



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, and Data Validation Report,
SDG J26103-1**

*Naval Air Station Meridian
Meridian, Mississippi*

July 2019

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-26103-1

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

For:

CH2M Hill, Inc.

2411 Dulles Corner Park

Suite 500

Herndon, Virginia 20171

Attn: Mr. Michael Zamboni



Authorized for release by:

3/23/2017 5:22:39 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.

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Definitions/Glossary

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

TestAmerica Job ID: 320-26103-1

Qualifiers

GC/MS Semi VOA

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

LCMS

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
E	Result exceeded calibration range.
D	The reported value is from a dilution.
Q	One or more quality control criteria failed.

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: 320-26103-1

Job ID: 320-26103-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26103-1

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

TestAmerica 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 02/24/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.2 C.

Receipt Exceptions

Received additional volume for a MS/MSD pair for sample MEAFF-SDA4C-SB01-0001 (320-26103-3), however, no MS/MSD was requested. Per client, the laboratory was instructed to perform a MS/MSD pair on this sample for PFCs.

1,4-DIOXANE

Samples MEAFF-MRD-0504-0217 (320-26103-6), MEAFF-MRD-0621-0217 (320-26103-7), MEAFF-MRD-0503-0217 (320-26103-11) and MEAFF-MRD-0615-0217 (320-26103-12) were analyzed for 1,4-dioxane in accordance with EPA SW-846 Method 8270C SIM. The samples were prepared on 03/02/2017 and analyzed on 03/14/2017.

Case Narrative

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

TestAmerica Job ID: 320-26103-1

Job ID: 320-26103-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

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

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 concentration of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) in the following sample exceeded the instrument calibration range: MEAFF-MRD-0621-0217 (320-26103-7). This sample has been analyzed at dilution and both sets of data have been reported.

The following sample was diluted to bring the concentration of target analytes within the calibration range: MEAFF-FTA2-SB04-0608 (320-26103-9). Elevated reporting limits (RLs) are provided.

The Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: (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: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Lab Sample ID: 320-26103-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.21	J M	0.58	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4C-SB02-0204

Lab Sample ID: 320-26103-2

No Detections.

Client Sample ID: MEAFF-SDA4C-SB01-0001

Lab Sample ID: 320-26103-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.76	M	0.60	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9	M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4C-SB01-0204

Lab Sample ID: 320-26103-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.42	J M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB02-0608

Lab Sample ID: 320-26103-5

No Detections.

Client Sample ID: MEAFF-MRD-0504-0217

Lab Sample ID: 320-26103-6

No Detections.

Client Sample ID: MEAFF-MRD-0621-0217

Lab Sample ID: 320-26103-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5400	M E	2.1	0.63	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	400	E	3.4	1.1	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	13000	D M	110	32	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	410	D	170	54	ng/L	50		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB05-0608

Lab Sample ID: 320-26103-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB04-0608

Lab Sample ID: 320-26103-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	22	M	0.71	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	770	M E	0.71	0.18	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	22	J D M	71	14	ug/Kg	100	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1000	D M	71	18	ug/Kg	100	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB03-0608

Lab Sample ID: 320-26103-10

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: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB03-0608 (Continued)

Lab Sample ID: 320-26103-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.65	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-MRD-0503-0217

Lab Sample ID: 320-26103-11

No Detections.

Client Sample ID: MEAFF-MRD-0615-0217

Lab Sample ID: 320-26103-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	210		2.1	0.64	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	46		3.4	1.1	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: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

Matrix: Solid

Percent Solids: 85.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.58	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 15:57	1
Perfluorooctanesulfonic acid (PFOS)	0.21	J M	0.58	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 15:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	123		25 - 150				03/02/17 17:04	03/11/17 15:57	1
13C4 PFOS	84		25 - 150				03/02/17 17:04	03/11/17 15:57	1

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

Matrix: Solid

Percent Solids: 85.9

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 17:04	03/11/17 16:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	96		25 - 150				03/02/17 17:04	03/11/17 16:05	1
13C4 PFOS	44		25 - 150				03/02/17 17:04	03/11/17 16:05	1

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

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)	0.76	M	0.60	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:12	1
Perfluorooctanesulfonic acid (PFOS)	1.9	M	0.60	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				03/02/17 17:04	03/11/17 16:12	1
13C4 PFOS	60		25 - 150				03/02/17 17:04	03/11/17 16:12	1

Client Sample ID: MEAFF-SDA4C-SB01-0204

Date Collected: 02/23/17 09:33

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-4

Matrix: Solid

Percent Solids: 82.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:35	1
Perfluorooctanesulfonic acid (PFOS)	0.42	J M	0.60	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				03/02/17 17:04	03/11/17 16:35	1
13C4 PFOS	45		25 - 150				03/02/17 17:04	03/11/17 16:35	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB02-0608

Date Collected: 02/23/17 12:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-5

Matrix: Solid

Percent Solids: 73.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.41	U	0.68	0.14	ug/Kg	☼	03/02/17 17:04	03/11/17 16:42	1
Perfluorooctanesulfonic acid (PFOS)	0.41	U	0.68	0.17	ug/Kg	☼	03/02/17 17:04	03/11/17 16:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				03/02/17 17:04	03/11/17 16:42	1
13C4 PFOS	103		25 - 150				03/02/17 17:04	03/11/17 16:42	1

Client Sample ID: MEAFF-MRD-0504-0217

Date Collected: 02/23/17 14:30

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-6

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.47	U	0.94	0.19	ug/L	—	03/02/17 13:45	03/14/17 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	72		42 - 91				03/02/17 13:45	03/14/17 16:12	1

Client Sample ID: MEAFF-MRD-0621-0217

Date Collected: 02/23/17 16:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-7

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.47	U	0.95	0.19	ug/L	—	03/02/17 13:45	03/14/17 16:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	58		42 - 91				03/02/17 13:45	03/14/17 16:35	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	5400	M E	2.1	0.63	ng/L	—	02/28/17 16:42	03/02/17 11:42	1
Perfluorooctanesulfonic acid (PFOS)	400	E	3.4	1.1	ng/L	—	02/28/17 16:42	03/02/17 11:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	25		25 - 150				02/28/17 16:42	03/02/17 11:42	1
13C4 PFOS	121		25 - 150				02/28/17 16:42	03/02/17 11:42	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	13000	D M	110	32	ng/L	—	02/28/17 16:42	03/03/17 09:45	50
Perfluorooctanesulfonic acid (PFOS)	410	D	170	54	ng/L	—	02/28/17 16:42	03/03/17 09:45	50
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	101		25 - 150				02/28/17 16:42	03/03/17 09:45	50
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/03/17 09:45	50

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB05-0608

Date Collected: 02/23/17 13:50

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-8

Matrix: Solid

Percent Solids: 76.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 16:57	1
Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.16	ug/Kg	☼	03/02/17 17:04	03/11/17 16:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	99		25 - 150				03/02/17 17:04	03/11/17 16:57	1
13C4 PFOS	60		25 - 150				03/02/17 17:04	03/11/17 16:57	1

Client Sample ID: MEAFF-FTA2-SB04-0608

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-9

Matrix: Solid

Percent Solids: 70.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	22	M	0.71	0.14	ug/Kg	☼	03/02/17 17:04	03/11/17 17:05	1
Perfluorooctanesulfonic acid (PFOS)	770	M E	0.71	0.18	ug/Kg	☼	03/02/17 17:04	03/11/17 17:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	85		25 - 150				03/02/17 17:04	03/11/17 17:05	1
13C4 PFOS	32		25 - 150				03/02/17 17:04	03/11/17 17:05	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	22	J D M	71	14	ug/Kg	☼	03/02/17 17:04	03/13/17 16:46	100
Perfluorooctanesulfonic acid (PFOS)	1000	D M	71	18	ug/Kg	☼	03/02/17 17:04	03/13/17 16:46	100
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	89		25 - 150				03/02/17 17:04	03/13/17 16:46	100
13C4 PFOS	54		25 - 150				03/02/17 17:04	03/13/17 16:46	100

