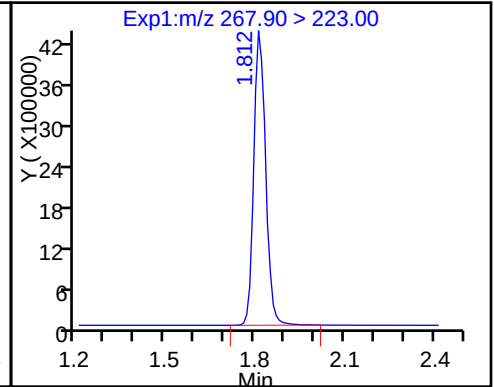
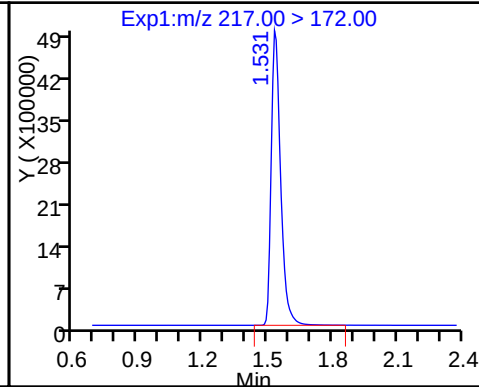
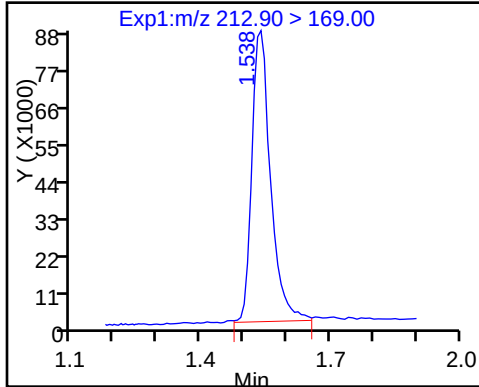
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

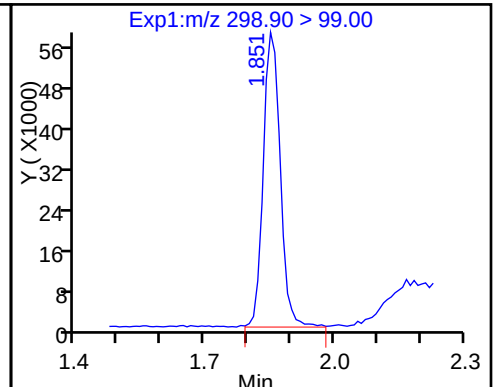
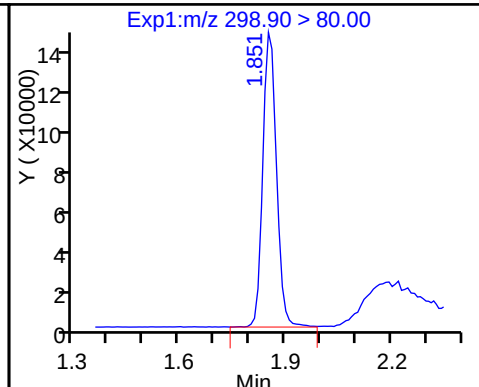
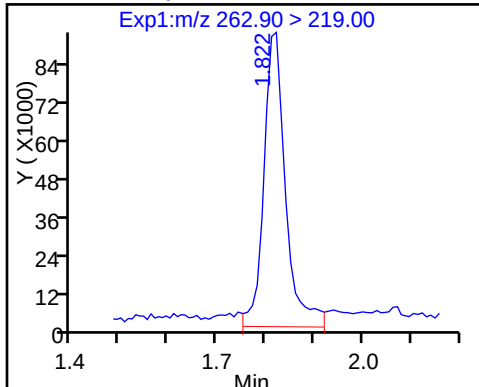
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

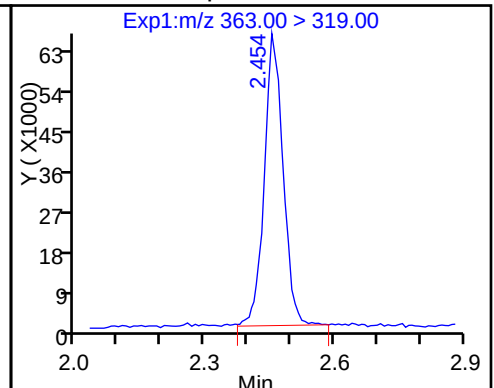
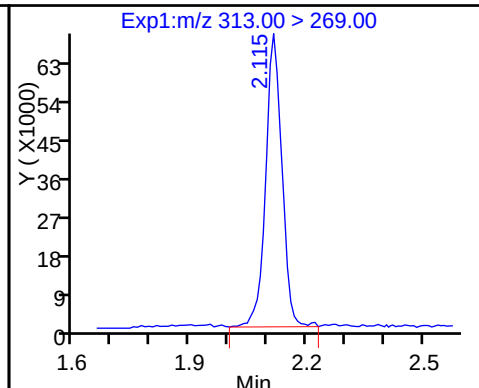
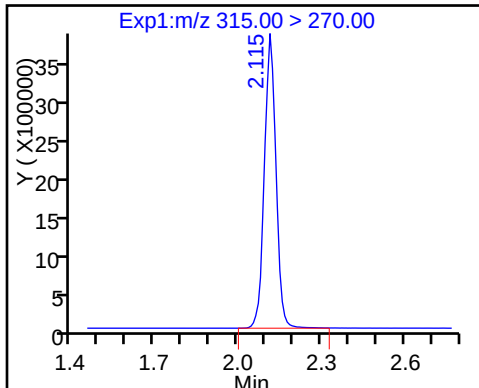
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

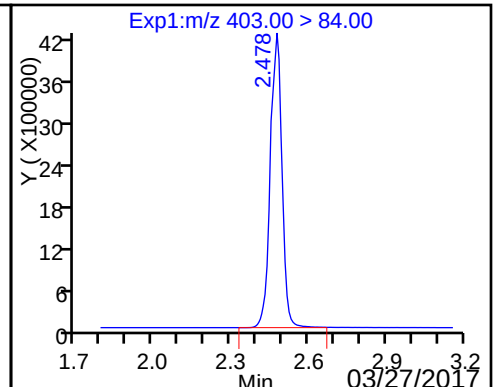
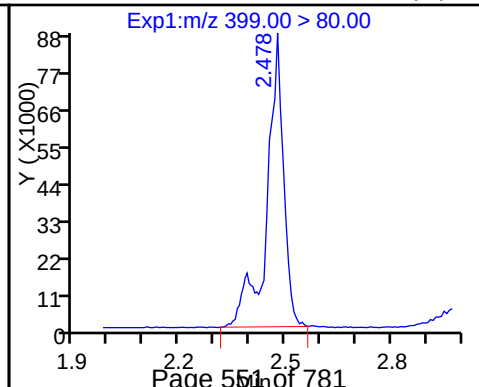
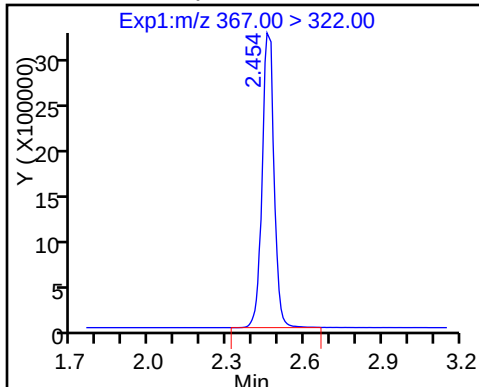
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

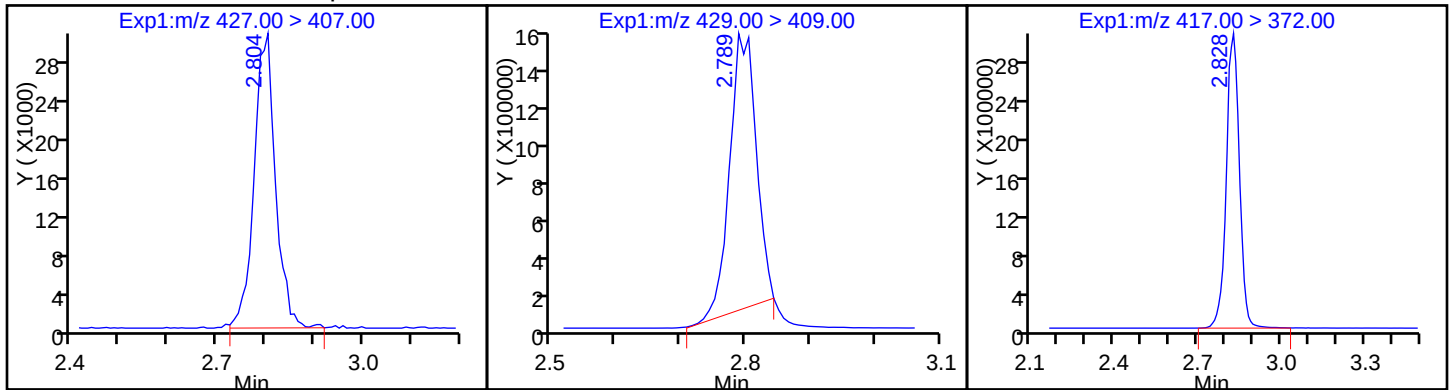
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

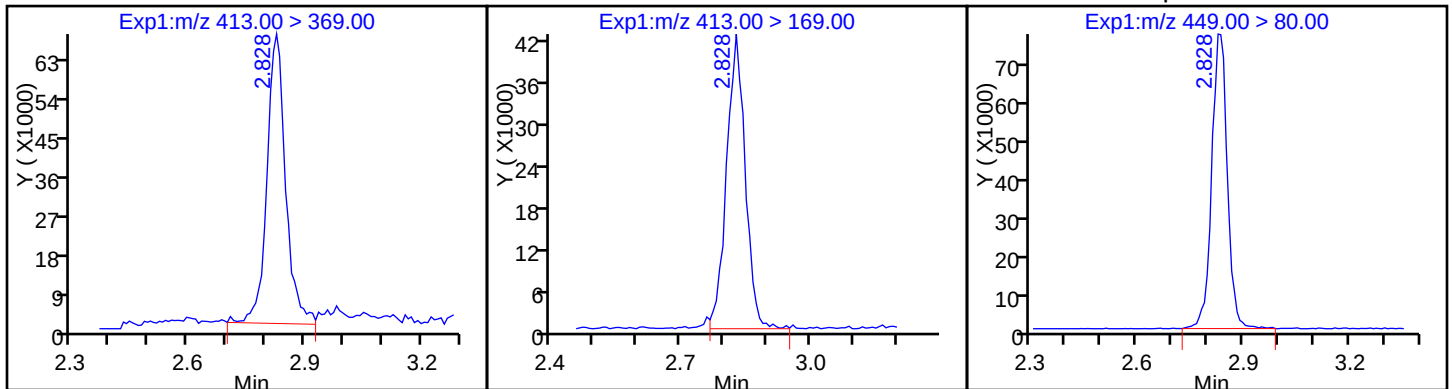
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

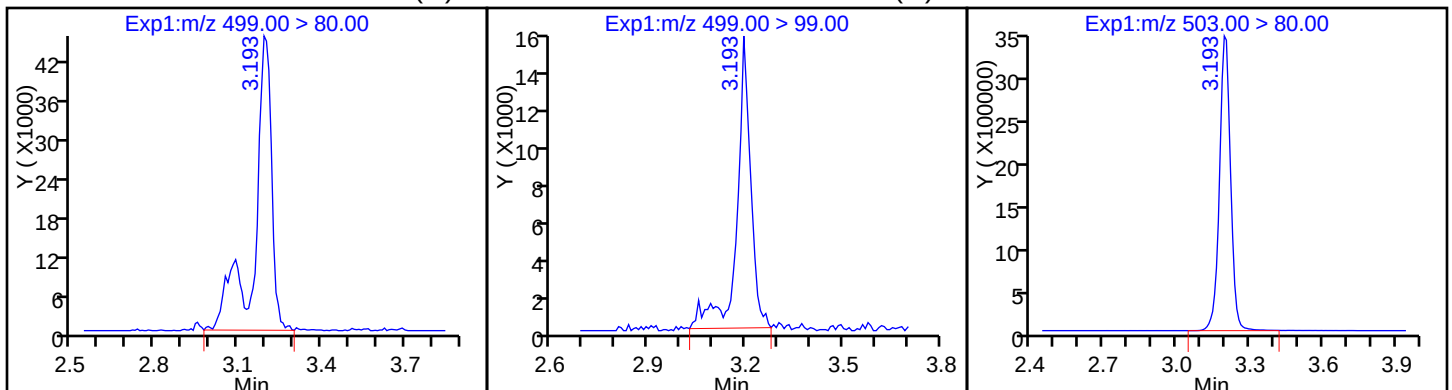
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

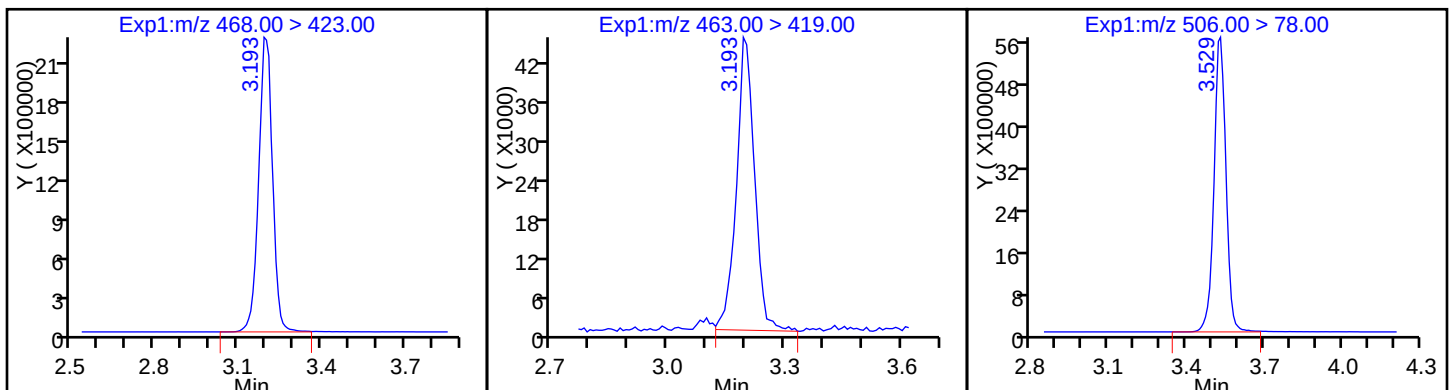
D 18 13C4 PFOS



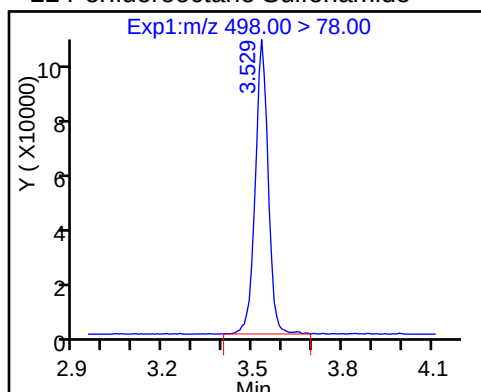
D 19 13C5 PFNA

20 Perfluorononanoic acid

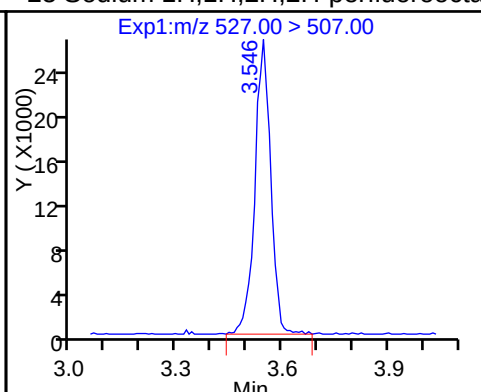
D 21 13C8 FOSA



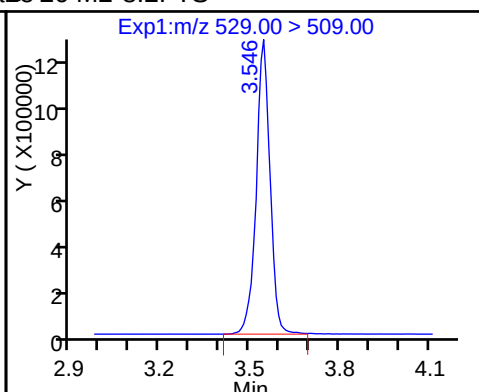
22 Perfluorooctane Sulfonamide



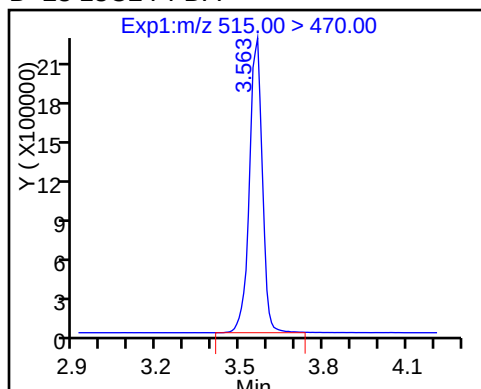
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



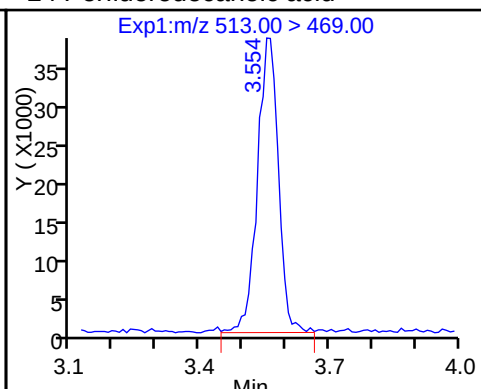
26 M2-8:2FTS



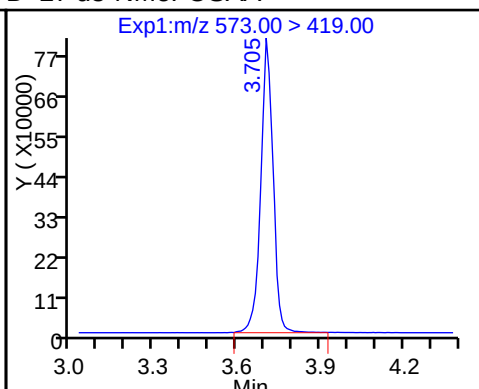
D 23 13C2 PFDA



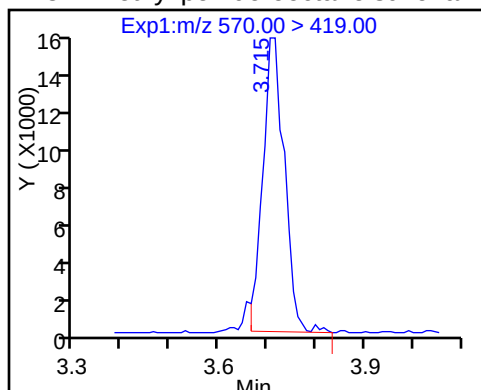
24 Perfluorodecanoic acid



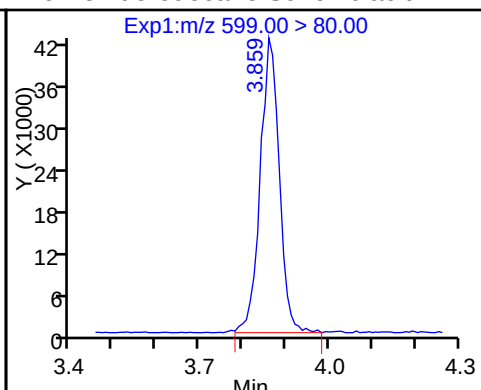
D 27 d3-NMeFOSAA



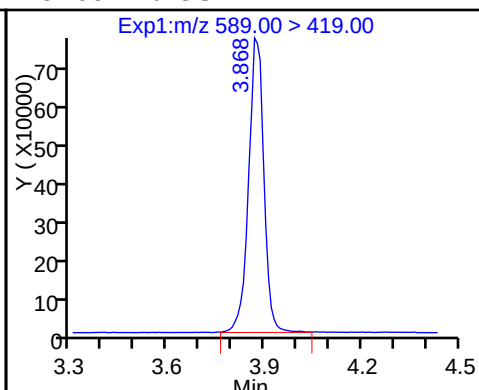
28 N-methyl perfluorooctane sulfonamid



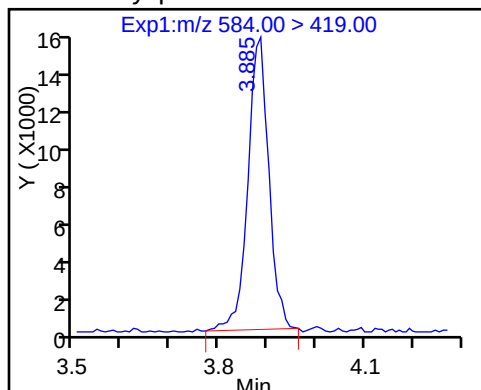
29 Perfluorodecane Sulfonic acid



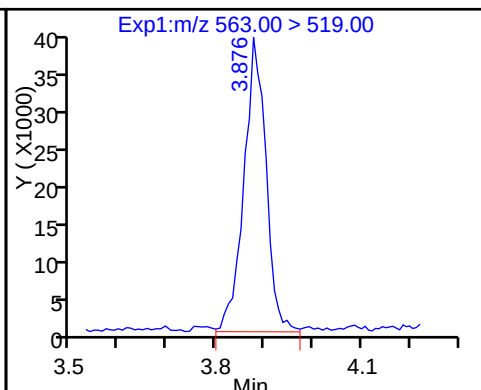
D 32 d5-NEtFOSAA



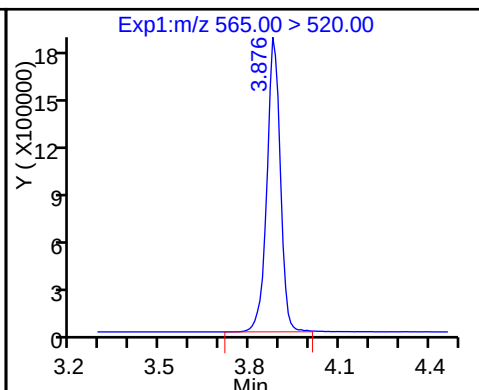
33 N-ethyl perfluorooctane sulfonamid



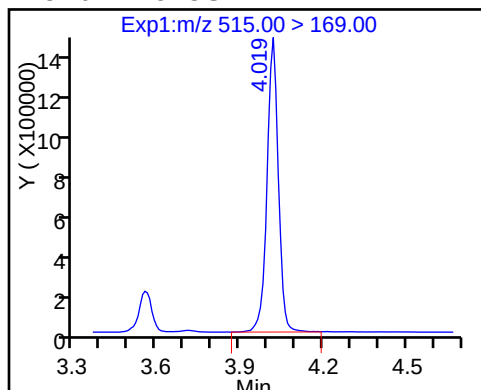
31 Perfluoroundecanoic acid



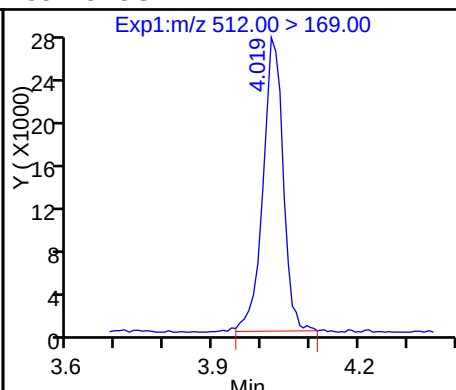
D 30 13C2 PFUnA



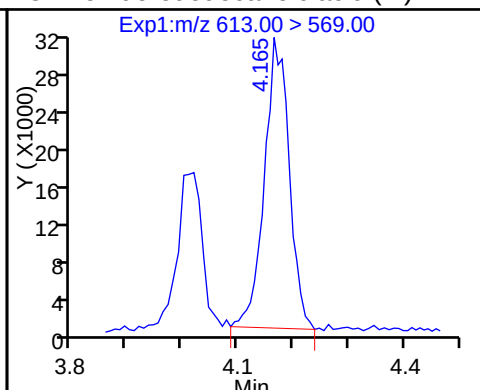
D 34 d-N-MeFOSA-M



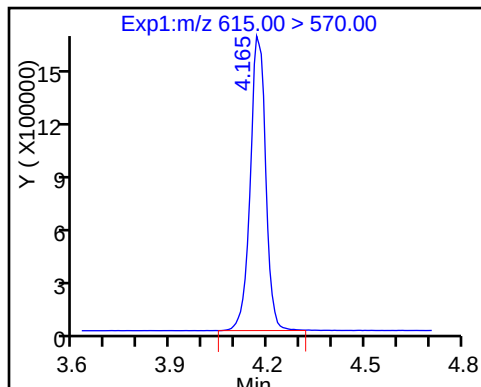
35 MeFOSA



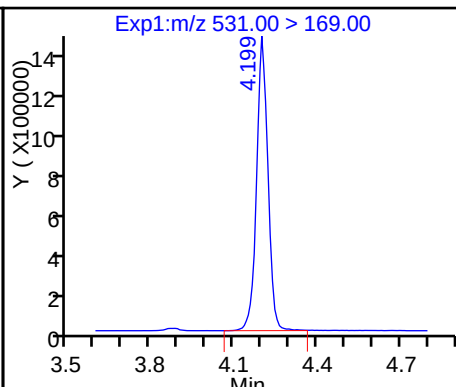
37 Perfluorododecanoic acid (M)



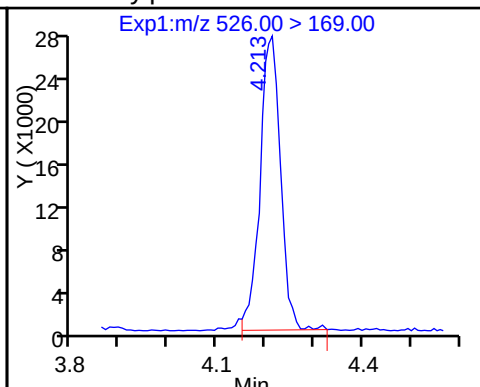
D 36 13C2 PFDa



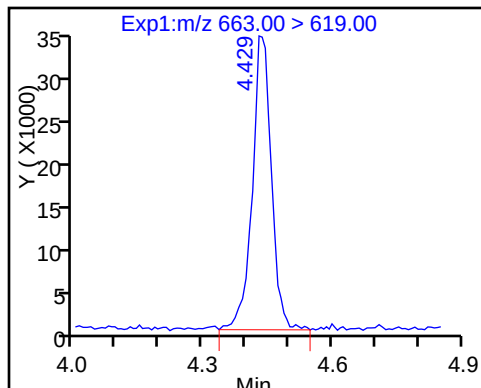
D 38 d-N-EtFOSA-M



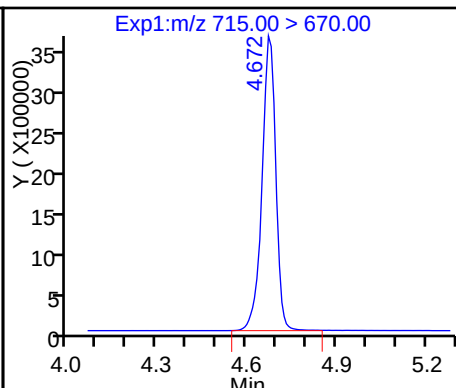
39 N-ethylperfluoro-1-octanesulfonami



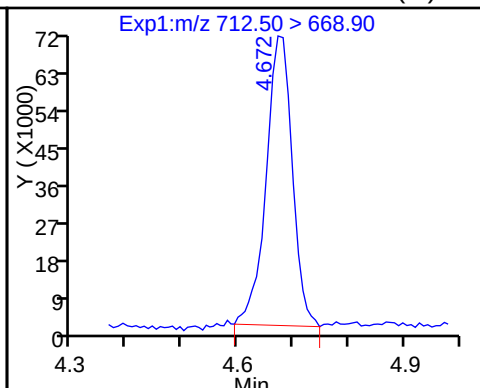
41 Perfluorotridecanoic acid



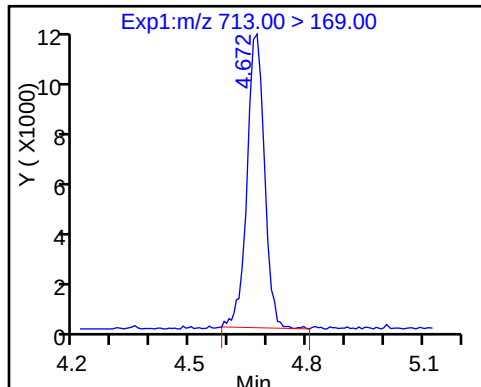
D 43 13C2-PFTeDa



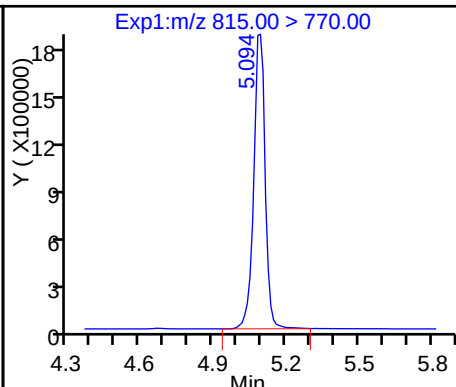
42 Perfluorotetradecanoic acid (M)



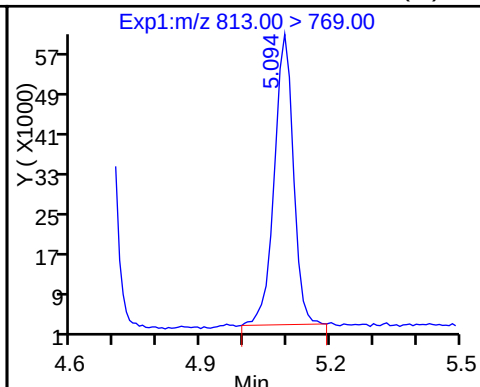
42 Perfluorotetradecanoic acid



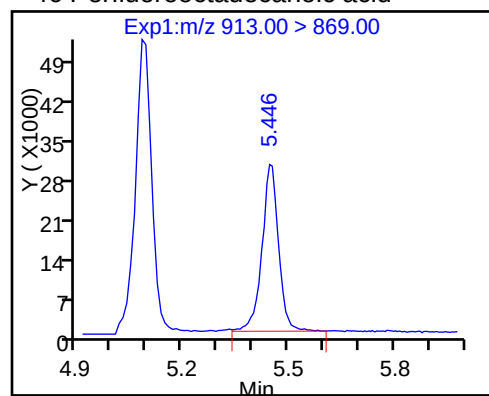
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

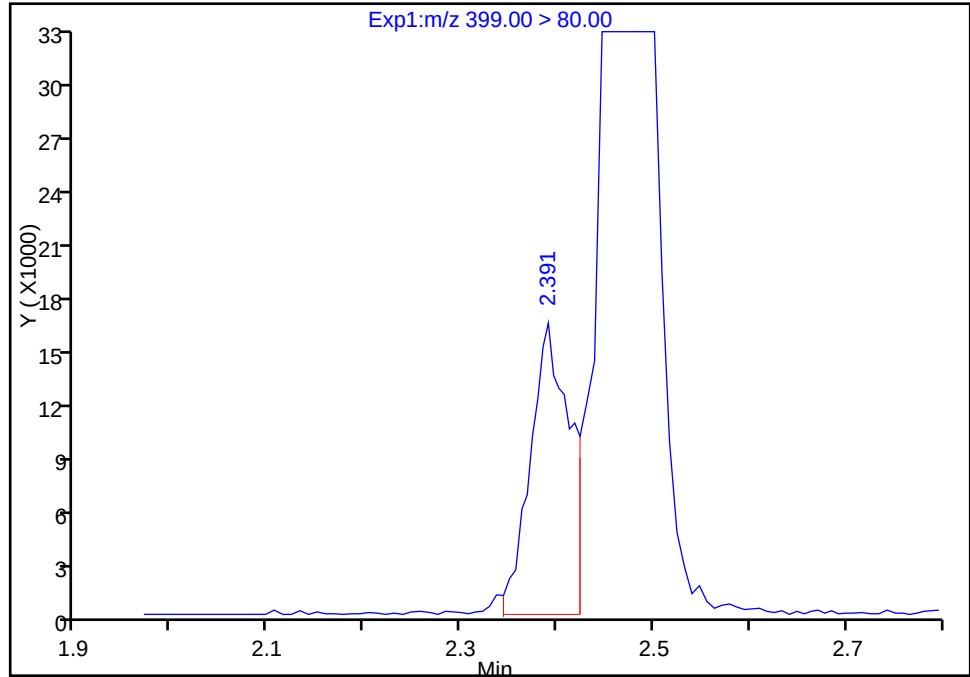
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

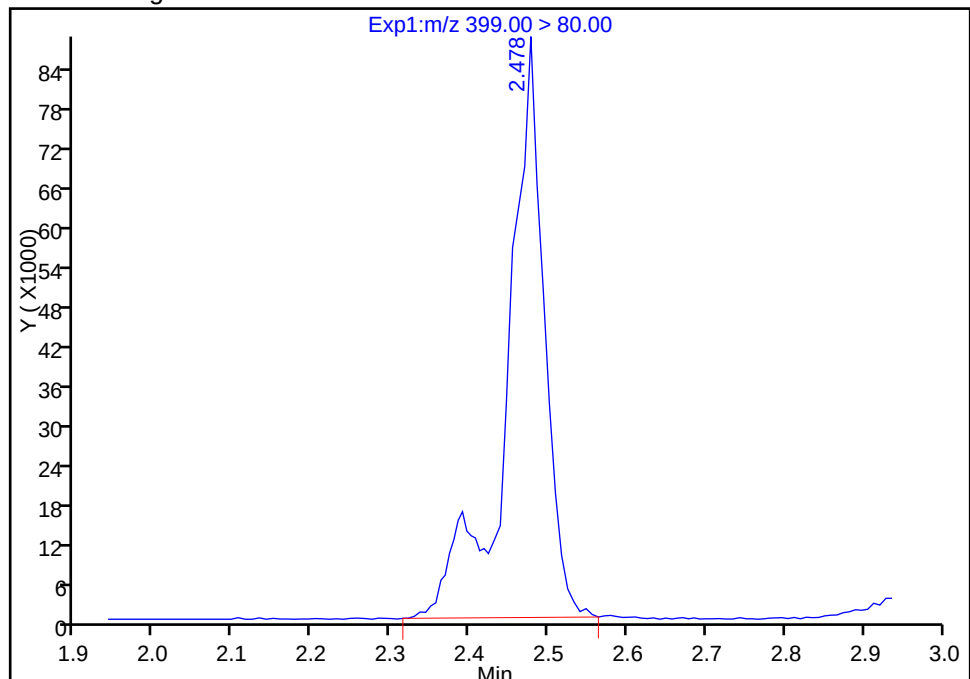
RT: 2.39
Area: 45593
Amount: 0.156564
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 290855
Amount: 0.998783
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

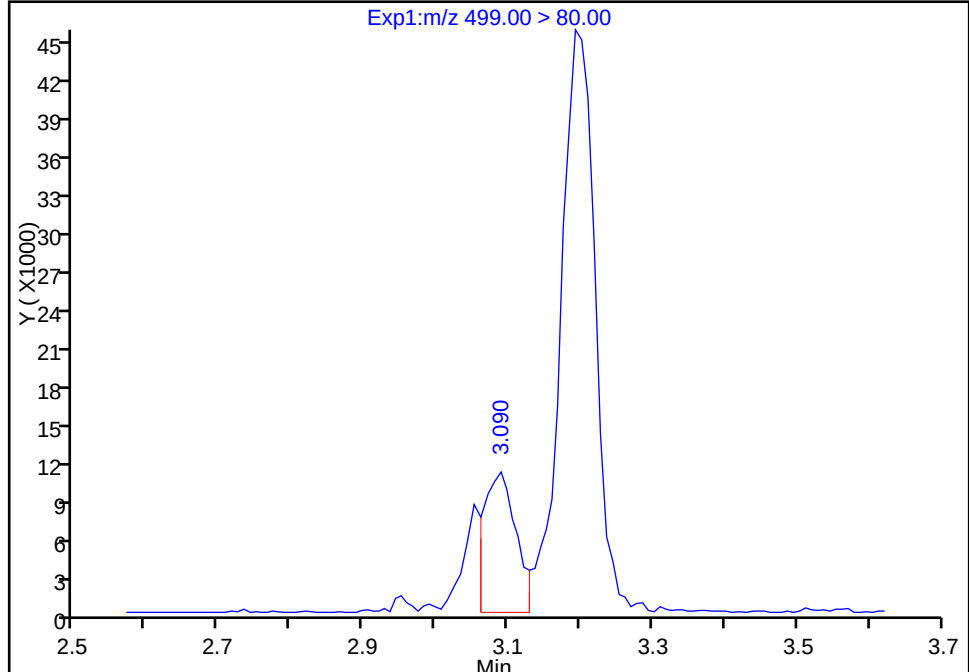
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

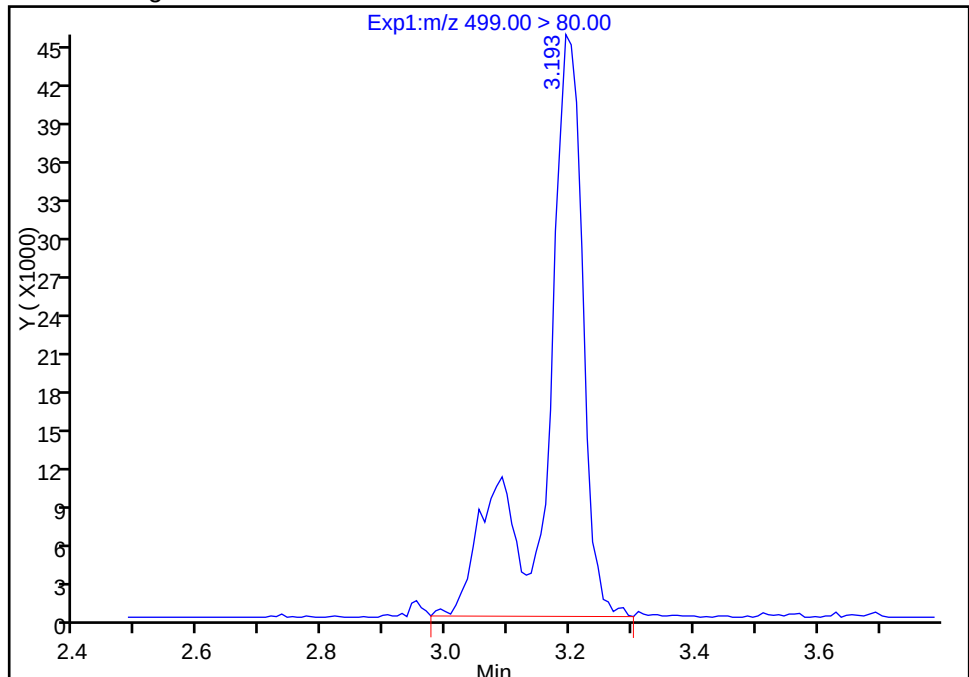
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Area: 31935
Amount: 0.142042
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 196625
Amount: 0.874561
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

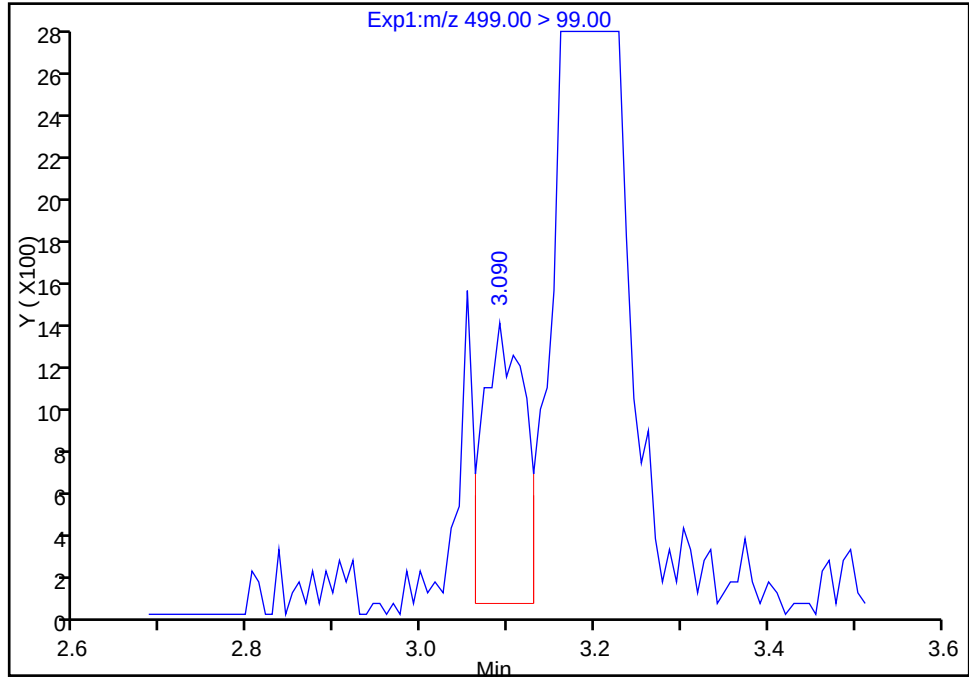
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

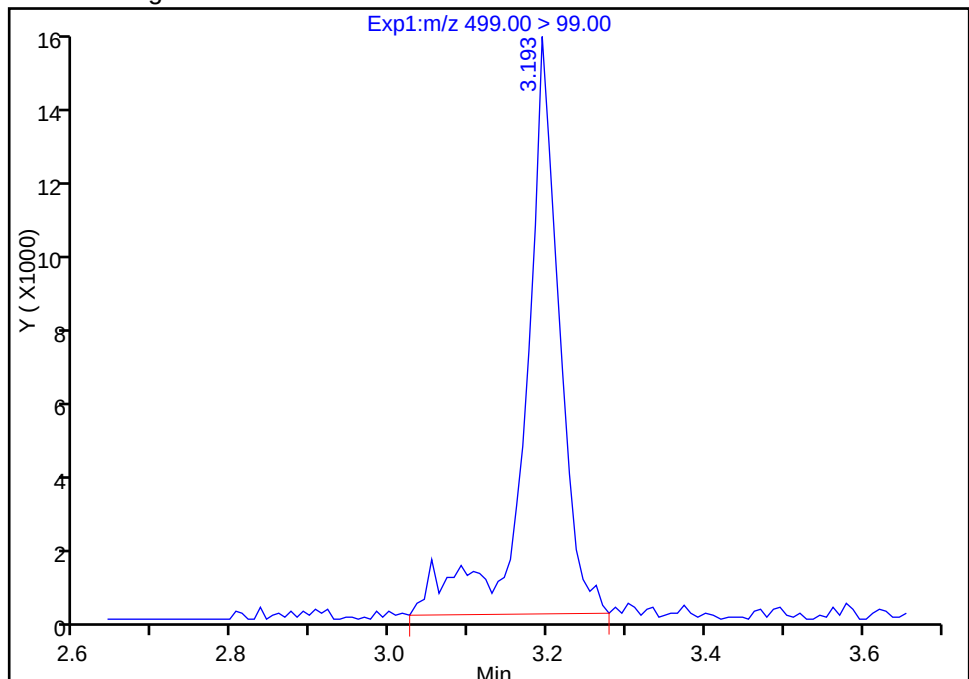
RT: 3.09
Area: 4213
Amount: 0.142042
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 44821
Amount: 0.874561
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

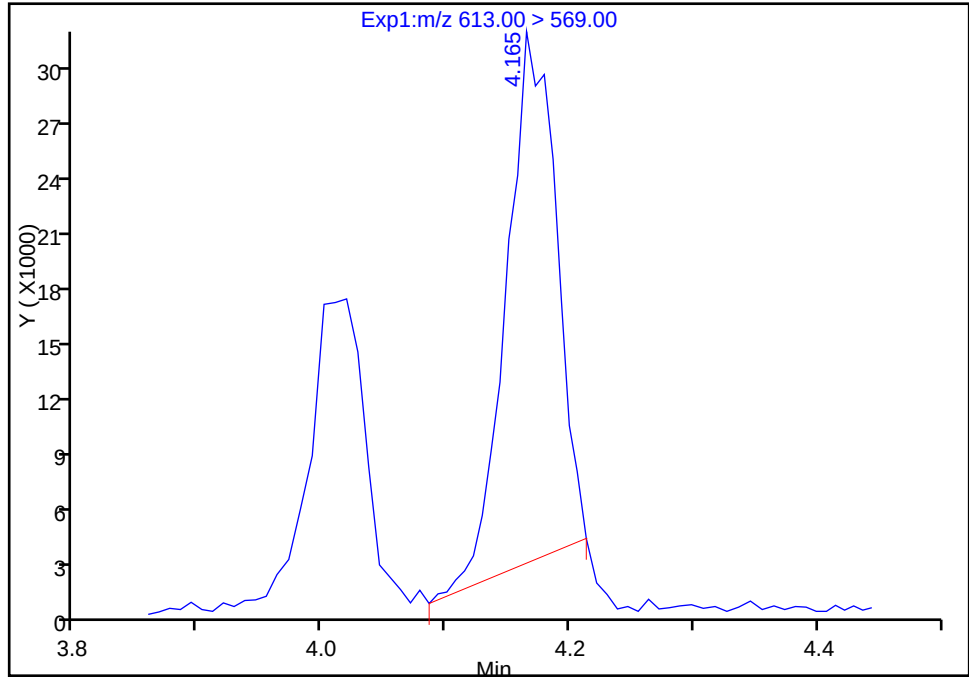
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

37 Perfluorododecanoic acid, CAS: 307-55-1

Signal: 1

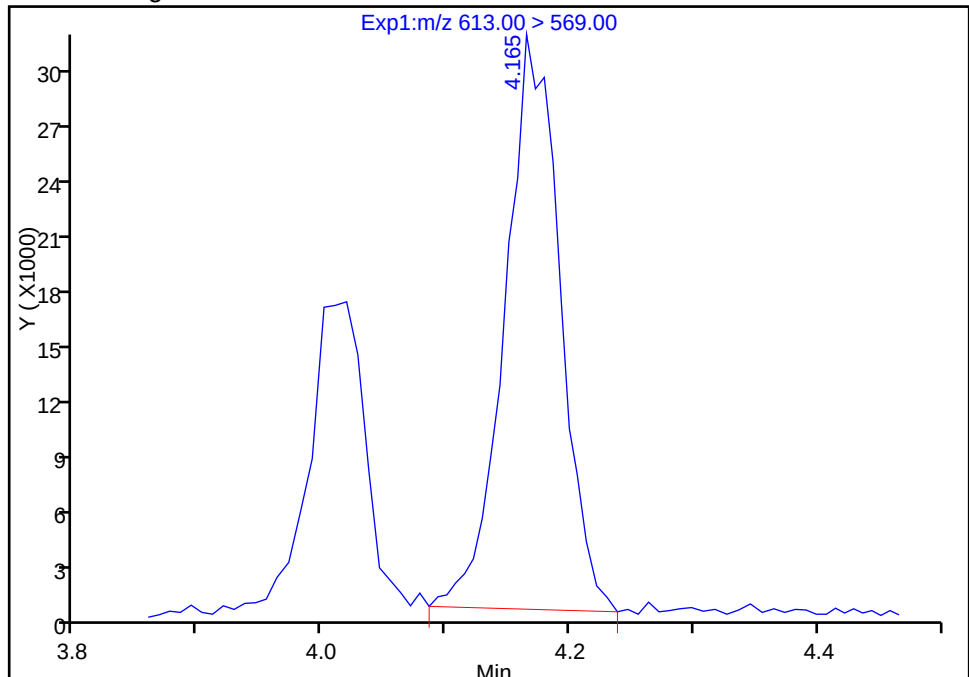
RT: 4.16
Area: 80091
Amount: 0.790618
Amount Units: ng/ml

Processing Integration Results



RT: 4.16
Area: 96492
Amount: 0.952520
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

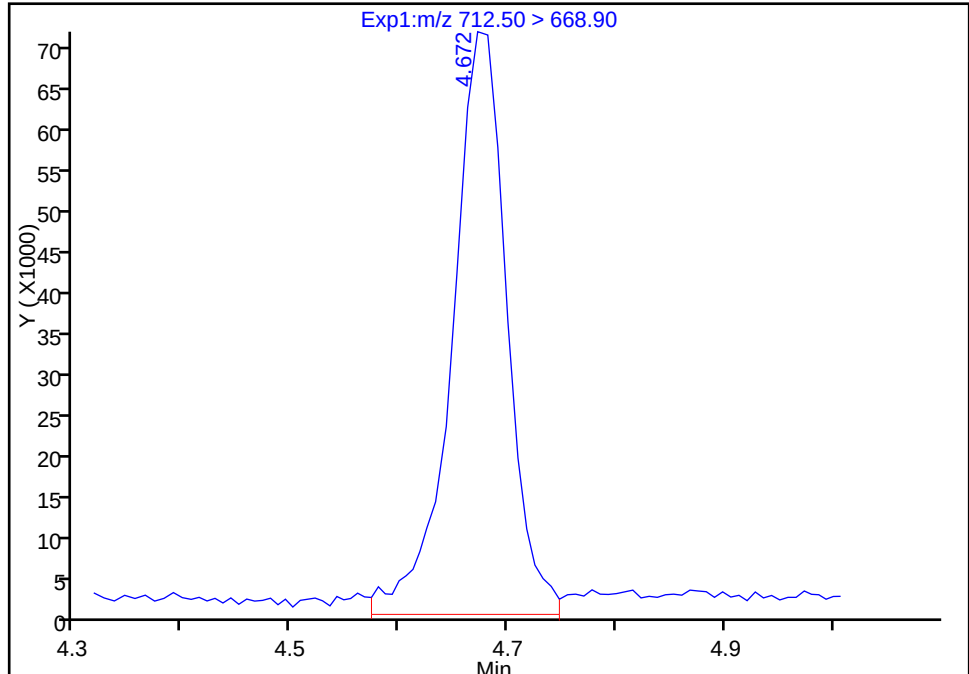
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

42 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 1

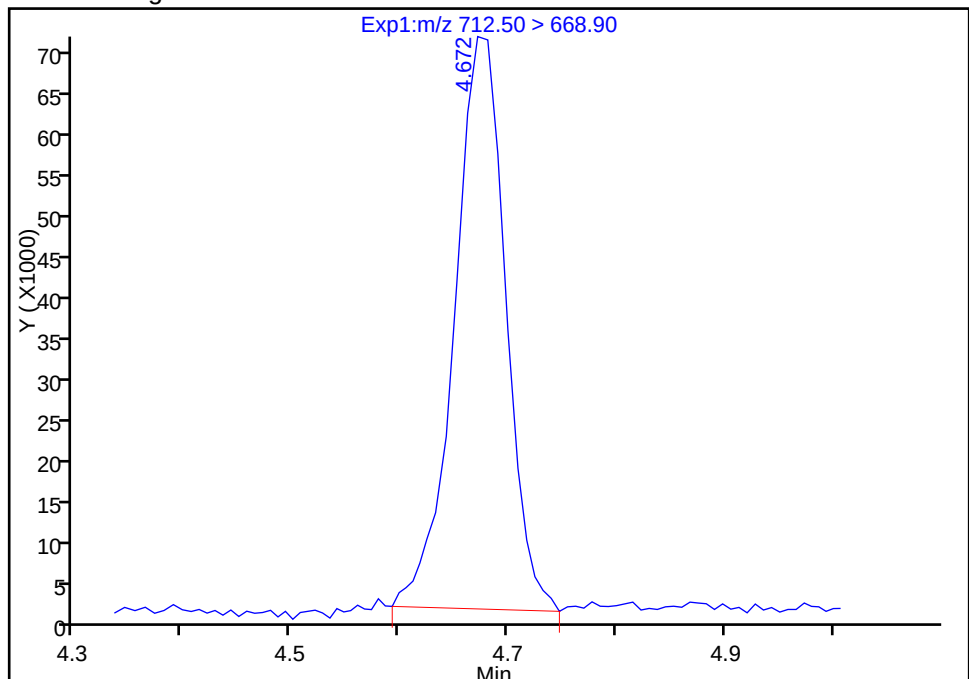
RT: 4.67
Area: 249999
Amount: 1.147659
Amount Units: ng/ml

Processing Integration Results



RT: 4.67
Area: 226988
Amount: 1.042024
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

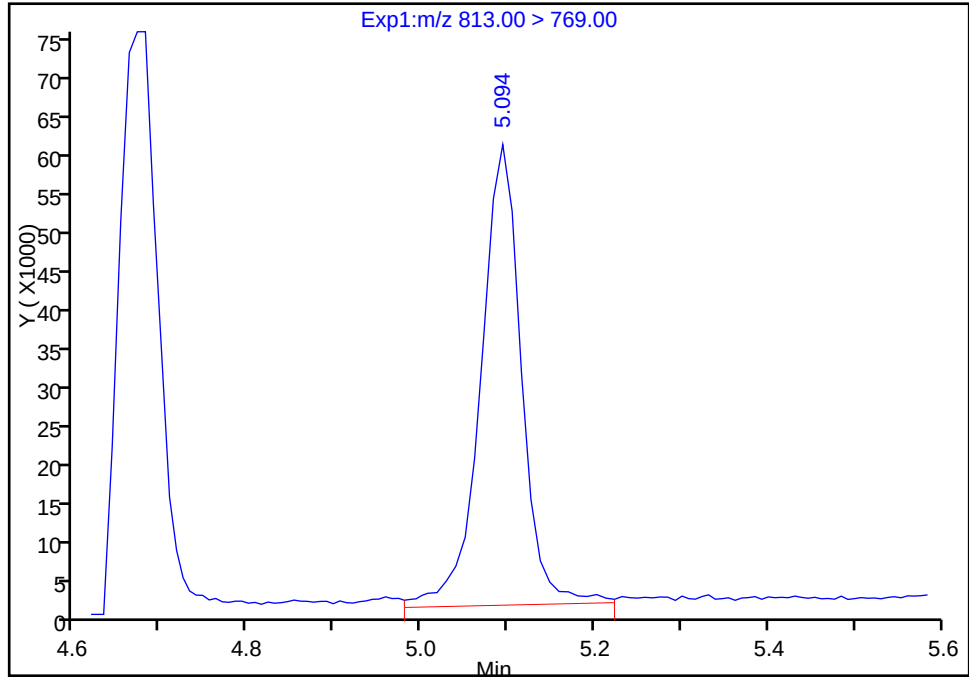
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

45 Perfluorohexadecanoic acid, CAS: 67905-19-5

Signal: 1

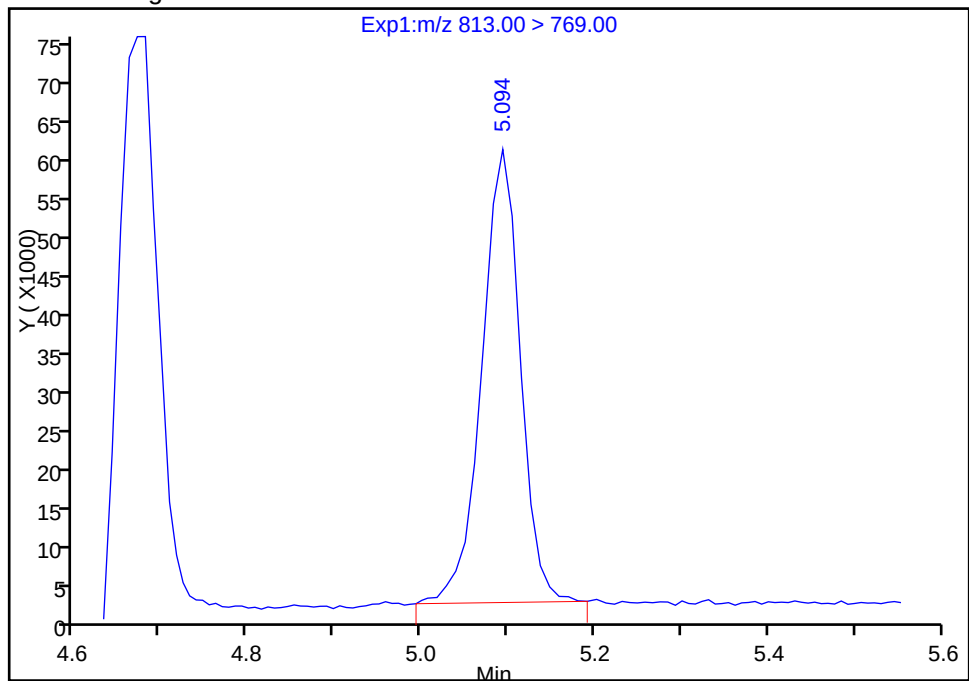
RT: 5.09
Area: 195255
Amount: 1.524963
Amount Units: ng/ml

Processing Integration Results



RT: 5.09
Area: 181303
Amount: 1.389087
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:41:17

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-152836/11 Calibration Date: 03/02/2017 10:20

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.02A_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8626		20.4	20.0	1.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9396		19.2	20.0	-4.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.525		18.8	17.7	6.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8472		19.0	20.0	-4.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9487		19.6	20.0	-1.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9941		17.6	18.2	-3.3	25.0
6:2FTS	L2ID		0.9091		19.3	19.0	1.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.067		19.7	19.0	3.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9682		19.0	20.0	-5.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9385		17.7	18.6	-4.6	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.8879		19.6	20.0	-1.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9235		20.6	20.0	2.8	25.0
8:2FTS	L2ID		0.9667		20.0	19.2	4.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8933		19.7	20.0	-1.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9421		19.4	20.0	-3.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5855		19.0	19.3	-1.7	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8693		19.1	20.0	-4.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9348		18.4	20.0	-7.8	25.0
MeFOSA	AveID	0.9355	0.9236		19.7	20.0	-1.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8671		19.0	20.0	-5.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9734		19.8	20.0	-1.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8785		20.1	20.0	0.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.955		19.9	20.0	-0.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.014		21.5	20.0	7.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.8394		23.4	20.0	17.0	25.0
13C4 PFBA	Ave	292242	325440		55.7	50.0	11.4	50.0
13C5-PFPeA	Ave	232192	259316		55.8	50.0	11.7	50.0
13C2 PFHxA	Ave	210884	249729		59.2	50.0	18.4	50.0
13C4-PFHpA	Ave	192959	214011		55.5	50.0	10.9	50.0
18O2 PFHxS	Ave	290899	320358		52.1	47.3	10.1	50.0
M2-6:2FTS	Ave	77178	107670		66.3	47.5	39.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152836/11 Calibration Date: 03/02/2017 10:20
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.02A_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	215902		52.7	50.0	5.3	50.0
13C4 PFOS	Ave	241637	257979		51.0	47.8	6.8	50.0
13C5 PFNA	Ave	177866	174212		49.0	50.0	-2.1	50.0
13C8 FOSA	Ave	366918	388757		53.0	50.0	6.0	50.0
M2-8:2FTS	Ave	92602	87636		45.3	47.9	-5.4	50.0
13C2 PFDA	Ave	166704	152943		45.9	50.0	-8.3	50.0
d3-NMeFOSAA	Ave	85186	56323		33.1	50.0	-33.9	50.0
d5-NEtFOSAA	Ave	81371	56185		34.5	50.0	-31.0	50.0
13C2 PFUnA	Ave	130805	117449		44.9	50.0	-10.2	50.0
d-N-MeFOSA-M	Ave	87983	94130		53.5	50.0	7.0	50.0
13C2 PFDoA	Ave	123944	118248		47.7	50.0	-4.6	50.0
d-N-EtFOSA-M	Ave	85249	93582		54.9	50.0	9.8	50.0
13C2-PFTeDA	Ave	259165	255708		49.3	50.0	-1.3	50.0
13C2-PFHxDA	Ave	125061	135532		54.2	50.0	8.4	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 02-Mar-2017 10:20:15 ALS Bottle#: 31 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 02-Mar-2017 12:33:56 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK026

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:19:20

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	1.538	1.538	0.0	1.000	5614608	20.4		102	52029	
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		16272016	55.7		111	2560230	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		12965778	55.8		112	4482652	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.821	1.821	0.0	1.000	4873282	19.2		96.0	51203	M
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	8637275	18.8		106		
298.90 > 99.00	1.861	1.861	0.0	1.000	3676549		2.35(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.122	2.122	0.0		12486437	59.2		118	50611	
6 Perfluorohexanoic acid										M
313.00 > 269.00	2.122	2.122	0.0	1.000	4231273	19.0		95.2	139120	M
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.483	2.483	0.0	1.000	5796134	17.6		96.7		
D 9 13C4-PFHpA										
367.00 > 322.00	2.468	2.468	0.0		10700569	55.5		111	41087	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.460	2.460	0.0	1.000	4060788	19.6		98.1	42603	
D 11 18O2 PFHxS										
403.00 > 84.00	2.483	2.483	0.0		15152935	52.1		110	107291	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.803	2.803	0.0	1.000	1855846	19.3		102		
D 12 M2-6:2FTS										
429.00 > 409.00	2.803	2.803	0.0		5114334	66.3		140		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.834	2.834	0.0		10795091	52.7		105	48013	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.834	2.834	0.0	1.000	4180551	19.0		94.8	81633	
413.00 > 169.00	2.826	2.834	-0.008	0.997	2393662		1.75(0.90-1.10)		140384	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.834	2.834	0.0	1.000	5242228	19.7		104		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.089	3.089	0.0	1.000	4493469	17.7		95.4	50831	
499.00 > 99.00	3.202	3.089	0.113	1.037	1038493		4.33(0.90-1.10)		5446	
D 18 13C4 PFOS										
503.00 > 80.00	3.202	3.202	0.0		12331379	51.0		107	483502	
D 19 13C5 PFNA										
468.00 > 423.00	3.202	3.202	0.0		8710616	49.0		97.9	2554425	
20 Perfluorononanoic acid										
463.00 > 419.00	3.210	3.210	0.0	1.000	3093545	19.6		98.2	224177	
D 21 13C8 FOSA										
506.00 > 78.00	3.528	3.528	0.0		19437825	53.0		106	5825133	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.536	3.536	0.0	1.000	7180030	20.6		103	2322938	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.545	3.545	0.0	0.998	1623166	20.0		104		
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.553	0.0		4197741	45.3		94.6		
D 23 13C2 PFDA										
515.00 > 470.00	3.561	3.561	0.0		7647149	45.9		91.7	758082	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.561	3.561	0.0	1.000	2732358	19.7		98.6	296115	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.714	3.714	0.0		2816150	33.1		66.1		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.714	3.714	0.0	1.000	1061205	19.4		97.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.867	3.867	0.0	1.000	2912097	19.0		98.3		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.875	3.875	0.0		2809234	34.5		69.0		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.875	3.875	0.0	1.000	976797	19.1		95.5		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.884	3.884	0.0	1.000	2195714	18.4		92.2	673255	
D 30 13C2 PFUnA										
565.00 > 520.00	3.884	3.884	0.0		5872434	44.9		89.8	1799010	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.027	4.027	0.0		4706484	53.5		107		
35 MeFOSA										
512.00 > 169.00	4.027	4.027	0.0	1.000	1738794	19.7		98.7		
D 36 13C2 PFDaA										
615.00 > 570.00	4.172	4.172	0.0		5912410	47.7		95.4	616849	

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d

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	4.172	4.172	0.0	1.000	2050744	19.0	94.8	41630
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.205	4.205	0.0		4679104	54.9	110	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.213	4.213	0.0	1.000	1821773	19.8	99.0	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.436	4.436	0.0	1.000	2077528	20.1	101	222516
D 43 13C2-PFTeDA	715.00	> 670.00	4.672	4.672	0.0		12785404	49.3	98.7	3955002
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.681	4.681	0.0	1.000	4623654	19.9	99.4	30443
	713.00	> 169.00	4.672	4.681	-0.009	0.998	630382	7.33(0.00-0.00)		199387
D 44 13C2-PFHxDA	815.00	> 770.00	5.093	5.093	0.0		6776585	54.2	108	268593
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.093	5.093	0.0	1.000	2397154	21.5	107	4946
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.446	5.446	0.0	1.000	1985155	23.4	117	6409

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d

Injection Date: 02-Mar-2017 10:20:15

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

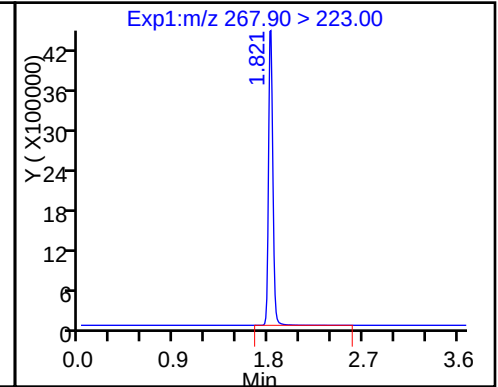
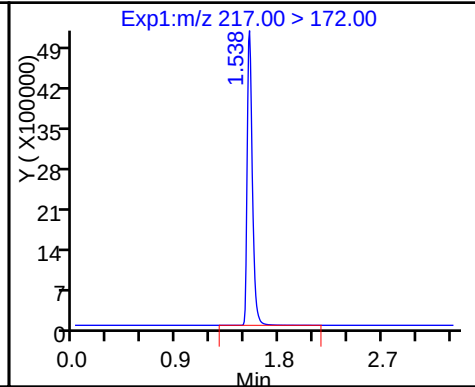
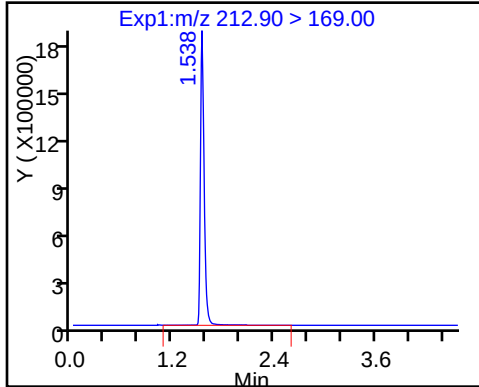
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

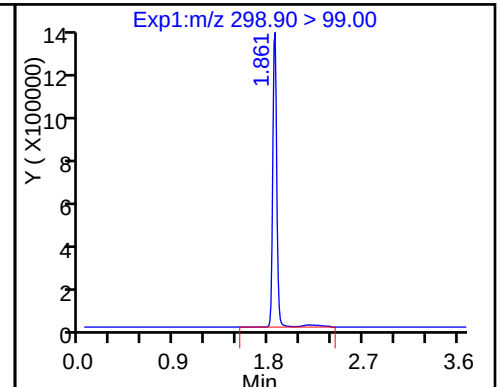
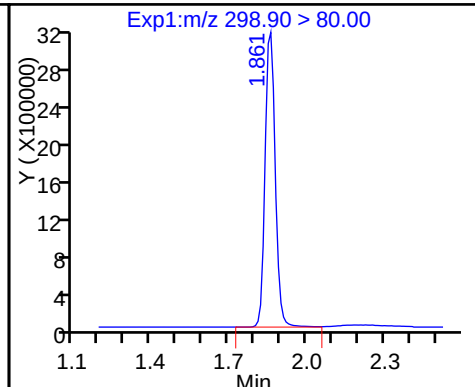
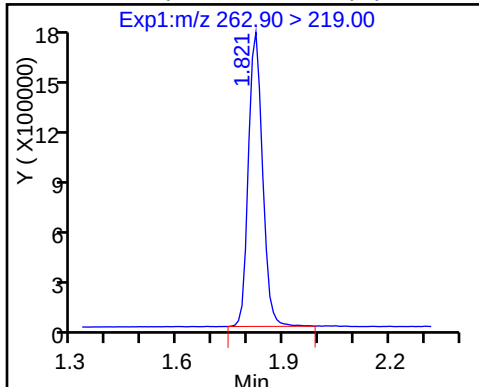
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (M)

5 Perfluorobutanesulfonic acid

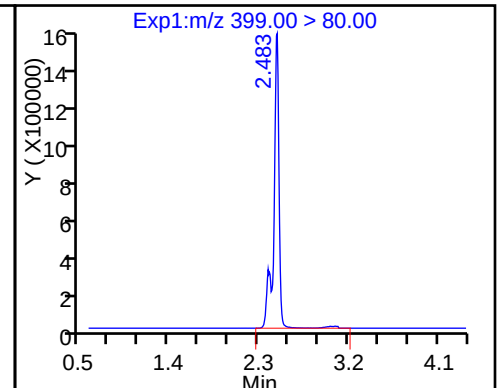
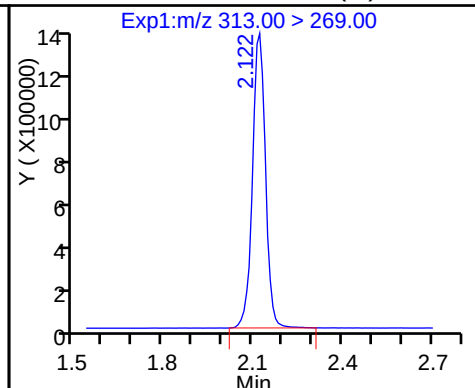
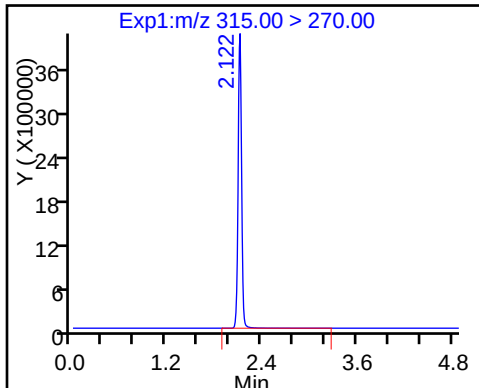
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid (M)

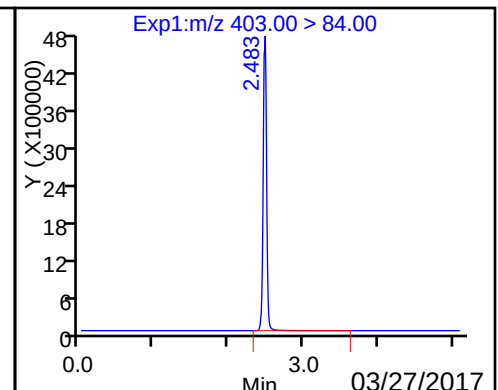
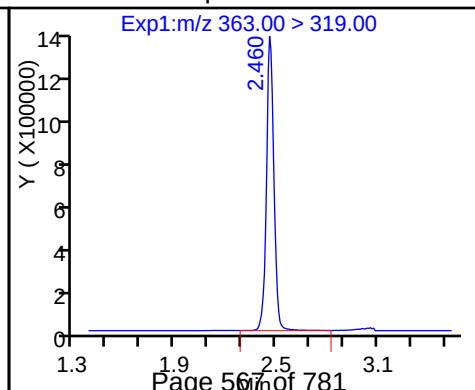
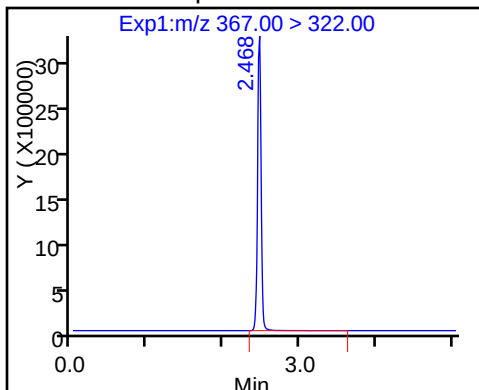
8 Perfluorohexanesulfonic acid



D 9 13C4-PFHpA

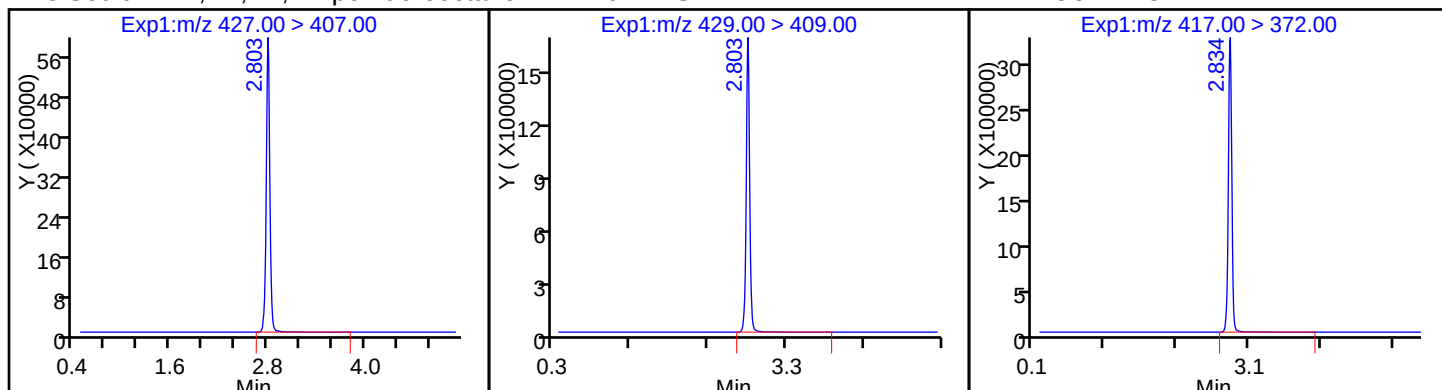
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

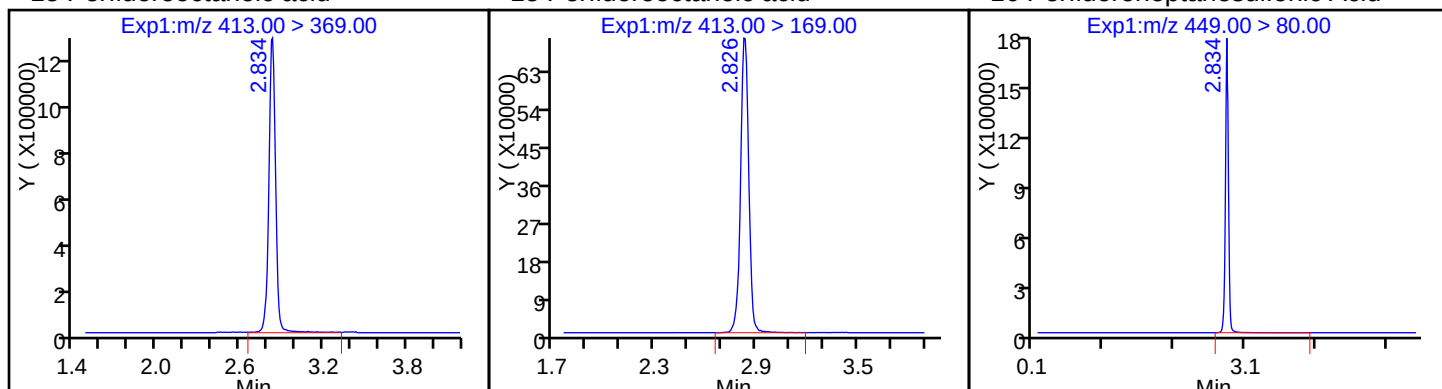
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

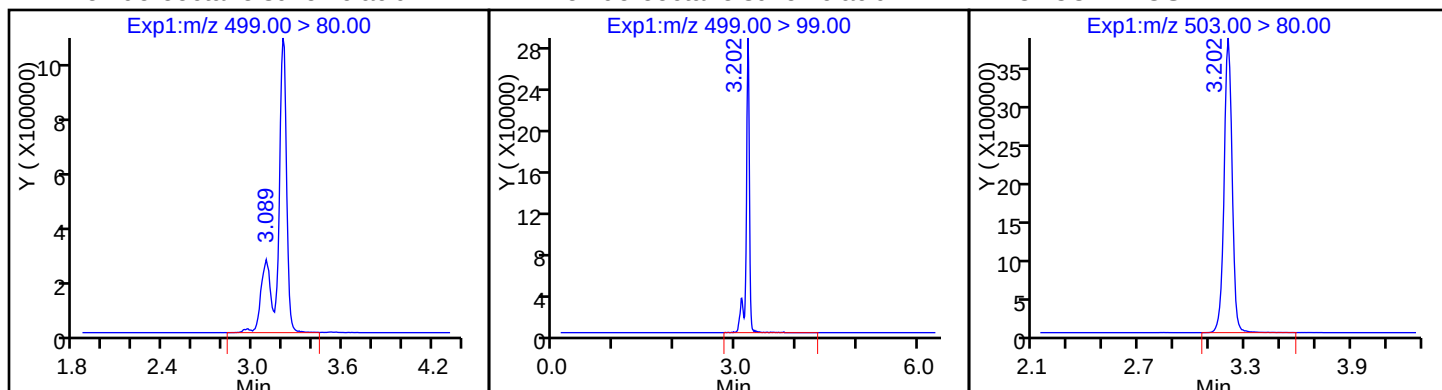
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

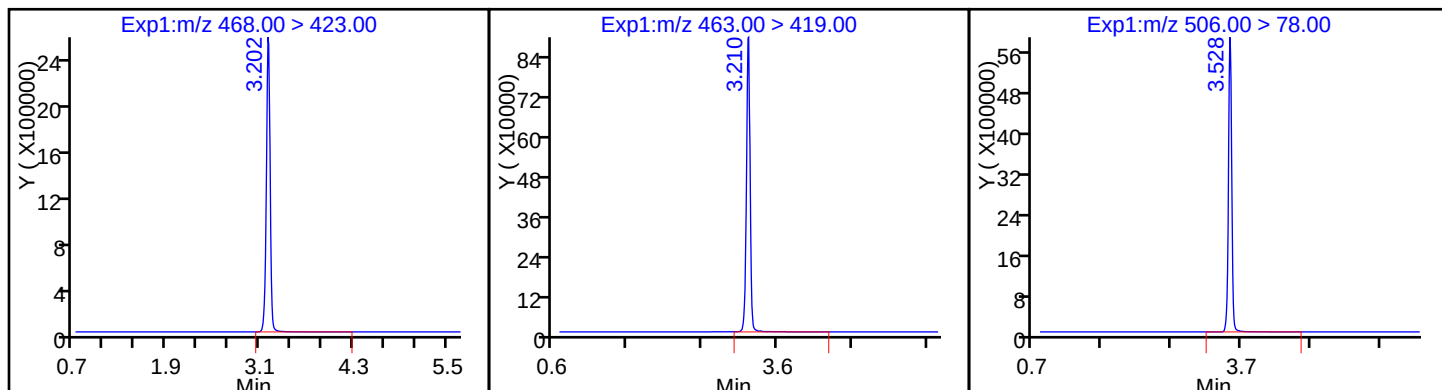
D 18 13C4 PFOS



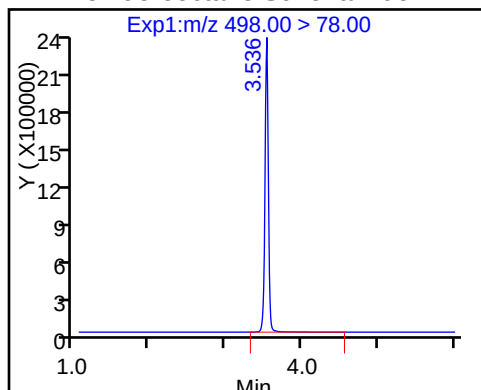
D 19 13C5 PFNA

20 Perfluorononanoic acid

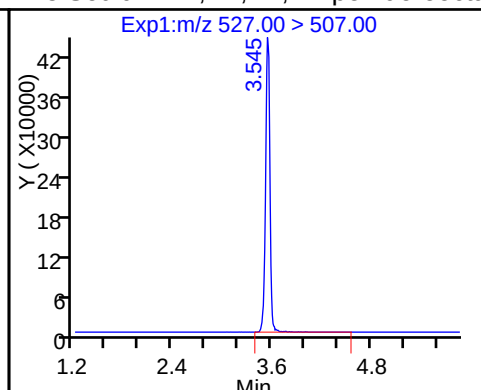
D 21 13C8 FOSA



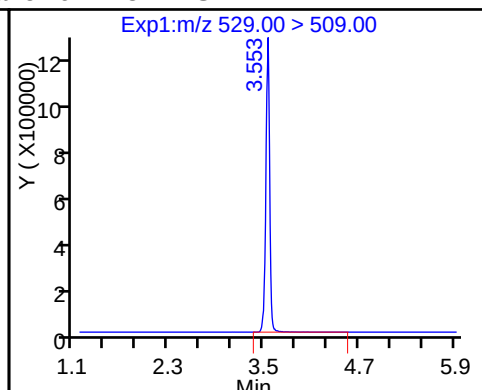
22 Perfluorooctane Sulfonamide



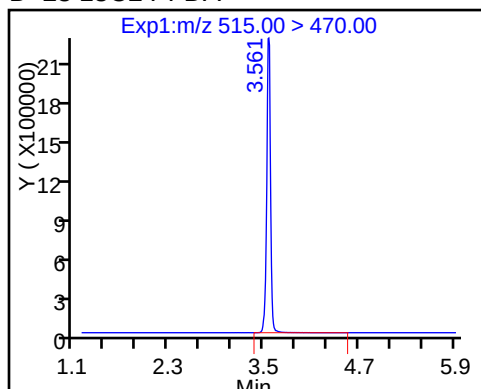
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



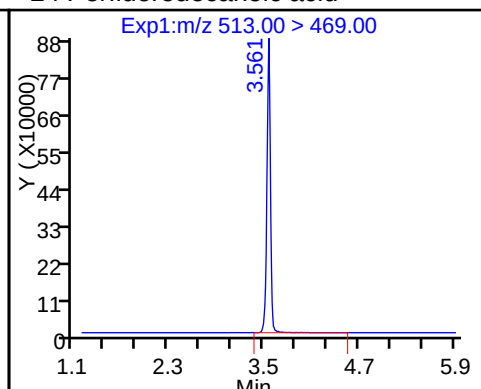
26 M2-8:2FTS



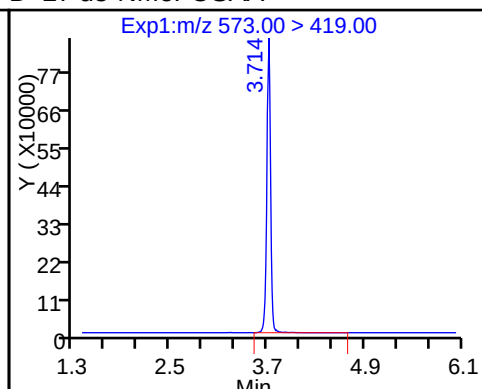
D 23 13C2 PFDA



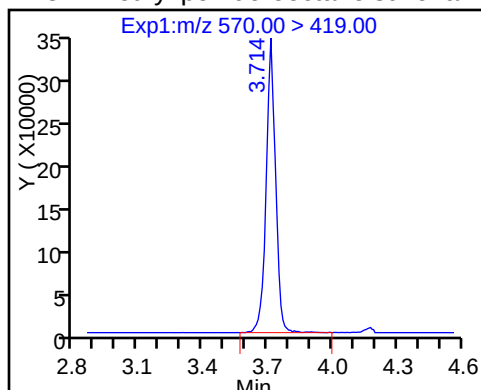
24 Perfluorodecanoic acid



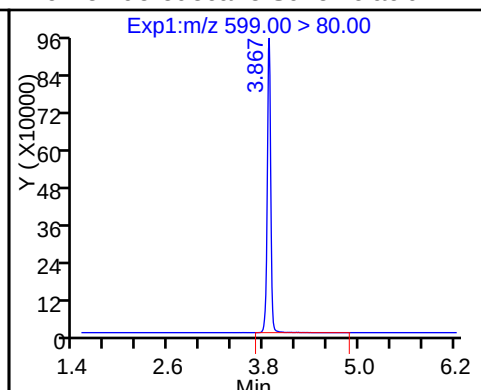
D 27 d3-NMeFOSAA



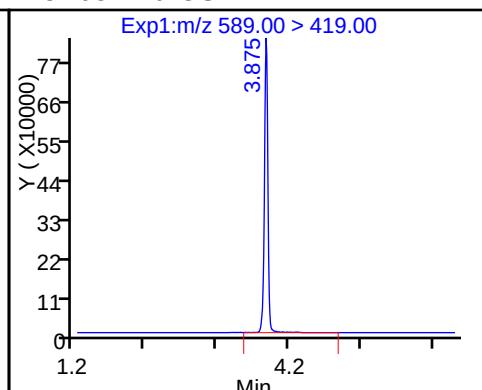
28 N-methyl perfluorooctane sulfonamide



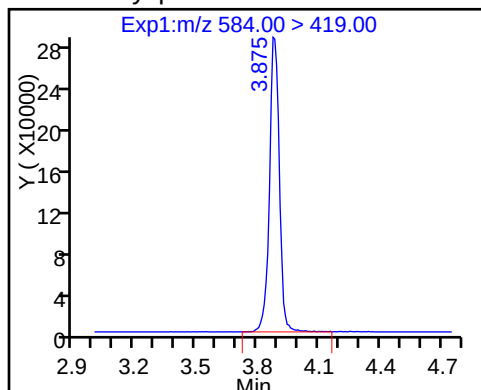
29 Perfluorodecane Sulfonic acid



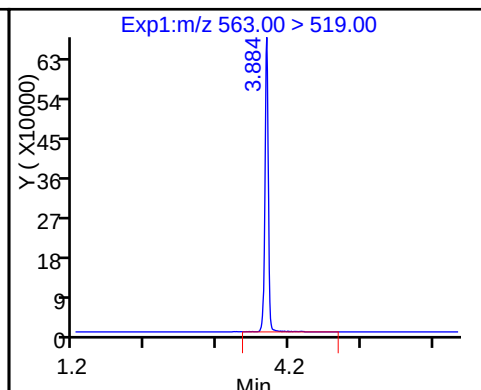
D 32 d5-NEtFOSAA



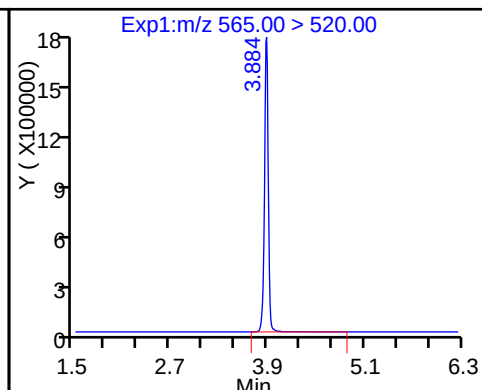
33 N-ethyl perfluorooctane sulfonamide



31 Perfluoroundecanoic acid



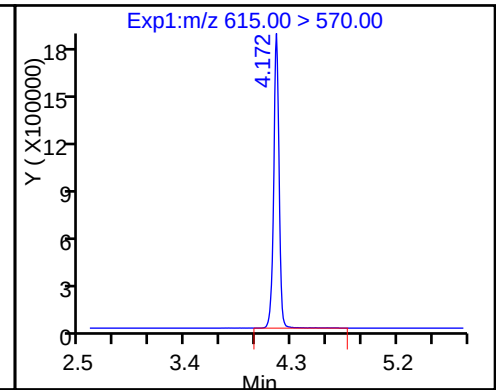
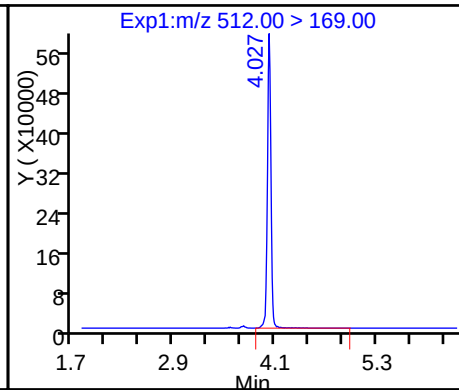
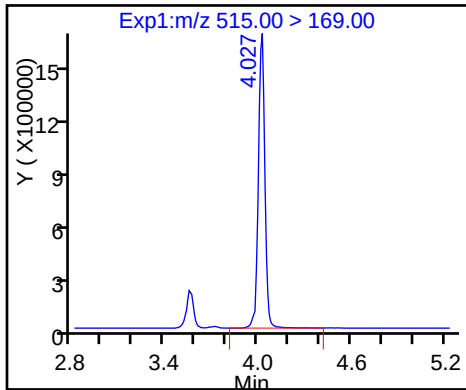
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

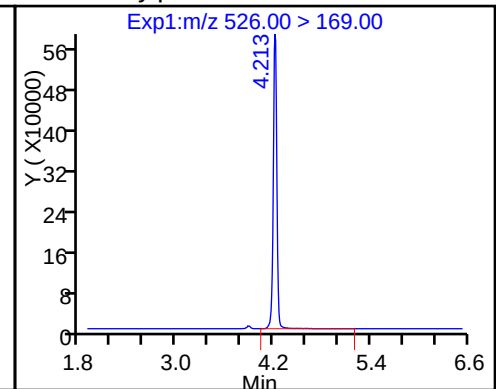
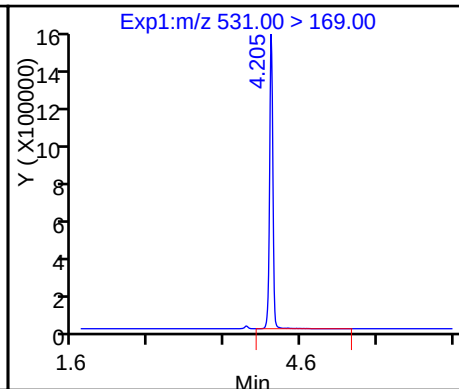
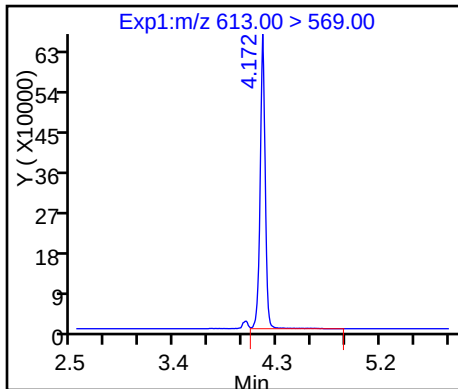
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

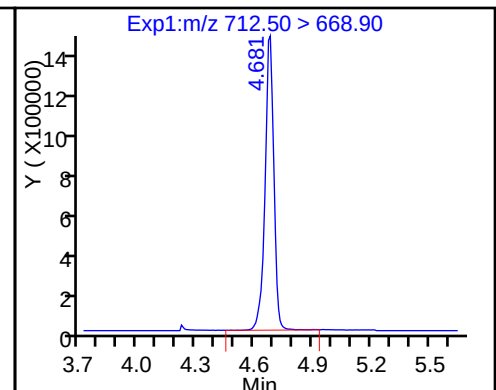
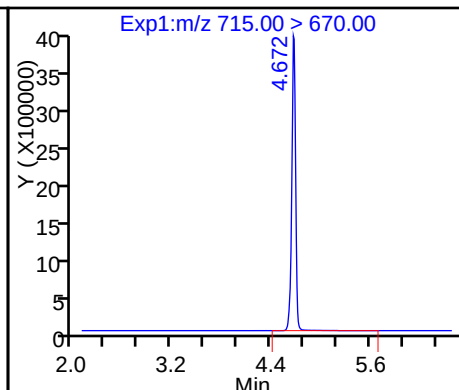
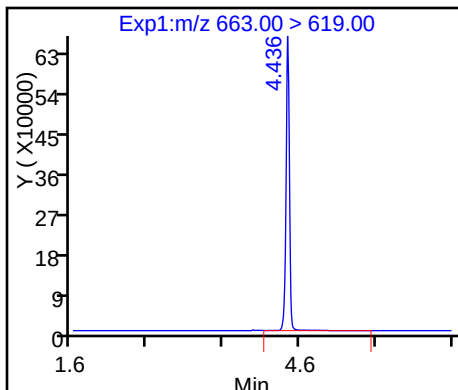
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

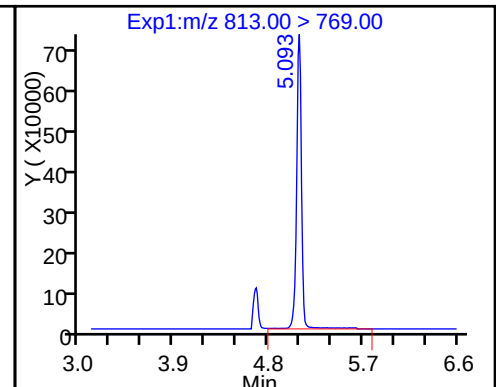
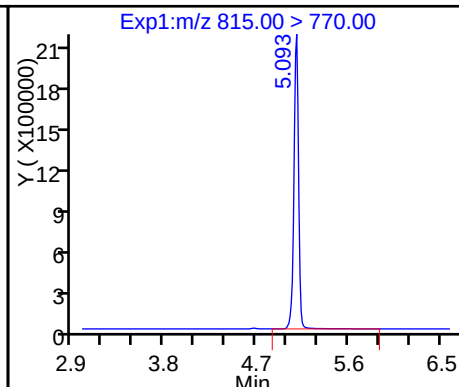
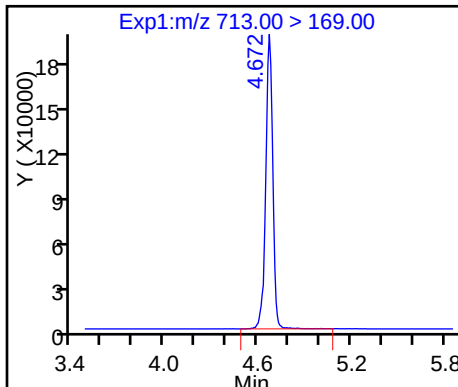
42 Perfluorotetradecanoic acid



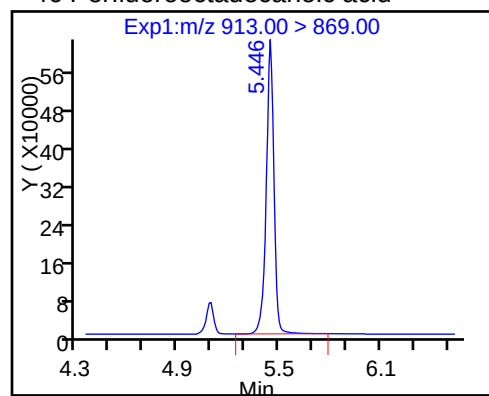
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