Client Sample ID: MEAFF-FTA2-SB03-0608

Date Collected: 02/23/17 14:55

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-10

Matrix: Solid

Percent Solids: 75.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.65	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 17:12	1
Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.16	ug/Kg	☼	03/02/17 17:04	03/11/17 17:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	102		25 - 150				03/02/17 17:04	03/11/17 17:12	1
13C4 PFOS	87		25 - 150				03/02/17 17:04	03/11/17 17:12	1

Client Sample ID: MEAFF-MRD-0503-0217

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-11

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.97	0.19	ug/L		03/02/17 13:45	03/14/17 16:57	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-MRD-0503-0217

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-11

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	68		42 - 91	03/02/17 13:45	03/14/17 16:57	1

Client Sample ID: MEAFF-MRD-0615-0217

Date Collected: 02/23/17 16:05

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-12

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)									
Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.49	U	0.97	0.19	ug/L		03/02/17 13:45	03/14/17 17:20	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Nitrobenzene-d5	59		42 - 91	03/02/17 13:45	03/14/17 17:20	1			

Method: 537 (Modified) - Perfluorinated Hydrocarbons									
Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	210		2.1	0.64	ng/L		02/28/17 16:42	03/02/17 11:57	1
Perfluorooctanesulfonic acid (PFOS)	46		3.4	1.1	ng/L		02/28/17 16:42	03/02/17 11:57	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	77		25 - 150	02/28/17 16:42	03/02/17 11:57	1			
13C4 PFOS	133		25 - 150	02/28/17 16:42	03/02/17 11:57	1			

TestAmerica Sacramento

Surrogate Summary

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

TestAmerica Job ID: 320-26103-1

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NBZ (42-91)
320-26103-6	MEAFF-MRD-0504-0217	72
320-26103-7	MEAFF-MRD-0621-0217	58
320-26103-11	MEAFF-MRD-0503-0217	68
320-26103-12	MEAFF-MRD-0615-0217	59
LCS 320-152910/2-A	Lab Control Sample	73
LCSD 320-152910/3-A	Lab Control Sample Dup	74
MB 320-152910/1-A	Method Blank	69

Surrogate Legend

NBZ = Nitrobenzene-d5

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26103-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	3C4 PFO/ (25-150)	3C4 PFO: (25-150)
320-26103-1	MEAFF-SDA4C-SB02-0001	123	84
320-26103-2	MEAFF-SDA4C-SB02-0204	96	44
320-26103-3	MEAFF-SDA4C-SB01-0001	109	60
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	104	68
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	112	72
320-26103-4	MEAFF-SDA4C-SB01-0204	98	45
320-26103-5	MEAFF-FTA2-SB02-0608	109	103
320-26103-8	MEAFF-FTA2-SB05-0608	99	60
320-26103-9	MEAFF-FTA2-SB04-0608	85	32
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	89	54
320-26103-10	MEAFF-FTA2-SB03-0608	102	87
LCS 320-152961/2-A	Lab Control Sample	113	100
MB 320-152961/1-A	Method Blank	122 M	99
Surrogate Legend			
13C4 PFOA = 13C4 PFOA			
13C4 PFOS = 13C4 PFOS			

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	3C4 PFO/ (25-150)	3C4 PFO: (25-150)
320-26103-7	MEAFF-MRD-0621-0217	25	121
320-26103-7 - DL	MEAFF-MRD-0621-0217	101	138
320-26103-12	MEAFF-MRD-0615-0217	77	133
LCS 320-152587/2-A	Lab Control Sample	142	133
LCSD 320-152587/3-A	Lab Control Sample Dup	142	135
MB 320-152587/1-A	Method Blank	158 Q	138
Surrogate Legend			
13C4 PFOA = 13C4 PFOA			
13C4 PFOS = 13C4 PFOS			

QC Sample Results

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

TestAmerica Job ID: 320-26103-1

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Lab Sample ID: MB 320-152910/1-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152910

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.50	U	1.0	0.20	ug/L	-	03/02/17 13:45	03/14/17 15:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	69		42 - 91				03/02/17 13:45	03/14/17 15:04	1

Lab Sample ID: LCS 320-152910/2-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152910

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	3.23	M	ug/L	-	32	12 - 52
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Nitrobenzene-d5	73		42 - 91				

Lab Sample ID: LCSD 320-152910/3-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 152910

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	10.0	3.00	M	ug/L	-	30	12 - 52	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Nitrobenzene-d5	74		42 - 91						

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
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

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

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill, Inc.

TestAmerica Job ID: 320-26103-1

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

LCS LCS			
Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	142		25 - 150
13C4 PFOS	133		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

LCS LCS				%Rec.				RPD			
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		

LCS LCS			
Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	142		25 - 150
13C4 PFOS	135		25 - 150

Lab Sample ID: MB 320-152961/1-A

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152961

MB MB				LOQ				DL			
Analyte	Result	Qualifier									
Perfluorooctanoic acid (PFOA)	0.30	U M		0.50	0.10	ug/Kg		03/02/17 17:04	03/11/17 15:42		1
Perfluorooctanesulfonic acid (PFOS)	0.30	U		0.50	0.13	ug/Kg		03/02/17 17:04	03/11/17 15:42		1

MB MB				Prepared				Analyzed			
Isotope Dilution	%Recovery	Qualifier	Limits								
13C4 PFOA	122	M	25 - 150					03/02/17 17:04	03/11/17 15:42		1
13C4 PFOS	99		25 - 150					03/02/17 17:04	03/11/17 15:42		1

Lab Sample ID: LCS 320-152961/2-A

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152961

LCS LCS				%Rec.				Limits			
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits				
Perfluorooctanoic acid (PFOA)	4.00	4.25		ug/Kg		106	60 - 140				
Perfluorooctanesulfonic acid (PFOS)	3.71	3.90	M	ug/Kg		105	60 - 140				

LCS LCS			
Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	113		25 - 150
13C4 PFOS	100		25 - 150

Lab Sample ID: 320-26103-3 MS

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: MEAFF-SDA4C-SB01-0001

Prep Type: Total/NA

Prep Batch: 152961

MS MS				%Rec.				Limits			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits		
Perfluorooctanoic acid (PFOA)	0.76	M	4.78	5.92	M	ug/Kg	☼	108	60 - 140		
Perfluorooctanesulfonic acid (PFOS)	1.9	M	4.44	6.56	M	ug/Kg	☼	104	60 - 140		

MS MS			
Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	104		25 - 150
13C4 PFOS	68		25 - 150

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26103-1

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

Lab Sample ID: 320-26103-3 MSD

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: MEAFF-SDA4C-SB01-0001

Prep Type: Total/NA

Prep Batch: 152961

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	0.76	M	4.72	5.69	M	ug/Kg	☼	105	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	1.9	M	4.38	6.93	M	ug/Kg	☼	114	60 - 140	5	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFOA	112		25 - 150
13C4 PFOS	72		25 - 150

QC Association Summary

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

TestAmerica Job ID: 320-26103-1

GC/MS Semi VOA

Prep Batch: 152910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-6	MEAFF-MRD-0504-0217	Total/NA	Water	3510C	
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	3510C	
320-26103-11	MEAFF-MRD-0503-0217	Total/NA	Water	3510C	
320-26103-12	MEAFF-MRD-0615-0217	Total/NA	Water	3510C	
MB 320-152910/1-A	Method Blank	Total/NA	Water	3510C	
LCS 320-152910/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 320-152910/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 154875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-6	MEAFF-MRD-0504-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-11	MEAFF-MRD-0503-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-12	MEAFF-MRD-0615-0217	Total/NA	Water	WS-MS-0011	152910
MB 320-152910/1-A	Method Blank	Total/NA	Water	WS-MS-0011	152910
LCS 320-152910/2-A	Lab Control Sample	Total/NA	Water	WS-MS-0011	152910
LCSD 320-152910/3-A	Lab Control Sample Dup	Total/NA	Water	WS-MS-0011	152910

LCMS

Prep Batch: 152587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-7 - DL	MEAFF-MRD-0621-0217	Total/NA	Water	3535	
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	3535	
320-26103-12	MEAFF-MRD-0615-0217	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
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	537 (Modified)	152587
320-26103-12	MEAFF-MRD-0615-0217	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: 152961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	SHAKE	
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	SHAKE	
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	SHAKE	
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	SHAKE	
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	SHAKE	
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	SHAKE	
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	Total/NA	Solid	SHAKE	
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	SHAKE	
MB 320-152961/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-152961/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-26103-1

LCMS (Continued)

Prep Batch: 152961 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	

Analysis Batch: 153020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-7 - DL	MEAFF-MRD-0621-0217	Total/NA	Water	537 (Modified)	152587

Analysis Batch: 154503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	537 (Modified)	152961
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	537 (Modified)	152961
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	537 (Modified)	152961
MB 320-152961/1-A	Method Blank	Total/NA	Solid	537 (Modified)	152961
LCS 320-152961/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	152961
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	Total/NA	Solid	537 (Modified)	152961

General Chemistry

Analysis Batch: 152404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	D 2216	
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	D 2216	
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	D 2216	
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	D 2216	
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	D 2216	
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	D 2216	
320-26103-8 DU	MEAFF-FTA2-SB05-0608	Total/NA	Solid	D 2216	

Analysis Batch: 152405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	D 2216	
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	D 2216	
320-26103-9 DU	MEAFF-FTA2-SB04-0608	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: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

Matrix: Solid

Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 15:57	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

Matrix: Solid

Percent Solids: 85.9

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	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 16:05	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

Matrix: Solid

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			4.94 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 16:12	TC1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB01-0204

Lab Sample ID: 320-26103-4

Date Collected: 02/23/17 09:33

Matrix: Solid

Date Received: 02/24/17 09:50

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0204

Lab Sample ID: 320-26103-4

Date Collected: 02/23/17 09:33

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 82.4

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	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 16:35	TC1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB02-0608

Lab Sample ID: 320-26103-5

Date Collected: 02/23/17 12:00

Matrix: Solid

Date Received: 02/24/17 09:50

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB02-0608

Lab Sample ID: 320-26103-5

Date Collected: 02/23/17 12:00

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 73.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 16:42	TC1	TAL SAC

Client Sample ID: MEAFF-MRD-0504-0217

Lab Sample ID: 320-26103-6

Date Collected: 02/23/17 14:30

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1067.4 mL	1.0 mL	152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 16:12	A1C	TAL SAC

Client Sample ID: MEAFF-MRD-0621-0217

Lab Sample ID: 320-26103-7

Date Collected: 02/23/17 16:00

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1057.6 mL	1.0 mL	152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 16:35	A1C	TAL SAC
Total/NA	Prep	3535			295.1 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			152836	03/02/17 11:42	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-MRD-0621-0217

Lab Sample ID: 320-26103-7

Date Collected: 02/23/17 16:00

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		295.1 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			153020	03/03/17 09:45	SBC	TAL SAC

Client Sample ID: MEAFF-FTA2-SB05-0608

Lab Sample ID: 320-26103-8

Date Collected: 02/23/17 13:50

Matrix: Solid

Date Received: 02/24/17 09:50

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			152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB05-0608

Lab Sample ID: 320-26103-8

Date Collected: 02/23/17 13:50

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 76.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 16:57	TC1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB04-0608

Lab Sample ID: 320-26103-9

Date Collected: 02/23/17 14:35

Matrix: Solid

Date Received: 02/24/17 09:50

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			152405	02/27/17 16:35	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB04-0608

Lab Sample ID: 320-26103-9

Date Collected: 02/23/17 14:35

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 70.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.98 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 17:05	TC1	TAL SAC
Total/NA	Prep	SHAKE	DL		4.98 g	1 mL	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	100			154808	03/13/17 16:46	CBW	TAL SAC

Client Sample ID: MEAFF-FTA2-SB03-0608

Lab Sample ID: 320-26103-10

Date Collected: 02/23/17 14:55

Matrix: Solid

Date Received: 02/24/17 09:50

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			152405	02/27/17 16:35	MY1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB03-0608

Lab Sample ID: 320-26103-10

Date Collected: 02/23/17 14:55

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 75.9

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	152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154503	03/11/17 17:12	TC1	TAL SAC

Client Sample ID: MEAFF-MRD-0503-0217

Lab Sample ID: 320-26103-11

Date Collected: 02/23/17 14:35

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1034.8 mL	1.0 mL	152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 16:57	A1C	TAL SAC

Client Sample ID: MEAFF-MRD-0615-0217

Lab Sample ID: 320-26103-12

Date Collected: 02/23/17 16:05

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1026.3 mL	1.0 mL	152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 17:20	A1C	TAL SAC
Total/NA	Prep	3535			293.4 mL	0.50 mL	152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			152836	03/02/17 11:57	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: 320-26103-1

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.

TestAmerica Job ID: 320-26103-1

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

Method	Method Description	Protocol	Laboratory
WS-MS-0011	1,4-Dioxane (GC/MS SIM)	TAL SOP	TAL SAC
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

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: 320-26103-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26103-1	MEAFF-SDA4C-SB02-0001	Solid	02/23/17 09:00	02/24/17 09:50
320-26103-2	MEAFF-SDA4C-SB02-0204	Solid	02/23/17 09:08	02/24/17 09:50
320-26103-3	MEAFF-SDA4C-SB01-0001	Solid	02/23/17 09:21	02/24/17 09:50
320-26103-4	MEAFF-SDA4C-SB01-0204	Solid	02/23/17 09:33	02/24/17 09:50
320-26103-5	MEAFF-FTA2-SB02-0608	Solid	02/23/17 12:00	02/24/17 09:50
320-26103-6	MEAFF-MRD-0504-0217	Water	02/23/17 14:30	02/24/17 09:50
320-26103-7	MEAFF-MRD-0621-0217	Water	02/23/17 16:00	02/24/17 09:50
320-26103-8	MEAFF-FTA2-SB05-0608	Solid	02/23/17 13:50	02/24/17 09:50
320-26103-9	MEAFF-FTA2-SB04-0608	Solid	02/23/17 14:35	02/24/17 09:50
320-26103-10	MEAFF-FTA2-SB03-0608	Solid	02/23/17 14:55	02/24/17 09:50
320-26103-11	MEAFF-MRD-0503-0217	Water	02/23/17 14:35	02/24/17 09:50
320-26103-12	MEAFF-MRD-0615-0217	Water	02/23/17 16:05	02/24/17 09:50

TestAmerica Sacramento

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: 2/23/17		COC No: 3	
Tel/Fax:		Tel/Fax:		Lab Contact: Jill Kellmann		Carrier: FedEx		1 of 1 COCs	
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600 Atlanta, GA 30328		Analysis Turnaround Time		TAT if different from Below		28		Sampler:	
(678) 530-4060 Phone		<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		2 weeks				For Lab Use Only:	
(770) 604-9183 FAX		TAT if different from Below		1 week				Walk-in Client:	
Project Name: Meridian 10006-7-105420 JM01 Navy Clean		TAT if different from Below		2 days				Lab Sampling:	
Site: NAS Meridian		TAT if different from Below		1 day				Job / SDG No.:	
P O #: 10006-7-105420								Sample Specific Notes:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes
MEAFF-SDA4C-SB02-0001	2/23/17	0900	G	SD	1	N	N	
MEAFF-SDA4C-SB02-0104		0908						
MEAFF-SDA4C-SB01-0001		0921						
MEAFF-SDA4C-SB01-0204		0932						
MEAFF-FTA2-SB02-0008		1200						
MEAFF-MRD-0504-0217		1430						
MEAFF-MRD-0621-0217		1600						
MEAFF-FTA2-SB03-0008		1350						
MEAFF-FTA2-SB04-0008		1435						
MEAFF-FTA2-SB03-0008		1455						
MEAFF-FTA2-SB03-0217		1435						
MEAFF-MRD-0615-0217		1600						

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

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

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
Send results to Mike Zambari - address should be on file

Custody Seal No.:	Cooler Temp (°C): Obs'd:	Corr'd:	Therm ID No.:
Company: CH2M	Received by: [Signature]	Company: TALS	Date/Time: 2/24/17 9:50
Company:	Received by:	Company:	Date/Time:
Company:	Received in Laboratory by:	Company:	Date/Time:

rec'd MS/SD on 2-24-17

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26103-1

Login Number: 26103

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	Not requested on COC.
There are no discrepancies between the containers received and the COC.	False	Received MS/SD not listed on COC.
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: 320-26103-1

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 5:08 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

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Definitions/Glossary

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

TestAmerica Job ID: 320-26103-1

Qualifiers

GC/MS Semi VOA

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

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
E	Result exceeded calibration range.
D	The reported value is from a dilution.
Q	One or more quality control criteria failed.