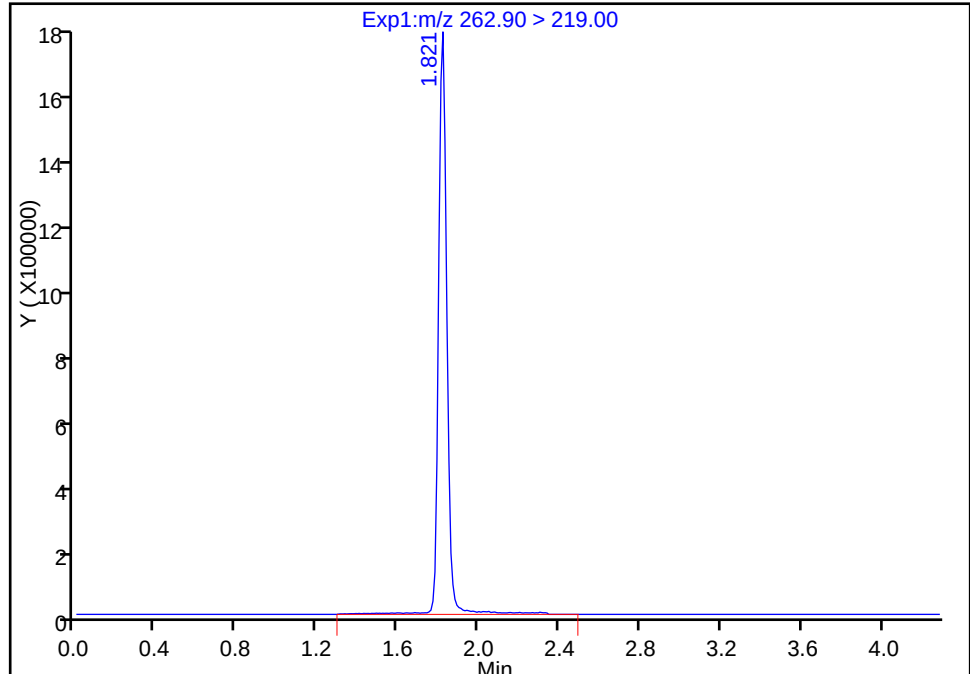
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d
Injection Date: 02-Mar-2017 10:20:15 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

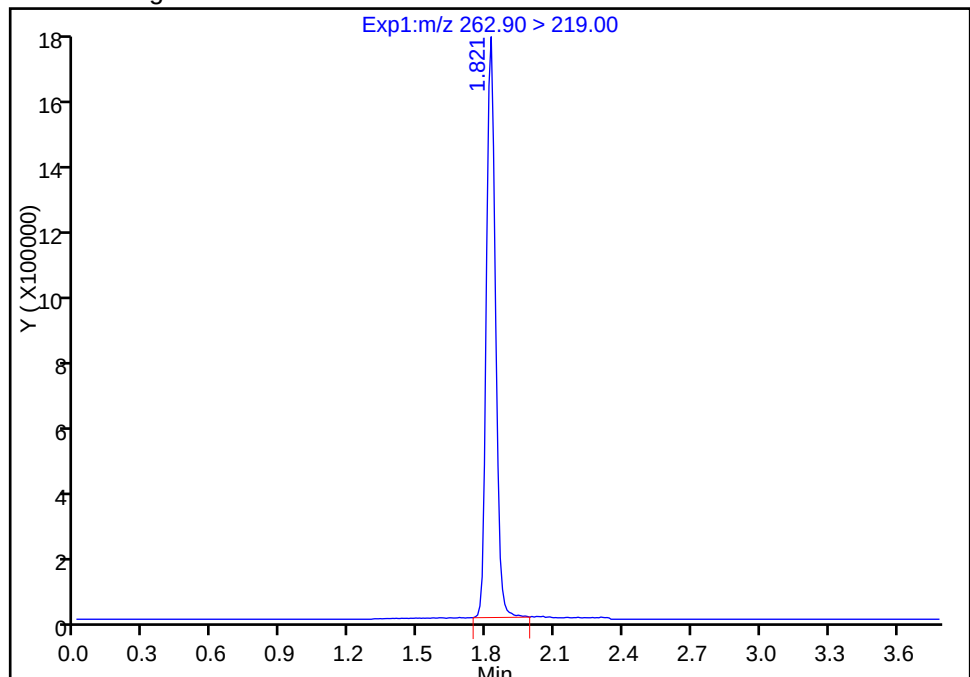
RT: 1.82
Area: 5152486
Amount: 20.305253
Amount Units: ng/ml

Processing Integration Results



RT: 1.82
Area: 4873282
Amount: 19.204948
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 02-Mar-2017 12:33:55

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

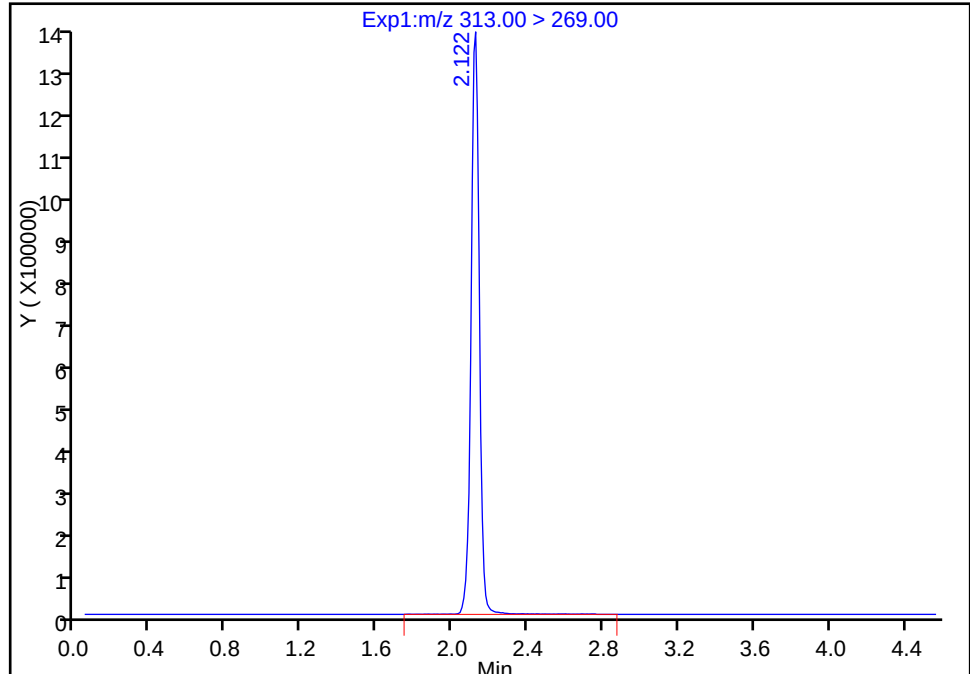
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d
Injection Date: 02-Mar-2017 10:20:15 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

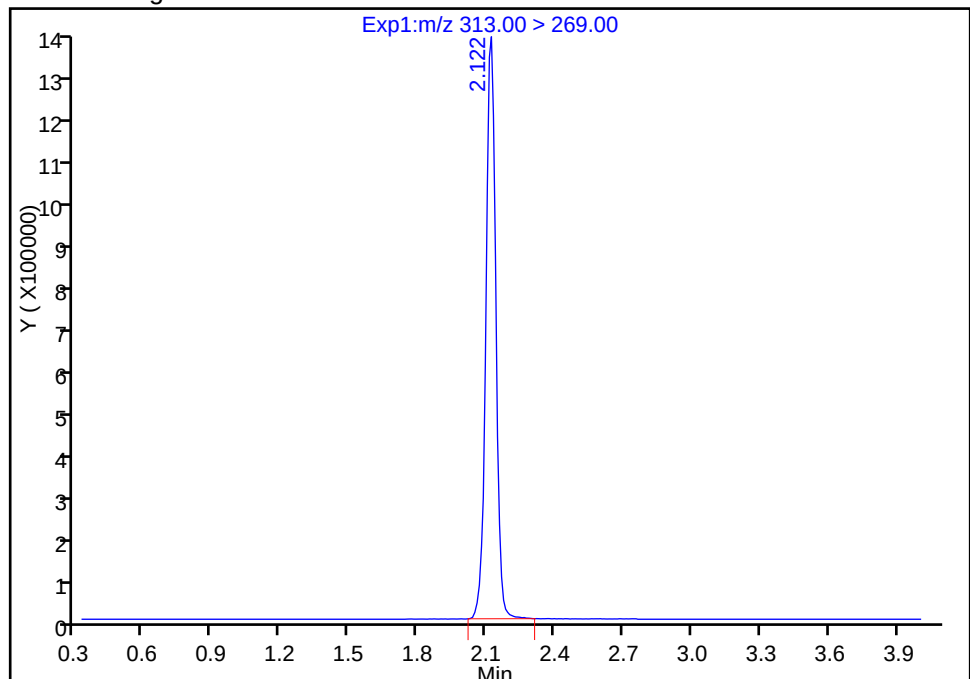
RT: 2.12
Area: 4287198
Amount: 19.299849
Amount Units: ng/ml

Processing Integration Results



RT: 2.12
Area: 4231273
Amount: 19.048089
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 02-Mar-2017 12:33:55

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-152836/23 Calibration Date: 03/02/2017 11:50

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.02A_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8988		53.0	50.0	6.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.008		51.5	50.0	3.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.483		45.7	44.2	3.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9279		52.2	50.0	4.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9584		49.5	50.0	-0.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.043		46.2	45.5	1.5	25.0
6:2FTS	L2ID		0.8881		47.4	47.4	-0.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.018		49.8	50.0	-0.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.120		51.7	47.6	8.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.022		48.2	46.4	3.9	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9647		53.4	50.0	6.7	25.0
8:2FTS	L2ID		0.9133		47.3	47.9	-1.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9175		51.1	50.0	2.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9264		51.1	50.0	2.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9312		47.9	50.0	-4.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6342		51.3	48.2	6.5	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8727		47.9	50.0	-4.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9523		47.0	50.0	-6.1	25.0
MeFOSA	AveID	0.9355	0.9017		48.2	50.0	-3.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9418		51.5	50.0	3.0	25.0
N-EtFOSA-M	AveID	0.9837	0.9242		47.0	50.0	-6.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9283		53.1	50.0	6.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.921		48.8	50.0	-2.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.007		54.0	50.0	7.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.9567		66.7	50.0	33.3*	25.0
13C4 PFBA	Ave	292242	339102		58.0	50.0	16.0	50.0
13C5-PFPeA	Ave	232192	263905		56.8	50.0	13.7	50.0
13C2 PFHxA	Ave	210884	258586		61.3	50.0	22.6	50.0
13C4-PFHpA	Ave	192959	223271		57.9	50.0	15.7	50.0
18O2 PFHxS	Ave	290899	344494		56.0	47.3	18.4	50.0
M2-6:2FTS	Ave	77178	113159		69.6	47.5	46.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152836/23 Calibration Date: 03/02/2017 11:50
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.02A_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	220988		53.9	50.0	7.8	50.0
13C4 PFOS	Ave	241637	275791		54.6	47.8	14.1	50.0
13C5 PFNA	Ave	177866	176927		49.7	50.0	-0.5	50.0
13C8 FOSA	Ave	366918	403987		55.1	50.0	10.1	50.0
M2-8:2FTS	Ave	92602	91276		47.2	47.9	-1.4	50.0
13C2 PFDA	Ave	166704	156017		46.8	50.0	-6.4	50.0
d3-NMeFOSAA	Ave	85186	67930		39.9	50.0	-20.3	50.0
d5-NEtFOSAA	Ave	81371	61574		37.8	50.0	-24.3	50.0
13C2 PFUnA	Ave	130805	126813		48.5	50.0	-3.1	50.0
d-N-MeFOSA-M	Ave	87983	105294		59.8	50.0	19.7	50.0
13C2 PFDoA	Ave	123944	121654		49.1	50.0	-1.8	50.0
d-N-EtFOSA-M	Ave	85249	102620		60.2	50.0	20.4	50.0
13C2-PFTeDA	Ave	259165	246402		47.5	50.0	-4.9	50.0
13C2-PFHxDA	Ave	125061	140417		56.1	50.0	12.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_014.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 02-Mar-2017 11:50:19 ALS Bottle#: 32 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 02-Mar-2017 12:34:28 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK026

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:33:35

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	1.538	1.538	0.0	1.000	15238716	53.0		106	99621	
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		16955081	58.0		116	846923	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		13195267	56.8		114	1120621	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	13299835	51.5		103	111363	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	22574779	45.7		103		
298.90 > 99.00	1.861	1.861	0.0	1.000	9933704		2.27(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.118	2.118	0.0		12929323	61.3		123	411353	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.118	2.118	0.0	1.000	11996493	52.2		104	328901	
D 47 13C3-PFBS										
301.90 > 83.00	2.243	2.243	0.0		291	NC				
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.464	2.464	0.0	1.000	10699567	49.5		99.1	110260	
D 9 13C4-PFHpA										
367.00 > 322.00	2.456	2.456	0.0		11163533	57.9		116	310079	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.479	2.479	0.0	1.000	16354110	46.2		101		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.479	2.479	0.0		16294547	56.0		118	469192	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.798	2.798	0.0	1.000	4763457	47.4		100.0		

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	2.798	2.798	0.0		5375056	69.6		147		
D 14 13C4 PFOA										
417.00 > 372.00	2.829	2.829	0.0		11049404	53.9		108	459222	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.829	2.829	0.0	1.000	11252138	49.8		99.7	140155	
413.00 > 169.00	2.821	2.829	-0.008	0.997	6789329		1.66(0.90-1.10)		151233	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.837	0.0	1.000	14703223	51.7		109		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.084	3.084	0.0	1.000	13082408	48.2		104	70511	
499.00 > 99.00	3.100	3.084	0.016	1.005	2947909		4.44(0.90-1.10)		14308	
D 18 13C4 PFOS										
503.00 > 80.00	3.205	3.205	0.0		13182792	54.6		114	223761	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.205	0.0		8846363	49.7		99.5	364742	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.205	0.0	1.000	8534255	53.4		107	191378	
D 21 13C8 FOSA										
506.00 > 78.00	3.542	3.542	0.0		20199361	55.1		110	339236	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.542	3.542	0.0	1.000	18532034	51.1		102	378589	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.542	3.542	0.0	0.998	3992906	47.3		98.7		
D 26 M2-8:2FTS										
529.00 > 509.00	3.551	3.551	0.0		4372128	47.2		98.6		
D 23 13C2 PFDA										
515.00 > 470.00	3.559	3.559	0.0		7800859	46.8		93.6	226146	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.568	3.568	0.0	1.000	7226381	51.1		102	179443	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.711	3.711	0.0		3396490	39.9		79.7		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.711	3.711	0.0	1.000	3162783	47.9		95.9		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.857	3.857	0.0	1.000	8430308	51.3		106		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.874	3.874	0.0		3078695	37.8		75.7		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.883	3.883	0.0	1.002	2686679	47.9		95.9		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.883	3.883	0.0	1.000	6038014	47.0		93.9	110913	
D 30 13C2 PFUnA										
565.00 > 520.00	3.883	3.883	0.0		6340659	48.5		96.9	167301	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.032	4.032	0.0		5264701	59.8		120		
35 MeFOSA										
512.00 > 169.00	4.042	4.042	0.0	1.000	4747214	48.2		96.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.166	4.166	0.0		6082691	49.1		98.2	156811	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.166	4.166	0.0	1.000	5728563	51.5		103	64950	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.225	4.225	0.0		5130981	60.2		120		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.225	4.225	0.0	1.000	4741808	47.0		94.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.440	4.440	0.0	1.000	5646419	53.1		106	142853	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.667	4.667	0.0		12320105	47.5		95.1	335589	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.667	4.667	0.0	1.000	11682096	48.8		97.7	66737	
713.00 > 169.00	4.657	4.667	-0.010	0.998	1628059		7.18(0.00-0.00)		161246	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.078	5.078	0.0		7020832	56.1		112	117131	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.078	5.078	0.0	1.000	6126365	54.0		108	7145	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.421	5.421	0.0	1.000	5819534	66.7		133	10171	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_014.d

Injection Date: 02-Mar-2017 11:50:19

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

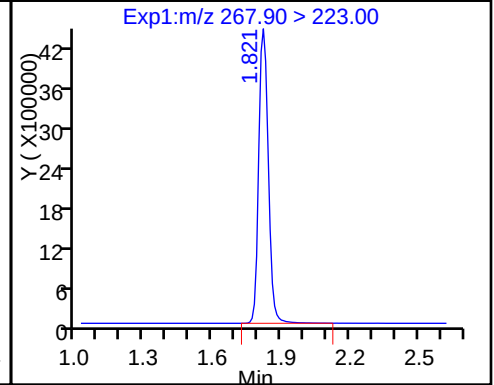
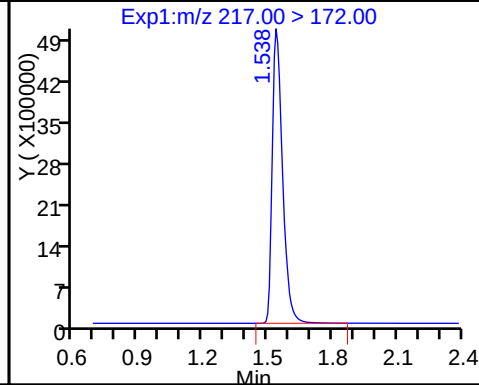
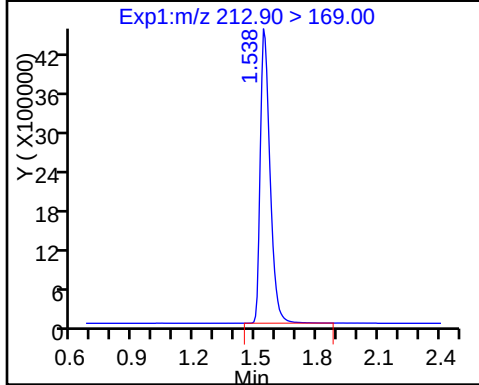
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

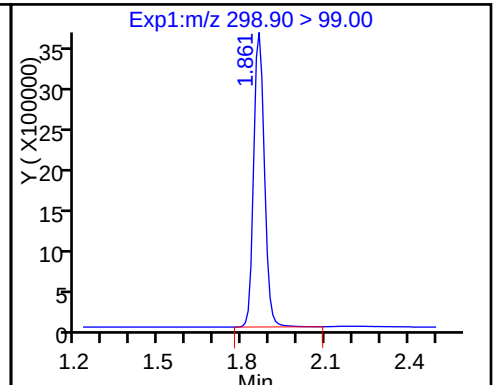
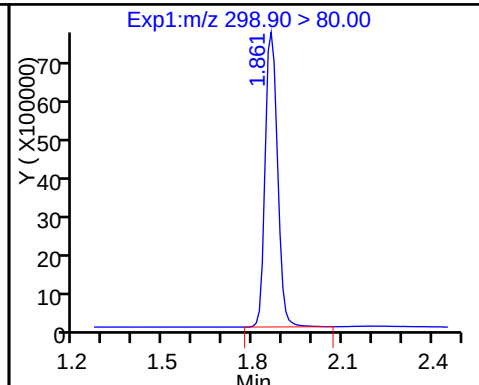
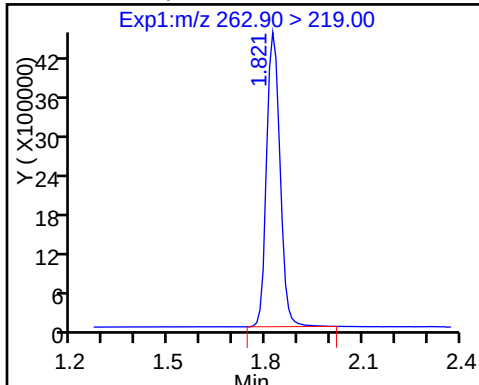
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

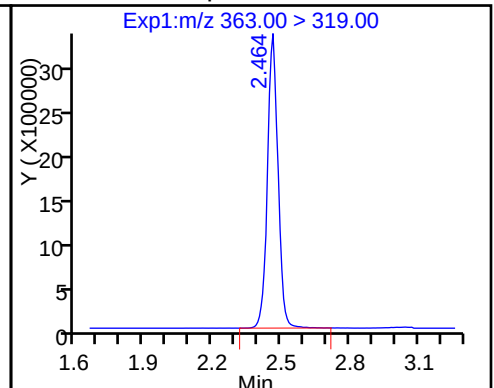
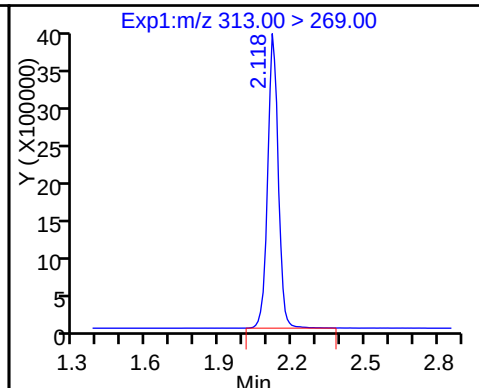
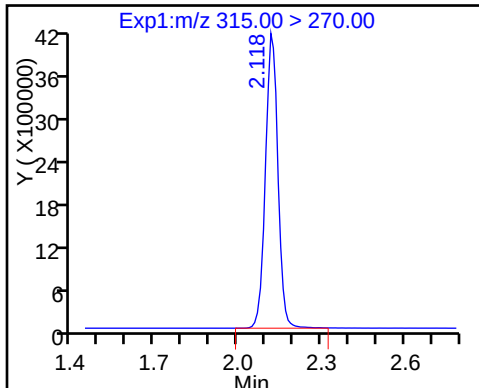
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

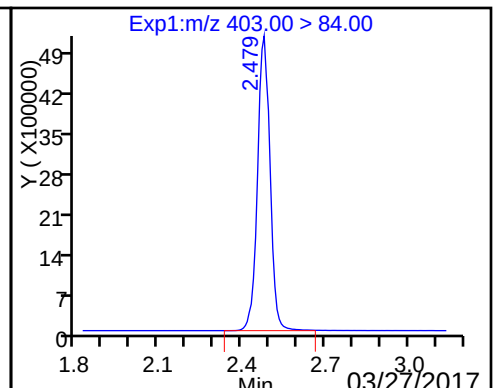
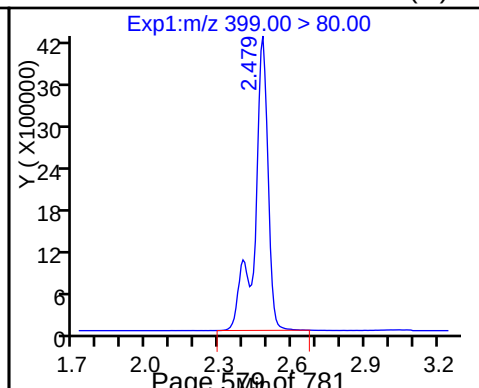
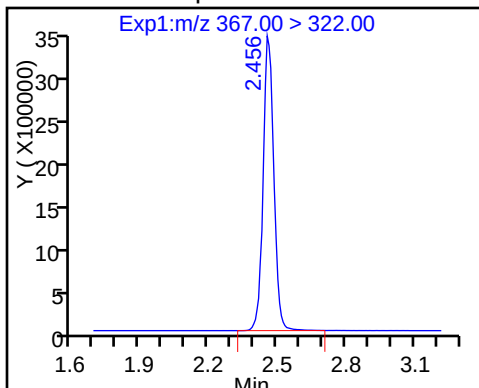
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

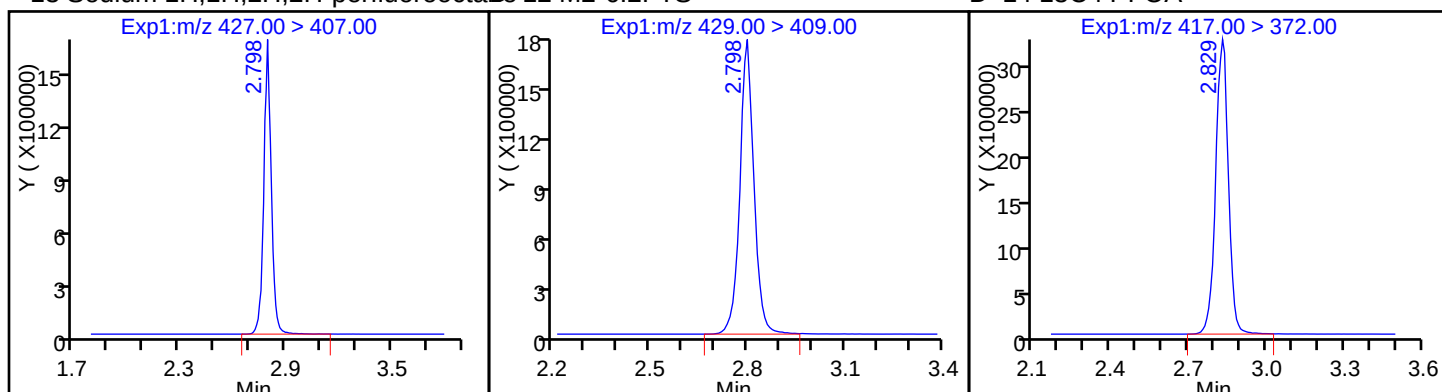
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

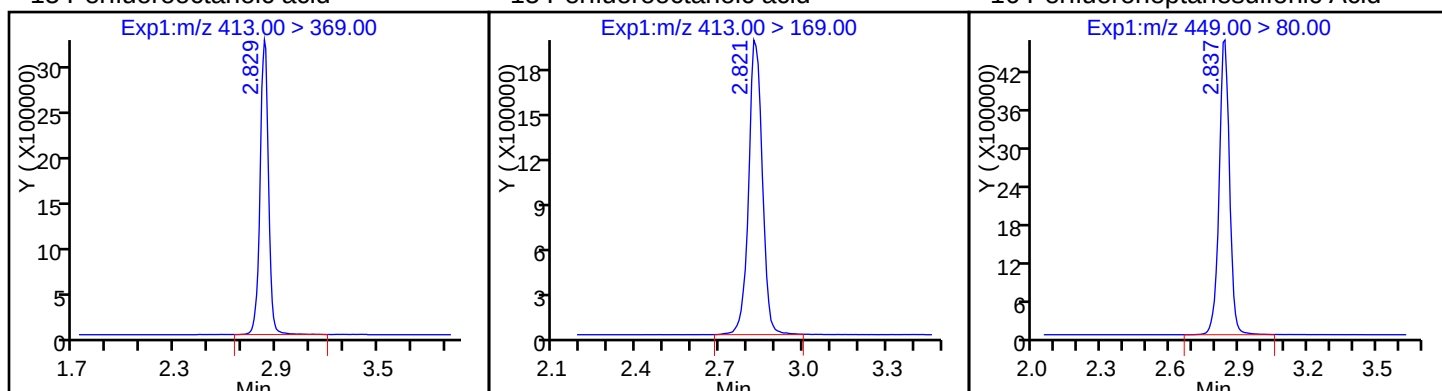
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

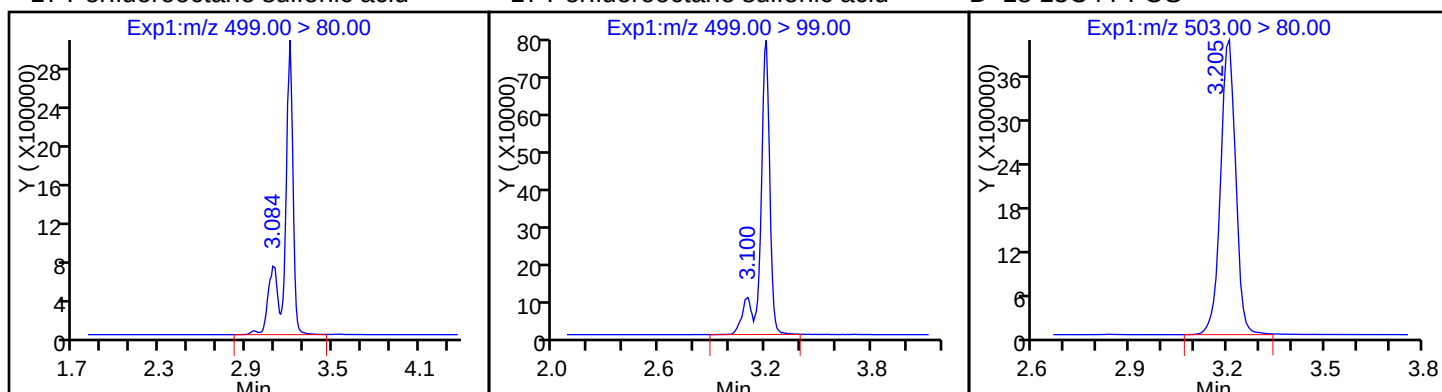
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

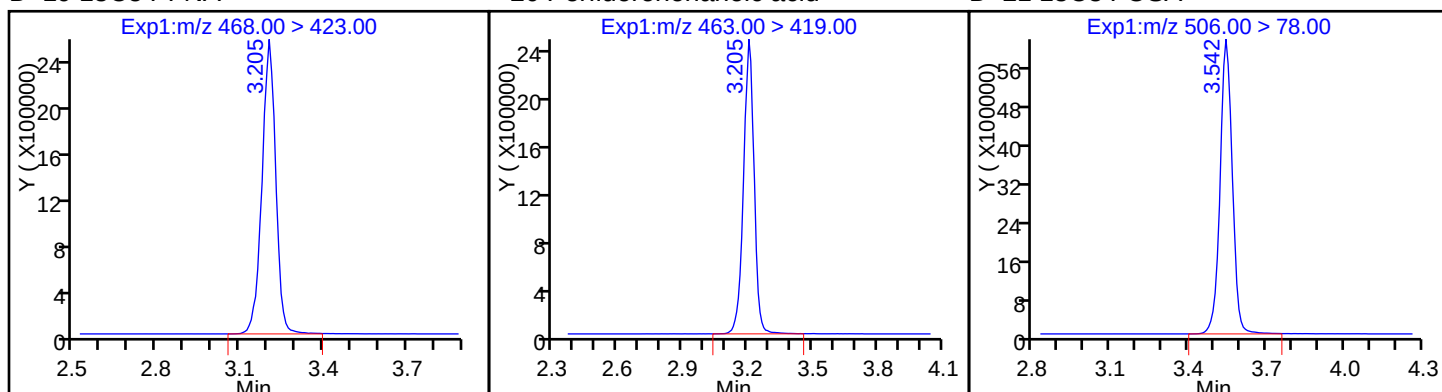
D 18 13C4 PFOS



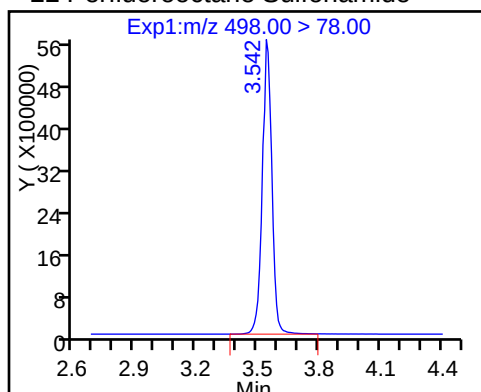
D 19 13C5 PFNA

20 Perfluorononanoic acid

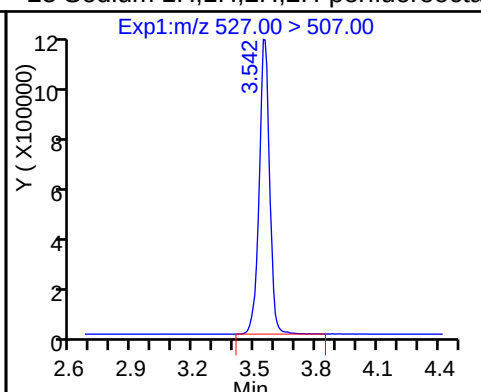
D 21 13C8 FOSA



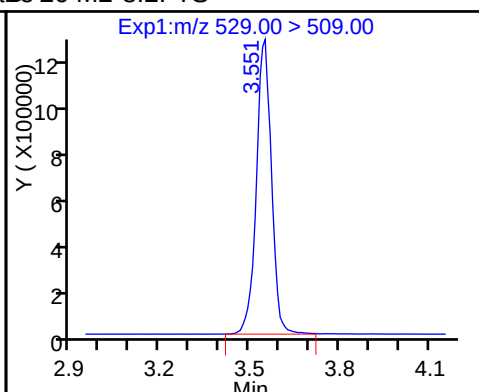
22 Perfluorooctane Sulfonamide



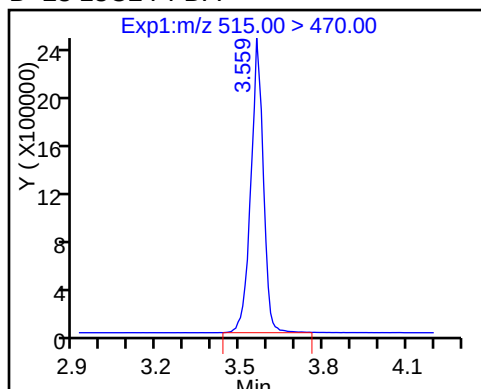
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



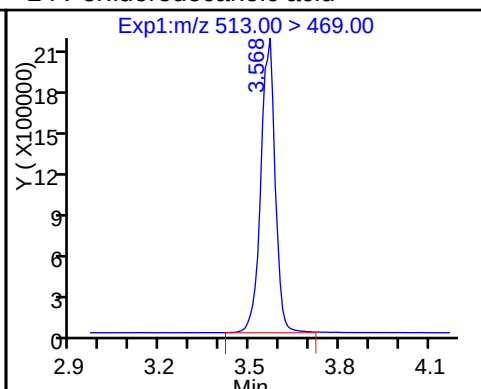
26 M2-8:2FTS



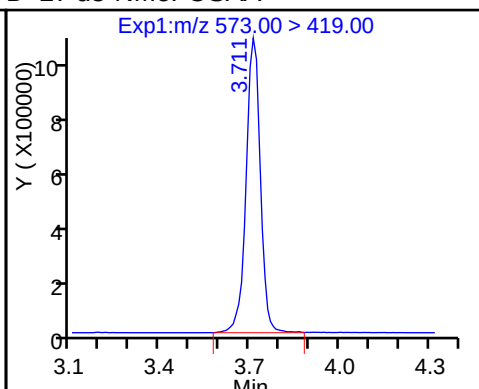
D 23 13C2 PFDA



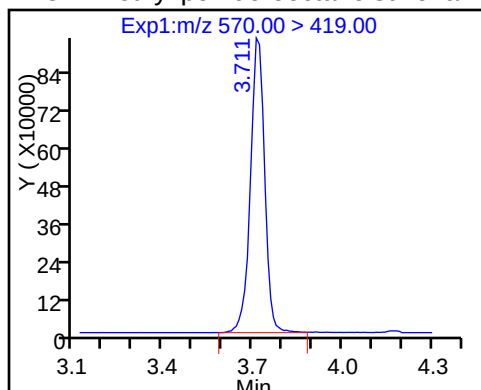
24 Perfluorodecanoic acid



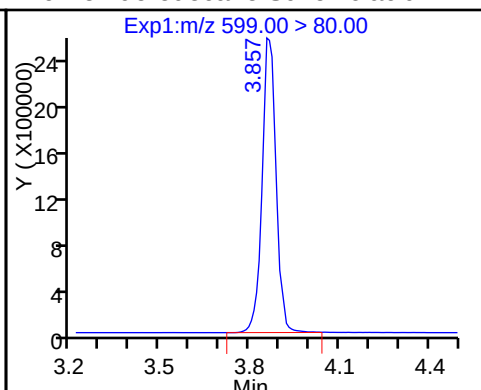
D 27 d3-NMeFOSAA



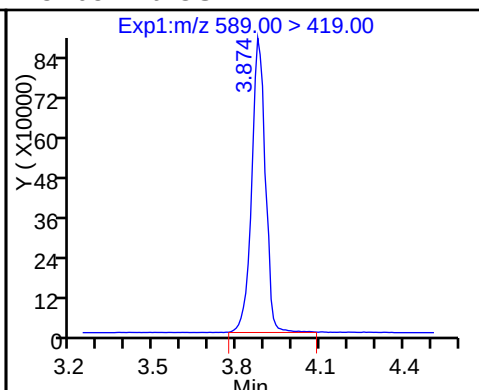
28 N-methyl perfluorooctane sulfonamid



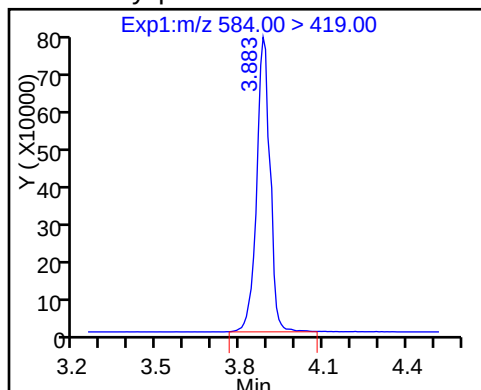
29 Perfluorodecane Sulfonic acid



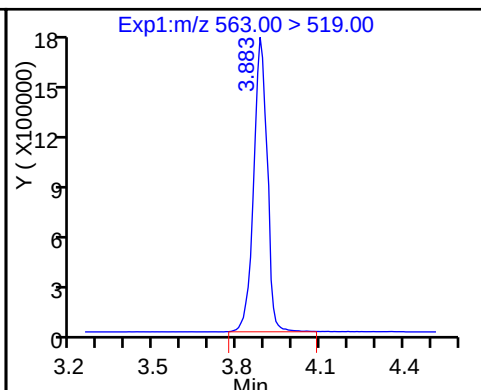
D 32 d5-NEtFOSAA



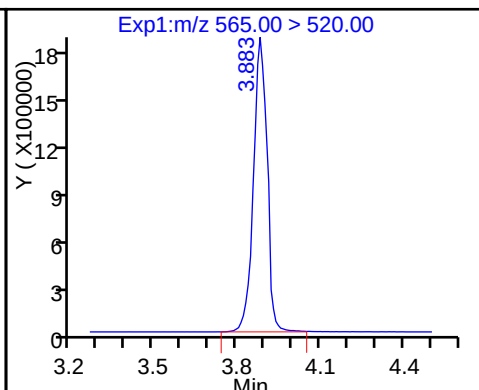
33 N-ethyl perfluorooctane sulfonamid



31 Perfluoroundecanoic acid



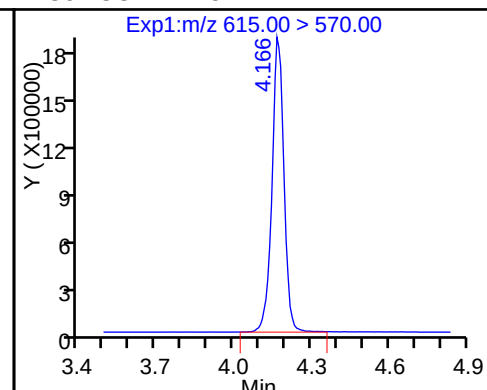
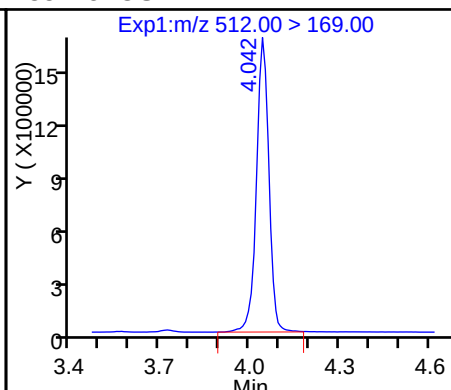
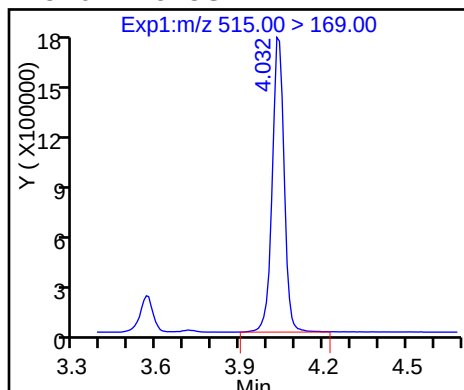
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

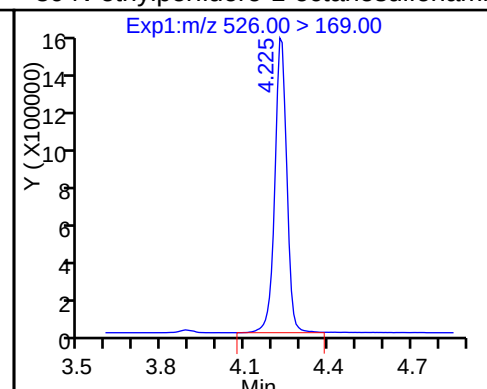
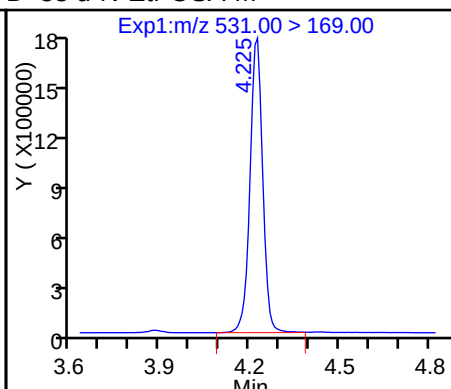
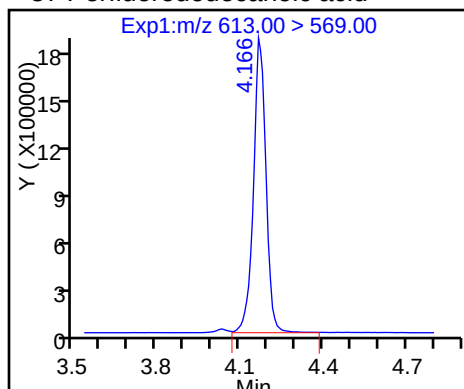
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

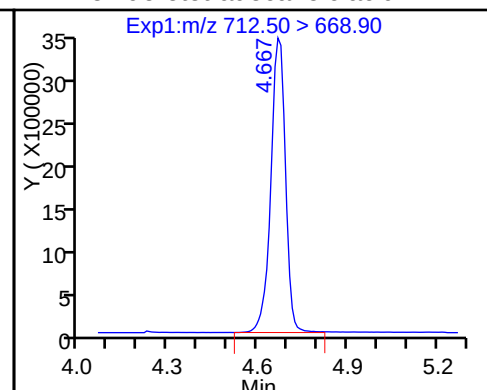
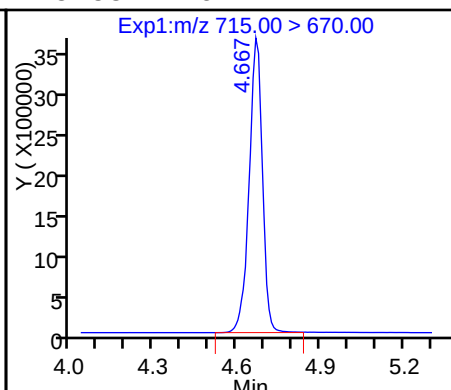
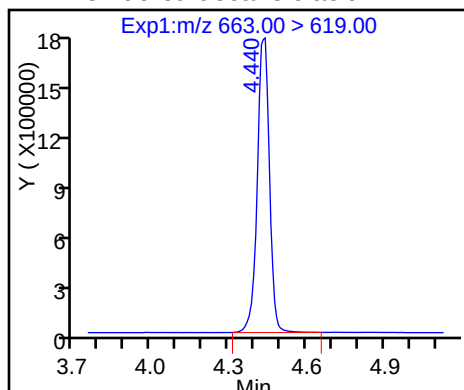
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

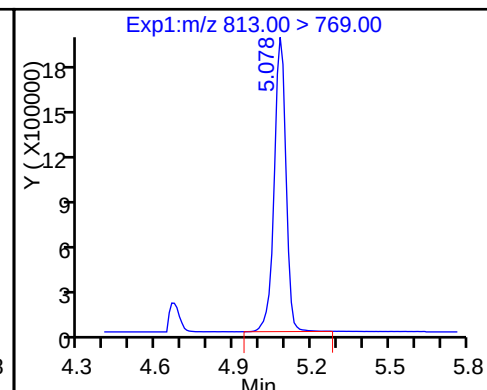
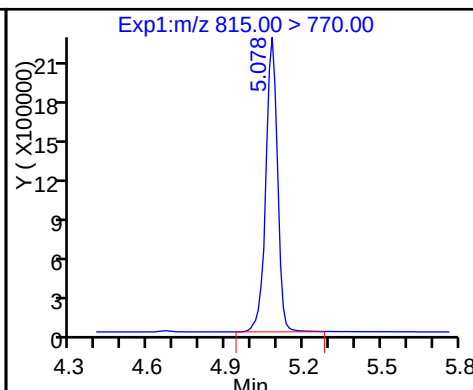
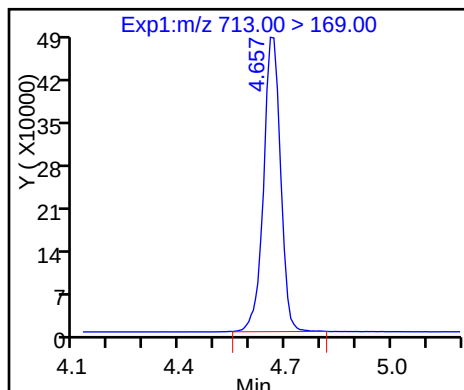
42 Perfluorotetradecanoic acid



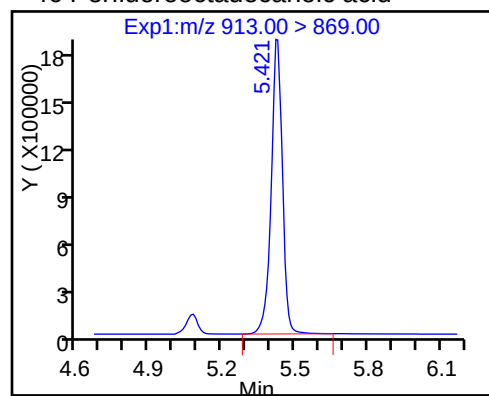
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

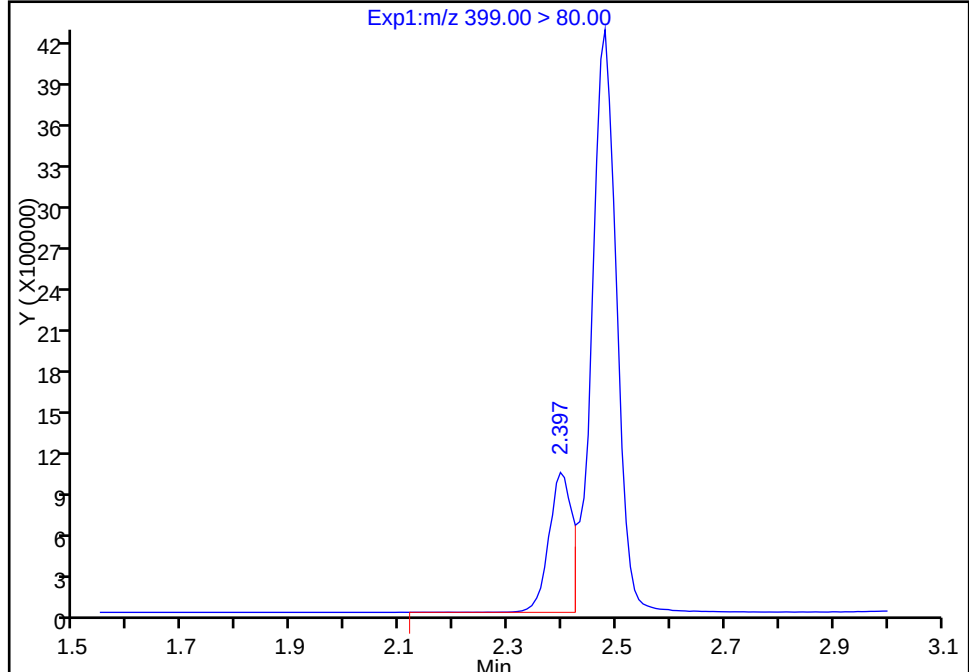
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Injection Date: 02-Mar-2017 11:50:19 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

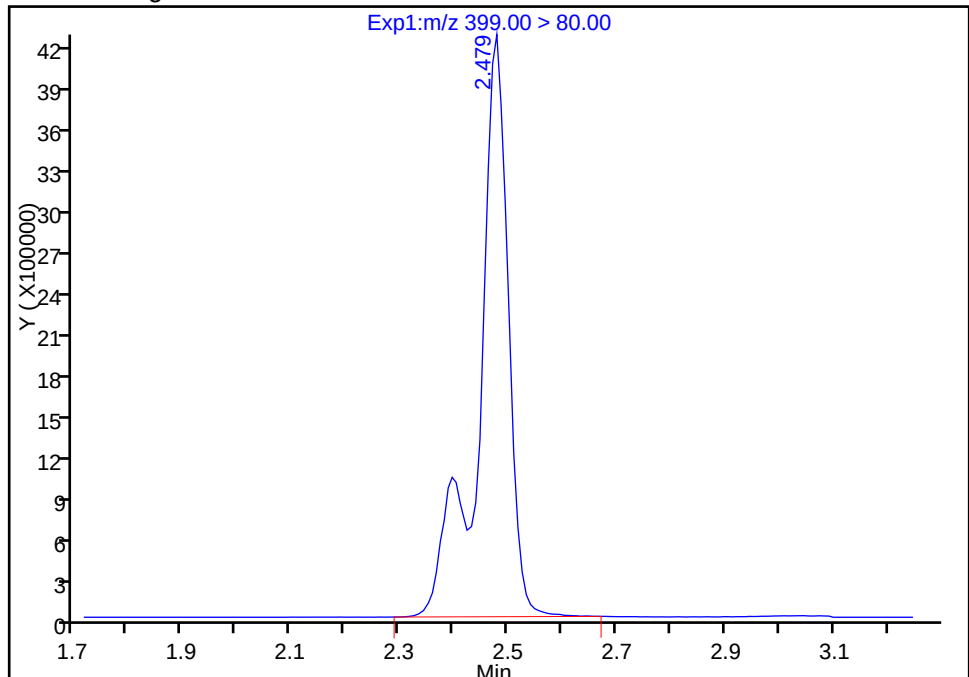
RT: 2.40
Area: 2959842
Amount: 8.354240
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 16354110
Amount: 46.159952
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 02-Mar-2017 12:34:27

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-154503/1 Calibration Date: 03/11/2017 12:34

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.11C_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8603		1.02	1.00	1.5	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.106		1.13	1.00	13.1	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.529		0.944	0.884	6.8	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9177		1.03	1.00	3.2	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9703		1.00	1.00	0.3	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.189		1.05	0.910	15.6	50.0
6:2FTS	L2ID		1.215		1.16	0.948	22.9	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.077		1.05	1.00	5.4	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.065		0.983	0.952	3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.046		0.987	0.928	6.3	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9180		1.02	1.00	1.5	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8981		1.00	1.00	-0.0	50.0
8:2FTS	L2ID		0.9772		0.929	0.958	-3.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9010		0.995	1.00	-0.5	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9874		1.02	1.00	1.7	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5682		0.920	0.964	-4.6	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.029		1.02	1.00	1.5	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.9191		1.01	1.00	1.0	50.0
MeFOSA	AveID	0.9355	0.9718		1.04	1.00	3.9	50.0
N-EtFOSA-M	AveID	0.9837	0.9816		0.998	1.00	-0.2	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8999		0.984	1.00	-1.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8744		1.00	1.00	0.1	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.464		0.745	1.00	-25.5	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.281		1.01	1.00	0.6	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5790		0.807	1.00	-19.3	50.0
13C4 PFBA	Ave	292242	324941		55.6	50.0	11.2	50.0
13C5-PFPeA	Ave	232192	253826		54.7	50.0	9.3	50.0
13C2 PFHxA	Ave	210884	239481		56.8	50.0	13.6	50.0
13C4-PFHpA	Ave	192959	218030		56.5	50.0	13.0	50.0
18O2 PFHxS	Ave	290899	331233		53.9	47.3	13.9	50.0
M2-6:2FTS	Ave	77178	95744		58.9	47.5	24.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154503/1 Calibration Date: 03/11/2017 12:34
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.11C_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	230925		56.3	50.0	12.7	50.0
13C4 PFOS	Ave	241637	262439		51.9	47.8	8.6	50.0
13C5 PFNA	Ave	177866	190511		53.6	50.0	7.1	50.0
13C8 FOSA	Ave	366918	412048		56.1	50.0	12.3	50.0
M2-8:2FTS	Ave	92602	102811		53.2	47.9	11.0	50.0
13C2 PFDA	Ave	166704	176211		52.9	50.0	5.7	50.0
d3-NMeFOSAA	Ave	85186	77543		45.5	50.0	-9.0	50.0
13C2 PFUnA	Ave	130805	133960		51.2	50.0	2.4	50.0
d5-NEtFOSAA	Ave	81371	80643		49.6	50.0	-0.9	50.0
d-N-MeFOSA-M	Ave	87983	83824		47.6	50.0	-4.7	50.0
d-N-EtFOSA-M	Ave	85249	80383		47.1	50.0	-5.7	50.0
13C2 PFDoA	Ave	123944	117054		47.2	50.0	-5.6	50.0
13C2-PFTeDA	Ave	259165	218619		42.2	50.0	-15.6	50.0
13C2-PFHxDA	Ave	125061	98970		39.6	50.0	-20.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
 Lims ID: CCV L2
 Client ID:
 Sample Type: CCVL
 Inject. Date: 11-Mar-2017 12:34:59 ALS Bottle#: 29 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 13-Mar-2017 11:41:36 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK033

First Level Reviewer: changnoit

Date: 13-Mar-2017 11:41:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										M
212.90 > 169.00	1.555	1.555	0.0	1.000	279561	1.02		102	2519	M
D 1 13C4 PFBA										
217.00 > 172.00	1.555	1.555	0.0		16247054	55.6		111	1051483	
D 3 13C5-PFPeA										
267.90 > 223.00	1.843	1.843	0.0		12691275	54.7		109	774167	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.843	1.843	0.0	1.000	280803	1.13		113	2501	
D 47 13C3-PFBS										
301.90 > 83.00	1.873	1.873	0.0		326416	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.883	1.883	0.0	1.000	447832	0.9438		107		
298.90 > 99.00	1.883	1.883	0.0	1.000	181715		2.46(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.147	2.147	0.0		11974057	56.8		114	427406	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.147	2.147	0.0	1.000	219759	1.03		103	6402	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.518	2.518	0.0	1.000	358301	1.05		116		M
D 9 13C4-PFHpA										
367.00 > 322.00	2.503	2.503	0.0		10901517	56.5		113	411772	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.495	2.495	0.0	1.000	211550	1.00		100	2594	
D 11 18O2 PFHxS										
403.00 > 84.00	2.518	2.518	0.0		15667334	53.9		114	589222	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.845	2.845	0.0	1.000	110320	1.16		123		

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	2.845	2.845	0.0		4547840	58.9		124		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.876	2.876	0.0	1.000	248749	1.05		105	2321	
413.00 > 169.00	2.876	2.876	0.0	1.000	143209		1.74(0.90-1.10)		6480	
D 14 13C4 PFOA										
417.00 > 372.00	2.876	2.876	0.0		11546259	56.3		113	467397	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.884	2.884	0.0	1.000	265961	0.9830		103		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.248	3.248	0.0	1.000	254636	0.9866		106	15097	M
499.00 > 99.00	3.257	3.248	0.009	1.003	59515		4.28(0.90-1.10)		3930	M
D 18 13C4 PFOS										
503.00 > 80.00	3.257	3.257	0.0		12544575	51.9		109	446124	
D 19 13C5 PFNA										
468.00 > 423.00	3.257	3.257	0.0		9525540	53.6		107	346179	
20 Perfluorononanoic acid										
463.00 > 419.00	3.265	3.265	0.0	1.000	174880	1.02		102	3039	
D 21 13C8 FOSA										
506.00 > 78.00	3.542	3.542	0.0		20602398	56.1		112	732701	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.542	3.542	0.0	1.000	370071	1.00		100.0	25059	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.609	3.609	0.0	1.000	96246	0.9285		96.9		
D 26 M2-8:2FTS										
529.00 > 509.00	3.609	3.609	0.0		4924634	53.2		111		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.618	3.618	0.0	1.000	158763	0.99		99.5	5454	
D 23 13C2 PFDA										
515.00 > 470.00	3.618	3.618	0.0		8810537	52.9		106	167928	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.770	3.770	0.0		3877141	45.5		91.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.780	3.780	0.0	1.003	76562	1.02		102		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.929	3.929	0.0	1.000	143760	0.9196		95.4		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.946	3.946	0.0		4032138	49.6		99.1		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.946	3.946	0.0	1.000	137871	1.02		102	3348	
D 30 13C2 PFUnA										
565.00 > 520.00	3.946	3.946	0.0		6697996	51.2		102	240531	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.955	3.955	0.0	1.002	74121	1.01		101		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.020	4.020	0.0		4191181	47.6		95.3		
35 MeFOSA										
512.00 > 169.00	4.029	4.029	0.0	1.000	81458	1.04		104		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.207	4.207	0.0		4019167	47.1		94.3		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.215	4.215	0.0	1.000	78903	1.00		99.8		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.250	4.250	0.0	1.000	105335	0.9840		98.4	744	
D 36 13C2 PFDaA										
615.00 > 570.00	4.241	4.241	0.0		5852720	47.2		94.4	190789	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.520	4.520	0.0	1.000	102353	1.00		100	353	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.749	4.749	0.0		10930969	42.2		84.4	290330	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.749	4.749	0.0	1.000	171423	0.7447		74.5	73.1	
713.00 > 169.00	4.749	4.749	0.0	1.000	32769		5.23(0.00-0.00)		10329	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.188	5.188	0.0		4948492	39.6		79.1	85212	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.188	5.188	0.0	1.000	149969	1.01		101	146	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.567	5.567	0.0	1.000	67771	0.8069		80.7	86.5	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L2_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d

Injection Date: 11-Mar-2017 12:34:59

Instrument ID: A8_N

Lims ID: CCV L2

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#:

29

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor:

1.0000

Method: A8_N

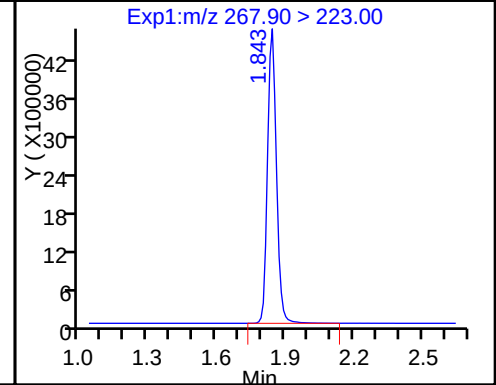
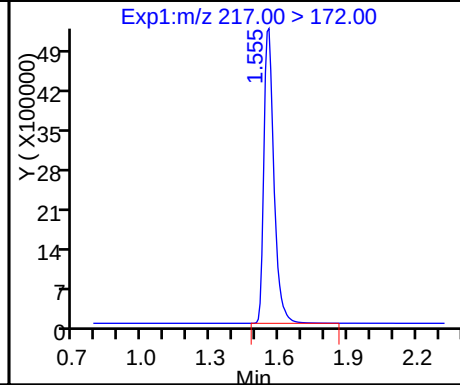
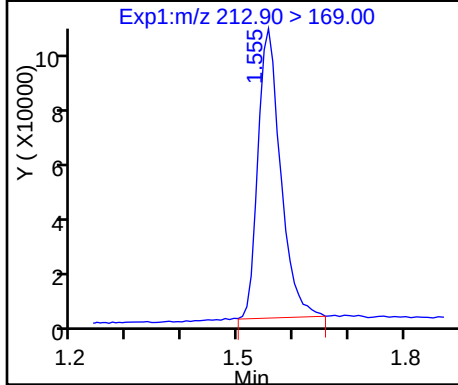
Limit Group:

LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

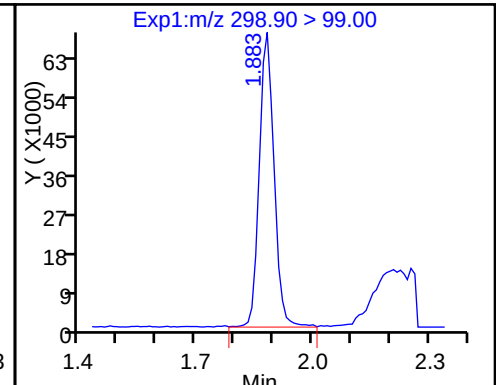
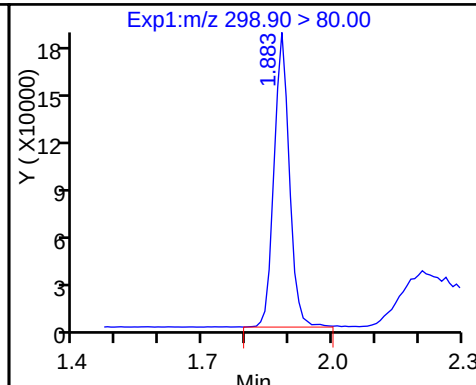
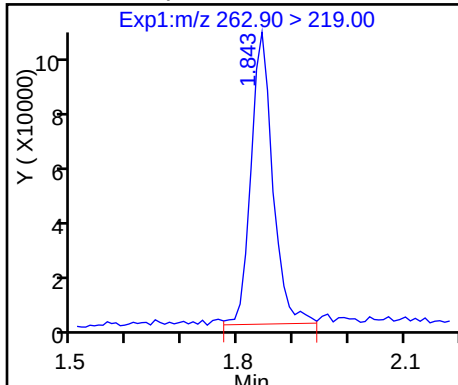
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

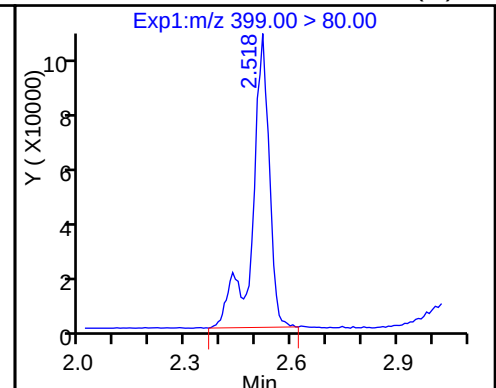
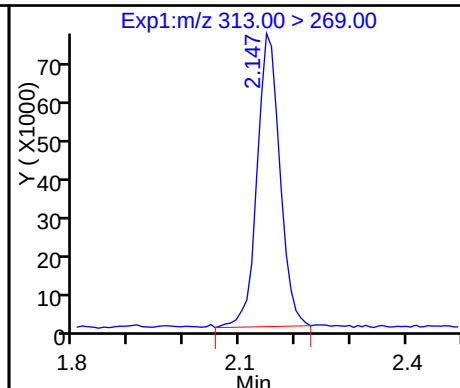
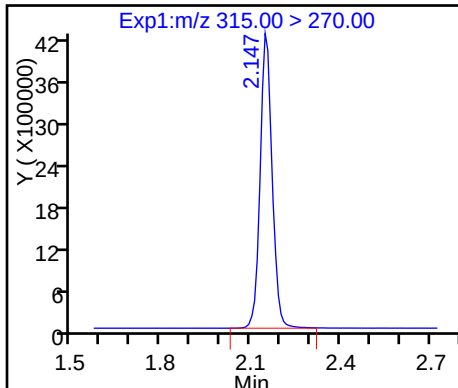
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

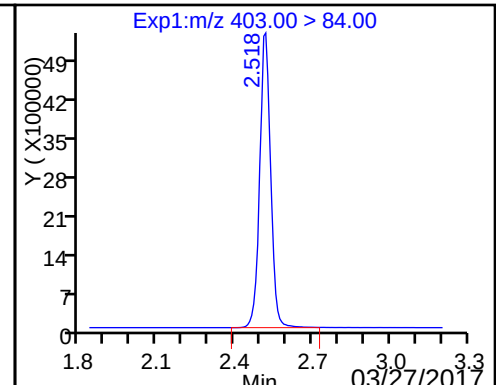
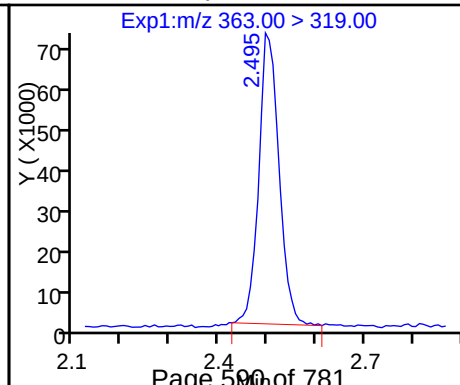
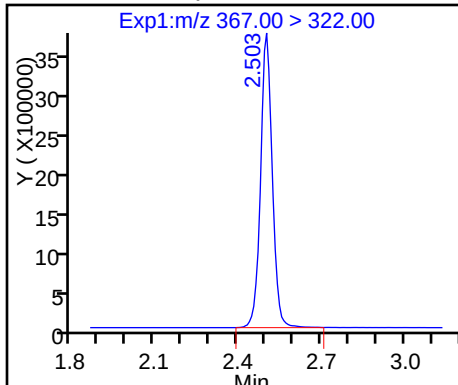
8 Perfluorohexanesulfonic acid (M)



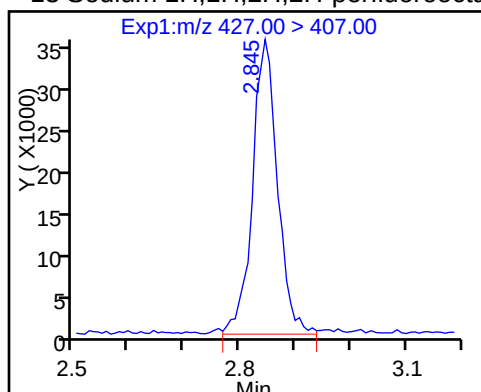
D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

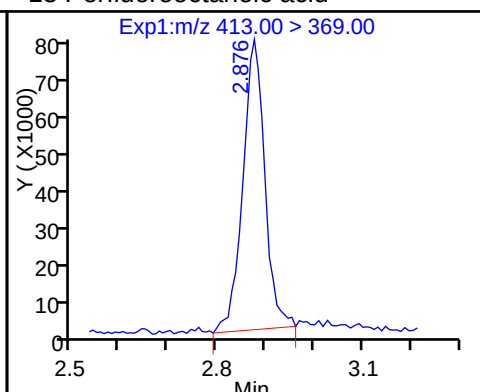
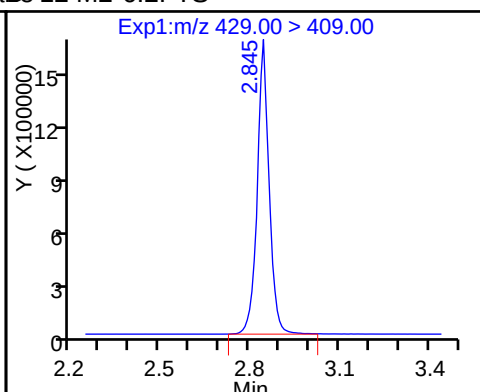
D 11 18O2 PFHxS



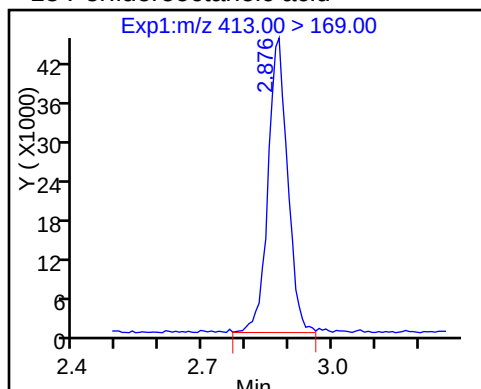
13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS



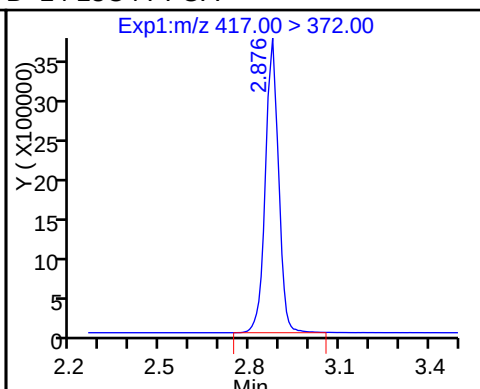
15 Perfluorooctanoic acid



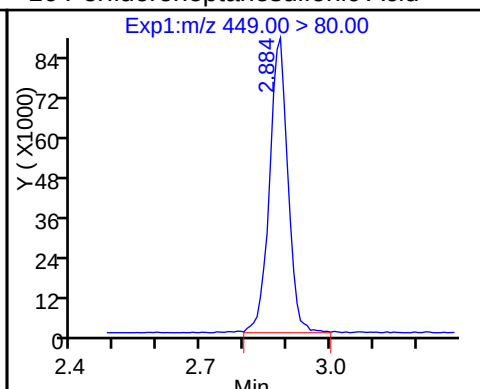
15 Perfluorooctanoic acid



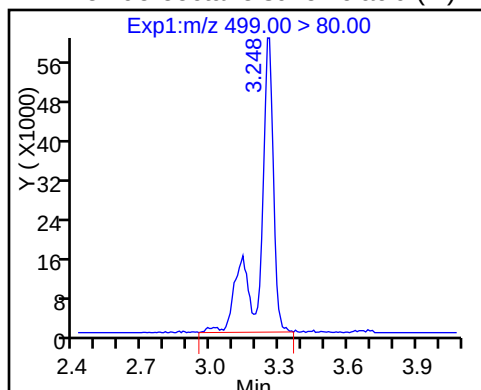
D 14 13C4 PFOA



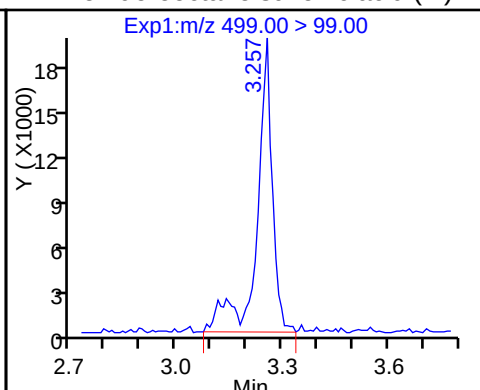
16 Perfluoroheptanesulfonic Acid



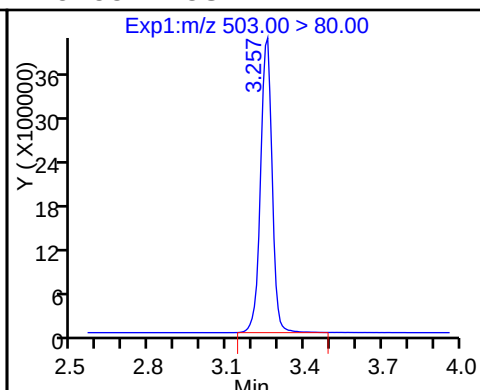
17 Perfluorooctane sulfonic acid (M)



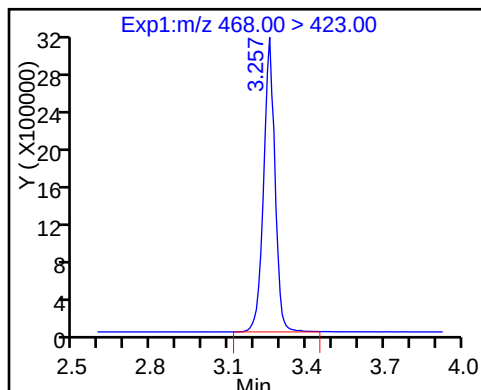
17 Perfluorooctane sulfonic acid (M)



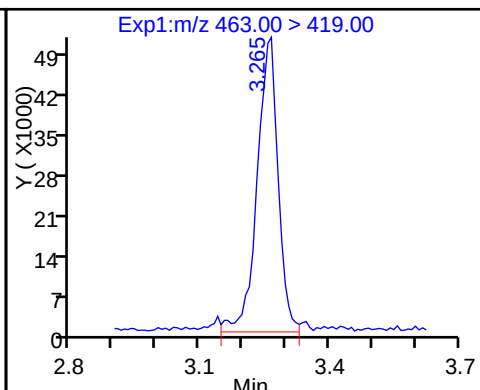
D 18 13C4 PFOS



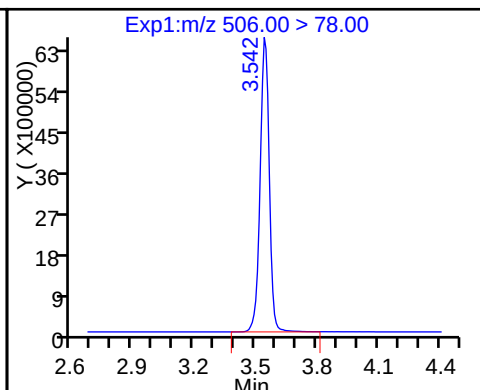
D 19 13C5 PFNA



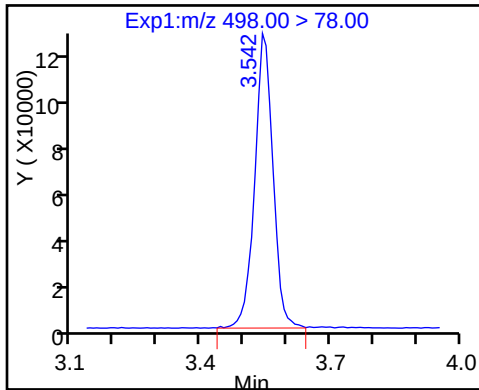
20 Perfluorononanoic acid



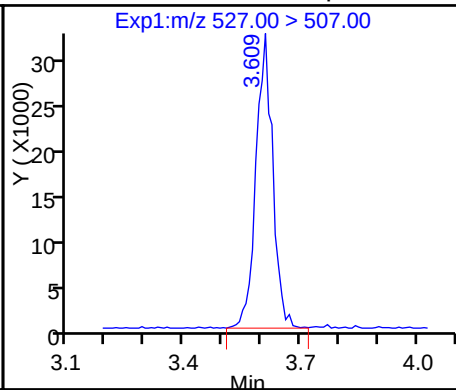
D 21 13C8 FOSA



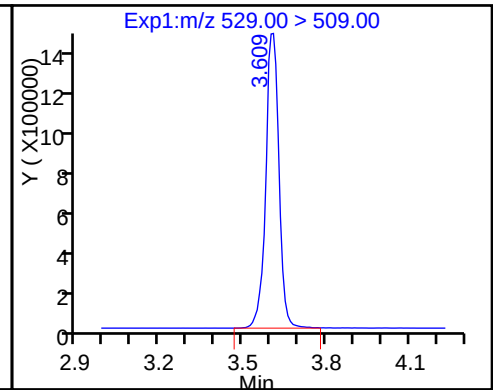
22 Perfluorooctane Sulfonamide



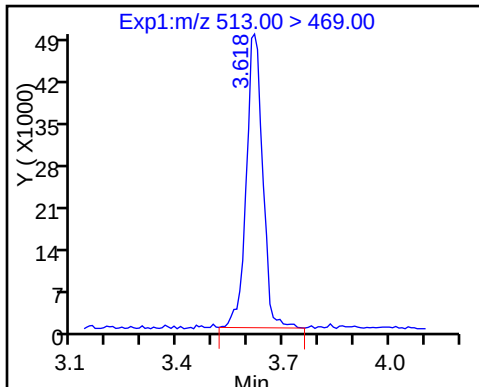
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



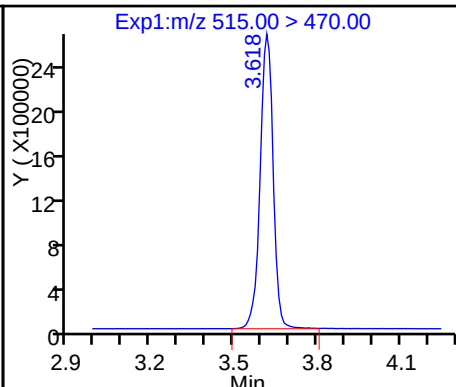
26 M2-8:2FTS



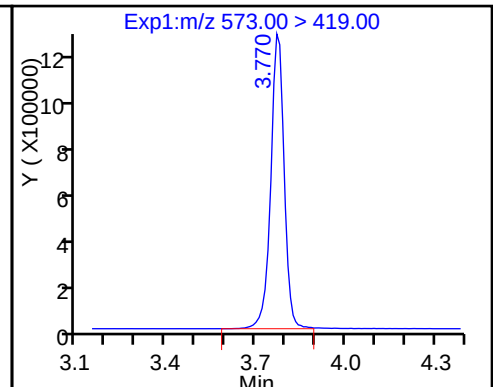
24 Perfluorodecanoic acid



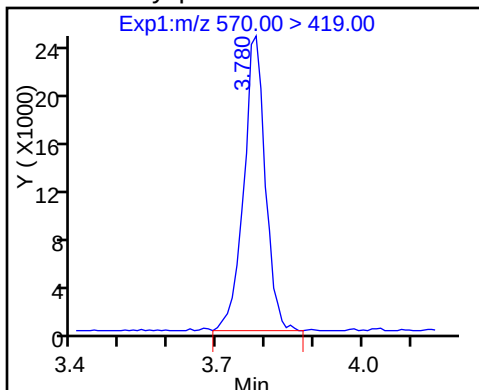
D 23 13C2 PFDA



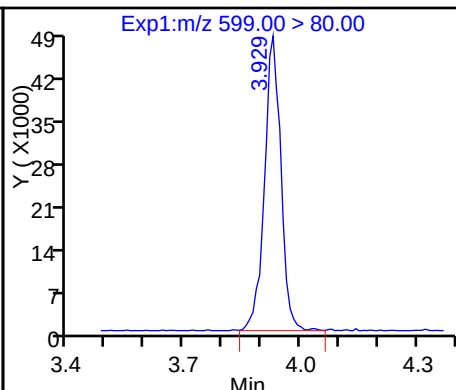
D 27 d3-NMeFOSAA



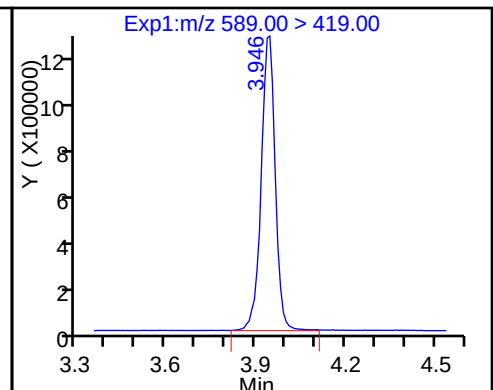
28 N-methyl perfluorooctane sulfonamide



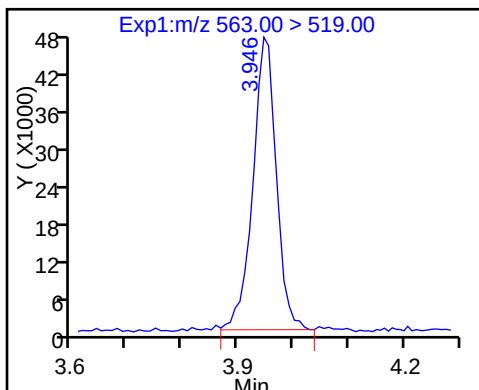
29 Perfluorodecane Sulfonic acid



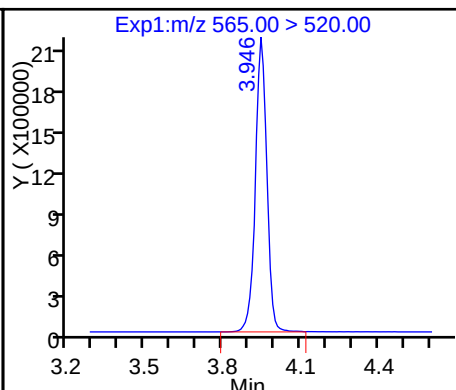
D 32 d5-NEtFOSAA



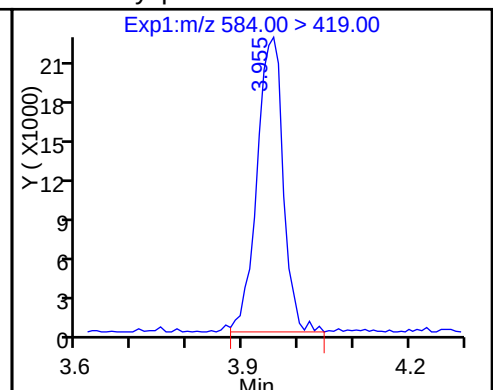
31 Perfluoroundecanoic acid



D 30 13C2 PFUnA



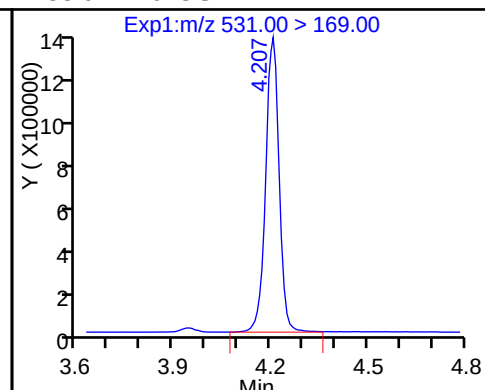
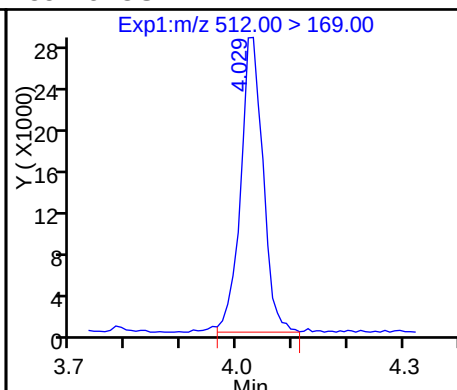
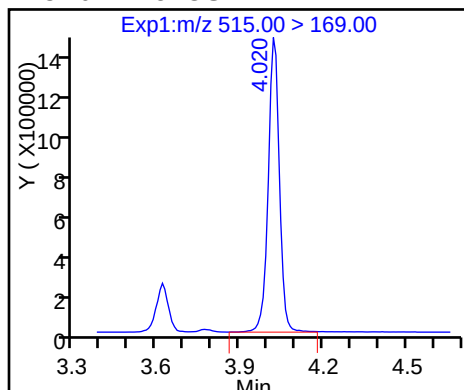
33 N-ethyl perfluorooctane sulfonamide



D 34 d-N-MeFOSA-M

35 MeFOSA

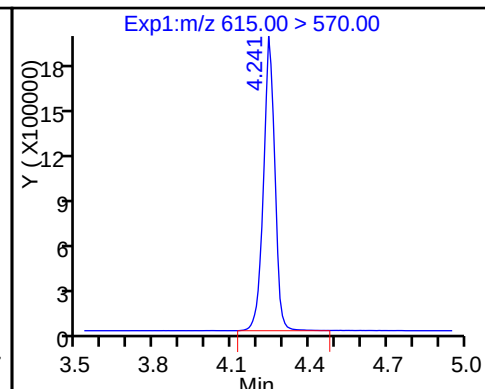
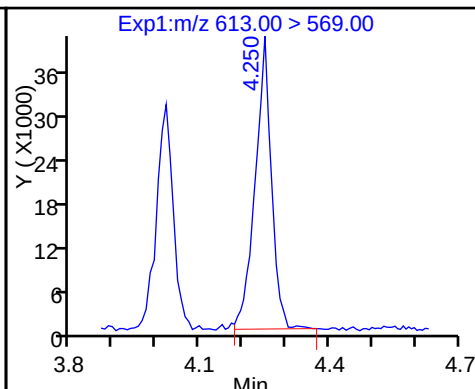
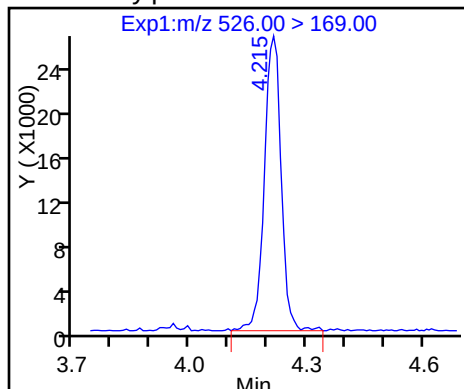
D 38 d-N-EtFOSA-M



39 N-ethylperfluoro-1-octanesulfonami

37 Perfluorododecanoic acid

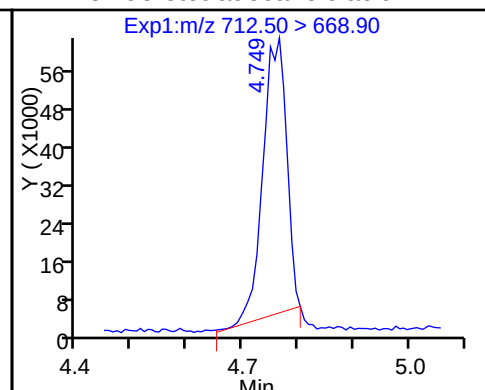
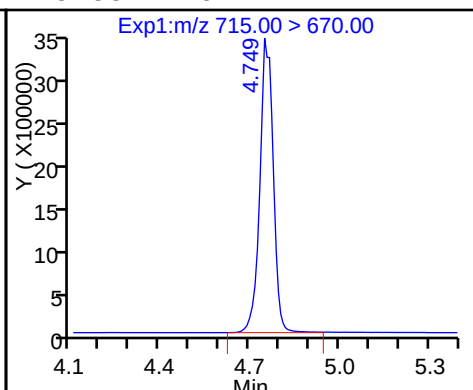
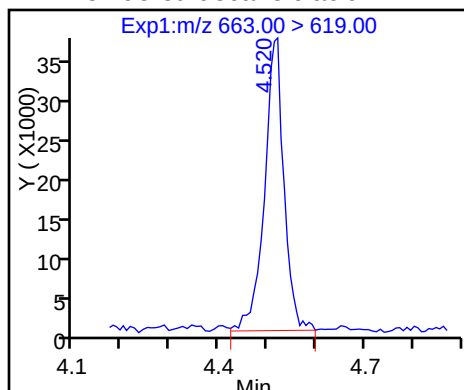
D 36 13C2 PFDa



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDa

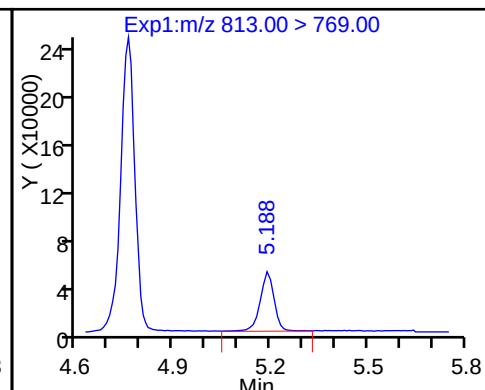
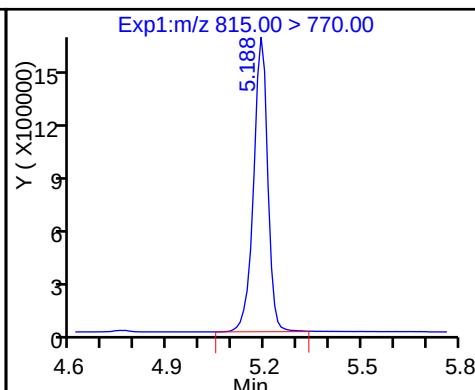
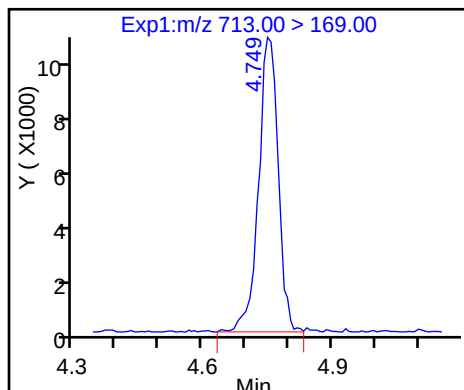
42 Perfluorotetradecanoic acid



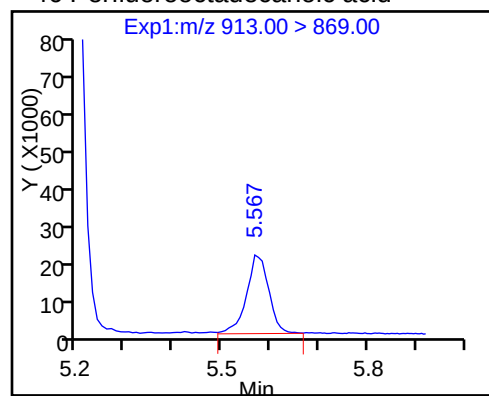
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDa

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

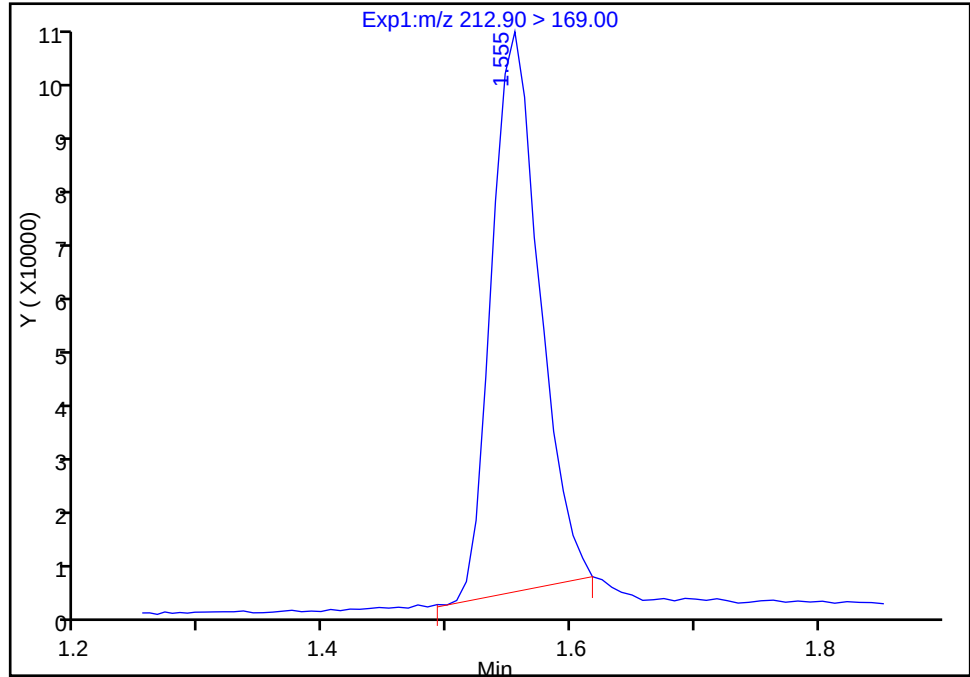
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Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

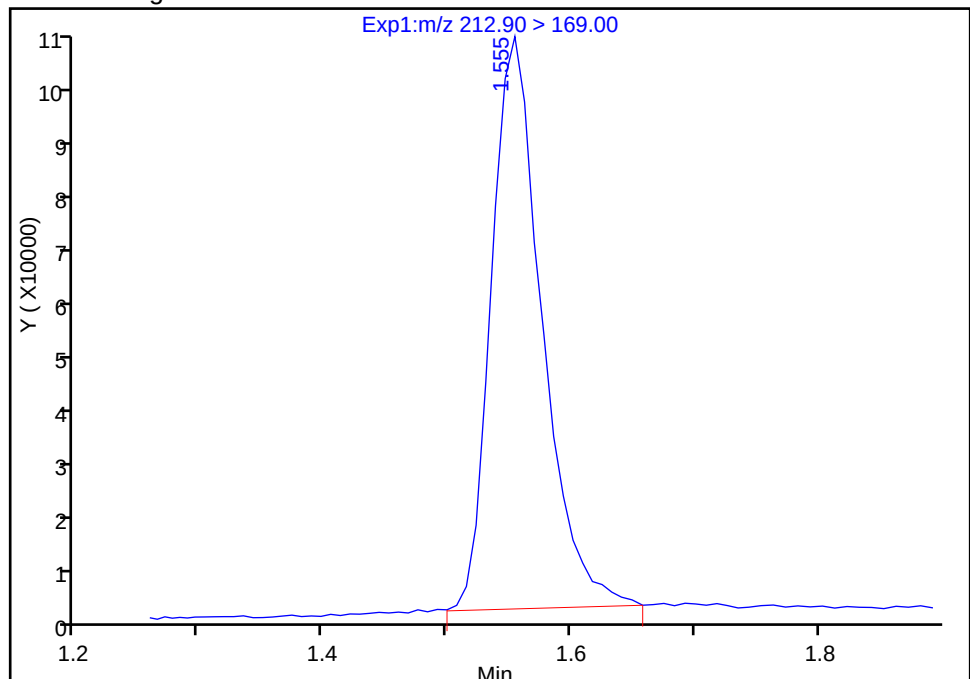
RT: 1.55
Area: 258682
Amount: 0.939601
Amount Units: ng/ml

Processing Integration Results



RT: 1.55
Area: 279561
Amount: 1.015439
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:37:42

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

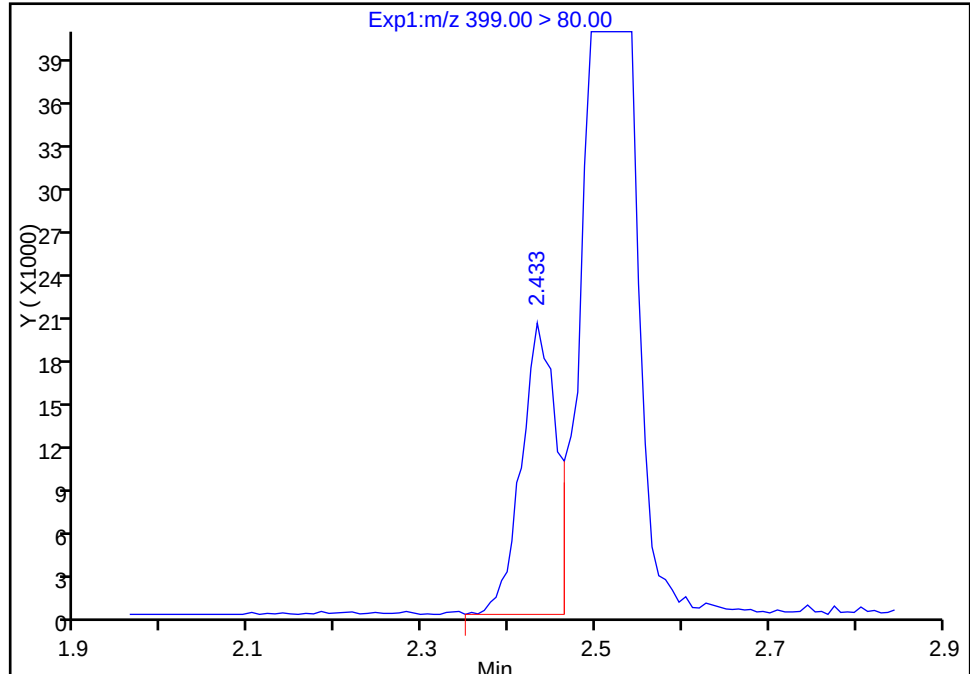
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