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: 320-26103-1

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 02/24/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.2 C.

Receipt Exceptions

Received additional volume for a MS/MSD pair for sample MEAFF-SDA4C-SB01-0001 (320-26103-3), however, no MS/MSD was requested. Per client, the laboratory was instructed to perform a MS/MSD pair on this sample for PFCs.

1,4-DIOXANE

Samples MEAFF-MRD-0504-0217 (320-26103-6), MEAFF-MRD-0621-0217 (320-26103-7), MEAFF-MRD-0503-0217 (320-26103-11) and MEAFF-MRD-0615-0217 (320-26103-12) were analyzed for 1,4-dioxane in accordance with EPA SW-846 Method 8270C SIM. The samples were prepared on 03/02/2017 and analyzed on 03/14/2017.

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

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 concentration of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) in the following sample exceeded the instrument calibration range: MEAFF-MRD-0621-0217 (320-26103-7). This sample has been analyzed at dilution and both sets of data have been reported.

The following sample was diluted to bring the concentration of target analytes within the calibration range: MEAFF-FTA2-SB04-0608 (320-26103-9). Elevated reporting limits (RLs) are provided.

The Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: (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: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Lab Sample ID: 320-26103-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.21	J M	0.58	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4C-SB02-0204

Lab Sample ID: 320-26103-2

No Detections.

Client Sample ID: MEAFF-SDA4C-SB01-0001

Lab Sample ID: 320-26103-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.76	M	0.60	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9	M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-SDA4C-SB01-0204

Lab Sample ID: 320-26103-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.42	J M	0.60	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB02-0608

Lab Sample ID: 320-26103-5

No Detections.

Client Sample ID: MEAFF-MRD-0504-0217

Lab Sample ID: 320-26103-6

No Detections.

Client Sample ID: MEAFF-MRD-0621-0217

Lab Sample ID: 320-26103-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5400	M E	2.1	0.63	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	400	E	3.4	1.1	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	860	M E	2.1	0.78	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	13000	D M	110	32	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	410	D	170	54	ng/L	50		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	690	D	110	39	ng/L	50		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB05-0608

Lab Sample ID: 320-26103-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.37	J M	0.52	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB04-0608

Lab Sample ID: 320-26103-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	22	M	0.71	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	770	E M	0.71	0.18	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.1		0.57	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	22	J D M	71	14	ug/Kg	100	☼	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: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB04-0608 (Continued)

Lab Sample ID: 320-26103-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS) - DL	1000	D M	71	18	ug/Kg	100	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-FTA2-SB03-0608

Lab Sample ID: 320-26103-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.65	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.16	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.74	M	0.52	0.13	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-MRD-0503-0217

Lab Sample ID: 320-26103-11

No Detections.

Client Sample ID: MEAFF-MRD-0615-0217

Lab Sample ID: 320-26103-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	210		2.1	0.64	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	46		3.4	1.1	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	180		2.1	0.78	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: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

Matrix: Solid

Percent Solids: 85.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.58	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 15:57	1
Perfluorooctanesulfonic acid (PFOS)	0.21	J M	0.58	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 15:57	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.47	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 15:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	123		25 - 150				03/02/17 17:04	03/11/17 15:57	1
13C4 PFOS	84		25 - 150				03/02/17 17:04	03/11/17 15:57	1
18O2 PFHxS	100		25 - 150				03/02/17 17:04	03/11/17 15:57	1

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

Matrix: Solid

Percent Solids: 85.9

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 17:04	03/11/17 16:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	96		25 - 150				03/02/17 17:04	03/11/17 16:05	1
13C4 PFOS	44		25 - 150				03/02/17 17:04	03/11/17 16:05	1
18O2 PFHxS	81		25 - 150				03/02/17 17:04	03/11/17 16:05	1

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

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)	0.76	M	0.60	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:12	1
Perfluorooctanesulfonic acid (PFOS)	1.9	M	0.60	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:12	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				03/02/17 17:04	03/11/17 16:12	1
13C4 PFOS	60		25 - 150				03/02/17 17:04	03/11/17 16:12	1
18O2 PFHxS	90		25 - 150				03/02/17 17:04	03/11/17 16:12	1

Client Sample ID: MEAFF-SDA4C-SB01-0204

Date Collected: 02/23/17 09:33

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-4

Matrix: Solid

Percent Solids: 82.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:35	1
Perfluorooctanesulfonic acid (PFOS)	0.42	J M	0.60	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 16:35	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.12	ug/Kg	☼	03/02/17 17:04	03/11/17 16:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	98		25 - 150				03/02/17 17:04	03/11/17 16:35	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB01-0204

Date Collected: 02/23/17 09:33

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-4

Matrix: Solid

Percent Solids: 82.4

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C4 PFOS	45		25 - 150	03/02/17 17:04	03/11/17 16:35	1
¹⁸ O2 PFHxS	86		25 - 150	03/02/17 17:04	03/11/17 16:35	1

Client Sample ID: MEAFF-FTA2-SB02-0608

Date Collected: 02/23/17 12:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-5

Matrix: Solid

Percent Solids: 73.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.41	U	0.68	0.14	ug/Kg	☼	03/02/17 17:04	03/11/17 16:42	1
Perfluorooctanesulfonic acid (PFOS)	0.41	U	0.68	0.17	ug/Kg	☼	03/02/17 17:04	03/11/17 16:42	1
Perfluorobutanesulfonic acid (PFBS)	0.41	U M	0.54	0.14	ug/Kg	☼	03/02/17 17:04	03/11/17 16:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				03/02/17 17:04	03/11/17 16:42	1
13C4 PFOS	103		25 - 150				03/02/17 17:04	03/11/17 16:42	1
18O2 PFHxS	103		25 - 150				03/02/17 17:04	03/11/17 16:42	1

Client Sample ID: MEAFF-MRD-0504-0217

Date Collected: 02/23/17 14:30

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-6

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.47	U	0.94	0.19	ug/L	—	03/02/17 13:45	03/14/17 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	72		42 - 91				03/02/17 13:45	03/14/17 16:12	1

Client Sample ID: MEAFF-MRD-0621-0217

Date Collected: 02/23/17 16:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-7

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.47	U	0.95	0.19	ug/L	—	03/02/17 13:45	03/14/17 16:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	58		42 - 91				03/02/17 13:45	03/14/17 16:35	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	5400	M E	2.1	0.63	ng/L	—	02/28/17 16:42	03/02/17 11:42	1
Perfluorooctanesulfonic acid (PFOS)	400	E	3.4	1.1	ng/L		02/28/17 16:42	03/02/17 11:42	1
Perfluorobutanesulfonic acid (PFBS)	860	M E	2.1	0.78	ng/L		02/28/17 16:42	03/02/17 11:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	25		25 - 150				02/28/17 16:42	03/02/17 11:42	1
¹³ C4 PFOS	121		25 - 150				02/28/17 16:42	03/02/17 11:42	1
¹⁸ O2 PFHxS	32		25 - 150				02/28/17 16:42	03/02/17 11:42	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-MRD-0621-0217