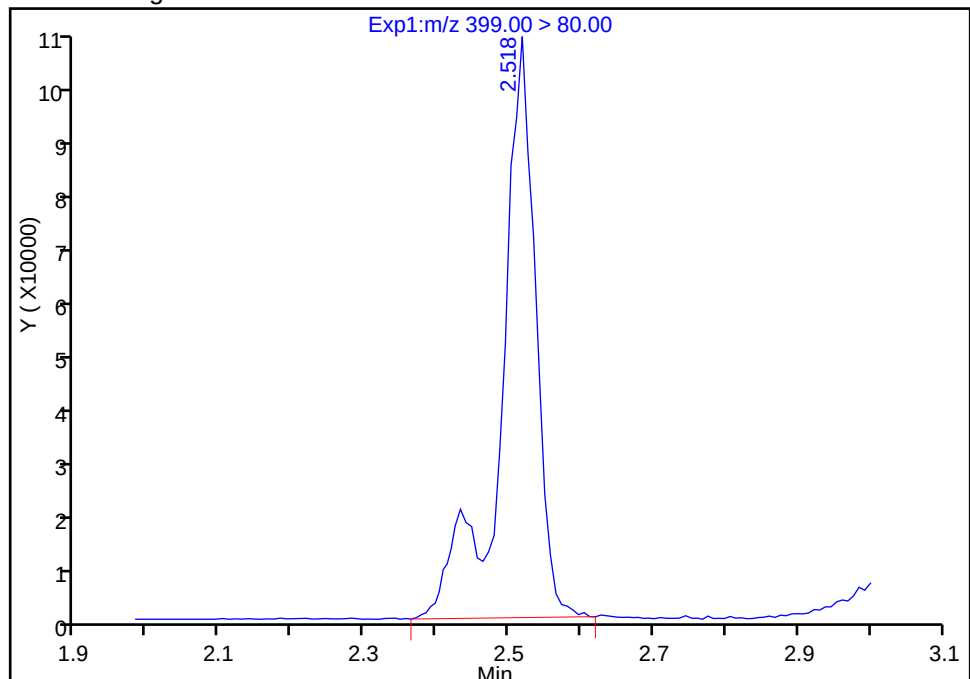
RT: 2.43
Area: 55666
Amount: 0.163409
Amount Units: ng/ml

Processing Integration Results



RT: 2.52
Area: 358301
Amount: 1.051801
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:38:11
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 596 of 781

03/27/2017

TestAmerica Sacramento

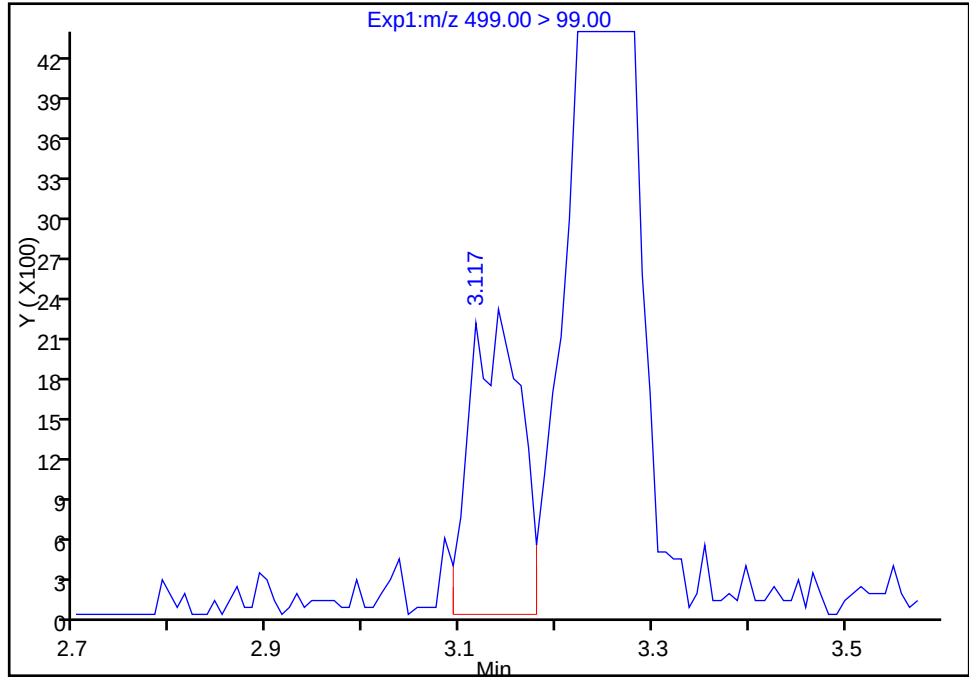
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

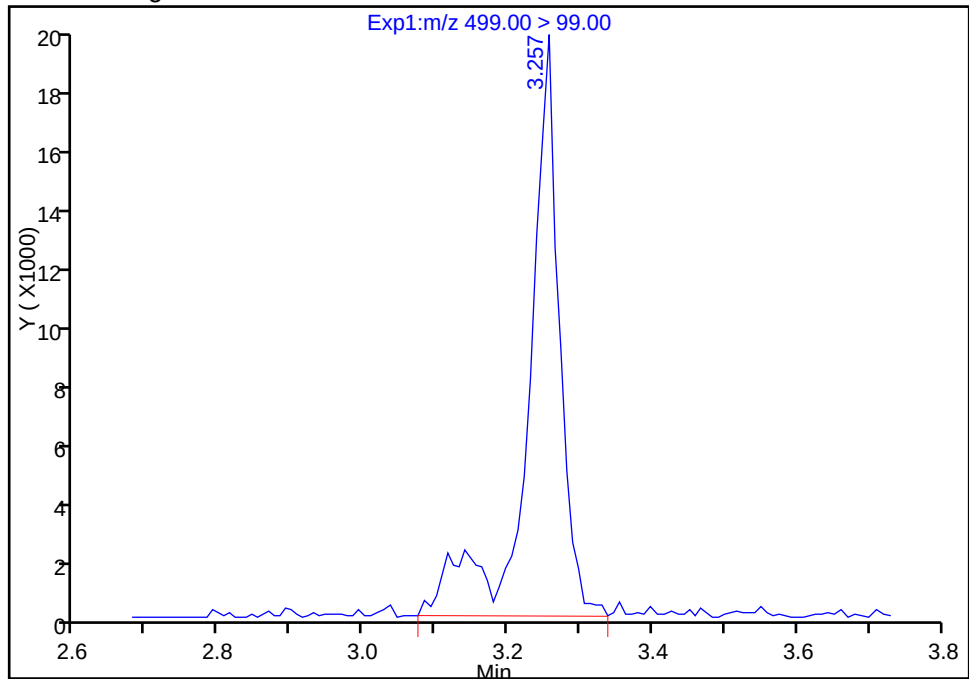
RT: 3.12
Area: 8120
Amount: 4980.4771
Amount Units: ng/ml

Processing Integration Results



RT: 3.26
Area: 59515
Amount: 0.986564
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:38:51
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 597 of 781

03/27/2017

TestAmerica Sacramento

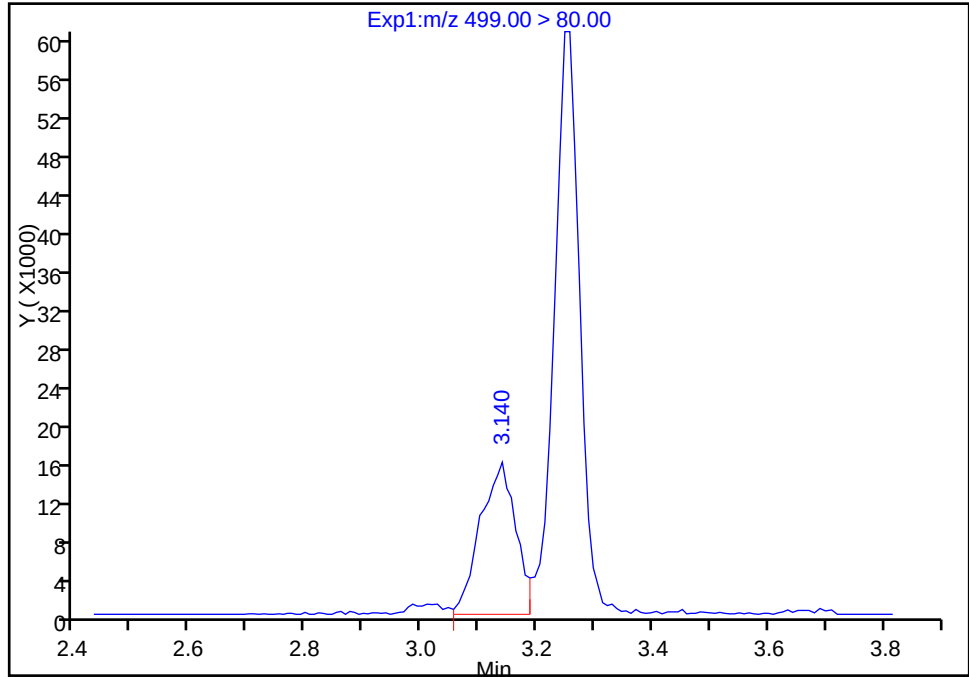
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

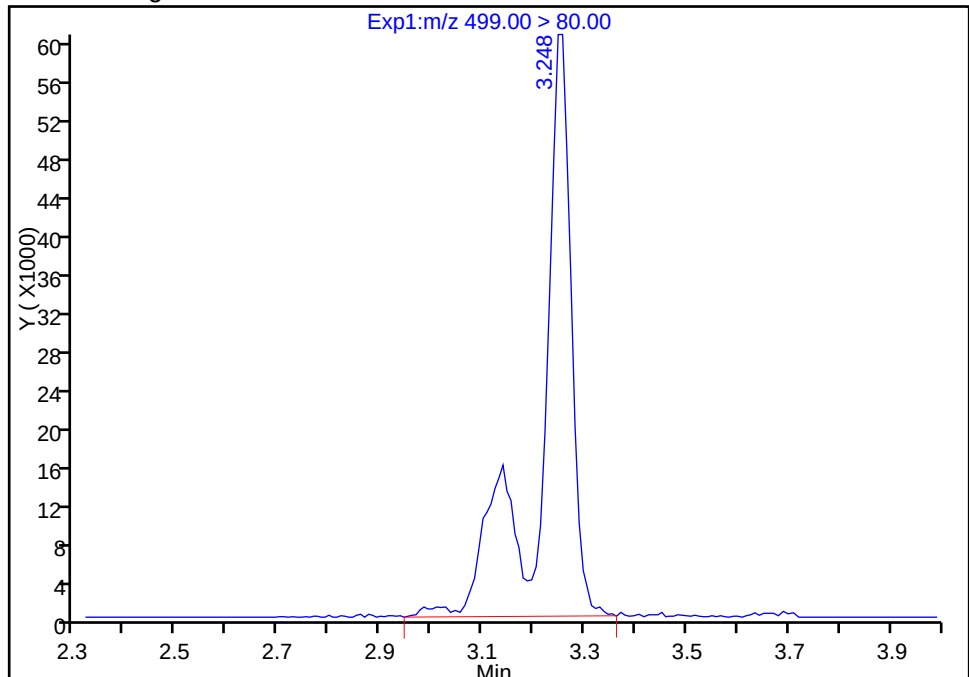
RT: 3.14
Area: 66505
Amount: 4980.4771
Amount Units: ng/ml

Processing Integration Results



RT: 3.25
Area: 254636
Amount: 0.986564
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:38:55

Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-154516/1 Calibration Date: 03/11/2017 23:05

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.11D_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8514		20.1	20.0	0.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9516		19.4	20.0	-2.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.475		18.2	17.7	2.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8684		19.5	20.0	-2.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9154		18.9	20.0	-5.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9719		17.2	18.2	-5.5	25.0
6:2FTS	L2ID		0.9687		20.6	19.0	8.6	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9484		18.6	20.0	-7.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.047		19.3	19.0	1.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9259		17.5	18.6	-5.9	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9043		20.0	20.0	0.0	25.0
8:2FTS	L2ID		0.9949		20.5	19.2	7.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8852		19.7	20.0	-1.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8898		19.6	20.0	-1.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9421		19.4	20.0	-3.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5767		18.7	19.3	-3.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9068		17.9	20.0	-10.5	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.9070		19.9	20.0	-0.4	25.0
MeFOSA	AveID	0.9355	0.8787		18.8	20.0	-6.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8639		18.9	20.0	-5.5	25.0
N-EtFOSA-M	AveID	0.9837	0.9709		19.7	20.0	-1.3	25.0
Perfluorotridecanoic Acid (PFTrIA)	AveID	0.8734	0.8641		19.8	20.0	-1.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.696		17.2	20.0	-13.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.7685		16.2	20.0	-19.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5813		16.2	20.0	-19.0	25.0
13C4 PFBA	Ave	292242	325557		55.7	50.0	11.4	50.0
13C5-PFPeA	Ave	232192	252443		54.4	50.0	8.7	50.0
13C2 PFHxA	Ave	210884	227885		54.0	50.0	8.1	50.0
13C4-PFHpA	Ave	192959	217970		56.5	50.0	13.0	50.0
18O2 PFHxS	Ave	290899	322455		52.4	47.3	10.8	50.0
M2-6:2FTS	Ave	77178	91006		56.0	47.5	17.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154516/1 Calibration Date: 03/11/2017 23:05
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.11D_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	223794		54.6	50.0	9.2	50.0
13C4 PFOS	Ave	241637	262063		51.8	47.8	8.5	50.0
13C5 PFNA	Ave	177866	190374		53.5	50.0	7.0	50.0
13C8 FOSA	Ave	366918	390892		53.3	50.0	6.5	50.0
M2-8:2FTS	Ave	92602	101258		52.4	47.9	9.3	50.0
13C2 PFDA	Ave	166704	172268		51.7	50.0	3.3	50.0
d3-NMeFOSAA	Ave	85186	86098		50.5	50.0	1.1	50.0
d5-NEtFOSAA	Ave	81371	83579		51.4	50.0	2.7	50.0
13C2 PFUnA	Ave	130805	136517		52.2	50.0	4.4	50.0
d-N-MeFOSA-M	Ave	87983	85664		48.7	50.0	-2.6	50.0
13C2 PFDoA	Ave	123944	118388		47.8	50.0	-4.5	50.0
d-N-EtFOSA-M	Ave	85249	78220		45.9	50.0	-8.2	50.0
13C2-PFTeDA	Ave	259165	236624		45.7	50.0	-8.7	50.0
13C2-PFHxDA	Ave	125061	109654		43.8	50.0	-12.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_037.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 11-Mar-2017 23:05:27 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: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 10:21:44 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK002

First Level Reviewer: changnoit

Date: 14-Mar-2017 10:21:44

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	1.539	1.539	0.0		16277826	55.7		111	856136	
2 Perfluorobutyric acid										
212.90 > 169.00	1.547	1.547	0.0	1.000	5543318	20.1		100	39569	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		12622173	54.4		109	808373	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	4804528	19.4		97.2	52067	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		313400	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	8406263	18.2		103		
298.90 > 99.00	1.861	1.861	0.0	1.000	3319081		2.53(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.113	2.113	0.0		11394266	54.0		108	398641	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.113	2.113	0.0	1.000	3957937	19.5		97.6	105516	
D 9 13C4-PFHpA										
367.00 > 322.00	2.452	2.452	0.0		10898490	56.5		113	351432	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.460	2.460	0.0	1.000	3990648	18.9		94.6	41248	
D 11 18O2 PFHxS										
403.00 > 84.00	2.468	2.468	0.0		15252101	52.4		111	337798	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.476	2.476	0.0	1.000	5703653	17.2		94.5		M
D 12 M2-6:2FTS										
429.00 > 409.00	2.795	2.795	0.0		4322783	56.0		118		

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	2.795	2.795	0.0	1.000	1671394	20.6	109		
15 Perfluorooctanoic acid	413.00 > 369.00	2.818	2.818	0.0	1.000	4244789	18.6	92.8	38043	
	413.00 > 169.00	2.818	2.818	0.0	1.000	2488328	1.71(0.90-1.10)		89138	
D 14 13C4 PFOA	417.00 > 372.00	2.826	2.826	0.0		11189720	54.6	109	347070	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	2.826	2.826	0.0	1.000	5224341	19.3	102		
D 18 13C4 PFOS	503.00 > 80.00	3.183	3.183	0.0		12526609	51.8	108	283242	
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.192	3.192	0.0	1.000	4503614	17.5	94.1	187425	M
	499.00 > 99.00	3.192	3.192	0.0	1.000	1030034	4.37(0.90-1.10)		59499	M
D 19 13C5 PFNA	468.00 > 423.00	3.192	3.192	0.0		9518709	53.5	107	299611	
20 Perfluorononanoic acid	463.00 > 419.00	3.201	3.201	0.0	1.000	3442980	20.0	100	60033	
D 21 13C8 FOSA	506.00 > 78.00	3.534	3.534	0.0		19544598	53.3	107	390311	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.534	3.534	0.0	1.000	6920186	19.7	98.5	220300	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.534	3.534	0.0	0.998	1930232	20.5	107		
D 26 M2-8:2FTS	529.00 > 509.00	3.542	3.542	0.0		4850265	52.4	109		
24 Perfluorodecanoic acid	513.00 > 469.00	3.551	3.551	0.0	1.000	3065569	19.6	98.2	121131	
D 23 13C2 PFDA	515.00 > 470.00	3.559	3.559	0.0		8613419	51.7	103	224741	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.700	3.700	0.0		4304913	50.5	101		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.711	3.711	0.0	1.003	1622227	19.4	97.0		
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.854	3.854	0.0	1.000	2913671	18.7	96.8		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.863	3.863	0.0		4178935	51.4	103		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.871	3.871	0.0	1.000	2475723	17.9	89.5	63321	
D 30 13C2 PFUnA	565.00 > 520.00	3.880	3.880	0.0		6825831	52.2	104	219385	
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	3.880	3.880	0.0	1.004	1516136	19.9	99.6		
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.024	4.024	0.0		4283191	48.7	97.4		
35 MeFOSA	512.00 > 169.00	4.024	4.024	0.0	1.000	1505516	18.8	93.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.162	4.162	0.0		5919419	47.8		95.5	153794	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.162	4.162	0.0	1.000	2045583	18.9		94.5	21579	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.204	4.204	0.0		3911019	45.9		91.8		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.212	4.212	0.0	1.000	1518864	19.7		98.7		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.429	4.429	0.0	1.000	2045970	19.8		98.9	38687	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.663	4.663	0.0		11831192	45.7		91.3	349144	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.672	4.672	0.0	1.000	4014603	17.2		86.2	33266	
713.00 > 169.00	4.663	4.672	-0.009	0.998	593010		6.77(0.00-0.00)		105509	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.072	5.072	0.0		5482700	43.8		87.7	89630	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.082	5.082	0.0	1.000	1819662	16.2		81.0	1658	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.431	5.431	0.0	1.000	1376434	16.2		81.0	1700	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_037.d

Injection Date: 11-Mar-2017 23:05:27

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

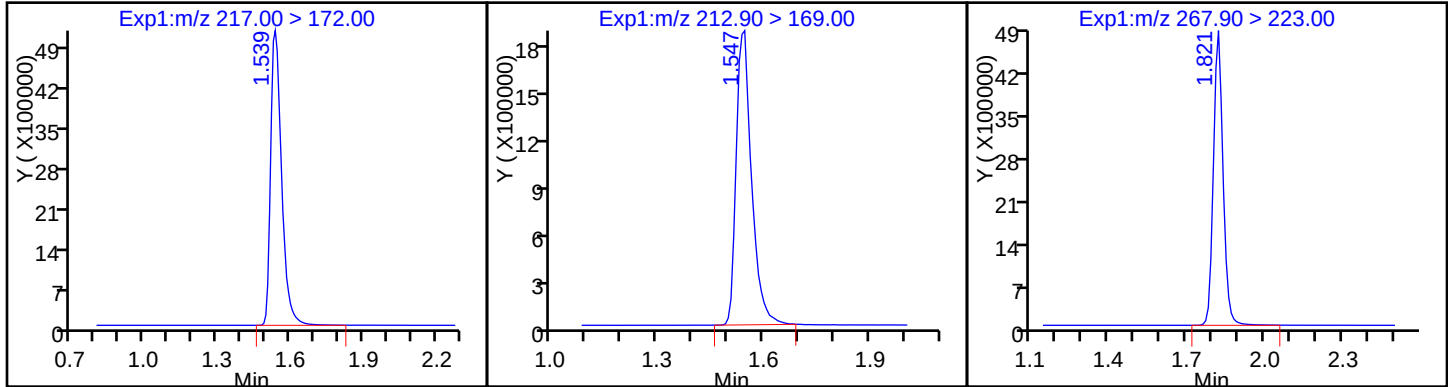
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

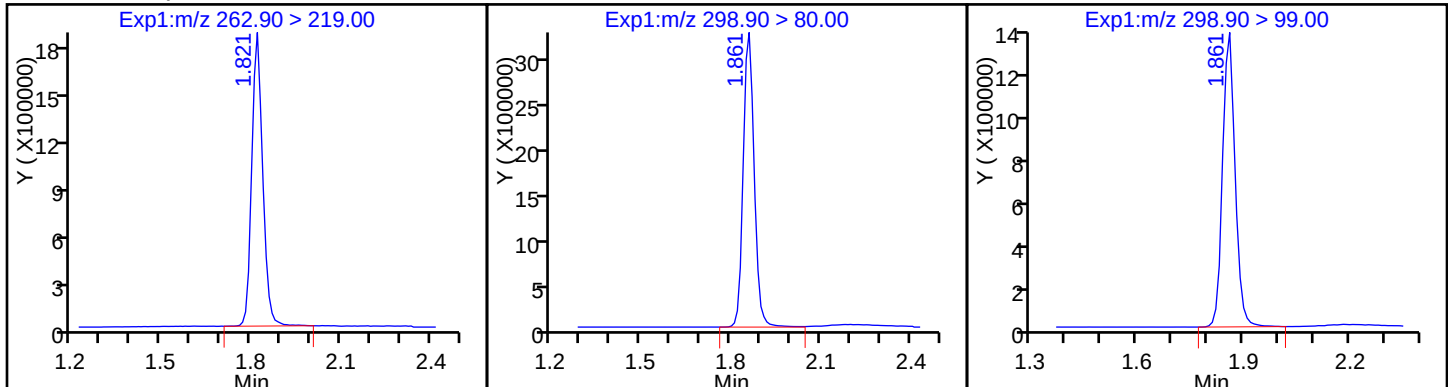
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

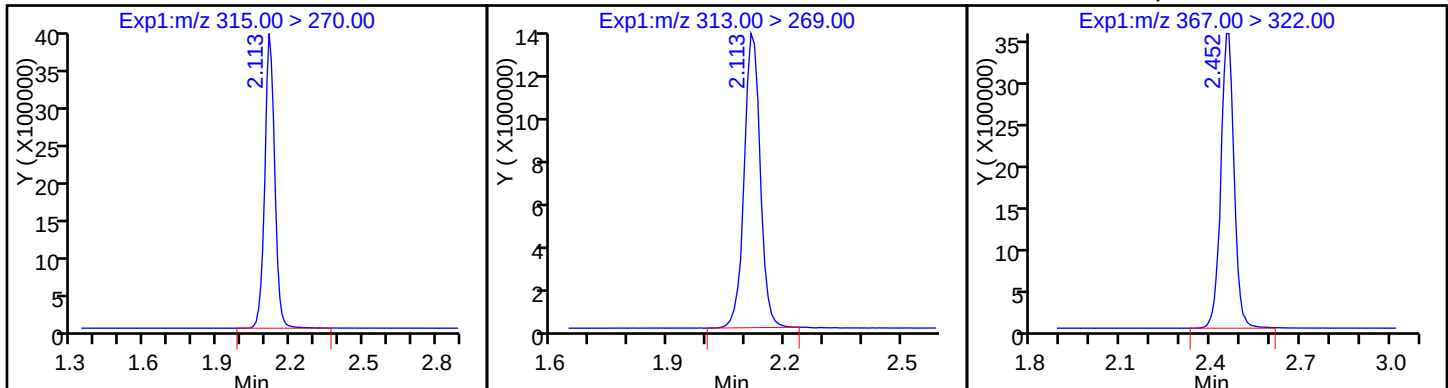
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

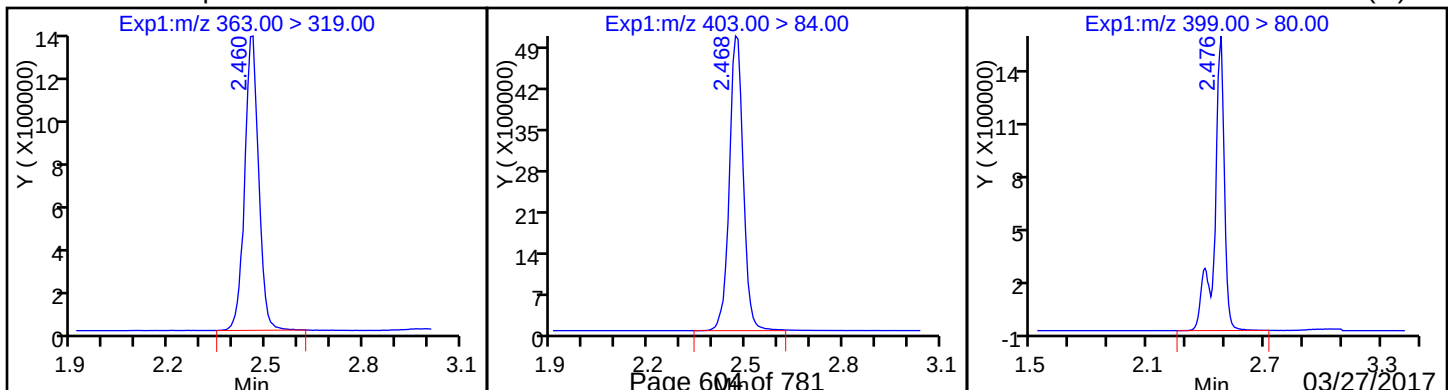
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

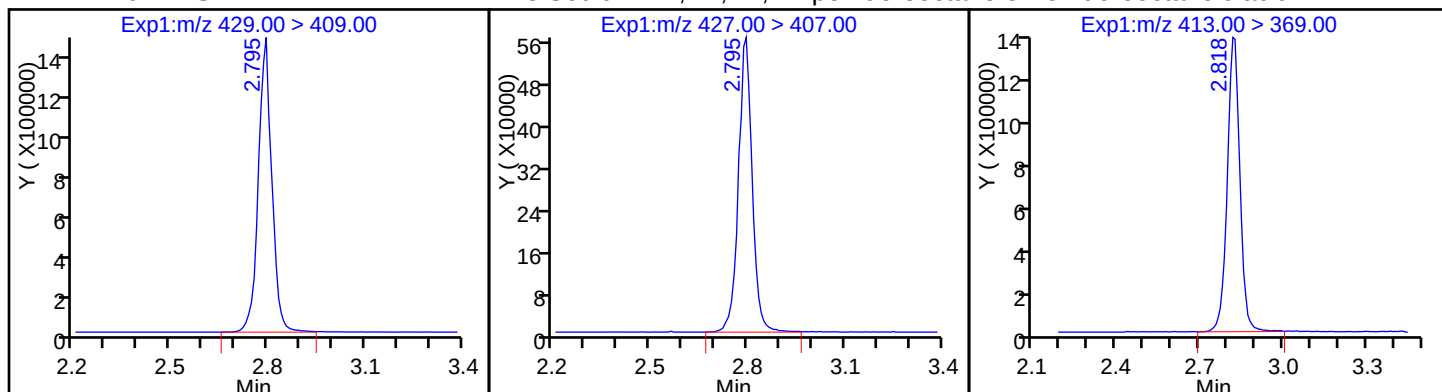
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)



D 12 M2-6:2FTS

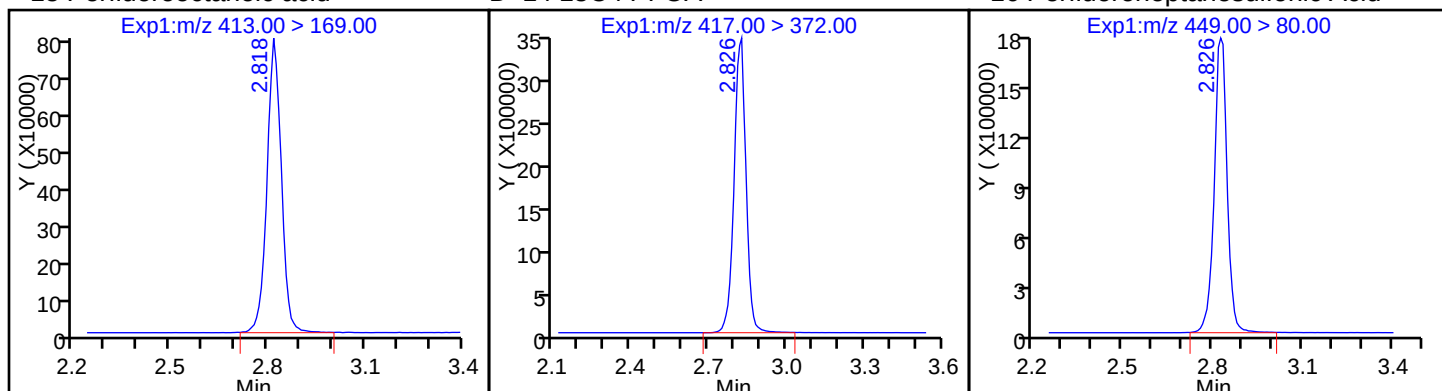
13 Sodium 1H,1H,2H,2H-perfluorooctanoate



15 Perfluorooctanoic acid

D 14 13C4 PFOA

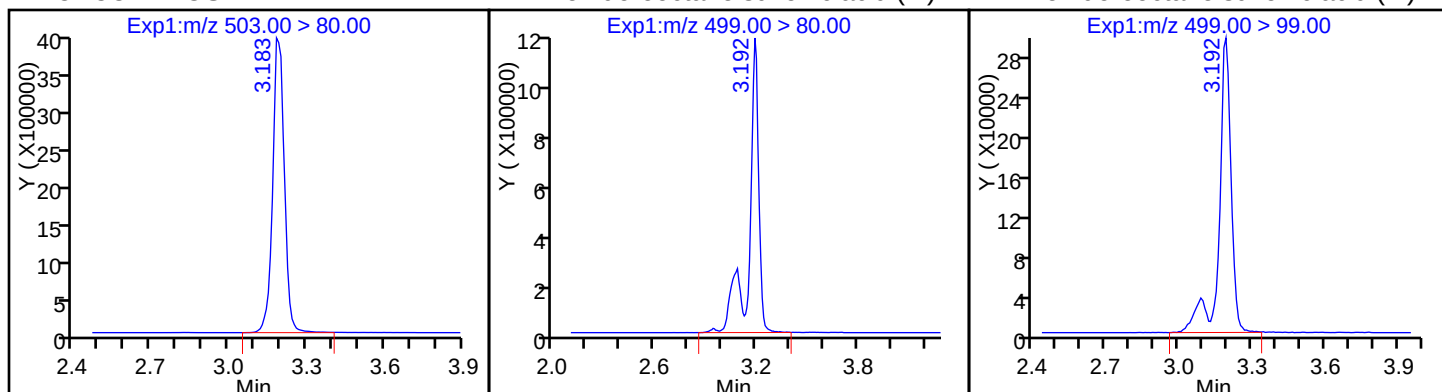
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)

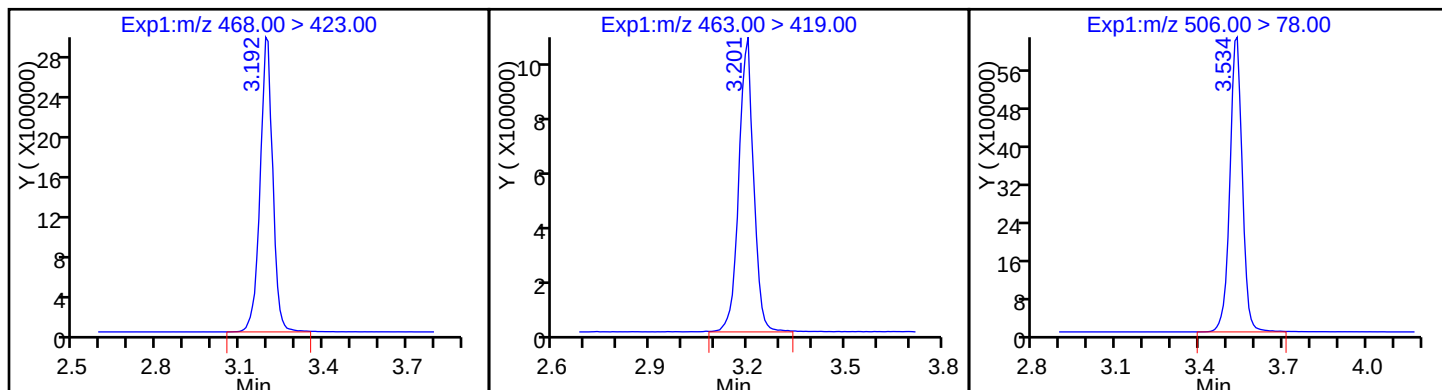
17 Perfluorooctane sulfonic acid (M)



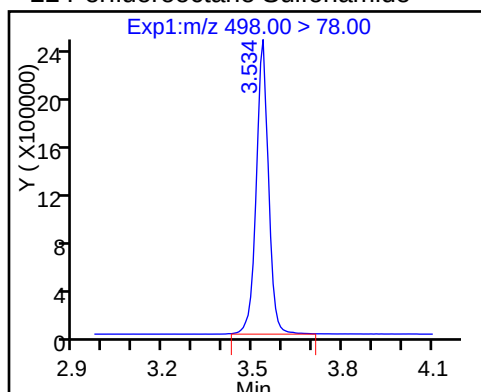
D 19 13C5 PFNA

20 Perfluorononanoic acid

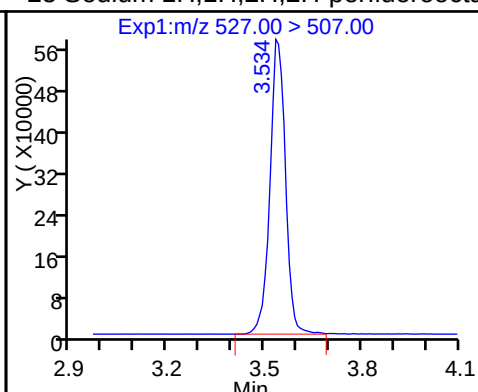
D 21 13C8 FOSA



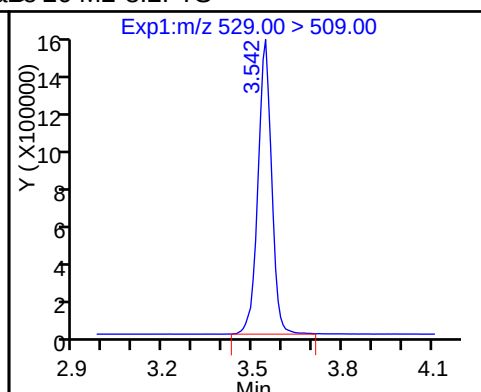
22 Perfluorooctane Sulfonamide



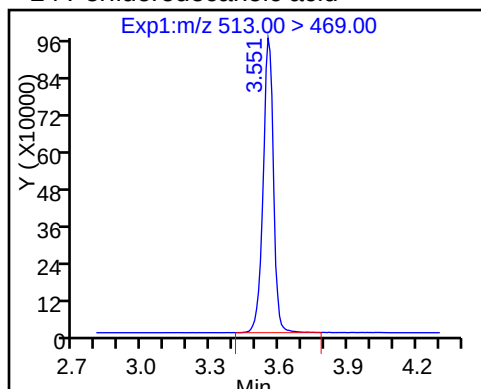
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



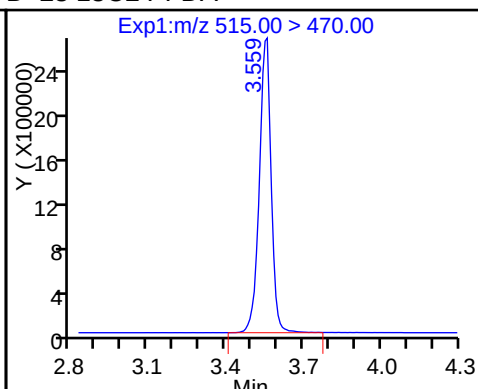
26 M2-8:2FTS



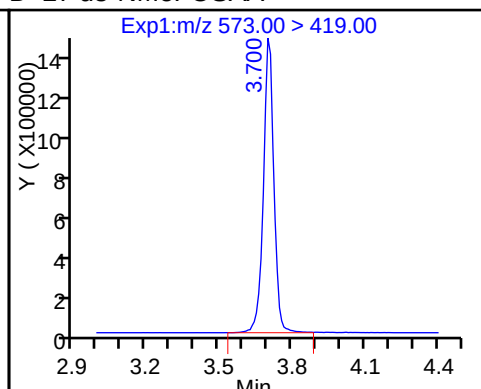
24 Perfluorodecanoic acid



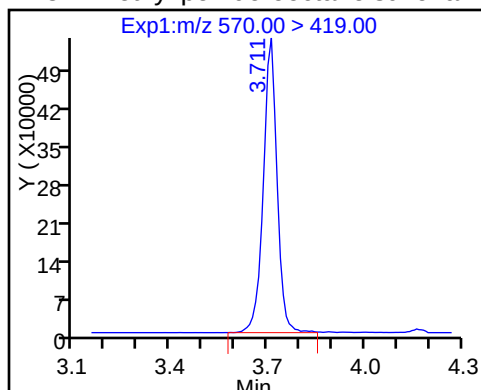
D 23 13C2 PFDA



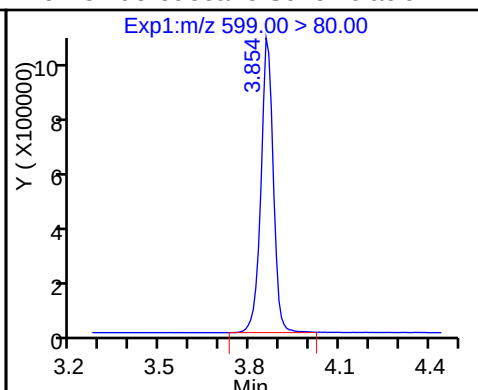
D 27 d3-NMeFOSAA



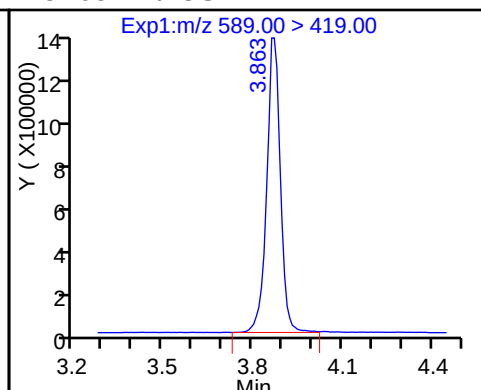
28 N-methyl perfluorooctane sulfonamide



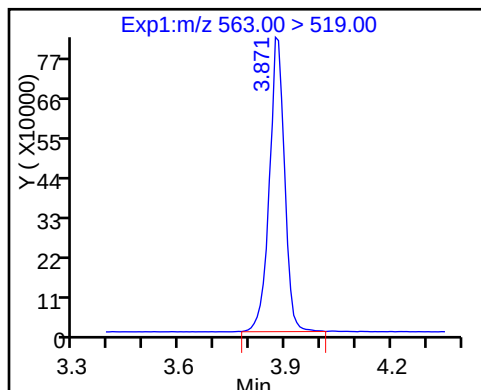
29 Perfluorodecane Sulfonic acid



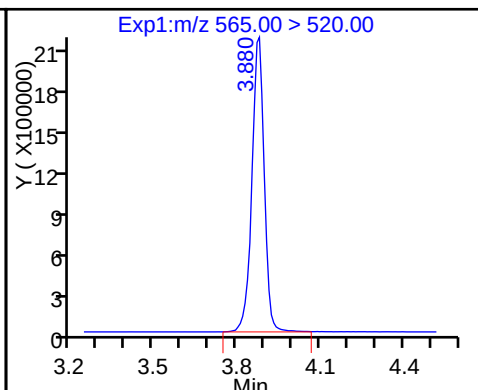
D 32 d5-NEtFOSAA



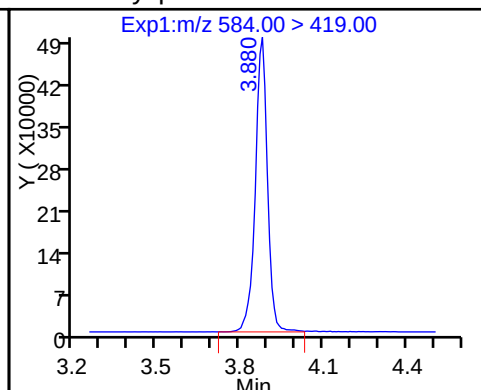
31 Perfluoroundecanoic acid



D 30 13C2 PFUnA



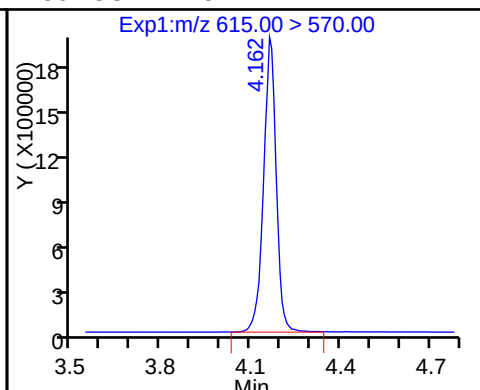
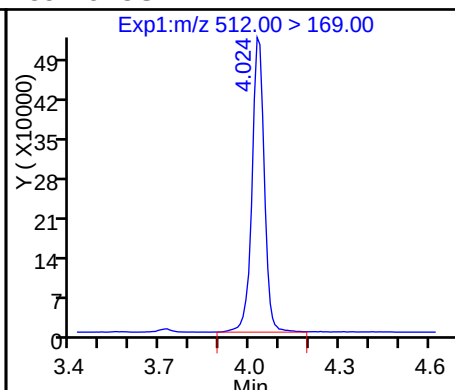
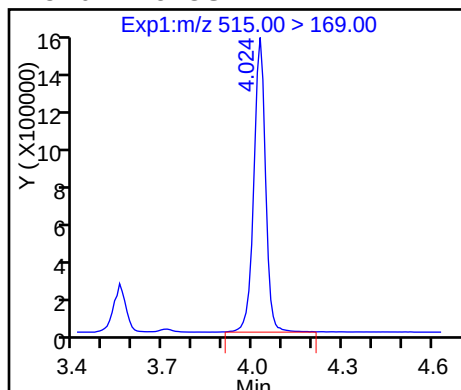
33 N-ethyl perfluorooctane sulfonamide



D 34 d-N-MeFOSA-M

35 MeFOSA

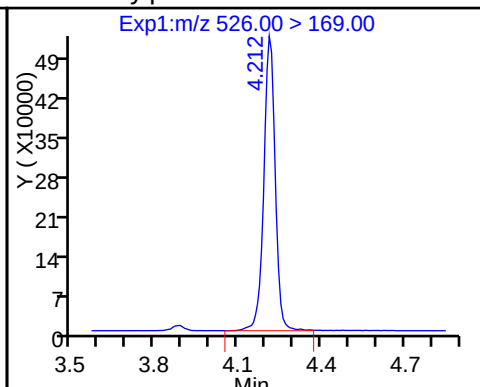
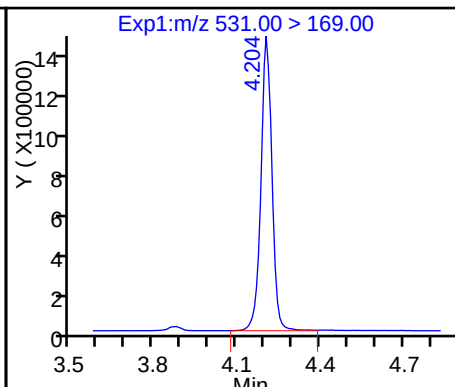
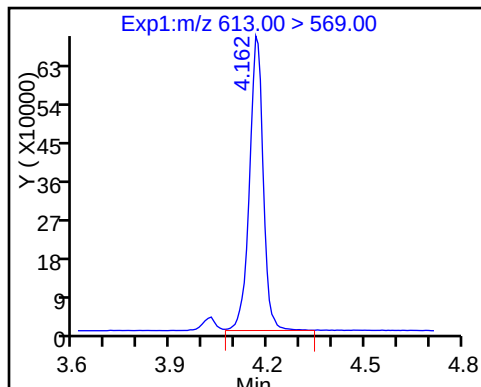
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

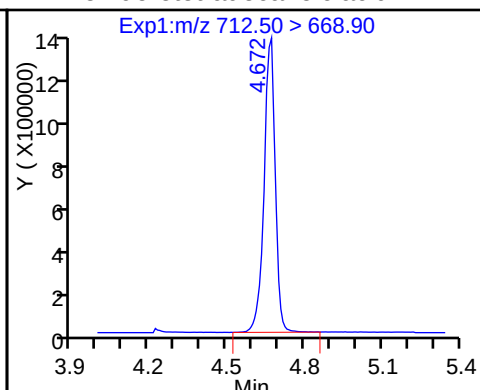
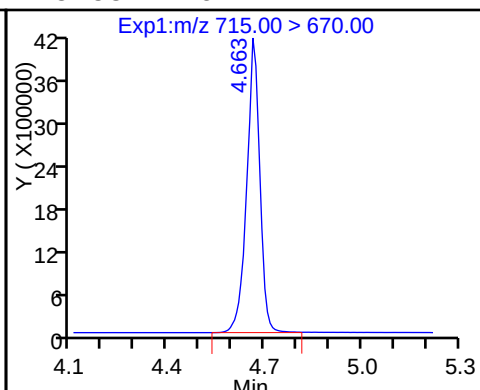
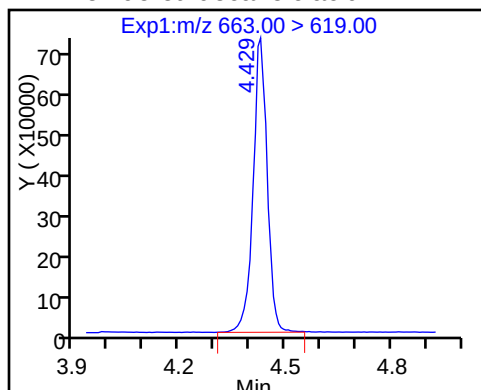
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

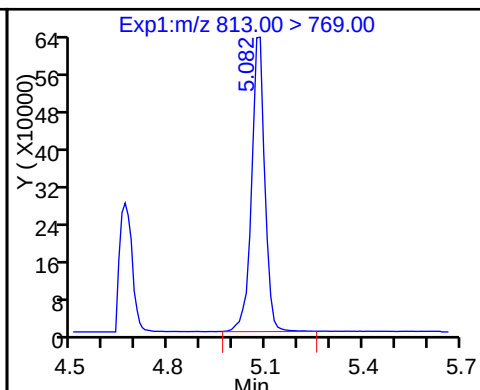
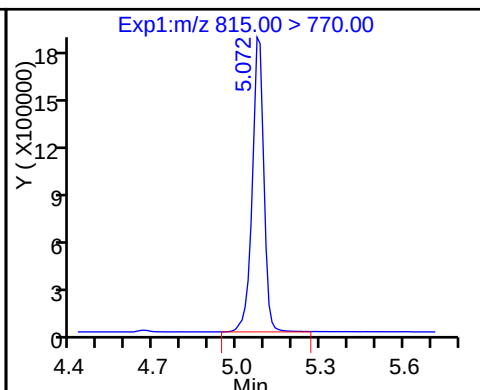
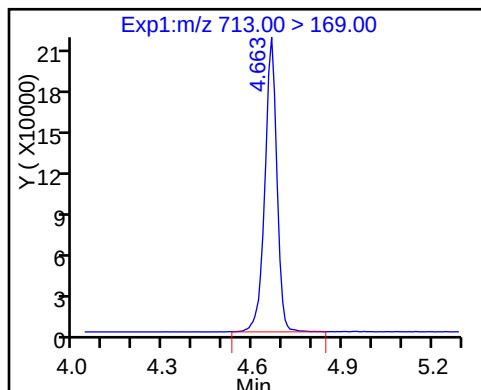
42 Perfluorotetradecanoic acid



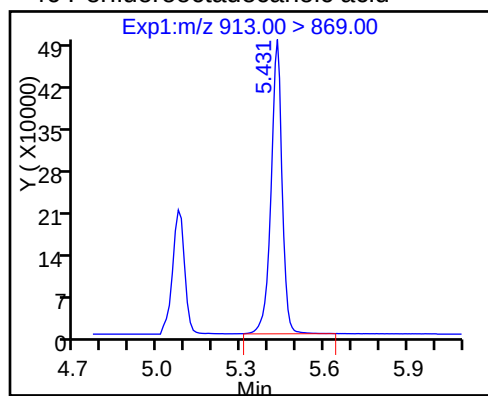
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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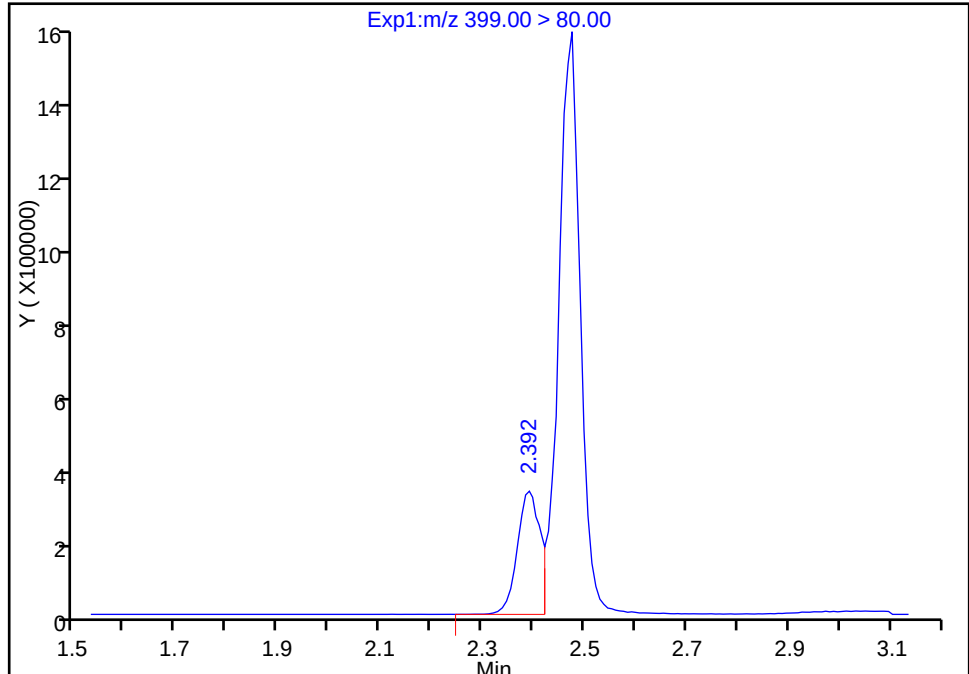
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_037.d
Injection Date: 11-Mar-2017 23:05:27 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

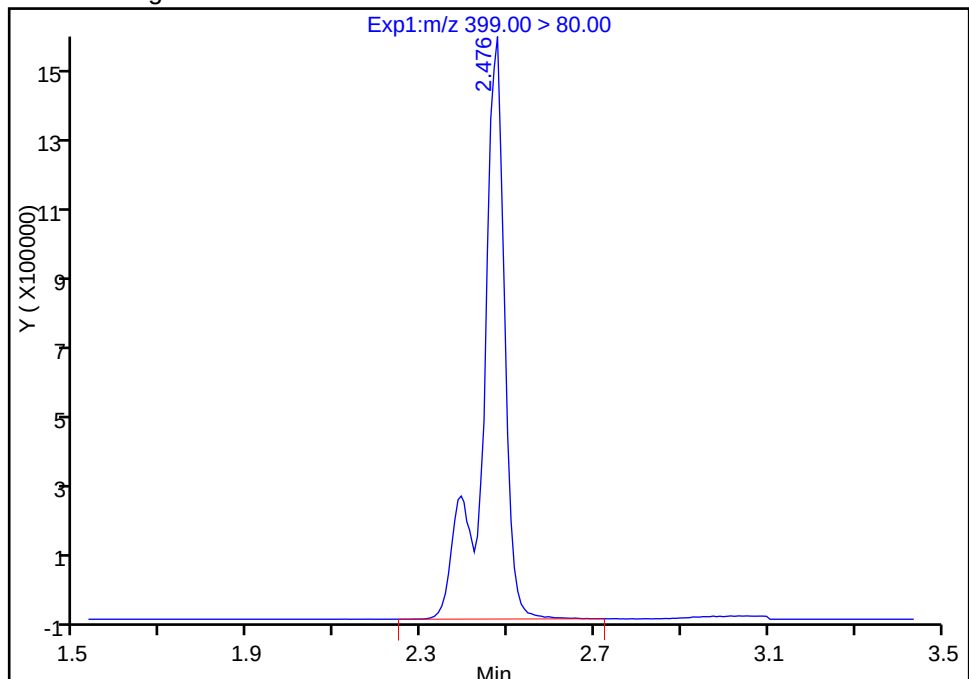
RT: 2.39
Area: 1033851
Amount: 3.117518
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 5703653
Amount: 17.199038
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 10:20:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

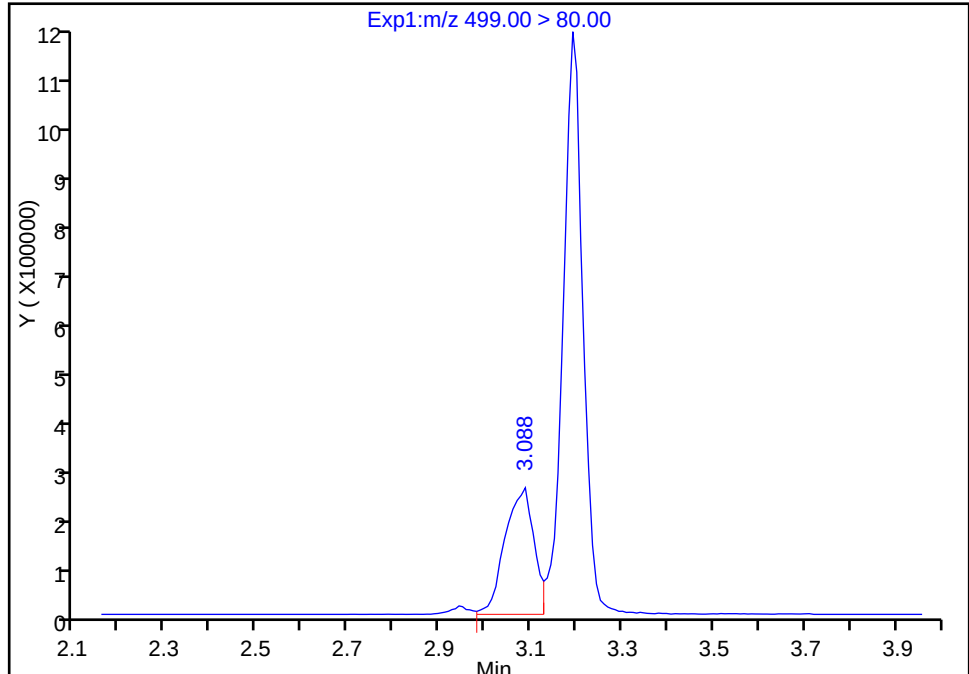
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_037.d
Injection Date: 11-Mar-2017 23:05:27 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

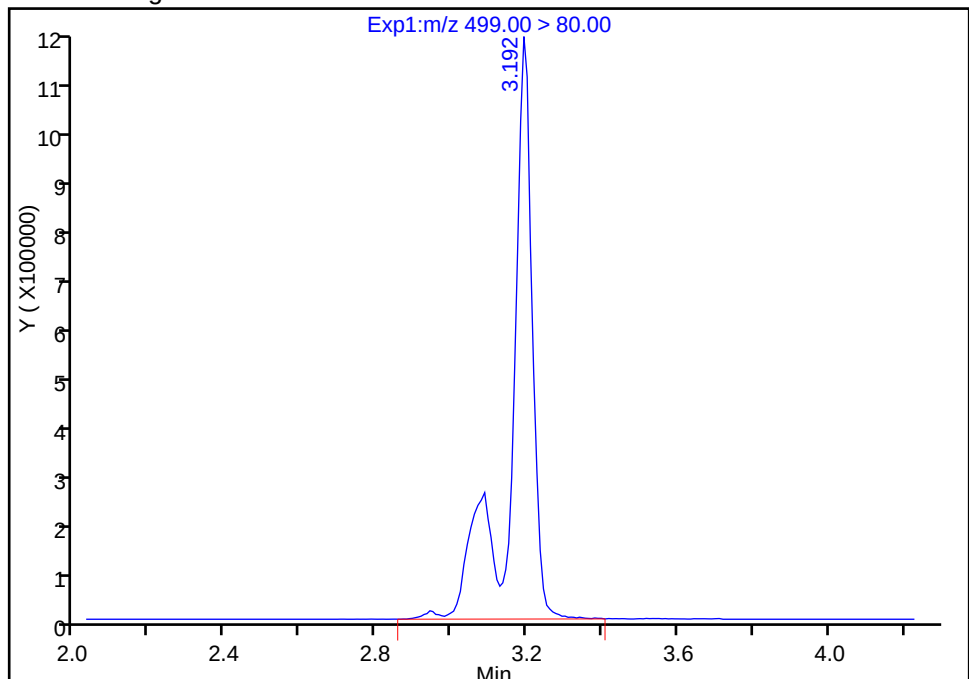
RT: 3.09
Area: 1068634
Amount: 4.146263
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 4503614
Amount: 17.473866
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 10:20:47

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

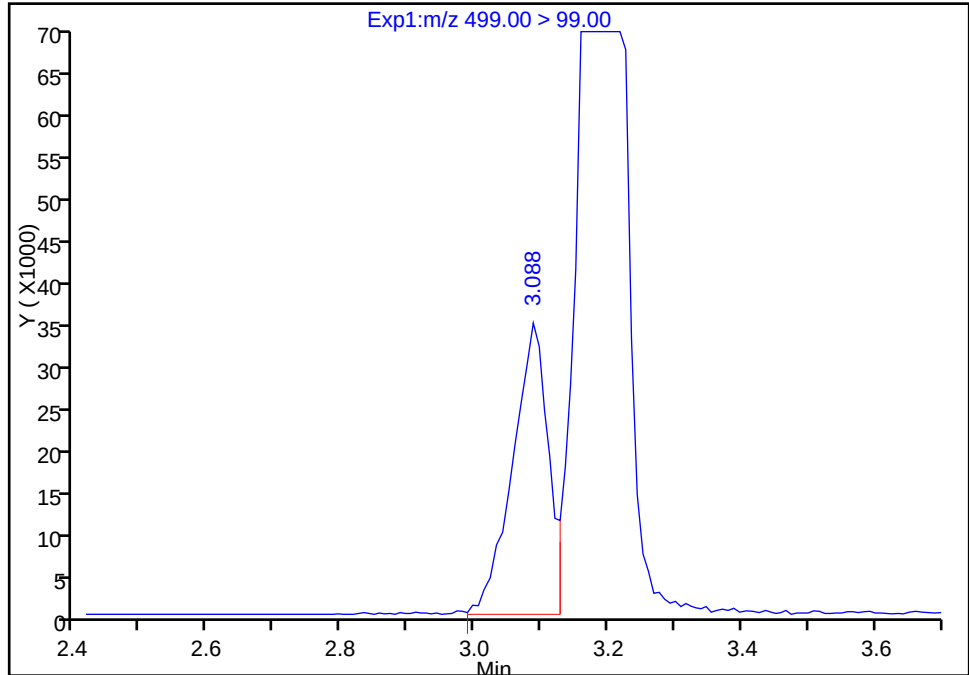
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_037.d
Injection Date: 11-Mar-2017 23:05:27 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 31 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

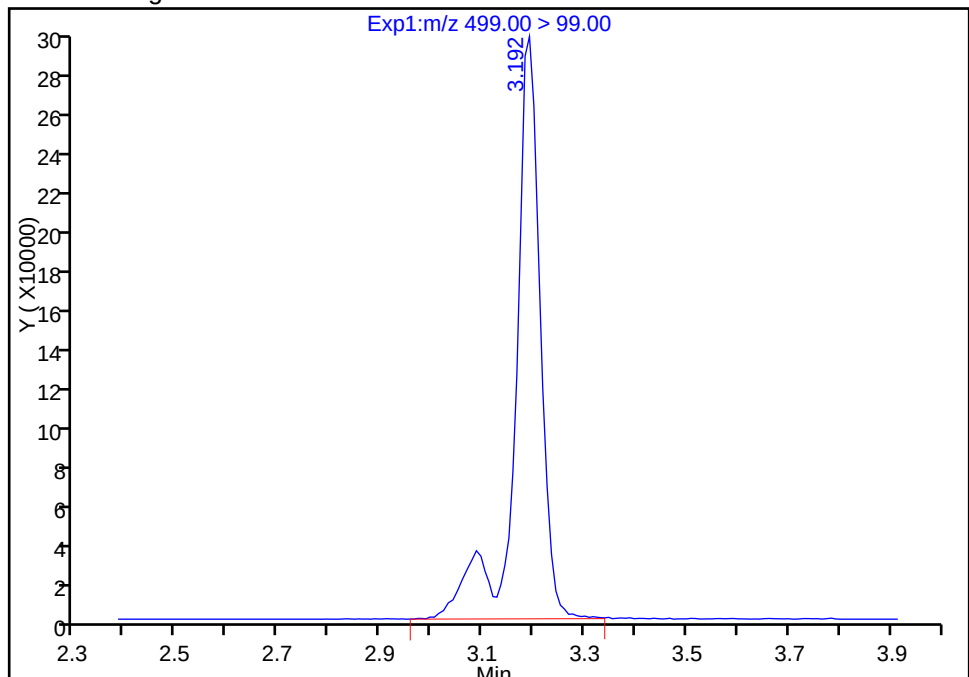
RT: 3.09
Area: 128907
Amount: 4.146263
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1030034
Amount: 17.473866
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 10:20:47

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-154516/11 Calibration Date: 03/12/2017 00:20

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.11D_047.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8876		52.4	50.0	4.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.006		51.4	50.0	2.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.402		43.3	44.2	-2.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8981		50.5	50.0	1.0	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9685		50.1	50.0	0.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.020		45.1	45.5	-0.8	25.0
6:2FTS	L2ID		0.8928		47.6	47.4	0.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9839		48.2	50.0	-3.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.114		51.4	47.6	8.1	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9530		52.7	50.0	5.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.009		47.6	46.4	2.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9355		52.1	50.0	4.1	25.0
8:2FTS	L2ID		0.9023		46.7	47.9	-2.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9012		49.8	50.0	-0.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9245		47.6	50.0	-4.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6088		49.3	48.2	2.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9391		46.3	50.0	-7.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8693		47.7	50.0	-4.5	25.0
MeFOSA	AveID	0.9355	0.9045		48.3	50.0	-3.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9159		50.1	50.0	0.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9669		49.1	50.0	-1.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8907		51.0	50.0	2.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.738		44.2	50.0	-11.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8993		48.1	50.0	-3.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5987		41.7	50.0	-16.6	25.0
13C4 PFBA	Ave	292242	329605		56.4	50.0	12.8	50.0
13C5-PFPeA	Ave	232192	247848		53.4	50.0	6.7	50.0
13C2 PFHxA	Ave	210884	241792		57.3	50.0	14.7	50.0
13C4-PFHpA	Ave	192959	217448		56.3	50.0	12.7	50.0
18O2 PFHxS	Ave	290899	328378		53.4	47.3	12.9	50.0
M2-6:2FTS	Ave	77178	90303		55.6	47.5	17.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154516/11 Calibration Date: 03/12/2017 00:20
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.11D_047.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	221028		53.9	50.0	7.8	50.0
13C4 PFOS	Ave	241637	263524		52.1	47.8	9.1	50.0
13C5 PFNA	Ave	177866	185140		52.0	50.0	4.1	50.0
13C8 FOSA	Ave	366918	379104		51.7	50.0	3.3	50.0
M2-8:2FTS	Ave	92602	103877		53.7	47.9	12.2	50.0
13C2 PFDA	Ave	166704	174638		52.4	50.0	4.8	50.0
d3-NMeFOSAA	Ave	85186	88210		51.8	50.0	3.6	50.0
d5-NEtFOSAA	Ave	81371	82674		50.8	50.0	1.6	50.0
13C2 PFUnA	Ave	130805	130391		49.8	50.0	-0.3	50.0
d-N-MeFOSA-M	Ave	87983	86516		49.2	50.0	-1.7	50.0
13C2 PFDoA	Ave	123944	124128		50.1	50.0	0.1	50.0
d-N-EtFOSA-M	Ave	85249	77931		45.7	50.0	-8.6	50.0
13C2-PFTEdA	Ave	259165	247390		47.7	50.0	-4.5	50.0
13C2-PFHxDA	Ave	125061	123388		49.3	50.0	-1.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_047.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2017 00:20:31 ALS Bottle#: 32 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 12:18:57 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:18:57

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	1.530	1.530	0.0		16480255	56.4		113	1024855	
2 Perfluorobutyric acid										
212.90 > 169.00	1.538	1.538	0.0	1.000	14627004	52.4		105	93861	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.812	0.0		12392400	53.4		107	764113	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.812	1.812	0.0	1.000	12464472	51.4		103	143095	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		321392	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.851	1.851	0.0	1.000	20351911	43.3		97.9		
298.90 > 99.00	1.851	1.851	0.0	1.000	8891046		2.29(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.106	2.106	0.0		12089606	57.3		115	665392	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.106	2.106	0.0	1.000	10857163	50.5		101	259360	
D 9 13C4-PFHpA										
367.00 > 322.00	2.442	2.442	0.0		10872422	56.3		113	323377	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.442	2.442	0.0	1.000	10530416	50.1		100	105825	
D 11 18O2 PFHxS										
403.00 > 84.00	2.457	2.457	0.0		15532262	53.4		113	416990	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.457	2.457	0.0	1.000	15246094	45.1		99.2		M
D 12 M2-6:2FTS										
429.00 > 409.00	2.777	2.777	0.0		4289395	55.6		117		

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	2.769	2.769	0.0	1.000	3821350	47.6	100		
15 Perfluorooctanoic acid	413.00 > 369.00	2.800	2.800	0.0	1.000	10873203	48.2	96.3	105491	
	413.00 > 169.00	2.800	2.800	0.0	1.000	6456464	1.68(0.90-1.10)		161457	
D 14 13C4 PFOA	417.00 > 372.00	2.800	2.800	0.0		11051403	53.9	108	404885	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	2.808	2.808	0.0	1.000	13975034	51.4	108		
D 18 13C4 PFOS	503.00 > 80.00	3.173	3.173	0.0		12596457	52.1	109	215914	
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.182	3.182	0.0	1.000	12335213	47.6	103	318069	M
	499.00 > 99.00	3.182	3.182	0.0	1.000	2808509	4.39(0.90-1.10)		126664	M
D 19 13C5 PFNA	468.00 > 423.00	3.182	3.182	0.0		9257005	52.0	104	307495	
20 Perfluorononanoic acid	463.00 > 419.00	3.182	3.182	0.0	1.000	8822106	52.7	105	234432	
D 21 13C8 FOSA	506.00 > 78.00	3.516	3.516	0.0		18955223	51.7	103	319929	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.516	3.516	0.0	1.000	17732594	52.1	104	420197	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.533	3.533	0.0	1.000	4489367	46.7	97.5		
D 26 M2-8:2FTS	529.00 > 509.00	3.533	3.533	0.0		4975716	53.7	112		
24 Perfluorodecanoic acid	513.00 > 469.00	3.541	3.541	0.0	1.000	7868769	49.8	99.5	217993	
D 23 13C2 PFDA	515.00 > 470.00	3.541	3.541	0.0		8731886	52.4	105	261431	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.689	3.689	0.0		4410508	51.8	104		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.699	3.699	0.0	1.003	4077617	47.6	95.2		
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.853	3.853	0.0	1.000	7732883	49.3	102		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.862	3.862	0.0		4133708	50.8	102		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.862	3.862	0.0	1.000	6122721	46.3	92.7	130068	
D 30 13C2 PFUnA	565.00 > 520.00	3.870	3.870	0.0		6519555	49.8	99.7	176854	
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	3.870	3.870	0.0	1.002	3593488	47.7	95.5		
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.013	4.013	0.0		4325787	49.2	98.3		
35 MeFOSA	512.00 > 169.00	4.023	4.023	0.0	1.000	3912600	48.3	96.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.154	4.154	0.0		6206376	50.1		100	157806	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.161	4.161	0.0	1.000	5684638	50.1		100	56122	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.197	4.197	0.0		3896535	45.7		91.4		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.204	4.204	0.0	1.000	3767363	49.1		98.3		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.421	4.421	0.0	1.000	5528084	51.0		102	95916	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.657	4.657	0.0		12369505	47.7		95.5	313171	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.657	4.657	0.0	1.000	10787881	44.2		88.4	99315	
713.00 > 169.00	4.657	4.657	0.0	1.000	1604755		6.72(0.00-0.00)		133468	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.070	5.070	0.0		6169408	49.3		98.7	91503	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.070	5.070	0.0	1.000	5581120	48.1		96.3	4936	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.422	5.422	0.0	1.000	3715957	41.7		83.4	4959	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_047.d

Injection Date: 12-Mar-2017 00:20:31

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

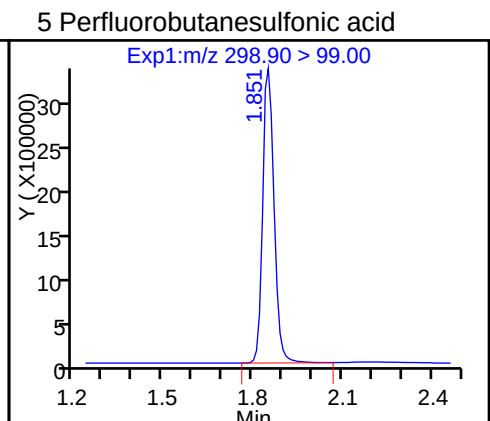
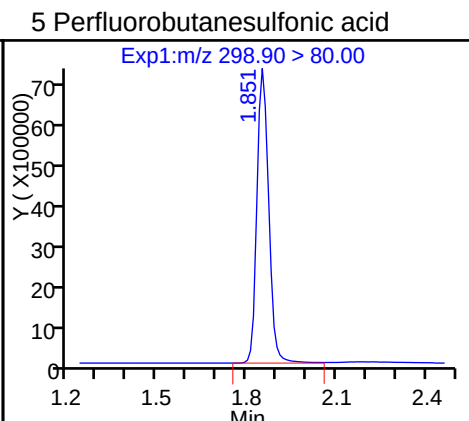
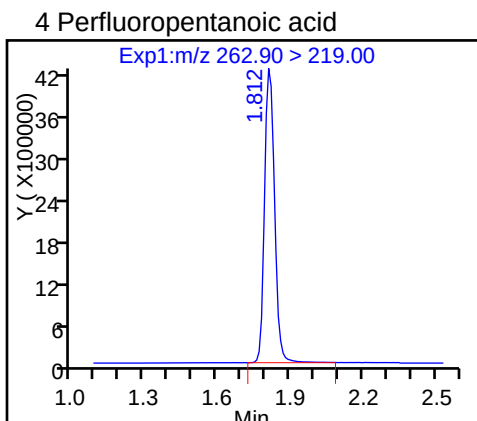
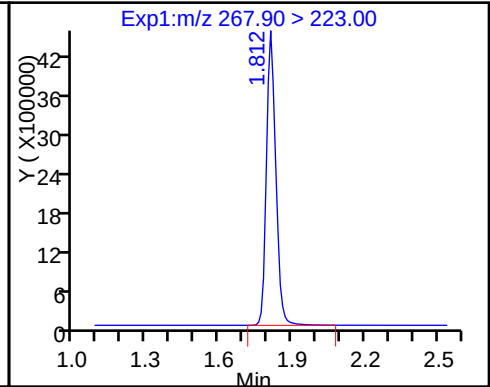
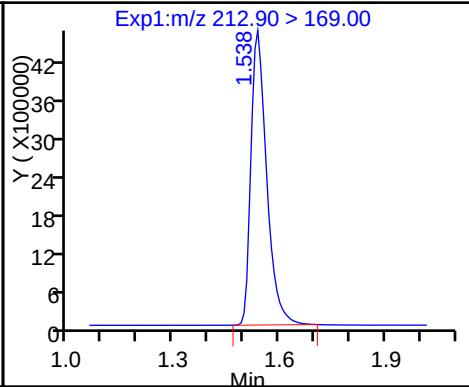
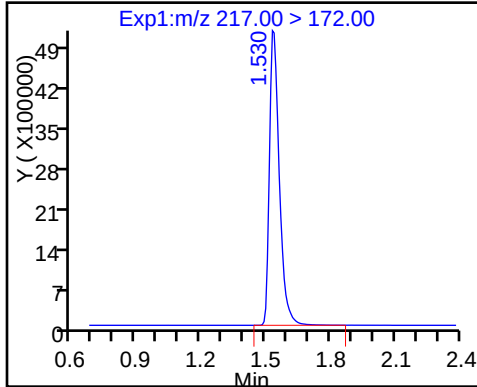
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

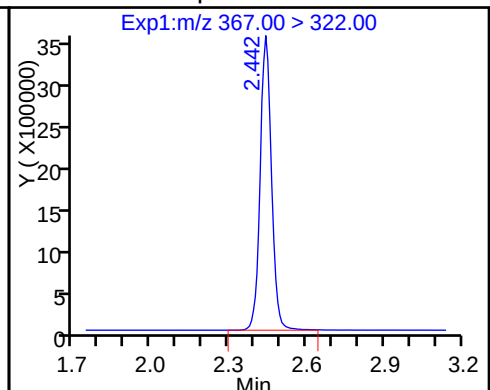
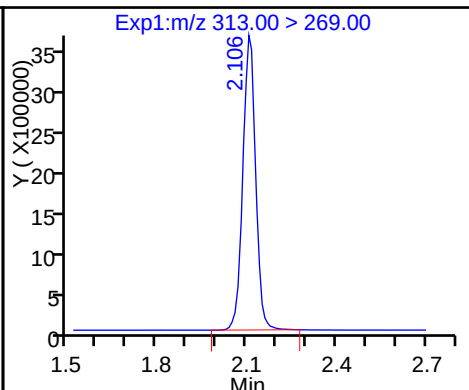
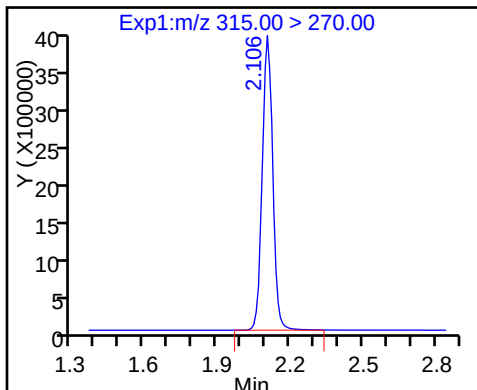
D 3 13C5-PFPeA



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

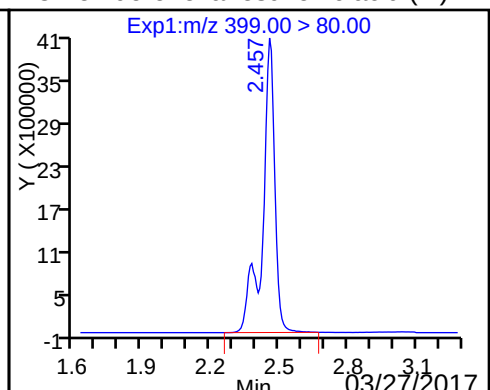
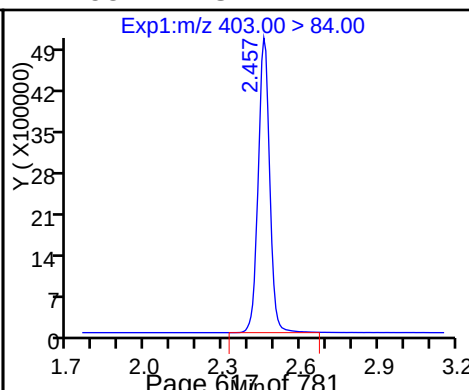
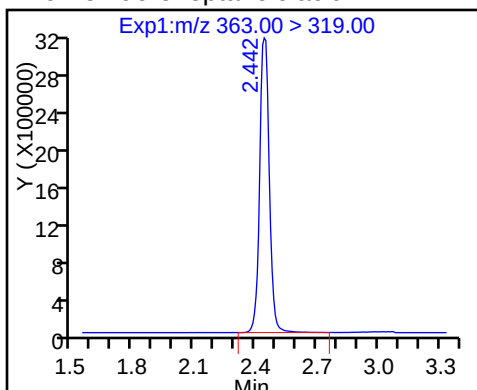
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

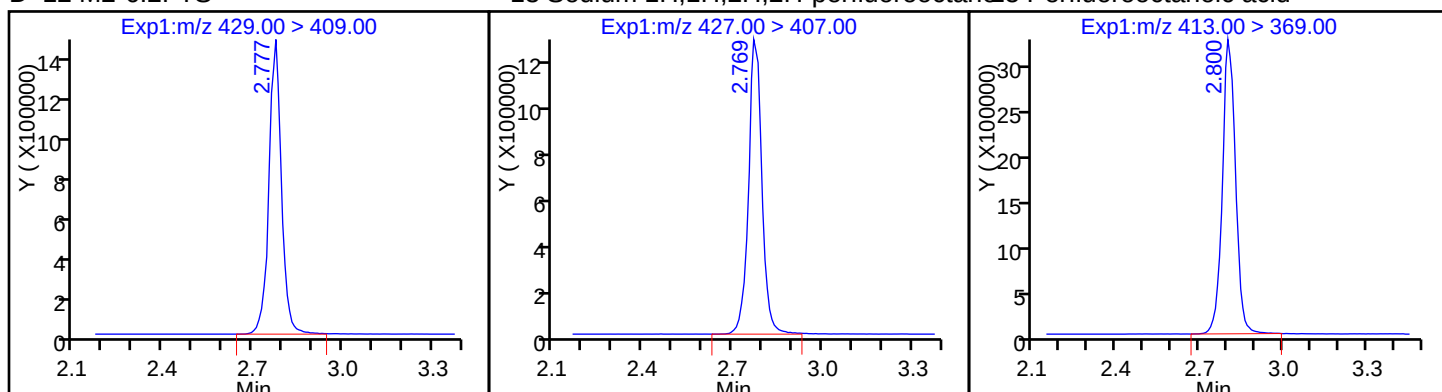
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)



D 12 M2-6:2FTS

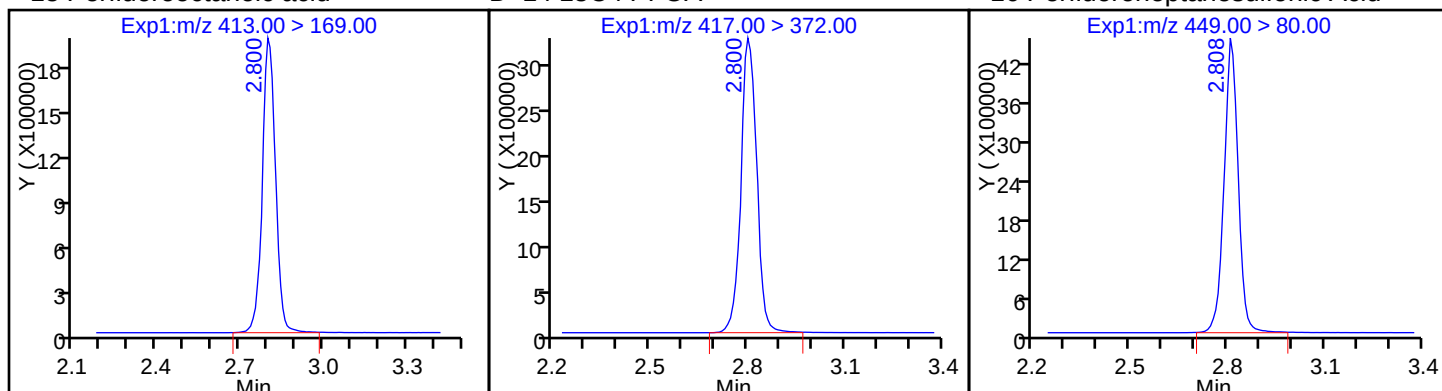
13 Sodium 1H,1H,2H,2H-perfluorooctane-1S



15 Perfluorooctanoic acid

D 14 13C4 PFOA

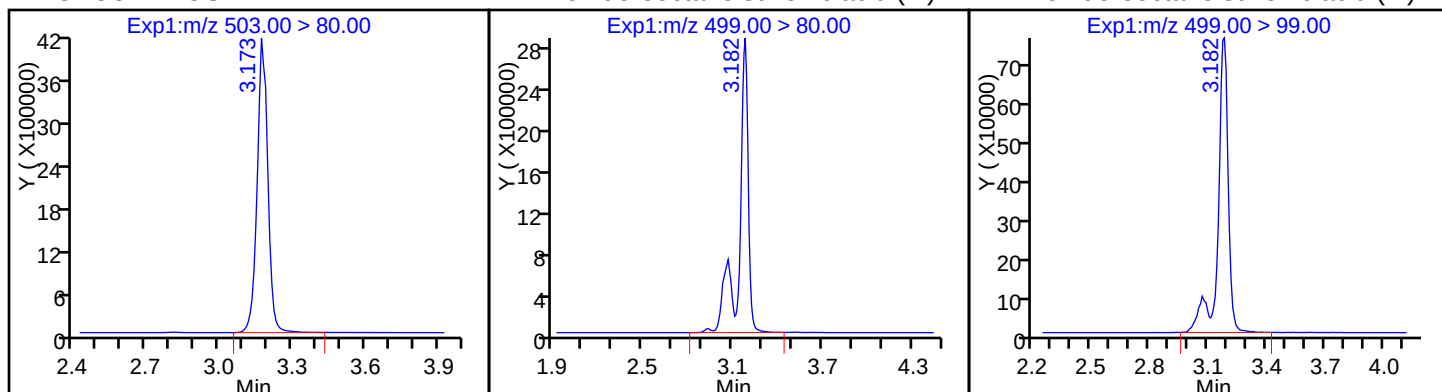
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)

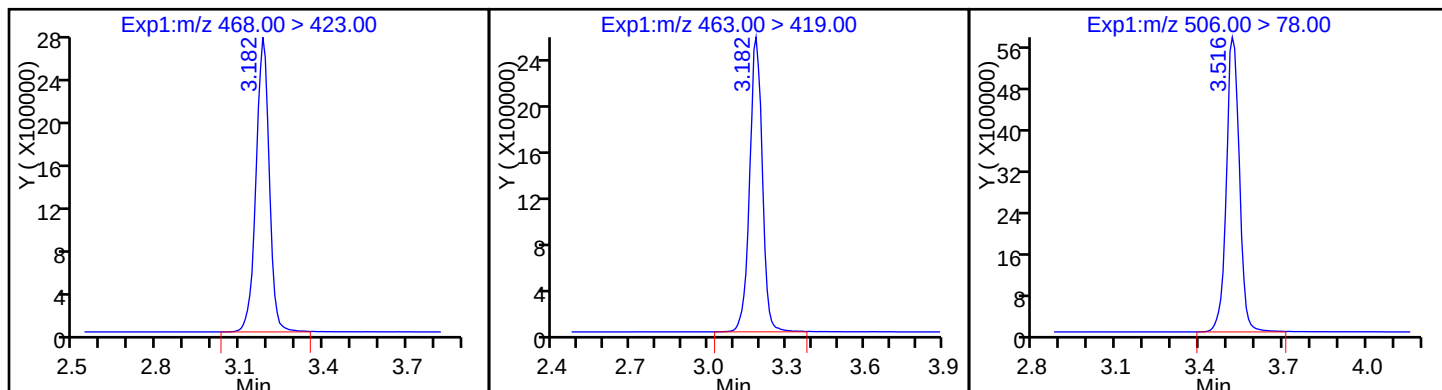
17 Perfluorooctane sulfonic acid (M)



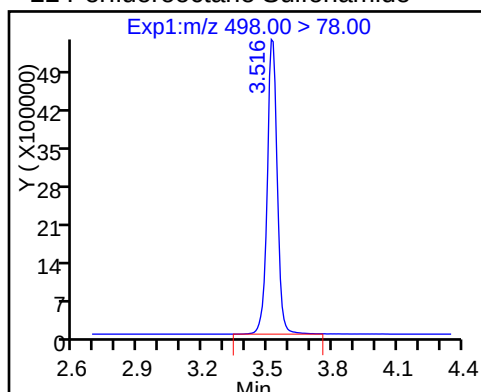
D 19 13C5 PFNA

20 Perfluorononanoic acid

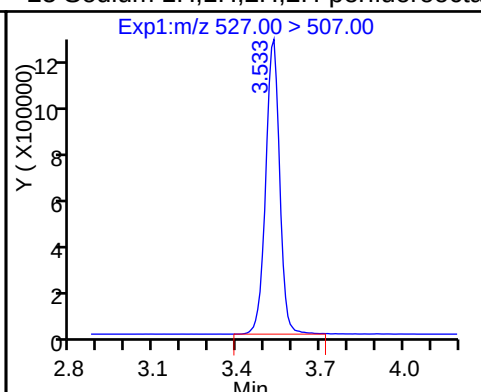
D 21 13C8 FOSA



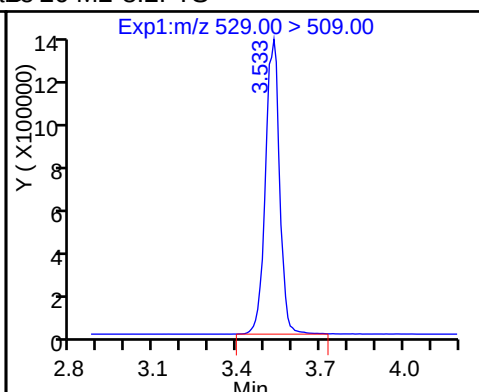
22 Perfluorooctane Sulfonamide



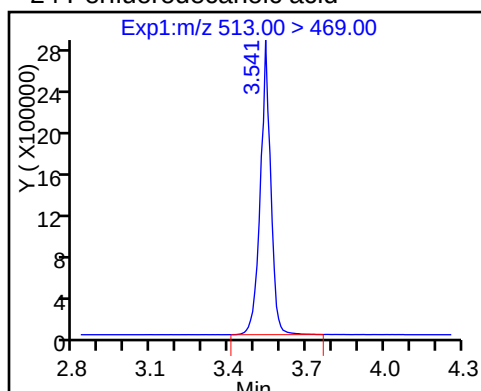
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



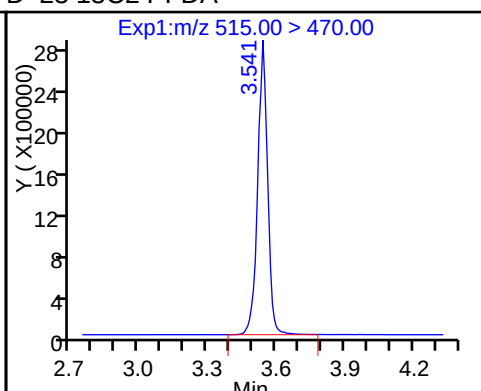
26 M2-8:2FTS



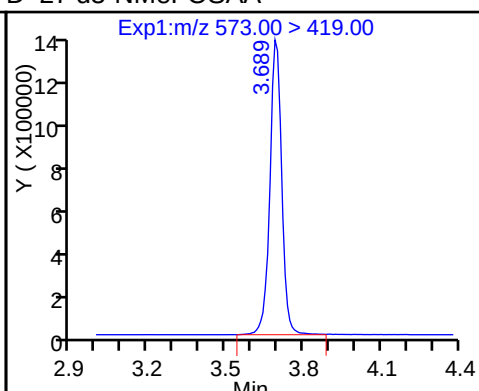
24 Perfluorodecanoic acid



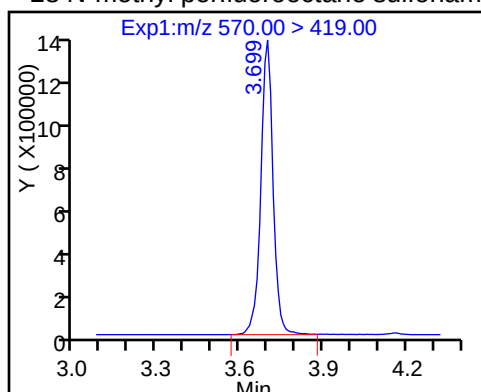
D 23 13C2 PFDA



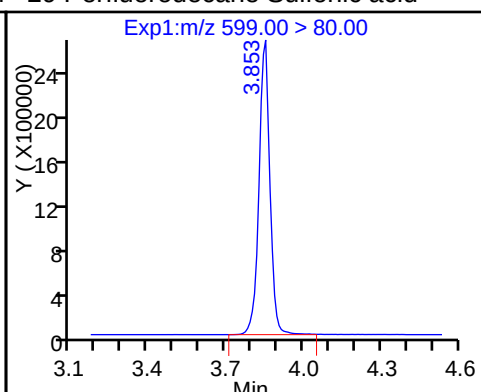
D 27 d3-NMeFOSAA



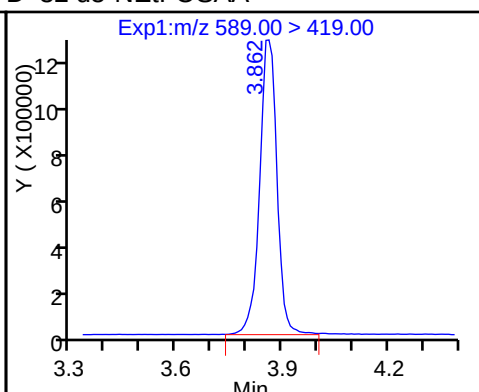
28 N-methyl perfluorooctane sulfonamide



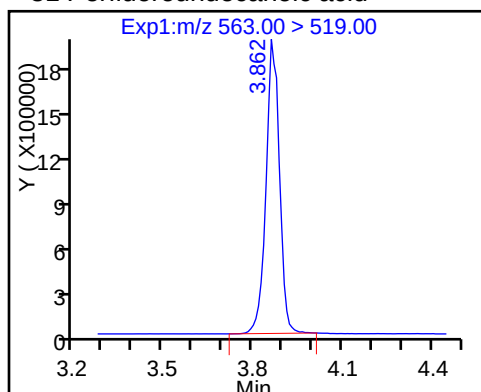
29 Perfluorodecane Sulfonic acid



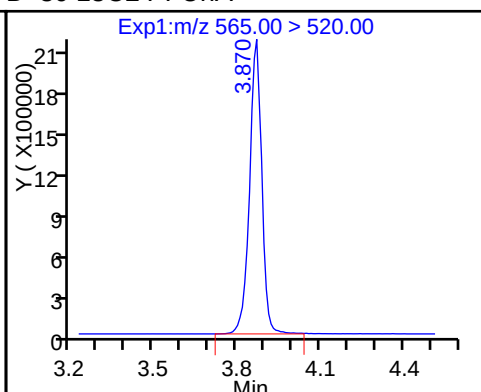
D 32 d5-NEtFOSAA



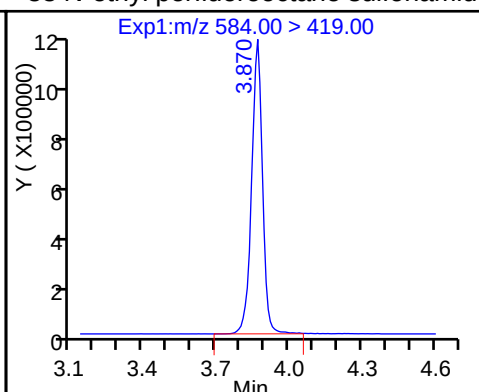
31 Perfluoroundecanoic acid



D 30 13C2 PFUnA



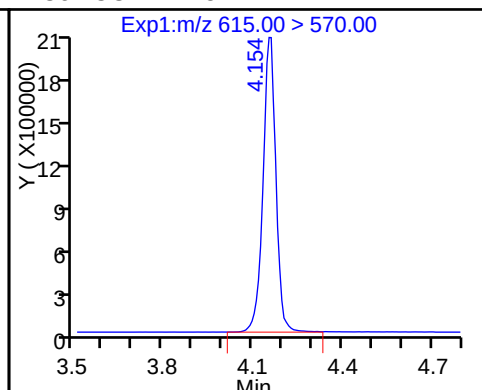
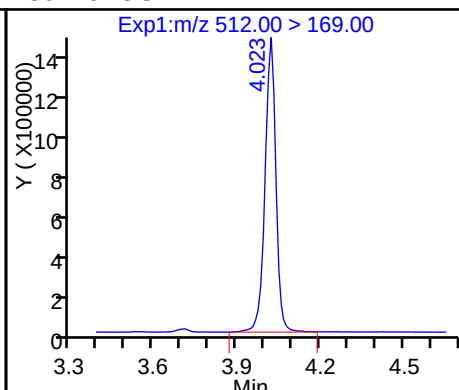
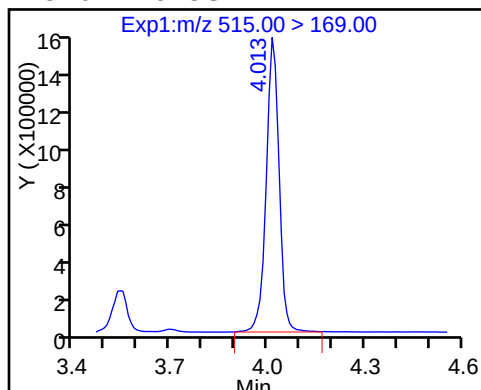
33 N-ethyl perfluorooctane sulfonamide