Lab Sample ID: 320-26103-7

Date Collected: 02/23/17 16:00

Matrix: Water

Date Received: 02/24/17 09:50

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	13000	D M	110	32	ng/L		02/28/17 16:42	03/03/17 09:45	50
Perfluorooctanesulfonic acid (PFOS)	410	D	170	54	ng/L		02/28/17 16:42	03/03/17 09:45	50
Perfluorobutanesulfonic acid (PFBS)	690	D	110	39	ng/L		02/28/17 16:42	03/03/17 09:45	50
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	101		25 - 150				02/28/17 16:42	03/03/17 09:45	50
13C4 PFOS	138		25 - 150				02/28/17 16:42	03/03/17 09:45	50
18O2 PFHxS	137		25 - 150				02/28/17 16:42	03/03/17 09:45	50

Client Sample ID: MEAFF-FTA2-SB05-0608

Lab Sample ID: 320-26103-8

Date Collected: 02/23/17 13:50

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 76.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 16:57	1
Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.16	ug/Kg	☼	03/02/17 17:04	03/11/17 16:57	1
Perfluorobutanesulfonic acid (PFBS)	0.37	J M	0.52	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 16:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	99		25 - 150				03/02/17 17:04	03/11/17 16:57	1
13C4 PFOS	60		25 - 150				03/02/17 17:04	03/11/17 16:57	1
18O2 PFHxS	93		25 - 150				03/02/17 17:04	03/11/17 16:57	1

Client Sample ID: MEAFF-FTA2-SB04-0608

Lab Sample ID: 320-26103-9

Date Collected: 02/23/17 14:35

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 70.8

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	22	M	0.71	0.14	ug/Kg	☼	03/02/17 17:04	03/11/17 17:05	1
Perfluorooctanesulfonic acid (PFOS)	770	E M	0.71	0.18	ug/Kg	☼	03/02/17 17:04	03/11/17 17:05	1
Perfluorobutanesulfonic acid (PFBS)	3.1		0.57	0.15	ug/Kg	☼	03/02/17 17:04	03/11/17 17:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	85		25 - 150				03/02/17 17:04	03/11/17 17:05	1
13C4 PFOS	32		25 - 150				03/02/17 17:04	03/11/17 17:05	1
18O2 PFHxS	86		25 - 150				03/02/17 17:04	03/11/17 17:05	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	22	J D M	71	14	ug/Kg	☼	03/02/17 17:04	03/13/17 16:46	100
Perfluorooctanesulfonic acid (PFOS)	1000	D M	71	18	ug/Kg	☼	03/02/17 17:04	03/13/17 16:46	100
Perfluorobutanesulfonic acid (PFBS)	43	U	57	15	ug/Kg	☼	03/02/17 17:04	03/13/17 16:46	100
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	89		25 - 150				03/02/17 17:04	03/13/17 16:46	100
13C4 PFOS	54		25 - 150				03/02/17 17:04	03/13/17 16:46	100

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB04-0608

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-9

Matrix: Solid

Percent Solids: 70.8

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	75		25 - 150	03/02/17 17:04	03/13/17 16:46	100

Client Sample ID: MEAFF-FTA2-SB03-0608

Date Collected: 02/23/17 14:55

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-10

Matrix: Solid

Percent Solids: 75.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.65	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 17:12	1
Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.16	ug/Kg	☼	03/02/17 17:04	03/11/17 17:12	1
Perfluorobutanesulfonic acid (PFBS)	0.74	M	0.52	0.13	ug/Kg	☼	03/02/17 17:04	03/11/17 17:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	102		25 - 150				03/02/17 17:04	03/11/17 17:12	1
13C4 PFOS	87		25 - 150				03/02/17 17:04	03/11/17 17:12	1
18O2 PFHxS	98		25 - 150				03/02/17 17:04	03/11/17 17:12	1

Client Sample ID: MEAFF-MRD-0503-0217

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-11

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.97	0.19	ug/L	—	03/02/17 13:45	03/14/17 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	68		42 - 91				03/02/17 13:45	03/14/17 16:57	1

Client Sample ID: MEAFF-MRD-0615-0217

Date Collected: 02/23/17 16:05

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-12

Matrix: Water

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.49	U	0.97	0.19	ug/L	—	03/02/17 13:45	03/14/17 17:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	59		42 - 91				03/02/17 13:45	03/14/17 17:20	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	210		2.1	0.64	ng/L	—	02/28/17 16:42	03/02/17 11:57	1
Perfluorooctanesulfonic acid (PFOS)	46		3.4	1.1	ng/L		02/28/17 16:42	03/02/17 11:57	1
Perfluorobutanesulfonic acid (PFBS)	180		2.1	0.78	ng/L		02/28/17 16:42	03/02/17 11:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	77		25 - 150				02/28/17 16:42	03/02/17 11:57	1
13C4 PFOS	133		25 - 150				02/28/17 16:42	03/02/17 11:57	1
18O2 PFHxS	117		25 - 150				02/28/17 16:42	03/02/17 11:57	1

TestAmerica Sacramento

Default Detection Limits

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

TestAmerica Job ID: 320-26103-1

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Prep: 3510C

Analyte	LOQ	DL	Units	Method
1,4-Dioxane	1.0	0.20	ug/L	WS-MS-0011

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)

Surrogate Summary

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

TestAmerica Job ID: 320-26103-1

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NBZ (42-91)
320-26103-6	MEAFF-MRD-0504-0217	72
320-26103-7	MEAFF-MRD-0621-0217	58
320-26103-11	MEAFF-MRD-0503-0217	68
320-26103-12	MEAFF-MRD-0615-0217	59
LCS 320-152910/2-A	Lab Control Sample	73
LCSD 320-152910/3-A	Lab Control Sample Dup	74
MB 320-152910/1-A	Method Blank	69

Surrogate Legend

NBZ = Nitrobenzene-d5

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26103-1

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)
320-26103-1	MEAFF-SDA4C-SB02-0001	123	84	100
320-26103-2	MEAFF-SDA4C-SB02-0204	96	44	81
320-26103-3	MEAFF-SDA4C-SB01-0001	109	60	90
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	104	68	90
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	112	72	94
320-26103-4	MEAFF-SDA4C-SB01-0204	98	45	86
320-26103-5	MEAFF-FTA2-SB02-0608	109	103	103
320-26103-8	MEAFF-FTA2-SB05-0608	99	60	93
320-26103-9	MEAFF-FTA2-SB04-0608	85	32	86
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	89	54	75
320-26103-10	MEAFF-FTA2-SB03-0608	102	87	98
LCS 320-152961/2-A	Lab Control Sample	113	100	108
MB 320-152961/1-A	Method Blank	122 M	99	113

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)
320-26103-7	MEAFF-MRD-0621-0217	25	121	32
320-26103-7 - DL	MEAFF-MRD-0621-0217	101	138	137
320-26103-12	MEAFF-MRD-0615-0217	77	133	117
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: 320-26103-1

Method: WS-MS-0011 - 1,4-Dioxane (GC/MS SIM)

Lab Sample ID: MB 320-152910/1-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152910

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.50	U	1.0	0.20	ug/L		03/02/17 13:45	03/14/17 15:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	69		42 - 91				03/02/17 13:45	03/14/17 15:04	1

Lab Sample ID: LCS 320-152910/2-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152910

Analyte		Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
1,4-Dioxane		10.0	3.23	M	ug/L		32	12 - 52	
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
Nitrobenzene-d5	73		42 - 91						

Lab Sample ID: LCSD 320-152910/3-A

Matrix: Water

Analysis Batch: 154875

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 152910

Analyte		Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane		10.0	3.00	M	ug/L		30	12 - 52	7	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits							
Nitrobenzene-d5	74		42 - 91							

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	%Rec. Limits	
Perfluorooctanoic acid (PFOA)		40.0	38.6		ng/L		97	60 - 140	

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26103-1

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

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
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	%Rec. Limits	RPD	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 320-152961/1-A

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152961

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.30	U M	0.50	0.10	ug/Kg		03/02/17 17:04	03/11/17 15:42	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		03/02/17 17:04	03/11/17 15:42	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		03/02/17 17:04	03/11/17 15:42	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	122	M	25 - 150				03/02/17 17:04	03/11/17 15:42	1
13C4 PFOS	99		25 - 150				03/02/17 17:04	03/11/17 15:42	1
18O2 PFHxS	113		25 - 150				03/02/17 17:04	03/11/17 15:42	1

Lab Sample ID: LCS 320-152961/2-A

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152961

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	4.00	4.25		ug/Kg		106	60 - 140
Perfluorooctanesulfonic acid (PFOS)	3.71	3.90	M	ug/Kg		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	4.04		ug/Kg		114	50 - 150

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill, Inc.

TestAmerica Job ID: 320-26103-1

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

LCS LCS

Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	113		25 - 150
13C4 PFOS	100		25 - 150
18O2 PFHxS	108		25 - 150

Lab Sample ID: 320-26103-3 MS

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: MEAFF-SDA4C-SB01-0001

Prep Type: Total/NA

Prep Batch: 152961

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	0.76	M	4.78	5.92	M	ug/Kg	☼	108	60 - 140
Perfluorooctanesulfonic acid (PFOS)	1.9	M	4.44	6.56	M	ug/Kg	☼	104	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.36	U	4.23	5.20		ug/Kg	☼	123	50 - 150

MS MS

Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	104		25 - 150
13C4 PFOS	68		25 - 150
18O2 PFHxS	90		25 - 150

Lab Sample ID: 320-26103-3 MSD

Matrix: Solid

Analysis Batch: 154503

Client Sample ID: MEAFF-SDA4C-SB01-0001

Prep Type: Total/NA

Prep Batch: 152961

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	0.76	M	4.72	5.69	M	ug/Kg	☼	105	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	1.9	M	4.38	6.93	M	ug/Kg	☼	114	60 - 140	5	30
Perfluorobutanesulfonic acid (PFBS)	0.36	U	4.17	5.12		ug/Kg	☼	123	50 - 150	2	30

MSD MSD

Isotope Dilution	%Recovery	Qualifier	Limits
13C4 PFOA	112		25 - 150
13C4 PFOS	72		25 - 150
18O2 PFHxS	94		25 - 150

QC Association Summary

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

TestAmerica Job ID: 320-26103-1

GC/MS Semi VOA

Prep Batch: 152910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-6	MEAFF-MRD-0504-0217	Total/NA	Water	3510C	
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	3510C	
320-26103-11	MEAFF-MRD-0503-0217	Total/NA	Water	3510C	
320-26103-12	MEAFF-MRD-0615-0217	Total/NA	Water	3510C	
MB 320-152910/1-A	Method Blank	Total/NA	Water	3510C	
LCS 320-152910/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 320-152910/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 154875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-6	MEAFF-MRD-0504-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-11	MEAFF-MRD-0503-0217	Total/NA	Water	WS-MS-0011	152910
320-26103-12	MEAFF-MRD-0615-0217	Total/NA	Water	WS-MS-0011	152910
MB 320-152910/1-A	Method Blank	Total/NA	Water	WS-MS-0011	152910
LCS 320-152910/2-A	Lab Control Sample	Total/NA	Water	WS-MS-0011	152910
LCSD 320-152910/3-A	Lab Control Sample Dup	Total/NA	Water	WS-MS-0011	152910

LCMS

Prep Batch: 152587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	3535	
320-26103-7 - DL	MEAFF-MRD-0621-0217	Total/NA	Water	3535	
320-26103-12	MEAFF-MRD-0615-0217	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
320-26103-7	MEAFF-MRD-0621-0217	Total/NA	Water	537 (Modified)	152587
320-26103-12	MEAFF-MRD-0615-0217	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: 152961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	SHAKE	
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	SHAKE	
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	SHAKE	
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	SHAKE	
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	SHAKE	
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	SHAKE	
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	Total/NA	Solid	SHAKE	
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	SHAKE	
MB 320-152961/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-152961/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-26103-1

LCMS (Continued)

Prep Batch: 152961 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	SHAKE	

Analysis Batch: 153020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-7 - DL	MEAFF-MRD-0621-0217	Total/NA	Water	537 (Modified)	152587

Analysis Batch: 154503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	537 (Modified)	152961
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	537 (Modified)	152961
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	537 (Modified)	152961
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	537 (Modified)	152961
MB 320-152961/1-A	Method Blank	Total/NA	Solid	537 (Modified)	152961
LCS 320-152961/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	152961
320-26103-3 MS	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961
320-26103-3 MSD	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	537 (Modified)	152961

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-9 - DL	MEAFF-FTA2-SB04-0608	Total/NA	Solid	537 (Modified)	152961

General Chemistry

Analysis Batch: 152404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-1	MEAFF-SDA4C-SB02-0001	Total/NA	Solid	D 2216	
320-26103-2	MEAFF-SDA4C-SB02-0204	Total/NA	Solid	D 2216	
320-26103-3	MEAFF-SDA4C-SB01-0001	Total/NA	Solid	D 2216	
320-26103-4	MEAFF-SDA4C-SB01-0204	Total/NA	Solid	D 2216	
320-26103-5	MEAFF-FTA2-SB02-0608	Total/NA	Solid	D 2216	
320-26103-8	MEAFF-FTA2-SB05-0608	Total/NA	Solid	D 2216	
320-26103-8 DU	MEAFF-FTA2-SB05-0608	Total/NA	Solid	D 2216	

Analysis Batch: 152405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26103-9	MEAFF-FTA2-SB04-0608	Total/NA	Solid	D 2216	
320-26103-10	MEAFF-FTA2-SB03-0608	Total/NA	Solid	D 2216	
320-26103-9 DU	MEAFF-FTA2-SB04-0608	Total/NA	Solid	D 2216	

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0001

Date Collected: 02/23/17 09:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-1

Matrix: Solid

Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 15:57	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB02-0204

Date Collected: 02/23/17 09:08

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-2

Matrix: Solid

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 16:05	TC1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0001

Date Collected: 02/23/17 09:21

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-3

Matrix: Solid

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 16:12	TC1	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-SDA4C-SB01-0204

Date Collected: 02/23/17 09:33

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-SDA4C-SB01-0204

Date Collected: 02/23/17 09:33

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-4

Matrix: Solid

Percent Solids: 82.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 16:35	TC1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB02-0608

Date Collected: 02/23/17 12:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB02-0608

Date Collected: 02/23/17 12:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-5

Matrix: Solid

Percent Solids: 73.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 16:42	TC1	TAL SAC

Client Sample ID: MEAFF-MRD-0504-0217

Date Collected: 02/23/17 14:30

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 16:12	A1C	TAL SAC

Client Sample ID: MEAFF-MRD-0621-0217

Date Collected: 02/23/17 16:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 16:35	A1C	TAL SAC
Total/NA	Prep	3535			152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	152836	03/02/17 11:42	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-MRD-0621-0217

Date Collected: 02/23/17 16:00

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50	153020	03/03/17 09:45	SBC	TAL SAC

Client Sample ID: MEAFF-FTA2-SB05-0608

Date Collected: 02/23/17 13:50

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152404	02/27/17 16:11	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB05-0608

Date Collected: 02/23/17 13:50

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-8

Matrix: Solid

Percent Solids: 76.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 16:57	TC1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB04-0608

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152405	02/27/17 16:35	MY1	TAL SAC

Client Sample ID: MEAFF-FTA2-SB04-0608

Date Collected: 02/23/17 14:35

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-9

Matrix: Solid

Percent Solids: 70.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 17:05	TC1	TAL SAC
Total/NA	Prep	SHAKE	DL		152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	100	154808	03/13/17 16:46	CBW	TAL SAC