D 34 d-N-MeFOSA-M

35 MeFOSA

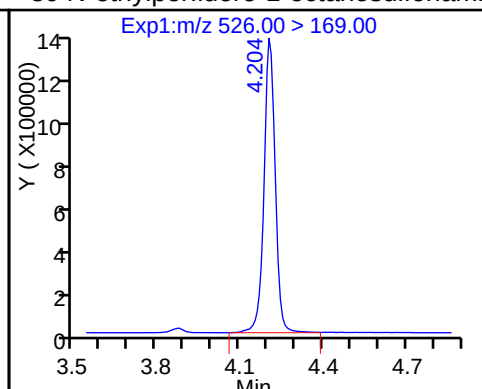
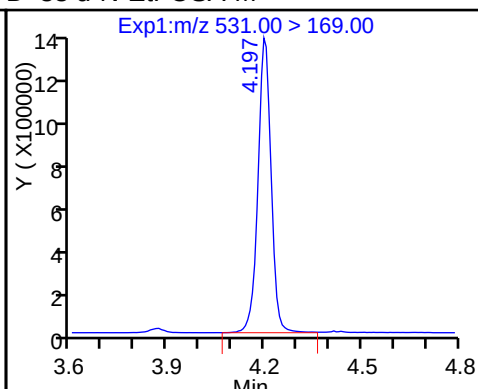
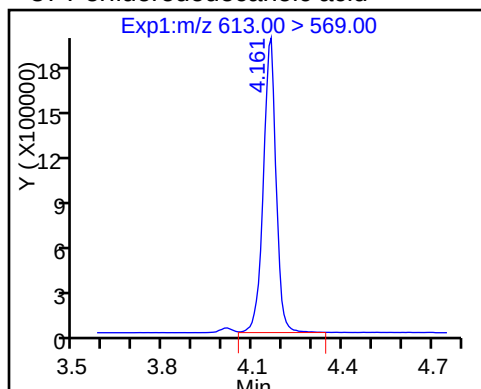
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

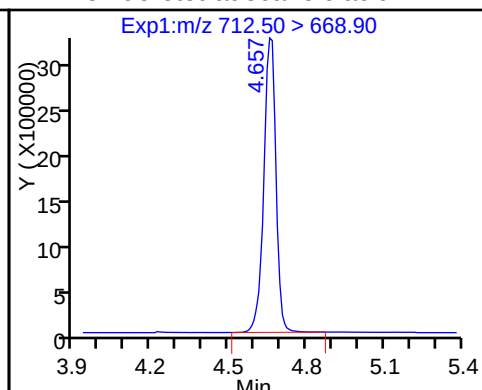
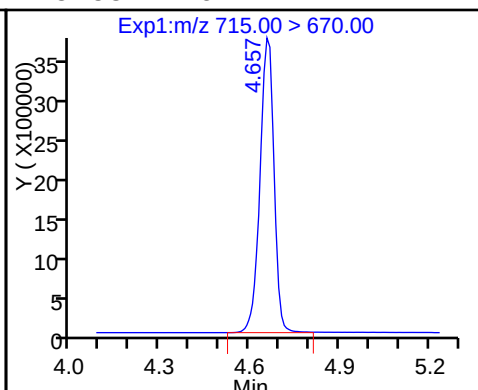
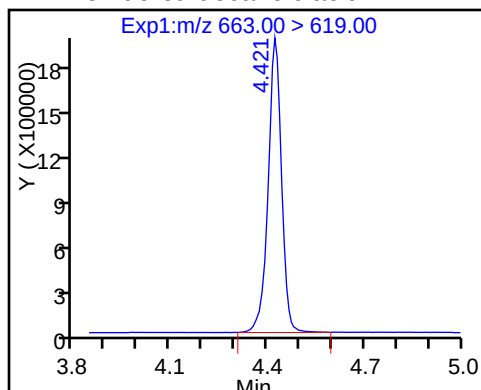
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

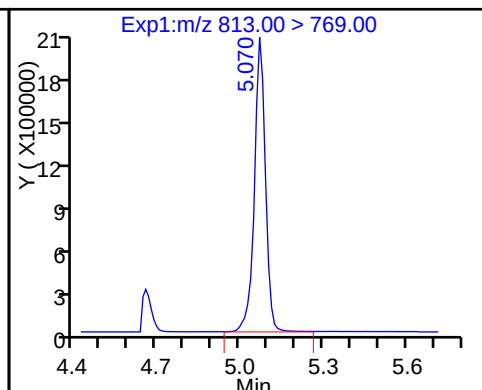
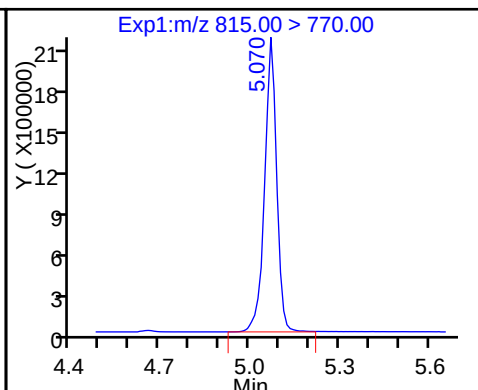
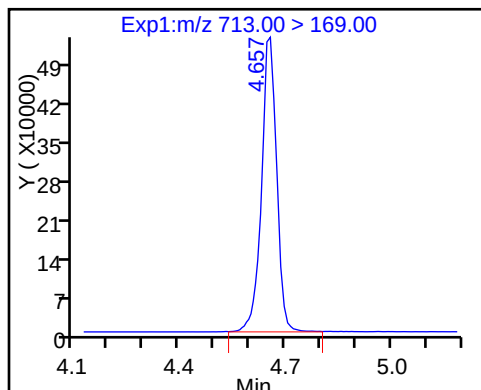
42 Perfluorotetradecanoic acid



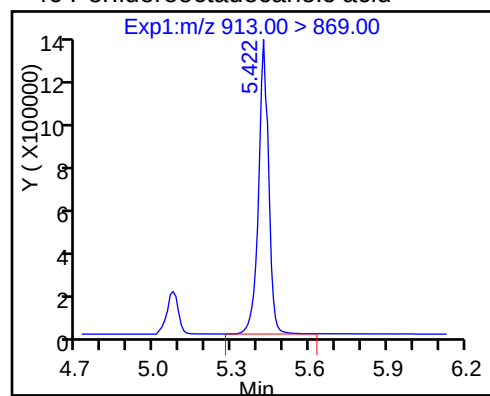
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

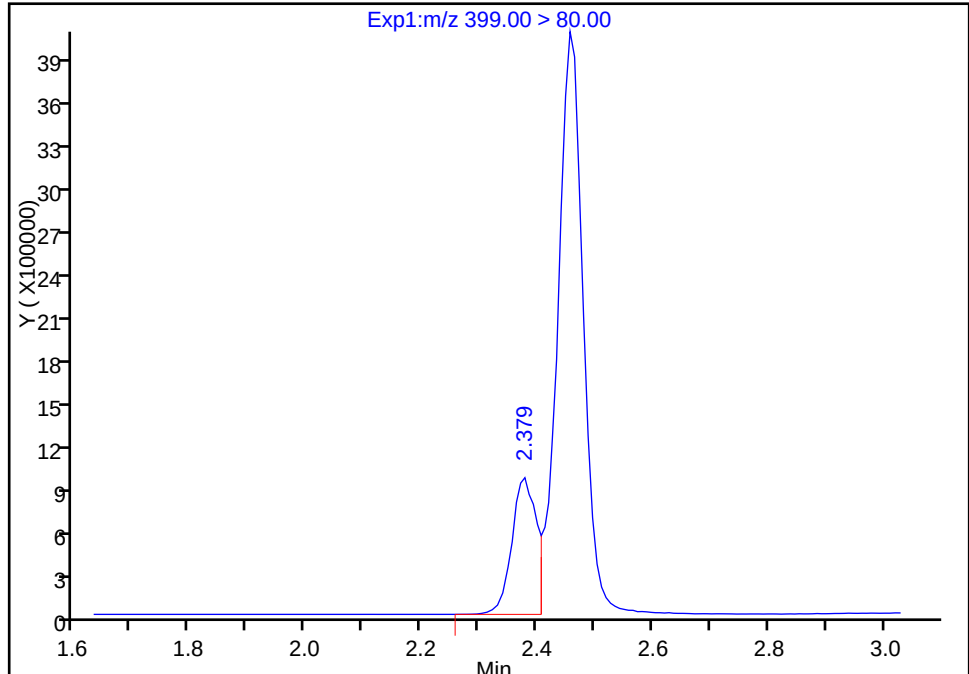
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Injection Date: 12-Mar-2017 00:20:31 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

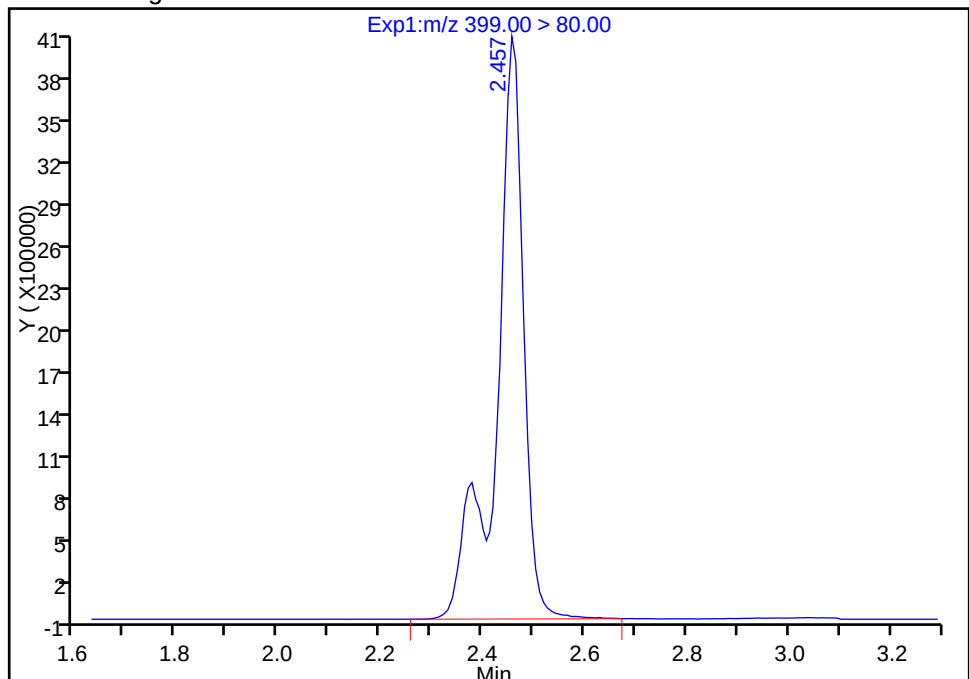
RT: 2.38
Area: 2774035
Amount: 8.214062
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 15246094
Amount: 45.144475
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 11:40:12

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

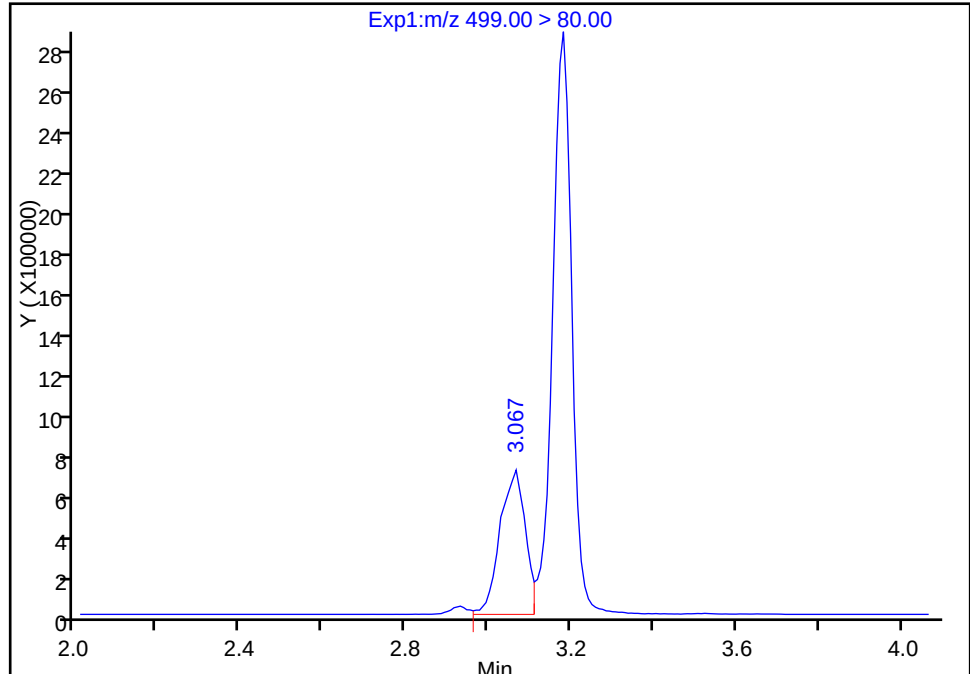
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_047.d
Injection Date: 12-Mar-2017 00:20:31 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

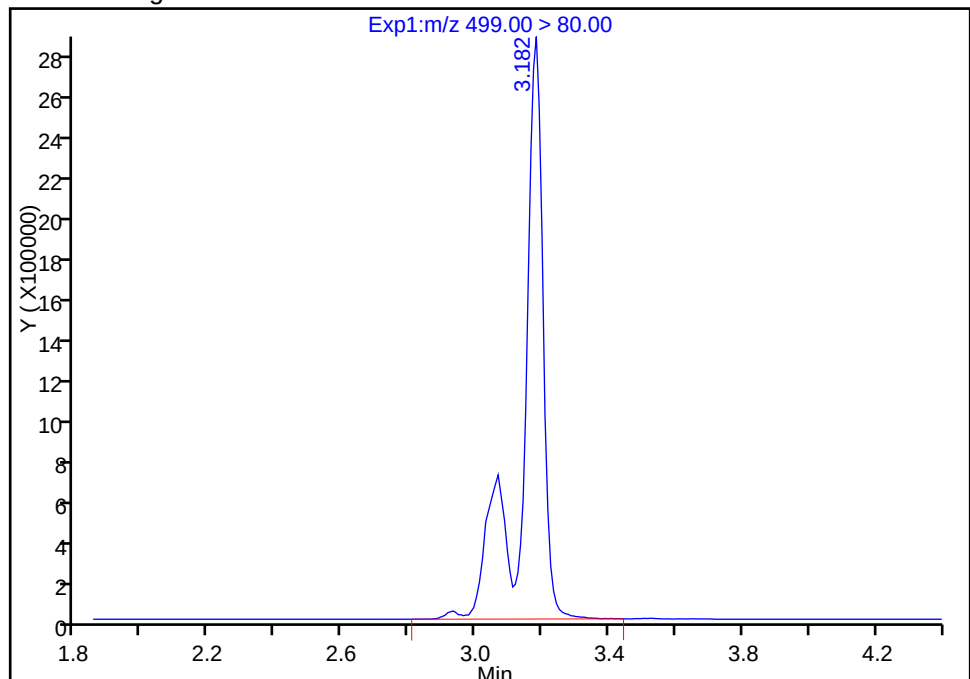
RT: 3.07
Area: 2995763
Amount: 11.559003
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 12335213
Amount: 47.594810
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 11:40:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

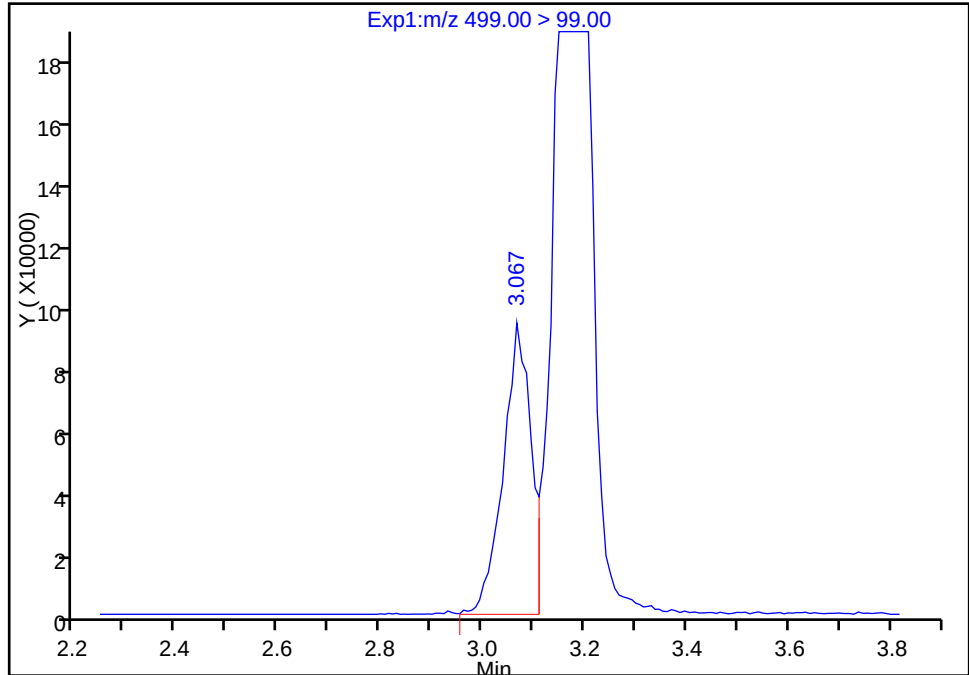
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Lims ID: CCV L5
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

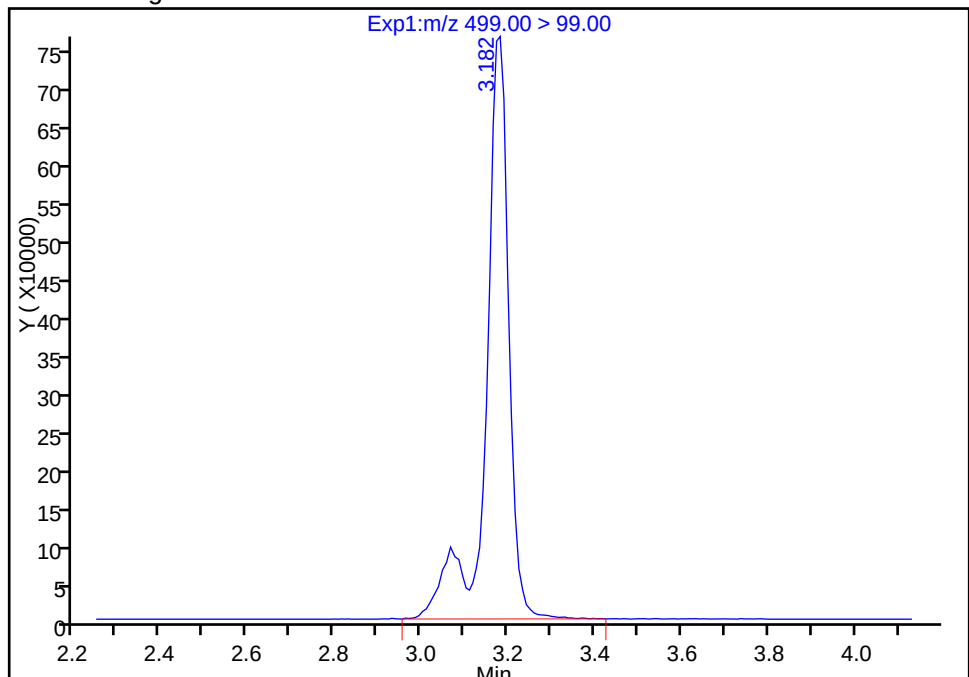
RT: 3.07
Area: 348996
Amount: 11.559003
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 2808509
Amount: 47.594810
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 11:41:01

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-154516/21 Calibration Date: 03/12/2017 01:35

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.11D_057.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8371		19.8	20.0	-1.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9471		19.4	20.0	-3.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.457		18.0	17.7	1.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8559		19.2	20.0	-3.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9341		19.3	20.0	-3.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9749		17.3	18.2	-5.2	25.0
6:2FTS	L2ID		0.9290		19.7	19.0	4.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.052		19.4	19.0	2.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9633		18.9	20.0	-5.7	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9228		17.4	18.6	-6.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9049		20.0	20.0	0.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8992		20.0	20.0	0.0	25.0
8:2FTS	L2ID		0.9535		19.7	19.2	2.8	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8622		19.0	20.0	-4.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9350		19.3	20.0	-3.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5731		18.5	19.3	-3.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8931		19.6	20.0	-1.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.8841		17.4	20.0	-12.8	25.0
MeFOSA	AveID	0.9355	0.9013		19.3	20.0	-3.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8644		18.9	20.0	-5.5	25.0
N-EtFOSA-M	AveID	0.9837	0.9546		19.4	20.0	-3.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8427		19.3	20.0	-3.5	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.633		16.6	20.0	-17.0	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.7339		15.5	20.0	-22.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5536		15.4	20.0	-22.8	25.0
13C4 PFBA	Ave	292242	327754		56.1	50.0	12.2	50.0
13C5-PFPeA	Ave	232192	253330		54.6	50.0	9.1	50.0
13C2 PFHxA	Ave	210884	231029		54.8	50.0	9.6	50.0
13C4-PFHpA	Ave	192959	212119		55.0	50.0	9.9	50.0
18O2 PFHxS	Ave	290899	317869		51.7	47.3	9.3	50.0
M2-6:2FTS	Ave	77178	88671		54.6	47.5	14.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154516/21 Calibration Date: 03/12/2017 01:35
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.11D_057.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	224145		54.7	50.0	9.4	50.0
13C4 PFOS	Ave	241637	264748		52.4	47.8	9.6	50.0
13C5 PFNA	Ave	177866	188461		53.0	50.0	6.0	50.0
13C8 FOSA	Ave	366918	382383		52.1	50.0	4.2	50.0
M2-8:2FTS	Ave	92602	105512		54.6	47.9	13.9	50.0
13C2 PFDA	Ave	166704	174590		52.4	50.0	4.7	50.0
d3-NMeFOSAA	Ave	85186	85927		50.4	50.0	0.9	50.0
d5-NEtFOSAA	Ave	81371	83654		51.4	50.0	2.8	50.0
13C2 PFUnA	Ave	130805	135071		51.6	50.0	3.3	50.0
d-N-MeFOSA-M	Ave	87983	85355		48.5	50.0	-3.0	50.0
13C2 PFDoA	Ave	123944	121861		49.2	50.0	-1.7	50.0
d-N-EtFOSA-M	Ave	85249	79410		46.6	50.0	-6.8	50.0
13C2-PFTeDA	Ave	259165	242846		46.9	50.0	-6.3	50.0
13C2-PFHxDA	Ave	125061	108059		43.2	50.0	-13.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_057.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2017 01:35:34 ALS Bottle#: 31 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 12:40:07 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:40:07

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	1.538	1.538	0.0		16387723	56.1		112	835461	
2 Perfluorobutyric acid										
212.90 > 169.00	1.538	1.538	0.0	1.000	5487146	19.8		98.8	41328	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.812	0.0		12666484	54.6		109	887730	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	4798575	19.4		96.8	42257	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		315826	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.851	1.851	0.0	1.000	8190902	18.0		102		
298.90 > 99.00	1.851	1.851	0.0	1.000	3277685		2.50(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.114	0.0		11551455	54.8		110	407373	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.114	2.114	0.0	1.000	3954702	19.2		96.2	115790	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.453	2.453	0.0	1.000	3962842	19.3		96.6	52472	
D 9 13C4-PFHpA										
367.00 > 322.00	2.453	2.453	0.0		10605943	55.0		110	309127	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.461	2.461	0.0	1.000	5640054	17.3		94.8		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.468	2.468	0.0		15035208	51.7		109	321438	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.787	2.787	0.0	1.000	1561913	19.7		104		

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	2.780	2.780	0.0		4211882	54.6		115		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.819	2.819	0.0	1.000	4318160	18.9		94.3	44750	
413.00 > 169.00	2.819	2.819	0.0	1.000	2446069		1.77(0.90-1.10)		84289	
D 14 13C4 PFOA										
417.00 > 372.00	2.811	2.811	0.0		11207266	54.7		109	390051	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.819	2.819	0.0	1.000	5303836	19.4		102		
D 18 13C4 PFOS										
503.00 > 80.00	3.185	3.185	0.0		12654948	52.4		110	243988	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.185	3.185	0.0	1.000	4534359	17.4		93.8	138922	M
499.00 > 99.00	3.193	3.185	0.008	1.003	1021784		4.44(0.90-1.10)		44543	M
D 19 13C5 PFNA										
468.00 > 423.00	3.185	3.185	0.0		9423032	53.0		106	263440	
20 Perfluorononanoic acid										
463.00 > 419.00	3.193	3.193	0.0	1.000	3410805	20.0		100	64702	
D 21 13C8 FOSA										
506.00 > 78.00	3.526	3.526	0.0		19119132	52.1		104	324554	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.526	3.526	0.0	1.000	6877048	20.0		100	318443	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.543	3.543	0.0	1.002	1927516	19.7		103		
D 26 M2-8:2FTS										
529.00 > 509.00	3.535	3.535	0.0		5054044	54.6		114		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.543	3.543	0.0	1.000	3010660	19.0		95.2	71964	
D 23 13C2 PFDA										
515.00 > 470.00	3.543	3.543	0.0		8729502	52.4		105	183045	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.702	3.702	0.0		4296371	50.4		101		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.702	3.702	0.0	1.000	1606872	19.3		96.3		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.847	3.847	0.0	1.000	2925052	18.5		96.2		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.864	3.864	0.0		4182702	51.4		103		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.873	3.873	0.0	1.000	2388296	17.4		87.2	70744	
D 30 13C2 PFUnA										
565.00 > 520.00	3.873	3.873	0.0		6753555	51.6		103	219349	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.873	3.873	0.0	1.002	1494246	19.6		98.1		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.026	4.026	0.0		4267741	48.5		97.0		
35 MeFOSA										
512.00 > 169.00	4.026	4.026	0.0	1.000	1538569	19.3		96.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.156	4.156	0.0		6093072	49.2		98.3	208042	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.163	4.163	0.0	1.000	2106849	18.9		94.5	20540	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.205	4.205	0.0		3970517	46.6		93.2		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.205	4.205	0.0	1.000	1516168	19.4		97.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.423	4.423	0.0	1.000	2053838	19.3		96.5	39069	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.654	4.654	0.0		12142275	46.9		93.7	380605	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.664	4.664	0.0	1.000	3980027	16.6		83.0	34270	
713.00 > 169.00	4.664	4.664	-0.010	0.998	579804		6.86(0.00-0.00)		68502	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.072	5.072	0.0		5402941	43.2		86.4	89637	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.072	5.072	0.0	1.000	1788714	15.5		77.3	1480	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.423	5.423	0.0	1.000	1349286	15.4		77.2	1761	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_057.d

Injection Date: 12-Mar-2017 01:35:34

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

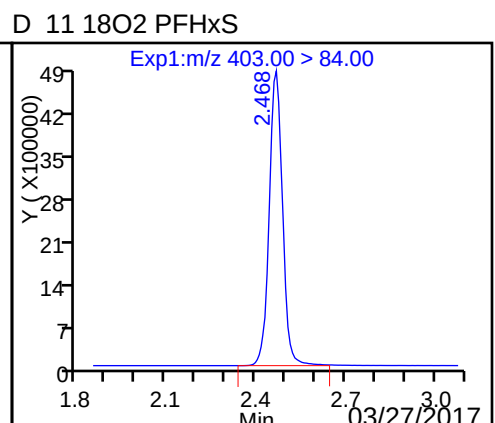
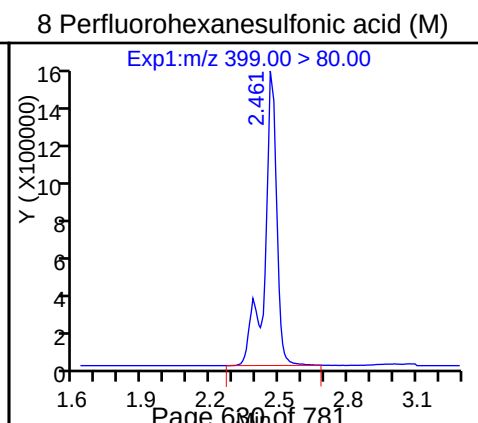
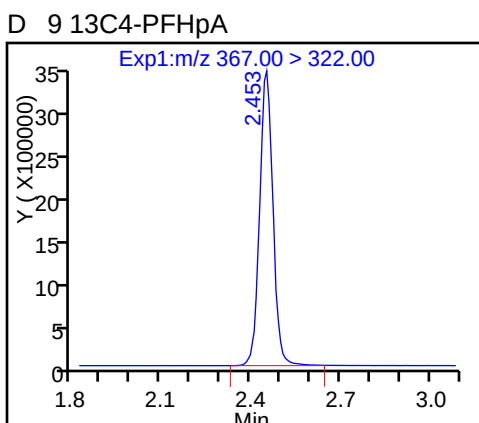
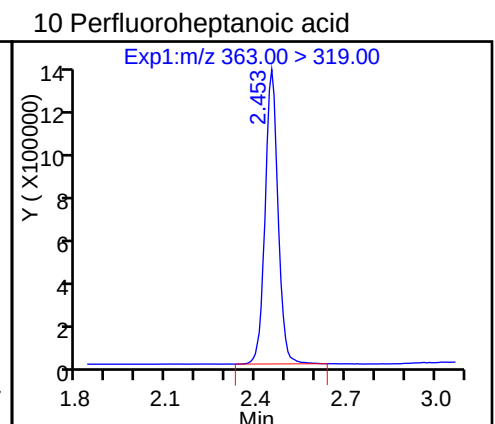
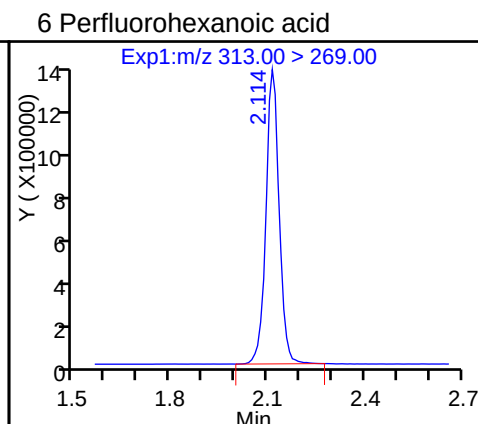
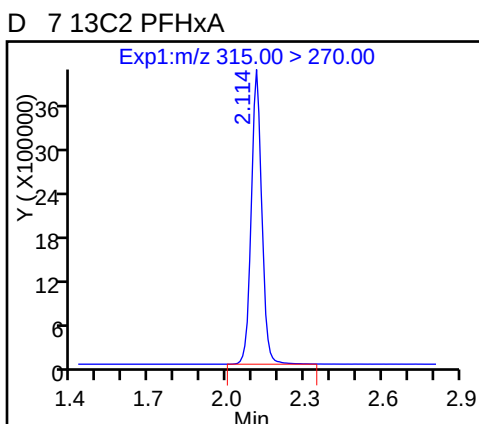
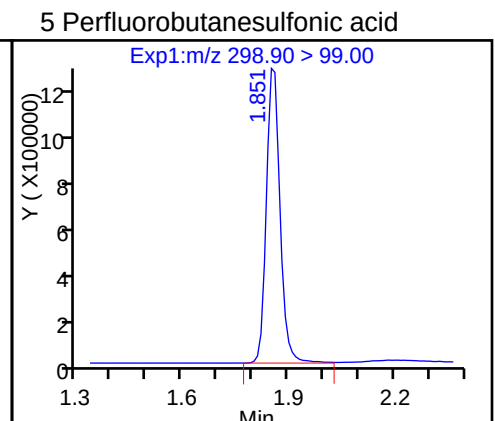
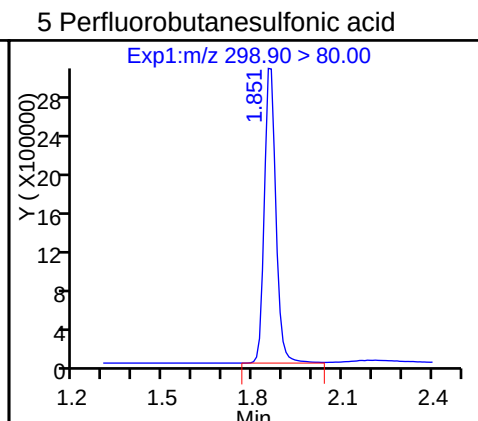
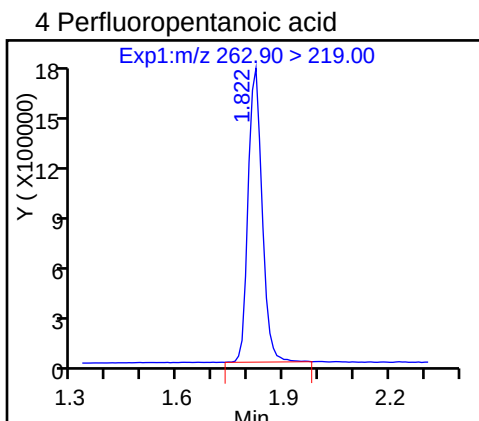
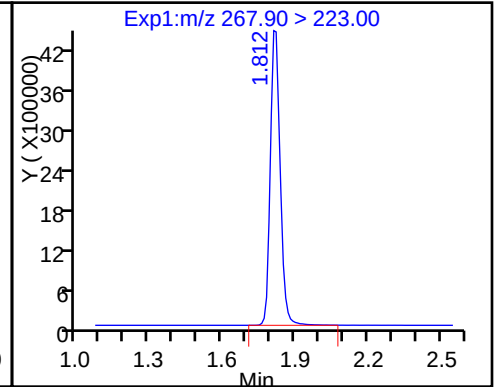
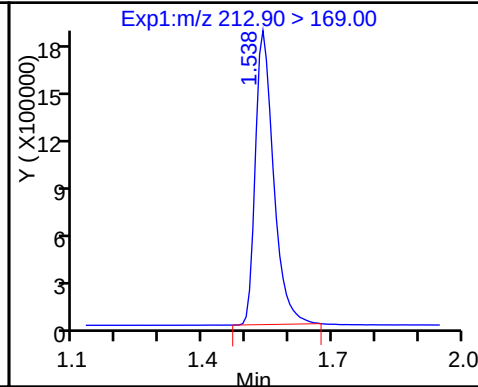
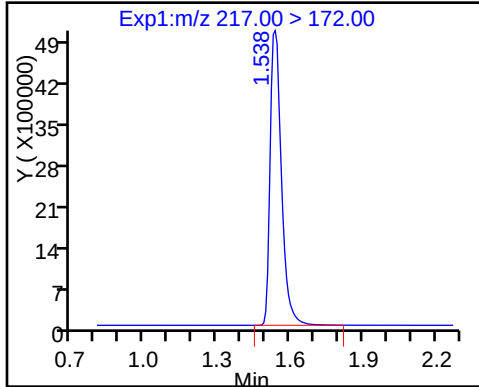
Method: A8_N

Limit Group: LC PFC_DOD ICAL

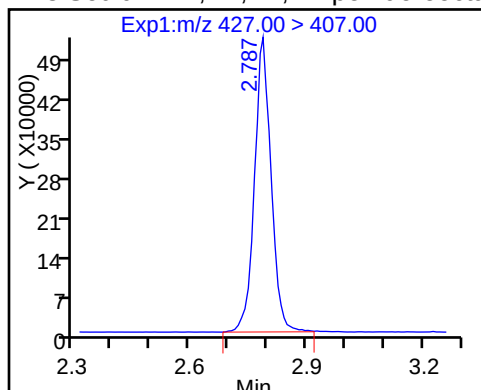
D 1 13C4 PFBA

2 Perfluorobutyric acid

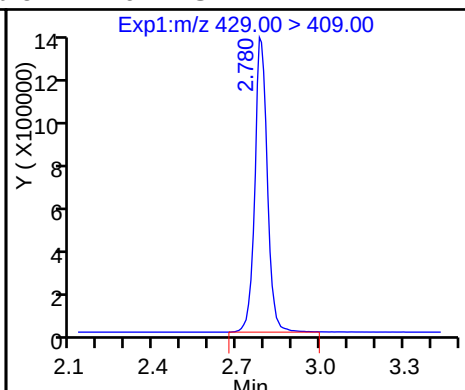
D 3 13C5-PFPeA



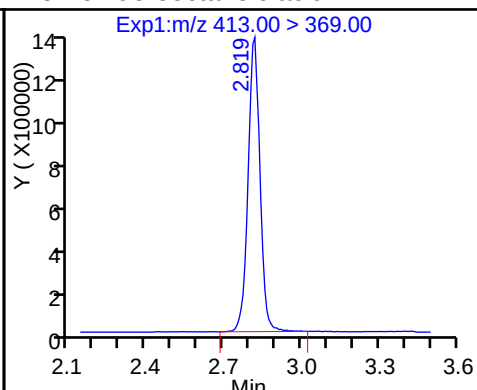
13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS



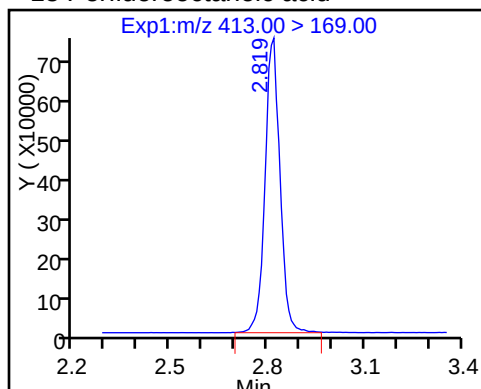
15 Perfluorooctanoic acid



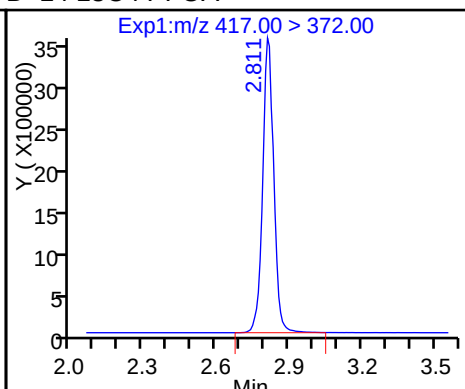
15 Perfluorooctanoic acid



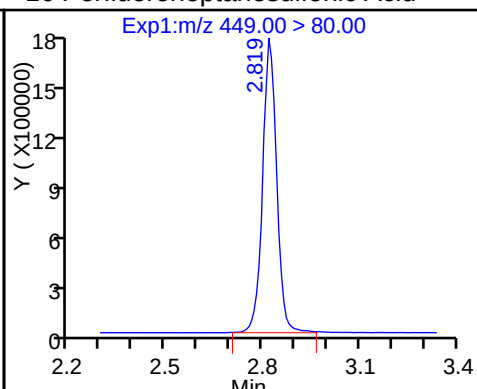
15 Perfluorooctanoic acid



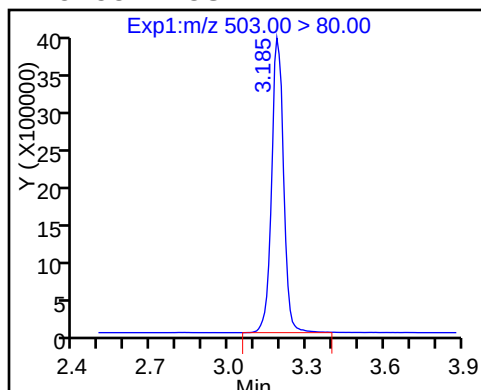
D 14 13C4 PFOA



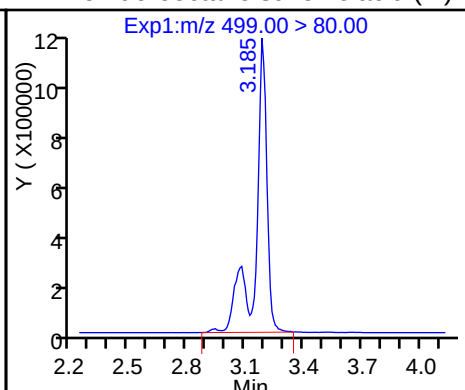
16 Perfluoroheptanesulfonic Acid



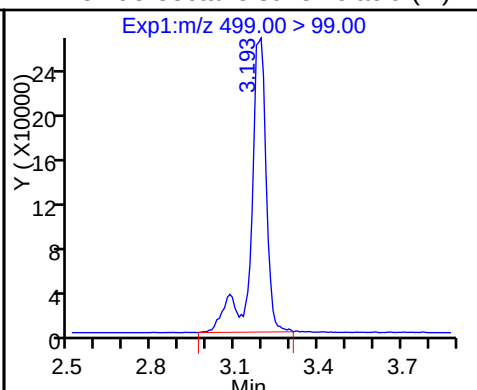
D 18 13C4 PFOS



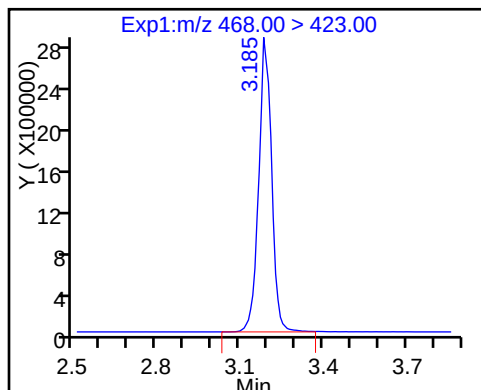
17 Perfluorooctane sulfonic acid (M)



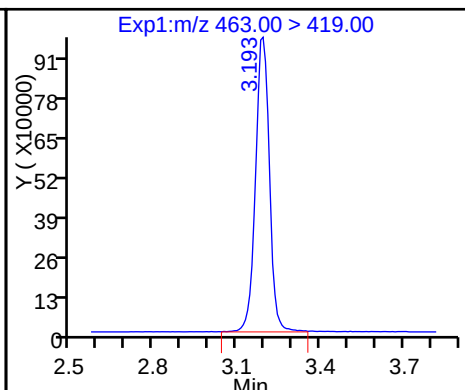
17 Perfluorooctane sulfonic acid (M)



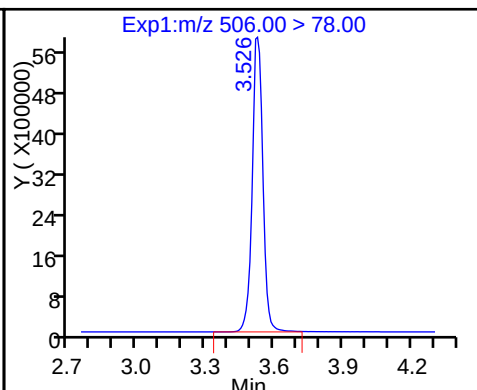
D 19 13C5 PFNA



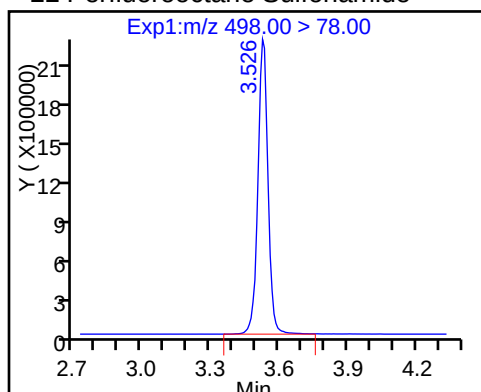
20 Perfluorononanoic acid



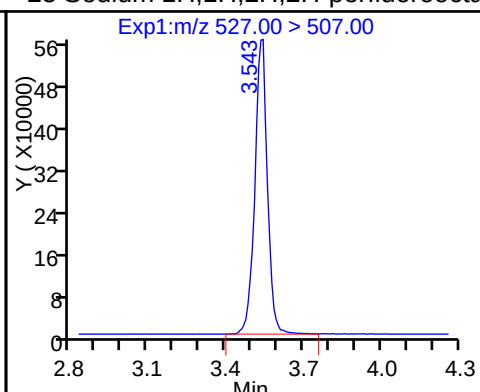
D 21 13C8 FOSA



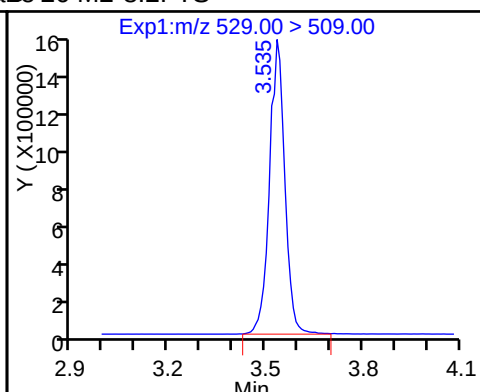
22 Perfluorooctane Sulfonamide



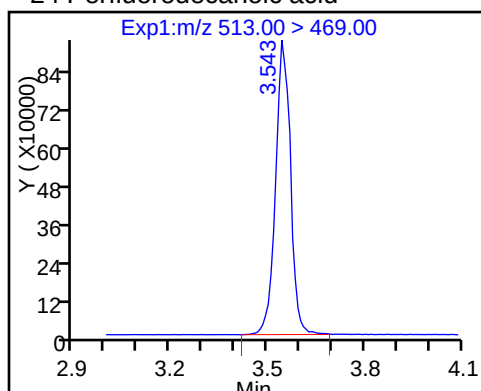
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



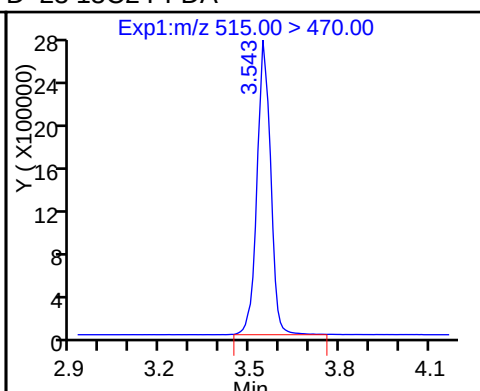
26 M2-8:2FTS



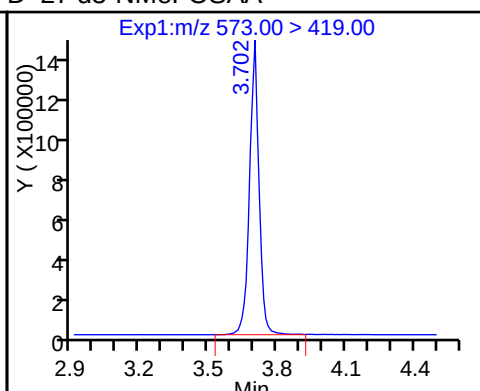
24 Perfluorodecanoic acid



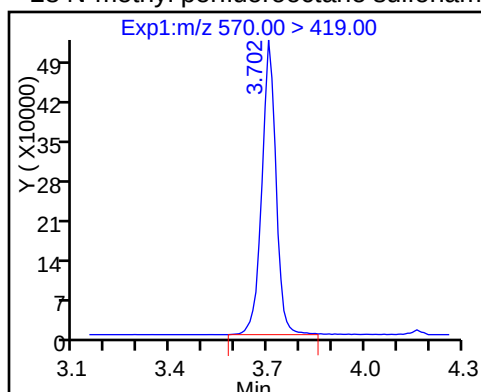
D 23 13C2 PFDA



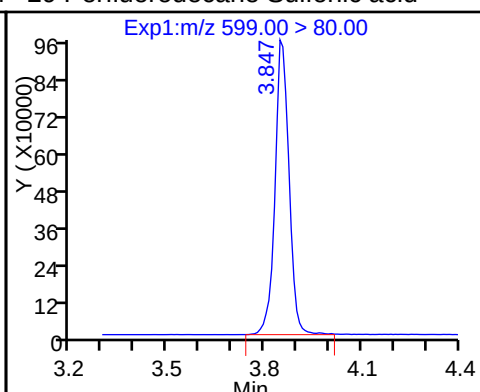
D 27 d3-NMeFOSAA



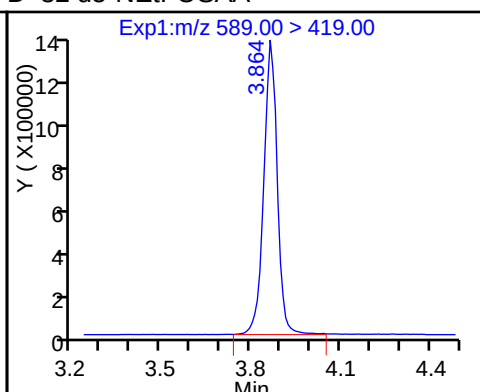
28 N-methyl perfluorooctane sulfonamide



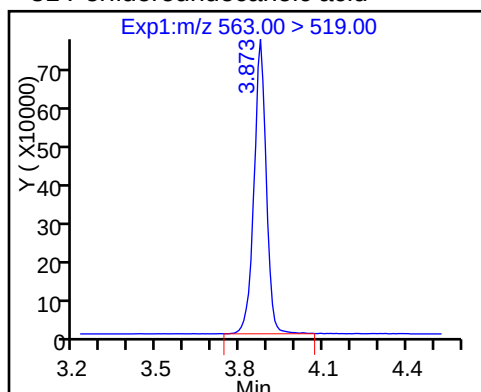
29 Perfluorodecane Sulfonic acid



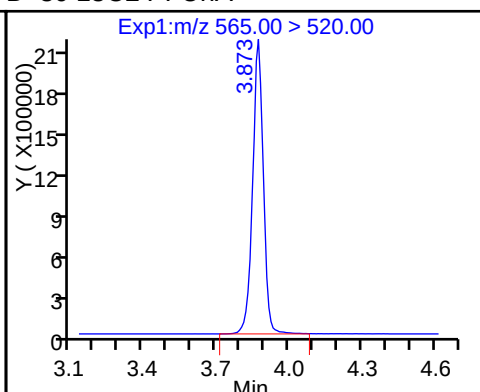
D 32 d5-NEtFOSAA



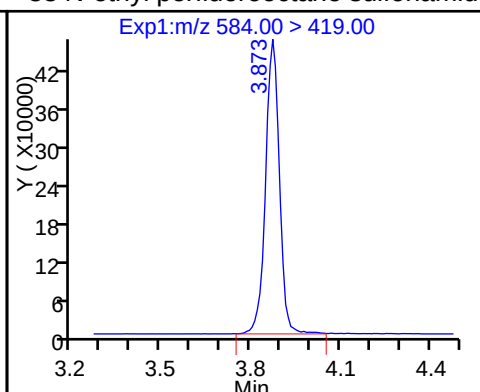
31 Perfluoroundecanoic acid



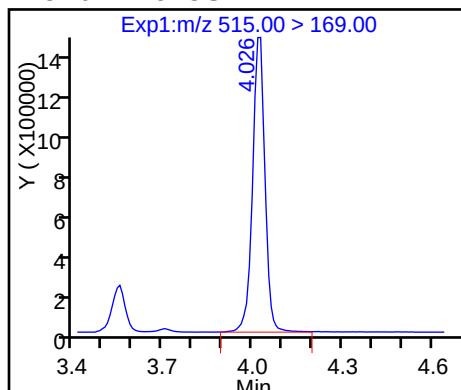
D 30 13C2 PFUnA



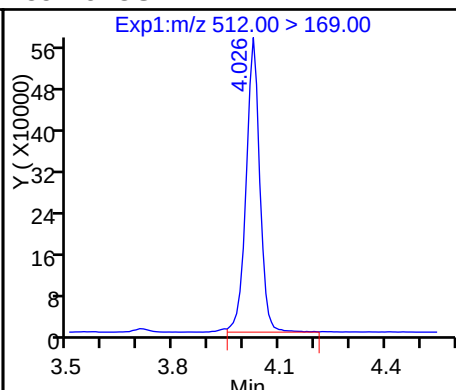
33 N-ethyl perfluorooctane sulfonamide



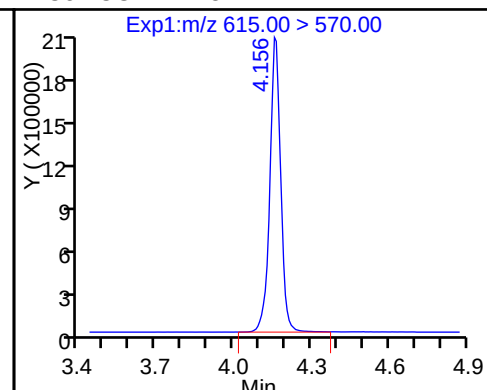
D 34 d-N-MeFOSA-M



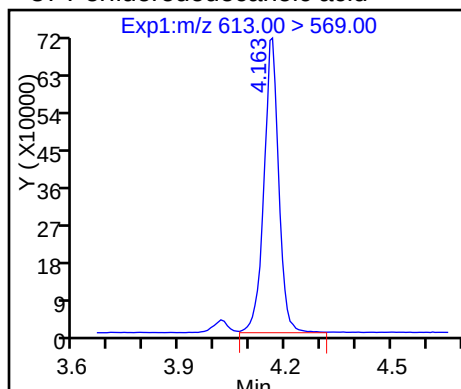
35 MeFOSA



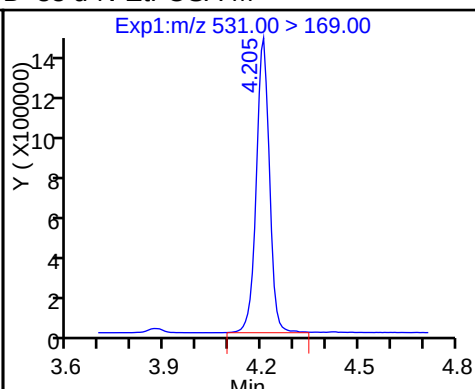
D 36 13C2 PFDaA



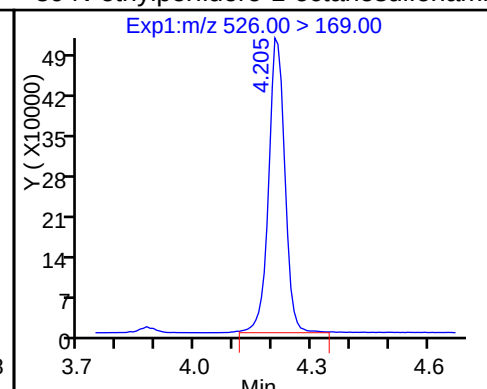
37 Perfluorododecanoic acid



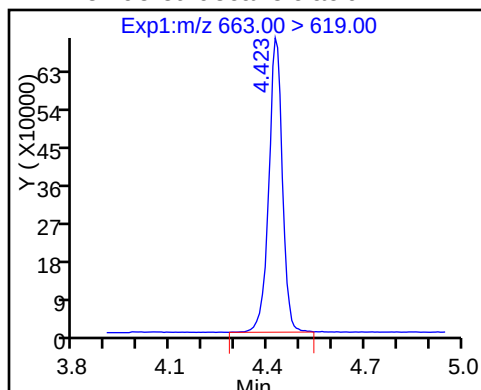
D 38 d-N-EtFOSA-M



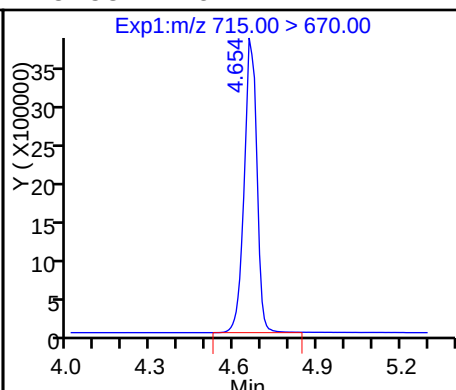
39 N-ethylperfluoro-1-octanesulfonami



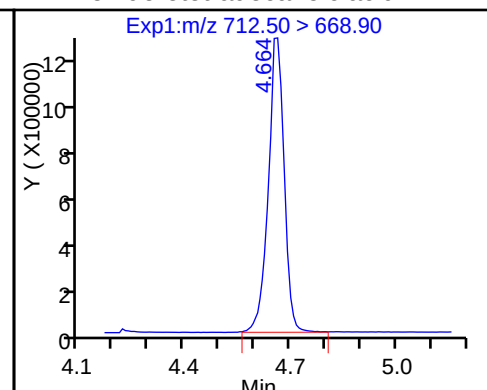
41 Perfluorotridecanoic acid



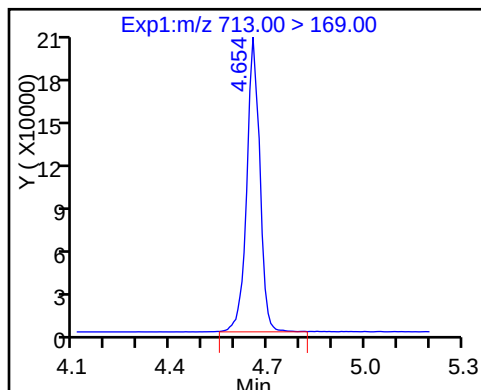
D 43 13C2-PFTeDA



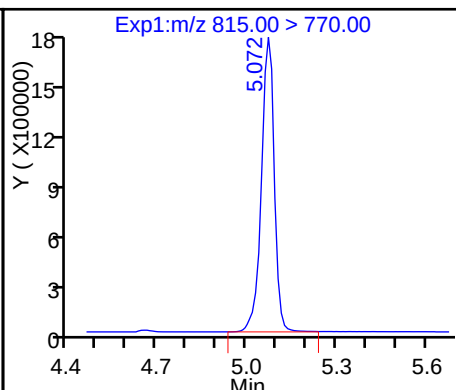
42 Perfluorotetradecanoic acid



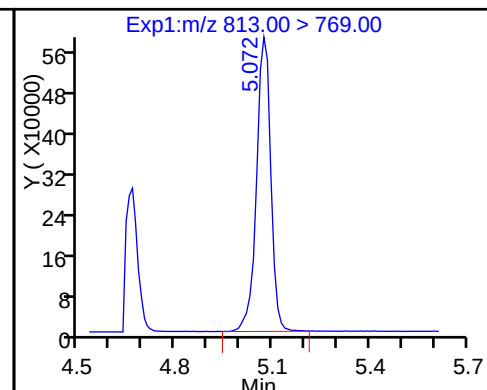
42 Perfluorotetradecanoic acid



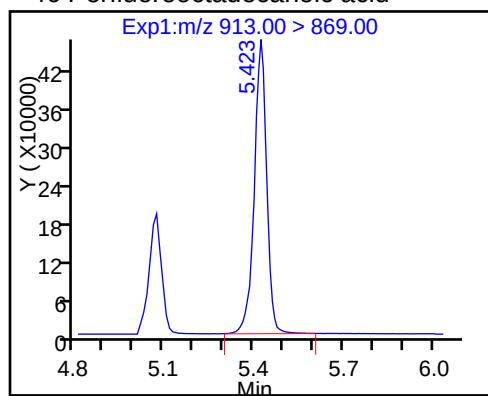
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

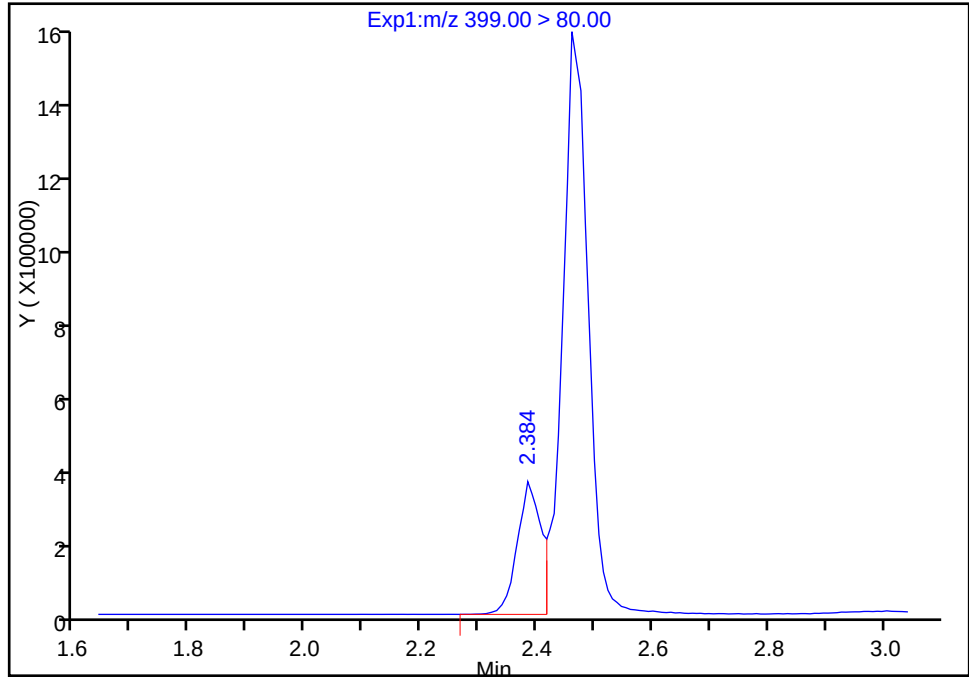
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_057.d
Injection Date: 12-Mar-2017 01:35:34 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

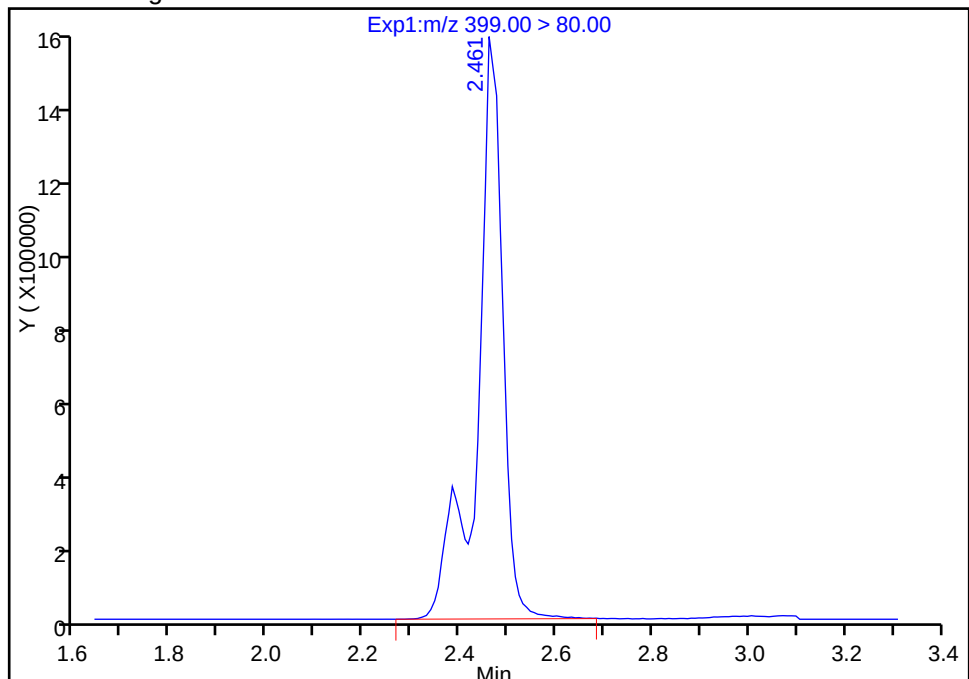
RT: 2.38
Area: 977075
Amount: 2.988816
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 5640054
Amount: 17.252600
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:38:41

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

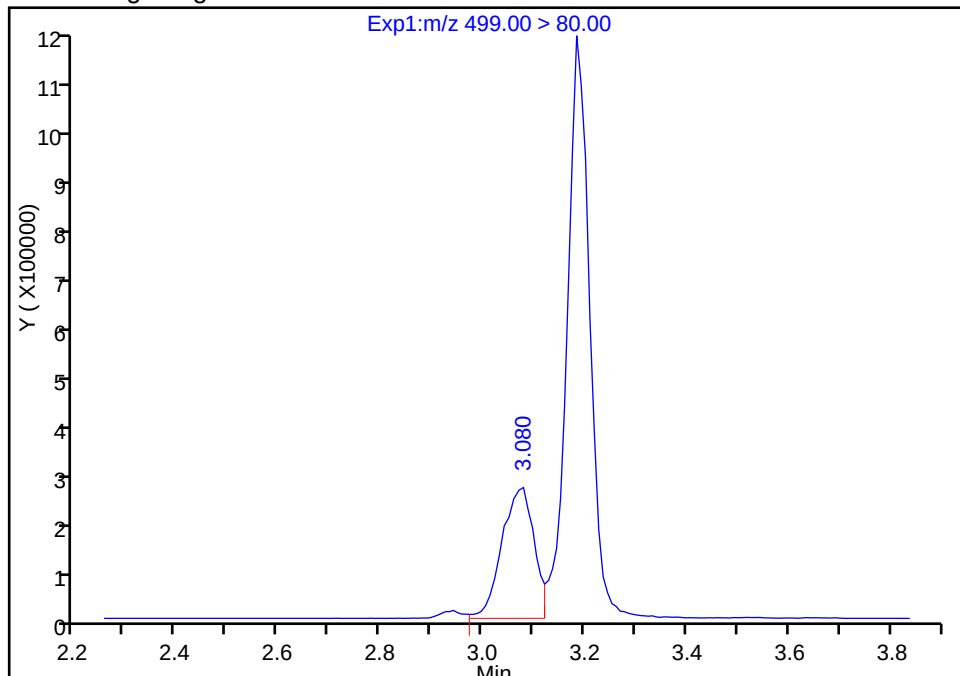
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_057.d
Injection Date: 12-Mar-2017 01:35:34 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

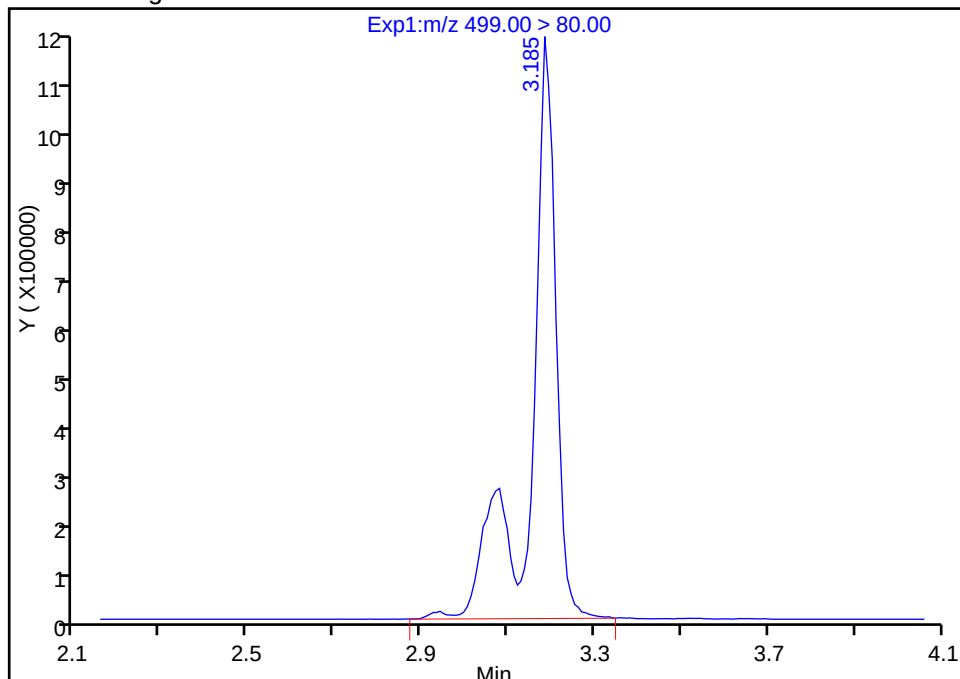
RT: 3.08
Area: 1086287
Amount: 4.172012
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 4534359
Amount: 17.414736
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:38:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

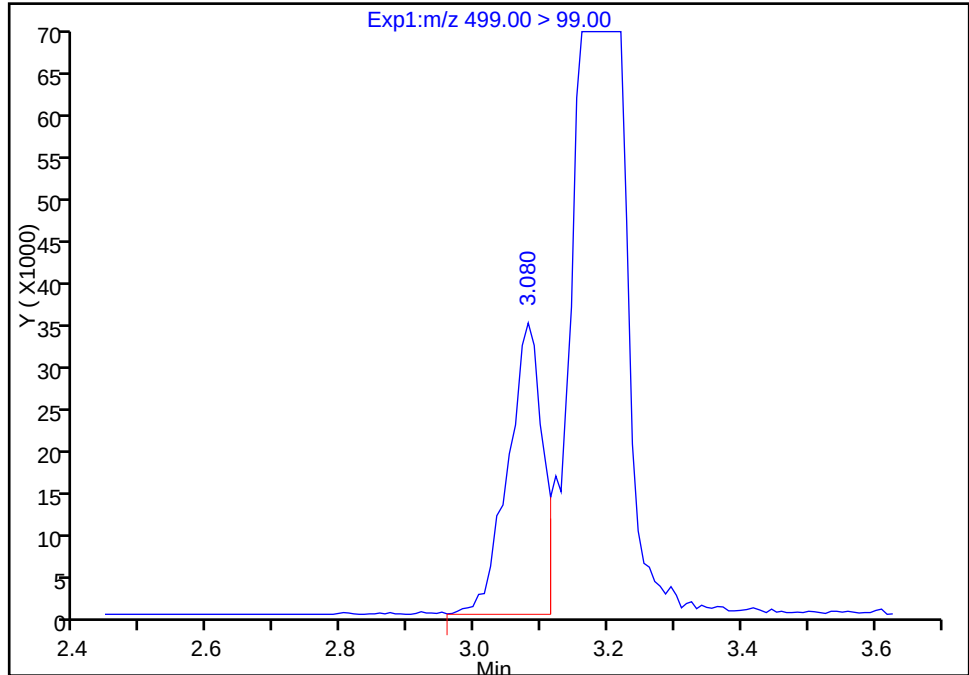
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_057.d
Injection Date: 12-Mar-2017 01:35:34 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 31 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

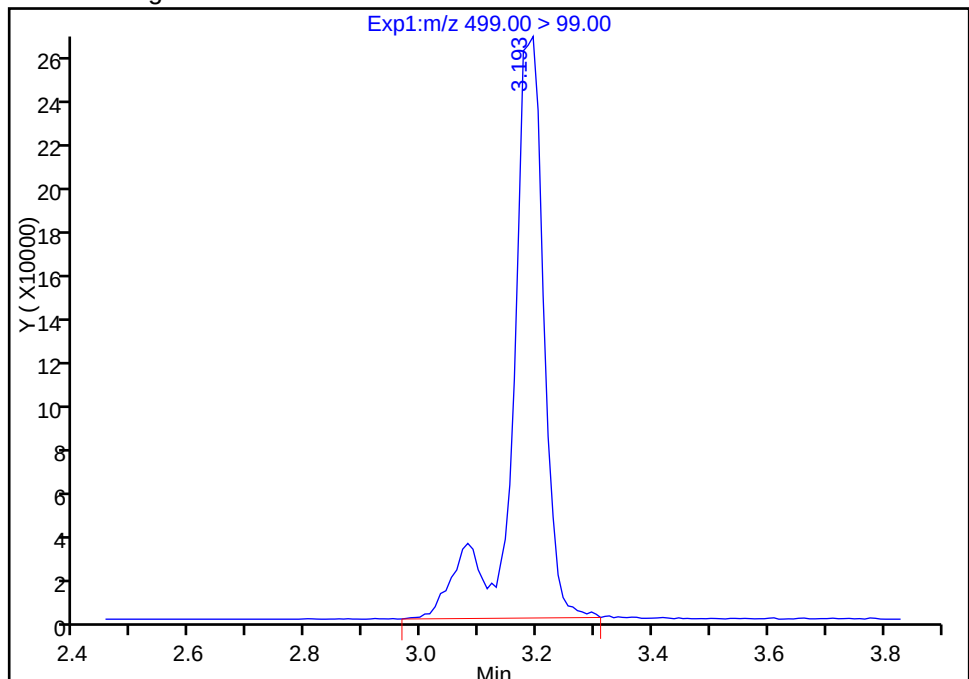
RT: 3.08
Area: 122924
Amount: 4.172012
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1021784
Amount: 17.414736
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:39:16

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Lab Sample ID: CCV 320-154516/26 Calibration Date: 03/12/2017 03:13

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.11D_062.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8753		51.7	50.0	3.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9825		50.2	50.0	0.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.459		45.0	44.2	1.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9019		50.7	50.0	1.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9577		49.5	50.0	-1.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.002		44.3	45.5	-2.6	25.0
6:2FTS	L2ID		0.8816		47.0	47.4	-0.8	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.135		52.4	47.6	10.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9823		48.1	50.0	-3.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.038		49.0	46.4	5.6	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9337		51.6	50.0	3.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9346		52.0	50.0	4.0	25.0
8:2FTS	L2ID		0.9317		48.2	47.9	0.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9513		52.5	50.0	5.0	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9284		47.8	50.0	-4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6425		52.0	48.2	7.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8753		48.1	50.0	-3.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9380		46.3	50.0	-7.5	25.0
MeFOSA	AveID	0.9355	0.9054		48.4	50.0	-3.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9226		50.4	50.0	0.9	25.0
N-EtFOSA-M	AveID	0.9837	0.9349		47.5	50.0	-5.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9147		52.4	50.0	4.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.738		44.2	50.0	-11.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8780		47.0	50.0	-6.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5965		41.6	50.0	-16.9	25.0
13C4 PFBA	Ave	292242	323096		55.3	50.0	10.6	50.0
13C5-PFPeA	Ave	232192	249997		53.8	50.0	7.7	50.0
13C2 PFHxA	Ave	210884	229038		54.3	50.0	8.6	50.0
13C4-PFHpA	Ave	192959	207038		53.6	50.0	7.3	50.0
18O2 PFHxS	Ave	290899	318849		51.8	47.3	9.6	50.0
M2-6:2FTS	Ave	77178	88195		54.3	47.5	14.3	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154516/26 Calibration Date: 03/12/2017 03:13
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.11D_062.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	216308		52.8	50.0	5.5	50.0
13C4 PFOS	Ave	241637	255038		50.5	47.8	5.5	50.0
13C5 PFNA	Ave	177866	184825		52.0	50.0	3.9	50.0
13C8 FOSA	Ave	366918	373310		50.9	50.0	1.7	50.0
M2-8:2FTS	Ave	92602	100759		52.1	47.9	8.8	50.0
13C2 PFDA	Ave	166704	165671		49.7	50.0	-0.6	50.0
d3-NMeFOSAA	Ave	85186	85448		50.2	50.0	0.3	50.0
13C2 PFUnA	Ave	130805	129419		49.5	50.0	-1.1	50.0
d5-NEtFOSAA	Ave	81371	81794		50.3	50.0	0.5	50.0
d-N-MeFOSA-M	Ave	87983	85587		48.6	50.0	-2.7	50.0
13C2 PFDoA	Ave	123944	121853		49.2	50.0	-1.7	50.0
d-N-EtFOSA-M	Ave	85249	78013		45.8	50.0	-8.5	50.0
13C2-PFTeDA	Ave	259165	241744		46.6	50.0	-6.7	50.0
13C2-PFHxDA	Ave	125061	125259		50.1	50.0	0.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2017 03:13:06 ALS Bottle#: 32 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub14
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 13:01:36 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 13:01:06

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	1.538	1.538	0.0		16154806	55.3		111	852509	
2 Perfluorobutyric acid										
212.90 > 169.00	1.538	1.538	0.0	1.000	14140242	51.7		103	90282	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.812	0.0		12499826	53.8		108	767581	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	12281349	50.2		100	126245	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		306860	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.851	1.851	0.0	1.000	20565200	45.0		102		
298.90 > 99.00	1.851	1.851	0.0	1.000	8841321		2.33(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.106	2.106	0.0		11451898	54.3		109	419767	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.115	2.115	0.0	1.000	10328222	50.7		101	249965	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.464	2.464	0.0	1.000	14531576	44.3		97.4		M
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.449	2.449	0.0	1.000	9913947	49.5		99.0	117839	
D 9 13C4-PFHpA										
367.00 > 322.00	2.457	2.457	0.0		10351924	53.6		107	326791	
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.464	0.0		15081551	51.8		110	608521	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.783	2.783	0.0	1.000	3685388	47.0		99.2		

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	2.791	2.791	0.0		4189267	54.3		114		
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.822	2.822	0.0	1.000	10623828	48.1		96.1	80805	M
413.00 > 169.00	2.815	2.822	-0.007	0.997	6299072		1.69(0.90-1.10)		193732	
D 14 13C4 PFOA										
417.00 > 372.00	2.815	2.815	0.0		10815401	52.8		106	359071	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.822	2.822	0.0	1.000	13784116	52.4		110		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.192	3.192	0.0	1.000	12288903	49.0		106	207073	M
499.00 > 99.00	3.192	3.192	0.0	1.000	2760180		4.45(0.90-1.10)		92396	M
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.192	0.0		12190840	50.5		106	164795	
D 19 13C5 PFNA										
468.00 > 423.00	3.201	3.201	0.0		9241265	52.0		104	337377	
20 Perfluorononanoic acid										
463.00 > 419.00	3.201	3.201	0.0	1.000	8628761	51.6		103	149884	
D 21 13C8 FOSA										
506.00 > 78.00	3.536	3.536	0.0		18665489	50.9		102	361296	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.536	3.536	0.0	1.000	17444676	52.0		104	421307	
D 26 M2-8:2FTS										
529.00 > 509.00	3.544	3.544	0.0		4826374	52.1		109		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.544	3.544	0.0	1.000	4496611	48.2		101		
D 23 13C2 PFDA										
515.00 > 470.00	3.553	3.553	0.0		8283559	49.7		99.4	225562	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.561	3.561	0.0	1.000	7880355	52.5		105	271089	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.703	3.703	0.0		4272421	50.2		100		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.714	3.714	0.0	1.003	3966662	47.8		95.6		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.868	3.868	0.0	1.000	7898113	52.0		108		
D 30 13C2 PFUnA										
565.00 > 520.00	3.877	3.877	0.0		6470950	49.5		98.9	186954	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.877	3.877	0.0		4089695	50.3		101		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.885	0.0	1.002	3579784	48.1		96.2		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.885	3.885	0.0	1.000	6069817	46.3		92.5	179276	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.030	4.030	0.0		4279335	48.6		97.3		
35 MeFOSA										
512.00 > 169.00	4.040	4.040	0.0	1.000	3874355	48.4		96.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.170	4.170	0.0		6092633	49.2		98.3	156120	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.177	4.177	0.0	1.000	5620856	50.4		101	56263	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.214	4.214	0.0		3900644	45.8		91.5		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.223	4.223	0.0	1.000	3646816	47.5		95.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.441	4.441	0.0	1.000	5573108	52.4		105	112879	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.674	4.674	0.0		12087179	46.6		93.3	268295	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.674	4.674	0.0	1.000	10591018	44.2		88.4	51030	
713.00 > 169.00	4.674	4.674	0.0	1.000	1545216		6.85(0.00-0.00)		129255	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.081	5.081	0.0		6262926	50.1		100	83416	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.092	5.092	0.0	1.000	5349515	47.0		94.0	4228	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.430	5.430	0.0	1.000	3634139	41.6		83.1	3805	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d

Injection Date: 12-Mar-2017 03:13:06

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

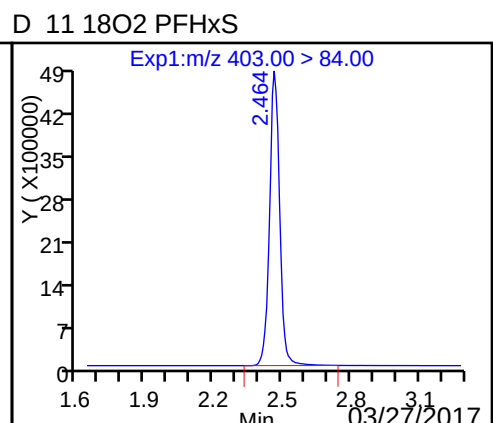
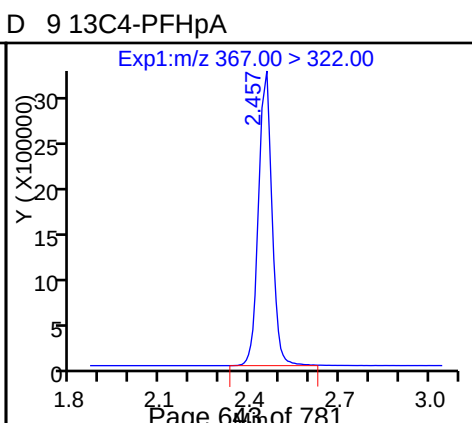
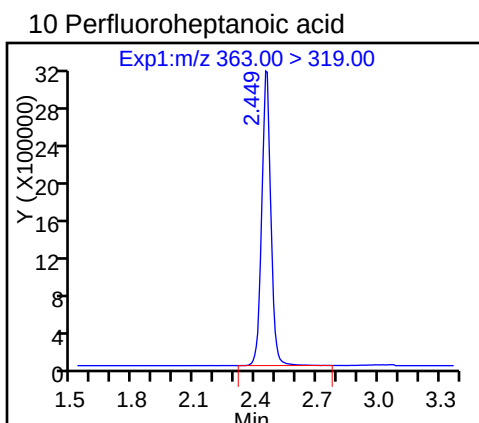
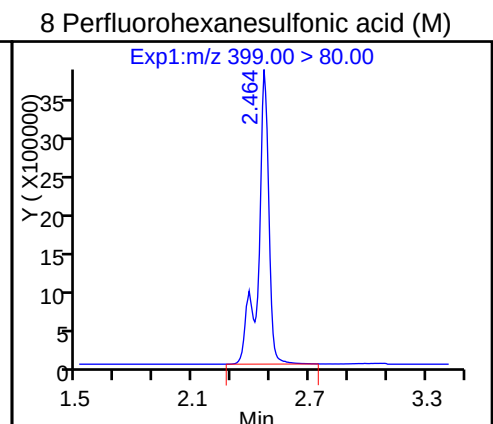
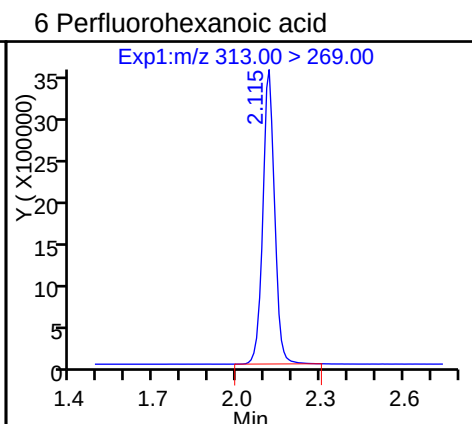
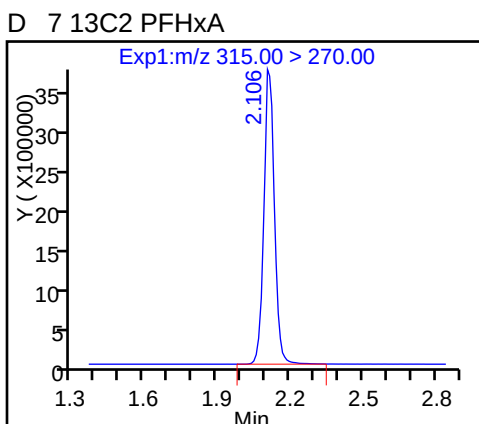
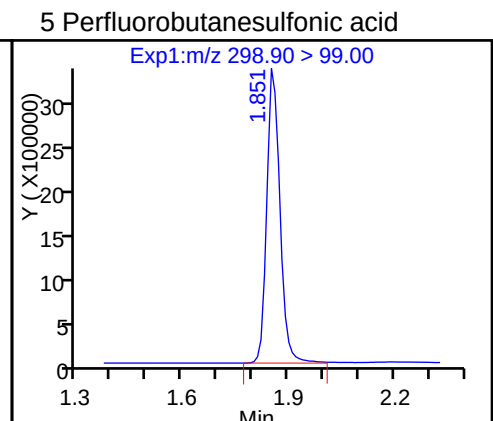
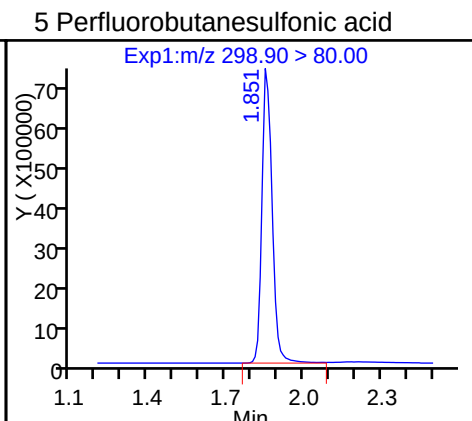
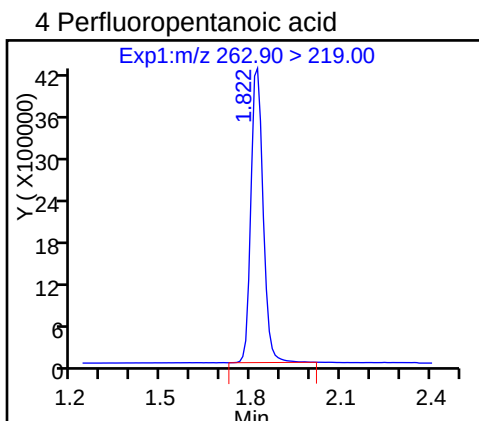
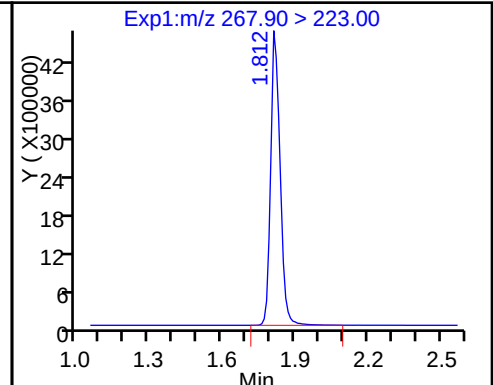
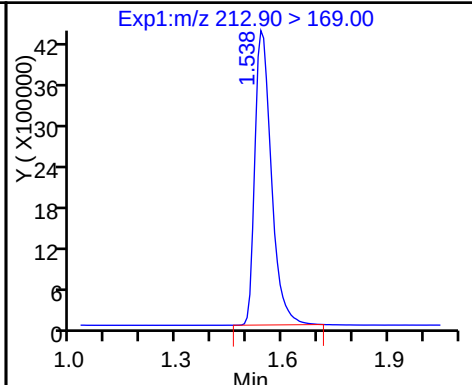
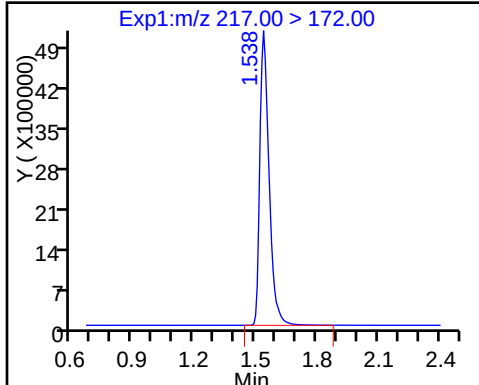
Method: A8_N

Limit Group: LC PFC_DOD ICAL

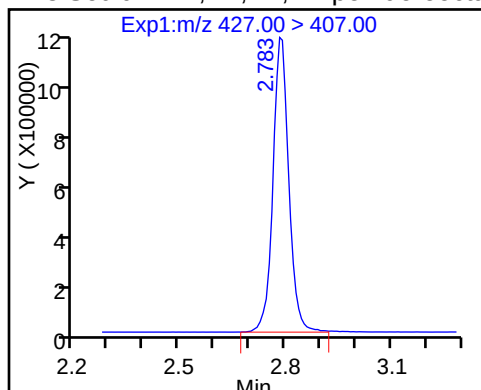
D 1 13C4 PFBA

2 Perfluorobutyric acid

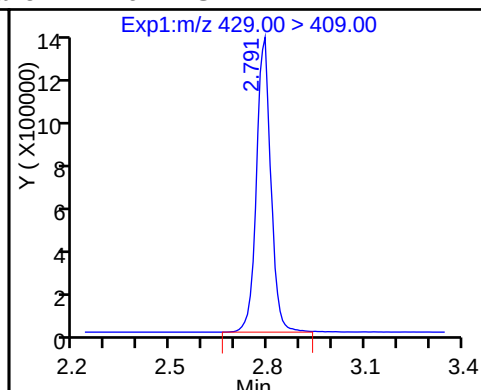
D 3 13C5-PFPeA



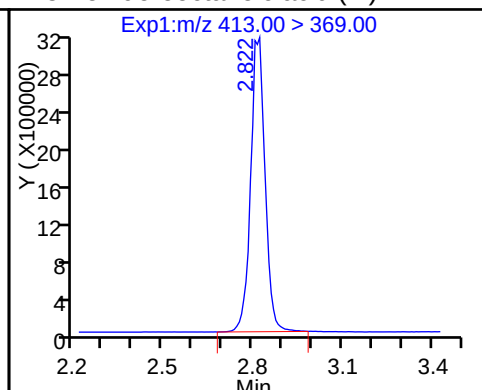
13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS



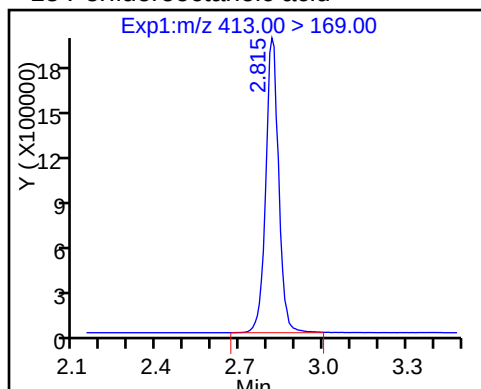
D 12 M2-6:2FTS



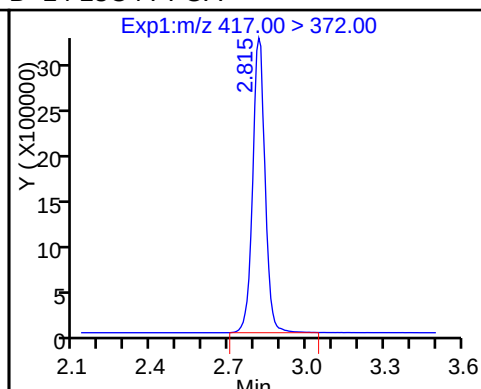
15 Perfluorooctanoic acid (M)



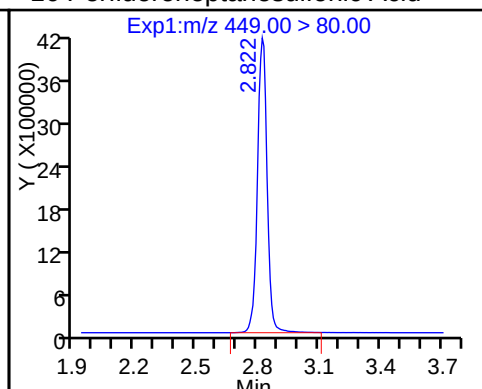
15 Perfluorooctanoic acid



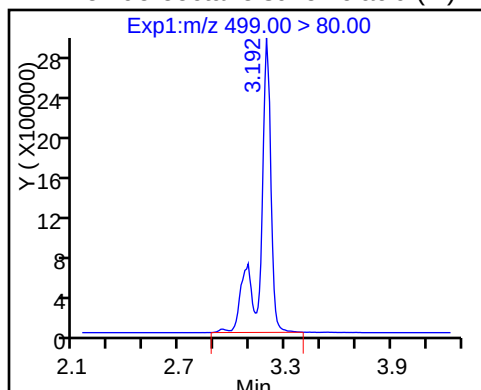
D 14 13C4 PFOA



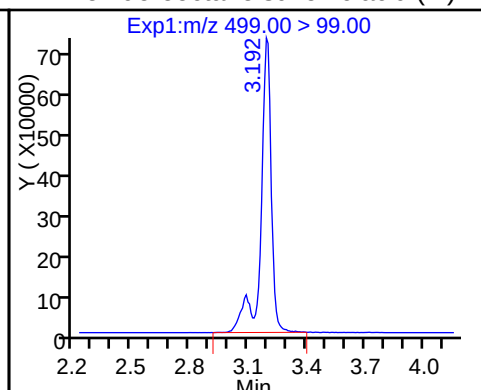
16 Perfluoroheptanesulfonic Acid



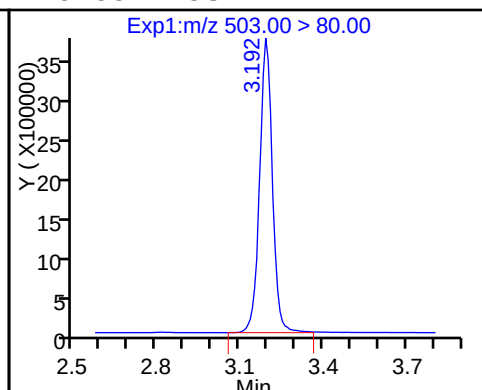
17 Perfluorooctane sulfonic acid (M)



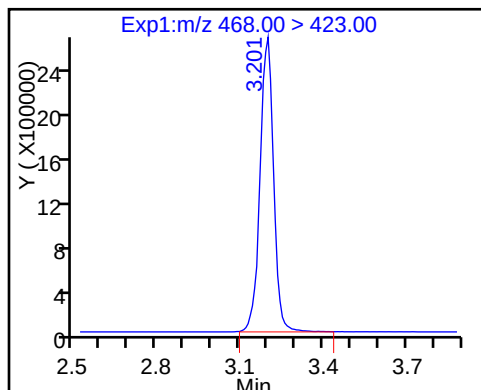
17 Perfluorooctane sulfonic acid (M)



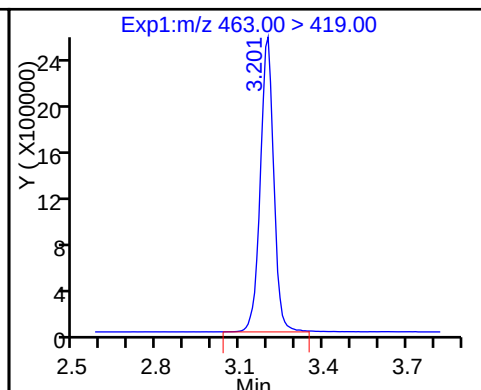
D 18 13C4 PFOS



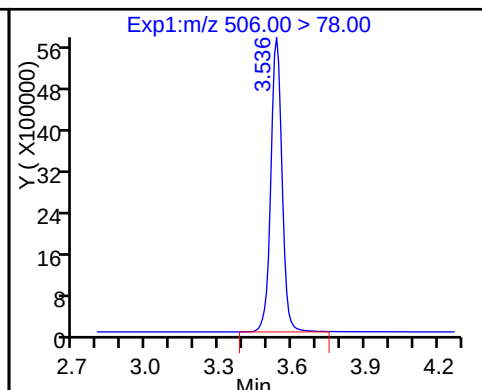
D 19 13C5 PFNA



20 Perfluorononanoic acid



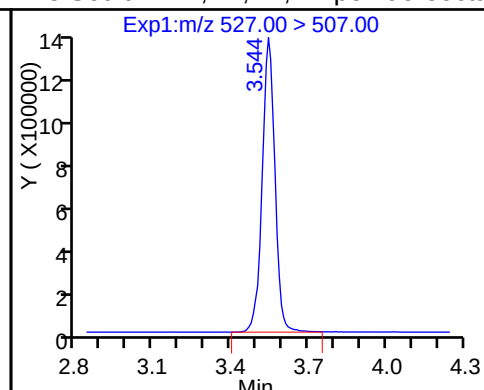
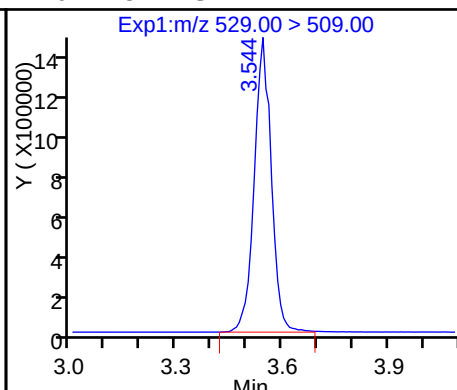
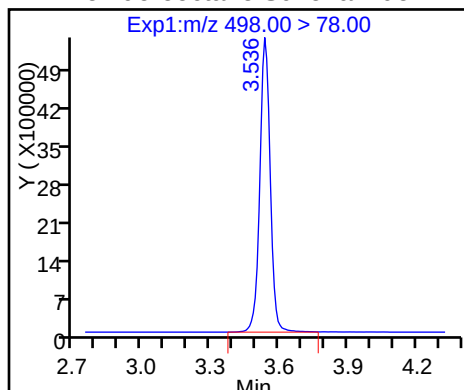
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

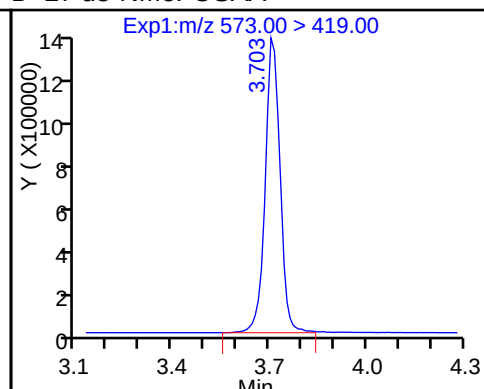
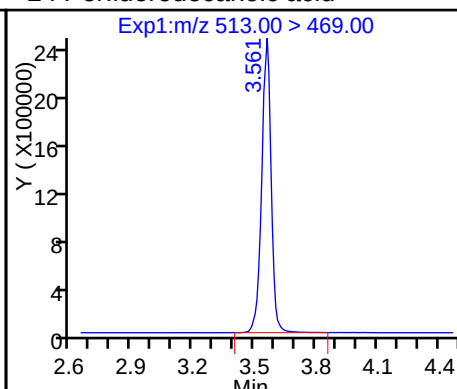
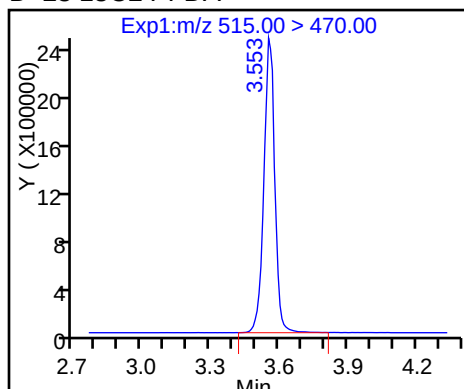
25 Sodium 1H,1H,2H,2H-perfluorooctane



D 23 13C2 PFDA

24 Perfluorodecanoic acid

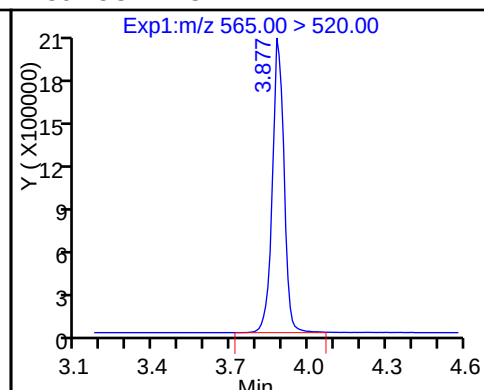
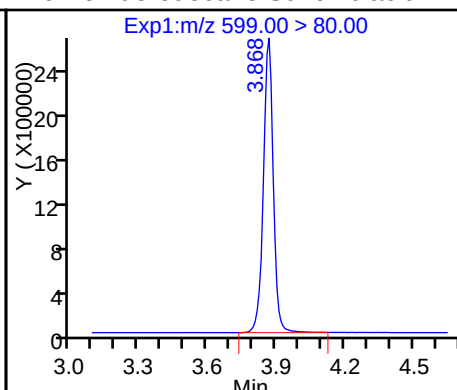
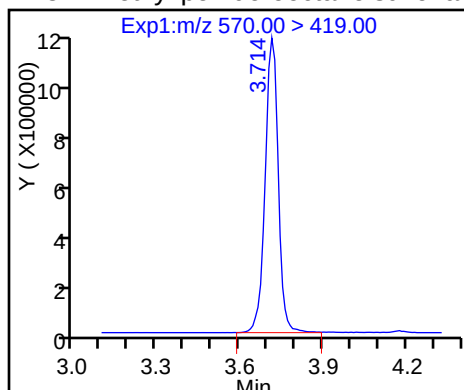
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

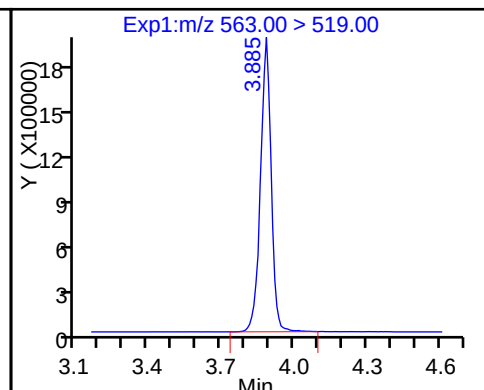
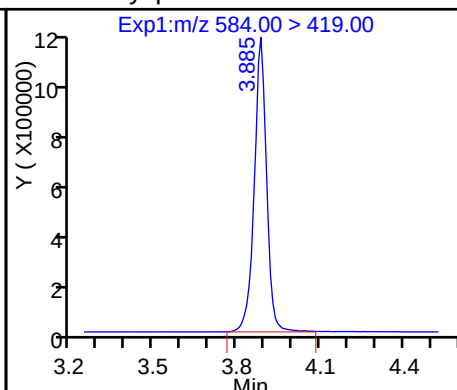
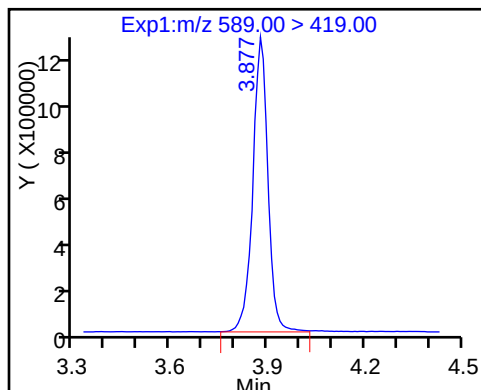
D 30 13C2 PFUnA



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

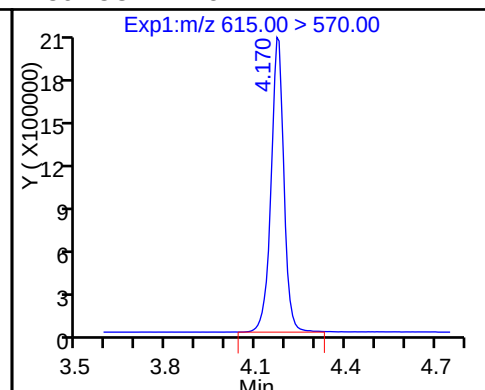
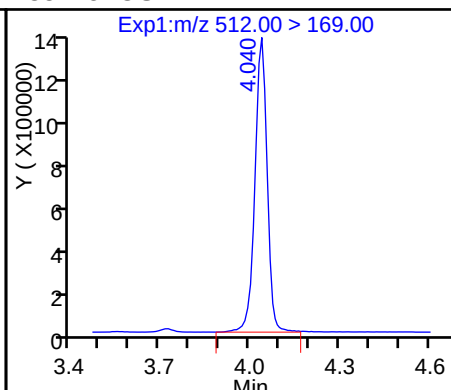
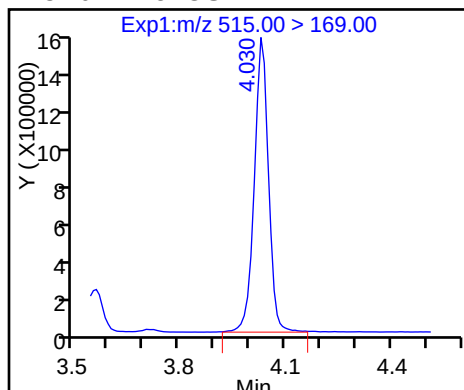
31 Perfluoroundecanoic acid



D 34 d-N-MeFOSA-M

35 MeFOSA

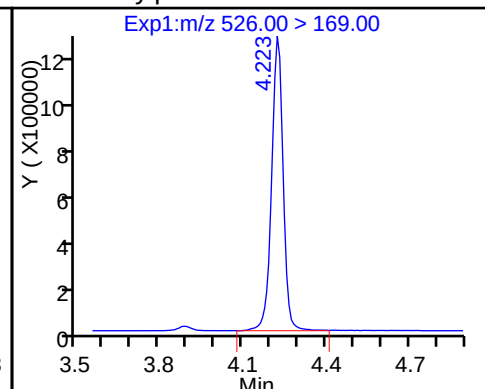
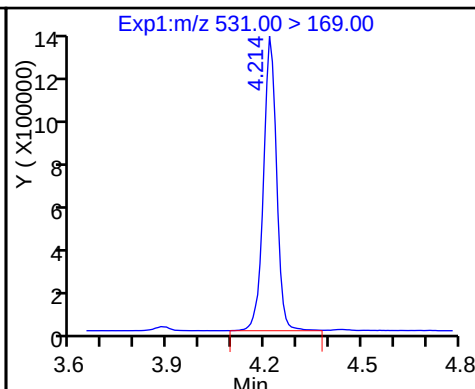
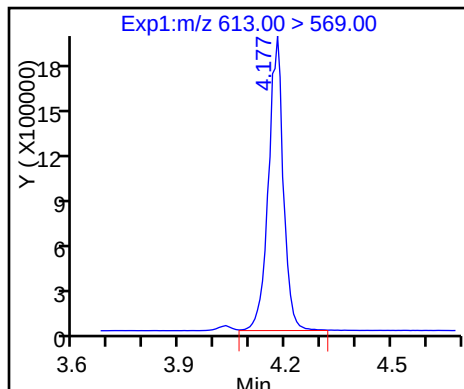
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

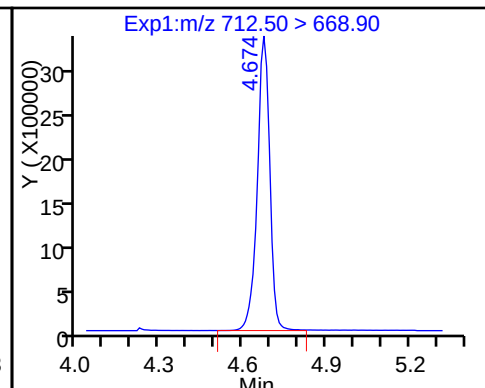
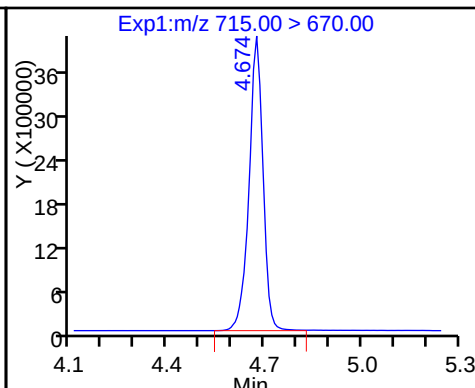
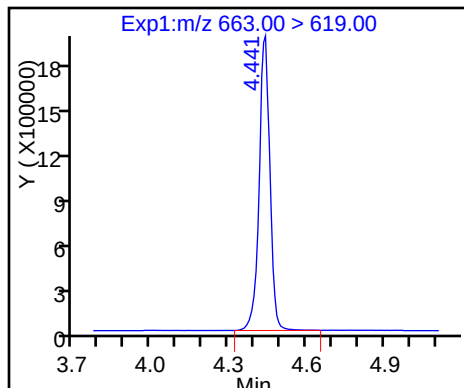
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

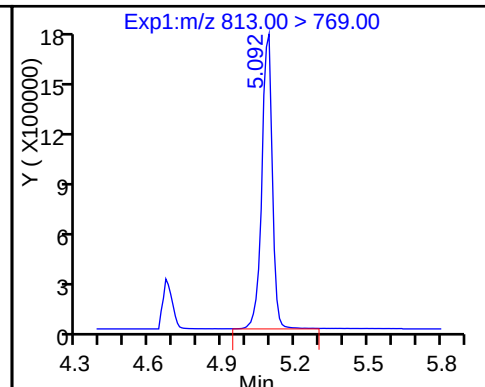
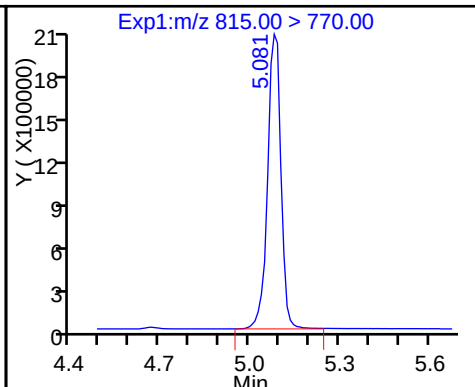
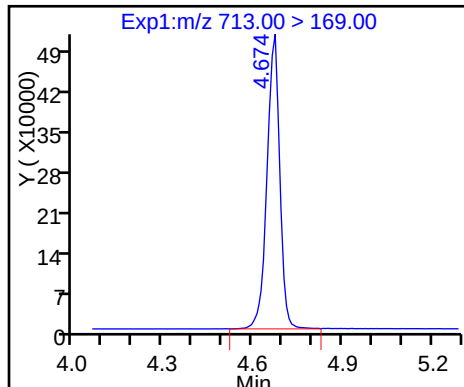
42 Perfluorotetradecanoic acid



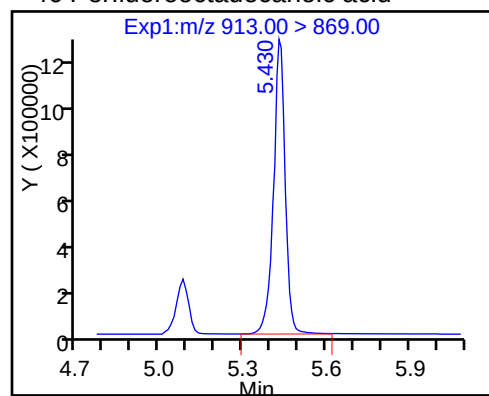
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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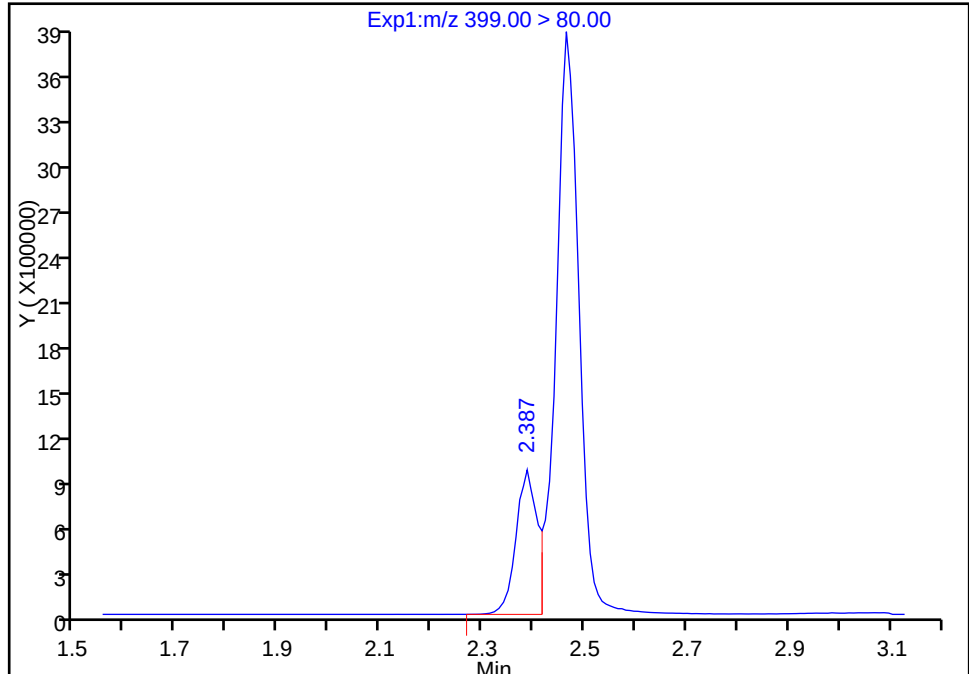
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d
Injection Date: 12-Mar-2017 03:13:06 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

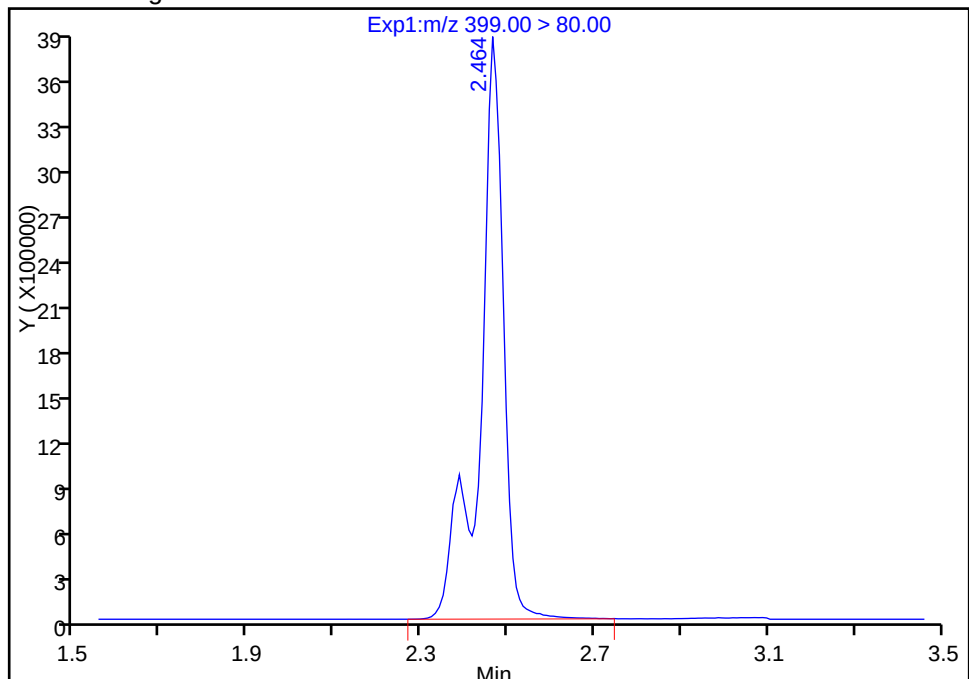
RT: 2.39
Area: 2687944
Amount: 8.197000
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 14531576
Amount: 44.314661
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 13:01:14
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 648 of 781

03/27/2017

TestAmerica Sacramento

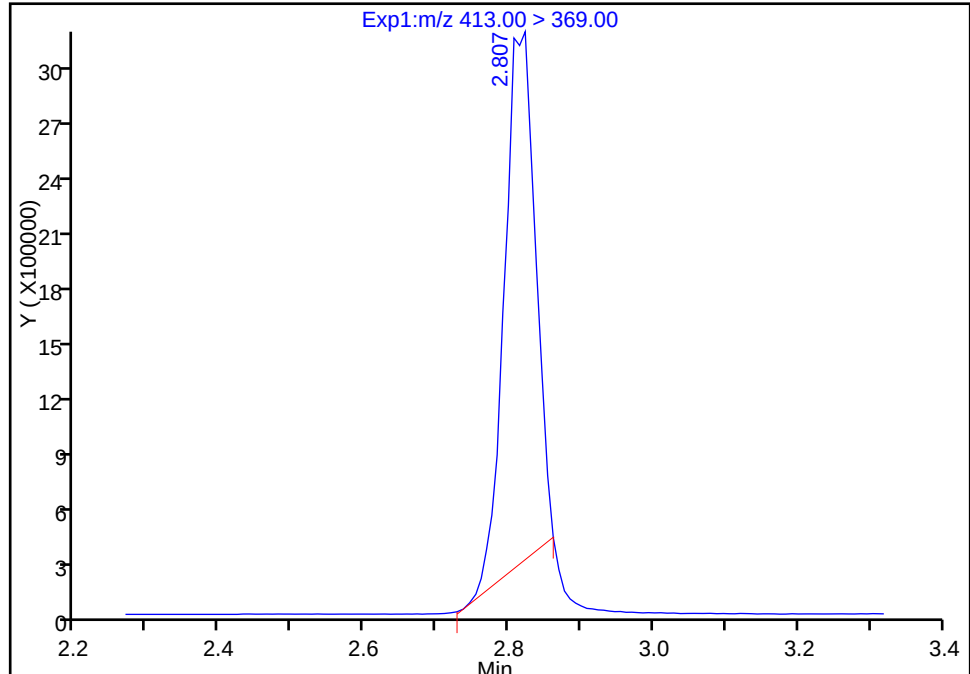
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d
Injection Date: 12-Mar-2017 03:13:06 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

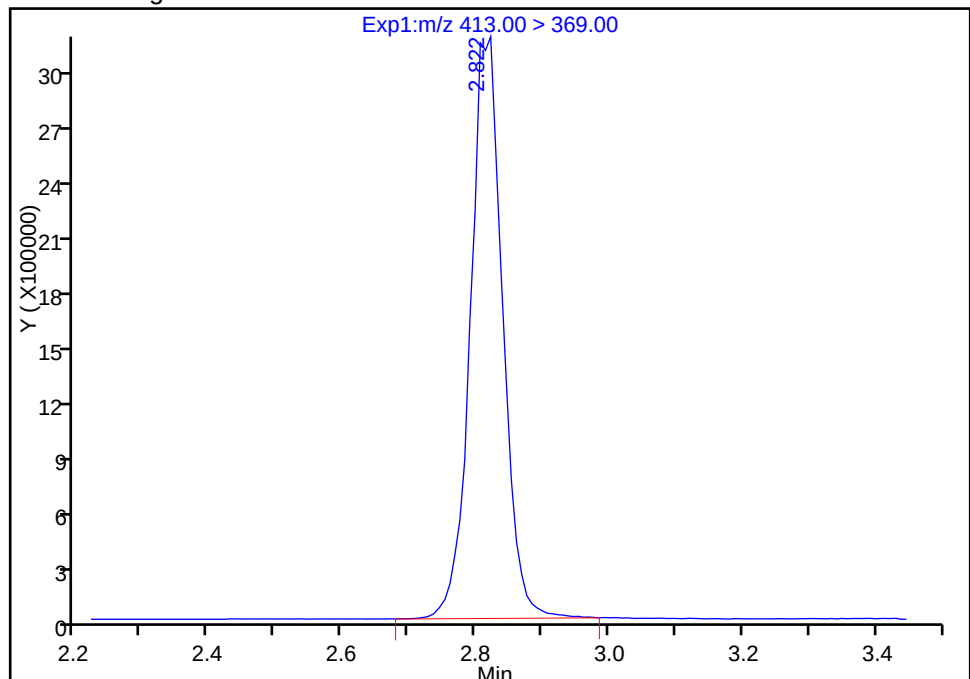
RT: 2.81
Area: 8567050
Amount: 38.766176
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 10623828
Amount: 48.073162
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 13:01:14

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

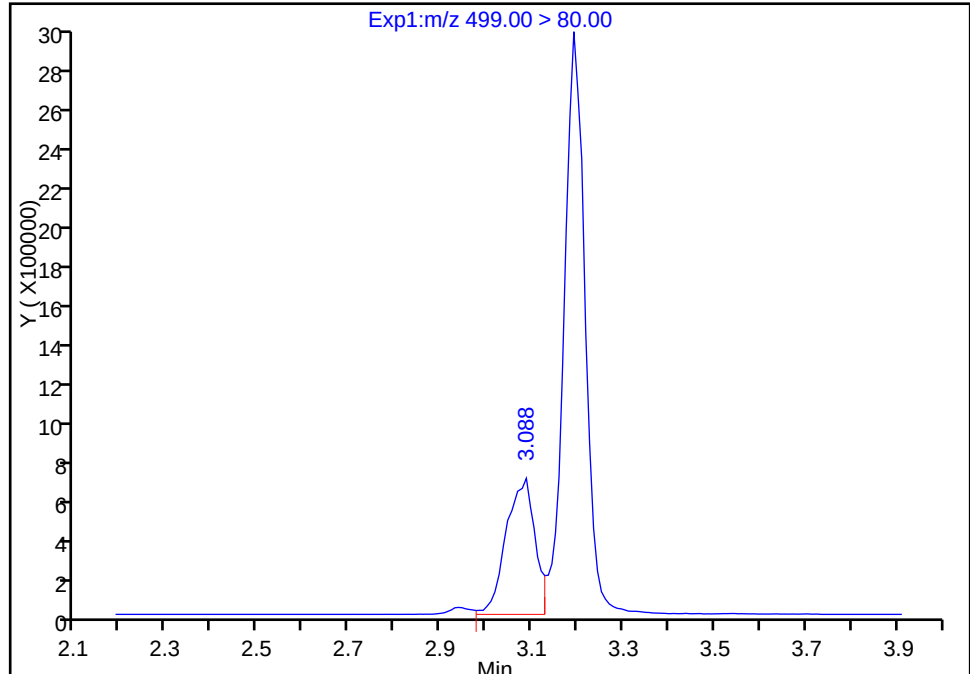
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d
Injection Date: 12-Mar-2017 03:13:06 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

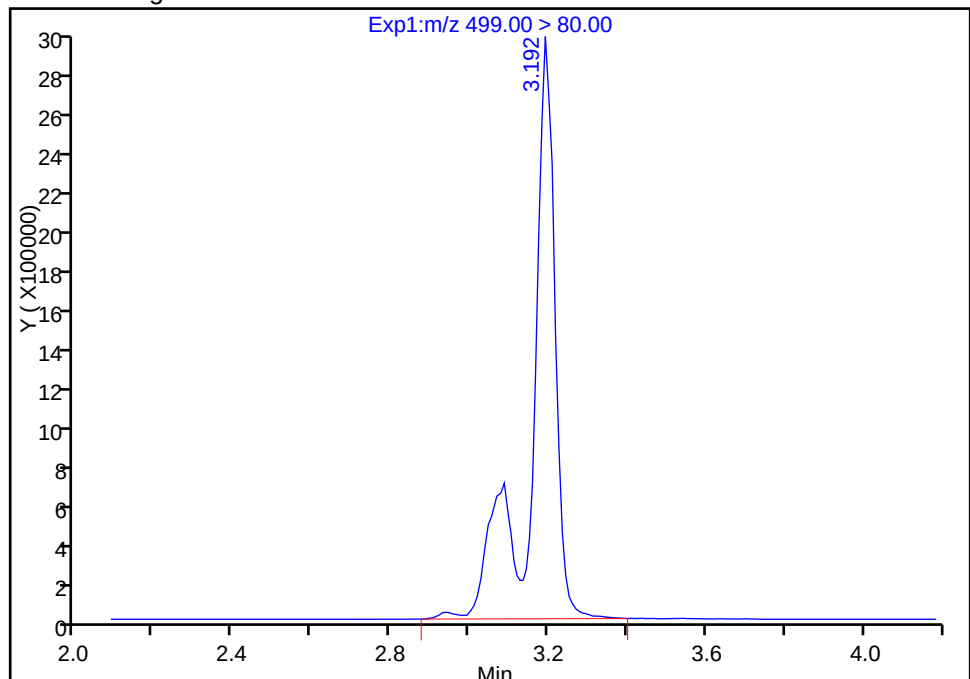
RT: 3.09
Area: 2939918
Amount: 11.720953
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 12288903
Amount: 48.993767
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 13:01:14
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 650 of 781

03/27/2017

TestAmerica Sacramento

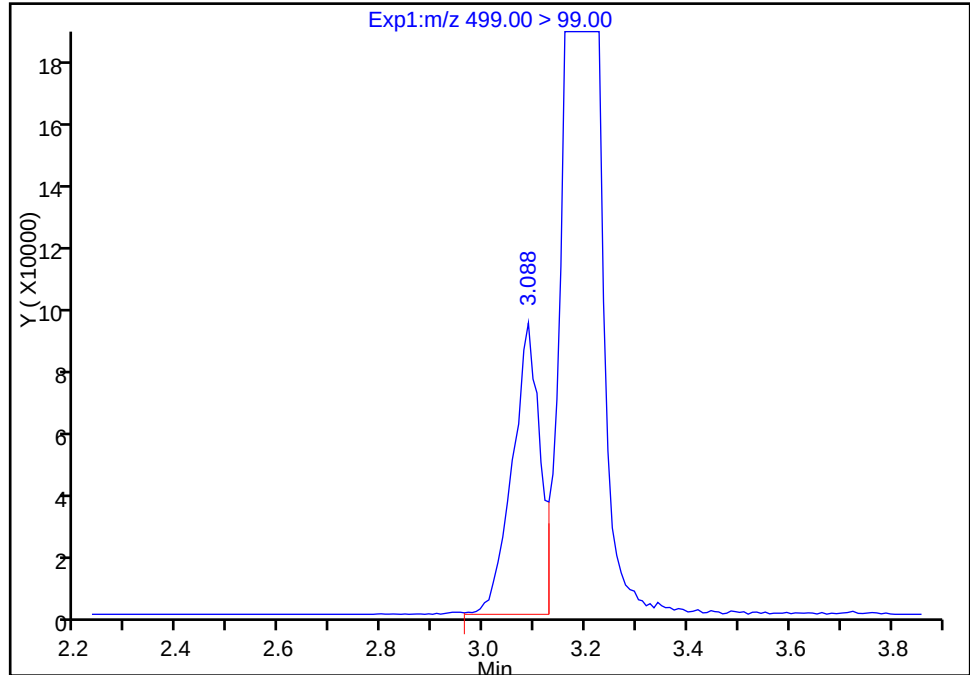
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_062.d
Injection Date: 12-Mar-2017 03:13:06 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 32 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

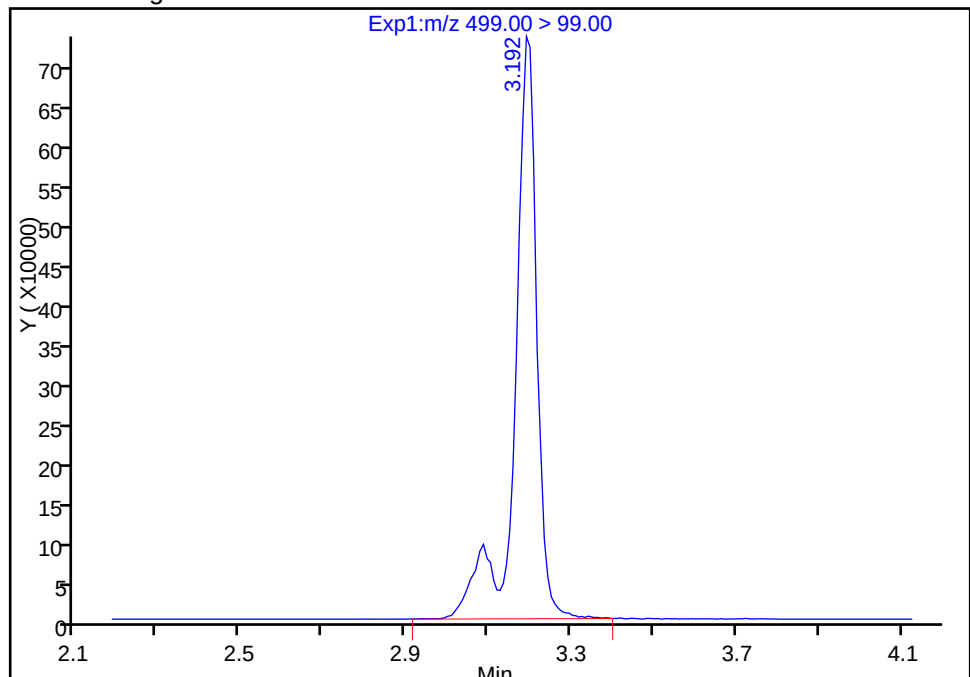
RT: 3.09
Area: 353736
Amount: 11.720953
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2760180
Amount: 48.993767
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 13:01:14

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-152587/1-A
 Matrix: Water Lab File ID: 2017.03.02A_004.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 250.00 (mL) Date Analyzed: 03/02/2017 10:35
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	158	Q	25-150
STL00991	13C4 PFOS	138		25-150
STL00994	18O2 PFHxS	145		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d
 Lims ID: MB 320-152587/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 02-Mar-2017 10:35:15 ALS Bottle#: 1 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152587/1-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Mar-2017 08:24:39 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK022

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:20:47

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	1.569	1.538	0.031	1.000	77701	0.2168			388	
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		21149082	72.4		145	835413	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		18356897	79.1		158	694336	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	30613	0.0852			262	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	9759	0.0161				
298.90 > 99.00	1.851	1.861	-0.010	0.995	3893		2.51(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.118	2.122	-0.004		16382273	77.7		155	385952	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.118	2.122	-0.004	1.000	19342	0.0664			282	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.476	2.483	-0.007	1.000	70774	0.1627				
D 9 13C4-PFHpA										
367.00 > 322.00	2.461	2.468	-0.007		16226877	84.1		168	491607	
D 11 18O2 PFHxS										
403.00 > 84.00	2.476	2.483	-0.007		20004423	68.8		145	622204	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.795	2.803	-0.007	1.000	6740	-0.0816				
D 12 M2-6:2FTS										
429.00 > 409.00	2.787	2.803	-0.015		6657626	86.3		182		
D 14 13C4 PFOA										
417.00 > 372.00	2.826	2.834	-0.008		16226858	79.2		158	561166	

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	2.818	2.834	-0.016	1.000	31167	0.0940			197	M
413.00 > 169.00	2.834	2.834	0.0	1.006	18054		1.73(0.90-1.10)		749	M
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.192	3.089	0.103	1.000	11900	0.0362			955	
499.00 > 99.00	3.210	3.089	0.121	1.005	6667		1.78(0.90-1.10)		207	
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.202	-0.010		15992605	66.2		138	538384	
D 19 13C5 PFNA										
468.00 > 423.00	3.201	3.202	-0.001		11921385	67.0		134	395671	
D 21 13C8 FOSA										
506.00 > 78.00	3.529	3.528	0.001		16705430	45.5		91.1	291304	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.529	3.536	-0.007	1.000	60494	0.2015			3973	
D 26 M2-8:2FTS										
529.00 > 509.00	3.537	3.553	-0.016		6613182	71.4		149		
D 23 13C2 PFDA										
515.00 > 470.00	3.554	3.561	-0.007		10948888	65.7		131	243284	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.554	3.561	-0.007	1.000	7332	0.0370			210	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.705	3.714	-0.009		3829394	45.0		89.9		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.705	3.714	-0.009	1.000	1202	0.0162				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.868	3.875	-0.007		3674072	45.2		90.3		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.877	3.884	-0.007	1.000	22140	0.1280			539	
D 30 13C2 PFUnA										
565.00 > 520.00	3.877	3.884	-0.007		8531315	65.2		130	202553	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.011	4.027	-0.016		8387	0.0953		0.2		
D 36 13C2 PFDaA										
615.00 > 570.00	4.158	4.172	-0.014		7689303	62.0		124	177606	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.194	4.205	-0.011		7985	0.0937		0.2		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.436	-0.018	1.000	763	0.005680			28.4	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.661	4.672	-0.011		20433684	78.8		158	588115	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.679	4.681	-0.002	1.000	71601	0.2368			325	
713.00 > 169.00	4.652	4.681	-0.029	0.994	10234		7.00(0.00-0.00)		1944	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.079	5.093	-0.014		7949525	63.6		127	202911	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.079	5.093	-0.014	1.000	117593	0.4483			292	

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
46 Perfluorooctadecanoic acid	913.00	5.421	5.446	-0.025	1.000	5710	0.0517		12.2	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d

Injection Date: 02-Mar-2017 10:35:15

Instrument ID: A8_N

Lims ID: MB 320-152587/1-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 1

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

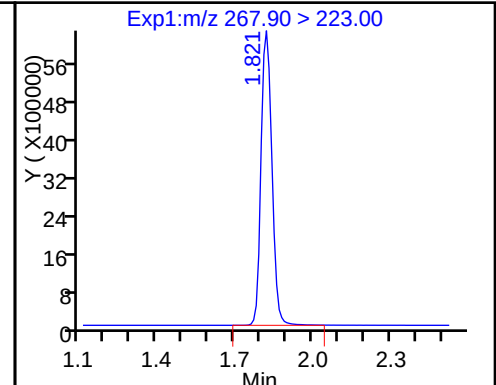
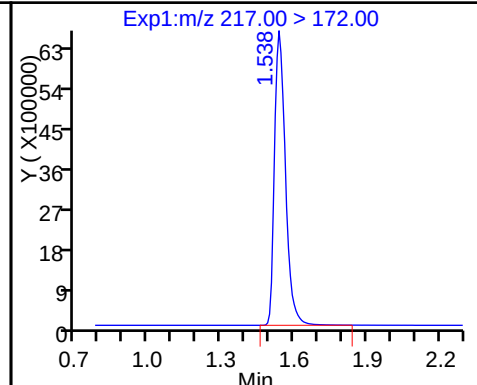
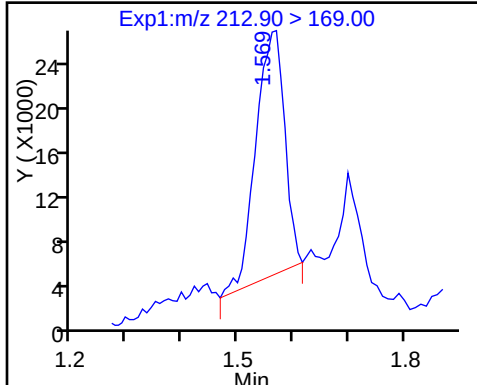
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

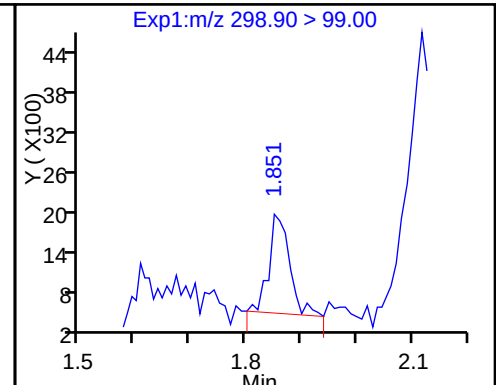
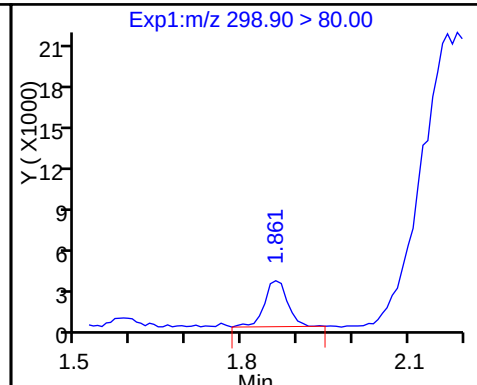
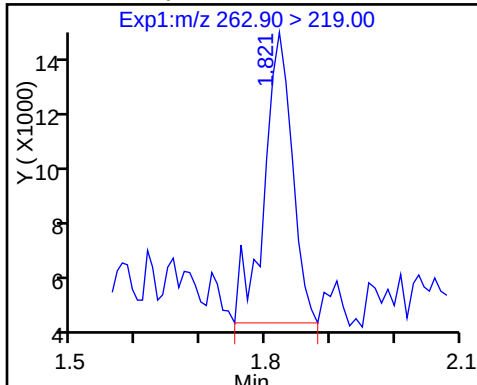
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

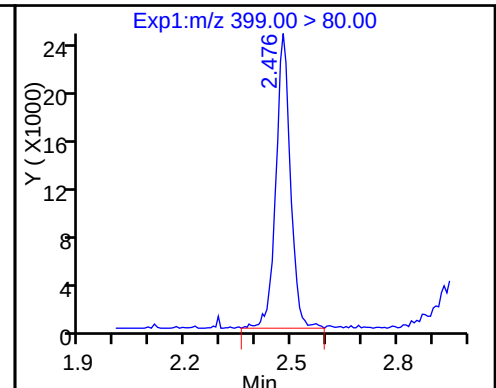
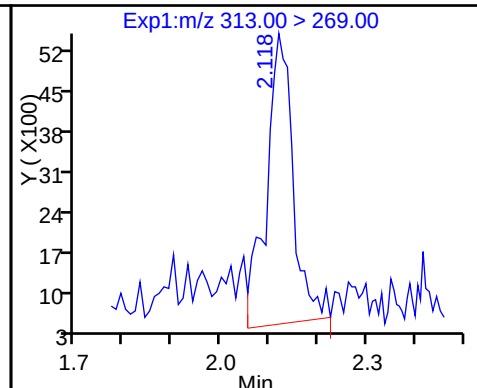
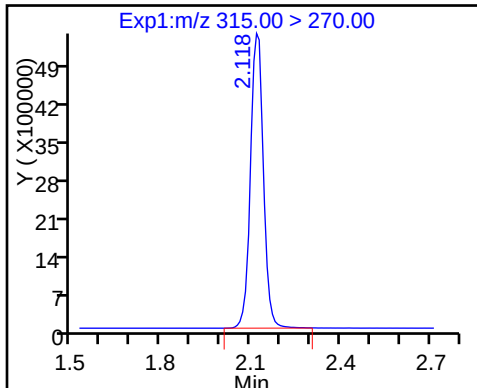
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

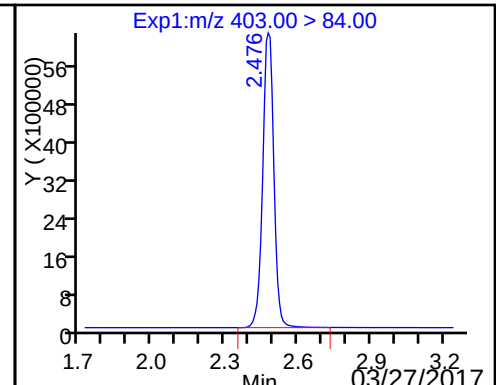
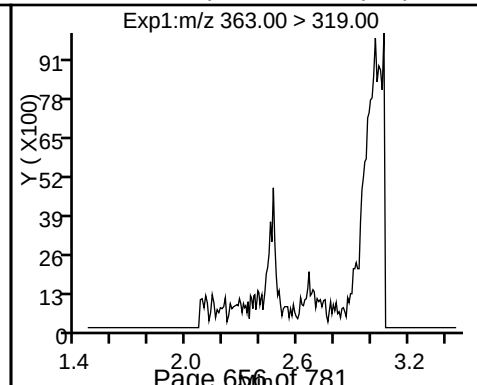
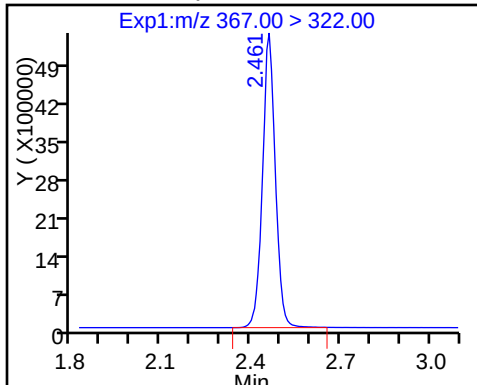
8 Perfluorohexanesulfonic acid



D 9 13C4-PFHpA

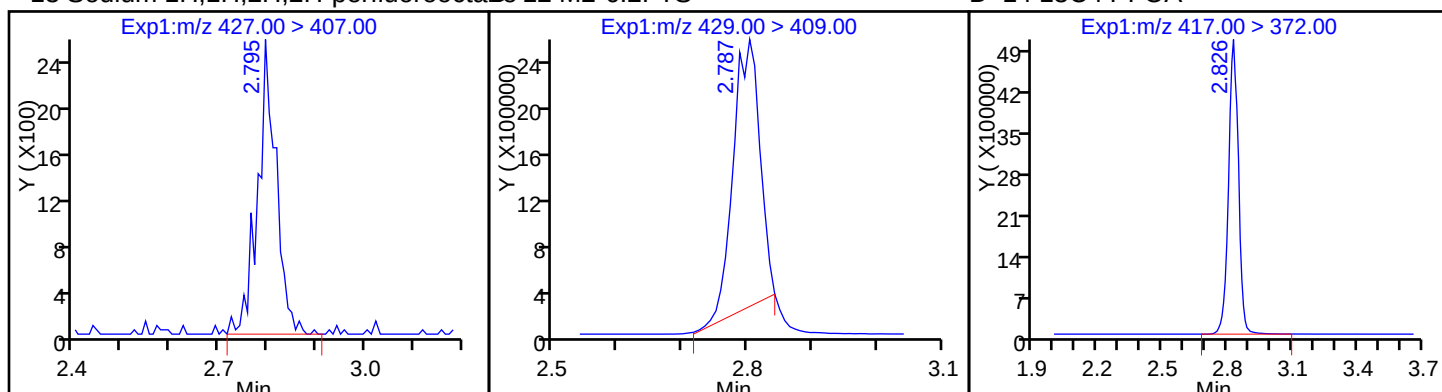
10 Perfluoroheptanoic acid (ND)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

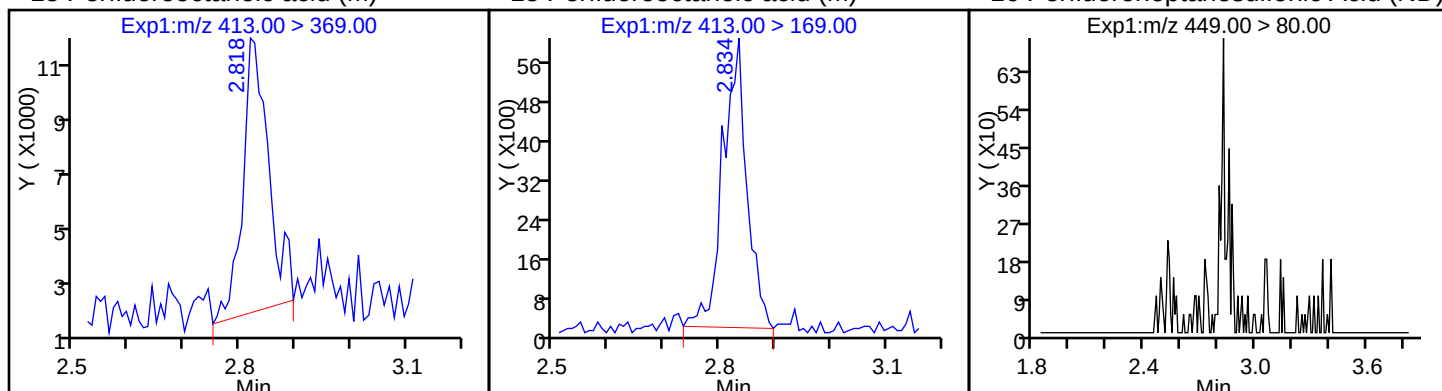
D 14 13C4 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid (M)

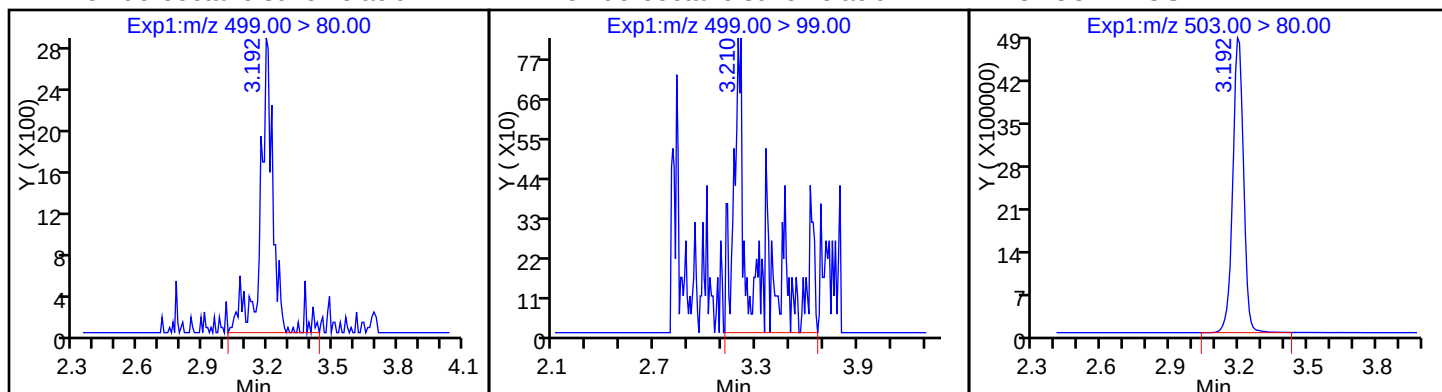
16 Perfluoroheptanesulfonic Acid (ND)



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

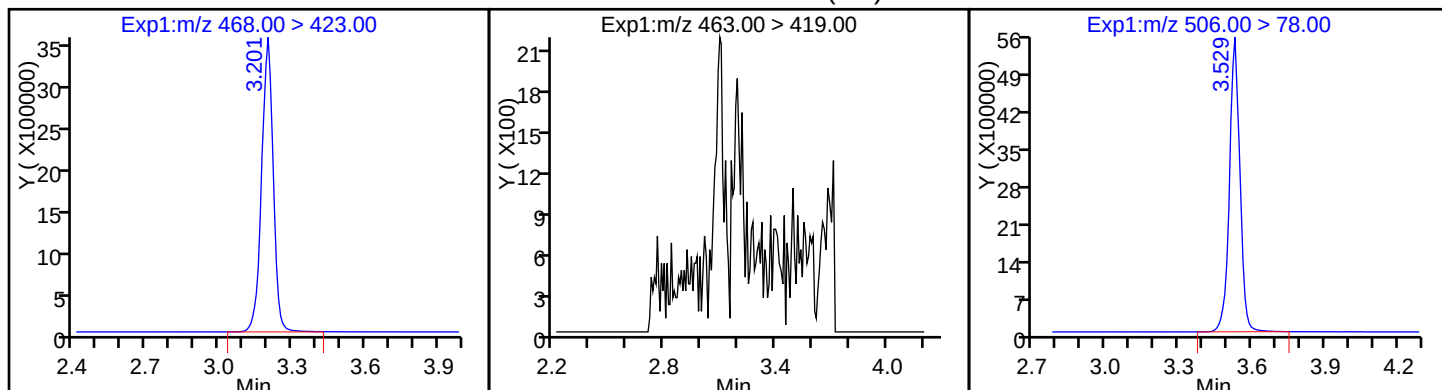
D 18 13C4 PFOS



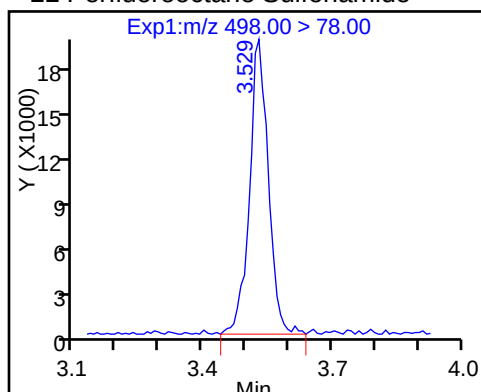
D 19 13C5 PFNA

20 Perfluorononanoic acid (ND)

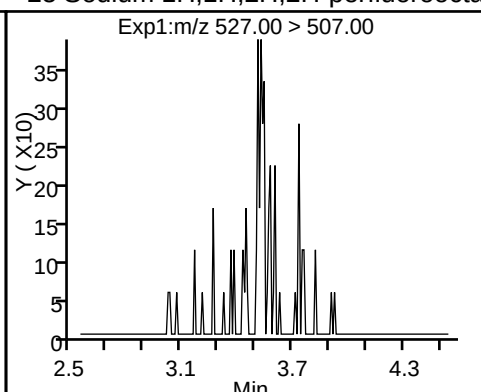
D 21 13C8 FOSA



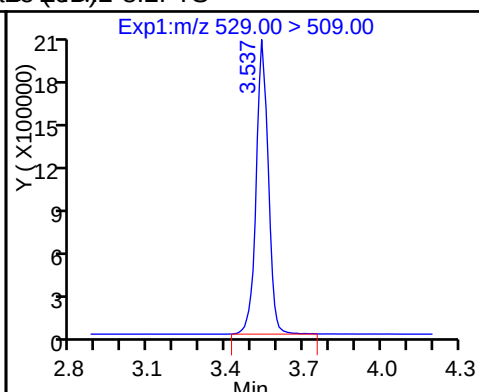
22 Perfluorooctane Sulfonamide



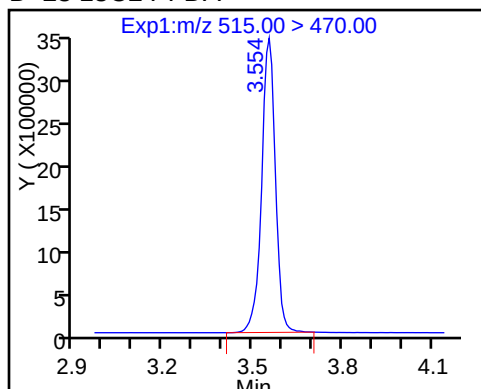
25 Sodium 1H,1H,2H,2H-perfluorooctadecane-2Sulfonate (PFOS)



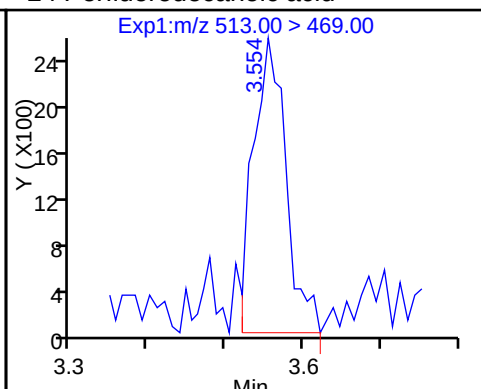
D 26 D 2-8:2FTS



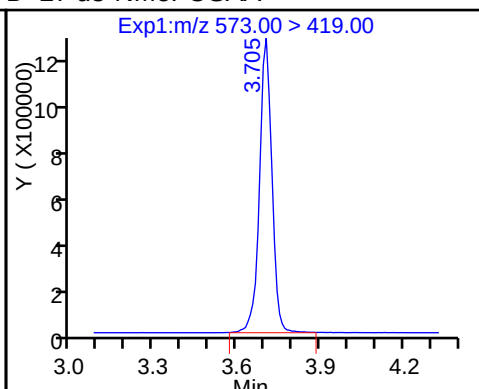
D 23 13C2 PFDA



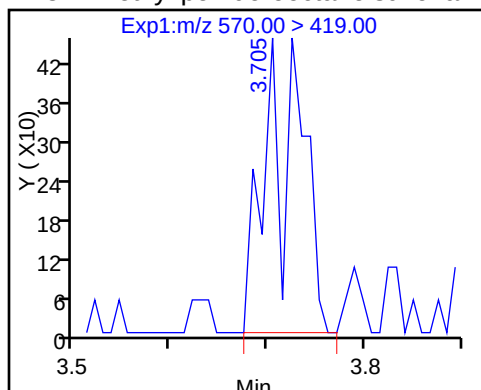
24 Perfluorodecanoic acid



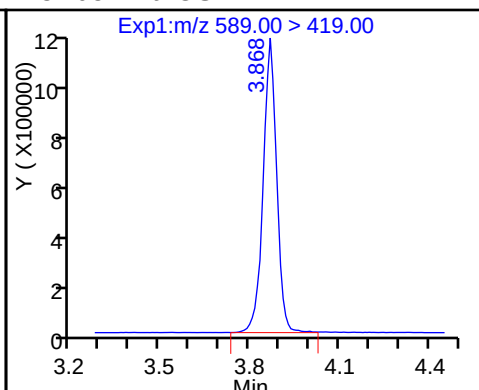
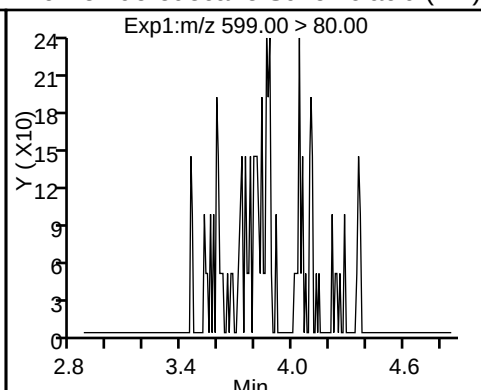
D 27 d3-NMeFOSAA



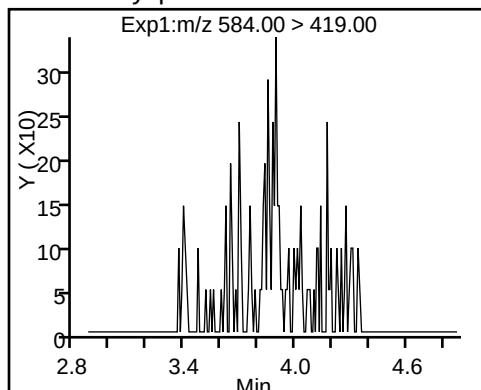
28 N-methyl perfluorooctane sulfonamid



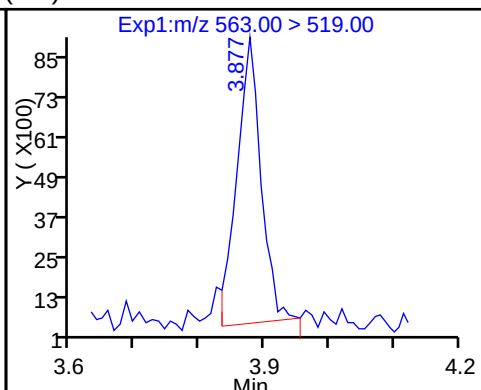
29 Perfluorodecane Sulfonic acid (ND) D 32 d5-NEtFOSAA



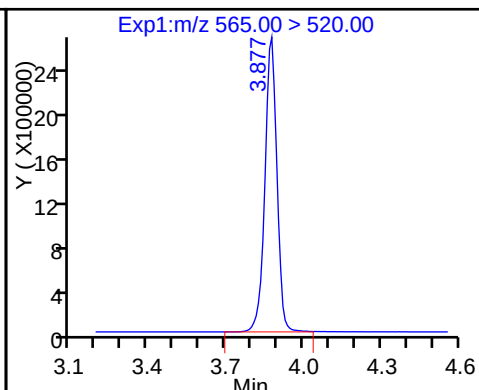
33 N-ethyl perfluorooctane sulfonamid (ND)



34 Perfluoroundecanoic acid



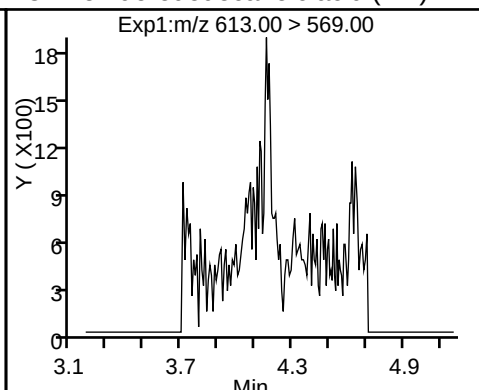
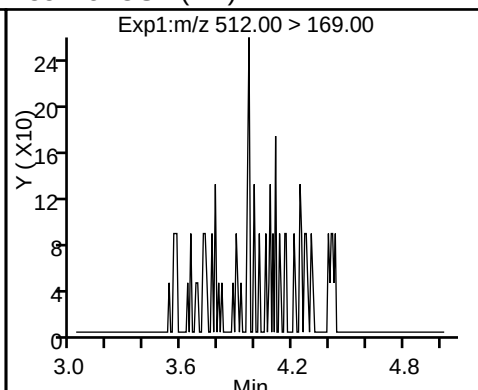
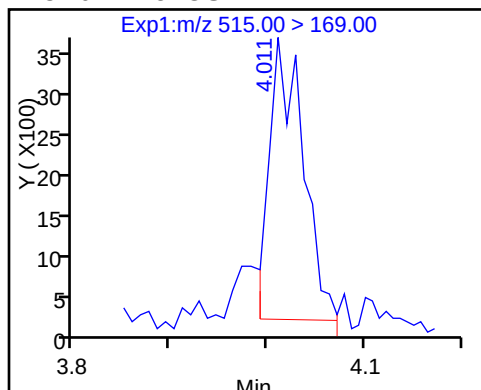
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

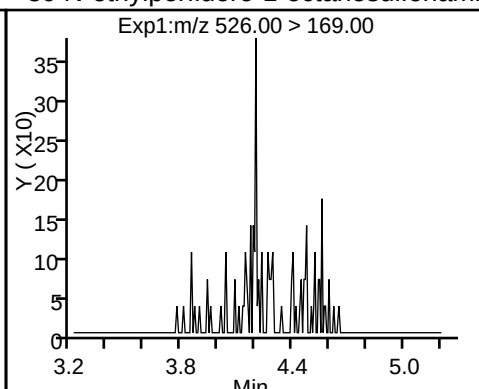
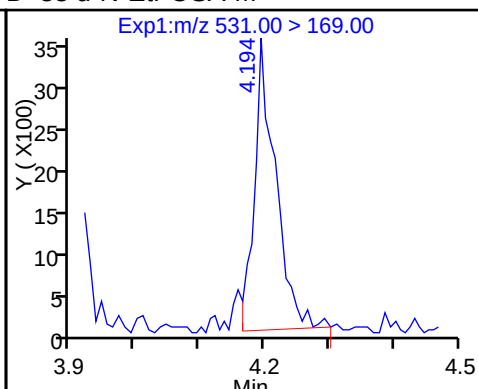
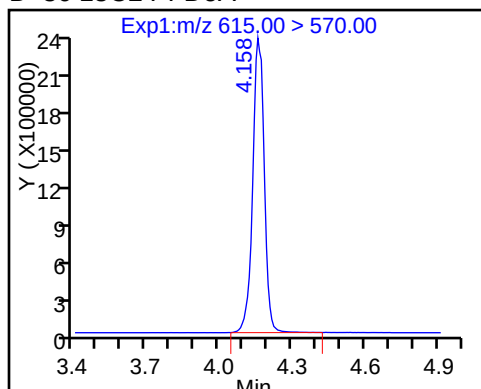
37 Perfluorododecanoic acid (ND)



D 36 13C2 PFDa

D 38 d-N-EtFOSA-M

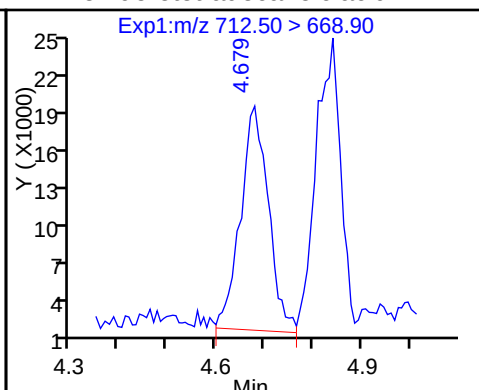
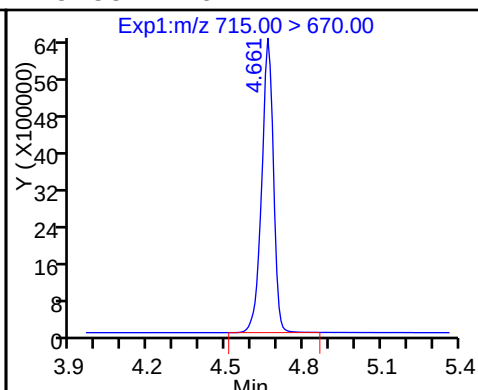
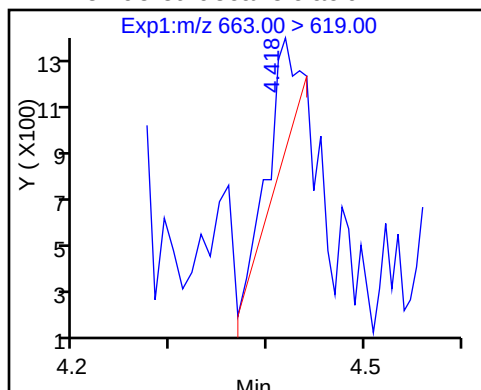
39 N-ethylperfluoro-1-octanesulfonami (ND)



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

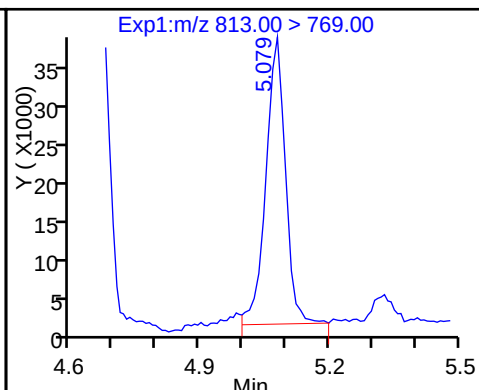
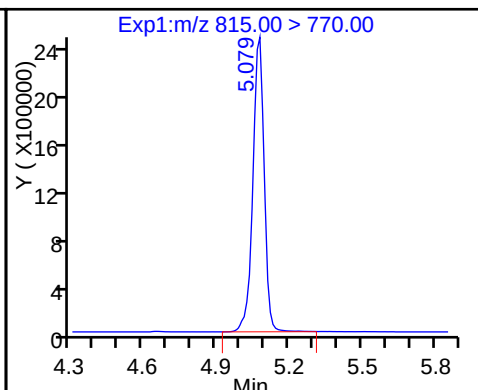
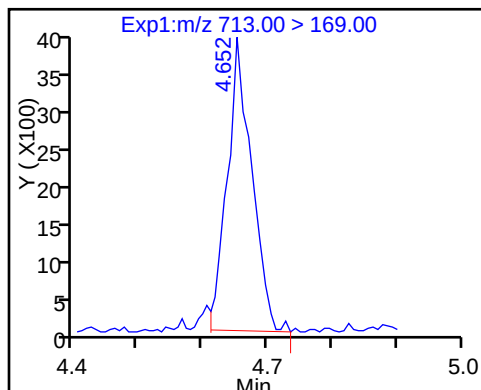
42 Perfluorotetradecanoic acid



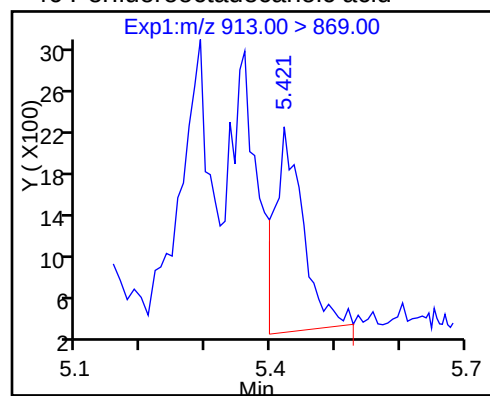
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

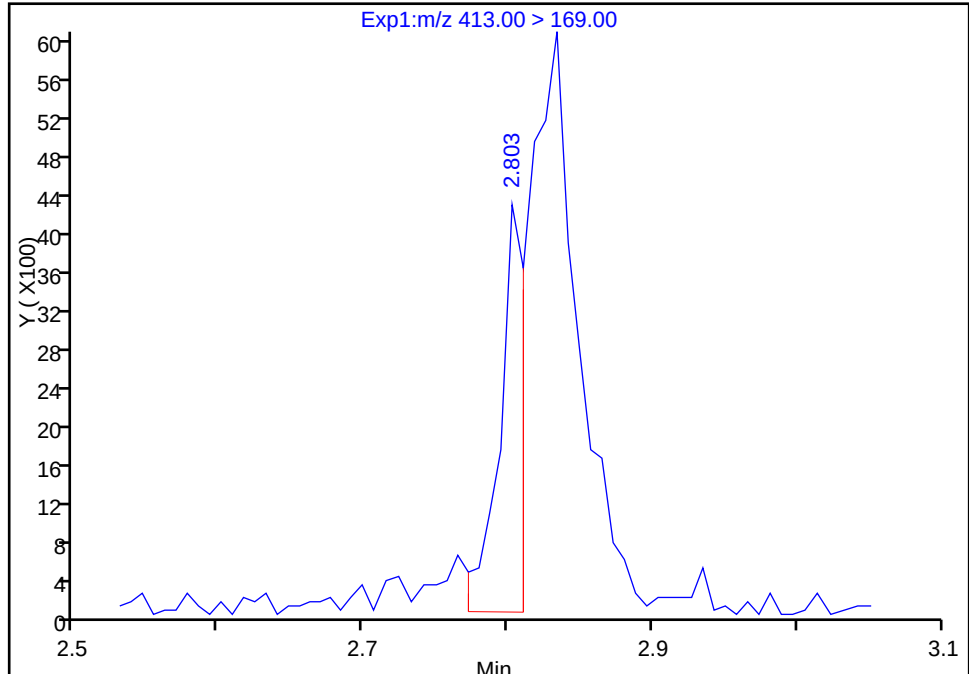
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d
Injection Date: 02-Mar-2017 10:35:15 Instrument ID: A8_N
Lims ID: MB 320-152587/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 1 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

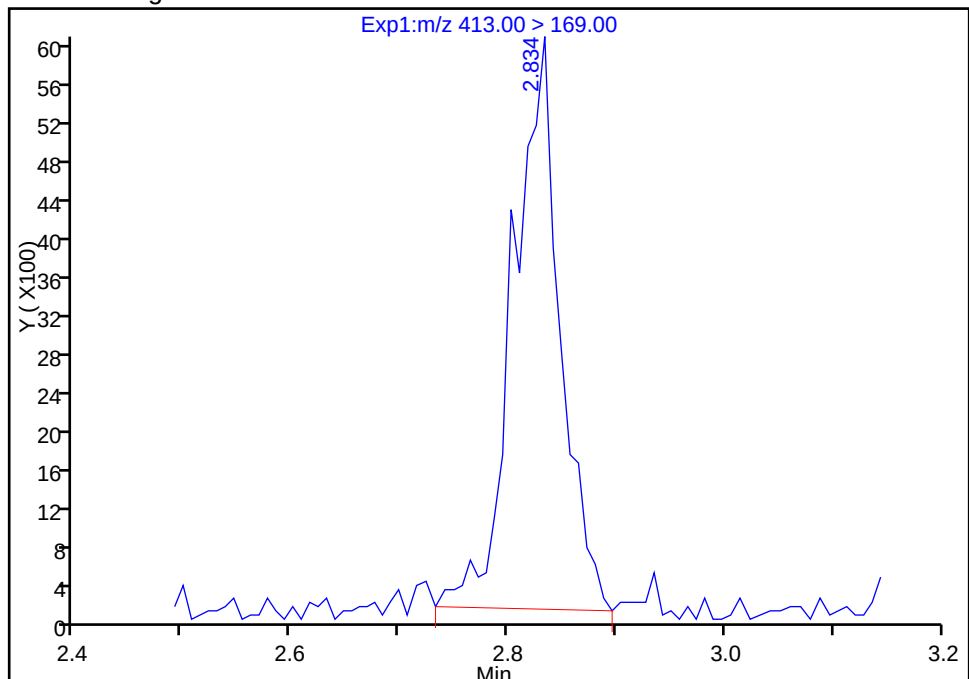
RT: 2.80
Area: 4378
Amount: 0.159296
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 18054
Amount: 0.093999
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 08-Mar-2017 08:23:13

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d

Injection Date: 02-Mar-2017 10:35:15

Instrument ID: A8_N

Lims ID: MB 320-152587/1-A

Client ID:

Operator ID: A8-PCVA8

ALS Bottle#: 1

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

Column:

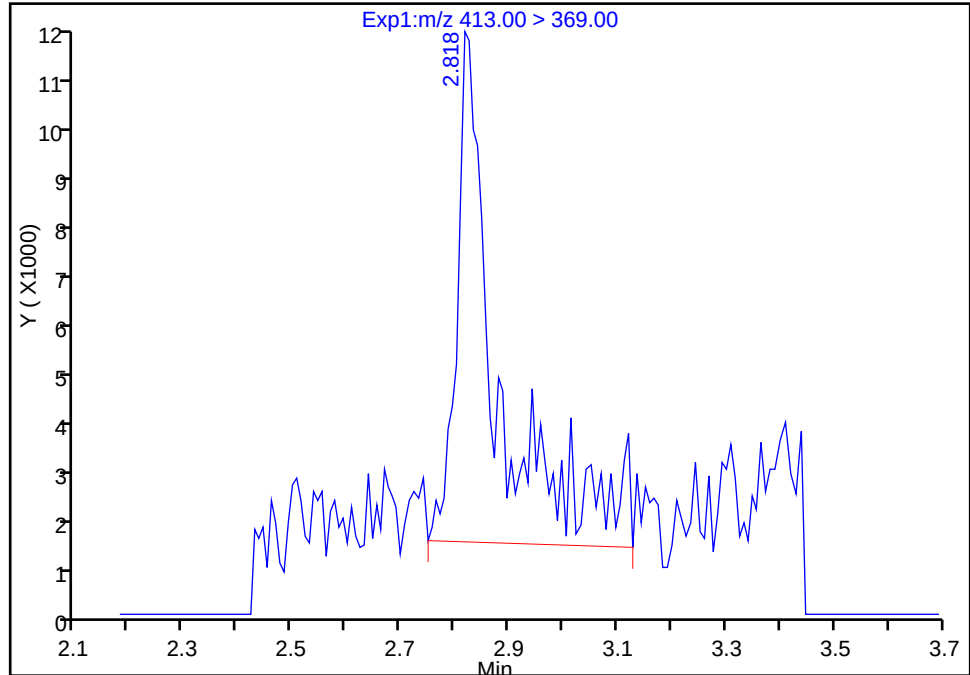
Detector: EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

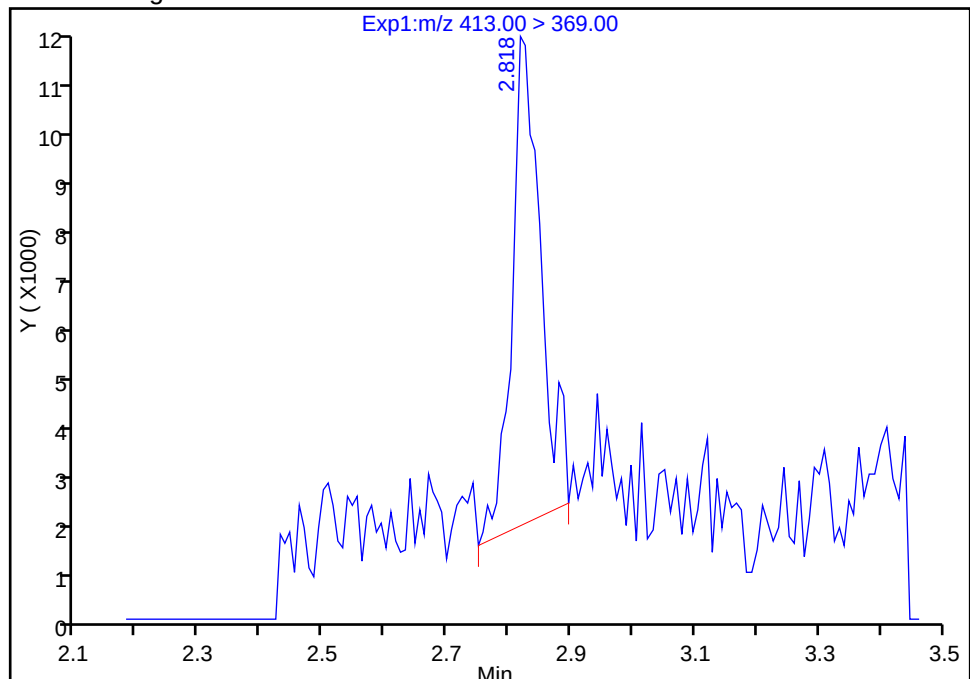
RT: 2.82
Area: 52817
Amount: 0.159296
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 31167
Amount: 0.093999
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 08-Mar-2017 08:23:46

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-152953/1-A
 Matrix: Solid Lab File ID: 2017.03.11D_038.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5(g) Date Analyzed: 03/11/2017 23:12
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	133		25-150
STL00991	13C4 PFOS	111		25-150
STL00994	18O2 PFHxS	119		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_038.d
 Lims ID: MB 320-152953/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 11-Mar-2017 23:12:56 ALS Bottle#: 31 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152953/1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 10:25:08 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK002

First Level Reviewer: changnoit

Date: 14-Mar-2017 10:25:08

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 1.547 1.539 0.008 17724885 60.7 121 838923

2 Perfluorobutyric acid

M

212.90 > 169.00 1.554 1.547 0.007 1.000 130460 0.4344 881 M

D 3 13C5-PFPeA

267.90 > 223.00 1.823 1.821 0.002 13992468 60.3 121 651787

4 Perfluoropentanoic acid

262.90 > 219.00 1.823 1.821 0.002 1.000 21377 0.0781 172

D 47 13C3-PFBS

301.90 > 83.00 1.862 1.851 0.011 337 NC

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.862 1.861 0.001 1.000 8026 0.0162

298.90 > 99.00 1.862 1.861 0.001 1.000 2496 3.22(0.00-0.00)

D 60 M2-4:2FTS

329.00 > 309.00 2.021 2.082 -0.061 347 NC

D 7 13C2 PFHxA

315.00 > 270.00 2.128 2.113 0.015 12275099 58.2 116 252106

D 9 13C4-PFHpA

367.00 > 322.00 2.461 2.452 0.009 13488748 69.9 140 655624

D 11 18O2 PFHxS

403.00 > 84.00 2.485 2.468 0.016 16390323 56.3 119 422967

8 Perfluorohexanesulfonic acid

M

399.00 > 80.00 2.477 2.476 0.001 1.000 68337 0.1918 M

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

427.00 > 407.00 2.803 2.795 0.008 1.000 2633 NR

15 Perfluorooctanoic acid

413.00 > 369.00 2.819 2.818 0.001 1.000 24147 0.0867 200

413.00 > 169.00 2.826 2.818 0.008 1.003 14844 1.63(0.90-1.10) 563

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA	417.00 > 372.00	2.826	2.826	0.0	13628840	66.5		133	569558	
D 18 13C4 PFOS	503.00 > 80.00	3.193	3.183	0.010	12857932	53.2		111	420252	
D 19 13C5 PFNA	468.00 > 423.00	3.203	3.192	0.011	10586985	59.5		119	364822	
D 21 13C8 FOSA	506.00 > 78.00	3.533	3.534	-0.001	10895720	29.7		59.4	257941	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.542	3.534	0.008	5495	0.0281			345	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.525	3.534	-0.009	618	NR				
D 26 M2-8:2FTS	529.00 > 509.00	3.542	3.542	0.0	1649	0.0178		0.0		
24 Perfluorodecanoic acid	513.00 > 469.00	3.550	3.551	-0.001	8060	0.0476			261	
D 23 13C2 PFDA	515.00 > 470.00	3.559	3.559	0.0	9341305	56.0		112	225023	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.699	3.700	-0.001	11465	0.1346		0.0		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.720	3.711	0.009	3011	NR				
D 32 d5-NEtFOSAA	589.00 > 419.00	3.880	3.863	0.017	18390	0.2260		0.0		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.863	3.871	-0.008	16151	0.1137			459	
D 30 13C2 PFUnA	565.00 > 520.00	3.872	3.880	-0.008	7006601	53.6		107	227060	
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	4.073	3.880	0.193	347	NR				
D 34 d-N-MeFOSA-M	515.00 > 169.00	3.996	4.024	-0.028	2886	0.0328		0.0		
35 MeFOSA	512.00 > 169.00	4.005	4.024	-0.019	893	NR				
D 36 13C2 PFDaA	615.00 > 570.00	4.159	4.162	-0.003	5244428	42.3		84.6	154888	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.224	4.204	0.020	1032	0.0121		0.0		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.194	4.212	-0.018	784	NR				
D 43 13C2-PFTeDA	715.00 > 670.00	4.669	4.663	0.006	4517015	17.4		34.9	189603	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.695	4.672	0.023	71475	0.3465			588	
	713.00 > 169.00	4.651	4.672	-0.021	2521		28.35(0.00-0.00)		925	
D 44 13C2-PFHxDA	815.00 > 770.00	5.078	5.072	0.006	972203	7.77		15.5	43053	

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	5.078	5.082	-0.004	1.000	18504	-0.1863		65.4	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.965	5.431	0.534	1.000	576	0.007653		4.2	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_038.d

Injection Date: 11-Mar-2017 23:12:56

Instrument ID: A8_N

Lims ID: MB 320-152953/1-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

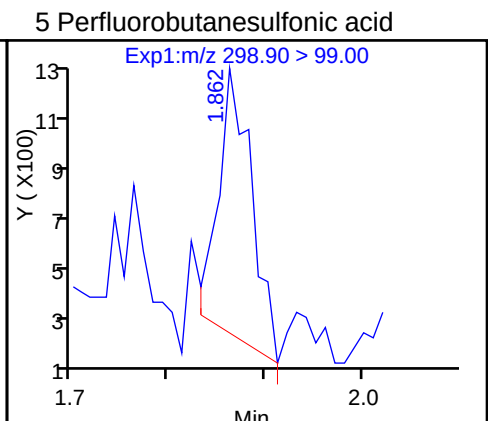
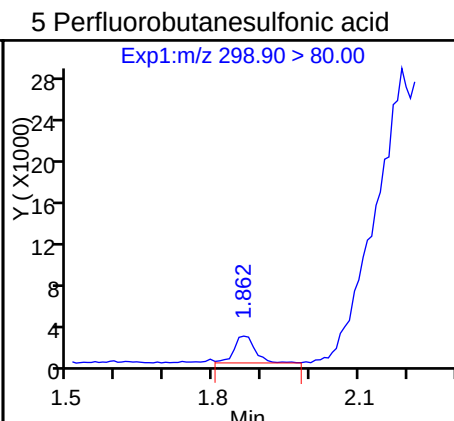
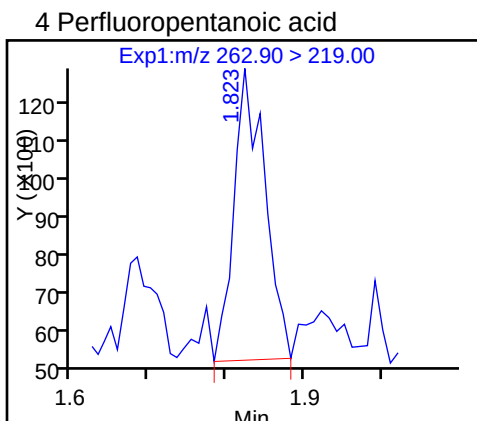
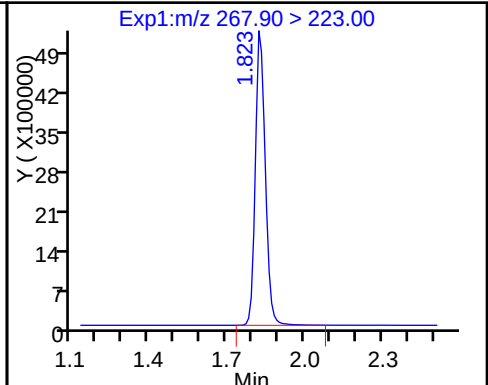
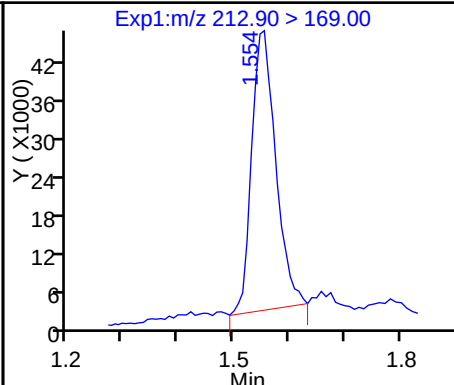
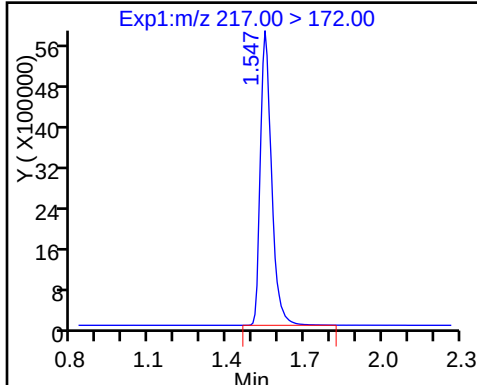
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

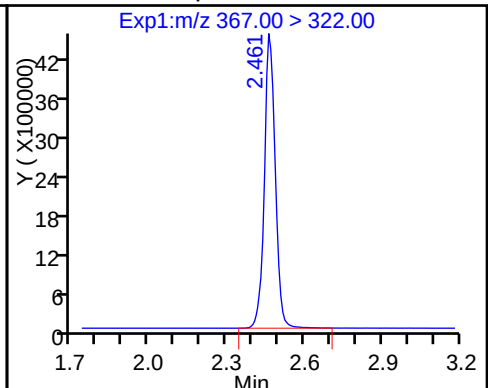
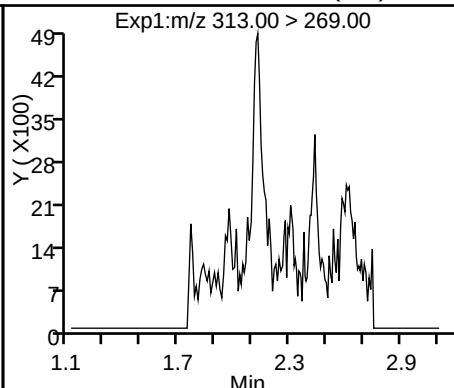
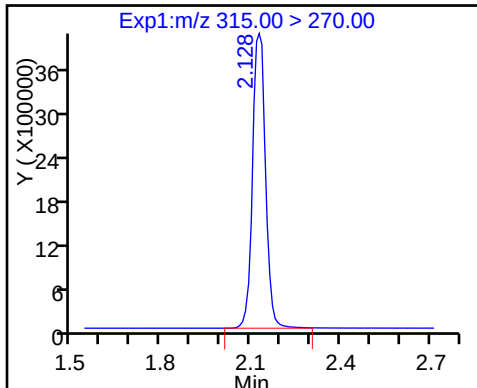
D 3 13C5-PFPeA



D 7 13C2 PFHxA

6 Perfluorohexanoic acid (ND)

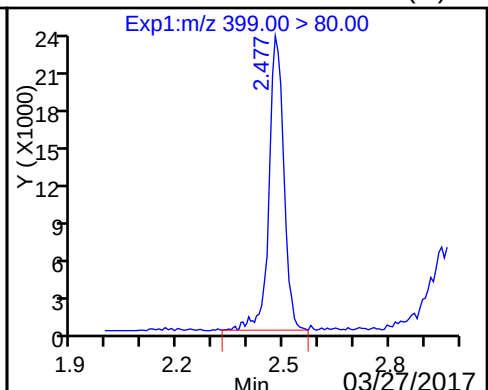
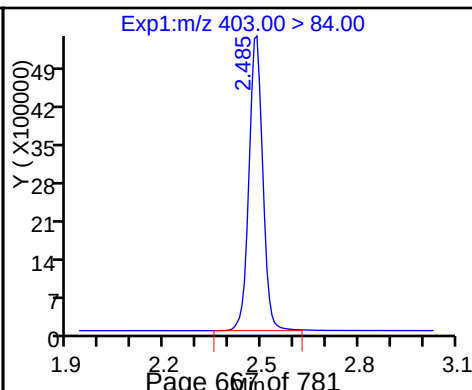
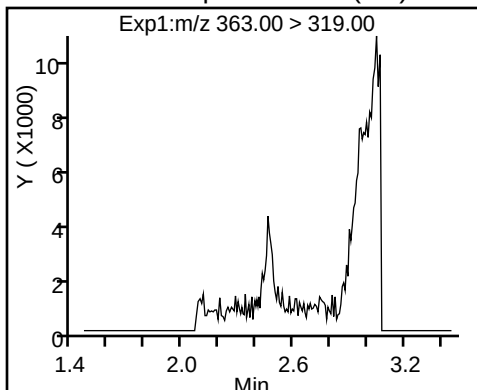
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid (ND)

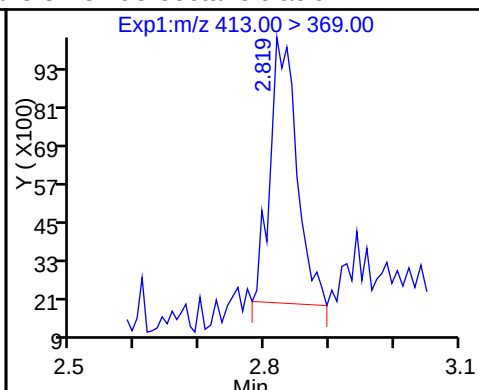
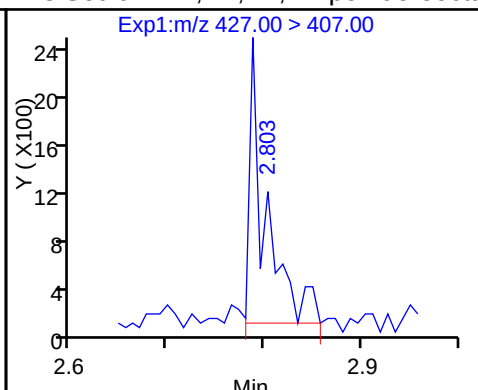
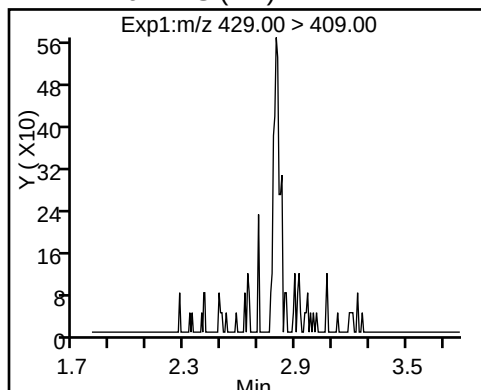
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)



D 12 M2-6:2FTS (ND)

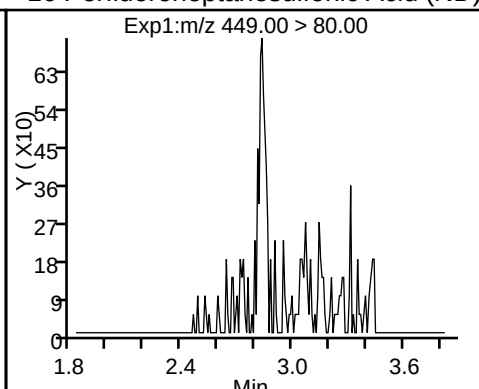
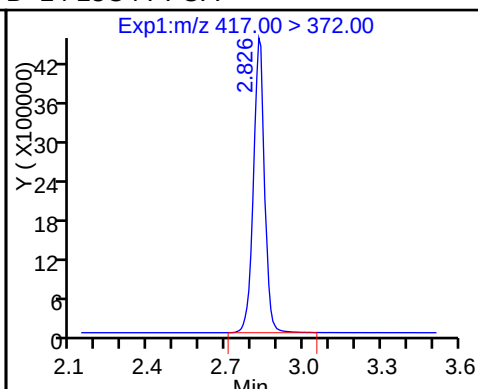
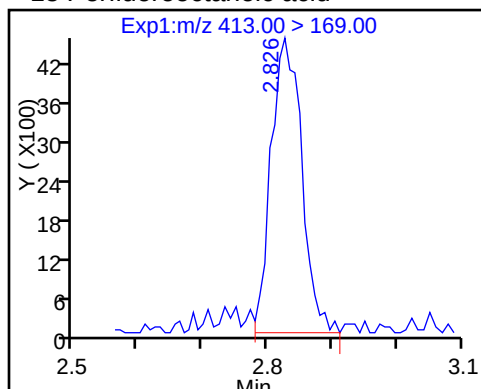
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol



15 Perfluorooctanoic acid

D 14 13C4 PFOA

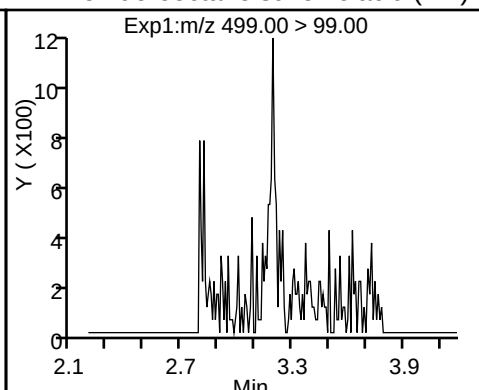
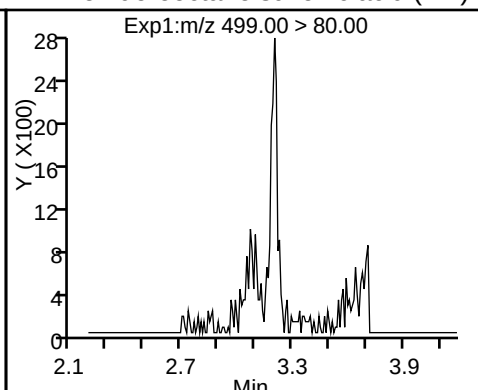
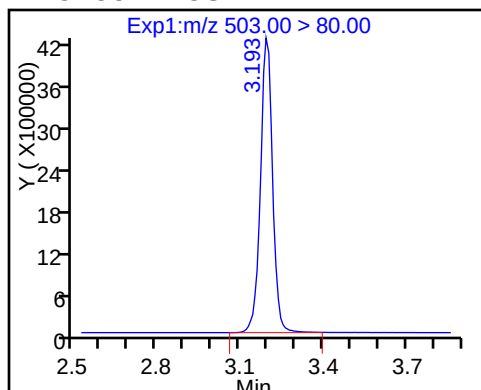
16 Perfluoroheptanesulfonic Acid (ND)



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)

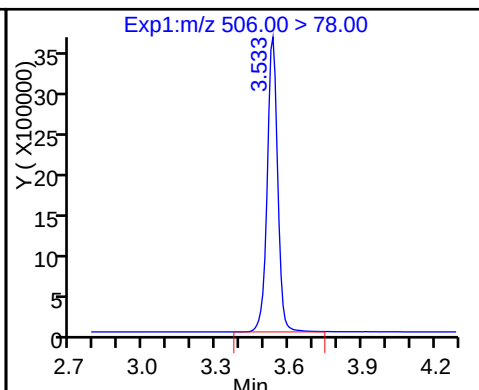
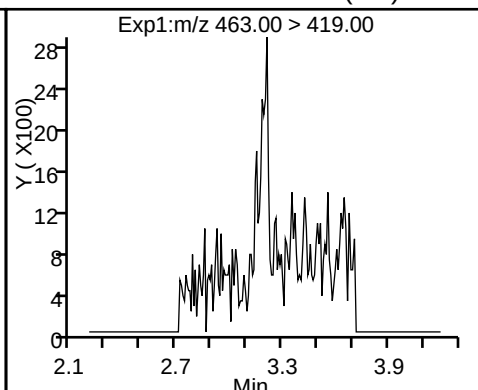
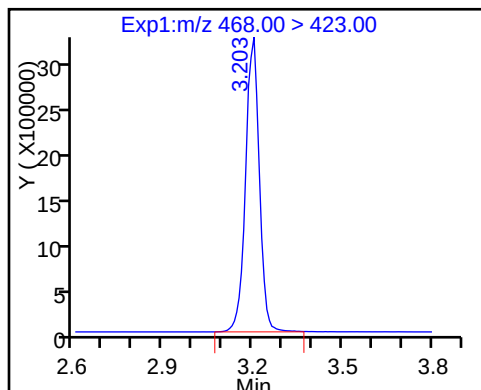
17 Perfluorooctane sulfonic acid (ND)



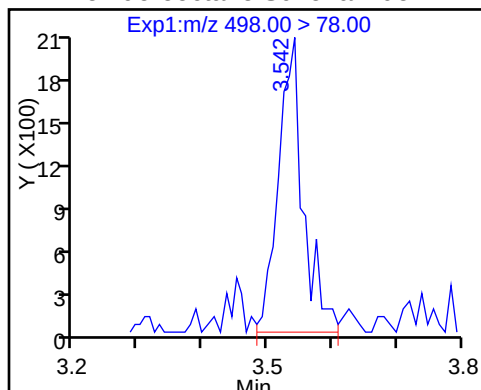
D 19 13C5 PFNA

20 Perfluorononanoic acid (ND)

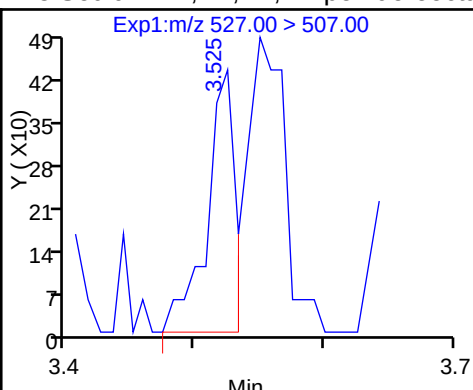
D 21 13C8 FOSA



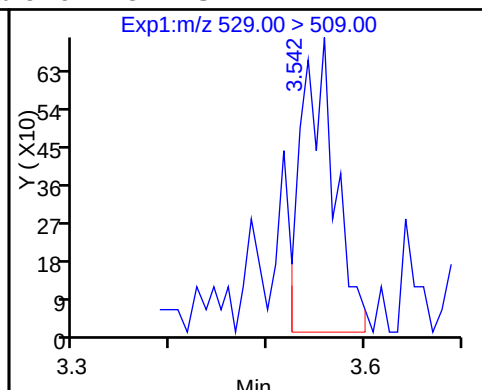
22 Perfluorooctane Sulfonamide



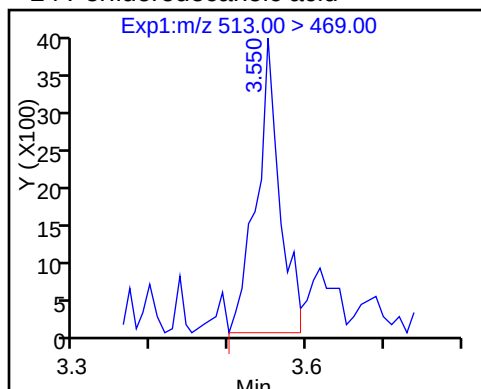
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



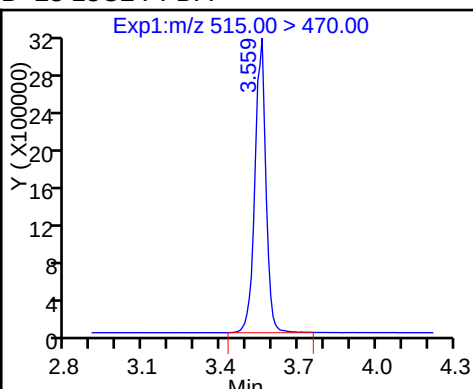
26 M2-8:2FTS



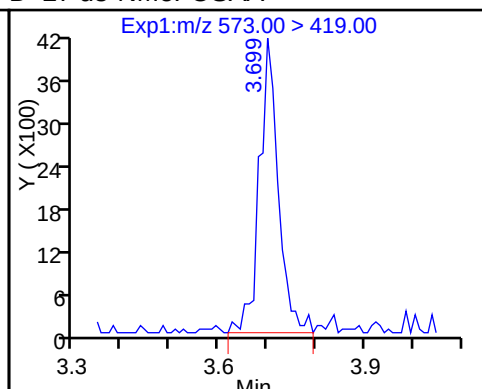
24 Perfluorodecanoic acid



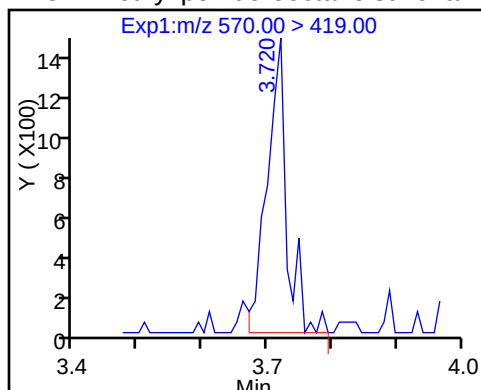
D 23 13C2 PFDA



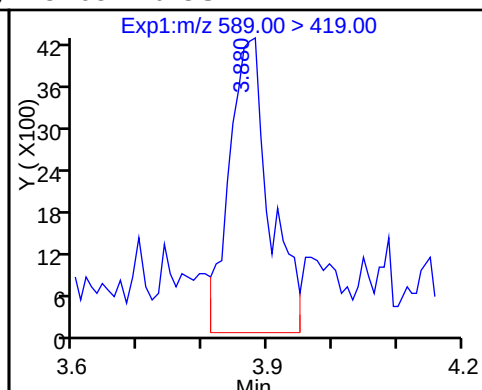
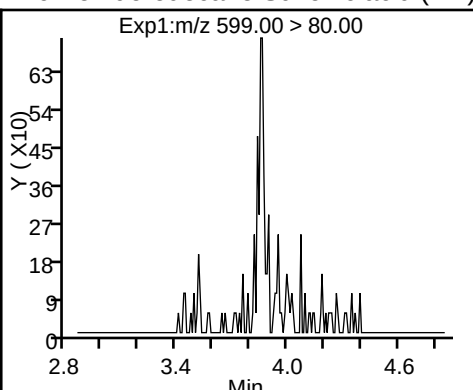
D 27 d3-NMeFOSAA



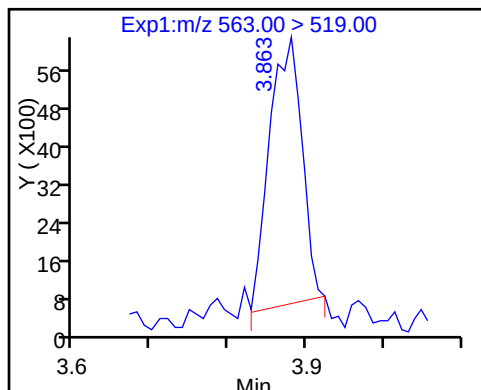
28 N-methyl perfluorooctane sulfonamide



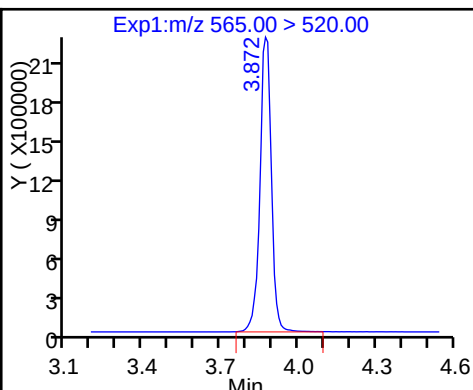
29 Perfluorodecane Sulfonic acid (ND) D 32 d5-NEtFOSAA



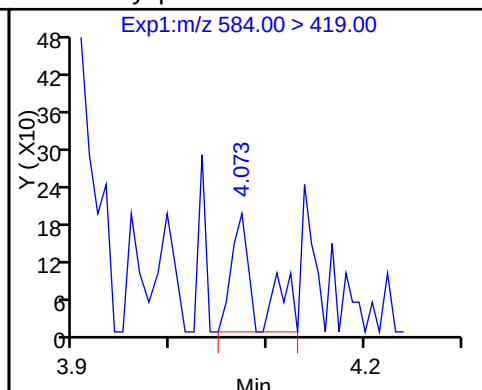
31 Perfluoroundecanoic acid



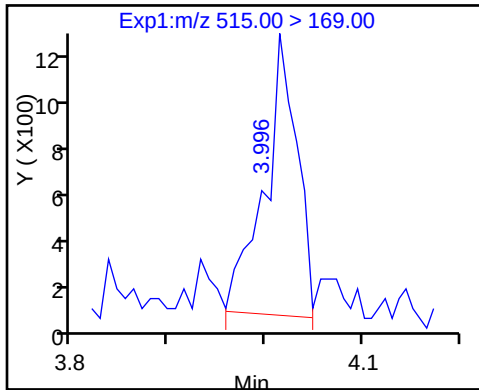
D 30 13C2 PFUnA



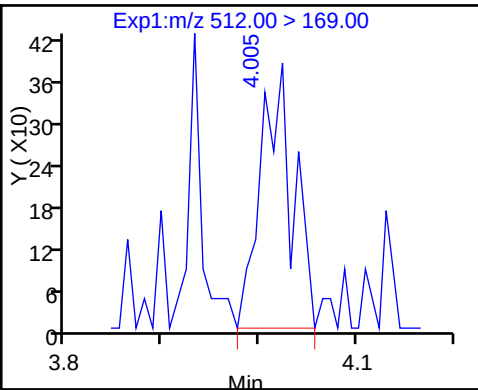
33 N-ethyl perfluorooctane sulfonamide



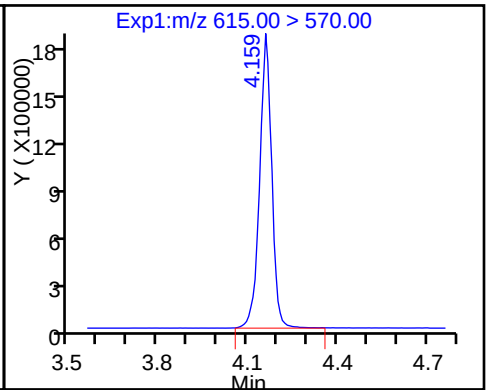
D 34 d-N-MeFOSA-M



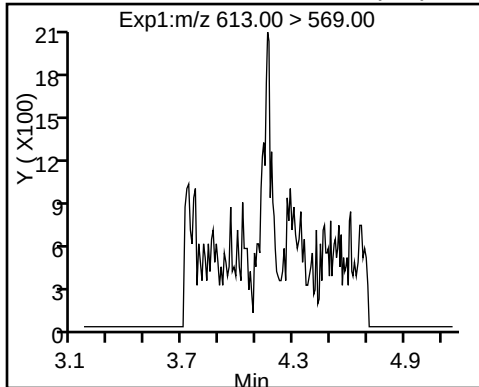
35 MeFOSA



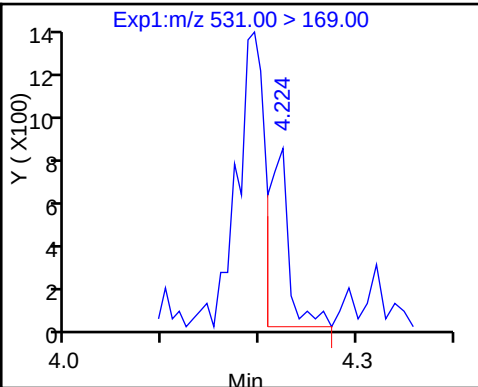
D 36 13C2 PFDaA



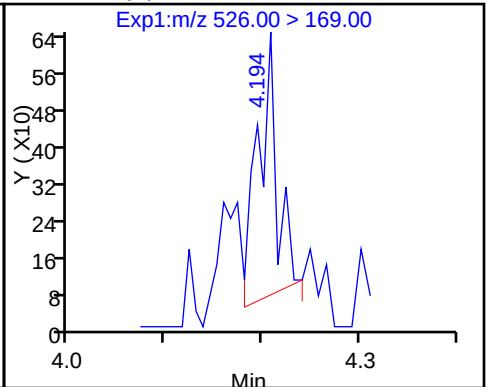
37 Perfluorododecanoic acid (ND)



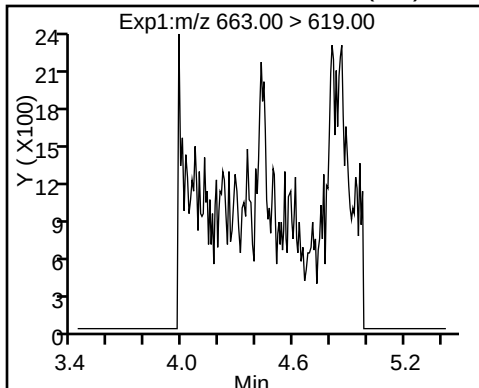
D 38 d-N-EtFOSA-M



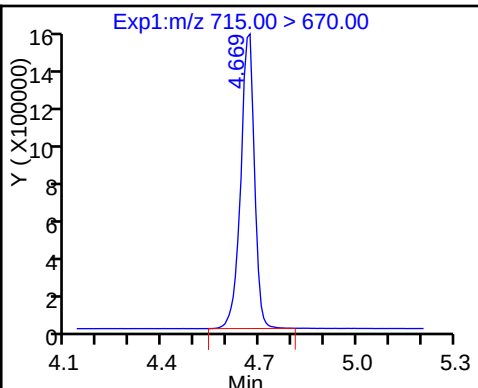
39 N-ethylperfluoro-1-octanesulfonami



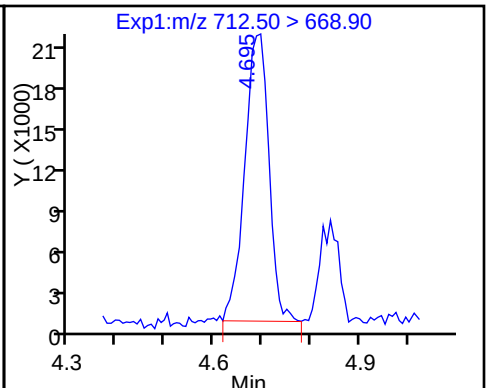
41 Perfluorotridecanoic acid (ND)



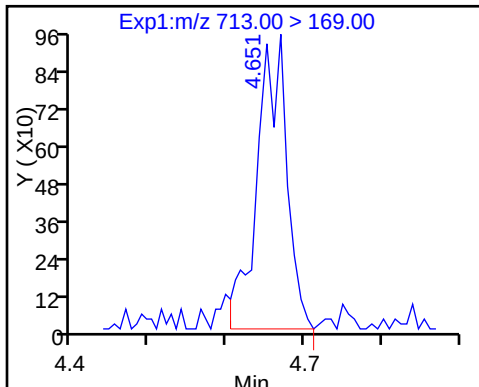
D 43 13C2-PFTeDA



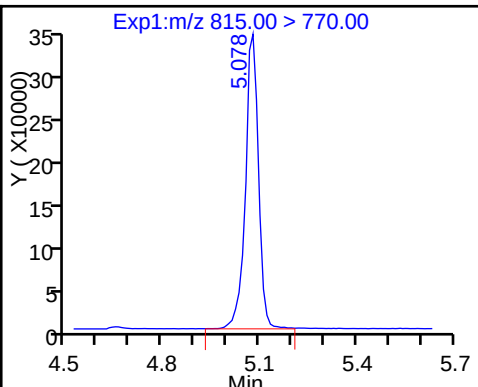
42 Perfluorotetradecanoic acid



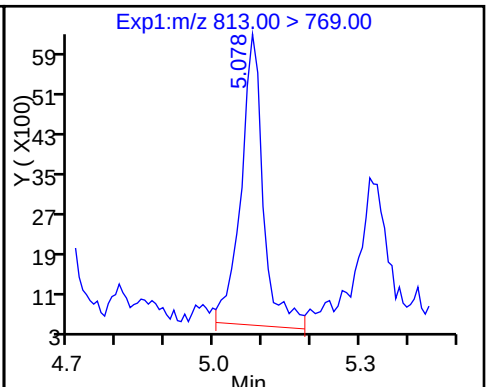
42 Perfluorotetradecanoic acid



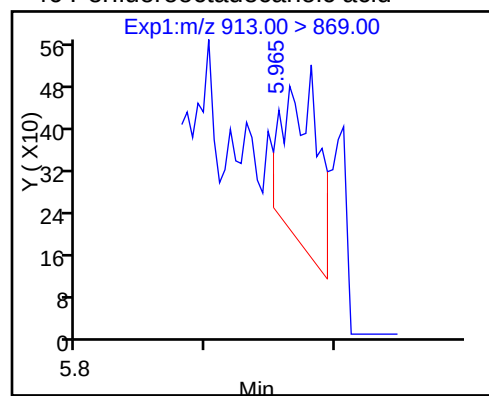
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-152587/2-A
 Matrix: Water Lab File ID: 2017.03.02A_005.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 250.00 (mL) Date Analyzed: 03/02/2017 10:42
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	38.6		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.6		4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	39.5		2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	142		25-150
STL00991	13C4 PFOS	133		25-150
STL00994	18O2 PFHxS	136		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_005.d
 Lims ID: LCS 320-152587/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 02-Mar-2017 10:42:45 ALS Bottle#: 2 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-152587/2-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 02-Mar-2017 12:33:56 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK026

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:21:39

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	1.546	1.538	0.008	1.000	7422717	21.6		108	74277	
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		20256629	69.3		139	3061905	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		16326601	70.3		141	2742417	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	6568984	20.6		103	109845	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	11195126	19.7		112		
298.90 > 99.00	1.861	1.861	0.0	1.000	4705494		2.38(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.125	2.122	0.003		15305179	72.6		145	58955	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.125	2.122	0.003	1.000	5303058	19.5		97.4	584514	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.467	2.460	0.007	1.000	5549686	20.1		100	576972	
D 9 13C4-PFHpA										
367.00 > 322.00	2.467	2.468	-0.001		14305507	74.1		148	929705	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.490	2.483	0.007	1.000	7214762	17.7		97.4		
D 11 18O2 PFHxS										
403.00 > 84.00	2.482	2.483	-0.001		18723376	64.4		136	103780	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.801	2.803	-0.001	1.000	2833149	20.0		105		
D 12 M2-6:2FTS										
429.00 > 409.00	2.809	2.803	0.007		7554273	97.9		206		
D 14 13C4 PFOA										
417.00 > 372.00	2.832	2.834	-0.002		14533718	70.9		142	4558584	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.832	2.834	-0.002	1.000	5735939	19.3		96.6	71230	
413.00 > 169.00	2.840	2.834	0.006	1.003	3300335		1.74(0.90-1.10)		1033646	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.840	2.834	0.006	1.000	6811488	20.6		108		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.096	3.089	0.007	1.000	5613125	17.8		96.0	48938	
499.00 > 99.00	3.167	3.089	0.078	1.023	1280272		4.38(0.90-1.10)		10752	
D 18 13C4 PFOS										
503.00 > 80.00	3.209	3.202	0.007		15317374	63.4		133	1572118	
D 19 13C5 PFNA										
468.00 > 423.00	3.209	3.202	0.007		10608060	59.6		119	2972220	
20 Perfluorononanoic acid										
463.00 > 419.00	3.209	3.210	-0.001	1.000	3835053	20.0		100.0	148780	
D 21 13C8 FOSA										
506.00 > 78.00	3.544	3.528	0.016		12094528	33.0		65.9	3765181	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.553	3.536	0.017	1.000	4266923	19.6		98.2	1376279	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.553	3.545	0.008	1.000	2207100	19.5		102		
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.553	0.0		5835376	63.0		132		
D 23 13C2 PFDA										
515.00 > 470.00	3.561	3.561	0.0		10092537	60.5		121	760047	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.570	3.561	0.009	1.000	3716128	20.3		102	1147689	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.714	3.714	0.0		3064781	36.0		72.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.724	3.714	0.010	1.003	1226397	20.6		103		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.868	3.867	0.001	1.000	3570465	18.7		97.0		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.885	3.875	0.010		2892886	35.6		71.1		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.875	0.010	1.000	1047607	19.9		99.5		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.894	3.884	0.010	1.000	2658216	17.5		87.5	1816	
D 30 13C2 PFUnA										
565.00 > 520.00	3.885	3.884	0.001		7497114	57.3		115	2226160	
D 36 13C2 PFDoA										
615.00 > 570.00	4.176	4.172	0.004		6936444	56.0		112	2096795	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.176	4.172	0.004	1.000	2394762	18.9		94.4	125511	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.441	4.436	0.005	1.000	2524943	20.8		104	116139	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.679	4.672	0.007		17132293	66.1		132	44660	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										M
712.50 > 668.90	4.679	4.681	-0.002	1.000	5879704	21.6		108	23442	M
713.00 > 169.00	4.670	4.681	-0.011	0.998	840079		7.00(0.00-0.00)		275195	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.090	5.093	-0.003		6451688	51.6		103	325410	
45 Perfluorohexadecanoic acid										M
813.00 > 769.00	5.090	5.093	-0.003	1.000	2187102	16.6		83.2	5599	M
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.444	5.446	-0.002	1.000	1968218	19.8		98.9	4023	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_005.d

Injection Date: 02-Mar-2017 10:42:45

Instrument ID: A8_N

Lims ID: LCS 320-152587/2-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

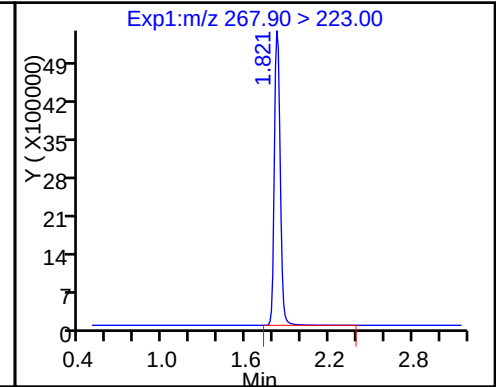
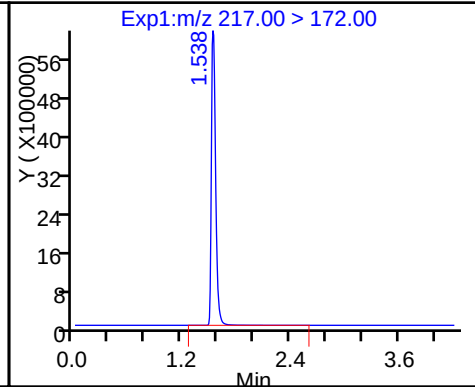
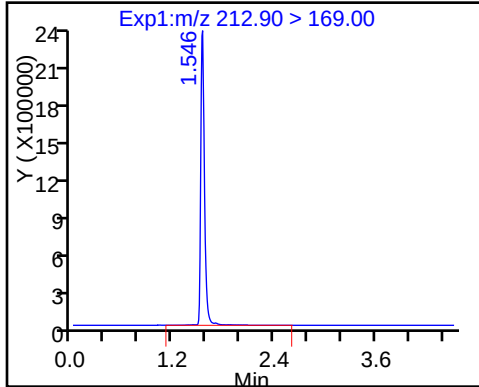
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

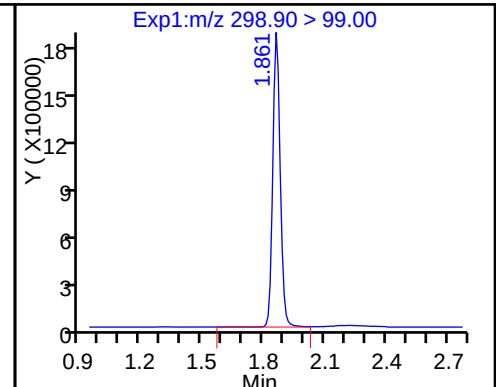
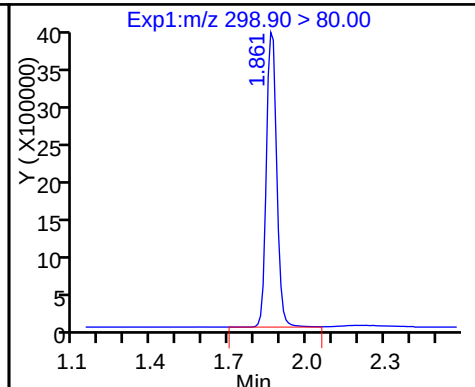
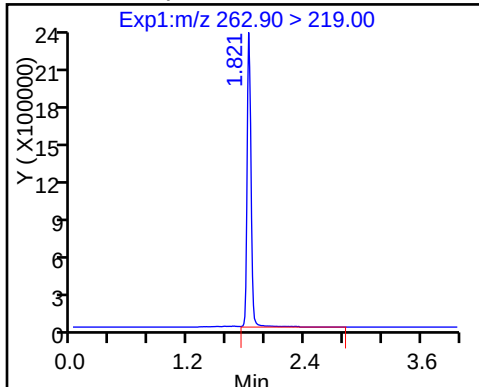
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

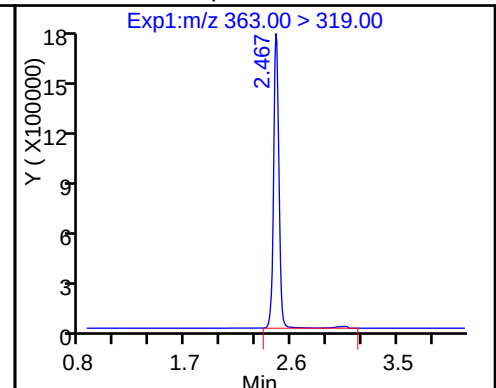
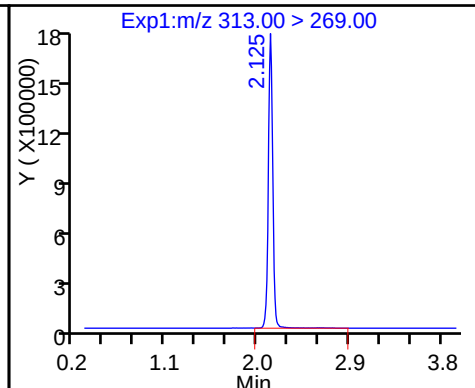
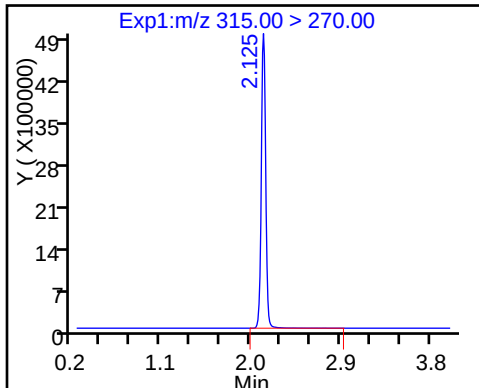
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

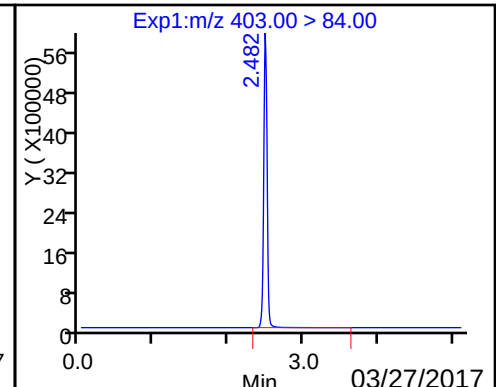
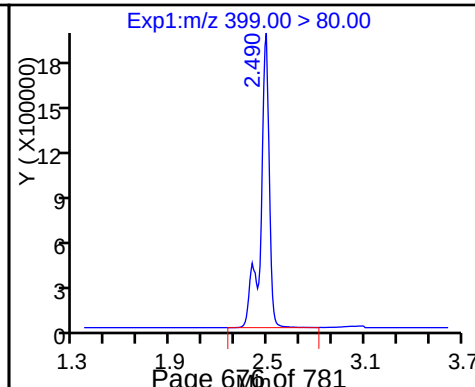
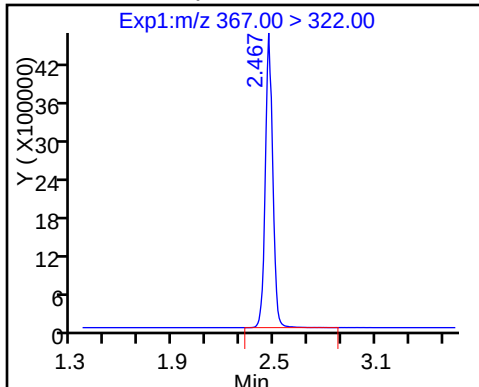
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

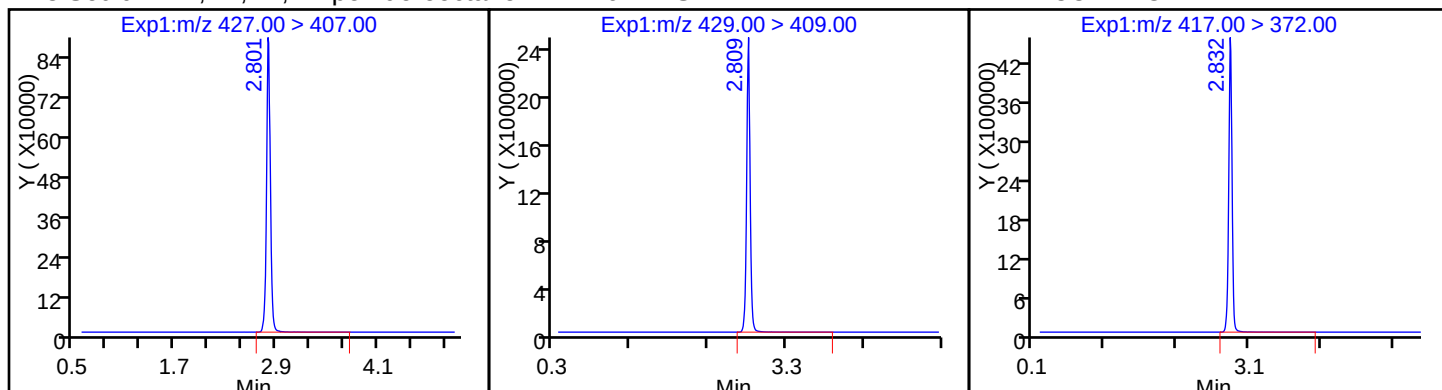
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

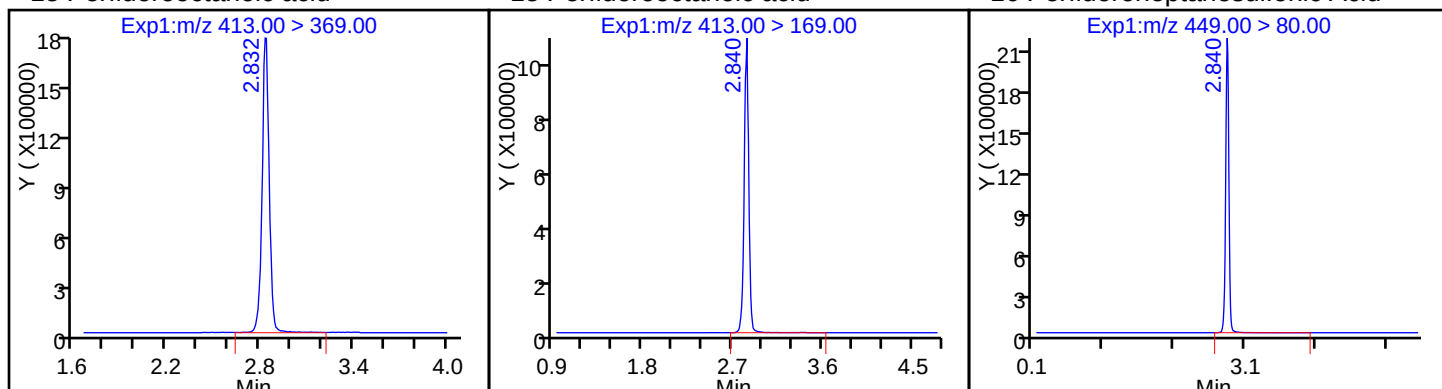
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

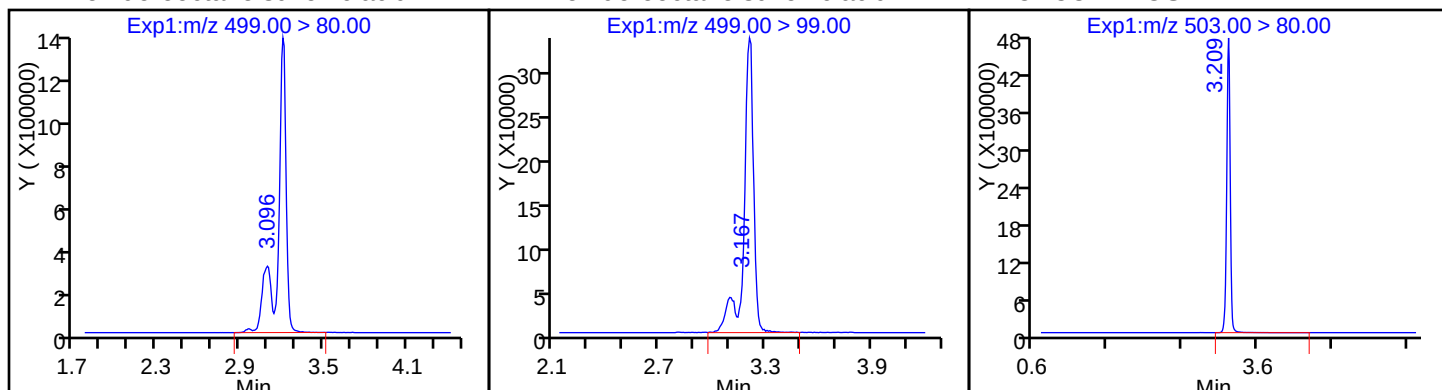
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

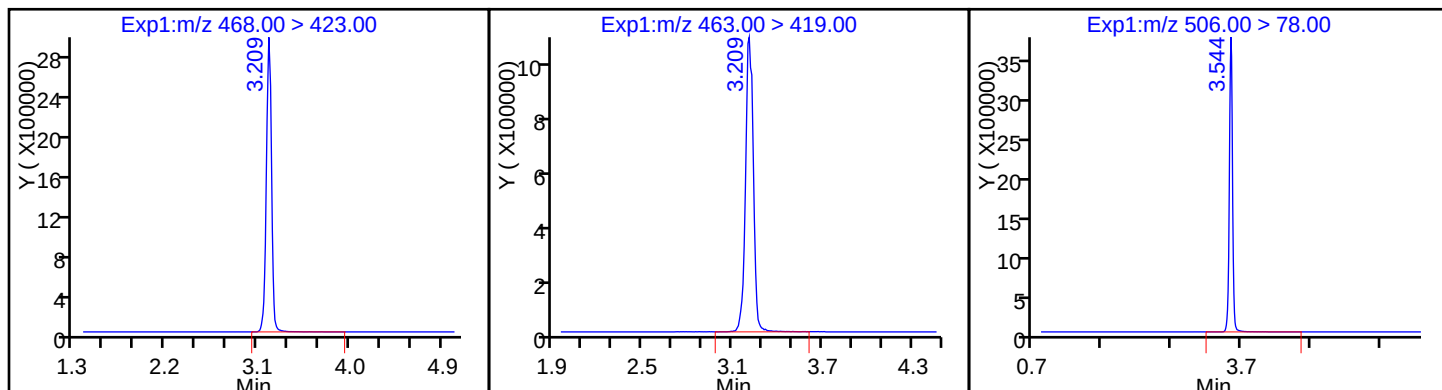
D 18 13C4 PFOS



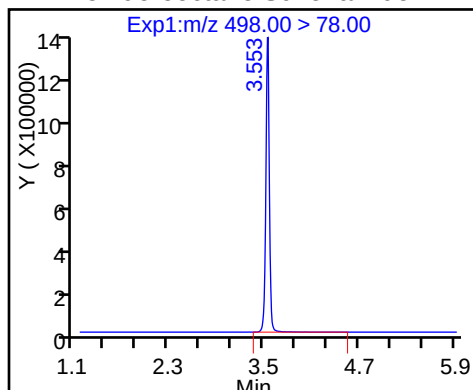
D 19 13C5 PFNA

20 Perfluorononanoic acid

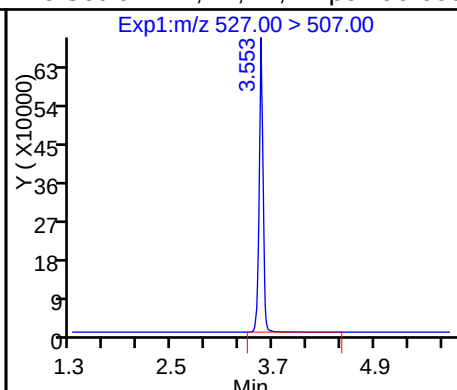
D 21 13C8 FOSA



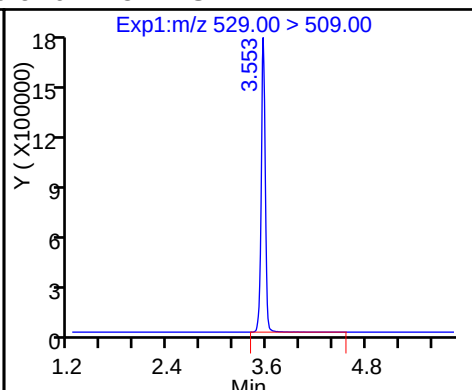
22 Perfluorooctane Sulfonamide



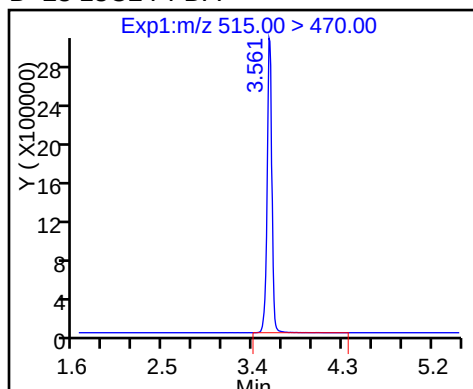
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



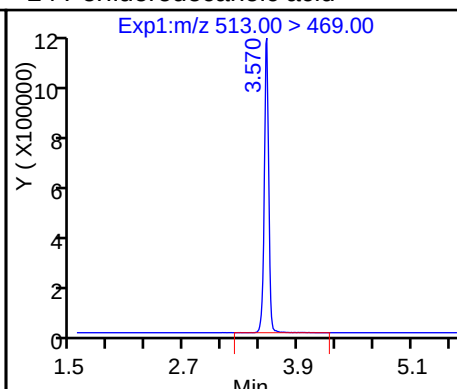
26 M2-8:2FTS



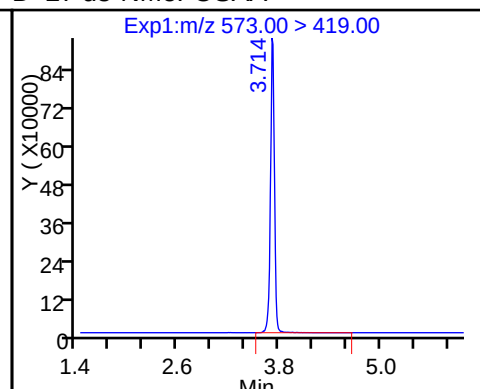
D 23 13C2 PFDA



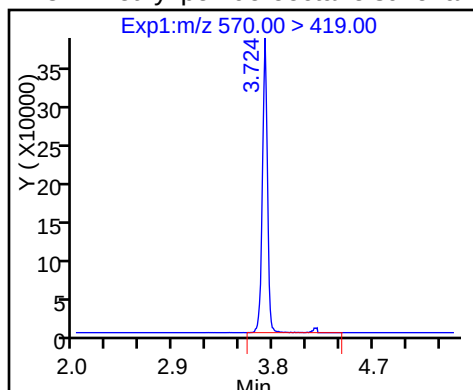
24 Perfluorodecanoic acid



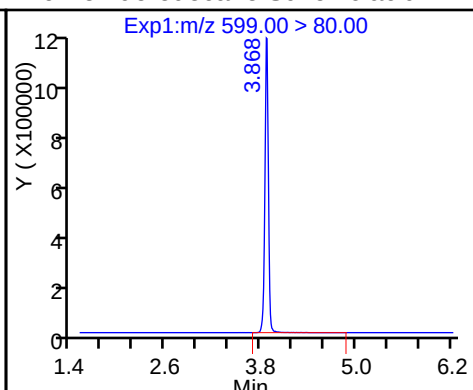
D 27 d3-NMeFOSAA



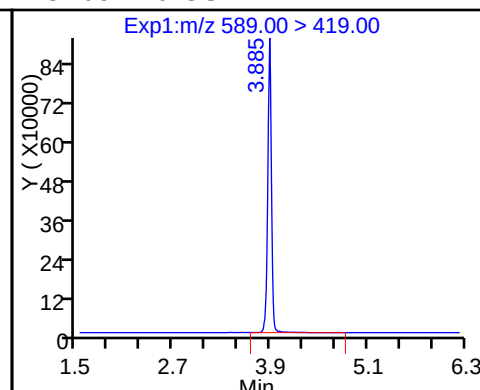
28 N-methyl perfluorooctane sulfonamide



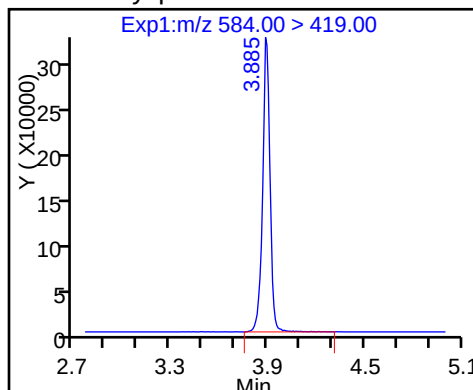
29 Perfluorodecane Sulfonic acid



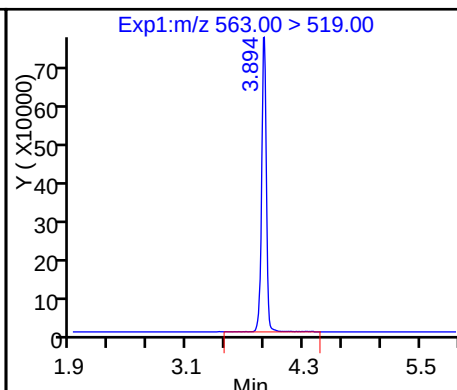
D 32 d5-NEtFOSAA



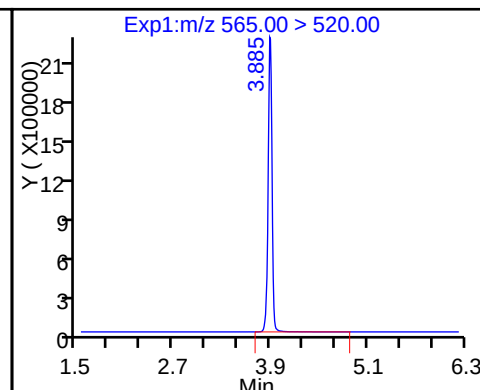
33 N-ethyl perfluorooctane sulfonamid



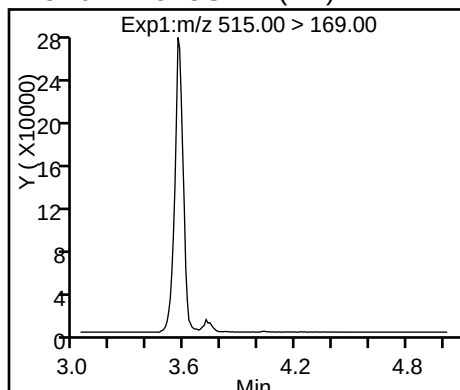
31 Perfluoroundecanoic acid



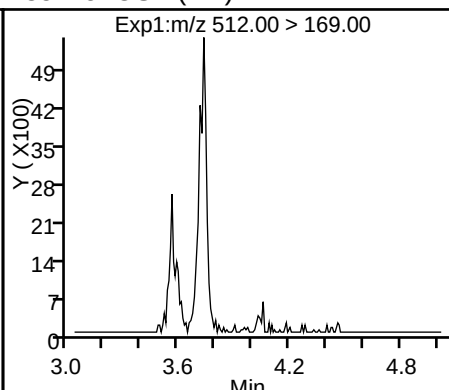
D 30 13C2 PFUnA



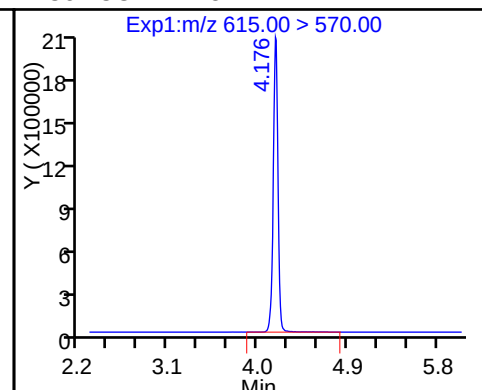
D 34 d-N-MeFOSA-M (ND)



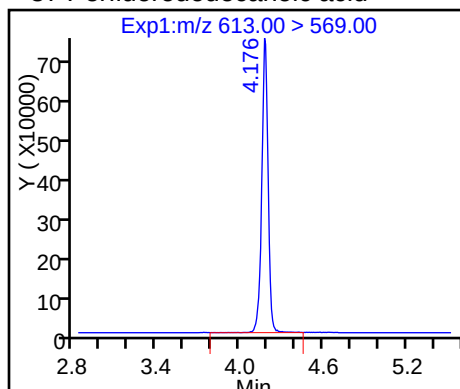
35 MeFOSA (ND)



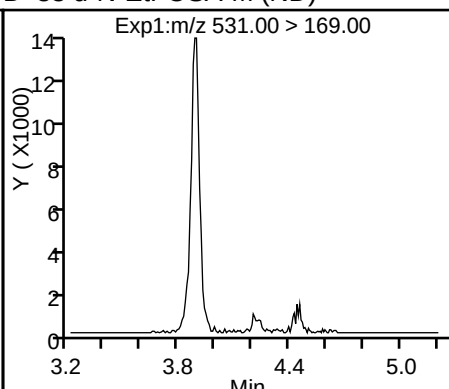
D 36 13C2 PFDaA



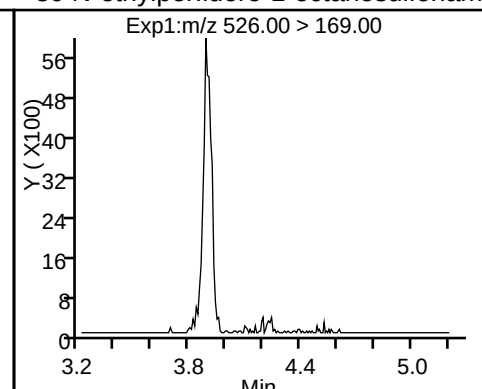
37 Perfluorododecanoic acid



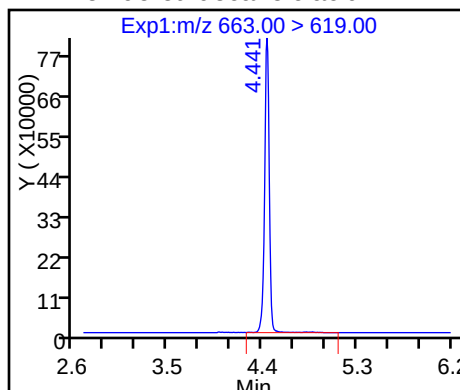
D 38 d-N-EtFOSA-M (ND)



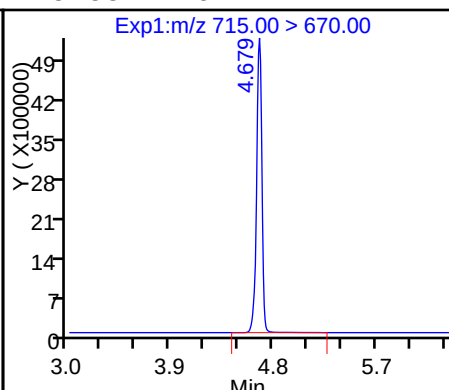
39 N-ethylperfluoro-1-octanesulfonami (ND)



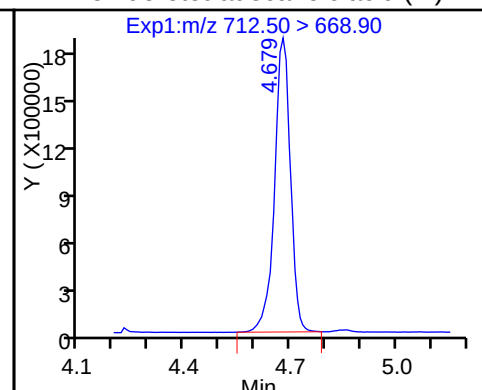
41 Perfluorotridecanoic acid



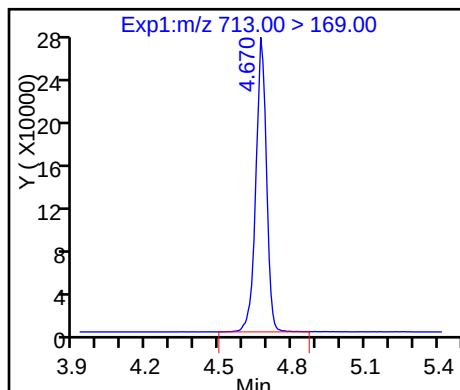
D 43 13C2-PFTeDA



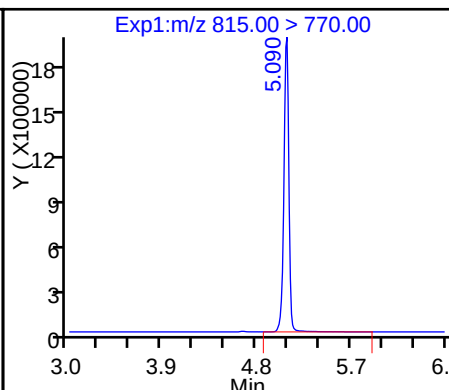
42 Perfluorotetradecanoic acid (M)



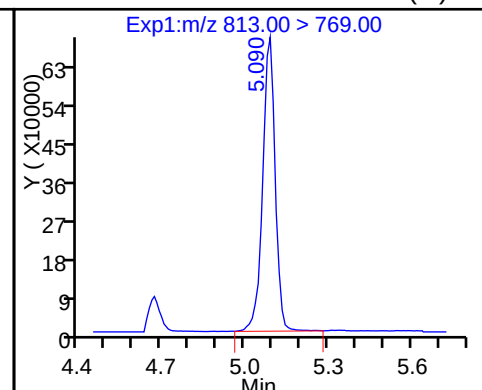
42 Perfluorotetradecanoic acid



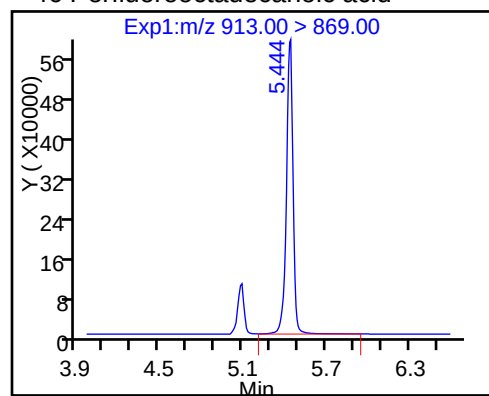
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-152953/2-A
 Matrix: Solid Lab File ID: 2017.03.11D_039.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5(g) Date Analyzed: 03/11/2017 23:20
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.09		0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.78	M	0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.00		0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	109		25-150
STL00991	13C4 PFOS	95		25-150
STL00994	18O2 PFHxS	101		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_039.d
 Lims ID: LCS 320-152953/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 11-Mar-2017 23:20:28 ALS Bottle#: 32 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-152953/2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 10:28:55 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK002

First Level Reviewer: changnoit

Date: 14-Mar-2017 10:28:55

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 1.539 1.539 0.0 15173826 51.9 104 818841

2 Perfluorobutyric acid

212.90 > 169.00 1.539 1.547 -0.008 1.000 5683379 22.1 111 40074

D 3 13C5-PFPeA

267.90 > 223.00 1.812 1.821 -0.009 11904171 51.3 103 667287

4 Perfluoropentanoic acid

262.90 > 219.00 1.812 1.821 -0.009 1.000 4767365 20.5 102 50075

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.852 1.861 -0.009 1.000 8394142 20.0 113

298.90 > 99.00 1.852 1.861 -0.009 1.000 3348148 2.51(0.00-0.00)

D 7 13C2 PFHxA

315.00 > 270.00 2.105 2.113 -0.008 10371106 49.2 98.4 345654

6 Perfluorohexanoic acid

313.00 > 269.00 2.105 2.113 -0.008 1.000 3846912 20.9 104 74185

D 9 13C4-PFHpA

367.00 > 322.00 2.434 2.452 -0.018 11347842 58.8 118 288806 M

10 Perfluoroheptanoic acid

363.00 > 319.00 2.441 2.460 -0.019 1.000 4453321 20.3 101 47780

D 11 18O2 PFHxS

403.00 > 84.00 2.457 2.468 -0.011 13848971 47.6 101 444240

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.457 2.476 -0.019 1.000 5577025 18.5 102 M

15 Perfluorooctanoic acid

413.00 > 369.00 2.799 2.818 -0.019 1.000 4666667 20.4 102 45225

413.00 > 169.00 2.799 2.818 -0.019 1.000 2756191 1.69(0.90-1.10) 96154

D 14 13C4 PFOA

417.00 > 372.00 2.799 2.826 -0.027 11176220 54.5 109 353807

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	2.807	2.826	-0.019	1.000	5172385	21.8		115		
D 18 13C4 PFOS										
503.00 > 80.00	3.173	3.183	-0.010		10988052	45.5		95.1	313226	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.173	3.192	-0.019	1.000	4276965	18.9		102	219058	M
499.00 > 99.00	3.173	3.192	-0.019	1.000	967354		4.42(0.90-1.10)		58941	M
D 19 13C5 PFNA										
468.00 > 423.00	3.173	3.192	-0.019		8672805	48.8		97.5	312571	
20 Perfluorononanoic acid										
463.00 > 419.00	3.182	3.201	-0.019	1.000	3407015	21.7		109	63435	
D 21 13C8 FOSA										
506.00 > 78.00	3.512	3.534	-0.022		9087282	24.8		49.5	218249	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.520	3.534	-0.014	1.000	3344168	20.5		102	161294	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.537	3.551	-0.014	1.000	3176833	21.7		108	112914	
D 23 13C2 PFDA										
515.00 > 470.00	3.537	3.559	-0.022		8086400	48.5		97.0	211035	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.839	3.854	-0.015	1.000	2202163	16.1		83.4		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.865	3.871	-0.006	1.000	2171527	19.4		97.0	59044	
D 30 13C2 PFUnA										
565.00 > 520.00	3.865	3.880	-0.015		5521799	42.2		84.4	180637	
D 36 13C2 PFDoA										
615.00 > 570.00	4.148	4.162	-0.014		4244215	34.2		68.5	108636	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.148	4.162	-0.014	1.000	1608655	20.7		104	51905	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.411	4.429	-0.018	1.000	925688	12.5		62.4	17382	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.653	4.663	-0.010		3205429	12.4		24.7	224078	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.653	4.672	-0.019	1.000	1142653	6.85		34.2	14101	
713.00 > 169.00	4.653	4.672	-0.019	1.000	162143		7.05(0.00-0.00)		60077	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.069	5.072	-0.003		627523	5.02		10.0	37728	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.069	5.082	-0.013	1.000	220768	2.43		12.1	1030	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.810	5.431	0.379	1.000	467	0.007667		0.0	5.3	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_039.d

Injection Date: 11-Mar-2017 23:20:28

Instrument ID: A8_N

Lims ID: LCS 320-152953/2-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

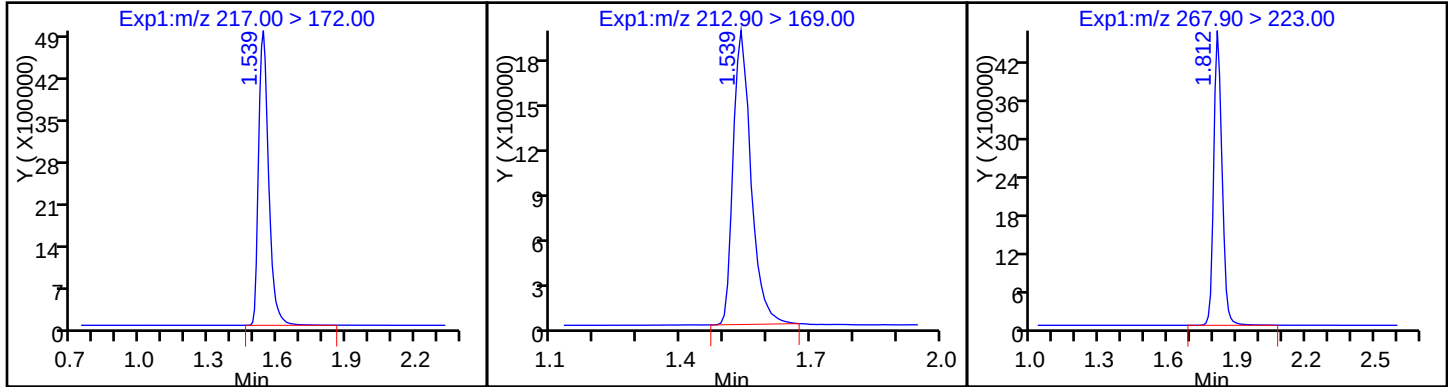
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

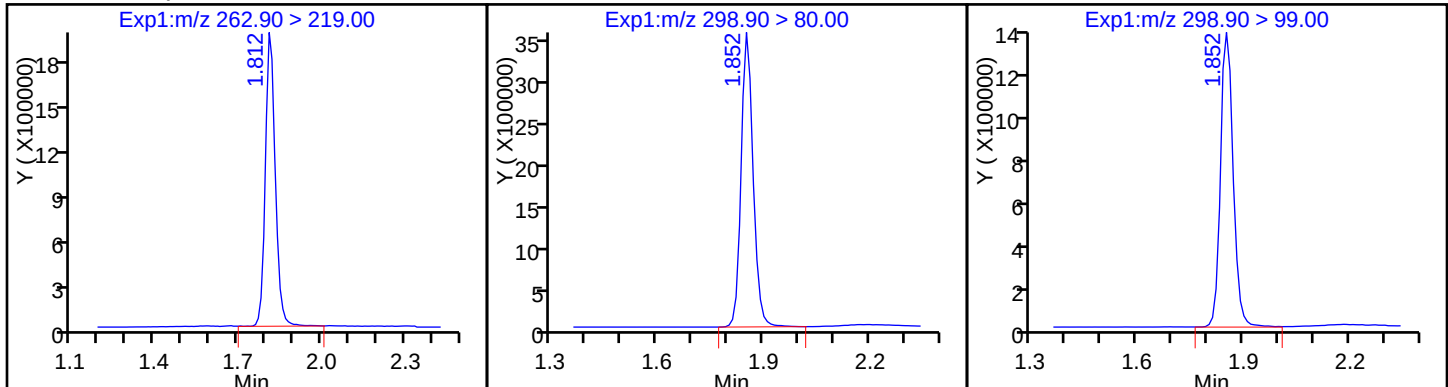
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

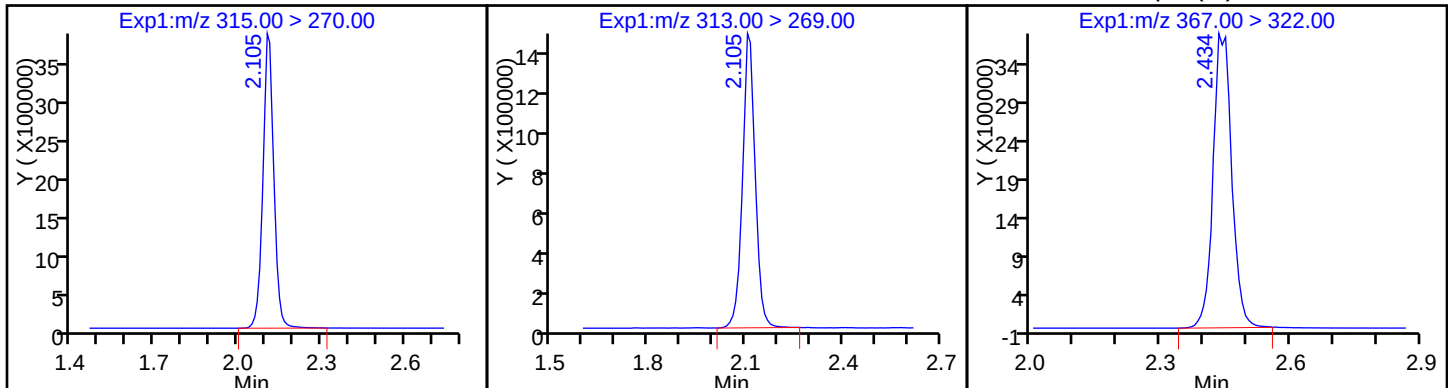
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

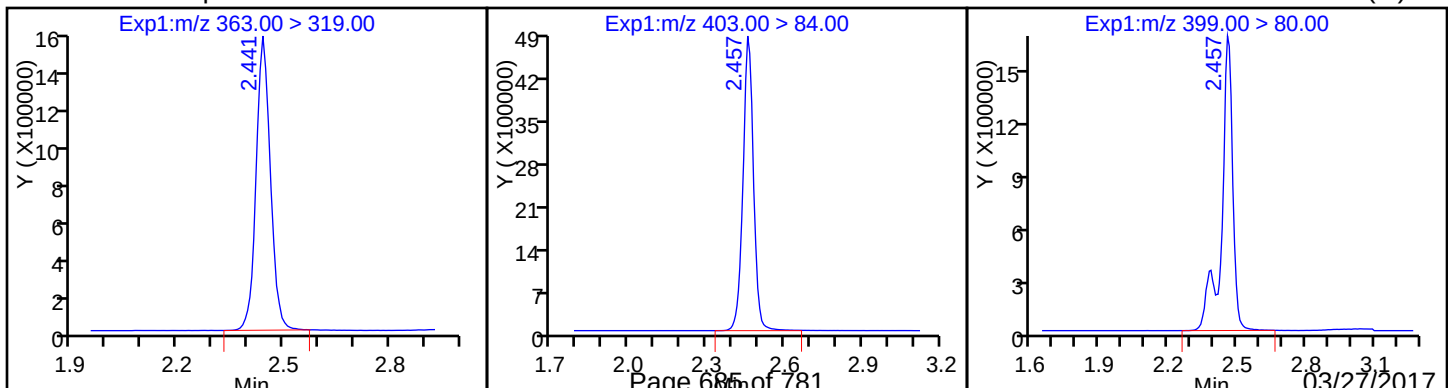
D 9 13C4-PFHpA (M)

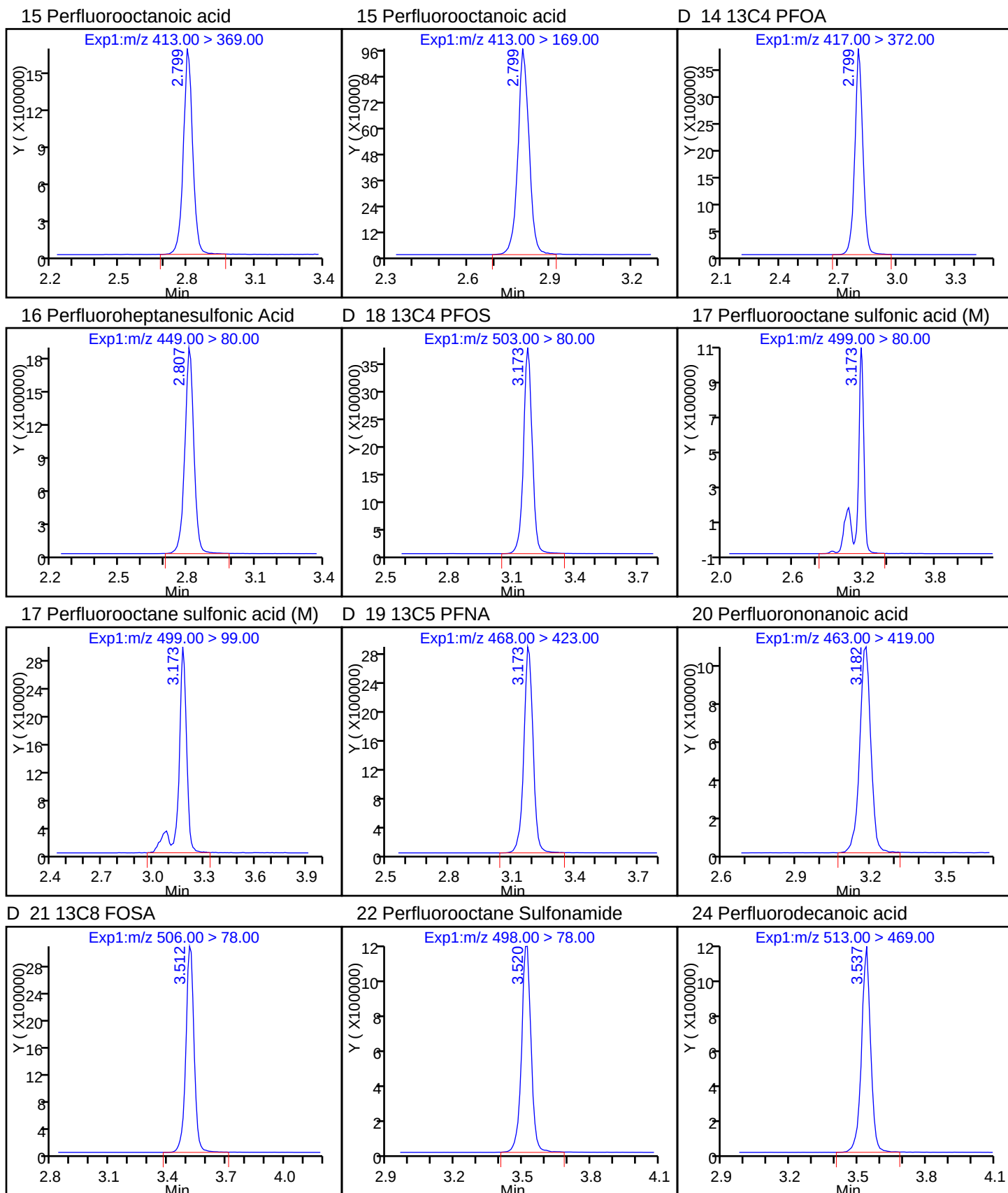


10 Perfluoroheptanoic acid

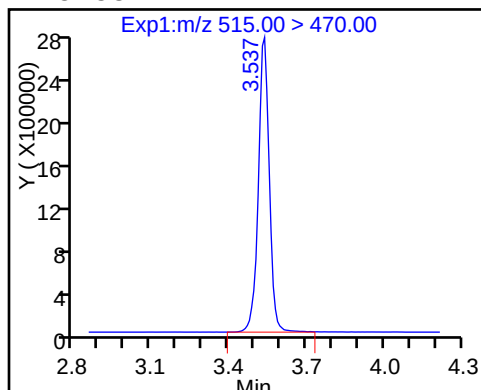
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)

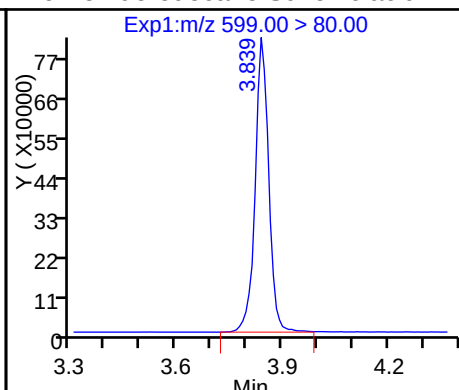




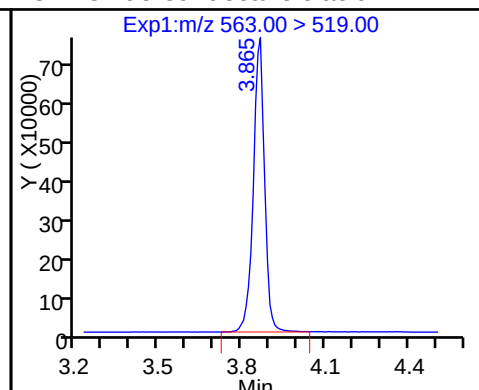
D 23 13C2 PFDA



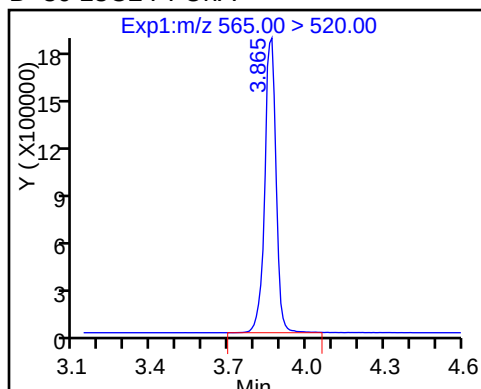
29 Perfluorodecane Sulfonic acid



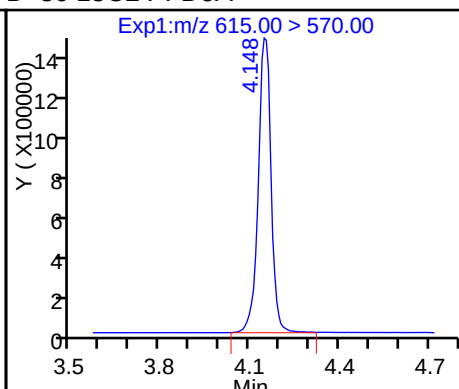
31 Perfluoroundecanoic acid



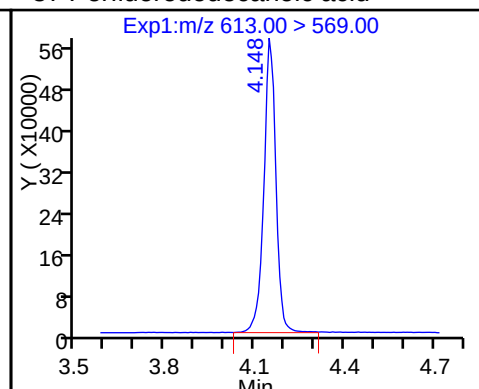
D 30 13C2 PFUnA



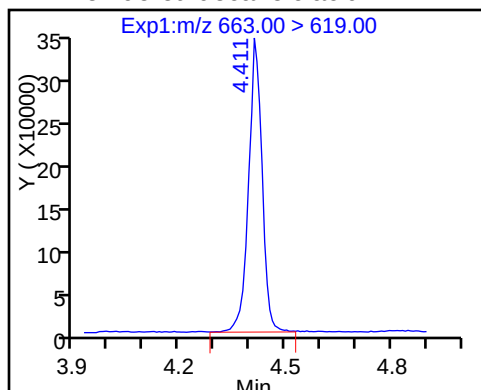
D 36 13C2 PFDaA



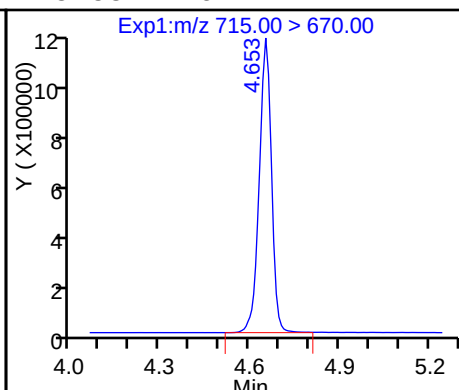
37 Perfluorododecanoic acid



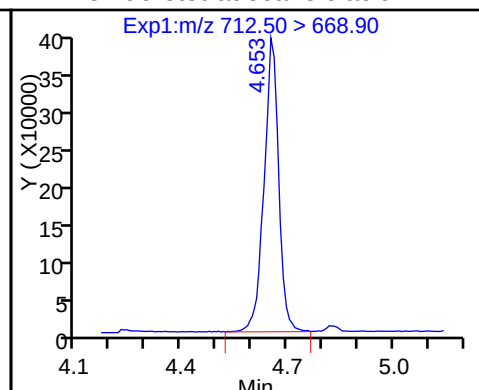
41 Perfluorotridecanoic acid



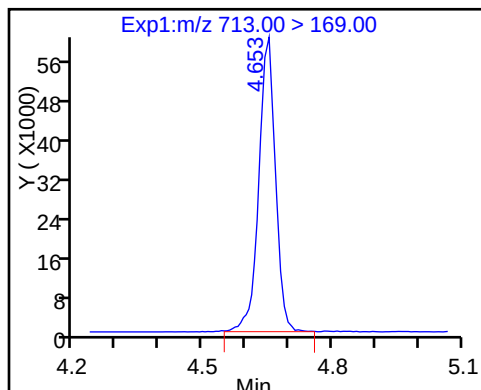
D 43 13C2-PFTeDA



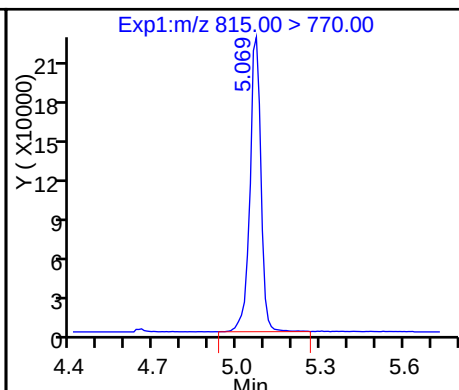
42 Perfluorotetradecanoic acid



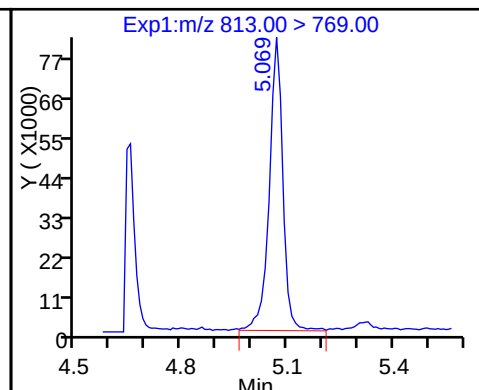
42 Perfluorotetradecanoic acid



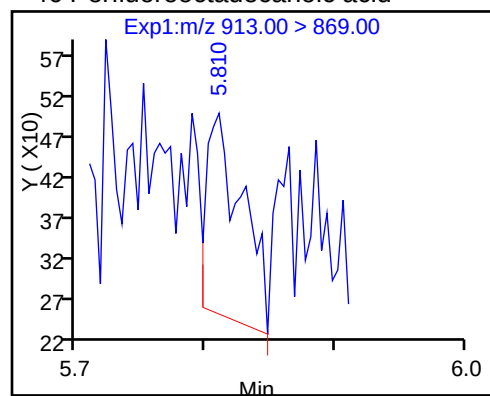
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

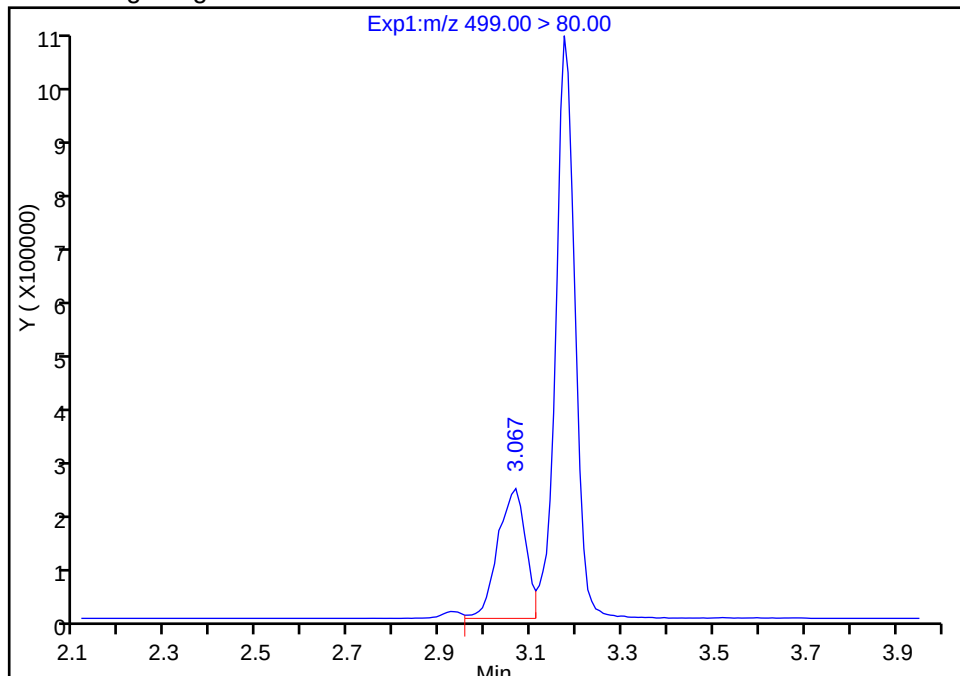
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Injection Date: 11-Mar-2017 23:20:28 Instrument ID: A8_N
Lims ID: LCS 320-152953/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

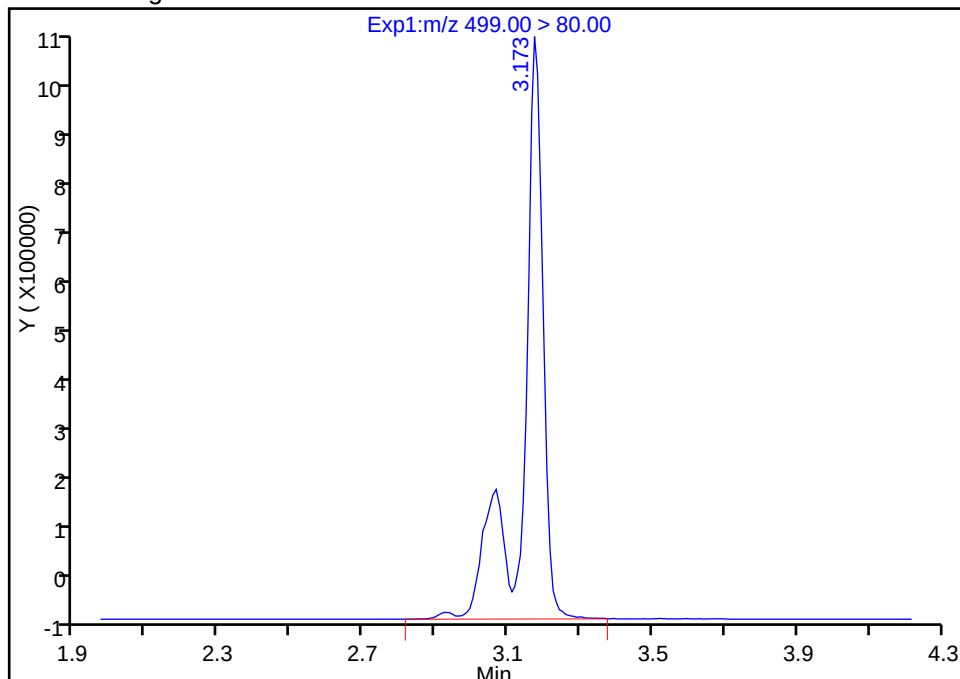
RT: 3.07
Area: 1031512
Amount: 4.562627
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 4276965
Amount: 18.918049
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 10:28:21

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

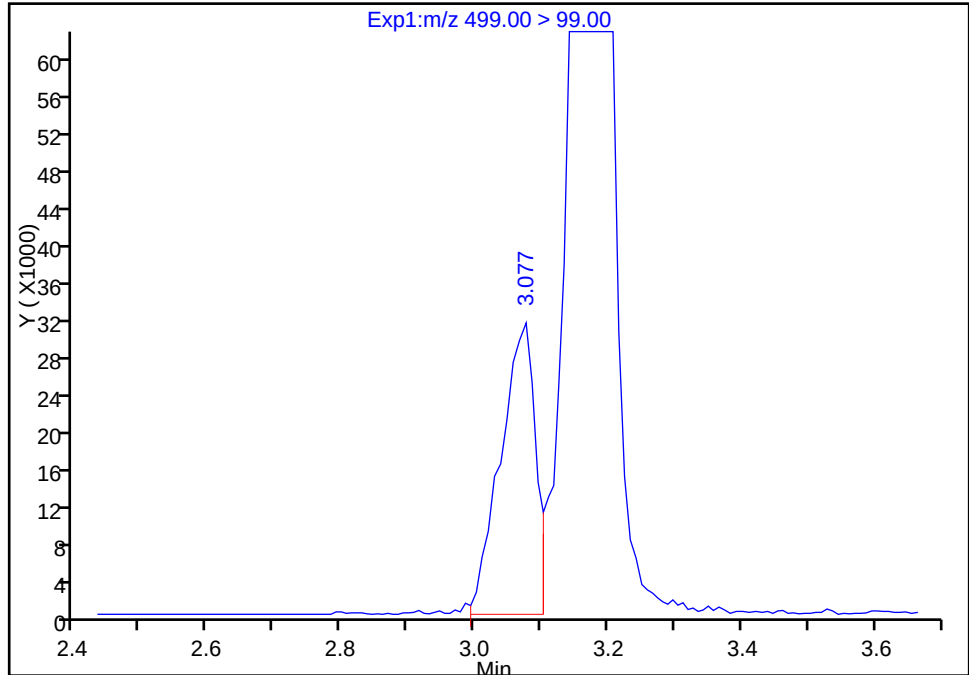
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_039.d
Injection Date: 11-Mar-2017 23:20:28 Instrument ID: A8_N
Lims ID: LCS 320-152953/2-A
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 32 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

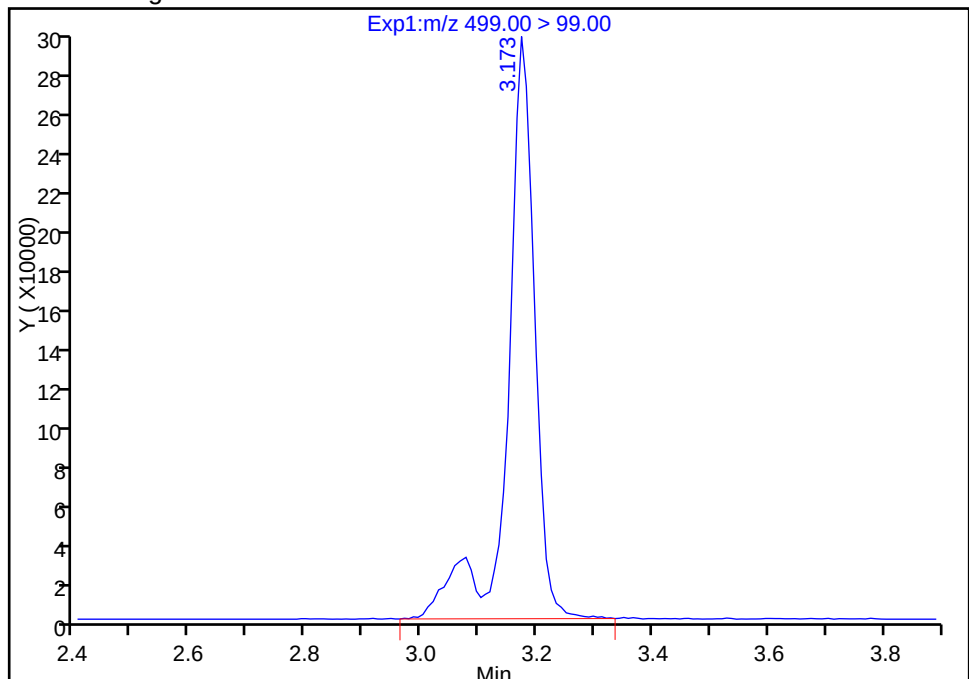
RT: 3.08
Area: 112276
Amount: 4.562627
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 967354
Amount: 18.918049
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 10:28:21

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-152587/3-A
 Matrix: Water Lab File ID: 2017.03.02A_006.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 250.00 (mL) Date Analyzed: 03/02/2017 10:50
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	38.5		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.6	M	4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	40.3	M	2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	142		25-150
STL00991	13C4 PFOS	135		25-150
STL00994	18O2 PFHxS	140		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d
 Lims ID: LCSD 320-152587/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 02-Mar-2017 10:50:15 ALS Bottle#: 3 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-152587/3-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 02-Mar-2017 12:33:56 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK026

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:25:50

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	1.545	1.538	0.007	1.000	7482816	21.3		106	77287	
D 1 13C4 PFBA										
217.00 > 172.00	1.537	1.538	-0.001		20752007	71.0		142	2167597	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		17664261	76.1		152	2872032	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	6999956	20.2		101	89737	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.860	1.861	-0.001	1.000	11762366	20.2		114		
298.90 > 99.00	1.860	1.861	-0.001	1.000	4842032		2.43(0.00-0.00)			M
D 7 13C2 PFHxA										
315.00 > 270.00	2.125	2.122	0.003		15474823	73.4		147	5173200	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.125	2.122	0.003	1.000	5494585	20.0		99.8	294520	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.467	2.460	0.007	1.000	5376080	18.9		94.4	72086	M
D 9 13C4-PFHpA										
367.00 > 322.00	2.467	2.468	-0.001		14724421	76.3		153	4754593	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.482	2.483	-0.001	1.000	7275075	17.4		95.5		
D 11 18O2 PFHxS										
403.00 > 84.00	2.482	2.483	-0.001		19260630	66.2		140	100161	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.809	2.803	0.007	1.000	2766592	20.1		106		
D 12 M2-6:2FTS										
429.00 > 409.00	2.809	2.803	0.007		7345938	95.2		200		
D 14 13C4 PFOA										
417.00 > 372.00	2.832	2.834	-0.002		14568054	71.1		142	74835	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.848	2.834	0.014	1.000	5734446	19.3		96.3	266049	
413.00 > 169.00	2.832	2.834	-0.002	0.995	3315175		1.73(0.90-1.10)		1051217	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.848	2.834	0.014	1.000	6684766	19.9		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.218	3.089	0.129	1.000	5699041	17.8		95.9	217329	M
499.00 > 99.00	3.218	3.089	0.129	1.000	1292504		4.41(0.90-1.10)		344960	M
D 18 13C4 PFOS										
503.00 > 80.00	3.209	3.202	0.007		15561883	64.4		135	1143535	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.202	0.016		10943767	61.5		123	3079763	
20 Perfluorononanoic acid										
463.00 > 419.00	3.218	3.210	0.008	1.000	3870558	19.6		97.8	356383	
D 21 13C8 FOSA										
506.00 > 78.00	3.553	3.528	0.025		11756789	32.0		64.1	946803	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.553	3.536	0.017	1.000	3991951	18.9		94.5	615781	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.561	3.545	0.016	1.000	2294566	20.5		107		
D 26 M2-8:2FTS										
529.00 > 509.00	3.561	3.553	0.008		5789371	62.5		131		
D 23 13C2 PFDA										
515.00 > 470.00	3.570	3.561	0.009		10224483	61.3		123	785026	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.578	3.561	0.017	1.000	3697032	20.0		99.8	544597	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.725	3.714	0.011		3631549	42.6		85.3		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.735	3.714	0.021	1.003	1449910	20.6		103		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.877	3.867	0.010	1.000	3564363	18.4		95.3		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.894	3.875	0.019		3353783	41.2		82.4		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.894	3.875	0.019	1.000	1226023	20.1		100		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.894	3.884	0.010	1.000	2747762	17.0		84.8	142157	
D 30 13C2 PFUnA										
565.00 > 520.00	3.894	3.884	0.010		7994079	61.1		122	2345680	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.057	4.027	0.030		7857	0.0893		0.2		
D 36 13C2 PFDaA										
615.00 > 570.00	4.185	4.172	0.013		7639914	61.6		123	0.0	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.192	4.172	0.020	1.000	2583508	18.5		92.4	402040	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.439	4.205	0.234		4744	0.0556		0.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.454	4.436	0.018	1.000	2662270	19.9		99.7	165763	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.687	4.672	0.015		18132069	70.0		140	5353007	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.687	4.681	0.006	1.000	6352596	21.1		106	15810	
713.00 > 169.00	4.678	4.681	-0.003	0.998	919793		6.91(0.00-0.00)		7151	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.090	5.093	-0.003		7890344	63.1		126	353494	
45 Perfluorohexadecanoic acid										M
813.00 > 769.00	5.090	5.093	-0.003	1.000	2601555	18.0		90.0	5857	M
46 Perfluorooctadecanoic acid										M
913.00 > 869.00	5.436	5.446	-0.010	1.000	2648380	24.2		121	4575	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d

Injection Date: 02-Mar-2017 10:50:15

Instrument ID: A8_N

Lims ID: LCSD 320-152587/3-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

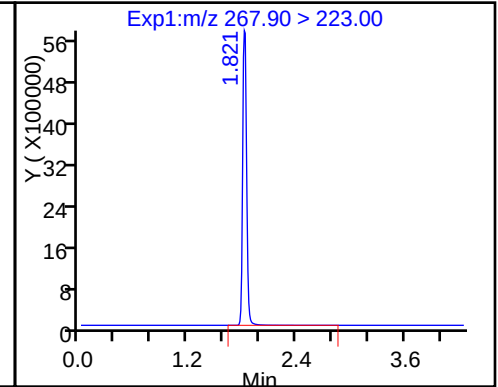
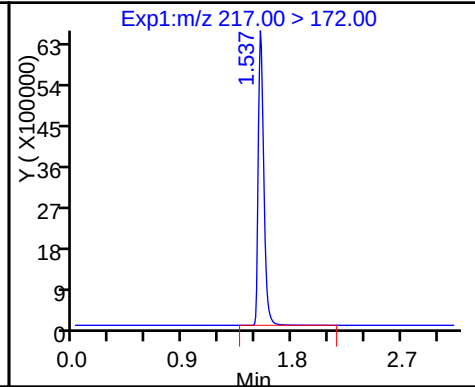
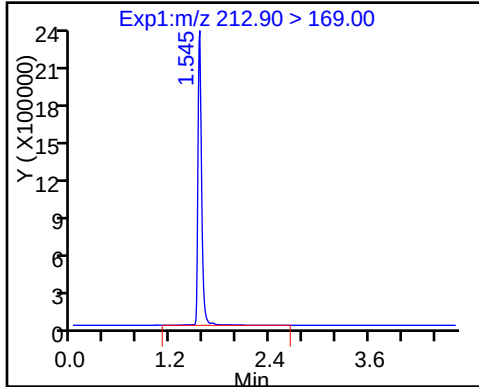
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

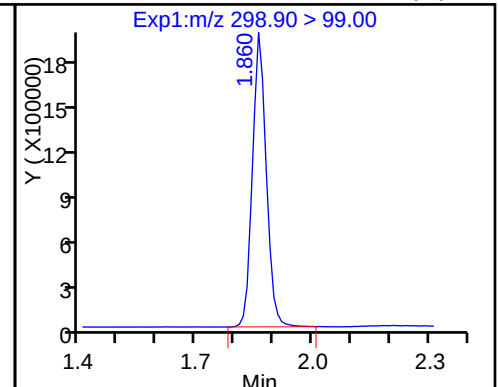
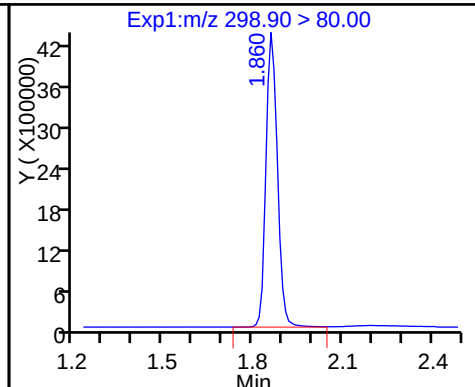
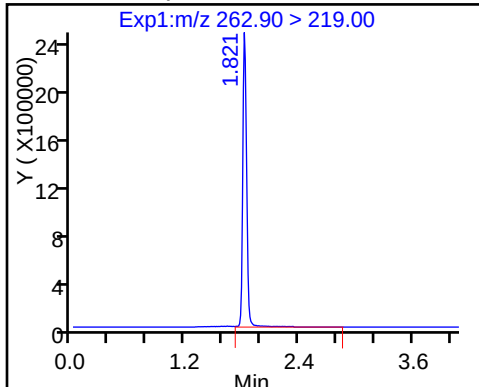
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