Client Sample ID: MEAFF-FTA2-SB03-0608

Date Collected: 02/23/17 14:55

Date Received: 02/24/17 09:50

Lab Sample ID: 320-26103-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	152405	02/27/17 16:35	MY1	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-26103-1

Client Sample ID: MEAFF-FTA2-SB03-0608

Lab Sample ID: 320-26103-10

Date Collected: 02/23/17 14:55

Matrix: Solid

Date Received: 02/24/17 09:50

Percent Solids: 75.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			152961	03/02/17 17:04	ERW	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154503	03/11/17 17:12	TC1	TAL SAC

Client Sample ID: MEAFF-MRD-0503-0217

Lab Sample ID: 320-26103-11

Date Collected: 02/23/17 14:35

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 16:57	A1C	TAL SAC

Client Sample ID: MEAFF-MRD-0615-0217

Lab Sample ID: 320-26103-12

Date Collected: 02/23/17 16:05

Matrix: Water

Date Received: 02/24/17 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152910	03/02/17 13:45	NGK	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 17:20	A1C	TAL SAC
Total/NA	Prep	3535			152587	02/28/17 16:42	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	152836	03/02/17 11:57	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: 320-26103-1

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.

TestAmerica Job ID: 320-26103-1

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

Method	Method Description	Protocol	Laboratory
WS-MS-0011	1,4-Dioxane (GC/MS SIM)	TAL SOP	TAL SAC
537 (Modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

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: 320-26103-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26103-1	MEAFF-SDA4C-SB02-0001	Solid	02/23/17 09:00	02/24/17 09:50
320-26103-2	MEAFF-SDA4C-SB02-0204	Solid	02/23/17 09:08	02/24/17 09:50
320-26103-3	MEAFF-SDA4C-SB01-0001	Solid	02/23/17 09:21	02/24/17 09:50
320-26103-4	MEAFF-SDA4C-SB01-0204	Solid	02/23/17 09:33	02/24/17 09:50
320-26103-5	MEAFF-FTA2-SB02-0608	Solid	02/23/17 12:00	02/24/17 09:50
320-26103-6	MEAFF-MRD-0504-0217	Water	02/23/17 14:30	02/24/17 09:50
320-26103-7	MEAFF-MRD-0621-0217	Water	02/23/17 16:00	02/24/17 09:50
320-26103-8	MEAFF-FTA2-SB05-0608	Solid	02/23/17 13:50	02/24/17 09:50
320-26103-9	MEAFF-FTA2-SB04-0608	Solid	02/23/17 14:35	02/24/17 09:50
320-26103-10	MEAFF-FTA2-SB03-0608	Solid	02/23/17 14:55	02/24/17 09:50
320-26103-11	MEAFF-MRD-0503-0217	Water	02/23/17 14:35	02/24/17 09:50
320-26103-12	MEAFF-MRD-0615-0217	Water	02/23/17 16:05	02/24/17 09:50

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: SV1 Analysis Batch Number: 151686Lab Sample ID: IC 320-151686/1 Client Sample ID: _____Date Analyzed: 02/22/17 09:35 Lab File ID: 14D0222A.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.36	Baseline	onishim	02/22/17 14:19
Nitrobenzene-d5	8.06	Peak Tail	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/2 Client Sample ID: _____Date Analyzed: 02/22/17 09:56 Lab File ID: 14D0222B.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.36	Poor chromatography	onishim	02/22/17 14:19
Nitrobenzene-d5	8.06	Poor chromatography	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/3 Client Sample ID: _____Date Analyzed: 02/22/17 10:19 Lab File ID: 14D0222C.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.36	Baseline	onishim	02/22/17 14:19
Nitrobenzene-d5	8.06	Peak Tail	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/4 Client Sample ID: _____Date Analyzed: 02/22/17 10:41 Lab File ID: 14D0222D.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.35	Poor chromatography	onishim	02/22/17 14:19

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: SV1 Analysis Batch Number: 151686Lab Sample ID: ICIS 320-151686/5 Client Sample ID: _____Date Analyzed: 02/22/17 11:03 Lab File ID: 14D0222E.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.35	Poor chromatography	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/6 Client Sample ID: _____Date Analyzed: 02/22/17 11:25 Lab File ID: 14D0222F.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.36	Poor chromatography	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/7 Client Sample ID: _____Date Analyzed: 02/22/17 11:47 Lab File ID: 14D0222G.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.36	Poor chromatography	onishim	02/22/17 14:19

Lab Sample ID: IC 320-151686/8 Client Sample ID: _____Date Analyzed: 02/22/17 12:09 Lab File ID: 14D0222H.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.37	Poor chromatography	onishim	02/22/17 14:19

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: SV1 Analysis Batch Number: 154875Lab Sample ID: CCV 320-154875/2 Client Sample ID: _____Date Analyzed: 03/14/17 14:42 Lab File ID: 14D0314.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	onishim	03/15/17 14:26

Lab Sample ID: LCS 320-152910/2-A Client Sample ID: _____Date Analyzed: 03/14/17 15:27 Lab File ID: S031402.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	onishim	03/15/17 14:27

Lab Sample ID: LCSD 320-152910/3-A Client Sample ID: _____Date Analyzed: 03/14/17 15:49 Lab File ID: S031403.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	onishim	03/15/17 14:27

Lab Sample ID: CCVC 320-154875/29 Client Sample ID: _____Date Analyzed: 03/15/17 00:49 Lab File ID: 14D0314A.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	onishim	03/15/17 08:36

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152681Lab 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.: 320-26103-1

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.: 320-26103-1

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: 320-26103-7 Client Sample ID: MEAFF-MRD-0621-0217Date Analyzed: 03/02/17 11:42 Lab File ID: 2017.03.02A_013.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 09:39
Perfluorooctanoic acid (PFOA)	2.86	Assign Peak	chandrase nas	03/27/17 09:39

Lab 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

Lab Sample ID: CCV 320-152836/25 Client Sample ID: _____Date Analyzed: 03/02/17 12:05 Lab File ID: 2017.03.02A_016.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorododecanoic acid (PFDoA)	4.18	Baseline	chandrase nas	03/27/17 09:40

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 153020Lab Sample ID: 320-26103-7 DL Client Sample ID: MEAFF-MRD-0621-0217 DLDate Analyzed: 03/03/17 09:45 Lab File ID: 2017.03.03A_007.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 10:05

Lab Sample ID: CCV 320-153020/9 Client Sample ID: _____Date Analyzed: 03/03/17 10:00 Lab File ID: 2017.03.03A_009.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 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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

Lab Sample ID: CCV 320-154503/24 Client Sample ID: _____Date Analyzed: 03/11/17 15:27 Lab File ID: 2017.03.11C_027.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	changnoit	03/16/17 08:04
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/16/17 08:04

Lab Sample ID: MB 320-152961/1-A Client Sample ID: _____Date Analyzed: 03/11/17 15:42 Lab File ID: 2017.03.11C_029.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFOA	2.81	Baseline	westendor fc	03/16/17 08:05
Perfluorooctanoic acid (PFOA)	2.81	Baseline	westendor fc	03/16/17 08:06

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154503Lab Sample ID: LCS 320-152961/2-A Client Sample ID: _____Date Analyzed: 03/11/17 15:50 Lab File ID: 2017.03.11C_030.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/16/17 08:06

Lab Sample ID: 320-26103-1 Client Sample ID: MEAFF-SDA4C-SB02-0001Date Analyzed: 03/11/17 15:57 Lab File ID: 2017.03.11C_031.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 11:20
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:20
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:20

Lab Sample ID: 320-26103-3 Client Sample ID: MEAFF-SDA4C-SB01-0001Date Analyzed: 03/11/17 16:12 Lab File ID: 2017.03.11C_033.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/16/17 08:08
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/16/17 08:08