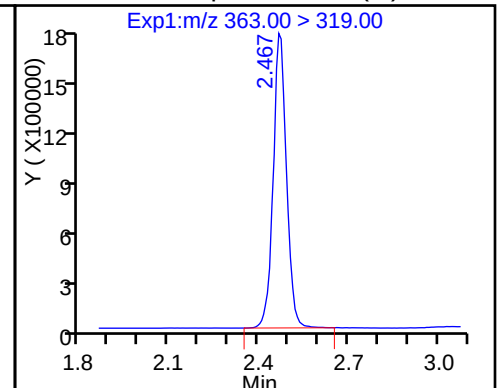
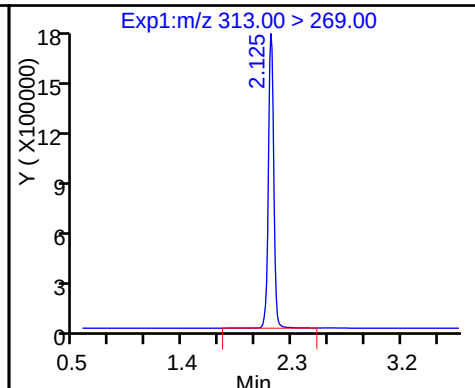
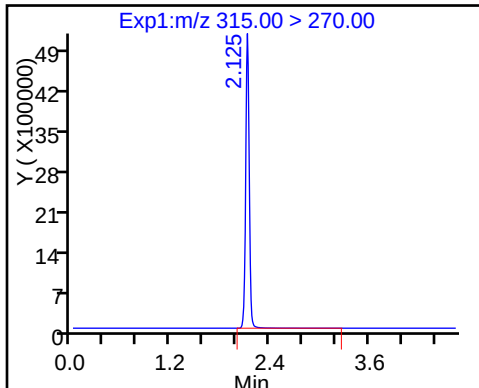
5 Perfluorobutanesulfonic acid (M)



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

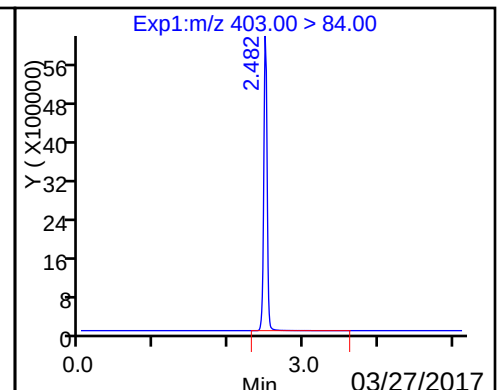
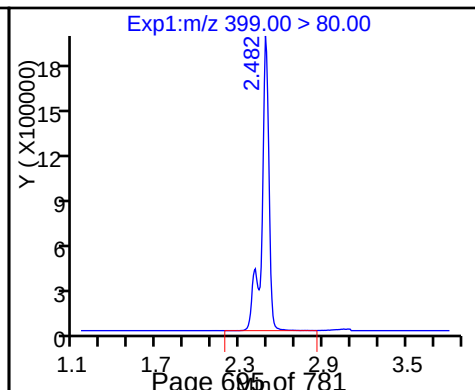
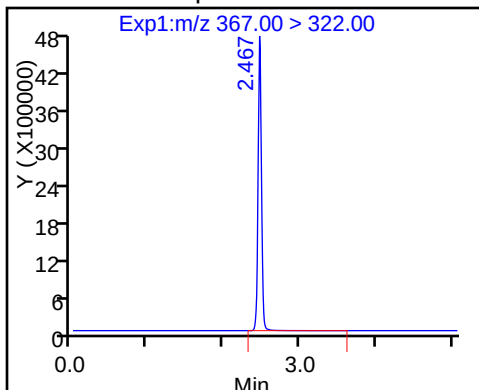
10 Perfluoroheptanoic acid (M)



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

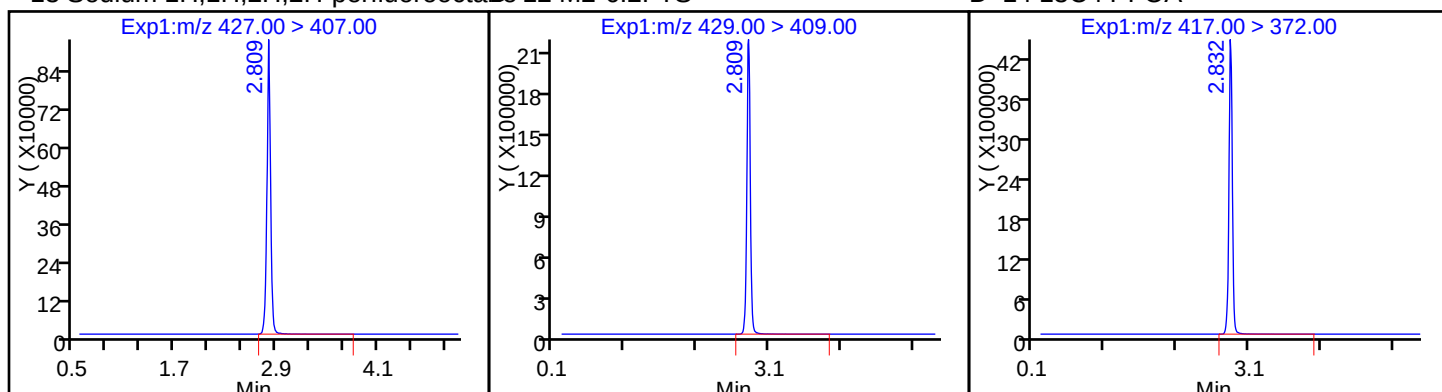
D 11 18O2 PFHxS



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

De 12 M2-6:2FTS

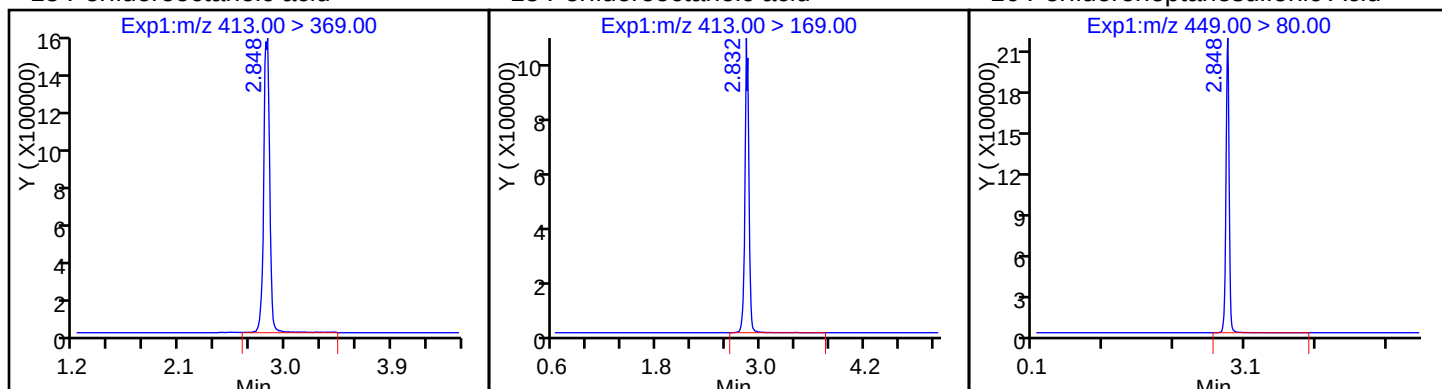
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

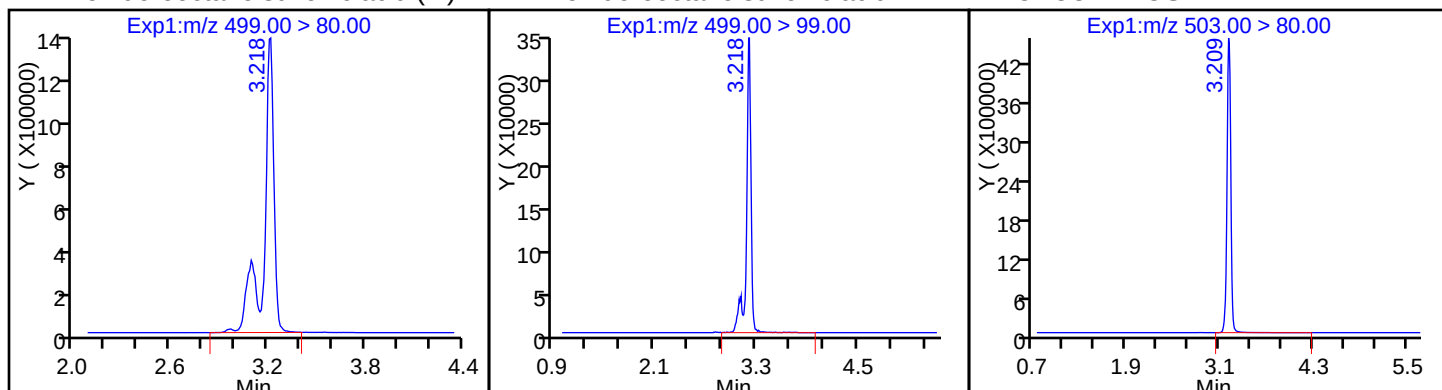
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

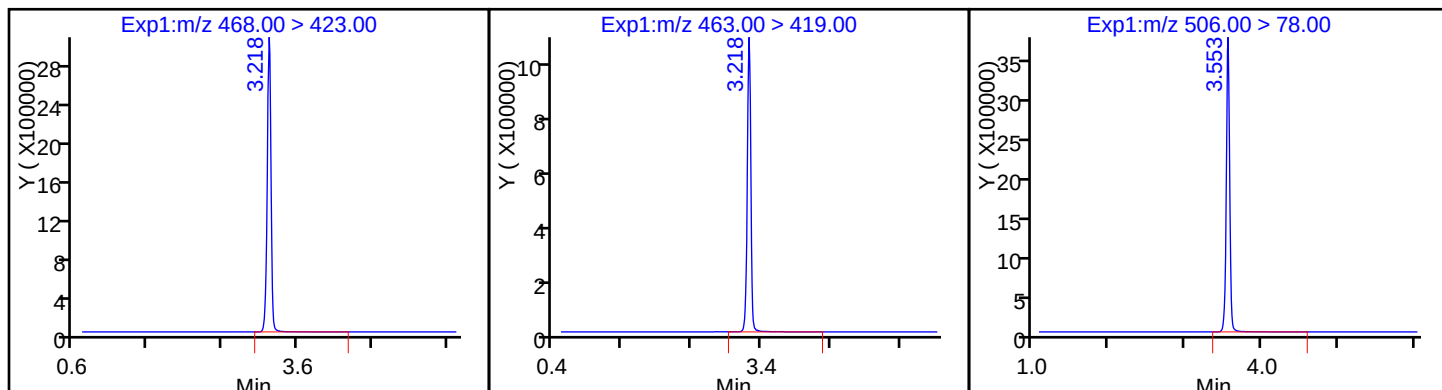
D 18 13C4 PFOS



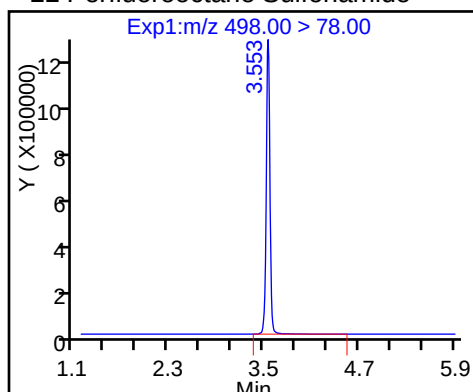
D 19 13C5 PFNA

20 Perfluorononanoic acid

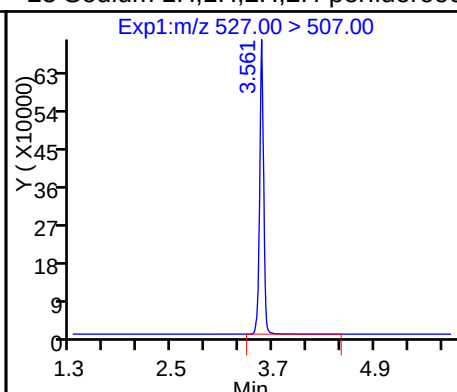
D 21 13C8 FOSA



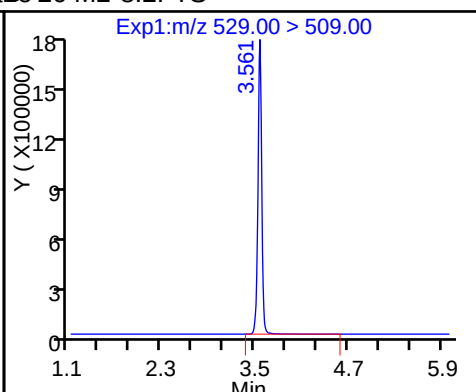
22 Perfluorooctane Sulfonamide



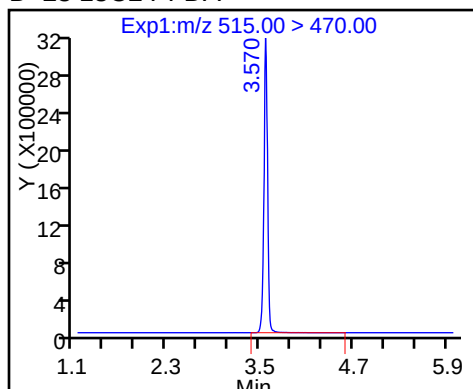
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



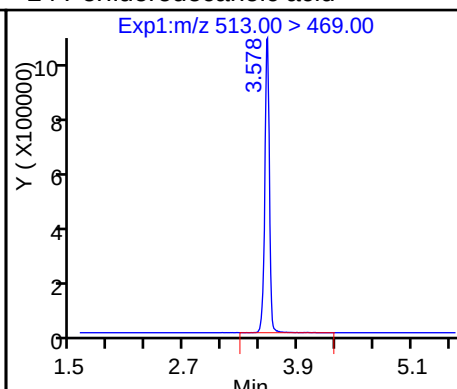
26 M2-8:2FTS



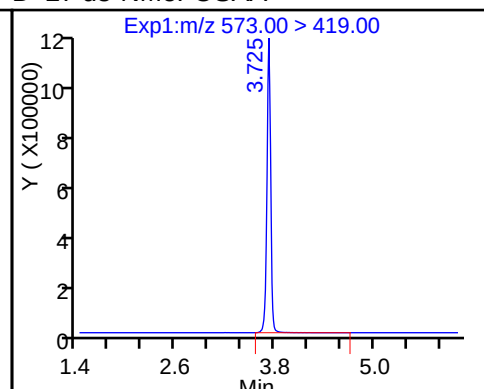
D 23 13C2 PFDA



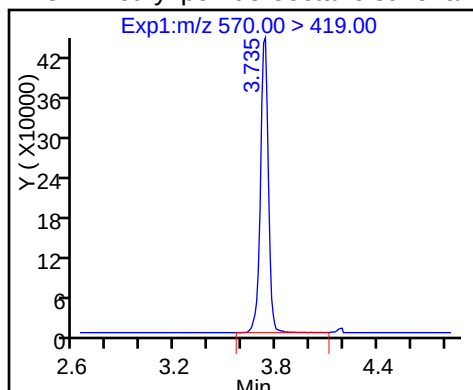
24 Perfluorodecanoic acid



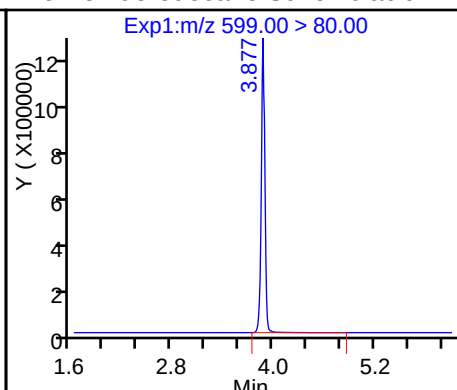
D 27 d3-NMeFOSAA



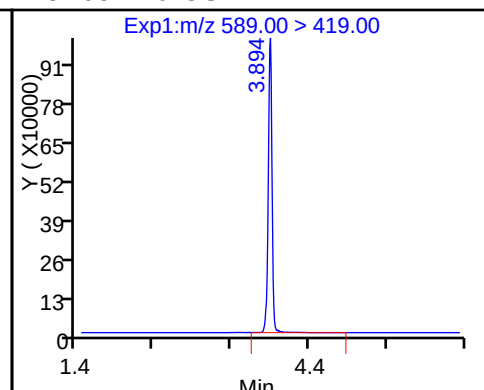
28 N-methyl perfluorooctane sulfonamide



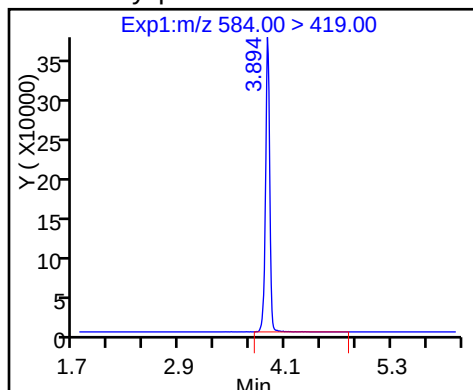
29 Perfluorodecane Sulfonic acid



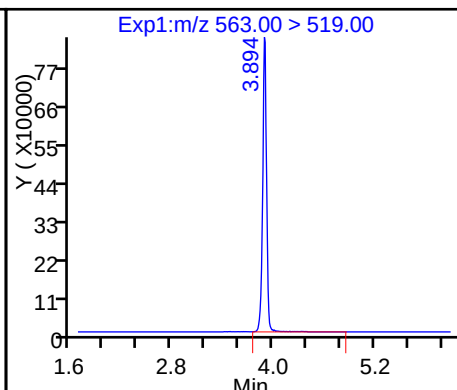
D 32 d5-NEtFOSAA



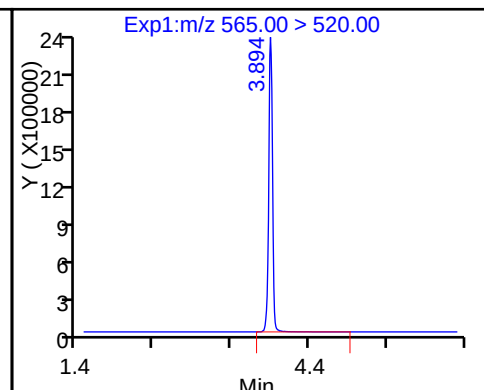
33 N-ethyl perfluorooctane sulfonamide



31 Perfluoroundecanoic acid



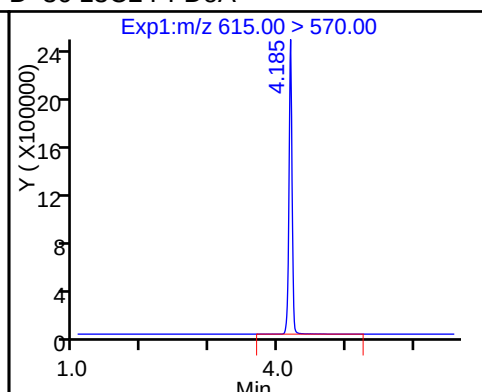
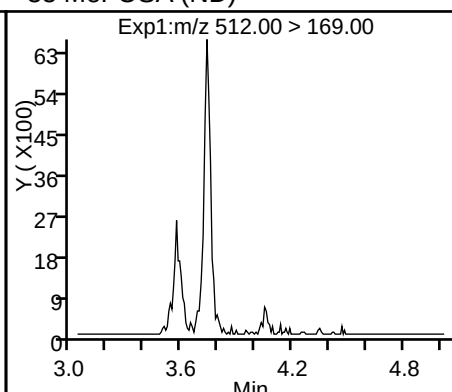
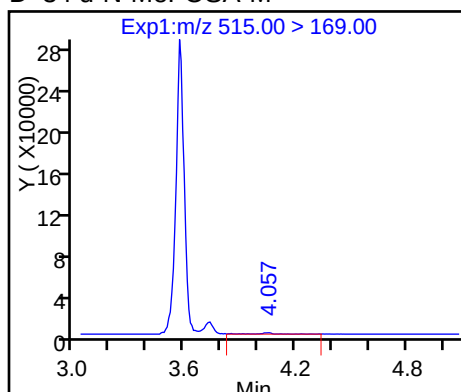
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

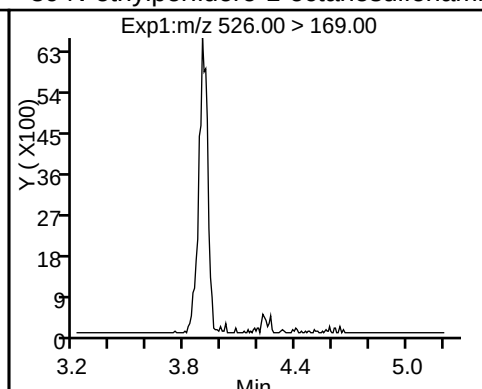
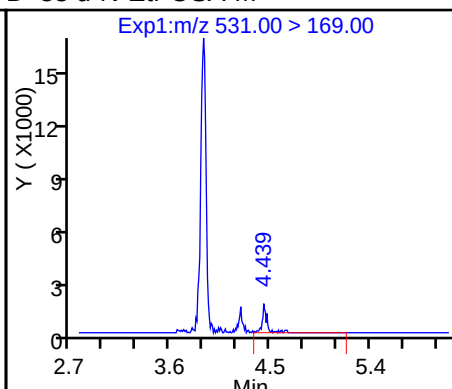
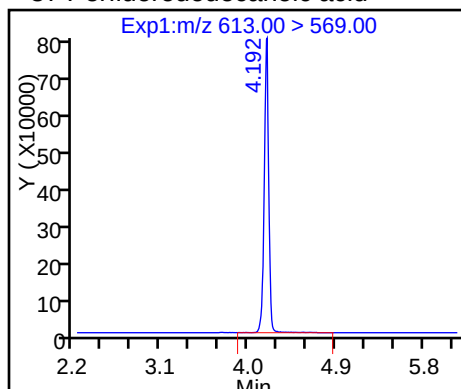
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

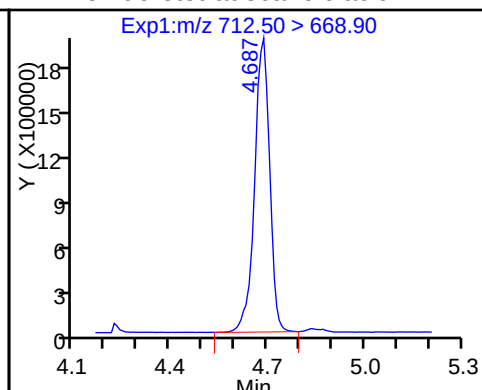
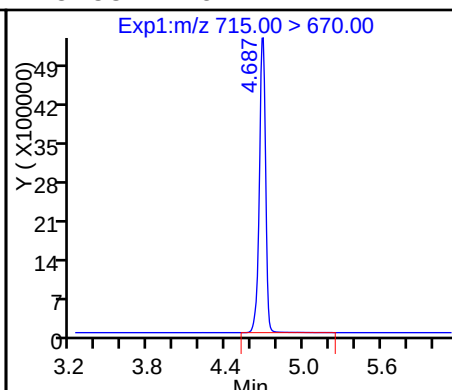
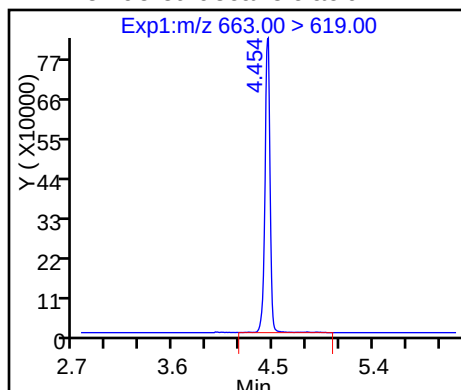
39 N-ethylperfluoro-1-octanesulfonami (ND)



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

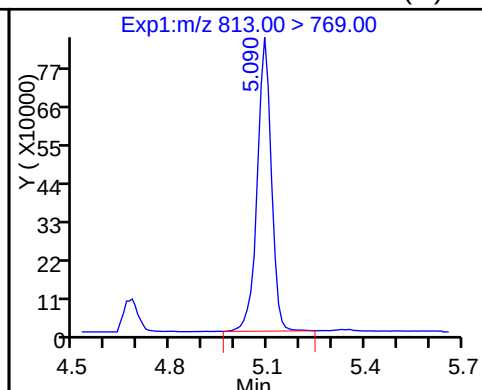
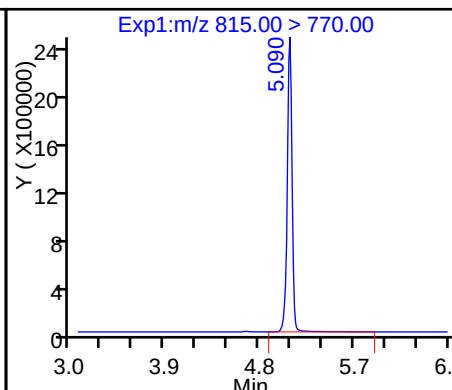
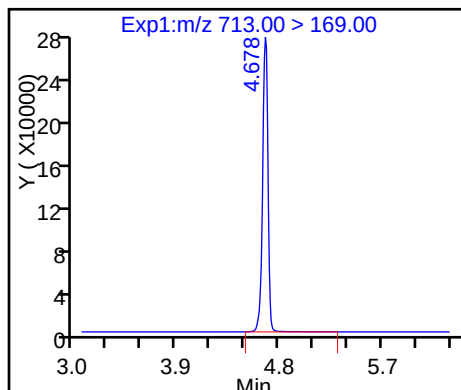
42 Perfluorotetradecanoic acid



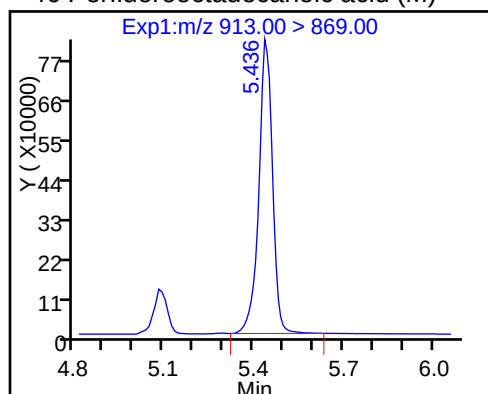
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid (M)



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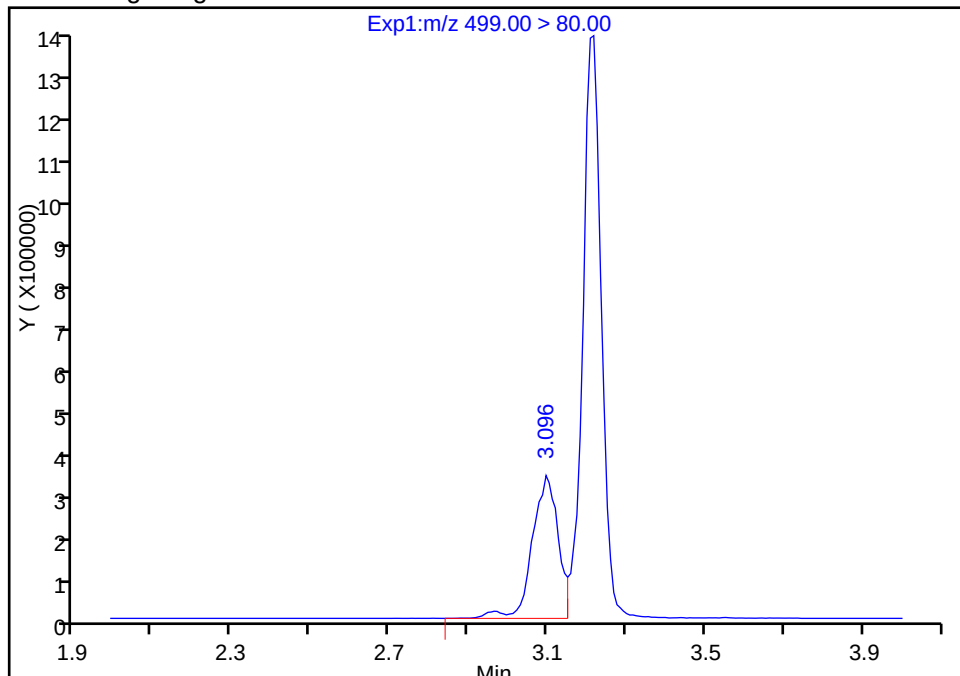
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d
Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

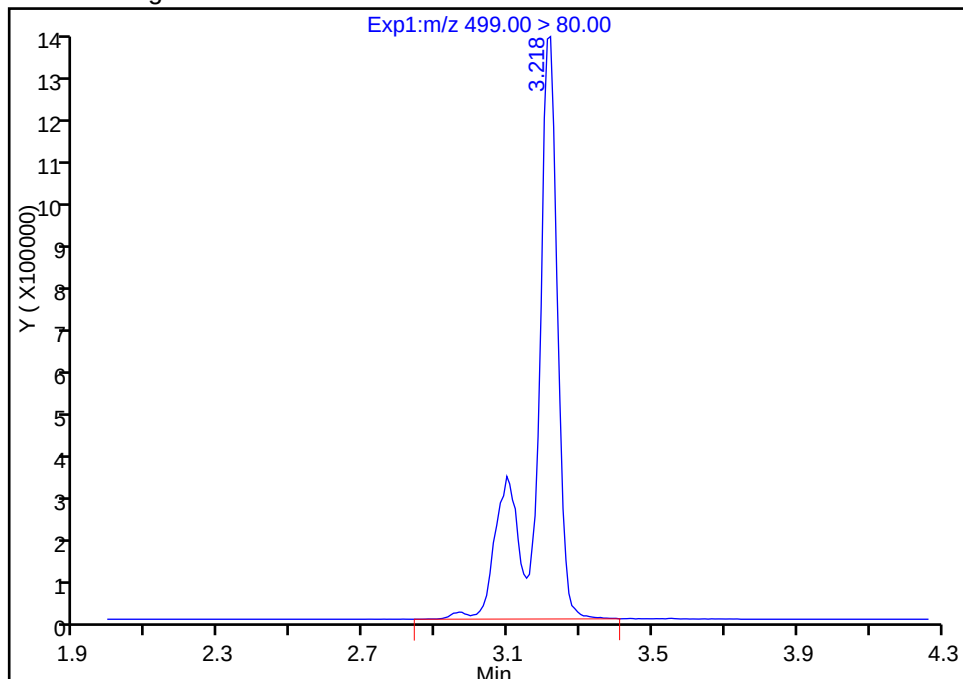
RT: 3.10
Area: 1451227
Amount: 4.532466
Amount Units: ng/ml

Processing Integration Results



RT: 3.22
Area: 5699041
Amount: 17.799221
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 02-Mar-2017 12:34:09

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

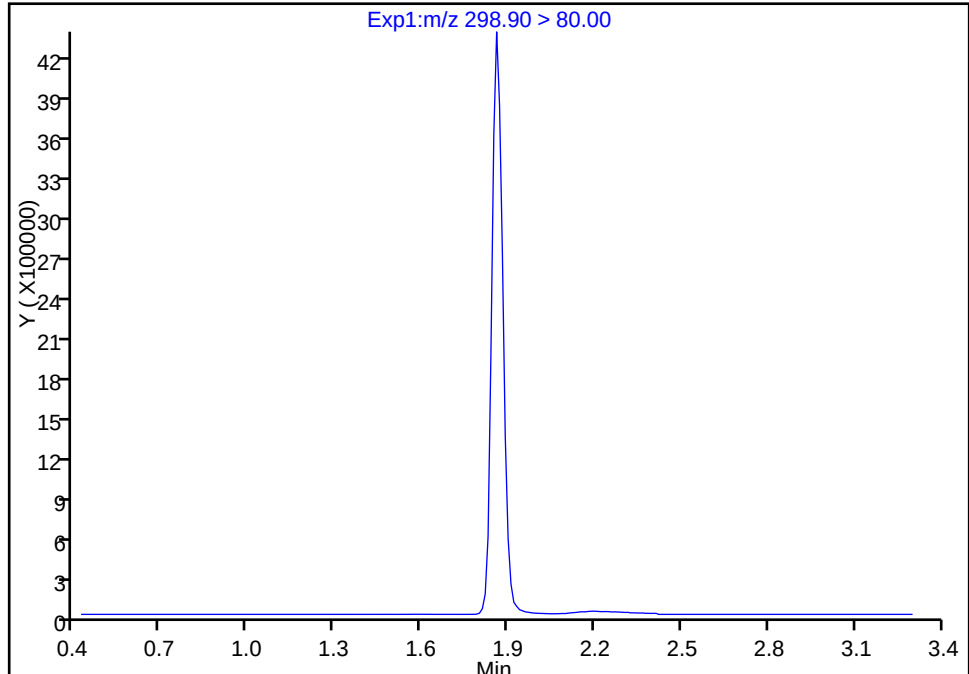
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Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

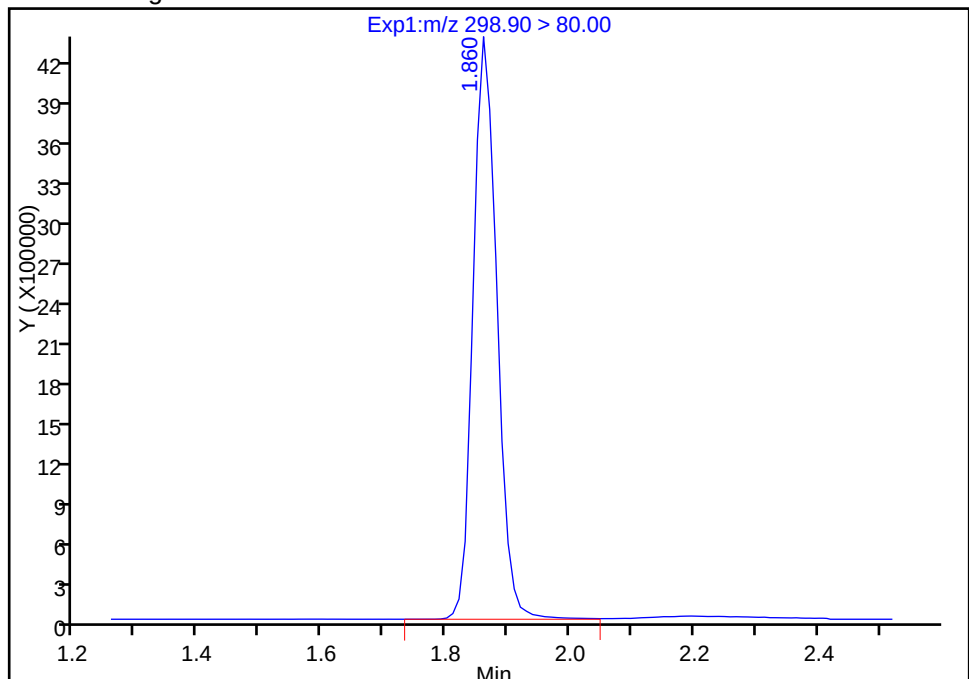
Signal: 1

Not Detected
Expected RT: 1.86

Processing Integration Results



Manual Integration Results



RT: 1.86
Area: 11762366
Amount: 20.164565
Amount Units: ng/ml

Reviewer: chandrasenas, 02-Mar-2017 12:34:09

Audit Action: Assigned Compound ID

Audit Reason: Baseline

TestAmerica Sacramento

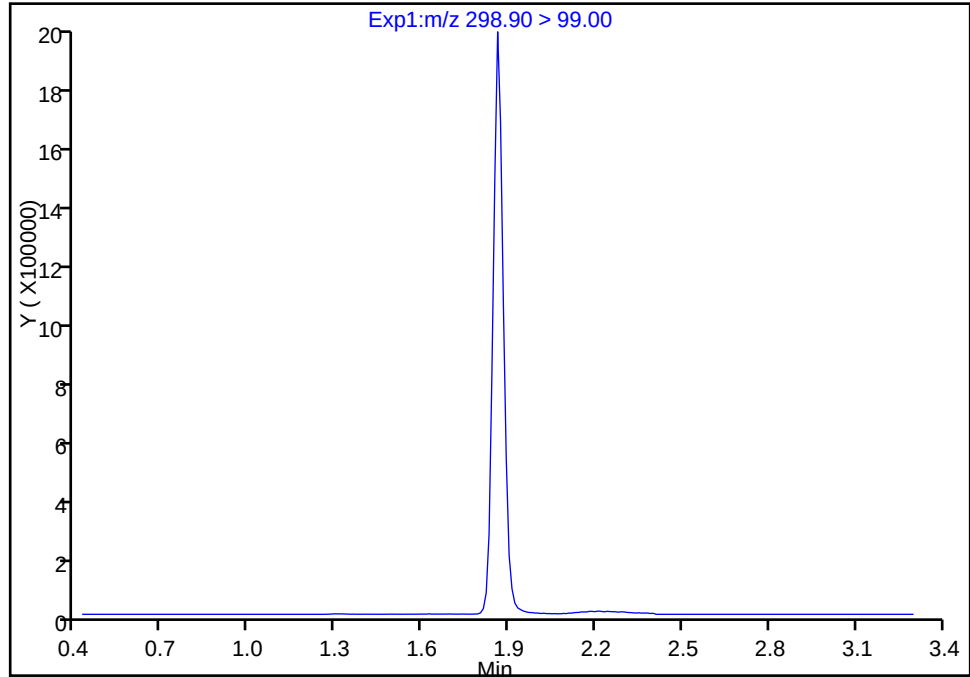
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Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PCVA8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

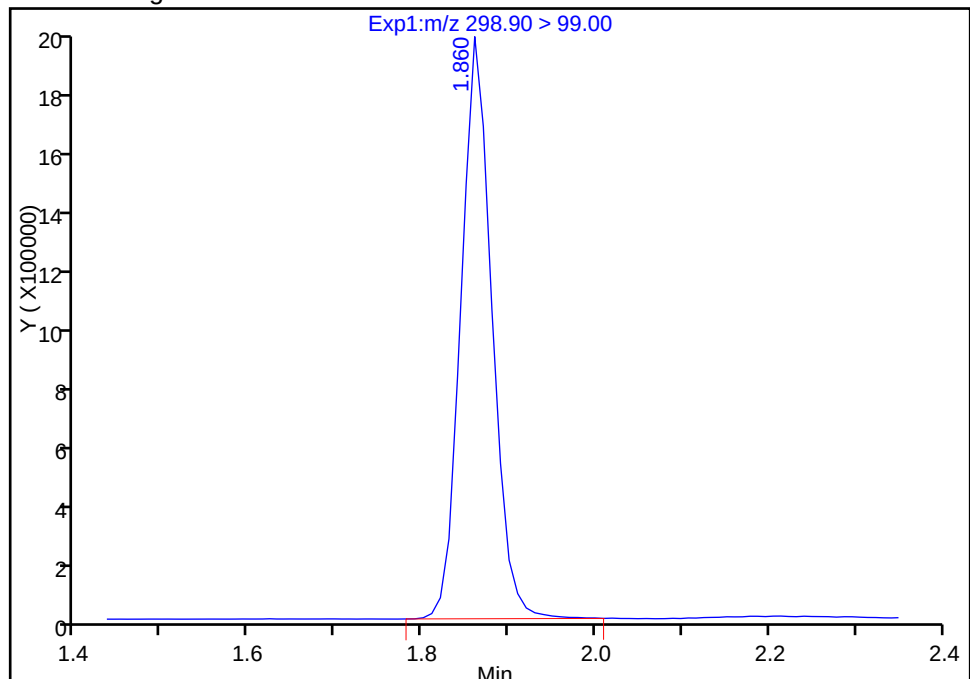
Not Detected
Expected RT: 1.86

Processing Integration Results



Manual Integration Results

RT: 1.86
Area: 4842032
Amount: 20.164565
Amount Units: ng/ml



Reviewer: chandrasenas, 02-Mar-2017 12:34:09

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-WWTP-SB02-1012-MS Lab Sample ID: 320-26011-17 MS
 Matrix: Solid Lab File ID: 2017.03.11D_058.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 14:30
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.00 (g) Date Analyzed: 03/12/2017 01:43
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 28.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	5.56		0.70	0.42	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.49	M	0.70	0.42	0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	6.26		0.56	0.42	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	59		25-150
STL00994	18O2 PFHxS	91		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_058.d
 Lims ID: 320-26011-A-17-B MS
 Client ID: MEAFF-WWTP-SB02-1012-MS
 Sample Type: MS
 Inject. Date: 12-Mar-2017 01:43:04 ALS Bottle#: 49 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-17-b ms
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 12:42:18 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:42:18

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	1.539	1.538	0.001		14694008	50.3		101	664239	
2 Perfluorobutyric acid										
212.90 > 169.00	1.546	1.538	0.008	1.000	5332234	21.4		107	21547	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.812	0.010		12424276	53.5		107	760054	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	4940213	20.3		102	37604	
D 47 13C3-PFBS										
301.90 > 83.00	1.852	1.851	0.001		1527	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.851	0.010	1.000	8552886	22.5		127		
298.90 > 99.00	1.861	1.851	0.010	1.000	3378240		2.53(0.00-0.00)			
D 60 M2-4:2FTS										
329.00 > 309.00	2.070	2.082	-0.012		1860	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.123	2.114	0.009		9889072	46.9		93.8	351337	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.123	2.114	0.009	1.000	3519568	20.0		100	34963	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.472	2.461	0.012	1.000	5027662	18.4		101		M
D 9 13C4-PFHpA										
367.00 > 322.00	2.456	2.453	0.003		10294764	53.4		107	414164	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.464	2.453	0.011	1.000	3933122	19.7		98.7	39652	
D 11 18O2 PFHxS										
403.00 > 84.00	2.479	2.468	0.011		12570981	43.2		91.4	472091	
D 12 M2-6:2FTS										
429.00 > 409.00	2.791	2.780	0.011		5466	0.0708		0.0		03/27/2017

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	2.798	2.787	0.011	1.000	96215	NR	0.0		
D 14 13C4 PFOA	417.00 > 372.00	2.814	2.811	0.003		10038505	49.0	98.0	264608	
15 Perfluorooctanoic acid	413.00 > 369.00	2.822	2.819	0.003	1.000	4087456	19.9	99.6	39495	
	413.00 > 169.00	2.822	2.819	0.003	1.000	2310883	1.77(0.90-1.10)		101265	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	2.830	2.819	0.011	1.000	4287097	28.9	152		
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.196	3.185	0.011	1.000	2782206	19.7	106	79087	M
	499.00 > 99.00	3.188	3.185	0.003	0.997	617255	4.51(0.90-1.10)		24867	M
D 18 13C4 PFOS	503.00 > 80.00	3.188	3.185	0.003		6867366	28.4	59.5	138308	
D 19 13C5 PFNA	468.00 > 423.00	3.188	3.185	0.003		7858697	44.2	88.4	166274	
20 Perfluorononanoic acid	463.00 > 419.00	3.196	3.193	0.003	1.000	2954700	20.8	104	38125	
D 21 13C8 FOSA	506.00 > 78.00	3.536	3.526	0.010		7666648	20.9	41.8	277062	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.536	3.526	0.010	1.000	2785596	20.2	101	92488	
D 26 M2-8:2FTS	529.00 > 509.00	3.536	3.535	0.001		3311	0.0358	0.0		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.536	3.543	-0.007	1.000	31315	NR	0.0		
24 Perfluorodecanoic acid	513.00 > 469.00	3.553	3.543	0.010	1.000	1946602	21.1	106	42609	
D 23 13C2 PFDA	515.00 > 470.00	3.544	3.543	0.001		5084386	30.5	61.0	120150	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.703	3.702	0.001		10847	0.1273	0.0		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.703	3.702	0.001	1.000	29432	NR	0.0		
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.857	3.847	0.010	1.000	767324	8.97	46.5		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.874	3.864	0.010		16756	0.2059	0.0		
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	4.162	3.873	0.289	1.074	329	NR	0.0		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.874	3.873	0.001	1.000	984937	18.0	89.9	31878	
D 30 13C2 PFUnA	565.00 > 520.00	3.874	3.873	0.001		2701811	20.7	41.3	228507	
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.027	4.026	0.001		2479	0.0282	0.0		
35 MeFOSA	512.00 > 169.00	4.018	4.026	-0.008	1.000	742	NR	0.0		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.162	4.156	0.006		1682145	13.6		27.1	60991	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.155	4.163	-0.008	1.000	613973	20.0		99.8	14400	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.210	4.205	0.005		2367	0.0278		0.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.203	4.205	-0.002	1.000	1240	NR		0.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.426	4.423	0.003	1.000	398537	13.6		67.8	10030	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.662	4.654	0.008		2100829	8.11		16.2	116418	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.662	4.664	-0.002	1.000	766739	11.6		57.9	10019	
713.00 > 169.00	4.662	4.664	-0.002	1.000	106040		7.23(0.00-0.00)		37500	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.069	5.072	-0.003	1.000	325790	10.1		50.4	2470	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.069	5.072	-0.003		905217	7.24		14.5	53672	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.421	5.423	-0.002	1.000	156083	6.47		32.3	891	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_058.d

Injection Date: 12-Mar-2017 01:43:04

Instrument ID: A8_N

Lims ID: 320-26011-A-17-B MS

Client ID: MEAFF-WWTP-SB02-1012-MS

Operator ID: A8-PC\A8

ALS Bottle#: 49

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

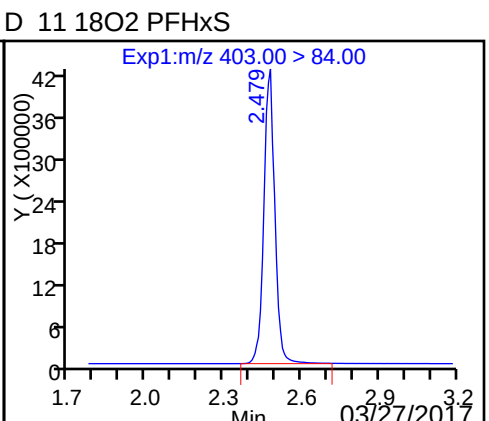
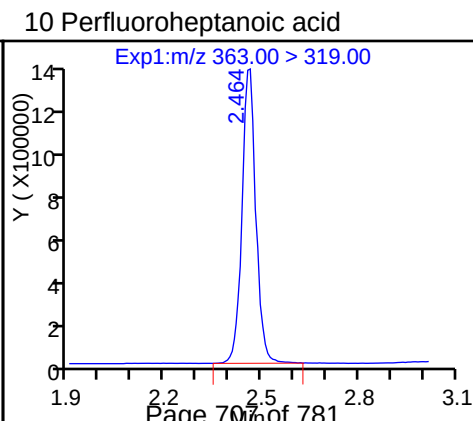
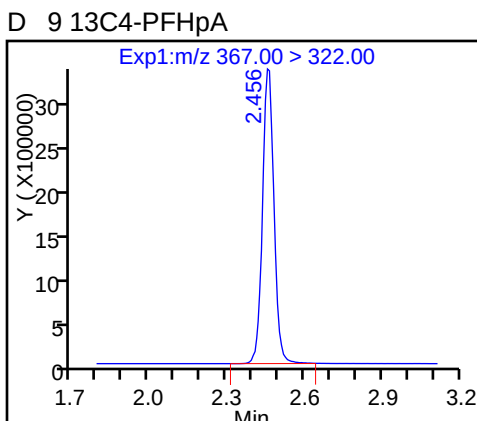
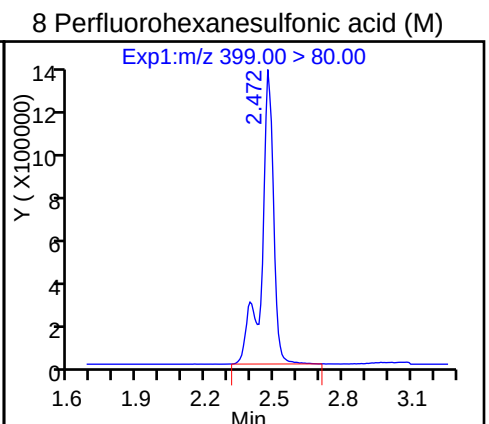
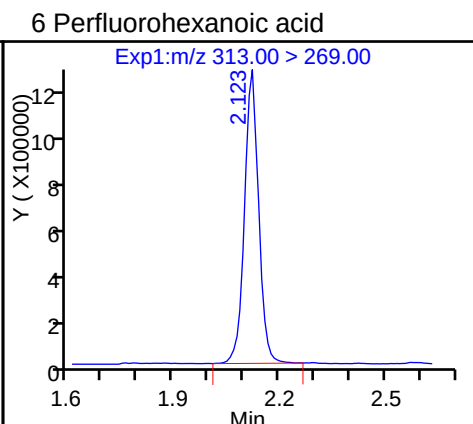
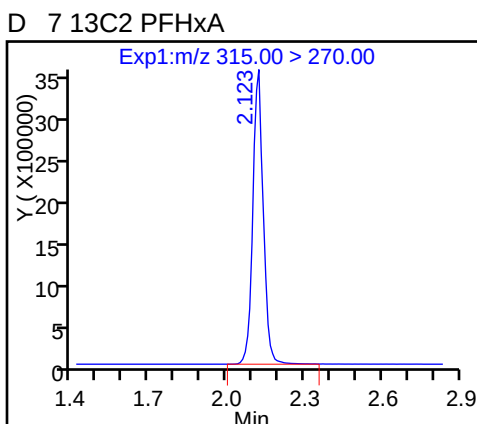
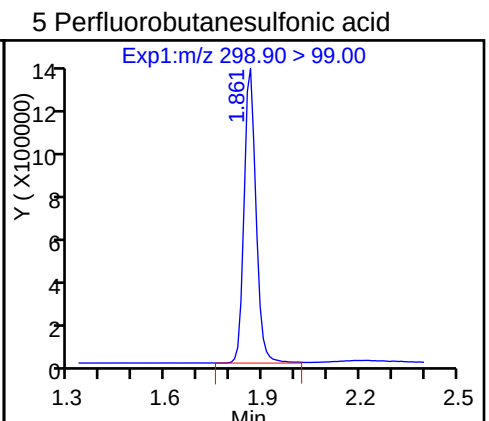
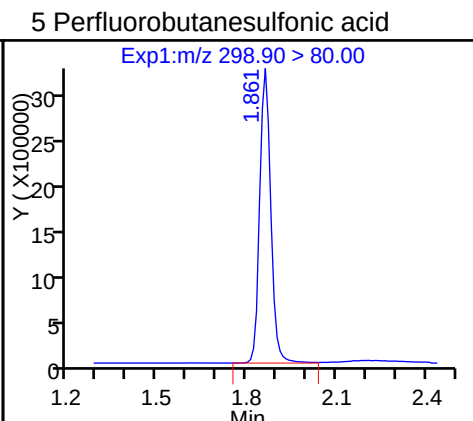
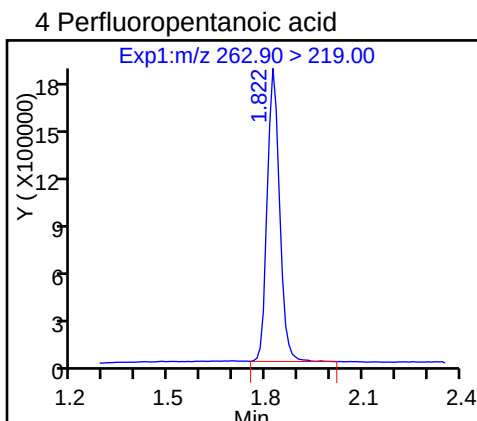
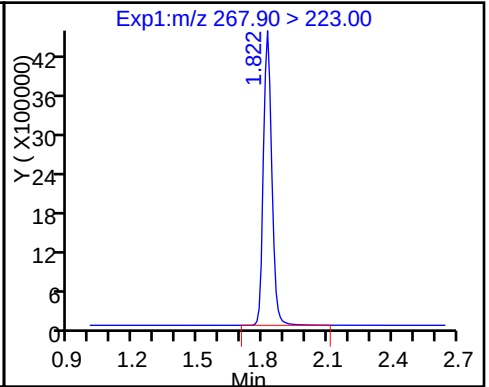
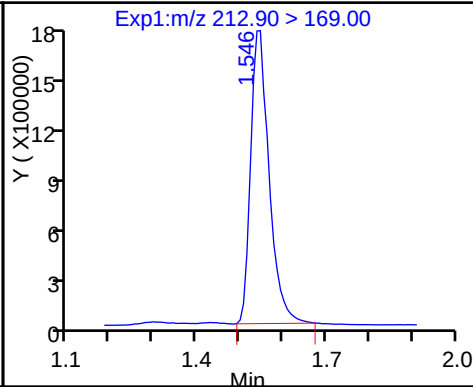
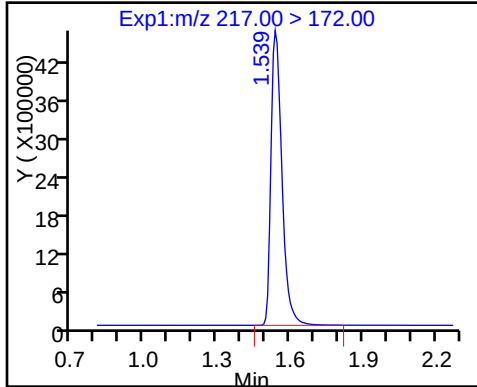
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

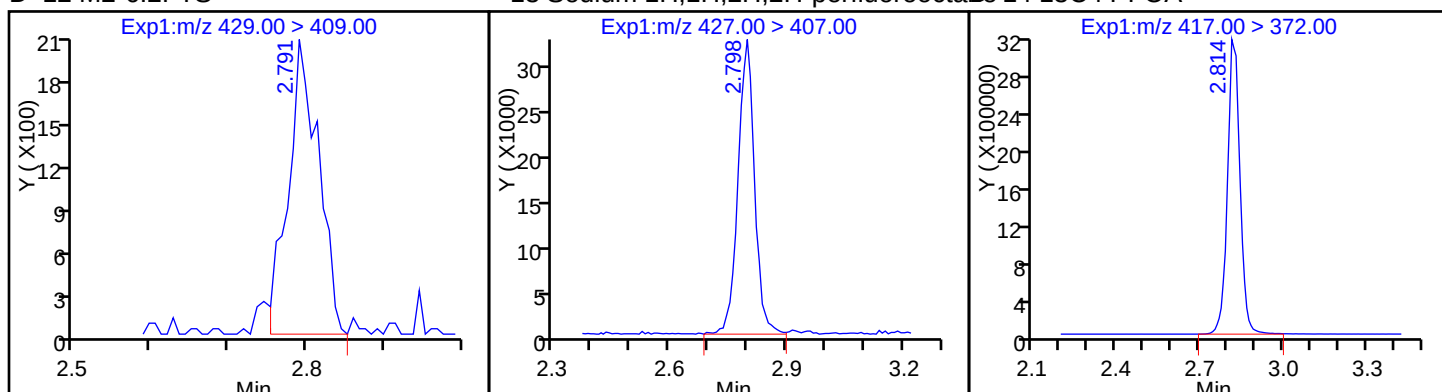
D 3 13C5-PFPeA



D 12 M2-6:2FTS

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

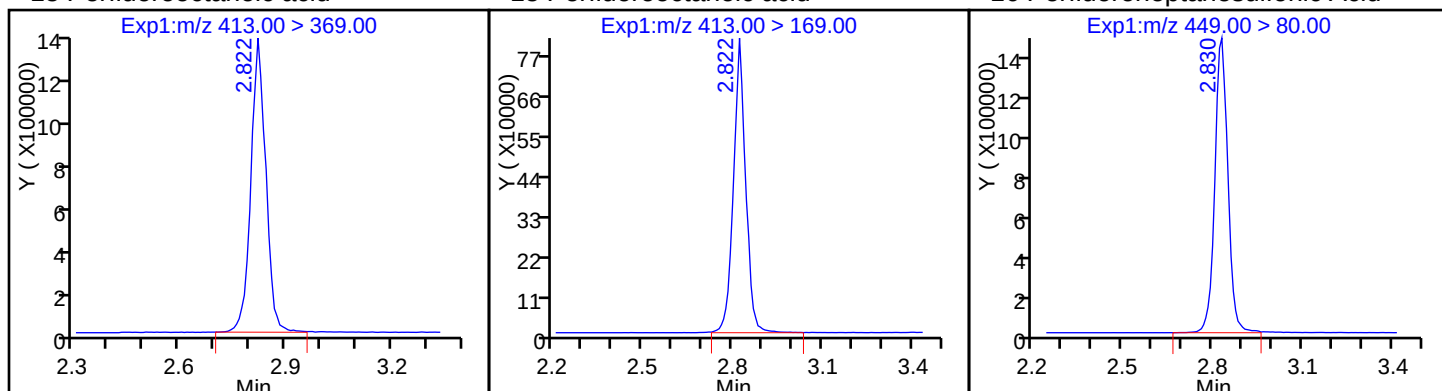
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

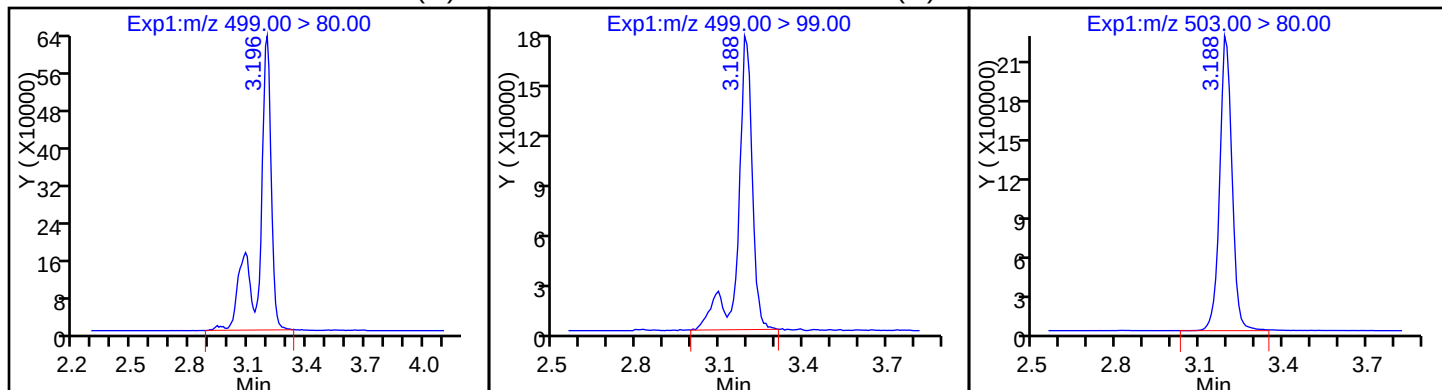
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

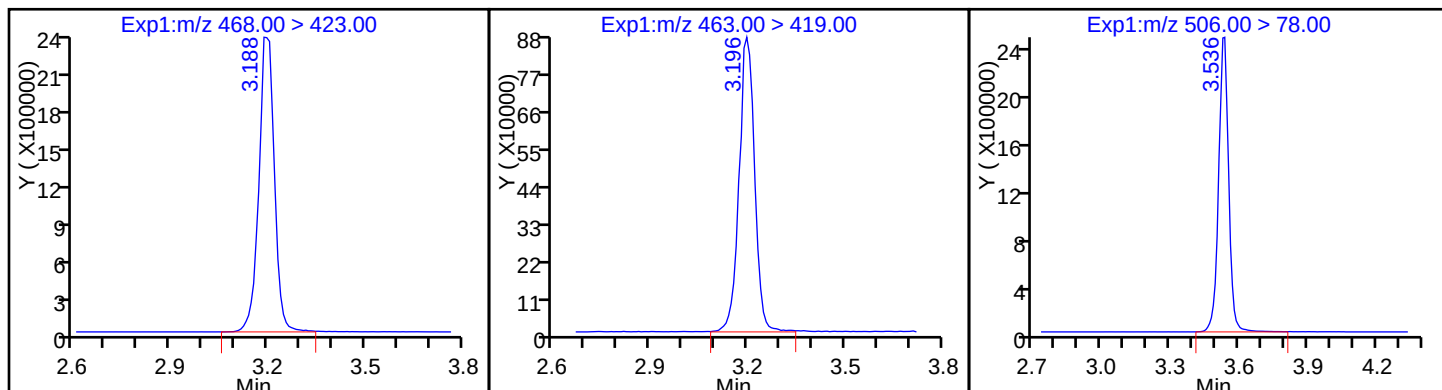
D 18 13C4 PFOS

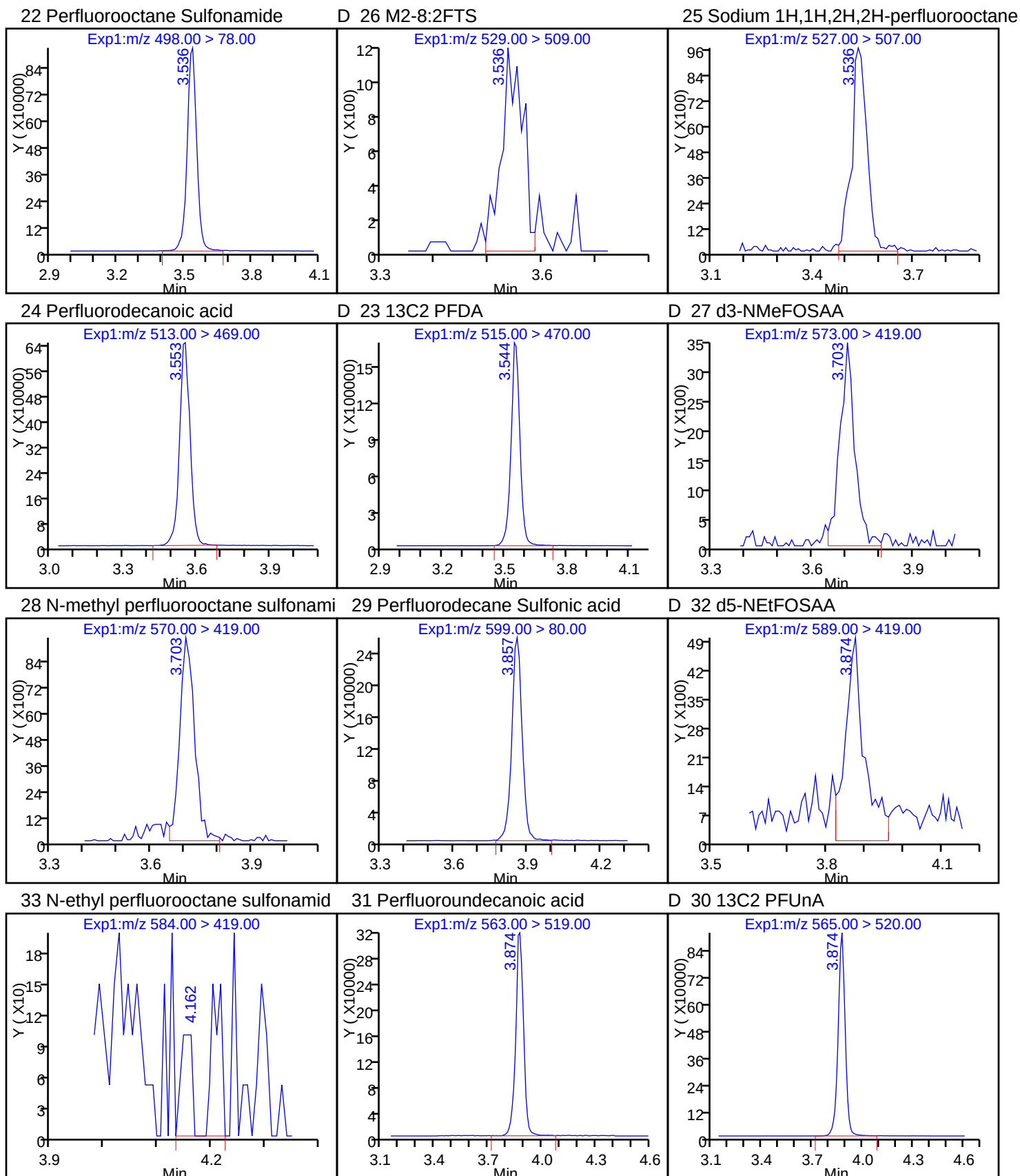


D 19 13C5 PFNA

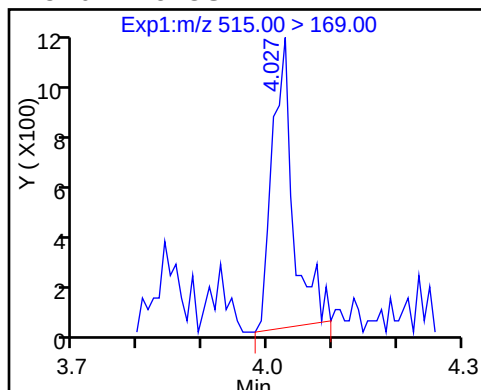
20 Perfluorononanoic acid

D 21 13C8 FOSA

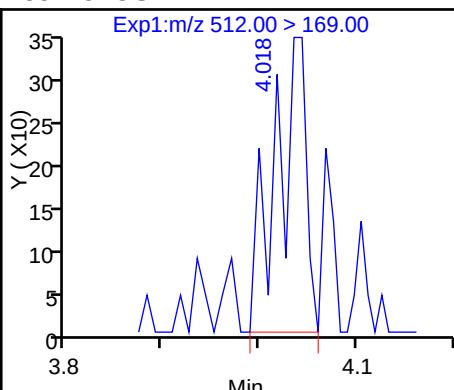




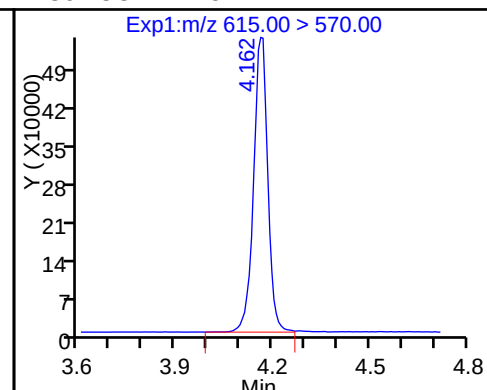
D 34 d-N-MeFOSA-M



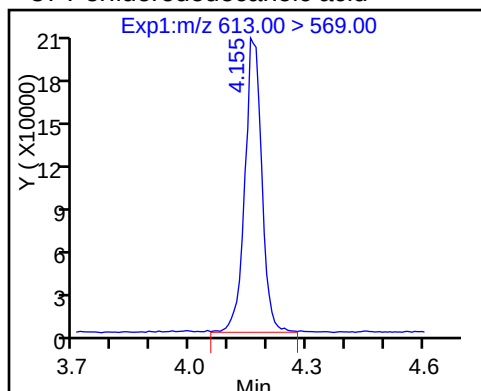
35 MeFOSA



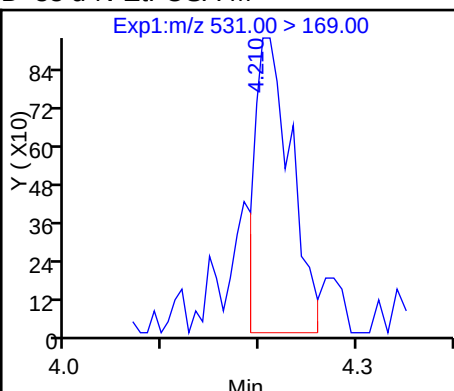
D 36 13C2 PFDaA



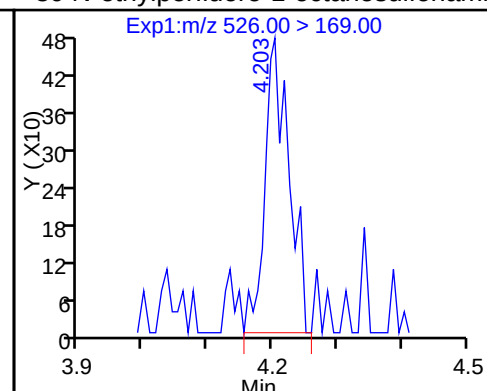
37 Perfluorododecanoic acid



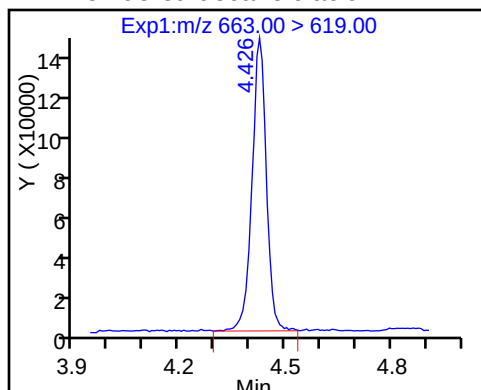
D 38 d-N-EtFOSA-M



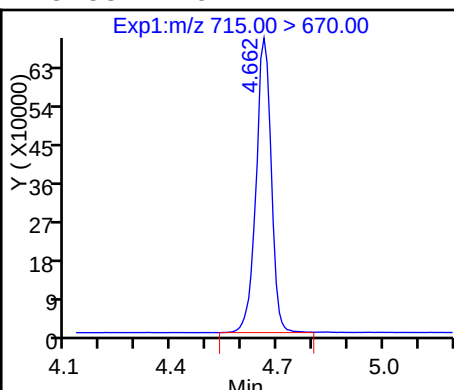
39 N-ethylperfluoro-1-octanesulfonami



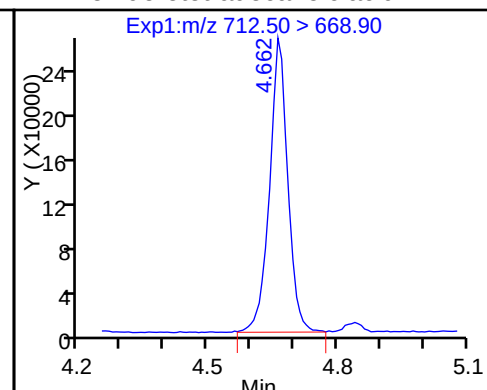
41 Perfluorotridecanoic acid



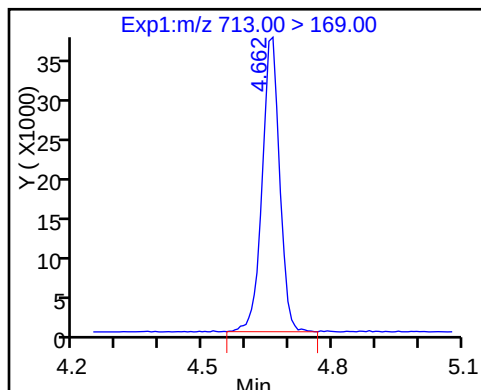
D 43 13C2-PFTeDA



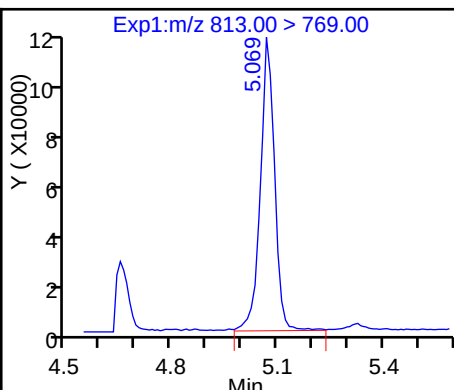
42 Perfluorotetradecanoic acid



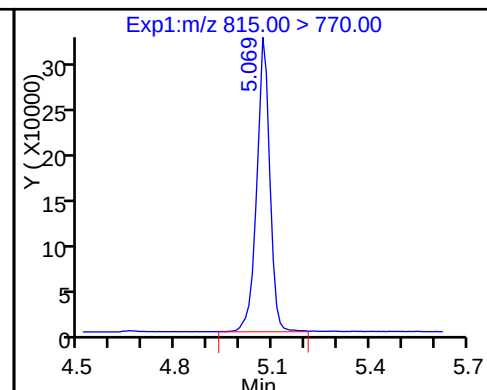
42 Perfluorotetradecanoic acid



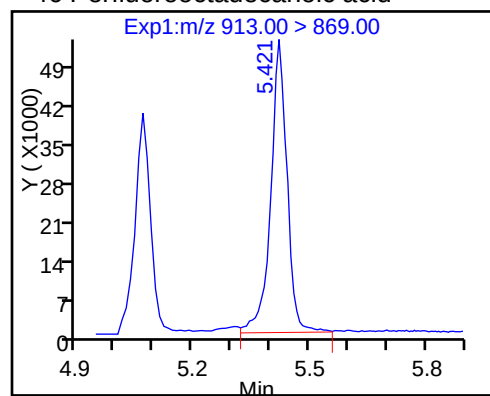
45 Perfluorohexadecanoic acid



D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

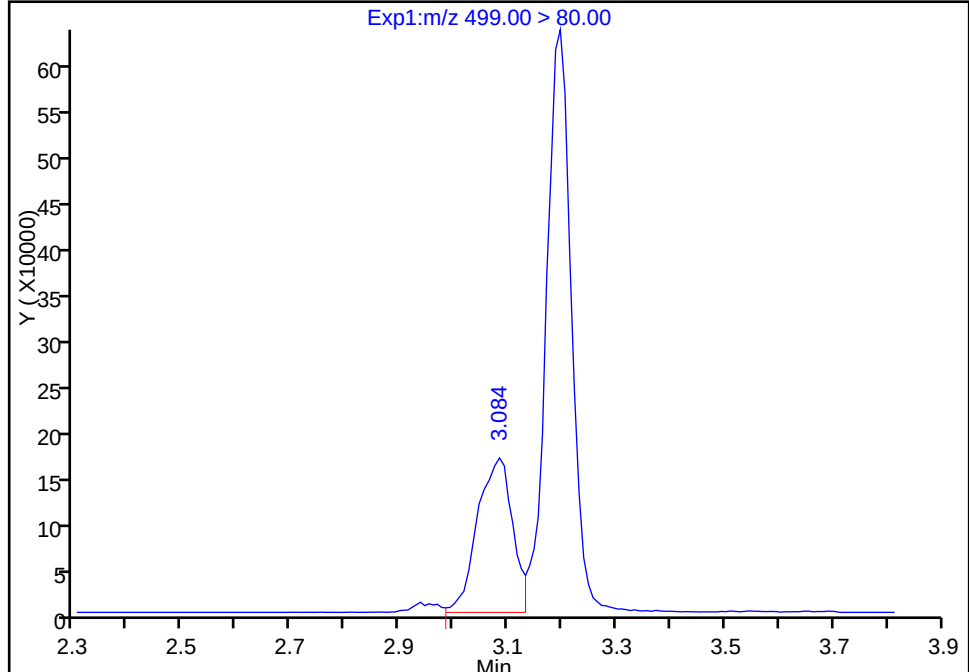
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_058.d
Injection Date: 12-Mar-2017 01:43:04 Instrument ID: A8_N
Lims ID: 320-26011-A-17-B MS
Client ID: MEAFF-WWTP-SB02-1012-MS
Operator ID: A8-PC\A8 ALS Bottle#: 49 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

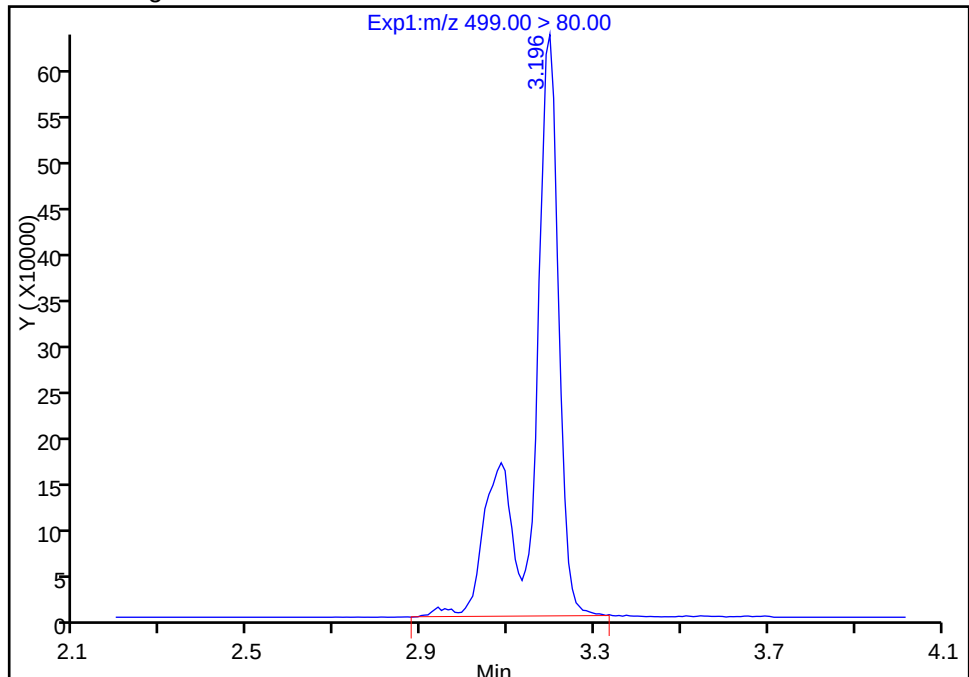
RT: 3.08
Area: 752763
Amount: 5.327573
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 2782206
Amount: 19.690668
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:41:30
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 712 of 781

03/27/2017

TestAmerica Sacramento

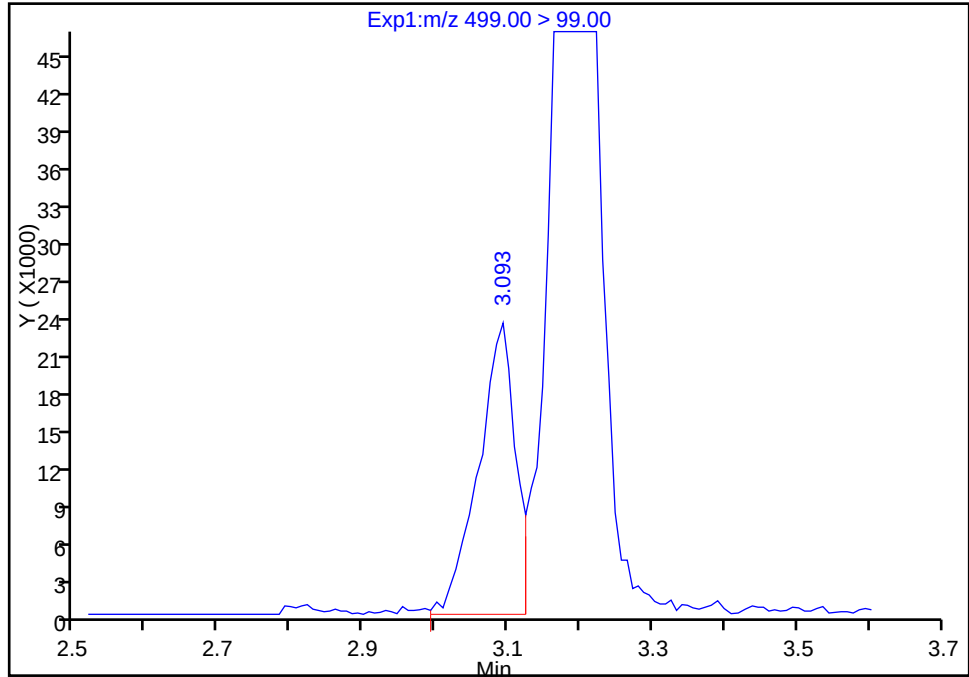
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_058.d
Injection Date: 12-Mar-2017 01:43:04 Instrument ID: A8_N
Lims ID: 320-26011-A-17-B MS
Client ID: MEAFF-WWTP-SB02-1012-MS
Operator ID: A8-PCVA8 ALS Bottle#: 49 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

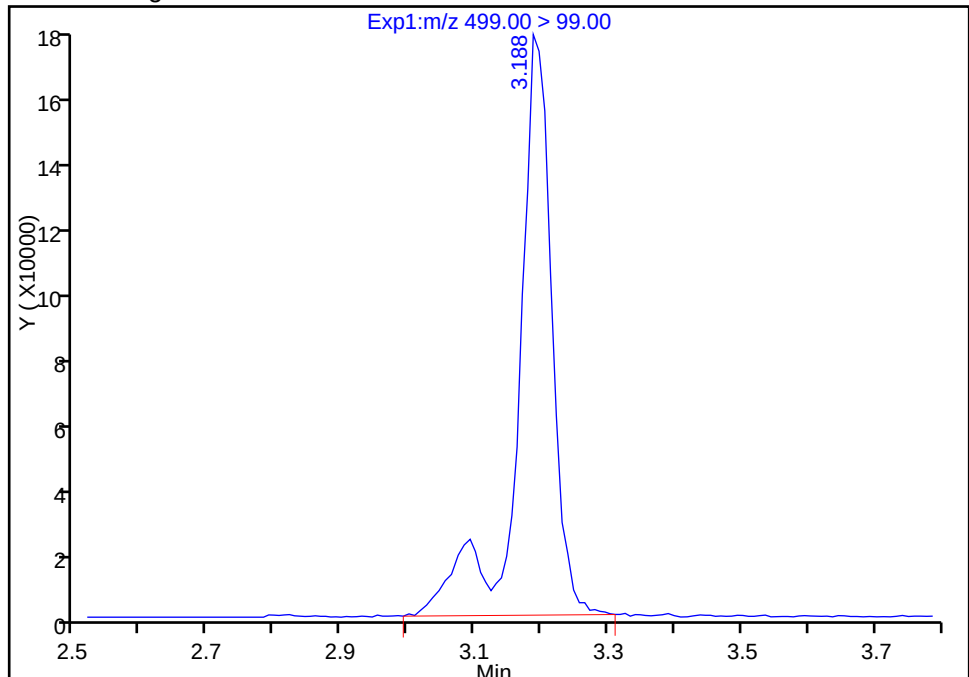
RT: 3.09
Area: 81744
Amount: 5.327573
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 617255
Amount: 19.690668
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:41:52

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-WWTP-SB02-1012-SD MSD Lab Sample ID: 320-26011-17 MSD

Matrix: Solid Lab File ID: 2017.03.11D_059.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 14:30

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.96(g) Date Analyzed: 03/12/2017 01:50

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 28.3 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	5.79		0.70	0.42	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.75	M	0.70	0.42	0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	6.21		0.56	0.42	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	110		25-150
STL00991	13C4 PFOS	61		25-150
STL00994	18O2 PFHxS	106		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_059.d
 Lims ID: 320-26011-A-17-C MSD
 Client ID: MEAFF-WWTP-SB02-1012-SD
 Sample Type: MSD
 Inject. Date: 12-Mar-2017 01:50:35 ALS Bottle#: 50 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26011-a-17-c msd
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 12:56:55 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK022

First Level Reviewer: changnoit

Date: 14-Mar-2017 12:56:55

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	1.538	1.538	0.0		15925776	54.5		109	616506	
2 Perfluorobutyric acid										
212.90 > 169.00	1.546	1.538	0.008	1.000	6030831	22.3		112	28387	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.812	0.0		14337487	61.7		123	589648	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	5948532	21.2		106	37840	
D 47 13C3-PFBS										
301.90 > 83.00	1.812	1.851	-0.039		1283	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.851	0.010	1.000	9724654	22.1		125		
298.90 > 99.00	1.851	1.851	0.0	0.995	3861680		2.52(0.00-0.00)			
D 60 M2-4:2FTS										
329.00 > 309.00	2.087	2.082	0.005		2239	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.114	0.0		11412603	54.1		108	360183	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.114	2.114	0.0	1.000	4309425	21.2		106	51318	
D 9 13C4-PFHpA										
367.00 > 322.00	2.448	2.453	-0.005		11583247	60.0		120	342645	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.448	2.453	-0.005	1.000	4711952	21.0		105	43919	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.464	2.461	0.004	1.000	5867768	18.6		102		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.468	-0.004		14533134	50.0		106	322701	
D 12 M2-6:2FTS										
429.00 > 409.00	2.768	2.780	-0.012		7201	0.0933		0.0		03/27/2017

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	2.775	2.787	-0.012	1.000	110720	NR	0.0		
D 14 13C4 PFOA	417.00 > 372.00	2.814	2.811	0.003		11305534	55.2	110	346360	
15 Perfluorooctanoic acid	413.00 > 369.00	2.814	2.819	-0.005	1.000	4760622	20.6	103	42455	
	413.00 > 169.00	2.814	2.819	-0.005	1.000	2728461	1.74(0.90-1.10)		72792	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	2.814	2.819	-0.005	1.000	4895466	32.0	168		
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.179	3.185	-0.006	1.000	2989268	20.5	110	74585	M
	499.00 > 99.00	3.179	3.185	-0.006	1.000	664790	4.50(0.90-1.10)		18475	M
D 18 13C4 PFOS	503.00 > 80.00	3.179	3.185	-0.006		7098613	29.4	61.5	188797	
D 19 13C5 PFNA	468.00 > 423.00	3.187	3.185	0.002		8186648	46.0	92.1	201132	M
20 Perfluorononanoic acid	463.00 > 419.00	3.179	3.193	-0.014	1.000	3294916	22.3	111	42084	
D 21 13C8 FOSA	506.00 > 78.00	3.527	3.526	0.001		6053345	16.5	33.0	156012	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.527	3.526	0.001	1.000	2256638	20.7	104	98269	
D 26 M2-8:2FTS	529.00 > 509.00	3.536	3.535	0.001		2350	0.0254	0.0		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.536	3.543	-0.007	1.000	33847	NR	0.0		
24 Perfluorodecanoic acid	513.00 > 469.00	3.544	3.543	0.001	1.000	2075381	20.9	105	46123	
D 23 13C2 PFDA	515.00 > 470.00	3.544	3.543	0.001		5479553	32.9	65.7	152853	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.692	3.702	-0.010		1540	0.0181	0.0		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.703	3.702	0.001	1.003	35120	NR	0.0		
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.856	3.847	0.009	1.000	761110	8.60	44.6		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.856	3.864	-0.008		4603	0.0566	0.0		
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	4.058	3.873	0.185	1.052	405	NR	0.0		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.873	3.873	0.0	1.000	1077429	18.5	92.7	24717	
D 30 13C2 PFUnA	565.00 > 520.00	3.873	3.873	0.0		2865553	21.9	43.8	137834	
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.016	4.026	-0.010		811	0.009218	0.0		
D 36 13C2 PFDaA	615.00 > 570.00	4.167	4.156	0.011		1635818	13.2	26.4	57055	

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	4.160	4.163	-0.003	1.000	616879	20.6		103	15877	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.195	4.205	-0.010		572	0.006710		0.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.208	4.205	0.003	1.000	395	NR		0.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.432	4.423	0.009	1.000	348558	12.2		61.0	7478	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.669	4.654	0.015		1899158	7.33		14.7	162901	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.669	4.664	0.005	1.000	762209	11.8		59.2	10229	
713.00 > 169.00	4.661	4.664	-0.003	0.998	99612		7.65(0.00-0.00)		17458	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.079	5.072	0.007	1.000	317471	10.1		50.5	2209	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.079	5.072	0.007		880452	7.04		14.1	60000	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.429	5.423	0.006	1.000	178979	7.62		38.1	950	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_059.d

Injection Date: 12-Mar-2017 01:50:35

Instrument ID: A8_N

Lims ID: 320-26011-A-17-C MSD

Client ID: MEAFF-WWTP-SB02-1012-SD

Operator ID: A8-PC\A8

ALS Bottle#: 50

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

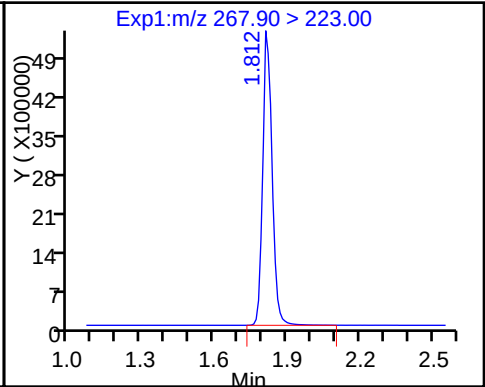
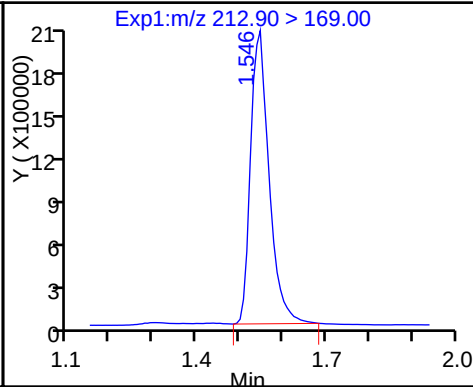
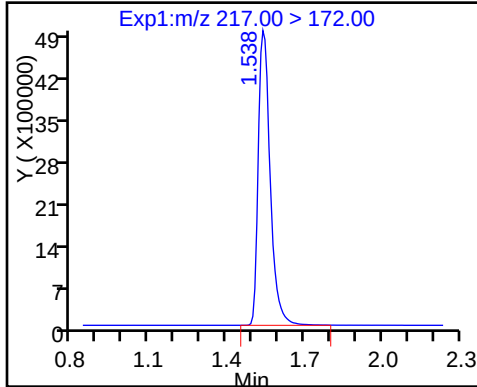
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

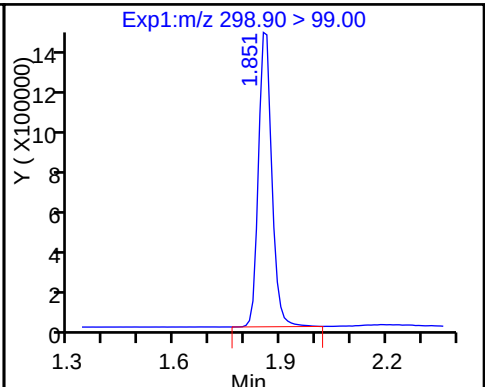
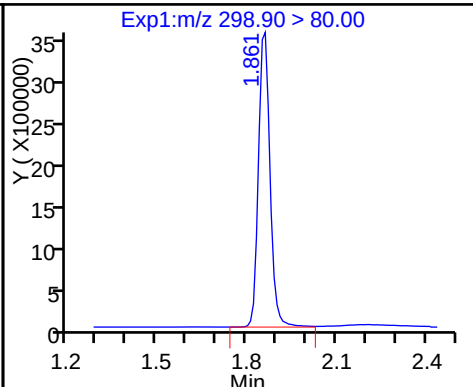
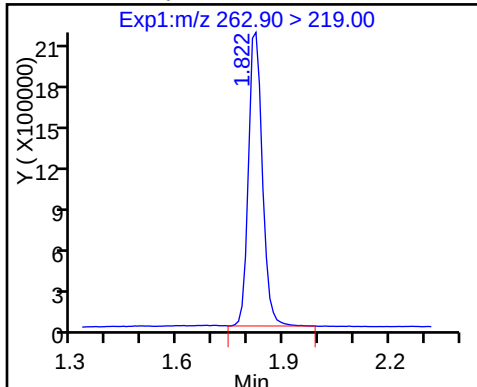
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

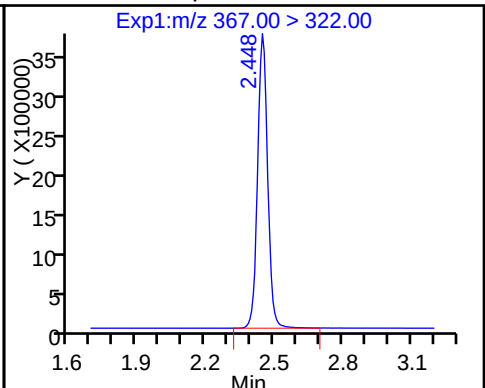
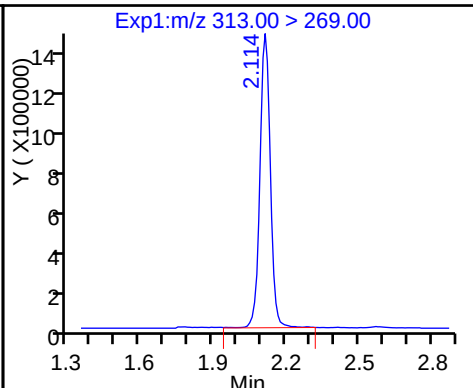
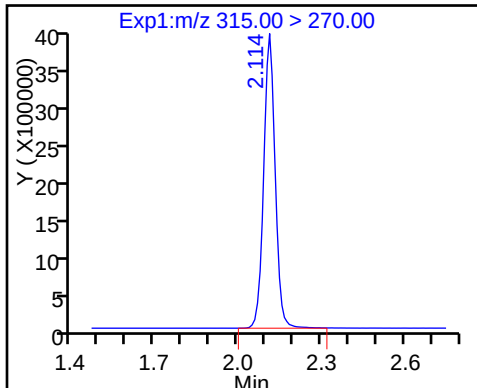
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

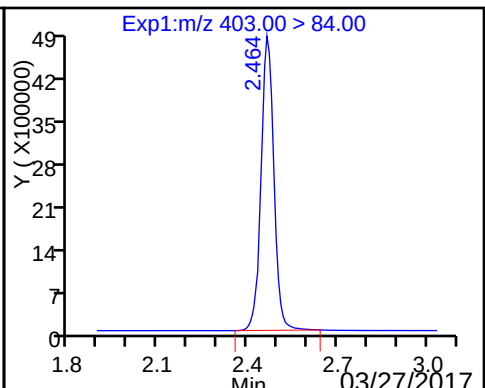
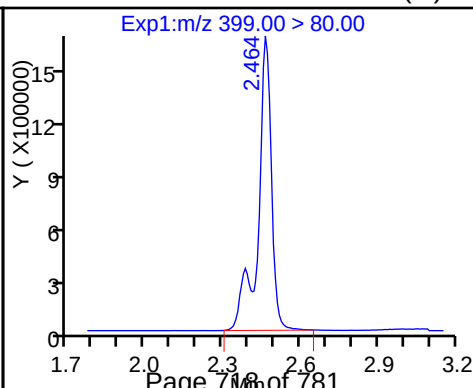
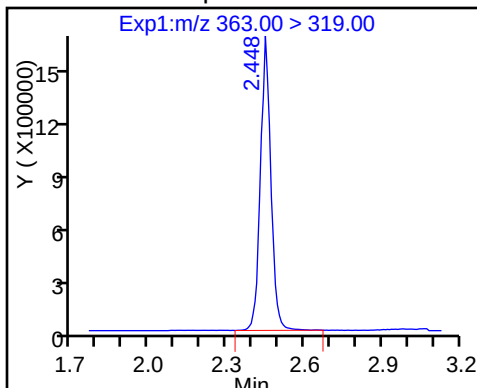
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid (M)

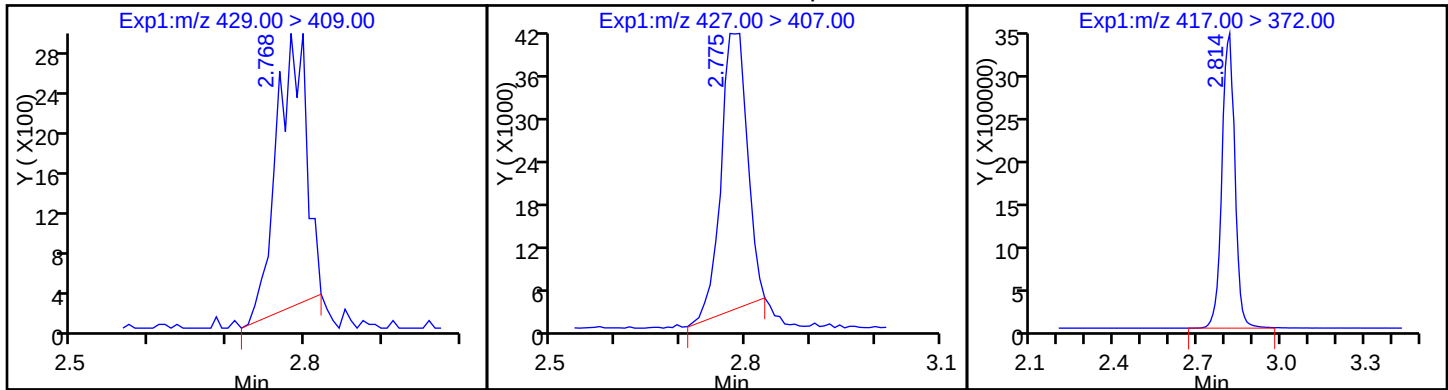
D 11 18O2 PFHxS



D 12 M2-6:2FTS

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

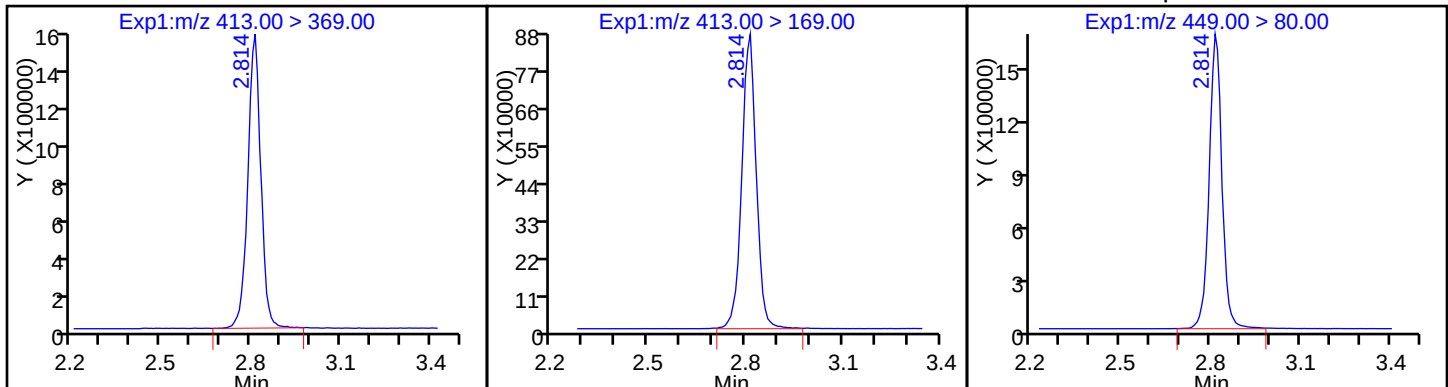
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

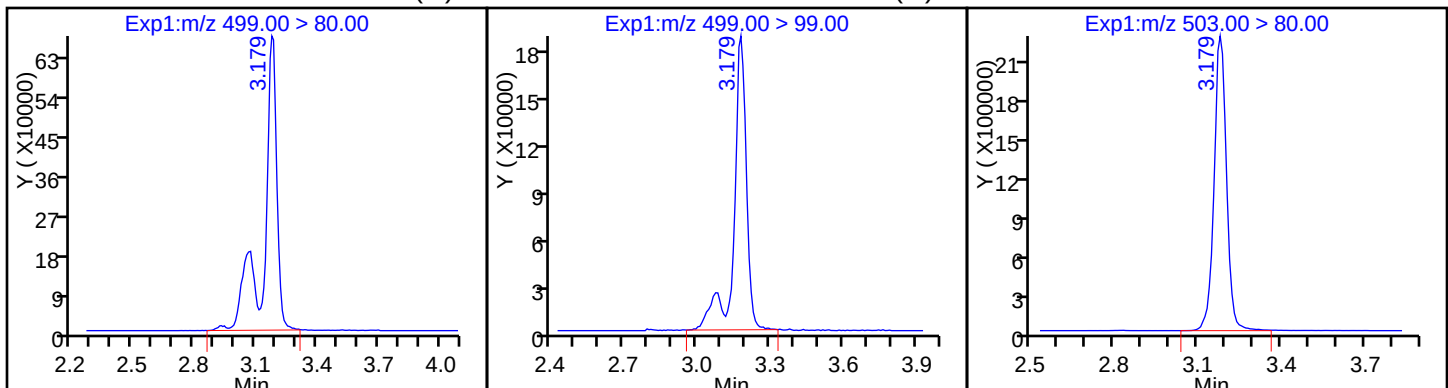
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

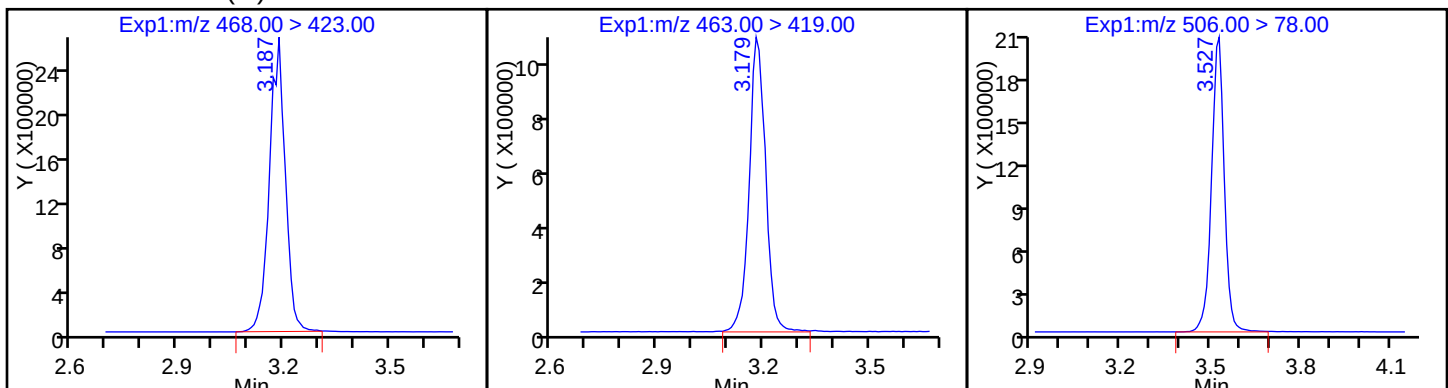
D 18 13C4 PFOS

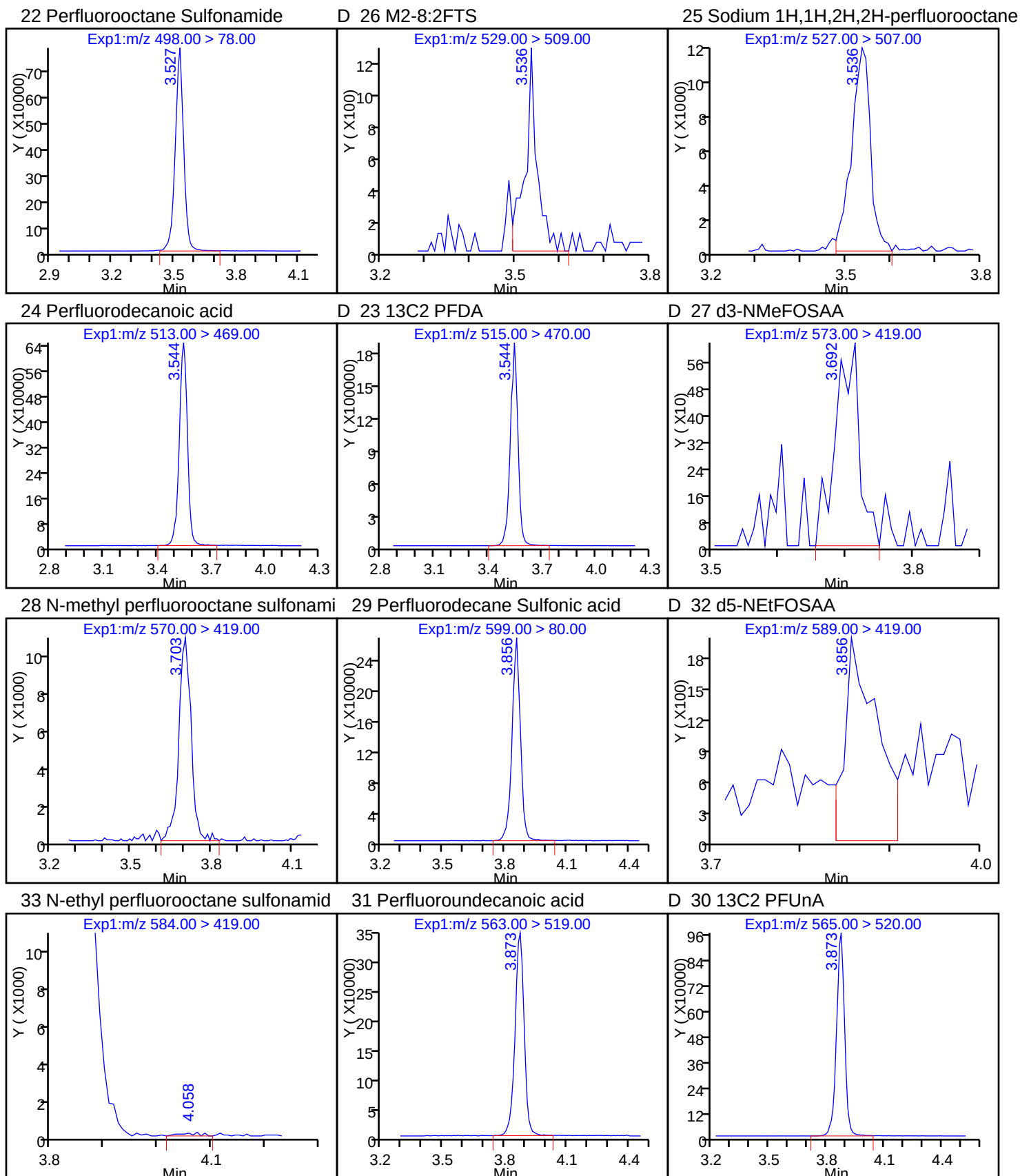


D 19 13C5 PFNA (M)

20 Perfluorononanoic acid

D 21 13C8 FOSA

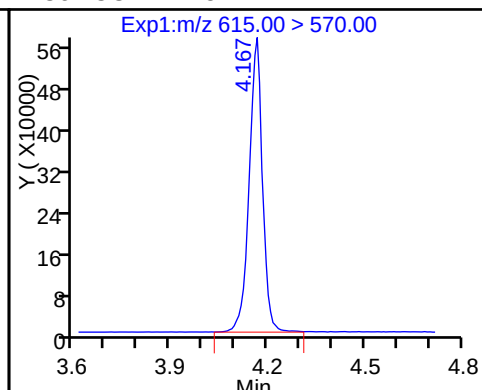
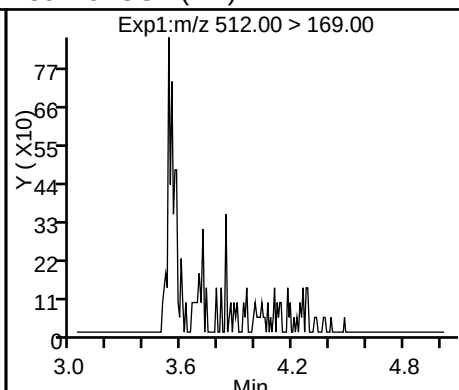
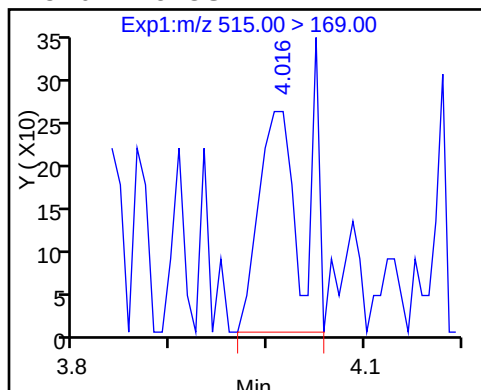




D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

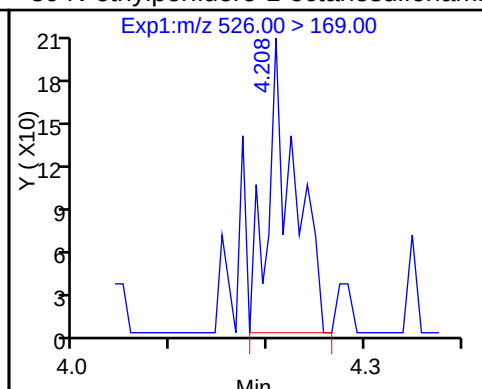
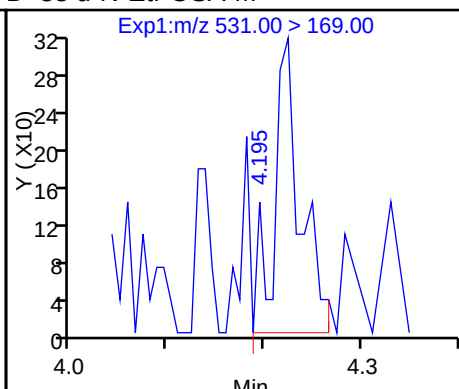
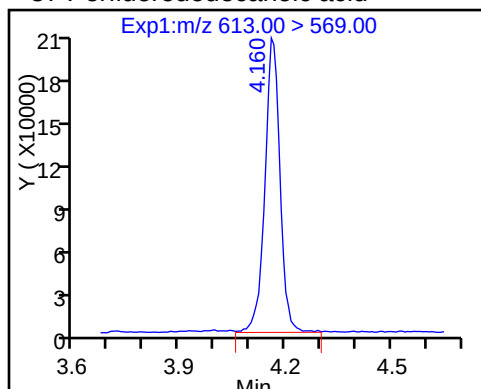
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

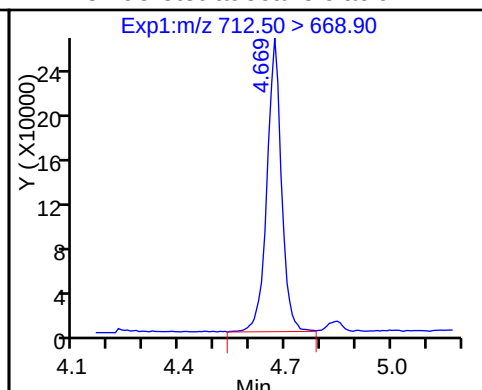
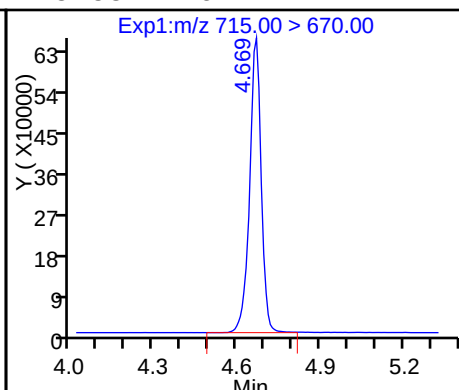
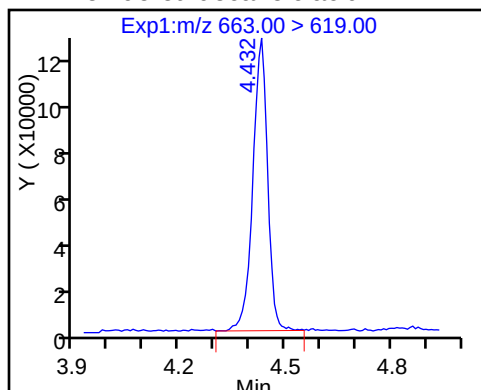
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

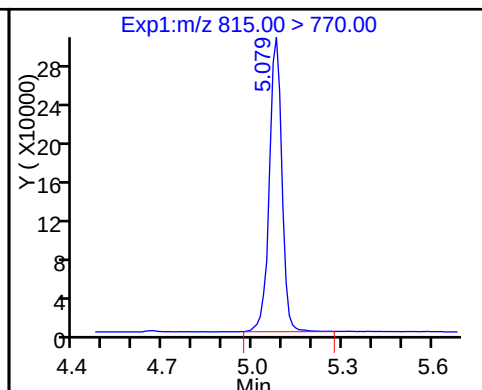
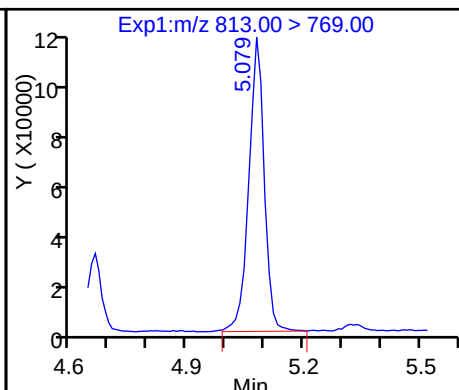
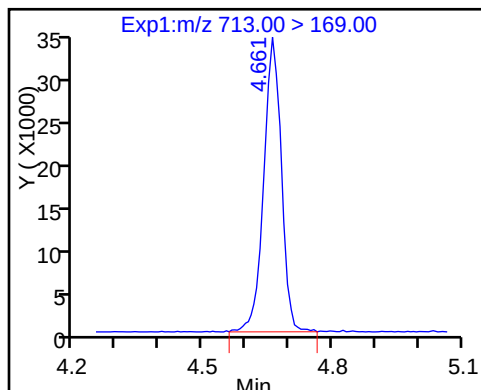
42 Perfluorotetradecanoic acid



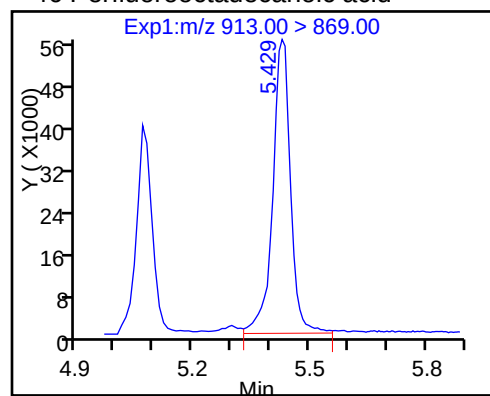
42 Perfluorotetradecanoic acid

45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

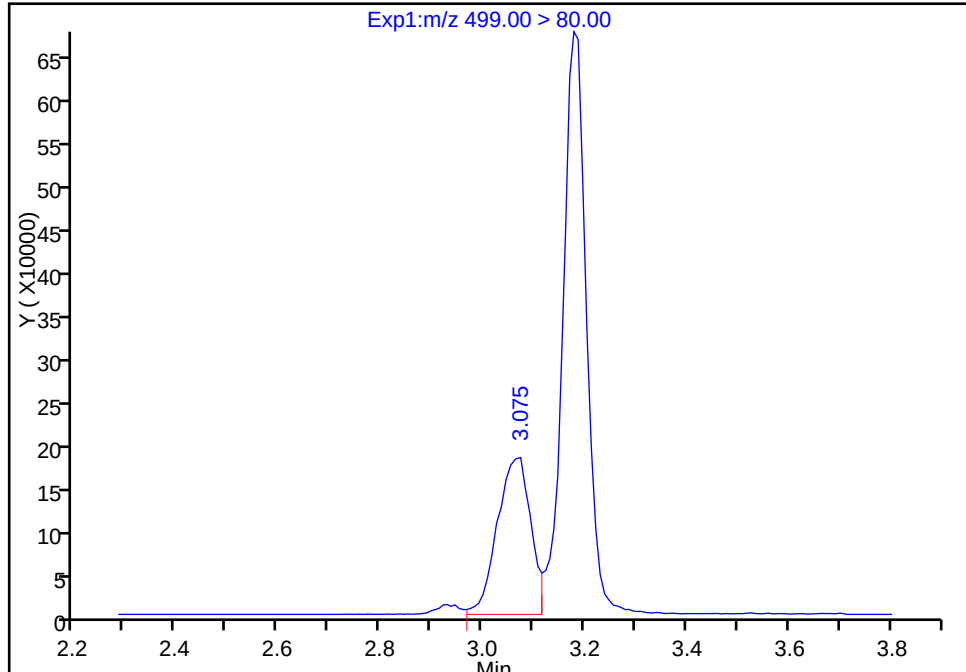
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_059.d
Injection Date: 12-Mar-2017 01:50:35 Instrument ID: A8_N
Lims ID: 320-26011-A-17-C MSD
Client ID: MEAFF-WWTP-SB02-1012-SD
Operator ID: A8-PC\A8 ALS Bottle#: 50 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

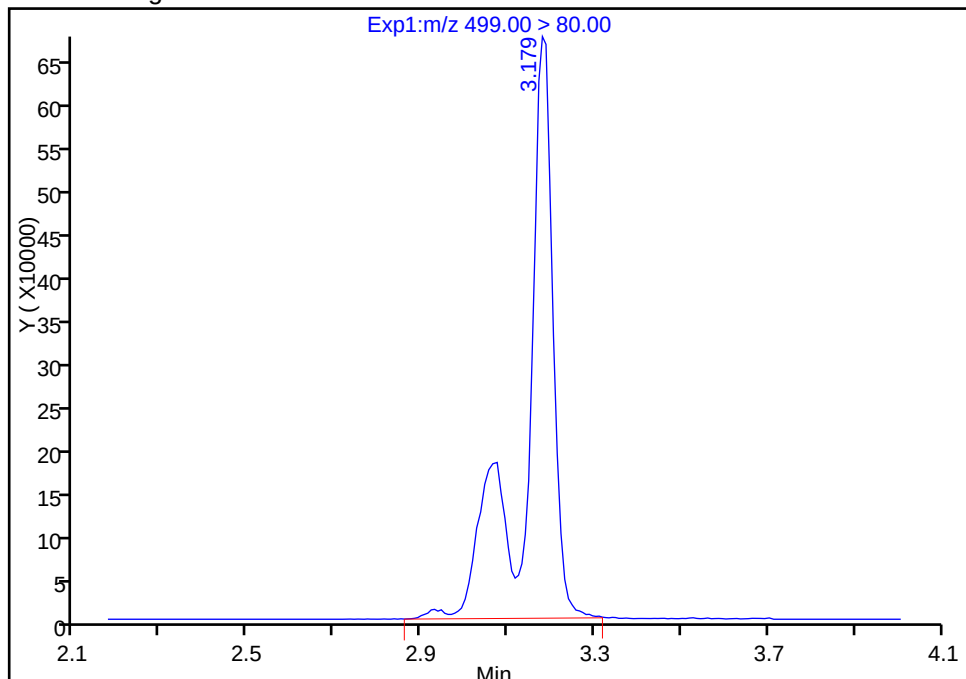
RT: 3.07
Area: 818394
Amount: 5.603383
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 2989268
Amount: 20.466930
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:52:29

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

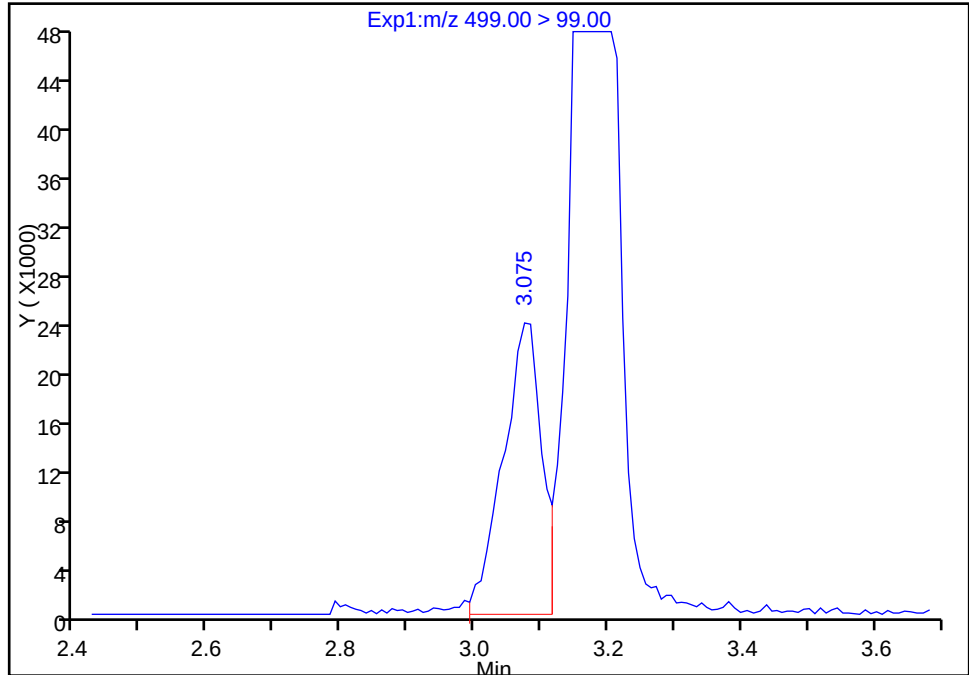
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b\2017.03.11D_059.d
Injection Date: 12-Mar-2017 01:50:35 Instrument ID: A8_N
Lims ID: 320-26011-A-17-C MSD
Client ID: MEAFF-WWTP-SB02-1012-SD
Operator ID: A8-PCVA8 ALS Bottle#: 50 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

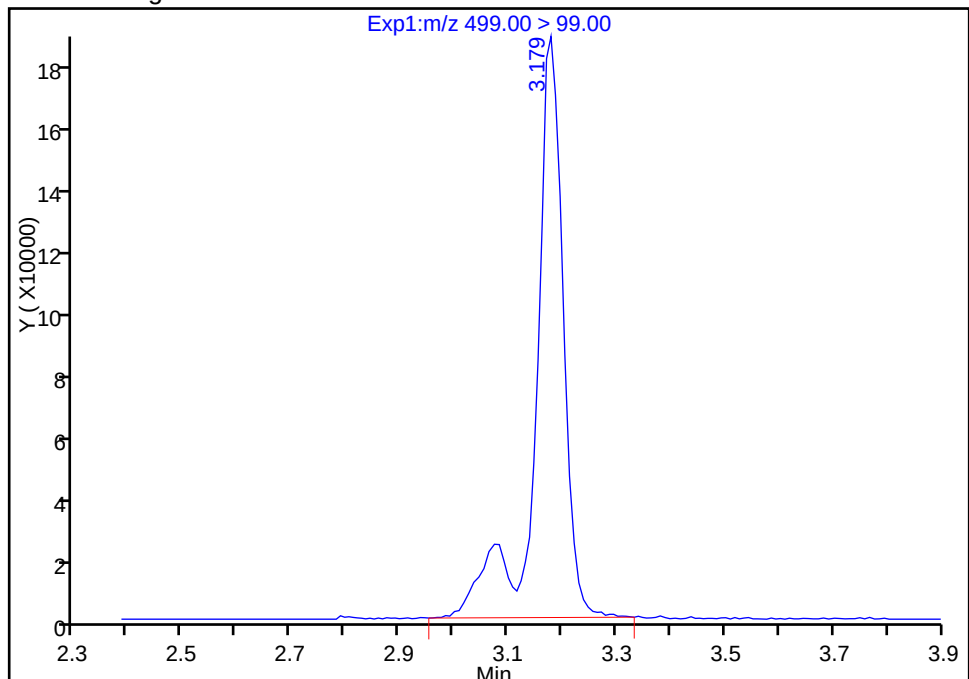
RT: 3.07
Area: 94582
Amount: 5.603383
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 664790
Amount: 20.466930
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 12:53:31

Audit Action: Manually Integrated

Audit Reason: Isomers

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/01/2017 11:08Analysis Batch Number: 152681 End Date: 03/01/2017 12:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-152681/2		03/01/2017 11:08	1	2017.03.01CURVE 003.d	GeminiC18 3x100 3(mm)
IC 320-152681/3		03/01/2017 11:16	1	2017.03.01CURVE 004.d	GeminiC18 3x100 3(mm)
IC 320-152681/4		03/01/2017 11:23	1	2017.03.01CURVE 005.d	GeminiC18 3x100 3(mm)
IC 320-152681/5		03/01/2017 11:31	1	2017.03.01CURVE 006.d	GeminiC18 3x100 3(mm)
IC 320-152681/6		03/01/2017 11:38	1	2017.03.01CURVE 007.d	GeminiC18 3x100 3(mm)
IC 320-152681/7		03/01/2017 11:46	1	2017.03.01CURVE 008.d	GeminiC18 3x100 3(mm)
ICB 320-152681/12		03/01/2017 12:23	1		GeminiC18 3x100 3(mm)
ICV 320-152681/13		03/01/2017 12:31	1	2017.03.01CURVE 014.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/02/2017 10:12Analysis Batch Number: 152836End Date: 03/02/2017 12:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-152836/10 CCVL		03/02/2017 10:12	1	2017.03.02A_001 .d	GeminiC18 3x100 3(mm)
CCV 320-152836/11		03/02/2017 10:20	1	2017.03.02A_002 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 10:27	1		GeminiC18 3x100 3(mm)
MB 320-152587/1-A		03/02/2017 10:35	1	2017.03.02A_004 .d	GeminiC18 3x100 3(mm)
LCS 320-152587/2-A		03/02/2017 10:42	1	2017.03.02A_005 .d	GeminiC18 3x100 3(mm)
LCSD 320-152587/3-A		03/02/2017 10:50	1	2017.03.02A_006 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 10:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:12	1		GeminiC18 3x100 3(mm)
320-26011-10		03/02/2017 11:20	1	2017.03.02A_010 .d	GeminiC18 3x100 3(mm)
320-26011-20		03/02/2017 11:27	1	2017.03.02A_011 .d	GeminiC18 3x100 3(mm)
320-26011-21		03/02/2017 11:35	1	2017.03.02A_012 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:42	1		GeminiC18 3x100 3(mm)
CCV 320-152836/23		03/02/2017 11:50	1	2017.03.02A_014 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:57	1		GeminiC18 3x100 3(mm)
CCV 320-152836/25		03/02/2017 12:05	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/11/2017 12:34Analysis Batch Number: 154503End Date: 03/11/2017 18:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154503/1 CCVL		03/11/2017 12:34	1	2017.03.11C_004 .d	GeminiC18 3x100 3(mm)
CCV 320-154503/2		03/11/2017 12:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 12:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:20	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 13:57	1		GeminiC18 3x100 3(mm)
CCV 320-154503/13		03/11/2017 14:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:20	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 14:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:20	1		GeminiC18 3x100 3(mm)
CCV 320-154503/24		03/11/2017 15:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:20	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:42	1		GeminiC18 3x100 3(mm)
CCV 320-154503/35		03/11/2017 16:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 16:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:20	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 17:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 18:05	1		GeminiC18 3x100 3(mm)
CCV 320-154503/46		03/11/2017 18:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 18:20	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/11/2017 12:34Analysis Batch Number: 154503 End Date: 03/11/2017 18:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154503/48		03/11/2017 18:27	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26011-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/11/2017 23:05Analysis Batch Number: 154516End Date: 03/12/2017 03:13

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154516/1		03/11/2017 23:05	1	2017.03.11D_037 .d	GeminiC18 3x100 3(mm)
MB 320-152953/1-A		03/11/2017 23:12	1	2017.03.11D_038 .d	GeminiC18 3x100 3(mm)
LCS 320-152953/2-A		03/11/2017 23:20	1	2017.03.11D_039 .d	GeminiC18 3x100 3(mm)
320-26011-1		03/11/2017 23:27	1	2017.03.11D_040 .d	GeminiC18 3x100 3(mm)
320-26011-2		03/11/2017 23:35	1	2017.03.11D_041 .d	GeminiC18 3x100 3(mm)
320-26011-3		03/11/2017 23:42	1	2017.03.11D_042 .d	GeminiC18 3x100 3(mm)
320-26011-4		03/11/2017 23:50	1	2017.03.11D_043 .d	GeminiC18 3x100 3(mm)
320-26011-5		03/11/2017 23:57	1	2017.03.11D_044 .d	GeminiC18 3x100 3(mm)
320-26011-6		03/12/2017 00:05	1	2017.03.11D_045 .d	GeminiC18 3x100 3(mm)
320-26011-7		03/12/2017 00:12	1	2017.03.11D_046 .d	GeminiC18 3x100 3(mm)
CCV 320-154516/11		03/12/2017 00:20	1	2017.03.11D_047 .d	GeminiC18 3x100 3(mm)
320-26011-8		03/12/2017 00:28	1	2017.03.11D_048 .d	GeminiC18 3x100 3(mm)
320-26011-9		03/12/2017 00:35	1	2017.03.11D_049 .d	GeminiC18 3x100 3(mm)
320-26011-11		03/12/2017 00:43	1	2017.03.11D_050 .d	GeminiC18 3x100 3(mm)
320-26011-12		03/12/2017 00:50	1	2017.03.11D_051 .d	GeminiC18 3x100 3(mm)
320-26011-13		03/12/2017 00:58	1	2017.03.11D_052 .d	GeminiC18 3x100 3(mm)
320-26011-14		03/12/2017 01:05	1	2017.03.11D_053 .d	GeminiC18 3x100 3(mm)
320-26011-15		03/12/2017 01:13	1	2017.03.11D_054 .d	GeminiC18 3x100 3(mm)
320-26011-16		03/12/2017 01:20	1	2017.03.11D_055 .d	GeminiC18 3x100 3(mm)
320-26011-17		03/12/2017 01:28	1	2017.03.11D_056 .d	GeminiC18 3x100 3(mm)
CCV 320-154516/21		03/12/2017 01:35	1	2017.03.11D_057 .d	GeminiC18 3x100 3(mm)
320-26011-17 MS		03/12/2017 01:43	1	2017.03.11D_058 .d	GeminiC18 3x100 3(mm)
320-26011-17 MSD		03/12/2017 01:50	1	2017.03.11D_059 .d	GeminiC18 3x100 3(mm)
320-26011-18		03/12/2017 01:58	1	2017.03.11D_060 .d	GeminiC18 3x100 3(mm)
320-26011-19		03/12/2017 03:05	1	2017.03.11D_061 .d	GeminiC18 3x100 3(mm)
CCV 320-154516/26		03/12/2017 03:13	1	2017.03.11D_062 .d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Batch Number: 152587 Batch Start Date: 02/28/17 16:42 Batch Analyst: Reed, Jonathan EBatch Method: 3535 Batch End Date: 03/01/17 13:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC2SU 00014	LCMPFCSU 00047
MB 320-152587/1		3535, 537 (Modified)				250.00 mL	0.50 mL	25 uL	25 uL
LCS 320-152587/2		3535, 537 (Modified)				250.00 mL	0.50 mL	25 uL	25 uL
LCSD 320-152587/3		3535, 537 (Modified)				250.00 mL	0.50 mL	25 uL	25 uL
320-26011-A-10	MEAFF-EB02-02221 7-SO	3535, 537 (Modified)	T	311.87 g	27.36 g	284.5 mL	0.50 mL		25 uL
320-26011-A-20	HYDRANT BLANK-022217	3535, 537 (Modified)	T	305.37 g	28.25 g	277.1 mL	0.50 mL		25 uL
320-26011-A-21	GROUT TANK BLANK-022217	3535, 537 (Modified)	T	319.52 g	27.83 g	291.7 mL	0.50 mL		25 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFC2SP 00017	LCPFCSP 00080				
MB 320-152587/1		3535, 537 (Modified)							
LCS 320-152587/2		3535, 537 (Modified)		20 uL	20 uL				
LCSD 320-152587/3		3535, 537 (Modified)		20 uL	20 uL				
320-26011-A-10	MEAFF-EB02-02221 7-SO	3535, 537 (Modified)	T						
320-26011-A-20	HYDRANT BLANK-022217	3535, 537 (Modified)	T						
320-26011-A-21	GROUT TANK BLANK-022217	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.: 320-26011-1

SDG No.: _____

Batch Number: 152587 Batch Start Date: 02/28/17 16:42 Batch Analyst: Reed, Jonathan EBatch Method: 3535 Batch End Date: 03/01/17 13:40

Batch Notes	
Balance ID	QA-070
H2O ID	2/28/17
Hexane ID	0000130361
Manifold ID	2, 5
Methanol ID	851503
Sodium Hydroxide ID	0.1N NaOH/H2O: 858158
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Solvent Lot #	847209
Solvent Name	0.3% NH4OH/MeOH
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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Batch Number: 152953 Batch Start Date: 03/02/17 16:23 Batch Analyst: Winchester, Ethan RBatch Method: SHAKE Batch End Date: 03/10/17 10:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00047	LCPFCSP 00080		
MB 320-152953/1		SHAKE, 537 (Modified)		5 g	1 mL	50 uL			
LCS 320-152953/2		SHAKE, 537 (Modified)		5 g	1 mL	50 uL	40 uL		
320-26011-A-1	MEAFF-FTA1-SB01-0204	SHAKE, 537 (Modified)	T	5.02 g	1 mL	50 uL			
320-26011-A-2	MEAFF-FD01-022217	SHAKE, 537 (Modified)	T	5.08 g	1 mL	50 uL			
320-26011-A-3	MEAFF-FTA1-SB02-0204	SHAKE, 537 (Modified)	T	5.08 g	1 mL	50 uL			
320-26011-A-4	MEAFF-SDA4B-SB01-0001	SHAKE, 537 (Modified)	T	5.00 g	1 mL	50 uL			
320-26011-A-5	MEAFF-FD02-022217	SHAKE, 537 (Modified)	T	5.02 g	1 mL	50 uL			
320-26011-A-6	MEAFF-SDA4B-SB01-0204	SHAKE, 537 (Modified)	T	4.94 g	1 mL	50 uL			
320-26011-A-7	MEAFF-SDA4D-SB01-0001	SHAKE, 537 (Modified)	T	4.92 g	1 mL	50 uL			
320-26011-A-8	MEAFF-FD03-022217	SHAKE, 537 (Modified)	T	4.96 g	1 mL	50 uL			
320-26011-A-9	MEAFF-SDA4D-SB01-0204	SHAKE, 537 (Modified)	T	4.98 g	1 mL	50 uL			
320-26011-A-11	MEAFF-SDA4A-SB01-0001	SHAKE, 537 (Modified)	T	5.05 g	1 mL	50 uL			
320-26011-A-12	MEAFF-SDA4A-SB01-0204	SHAKE, 537 (Modified)	T	4.96 g	1 mL	50 uL			
320-26011-A-13	MEAFF-SDA4A-SB02-0001	SHAKE, 537 (Modified)	T	5.06 g	1 mL	50 uL			
320-26011-A-14	MEAFF-SDA4A-SB02-0204	SHAKE, 537 (Modified)	T	5.07 g	1 mL	50 uL			
320-26011-A-15	MEAFF-WWTP-SB01-1012	SHAKE, 537 (Modified)	T	5.08 g	1 mL	50 uL			
320-26011-A-16	MEAFF-WWTP-SB03-0608	SHAKE, 537 (Modified)	T	4.92 g	1 mL	50 uL			
320-26011-A-17	MEAFF-WWTP-SB02-1012	SHAKE, 537 (Modified)	T	5.00 g	1 mL	50 uL			
320-26011-A-17-MS	MEAFF-WWTP-SB02-1012-MS	SHAKE, 537 (Modified)	T	5.00 g	1 mL	50 uL	40 uL		
320-26011-A-17-MSD	MEAFF-WWTP-SB02-1012-SD	SHAKE, 537 (Modified)	T	4.96 g	1 mL	50 uL	40 uL		
320-26011-A-18	MEAFF-UNKNOWN22-SB01-0001	SHAKE, 537 (Modified)	T	5.00 g	1 mL	50 uL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

537 (Modified)

Page 1 of 2

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Batch Number: 152953 Batch Start Date: 03/02/17 16:23 Batch Analyst: Winchester, Ethan RBatch Method: SHAKE Batch End Date: 03/10/17 10:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00047	LCPFCSP 00080		
320-26011-A-19	MEAFF-UNKNOWN22-SB01-0204	SHAKE, 537 (Modified)	T	5.09 g	1 mL	50 uL			

Batch Notes	
Acetic Acid ID	429065
Balance ID	QA-074
Hexane ID	863963
Manifold ID	5, 6
Methanol ID	865705
Methanolic Potassium Hydroxide ID	865063
Millipore Water Dispense Date	3/02/17
Sodium Hydroxide ID	858158
Ammonium Hydroxide/MeOH ID	864283
Analyst ID - Reagent Drop Witness	DXD
Blank Sand Lot #	156690
SPE Cartridge ID	016836329B
SPE Cartridge Type	WAX 150mg

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)

Page 2 of 2

HPLC/LCMS Data Review Checklist

Job Number(s): 25933; 25962; 26103

Work List ID(s): 40391; 40441

Extraction Batch: 152015; 152587

Analysis Batch(es): 152825; 153020

Delivery Rank 4

Due Date: 2/27/17; 3/3/17 2/28/17; 2/26/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>152681</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.	✓	✓	
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#	✓	✓	
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): 

Date: 3/3/17

2nd Level Reviewer: 

Date: 3/8/2017

NCMS: 79769; 79770; 79775; 79771; 79642

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 03MAR2017A_PFC

Worklist Number: 40441

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 153020	LC PFC ICAL Raw Batch: 153021	LC PFAS ICAL Raw Batch: 153022	LC PFC_PREC ICAL Raw Batch: 153023
# 1 RB	# 1 RB	# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB	# 2 RB	# 2 RB
# 3 CCV L2	# 3 CCV L2	# 3 CCV L2	# 3 CCV L2	# 3 CCV L2
# 4 CCV L4	# 4 CCV L4	# 4 CCV L4	# 4 CCV L4	# 4 CCV L4
# 5 RB	# 5 RB	# 5 RB	# 5 RB	# 5 RB
# 6 LCS 320-152015/2-A	# 6 LCS 320-152015/2-A	<i>PL, Dilution 79771</i>		
# 7 320-26103-A-7-A	# 7 320-26103-A-7-A			
# 8 320-25962-A-4-A	# 8 320-25962-A-4-A			
# 9 CCV L5	# 9 CCV L5	# 9 CCV L5	# 9 CCV L5	# 9 CCV L5

ICV 152681

Tune 79642

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 01MAR2017A_PFC

Worklist Number: 40391

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40391.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 152825	LC PFC ICAL Raw Batch: 152826	LC PFAS ICAL Raw Batch: 152827	LC PFC_PREC ICAL Raw Batch: 152828
# 1 RB	# 1 RB	# 1 RB	# 1 RB	# 1 RB
# 2 CCV L5	# 2 CCV L5	# 2 CCV L5	# 2 CCV L5	# 2 CCV L5
# 3 MB 320-152015/1-A	# 3 MB 320-152015/1-A	→ AB 153020 MS/MSD + RPD NCM 79770		
# 4 LCS 320-152015/2-A	# 4 LCS 320-152015/2-A			
# 5 320-25933-A-1-A	# 5 320-25933-A-1-A			
# 6 320-25933-A-1-B MS	# 6 320-25933-A-1-B MS			
# 7 320-25933-A-1-C	# 7 320-25933-A-1-C			
MSD	MSD			
# 8 320-25933-A-2-A	# 8 320-25933-A-2-A			
# 9 320-25933-A-4-A	# 9 320-25933-A-4-A			
# 10 320-25933-A-5-A	# 10 320-25933-A-5-A			
# 11 320-25933-A-7-A	# 11 320-25933-A-7-A			
# 12 320-25962-A-4-A	# 12 320-25962-A-4-A	# 13 CCV L4	# 13 CCV L4	# 13 CCV L4
# 13 CCV L4	# 13 CCV L4			
# 14 320-25962-A-5-A	# 14 320-25962-A-5-A	# 15 CCV L5	# 15 CCV L5	# 15 CCV L5
# 15 CCV L5	# 15 CCV L5			

ICV 152681

LOA low 79775

E flag NCM 79769

Tune 79642

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152015

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 2/23/2017 5:22:00PM

Batch End: 2-27-17 17:10 P.M

At 2/28/17
3/1/17

Shake Extraction with Ultrasonic Bath Extraction

Due 3/6

Input Sample Lab ID (Analytical Method)	SDG (Job #)	Initial Amount	Final Amount	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152015/1 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A	RT	MB-320-152015/1-A
2 LCS-320-152015/2 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		LCS-320-152015/2-A
3 320-25933-A-1 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	4.97 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-1-A
4 320-25933-A-1-MS (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	4.99 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-1-B MSD
5 320-25933-A-1-MSD (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	5.00 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-1-C MSD
6 320-25933-A-2 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	4.97 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-2-A
7 320-25933-A-4 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	5.05 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-4-A
8 320-25933-A-5 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	4.99 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-5-A
9 320-25933-A-7 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	5.05 g	1.00 mL	2/27/17	8_Days	4		320-25933-A-7-A
10 320-25962-A-4 (PFC_IDA_DOD5)	N/A (320-25962-1)	5.05 g	1.00 mL	2/26/17	23_Days	4	10x PFOC	320-25962-A-4-A
11 320-25962-A-5 (PFC_IDA_DOD5)	N/A (320-25962-1)	4.97 g	1.00 mL	2/26/17	23_Days	4		320-25962-A-5-A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152015

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 2/23/2017 5:22:00PM

Batch End:

Batch Notes	
Balance ID	QA-070
Blank Sand Lot #	156690
Filter ID	NA
Millipore Water Dispense Date	2/23/17
Analyst ID - Reagent Drop Witness	<i>RAC</i>
SPE Cartridge ID	016836329B
SPE Cartridge Type	WAX 150mg
Hexane ID	0000130361
Methanol ID	851504
Ammonium Hydroxide/MeOH ID	847209
Sodium Hydroxide ID	0.1% NaOH/H2O: 819948
Methanolic Potassium Hydroxide ID	826650
Manifold ID	<i>5,6</i>
Interference check solution ID	NA
Acetic Acid ID	429065
Batch Comment	PIPETTE: MD05306

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152015

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 2/23/2017 5:22:00PM

Batch End:

Comments	
320-25933-A-1	Method Comments: include add on spikes
320-25933-A-1~MS	Method Comments: include add on spikes
320-25933-A-1~MSD	Method Comments: include add on spikes
320-25933-A-2	Method Comments: include add on spikes
320-25933-A-4	Method Comments: include add on spikes
320-25933-A-5	Method Comments: include add on spikes
320-25933-A-7	Method Comments: include add on spikes
320-25962-A-4	Method Comments: include add on spikes
320-25962-A-5	Method Comments: DOD site, Screen-caution
	Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152015

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 2/23/2017 5:22:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152015/1	LCMPFC2SU_00014	50 mL	1.00 mL	JMR 2/23/17	KMK 2-23-17
MB 320-152015/1	LCMPFCSU_00047	50 uL	1.00 mL		
LCS 320-152015/2	LCMPFC2SU_00014	50 mL	1.00 mL		
LCS 320-152015/2	LCMPFCSU_00047	50 uL	1.00 mL		
LCS 320-152015/2	LCPCFC2SP_00017	40 uL	1.00 mL		
LCS 320-152015/2	LCPCFCSP_00080	40 uL	1.00 mL		
320-25933-A-1	LCMPFC2SU_00014	50 mL	1.00 mL		
320-25933-A-1	LCMPFCSU_00047	50 uL	1.00 mL		
320-25933-A-1 MS	LCMPFC2SU_00014	50 mL	1.00 mL		
320-25933-A-1 MS	LCMPFCSU_00047	50 uL	1.00 mL		
320-25933-A-1 MS	LCPCFC2SP_00017	40 uL	1.00 mL		
320-25933-A-1 MS	LCPCFCSP_00080	40 uL	1.00 mL		
320-25933-A-1 MSD	LCMPFC2SU_00014	50 mL	1.00 mL		
320-25933-A-1 MSD	LCMPFCSU_00047	50 uL	1.00 mL		
320-25933-A-1 MSD	LCPCFC2SP_00017	40 uL	1.00 mL		
320-25933-A-1 MSD	LCPCFCSP_00080	40 uL	1.00 mL		
320-25933-A-2	LCMPFC2SU_00014	50 mL	1.00 mL		
320-25933-A-2	LCMPFCSU_00047	50 uL	1.00 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152015

Analyst: Reed, Jonathan E

Batch Open: 2/23/2017 5:22:00PM

Method Code: 320-Shake_Bath_14D-320

Batch End:

320-25933-A-4	LCMPFC2SU_00014	50 mL	1.00 mL	2-23-17 KMK
320-25933-A-4	LCMPFCSU_00047	50 uL	1.00 mL	
320-25933-A-5	LCMPFC2SU_00014	50 mL	1.00 mL	
320-25933-A-5	LCMPFCSU_00047	50 uL	1.00 mL	
320-25933-A-7	LCMPFC2SU_00014	50 mL	1.00 mL	
320-25933-A-7	LCMPFCSU_00047	50 uL	1.00 mL	
320-25962-A-4	LCMPFCSU_00047	50 uL	1.00 mL	
320-25962-A-5	LCMPFCSU_00047	50 uL	1.00 mL	

Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 152015

Test: PFC (5)

Earliest Holding Time: 3/03/17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	NA	NA
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: [Signature]

Date: 4/27/17

2nd Level Reviewer: [Signature]

Date: 2/27/17

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Batch Open: 2/28/2017 4:42:00PM

Batch End: 3/1/17 13:40

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152587/1 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		MB 320-152587-1-A
2 LCS-320-152587/2 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCS 320-152587-2-A
3 LCSD-320-152587/3 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCSD 320-152587-3-A
4 320-25933-A-3 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	291.92 g 27.40 g	264.5 mL 0.50 mL		3/3/17	8_Days	4		320-25933-A-3-A
5 320-25933-A-6 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	308.01 g 27.15 g	280.9 mL 0.50 mL		3/3/17	8_Days	4		320-25933-A-6-A
6 320-25962-A-3 (PFC_IDA_DOD5)	N/A (320-25962-1)	305.66 g 26.40 g	279.3 mL 0.50 mL		2/26/17	23_Days	4		320-25962-A-3-A
7 320-26011-A-10 (PFC_IDA_DOD5)	N/A (320-26011-1)	311.87 g 27.36 g	284.5 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-10-A
8 320-26011-A-20 (PFC_IDA_DOD5)	N/A (320-26011-1)	305.37 g 28.25 g	277.1 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-20-A
9 320-26011-A-21 (PFC_IDA_DOD5)	N/A (320-26011-1)	319.52 g 27.83 g	291.7 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-21-A
10 320-26103-A-7 (PFC_IDA_DOD5)	N/A (320-26103-1)	321.56 g 26.42 g	295.1 mL 0.50 mL		2/28/17	23_Days	4	50x	320-26103-A-7-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Batch Open: 2/28/2017 4:42:00PM

Batch End:

11	320-26103-A-12 (PFC_IDA_DOD5)	N/A (320-26103-1)	320.69 g	293.4 mL				2/28/17	23_Days	4		 328-26103-A-12-A
			27.25 g	0.50 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Batch Notes

Manifold ID 2, 5

Methanol ID 851503

Hexane ID 0000130361

Sodium Hydroxide ID 0.1N NaOH/H2O: 858158

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 2/28/17

Pipette ID MD05306

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 847209

Analyst ID - Reagent Drop JER

Analyst ID - SU Reagent Drop JER

Analyst ID - SU Reagent Drop

Witness

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

SOP Number NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Batch Comment NA

Comments

320-25933-A-3	Method Comments:	add-ons needed
320-25933-A-6	Method Comments:	add-ons needed
320-25962-A-3	Method Comments:	DOD site, Screen-caution
320-26011-A-10	Method Comments:	DOD site, Screen-caution
320-26011-A-20	Method Comments:	DOD site, Screen-caution
320-26011-A-21	Method Comments:	DOD site, Screen-caution
320-26103-A-7	Method Comments:	DOD site, Screen-caution
320-26103-A-12	Method Comments:	DOD site, Screen-caution

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152587/1	LCMPFC2SU_00014	25 uL	0.50 mL	<i>me Dzhoh</i>	<i>vpm 2/28/17</i>
MB 320-152587/1	LCMPFCSU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCMPFC2SU_00014	25 uL	0.50 mL		
LCS 320-152587/2	LCMPFCSU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCPC2SP_00017	20 uL	0.50 mL		
LCS 320-152587/2	LCPFCSP_00080	20 uL	0.50 mL		
LCSD 320-152587/3	LCMPFC2SU_00014	25 uL	0.50 mL		
LCSD 320-152587/3	LCMPFCSU_00047	25 uL	0.50 mL		
LCSD 320-152587/3	LCPC2SP_00017	20 uL	0.50 mL		
LCSD 320-152587/3	LCPFCSP_00080	20 uL	0.50 mL		
320-25933-A-3	LCMPFC2SU_00014	25 uL	0.50 mL		
320-25933-A-3	LCMPFCSU_00047	25 uL	0.50 mL		
320-25933-A-6	LCMPFC2SU_00014	25 uL	0.50 mL		
320-25933-A-6	LCMPFCSU_00047	25 uL	0.50 mL		
320-25962-A-3	LCMPFCSU_00047	25 uL	0.50 mL		
320-26011-A-10	LCMPFCSU_00047	25 uL	0.50 mL		
320-26011-A-20	LCMPFCSU_00047	25 uL	0.50 mL		
320-26011-A-21	LCMPFCSU_00047	25 uL	0.50 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

320-26103-A-7	LCMPFCSU_00047	25 uL	0.50 mL	<i>See Or 2/28/17</i>	<i>VPM 2728117</i>
320-26103-A-12	LCMPFCSU_00047	25 uL	0.50 mL	<i>↓</i>	<i>↓</i>

Other Reagents:			Lot#:
Reagent	Amount/Units		

Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): 350-152587 Test: PFC-3535 (L)

Earliest Holding Time: 3/03/17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		
All necessary NCMs filed (including holding time)	<u>NA</u>	<u>NA</u>
Method/sample/login/QAS checked and correct		
Worksheet Tab	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	<u>NA</u>	<u>NA</u>
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	<u>NA</u>	<u>NA</u>
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: COB

Date: 3/1/17

2nd Level Reviewer: VW

Date: 3/1/17

Comments: _____

Job # 26103 ; 25962

Analyst (Print Name) Syharz Chaudhry Analyst Initials SBC

Date 3/3/17

[illegible]

Comments:

HPLC/LCMS Data Review Checklist

Job Number(s): 26103; 25933; 25962; 26011

Work List ID(s): 40393

Extraction Batch: 152587

Analysis Batch(es): 152836

Delivery Rank: 4

Due Date: 3/3/17; 2/26/17; 2/27/17; 2/28/17

A Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>152681</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• 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.	✓	✓	
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#	✓	✓	
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): [Signature]

Date: 3/2/17

2nd Level Reviewer: [Signature]

Date: 3/8/2017

NCMs: 79638; 79640; 79642

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 02MAR2017A_PFC

Worklist Number: 40393

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 152836	LC PFC ICAL Raw Batch: 152837	LC PFAS ICAL Raw Batch: 152838	LC PFC_PREC ICAL Raw Batch: 152839
# 1 RB	# 1 RB	# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB	# 2 RB	# 2 RB
# 3 RB	# 3 RB	# 3 RB	# 3 RB	# 3 RB
# 4 RB	# 4 RB	# 4 RB	# 4 RB	# 4 RB
# 5 CCV L5	# 5 CCV L5	# 5 CCV L5	# 5 CCV L5	# 5 CCV L5
# 6 QC RING & PUCK		# 6 QC RING & PUCK	# 6 QC RING & PUCK	
# 7 QC MORTAR & PESTLES		# 7 QC MORTAR & PESTLES	# 7 QC MORTAR & PESTLES	
# 8 QC SIEVES	# 9 CCV L4	# 8 QC SIEVES	# 8 QC SIEVES	# 9 CCV L4
# 9 CCV L4	#10 CCV L2	# 9 CCV L4	# 9 CCV L4	#10 CCV L2
#10 CCV L2	#11 CCV L4	#10 CCV L2	#10 CCV L2	#11 CCV L4
#11 CCV L4	#12 RB	#11 CCV L4	#11 CCV L4	#12 RB
#12 RB	#13 MB 320-152587/1-A	#12 RB	#12 RB	
#13 MB 320-152587/1-A	#14 LCS	E flag NCM 79638 IDA high 79640		
#14 LCS	320-152587/2-A			
320-152587/2-A	#15 LCSD			
#15 LCSD	320-152587/3-A			
320-152587/3-A	#16 320-25933-A-3-A			
#16 320-25933-A-3-A	#17 320-25933-A-6-A			
#17 320-25933-A-6-A	#18 320-25962-A-3-A			
#18 320-25962-A-3-A	#19 320-26011-A-10-A			
#19 320-26011-A-10-A	#20 320-26011-A-20-A			
#20 320-26011-A-20-A	#21 320-26011-A-21-A			
#21 320-26011-A-21-A	#22 320-26103-A-7-A	#23 CCV L5	#23 CCV L5	#23 CCV L5
#22 320-26103-A-7-A	#23 CCV L5			
#23 CCV L5	#24 320-26103-A-12-A	#25 CCV L4	#25 CCV L4	#25 CCV L4
#24 320-26103-A-12-A	#25 CCV L4			
#25 CCV L4				

ICV 152681

Tune NCM 79642

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

AD 3/2/17

Batch Open: 2/28/2017 4:42:00PM

Batch End: 3/1/17 13:40

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152587/1 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		MB 320-152587-1-A
2 LCS-320-152587/2 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCS 320-152587-2-A
3 LCSD-320-152587/3 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCSD 320-152587-3-A
4 320-25933-A-3 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	291.92 g 27.40 g	264.5 mL 0.50 mL		3/3/17	8_Days	4		320-25933-A-3-A
5 320-25933-A-6 (PFC_IDA_DOD5)	M3010.0019.0017.0 (320-25933-1)	308.01 g 27.15 g	280.9 mL 0.50 mL		3/3/17	8_Days	4		320-25933-A-6-A
6 320-25962-A-3 (PFC_IDA_DOD5)	N/A (320-25962-1)	305.66 g 26.40 g	279.3 mL 0.50 mL		2/26/17	23_Days	4		320-25962-A-3-A
7 320-26011-A-10 (PFC_IDA_DOD5)	N/A (320-26011-1)	311.87 g 27.36 g	284.5 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-10-A
8 320-26011-A-20 (PFC_IDA_DOD5)	N/A (320-26011-1)	305.37 g 28.25 g	277.1 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-20-A
9 320-26011-A-21 (PFC_IDA_DOD5)	N/A (320-26011-1)	319.52 g 27.83 g	291.7 mL 0.50 mL		2/27/17	23_Days	4		320-26011-A-21-A
10 320-26103-A-7 (PFC_IDA_DOD5)	N/A (320-26103-1)	321.56 g 26.42 g	295.1 mL 0.50 mL		2/28/17	23_Days	4	50x	320-26103-A-7-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Batch Open: 2/28/2017 4:42:00PM

Batch End:

11

320-26103-A-12 (PFC_IDA_DOD5)	N/A (320-26103-1)	320.69 g	293.4 mL	2/28/17	23_Days	4	 320-26103-A-12-A11
		27.25 g	0.50 mL				

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Batch Notes

Manifold ID 2, 5

Methanol ID 851503

Hexane ID 0000130361

Sodium Hydroxide ID 0.1N NaOH/H2O: 858158

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 2/28/17

Pipette ID MD05306

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 847209

Analyst ID - Reagent Drop JER

Analyst ID - SU Reagent Drop JER

Analyst ID - SU Reagent Drop

Witness

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

SOP Number NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Batch Comment NA

Comments

320-25933-A-3	Method Comments:	add-ons needed
320-25933-A-6	Method Comments:	add-ons needed
320-25962-A-3	Method Comments:	DOD site, Screen-caution
320-26011-A-10	Method Comments:	DOD site, Screen-caution
320-26011-A-20	Method Comments:	DOD site, Screen-caution
320-26011-A-21	Method Comments:	DOD site, Screen-caution
320-26103-A-7	Method Comments:	DOD site, Screen-caution
320-26103-A-12	Method Comments:	DOD site, Screen-caution

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Batch Open: 2/28/2017 4:42:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152587/1	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	<i>VPM 2/28/17</i>
MB 320-152587/1	LCMPFC2SU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	
LCS 320-152587/2	LCMPFC2SU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCMPFC2SU_00017	20 uL	0.50 mL	<i>[Signature]</i>	
LCS 320-152587/2	LCMPFC2SU_00080	20 uL	0.50 mL		
LCS 320-152587/3	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	
LCS 320-152587/3	LCMPFC2SU_00047	25 uL	0.50 mL		
LCS 320-152587/3	LCMPFC2SU_00017	20 uL	0.50 mL	<i>[Signature]</i>	
LCS 320-152587/3	LCMPFC2SU_00080	20 uL	0.50 mL		
320-25933-A-3	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	
320-25933-A-3	LCMPFC2SU_00047	25 uL	0.50 mL		
320-25933-A-6	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	
320-25933-A-6	LCMPFC2SU_00047	25 uL	0.50 mL		
320-25962-A-3	LCMPFC2SU_00047	25 uL	0.50 mL	<i>[Signature]</i>	
320-26011-A-10	LCMPFC2SU_00047	25 uL	0.50 mL		
320-26011-A-20	LCMPFC2SU_00047	25 uL	0.50 mL	<i>[Signature]</i>	
320-26011-A-21	LCMPFC2SU_00047	25 uL	0.50 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152587

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/28/2017 4:42:00PM

Batch End:

320-26103-A-7	LCMPFCSU_00047	25 uL	0.50 mL	<i>See Dr 1/28/17</i>	<i>WPM 2/28/17</i>
320-26103-A-12	LCMPFCSU_00047	25 uL	0.50 mL	<i>↓</i>	<i>↓</i>

Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 320-152587 Test: PFC-3535 (L)
Earliest Holding Time: 3/03/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method			
All necessary NCMs filed (including holding time)		NA	NA
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: CS

Date: 3/1/17

2nd Level Reviewer: VIN

Date: 3/1/17

Comments: _____

HPLC/LCMS Data Review Checklist

Job Number(s): 820-26017

Work List ID(s): 40741

Extraction Batch: 152953

Analysis Batch(es): 164516

Delivery Rank: 4

Due Date: 3/18/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>162681</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• 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.	✓	✓	
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#	✓	✓	
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): Phm C. SBC 3/15/17

Date: 3/12/17

2nd Level Reviewer: mmwalf

Date: 3/12/2017

NCM # 79612

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 11MAR2017D_PFC

Worklist Number: 40741

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170312-40741.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 154516	LC PFC ICAL Raw Batch: 154517	LC PFAS ICAL Raw Batch: 154518	LC PFC_PREC ICAL Raw Batch: 154519
# 1 CCV L4	# 1 CCV L4	# 1 CCV L4	# 1 CCV L4	# 1 CCV L4
# 2 MB 320-152953/1-A	# 2 MB 320-152953/1-A			
# 3 LCS 320-152953/2-A	# 3 LCS 320-152953/2-A			
# 4 320-26011-A-1-A	# 4 320-26011-A-1-A			
# 5 320-26011-A-2-A	# 5 320-26011-A-2-A			
# 6 320-26011-A-3-A	# 6 320-26011-A-3-A			
# 7 320-26011-A-4-A	# 7 320-26011-A-4-A			
# 8 320-26011-A-5-A	# 8 320-26011-A-5-A			
# 9 320-26011-A-6-A	# 9 320-26011-A-6-A			
#10 320-26011-A-7-A	#10 320-26011-A-7-A			
#11 CCV L5	#11 CCV L5	#11 CCV L5	#11 CCV L5	#11 CCV L5
#12 320-26011-A-8-A	#12 320-26011-A-8-A			
#13 320-26011-A-9-A	#13 320-26011-A-9-A			
#14 320-26011-A-11-A	#14 320-26011-A-11-A			
#15 320-26011-A-12-A	#15 320-26011-A-12-A			
#16 320-26011-A-13-A	#16 320-26011-A-13-A			
#17 320-26011-A-14-A	#17 320-26011-A-14-A			
#18 320-26011-A-15-A	#18 320-26011-A-15-A			
#19 320-26011-A-16-A	#19 320-26011-A-16-A			
#20 320-26011-A-17-A	#20 320-26011-A-17-A			
#21 CCV L4	#21 CCV L4	#21 CCV L4	#21 CCV L4	#21 CCV L4
#22 320-26011-A-17-B	#22 320-26011-A-17-B			
MS	MS			
#23 320-26011-A-17-C	#23 320-26011-A-17-C			
MSD	MSD			
#24 320-26011-A-18-A	#24 320-26011-A-18-A	#26 CCV L5	#26 CCV L5	#26 CCV L5
#25 320-26011-A-19-A	#25 320-26011-A-19-A			
#26 CCV L5	#26 CCV L5			

CCV L2 154503

ICV 152681

88

AB 3/11/17

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Method Code: 320-Shake_Bath_14D-320

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End: 3/19/17 10:55

Shake Extraction with Ultrasonic Bath Extraction

Due 3/23

Input Sample Lab ID (Analytical Method)	SDG (Job #)	Initial Amount	Final Amount	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152953/1 N/A	N/A	5 g		N/A	N/A	N/A		MB 320-152953-1-A
2 LCS-320-152953/2 N/A	N/A	5 g	1 mL	N/A	N/A	N/A		LCS 320-152953-2-A
3 320-26011-A-1 (PFC_IDA_DOD5)	(320-26011-1)	5.02 g	1 mL	2/27/17	23_Days	4		320-26011-A-1-A
4 320-26011-A-2 (PFC_IDA_DOD5)	(320-26011-1)	5.08 g	1 mL	2/27/17	23_Days	4		320-26011-A-2-A
5 320-26011-A-3 (PFC_IDA_DOD5)	(320-26011-1)	5.08 g	1 mL	2/27/17	23_Days	4		320-26011-A-3-A
6 320-26011-A-4 (PFC_IDA_DOD5)	(320-26011-1)	5.00 g	1 mL	2/27/17	23_Days	4		320-26011-A-4-A
7 320-26011-A-5 (PFC_IDA_DOD5)	(320-26011-1)	5.02 g	1 mL	2/27/17	23_Days	4		320-26011-A-5-A
8 320-26011-A-6 (PFC_IDA_DOD5)	(320-26011-1)	4.94 g	1 mL	2/27/17	23_Days	4		320-26011-A-6-A
9 320-26011-A-7 (PFC_IDA_DOD5)	(320-26011-1)	4.92 g	1 mL	2/27/17	23_Days	4		320-26011-A-7-A
10 320-26011-A-8 (PFC_IDA_DOD5)	(320-26011-1)	4.96 g	1 mL	2/27/17	23_Days	4		320-26011-A-8-A
11 320-26011-A-9 (PFC_IDA_DOD5)	(320-26011-1)	4.98 g	1 mL	2/27/17	23_Days	4		320-26011-A-9-A
12 320-26011-A-11 (PFC_IDA_DOD5)	(320-26011-1)	5.05 g	1 mL	2/27/17	23_Days	4		320-26011-A-11-A
13 320-26011-A-12 (PFC_IDA_DOD5)	(320-26011-1)	4.96 g	1 mL	2/27/17	23_Days	4		320-26011-A-12-A
14 320-26011-A-13 (PFC_IDA_DOD5)	(320-26011-1)	5.06 g	1 mL	2/27/17	23_Days	4		320-26011-A-13-A
15 320-26011-A-14 (PFC_IDA_DOD5)	(320-26011-1)	5.07 g	1 mL	2/27/17	23_Days	4		320-26011-A-14-A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End:

Method Code: 320-Shake_Bath_14D-320

16	320-26011-A-15 (PFC_IDA_DOD5)	N/A (320-26011-1)	5.08 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 5 - A
17	320-26011-A-16 (PFC_IDA_DOD5)	N/A (320-26011-1)	4.92 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 6 - A
18	320-26011-A-17 (PFC_IDA_DOD5)	N/A (320-26011-1)	5.00 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 7 - A
19	320-26011-A-17-MS (PFC_IDA_DOD5)	N/A (320-26011-1)	5.00 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 7 - B M S D
20	320-26011-A-17-MSD (PFC_IDA_DOD5)	N/A (320-26011-1)	4.96 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 7 - C M S D
21	320-26011-A-18 (PFC_IDA_DOD5)	N/A (320-26011-1)	5.00 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 8 - A
22	320-26011-A-19 (PFC_IDA_DOD5)	N/A (320-26011-1)	5.09 g	1 mL	2/27/17	23_Days	4	 3 2 0 - 2 6 0 1 1 - A - 1 9 - A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Method Code: 320-Shake_Bath_14D-320

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End:

Batch Notes	
Balance ID	QA-074
Blank Sand Lot #	156690
Filter ID	NA
Millipore Water Dispense Date	3/02/17
Analyst ID - Reagent Drop Witness	DxD
SPE Cartridge ID	0168363298
SPE Cartridge Type	WAX 150mg
Hexane ID	863953
Methanol ID	865705
Ammonium Hydroxide/MeOH ID	864287
Sodium Hydroxide ID	858158
Methanolic Potassium Hydroxide ID	865053
Manifold ID	5,6
Interference check solution ID	NA
Acetic Acid ID	429665
Batch Comment	Pipette: EH15371

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Method Code: 320-Shake_Bath_14D-320

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End:

Comments

320-26011-A-1	Method Comments: DOD site, Screen-caution
320-26011-A-2	Method Comments: DOD site, Screen-caution
320-26011-A-3	Method Comments: DOD site, Screen-caution
320-26011-A-4	Method Comments: DOD site, Screen-caution
320-26011-A-5	Method Comments: DOD site, Screen-caution
320-26011-A-6	Method Comments: DOD site, Screen-caution
320-26011-A-7	Method Comments: DOD site, Screen-caution
320-26011-A-8	Method Comments: DOD site, Screen-caution
320-26011-A-9	Method Comments: DOD site, Screen-caution
320-26011-A-11	Method Comments: DOD site, Screen-caution
320-26011-A-12	Method Comments: DOD site, Screen-caution
320-26011-A-13	Method Comments: DOD site, Screen-caution
320-26011-A-14	Method Comments: DOD site, Screen-caution
320-26011-A-15	Method Comments: DOD site, Screen-caution
320-26011-A-16	Method Comments: DOD site, Screen-caution
320-26011-A-17	Method Comments: DOD site, Screen-caution
320-26011-A-17-MS	Method Comments: DOD site, Screen-caution
320-26011-A-17-MSD	Method Comments: DOD site, Screen-caution
320-26011-A-18	Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Method Code: 320-Shake_Bath_14D-320

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End:

Method Comments: DOD site, Screen-caution

320-26011-A-19

Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Method Code: 320-Shake_Bath_14D-320

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152953/1	LCMPFCSU_00047	50 uL	1 mL	ERW 3/2/17	DXD 3/2/17
LCS 320-152953/2	LCMPFCSU_00047	50 uL	1 mL		
LCS 320-152953/2	LCPFCSU_00080	40 uL	1 mL		
320-26011-A-1	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-2	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-3	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-4	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-5	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-6	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-7	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-8	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-9	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-11	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-12	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-13	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-14	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-15	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-16	LCMPFCSU_00047	50 uL	1 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152953

Analyst: Winchester, Ethan R

Batch Open: 3/2/2017 4:23:00PM

Method Code: 320-Shake_Bath_14D-320

Batch End:

320-26011-A-17	LCMPFCSU_00047	50 uL	1 mL	3/2/17	D&D 3/2/17
320-26011-A-17 MS	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-17 MS	LCPFCSU_00080	40 uL	1 mL		
320-26011-A-17 MSD	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-17 MSD	LCPFCSU_00080	40 uL	1 mL		
320-26011-A-18	LCMPFCSU_00047	50 uL	1 mL		
320-26011-A-19	LCMPFCSU_00047	50 uL	1 mL		

Reagent	Amount/Units	Lot#:

Preparation Batch Number(s): 152953 Test: PFC

Earliest Holding Time: 3/07/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		✓	✓
All necessary NCMs filed (including holding time)		NA	NA
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: [Signature]

Date: 3/10/17

2nd Level Reviewer: [Signature]

Date: 3/10/17

Comments: _____

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-26011-1

SDG No.: _____

Project: Meridian 10006-7-105420 JM01 Navy Clean

Client Sample ID	Lab Sample ID
MEAFF-FTA1-SB01-0204	320-26011-1
MEAFF-FD01-022217	320-26011-2
MEAFF-FTA1-SB02-0204	320-26011-3
MEAFF-SDA4B-SB01-0001	320-26011-4
MEAFF-FD02-022217	320-26011-5
MEAFF-SDA4B-SB01-0204	320-26011-6
MEAFF-SDA4D-SB01-0001	320-26011-7
MEAFF-FD03-022217	320-26011-8
MEAFF-SDA4D-SB01-0204	320-26011-9
MEAFF-SDA4A-SB01-0001	320-26011-11
MEAFF-SDA4A-SB01-0204	320-26011-12
MEAFF-SDA4A-SB02-0001	320-26011-13
MEAFF-SDA4A-SB02-0204	320-26011-14
MEAFF-WWTP-SB01-1012	320-26011-15
MEAFF-WWTP-SB03-0608	320-26011-16
MEAFF-WWTP-SB02-1012	320-26011-17
MEAFF-UNKNOWN22-SB01-0001	320-26011-18
MEAFF-UNKNOWN22-SB01-0204	320-26011-19

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-26011-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: D 2216

LOQ Date: 01/01/2012 08:18

Analyte	Wavelength/ Mass	LOQ (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job Number: 320-26011-1
SDG Number: _____
Matrix: Solid Instrument ID: NOEQUIP
Method: D 2216 XRL Date: 01/01/2012 08:19

Analyte	Wavelength/ Mass	XRL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Instrument ID: NOEQUIP Analysis Method: D 2216
 Start Date: 02/25/2017 13:20 End Date: 02/25/2017 13:20

Lab Sample Id	D/F	T y p e	Time	Analytes																									
				% S o l	M o i s t																								
ZZZZZZ			13:20																										
ZZZZZZ			13:20																										
320-26011-2	1	T	13:20	X	X																								
320-26011-3	1	T	13:20	X	X																								
320-26011-4	1	T	13:20	X	X																								
320-26011-5	1	T	13:20	X	X																								
320-26011-6	1	T	13:20	X	X																								
320-26011-7	1	T	13:20	X	X																								
320-26011-8	1	T	13:20	X	X																								
320-26011-9	1	T	13:20	X	X																								
320-26011-11	1	T	13:20	X	X																								
320-26011-12	1	T	13:20	X	X																								
320-26011-13	1	T	13:20	X	X																								
320-26011-14	1	T	13:20	X	X																								
320-26011-15	1	T	13:20	X	X																								
320-26011-16	1	T	13:20	X	X																								
320-26011-17	1	T	13:20	X	X																								
320-26011-18	1	T	13:20	X	X																								
320-26011-19	1	T	13:20	X	X																								
320-26011-1	1	T	13:20	X	X																								

Prep Types: _____
 T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Batch Number: 152217 Batch Start Date: 02/25/17 13:20 Batch Analyst: Popova, Esfir 1Batch Method: D 2216 Batch End Date: 02/27/17 11:24

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
320-26011-A-2	MEAFF-FD01-022217	D 2216	T	3	1.02 g	10.48 g	8.10 g		
320-26011-A-3	MEAFF-FTA1-SB02-0204	D 2216	T	4	1.01 g	9.32 g	7.13 g		
320-26011-A-4	MEAFF-SDA4B-SB01-0001	D 2216	T	5	1.02 g	10.80 g	8.87 g		
320-26011-A-5	MEAFF-FD02-022217	D 2216	T	6	1.01 g	9.83 g	8.33 g		
320-26011-A-6	MEAFF-SDA4B-SB01-0204	D 2216	T	7	1.00 g	9.40 g	7.59 g		
320-26011-A-7	MEAFF-SDA4D-SB01-0001	D 2216	T	8	1.03 g	9.98 g	8.83 g		
320-26011-A-8	MEAFF-FD03-022217	D 2216	T	9	1.02 g	9.68 g	8.58 g		
320-26011-A-9	MEAFF-SDA4D-SB01-0204	D 2216	T	10	1.00 g	9.91 g	9.12 g		
320-26011-A-11	MEAFF-SDA4A-SB01-0001	D 2216	T	11	1.00 g	9.75 g	8.57 g		
320-26011-A-12	MEAFF-SDA4A-SB01-0204	D 2216	T	12	1.01 g	9.95 g	8.67 g		
320-26011-A-13	MEAFF-SDA4A-SB02-0001	D 2216	T	13	1.03 g	9.32 g	7.73 g		
320-26011-A-14	MEAFF-SDA4A-SB02-0204	D 2216	T	14	1.02 g	9.99 g	8.65 g		
320-26011-A-15	MEAFF-WWTP-SB01-1012	D 2216	T	15	1.01 g	9.26 g	7.82 g		
320-26011-A-16	MEAFF-WWTP-SB03-0608	D 2216	T	16	1.00 g	9.91 g	7.75 g		
320-26011-A-17	MEAFF-WWTP-SB02-1012	D 2216	T	17	1.02 g	9.79 g	7.31 g		
320-26011-A-18	MEAFF-UNKNOWN22-SB01-0001	D 2216	T	18	1.00 g	10.61 g	9.11 g		
320-26011-A-19	MEAFF-UNKNOWN22-SB01-0204	D 2216	T	19	1.00 g	10.61 g	9.10 g		
320-26011-A-1	MEAFF-FTA1-SB01-0204	D 2216	T	20	1.01 g	10.16 g	7.91 g		

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Batch Number: 152217 Batch Start Date: 02/25/17 13:20 Batch Analyst: Popova, Esfir 1Batch Method: D 2216 Batch End Date: 02/27/17 11:24

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	02/27/17 @ 9:40
Date and Time Samples out of Desiccator	02/27/17 @ 11:24
Date samples were placed in the oven	02-25-17
Oven Temp In	118 Degrees C
Time samples were place in the oven	14:40
Date samples were removed from oven	02/27/17
Oven Temp Out	115 Degrees C
Time Samples were removed from oven	9:40
Oven ID	Soil Prep #2
Thermometer ID	151969607

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.

Preparation Batch Number(s): 152217, 152210
152211, 152209 Test: % Moisture
 Earliest Holding Time: N/A 152218, 152219

320-25933, -26011, -25828, -25927, -25933, -25961, -25828, -25871, -25872, -25873

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	H/A
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)	NA MY 2/27/17 ✓	✓
The pH is transcribed correctly in TALS	NA	H/A
All additional information transcribed into TALS is correct and raw data is attached	NA	H/A
Comments are transcribed correctly in TALS	NA	H/A
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	NA	H/A
All spike amounts correct and added to necessary samples and QC	NA	H/A
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	/	✓

-25881
 -25889
 -25895
 -25954
 -26031
 -25962
 -25926

1st Level Reviewer: MY

Date: 2/27/17

2nd Level Reviewer: CFR

Date: 2/27/17

Comments: _____

Shipping and Receiving Documents

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Bryan Burklingstock		Site Contact: Ryan Brown		Date: 2/22/17		COC No: 2 of 2 COCs	
Tel/Fax:		Analysis Turnaround Time		Lab Contact: Jill Kellmann		Carrier: FedEx		Sampler:	
☒ CALENDAR DAYS ☐ WORKING DAYS		TAT if different from Below		Perform MS/MSD (Y/N)		Filtered Sample (Y/N)		For Lab Use Only:	
☐ 2 weeks		2 weeks		SO		1		Walk-in Client:	
☐ 1 week		1 week		1543		1		Lab Sampling:	
☐ 2 days		2 days		175		1		Job / SDG No.:	
☐ 1 day		1 day		1355		1		Sample Specific Notes:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)			
MEAFF-SDA4A-SB02-0001		2/22/17		1539		SO			
MEAFF-SDA4A-SB02-0204				1543					
MEAFF-WWTP-SB01-1012				175					
MEAFF-WWTP-SB03-0008				1355					
MEAFF-WWTP-SB02-1012				1430					
MEAFF-WWTP-SB02-1012-HS				↓					
MEAFF-WWTP-SB02-1012-SD				1545					
MEAFF-Unknown 22-SB01-0001				1550					
MEAFF-Unknown 22-SB01-0204				0835					
Hydrant Blank-022217				↓					
GROUT Tank Blank-022217				↓					
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification:									
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.									
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☒ Unknown									
Special Instructions/QC Requirements & Comments:									
Send results to Mike Lamborn - address should be on file									
Custody Seal Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Inquired by: Ryan Brown		Company: CH2M		Received by: Van Q		Company: TWS		Date/Time: 2/23/17 9:55	
Inquired by:		Company:		Received by:		Company:		Date/Time:	
Inquired by:		Company:		Received in Laboratory by:		Company:		Date/Time:	

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26011-1

Login Number: 26011

List Number: 1

Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

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

**DATA VALIDATION SUMMARY REPORT
NAVAL AIR STATION MERIDIAN, MISSISSIPPI**

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: 320-26011-1
Laboratory: Test America Laboratories, West Sacramento, California
Site: Naval Air Station Meridian, JM01, Meridian, Mississippi
Date: October 29, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MEAFF-FTA1-SB01-0204	320-26011-1	Soil
2	MEAFF-FD01-022217	320-26011-2	Soil
3	MEAFF-FTA1-SB02-0204	320-26011-3	Soil
4	MEAFF-SDA4B-SB01-0001	320-26011-4	Soil
5	MEAFF-FD02-022217	320-26011-5	Soil
6	MEAFF-SDA4B-SB01-0204	320-26011-6	Soil
7	MEAFF-SDA4D-SB01-0001	320-26011-7	Soil
8	MEAFF-FD03-022217	320-26011-8	Soil
9	MEAFF-SDA4D-SB01-0204	320-26011-9	Soil
10	MEAFF-EB02-022217-SO	320-26011-10	Water
11	MEAFF-SDA4A-SB01-0001	320-26011-11	Soil
12	MEAFF-SDA4A-SB01-0204	320-26011-12	Soil
13	MEAFF-SDA4A-SB02-0001	320-26011-13	Soil
14	MEAFF-SDA4A-SB02-0204	320-26011-14	Soil
15	MEAFF-WWTP-SB01-1012	320-26011-15	Soil
16	MEAFF-WWTP-SB03-0608	320-26011-16	Soil
17	MEAFF-WWTP-SB02-1012	320-26011-17	Soil
17MS	MEAFF-WWTP-SB02-1012MS	320-26011-17MS	Soil
17MSD	MEAFF-WWTP-SB02-1012MSD	320-26011-17MSD	Soil
18	MEAFF-UNKNOWN22-SB01-0001	320-26011-18	Soil
19	MEAFF-UNKNOWN22-SB01-0204	320-26011-19	Soil
20	HYDRANT BLANK-022217	320-26011-20	Water
21	GROUT TANK BLANK-022217	320-26011-21	Water

A full data validation was performed on the analytical data for eighteen soil samples, two water samples and one aqueous equipment blank sample collected on February 22, 2017 by CH2M HILL at the NAS Meridian site in Mississippi. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis
PFCs

Method References
USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the Draft Sampling and Analysis Plan, Perfluorinated Compounds Site Inspection, Naval Air Station Meridian, Task Order JM01, August 2016, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA “Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review,” January 2017;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Holding times and sample preservation
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Perfluorinated Compounds (PFCs)

Holding Times

- All samples were extracted within 14 days for water and soil samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- The field blank results are summarized below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
MEAFF-EB01-022117-SO	None - ND	-	-	-
MEAFF-EB02-022217-SO	PFOS	1.1	None	All Associated >10X

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values except for the following.

Sample ID	Surrogate	%R	Qualifier
10	13C4 PFOA	159%	None - All Associated ND

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Sample/Laboratory Control Sample (LCS/LCSD)

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- Several samples results were flagged (M) by the laboratory indicating manual integration. These flags were removed by the reviewer.

Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision is unacceptable for PFOA in one field duplicate pair. These results have been qualified as estimated (J).

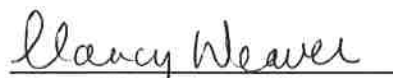
Compound	MEAFF-FTA1-SB01-0204 ug/kg	MEAFF-FD01-022217 ug/kg	RPD	Qualifier
PFOA	2.6	1.9	31%	None - <5X LOQ
PFOS	5.0	4.9	2%	None

Compound	MEAFF-SDA4B-SB01-0001 ug/kg	MEAFF-FD02-022217 ug/kg	RPD	Qualifier
PFOA	1.4	4.0	96%	J
PFOS	26	23	12%	None

Compound	MEAFF-SDA4D-SB01-0001 ug/kg	MEAFF-FD03-022217 ug/kg	RPD	Qualifier
PFOA	0.19	0.14	30%	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:


Nancy Weaver
Senior Chemist

Dated: 11/2/17

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-FTA1-SB01-0204 Lab Sample ID: 320-26011-1

Matrix: Solid Lab File ID: 2017.03.11D_040.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 10:40

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.02(g) Date Analyzed: 03/11/2017 23:27

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 24.6 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.6	~~M~~	0.66	0.40	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.0	~~M~~	0.66	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U ~~M~~	0.53	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	34		25-150
STL00994	18O2 PFHxS	90		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-FD01-022217 Lab Sample ID: 320-26011-2

Matrix: Solid Lab File ID: 2017.03.11D 041.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 00:00

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.08(g) Date Analyzed: 03/11/2017 23:35

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 25.2 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	~~M~~	0.66	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.9	~~M~~	0.66	0.39	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.39	~~U M~~	0.53	0.39	0.14

CAS NO.	ISOTOPE DILUTION	REC	Q	LIMITS
STL00990	13C4 PFOA	103		25-150
STL00991	13C4 PFOS	61		25-150
STL00994	18O2 PFHxS	93		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

3

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26011-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA1-SB02-0204</u>	Lab Sample ID: <u>320-26011-3</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11D_042.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/22/2017 09:55</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 16:23</u>
Sample wt/vol: <u>5.08(g)</u>	Date Analyzed: <u>03/11/2017 23:42</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>26.4</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154516</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.19	J ~~M~~	0.67	0.40	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.38	J ~~M~~	0.67	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U ~~M~~	0.53	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	48		25-150
STL00994	18O2 PFHxS	92		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

4

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4B-SB01-0001 Lab Sample ID: 320-26011-4

Matrix: Solid Lab File ID: 2017.03.11D_043.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 12:47

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.00(g) Date Analyzed: 03/11/2017 23:50

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 19.7 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	~~M~~ J	0.62	0.37	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	~~M~~ J	0.62	0.37	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	~~U~~ J	0.50	0.37	0.13

FD

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	62		25-150
STL00994	18O2 PFHxS	94		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

5

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-FD02-022217 Lab Sample ID: 320-26011-5

Matrix: Solid Lab File ID: 2017.03.11D_044.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 00:00

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.02(g) Date Analyzed: 03/11/2017 23:57

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 17.0 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.0	M 5	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	M	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.36	0.12

fd

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	71		25-150
STL00994	18O2 PFHxS	93		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

6

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4B-SB01-0204 Lab Sample ID: 320-26011-6

Matrix: Solid Lab File ID: 2017.03.11D 045.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 12:54

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.94(g) Date Analyzed: 03/12/2017 00:05

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 21.5 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	3.2	~~M~~	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.3	~~M~~	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.39	U ~~M~~	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	105		25-150
STL00991	13C4 PFOS	39		25-150
STL00994	18O2 PFHxS	98		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

7

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4D-SB01-0001 Lab Sample ID: 320-26011-7

Matrix: Solid Lab File ID: 2017.03.11D_046.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 13:50

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.92(g) Date Analyzed: 03/12/2017 00:12

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 12.8 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.19	J ~~M~~	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U ~~M~~	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U ~~M~~	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	42		25-150
STL00994	18O2 PFHxS	91		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

8

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-FD03-022217 Lab Sample ID: 320-26011-8

Matrix: Solid Lab File ID: 2017.03.11D_048.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 00:00

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.96(g) Date Analyzed: 03/12/2017 00:28

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 12.7 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.14	J ~~M~~	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U ~~M~~	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U ~~M~~	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	64		25-150
STL00994	18O2 PFHxS	95		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

9

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4D-SB01-0204 Lab Sample ID: 320-26011-9

Matrix: Solid Lab File ID: 2017.03.11D_049.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 13:52

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.98(g) Date Analyzed: 03/12/2017 00:35

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 8.9 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U ~~M~~	0.55	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U ~~M~~	0.55	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U ~~M~~	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	103		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	94		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

10

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-EB02-022217-SO Lab Sample ID: 320-26011-10

Matrix: Water Lab File ID: 2017.03.02A_010.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:05

Extraction Method: 3535 Date Extracted: 02/28/2017 16:42

Sample wt/vol: 284.5(mL) Date Analyzed: 03/02/2017 11:20

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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.2	1.8	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.1	J M	3.5	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.81

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	159	Q	25-150
STL00991	13C4 PFOS	140		25-150
STL00994	18O2 PFHxS	143		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

11

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4A-SB01-0001 Lab Sample ID: 320-26011-11

Matrix: Solid Lab File ID: 2017.03.11D_050.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:26

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.05(g) Date Analyzed: 03/12/2017 00:43

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 13.5 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.31	J M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.63	M	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.18	J M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	130		25-150
STL00991	13C4 PFOS	89		25-150
STL00994	18O2 PFHxS	106		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1 12
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4A-SB01-0204 Lab Sample ID: 320-26011-12
 Matrix: Solid Lab File ID: 2017.03.11D_051.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:33
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 4.96(g) Date Analyzed: 03/12/2017 00:50
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 14.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U ~~M~~	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U ~~M~~	0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U ~~M~~	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	32		25-150
STL00994	18O2 PFHxS	89		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

13

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4A-SB02-0001 Lab Sample ID: 320-26011-13

Matrix: Solid Lab File ID: 2017.03.11D_052.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:39

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.06(g) Date Analyzed: 03/12/2017 00:58

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 19.2 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.26	J ~~M~~	0.61	0.37	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	~~M~~	0.61	0.37	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	U ~~M~~	0.49	0.37	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	128		25-150
STL00991	13C4 PFOS	74		25-150
STL00994	18O2 PFHxS	95		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

14

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4A-SB02-0204 Lab Sample ID: 320-26011-14
 Matrix: Solid Lab File ID: 2017.03.11D_053.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:43
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.07(g) Date Analyzed: 03/12/2017 01:05
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 14.9 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	M	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	M	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	37		25-150
STL00994	18O2 PFHxS	91		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

15

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-WWTP-SB01-1012 Lab Sample ID: 320-26011-15

Matrix: Solid Lab File ID: 2017.03.11D 054.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 11:25

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.08(g) Date Analyzed: 03/12/2017 01:13

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 17.5 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U ~~M~~	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.72	~~M~~	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	98		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

16

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-WWTP-SB03-0608 Lab Sample ID: 320-26011-16

Matrix: Solid Lab File ID: 2017.03.11D_055.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 13:55

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 4.92(g) Date Analyzed: 03/12/2017 01:20

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 24.2 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.40	U ~~M~~	0.67	0.40	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.4	~~M~~	0.67	0.40	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.40	U ~~M~~	0.54	0.40	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	110		25-150
STL00991	13C4 PFOS	56		25-150
STL00994	18O2 PFHxS	98		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

17

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-WWTP-SB02-1012 Lab Sample ID: 320-26011-17

Matrix: Solid Lab File ID: 2017.03.11D_056.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 14:30

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.00(g) Date Analyzed: 03/12/2017 01:28

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 28.3 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.42	U ~~M~~	0.70	0.42	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.20	J ~~M~~	0.70	0.42	0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.42	U	0.56	0.42	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	107		25-150
STL00991	13C4 PFOS	52		25-150
STL00994	18O2 PFHxS	99		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

18

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: MEAFF-UNKNOWN22-SB01-0001 Lab Sample ID: 320-26011-18

Matrix: Solid Lab File ID: 2017.03.11D_060.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:45

Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23

Sample wt/vol: 5.00(g) Date Analyzed: 03/12/2017 01:58

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 15.6 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U	0.59	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.59	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U <i>M</i>	0.47	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	86		25-150
STL00991	13C4 PFOS	46		25-150
STL00994	18O2 PFHxS	78		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

19

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: MEAFF-UNKNOWN22-SB01-0204 Lab Sample ID: 320-26011-19
 Matrix: Solid Lab File ID: 2017.03.11D_061.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 15:50
 Extraction Method: SHAKE Date Extracted: 03/02/2017 16:23
 Sample wt/vol: 5.09(g) Date Analyzed: 03/12/2017 03:05
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 15.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154516 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	39		25-150
STL00994	18O2 PFHxS	80		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

20

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1
 SDG No.: _____
 Client Sample ID: HYDRANT BLANK-022217 Lab Sample ID: 320-26011-20
 Matrix: Water Lab File ID: 2017.03.02A_011.d
 Analysis Method: 537 (Modified) Date Collected: 02/22/2017 08:35
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 277.1(mL) Date Analyzed: 03/02/2017 11:27
 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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.3	1.8	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	132		25-150
STL00994	18O2 PFHxS	135		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

21

Lab Name: TestAmerica Sacramento Job No.: 320-26011-1

SDG No.: _____

Client Sample ID: GROUT TANK BLANK-022217 Lab Sample ID: 320-26011-21

Matrix: Water Lab File ID: 2017.03.02A_012.d

Analysis Method: 537 (Modified) Date Collected: 02/22/2017 09:20

Extraction Method: 3535 Date Extracted: 02/28/2017 16:42

Sample wt/vol: 291.7(mL) Date Analyzed: 03/02/2017 11:35

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.: 152836 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.77	J M	2.1	1.7	0.64
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.7	U	2.1	1.7	0.79

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	138		25-150
STL00994	18O2 PFHxS	138		25-150