Lab Sample ID: 320-26103-3 MS Client Sample ID: MEAFF-SDA4C-SB01-0001 MSDate Analyzed: 03/11/17 16:20 Lab File ID: 2017.03.11C_034.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/16/17 08:09
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/16/17 08:09

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154503Lab Sample ID: 320-26103-3 MSD Client Sample ID: MEAFF-SDA4C-SB01-0001 MSDDate Analyzed: 03/11/17 16:27 Lab File ID: 2017.03.11C_035.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/16/17 08:10
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/16/17 08:10

Lab Sample ID: 320-26103-4 Client Sample ID: MEAFF-SDA4C-SB01-0204Date Analyzed: 03/11/17 16:35 Lab File ID: 2017.03.11C_036.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 11:24
Perfluorooctanoic acid (PFOA)	2.80	Isomers	changnoit	03/27/17 11:24
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/27/17 11:24

Lab Sample ID: 320-26103-5 Client Sample ID: MEAFF-FTA2-SB02-0608Date Analyzed: 03/11/17 16:42 Lab File ID: 2017.03.11C_037.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 11:25

Lab Sample ID: CCV 320-154503/35 Client Sample ID: _____Date Analyzed: 03/11/17 16:50 Lab File ID: 2017.03.11C_038.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.46	Isomers	changnoit	03/16/17 08:12
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/16/17 08:12

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154503Lab Sample ID: 320-26103-8 Client Sample ID: MEAFF-FTA2-SB05-0608Date Analyzed: 03/11/17 16:57 Lab File ID: 2017.03.11C_039.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 11:25
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 11:25
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:25

Lab Sample ID: 320-26103-9 Client Sample ID: MEAFF-FTA2-SB04-0608Date Analyzed: 03/11/17 17:05 Lab File ID: 2017.03.11C_040.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 11:33
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:33

Lab Sample ID: 320-26103-10 Client Sample ID: MEAFF-FTA2-SB03-0608Date Analyzed: 03/11/17 17:12 Lab File ID: 2017.03.11C_041.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 11:26
Perfluorooctanoic acid (PFOA)	2.81	Isomers	westendor fc	03/27/17 11:25
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 11:25

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154503Lab Sample ID: CCV 320-154503/46 Client Sample ID: _____Date Analyzed: 03/11/17 18:12 Lab File ID: 2017.03.11C_049.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.48	Isomers	changnoit	03/16/17 08:14
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/16/17 08:14

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154721Lab Sample ID: CCV 320-154721/1 CCVL Client Sample ID: _____Date Analyzed: 03/13/17 11:39 Lab File ID: 2017.03.13A_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.55	Baseline	changnoit	03/14/17 11:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154808Lab Sample ID: CCV 320-154808/1 Client Sample ID: _____Date Analyzed: 03/13/17 15:52 Lab File ID: 2017.03.13A_037.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendor fc	03/14/17 13:29
M2-8:2FTS	3.55	Baseline	westendor fc	03/14/17 13:29

Lab Sample ID: 320-26103-9 DL Client Sample ID: MEAFF-FTA2-SB04-0608 DLDate Analyzed: 03/13/17 16:46 Lab File ID: 2017.03.13A_044.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.82	Isomers	westendor fc	03/27/17 12:16
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendor fc	03/27/17 12:16

Lab Sample ID: CCV 320-154808/11 Client Sample ID: _____Date Analyzed: 03/13/17 17:08 Lab File ID: 2017.03.13A_047.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	westendor fc	03/14/17 13:30

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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
LCPFCL_FULL-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.: 320-26103-1

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
							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_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-octanesulfo namide	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-N-EtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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.: 320-26103-1

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	LC6:2FTS_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL		
							MeFOSA	0.1 ug/mL		
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL		
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL		
							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.: 320-26103-1

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	Perfluorotridecanoic acid	0.1 ug/mL
							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
...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
....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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....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 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.: 320-26103-1

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.: 320-26103-1

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
..LCM4PFHFA 00007	05/27/21	Wellington Laboratories, Lot M4PFHFA0516			(Purchased Reagent)		13C4-PFHFA	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-octanesulfo namide	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-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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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.: 320-26103-1

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.: 320-26103-1

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.: 320-26103-1

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
					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
..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
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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 104453		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
					(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
					(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
					(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
					(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-methyl 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.: 320-26103-1

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
Perfluorotridecanoic 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
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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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.: 320-26103-1

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.: 320-26103-1

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.: 320-26103-1

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.: 320-26103-1

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-octanesulfo namide	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
					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.: 320-26103-1

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
..LC6:2FTS_00002	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.: 320-26103-1

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-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
					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.: 320-26103-1

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.: 320-26103-1

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	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

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.: 320-26103-1

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 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 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.: 320-26103-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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
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.: 320-26103-1

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.: 320-26103-1

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 PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA_00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
MS14DICV_00004	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DICV_00004	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DIC_00008	100 uL	1,4-Dioxane	10 ug/mL
							Nitrobenzene-d5	10 ug/mL
.MS14DIC_00008	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DIC_00007	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DIC_00007	02/21/18		Restek, Lot A0124653		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
MS14DL1_00011	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	5 uL	1,4-Dioxane	0.5 ug/mL
							Nitrobenzene-d5	0.5 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL2_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	10 uL	1,4-Dioxane	1 ug/mL
							Nitrobenzene-d5	1 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL3_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	20 uL	1,4-Dioxane	2 ug/mL
							Nitrobenzene-d5	2 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL4_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	50 uL	1,4-Dioxane	5 ug/mL
					MS8270IS_00016	5 uL	Nitrobenzene-d5	5 ug/mL
							1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL5_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	100 uL	1,4-Dioxane	10 ug/mL
					MS8270IS_00016	5 uL	Nitrobenzene-d5	10 ug/mL
							1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL6_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	200 uL	1,4-Dioxane	20 ug/mL
					MS8270IS_00016	5 uL	Nitrobenzene-d5	20 ug/mL
							1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL7_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	500 uL	1,4-Dioxane	50 ug/mL
					MS8270IS_00016	5 uL	Nitrobenzene-d5	50 ug/mL
							1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL8_00005	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	1000 uL	1,4-Dioxane	100 ug/mL
					MS8270IS_00016	5 uL	Nitrobenzene-d5	100 ug/mL
							1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DSP_00030	06/20/17	12/20/16	Methanol, Lot 0000152413	100 mL	MS14DTA_00022	1 mL	1,4-Dioxane	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.MS14DTA_00022	09/30/18		SUPELCO, Lot LC16305V		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
MS14DSU_00003	03/21/17	10/31/16	Methanol, Lot 00000142776	200 mL	MS8270SU_00094	20 mL	2,4,6-Tribromophenol	10 ug/mL
							2-Fluorobiphenyl (Surr)	10 ug/mL
							2-Fluorophenol	10 ug/mL
							Nitrobenzene-d5	10 ug/mL
							Phenol-d5	10 ug/mL
							Terphenyl-d14	10 ug/mL
.MS8270SU_00094	03/21/17		Restek, Lot A0117528		(Purchased Reagent)		2,4,6-Tribromophenol	100 ug/mL
							2-Fluorobiphenyl (Surr)	100 ug/mL
							2-Fluorophenol	100 ug/mL
							Nitrobenzene-d5	100 ug/mL
							Phenol-d5	100 ug/mL
							Terphenyl-d14	100 ug/mL
MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL

Reagent

LC6:2FTS_00002

R: 8/23/16 SBC



715544

ID: LC6:2FTS_00002

Exp: 06/25/21 Prod: SBC

6:2FTS



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

6:2FTS

LOT NUMBER:

62FTS0616

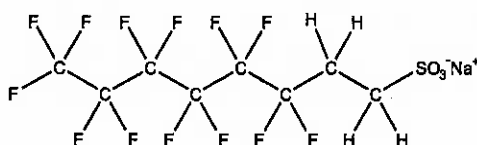
COMPOUND:

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

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₈H₄F₁₀SO₃Na

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:

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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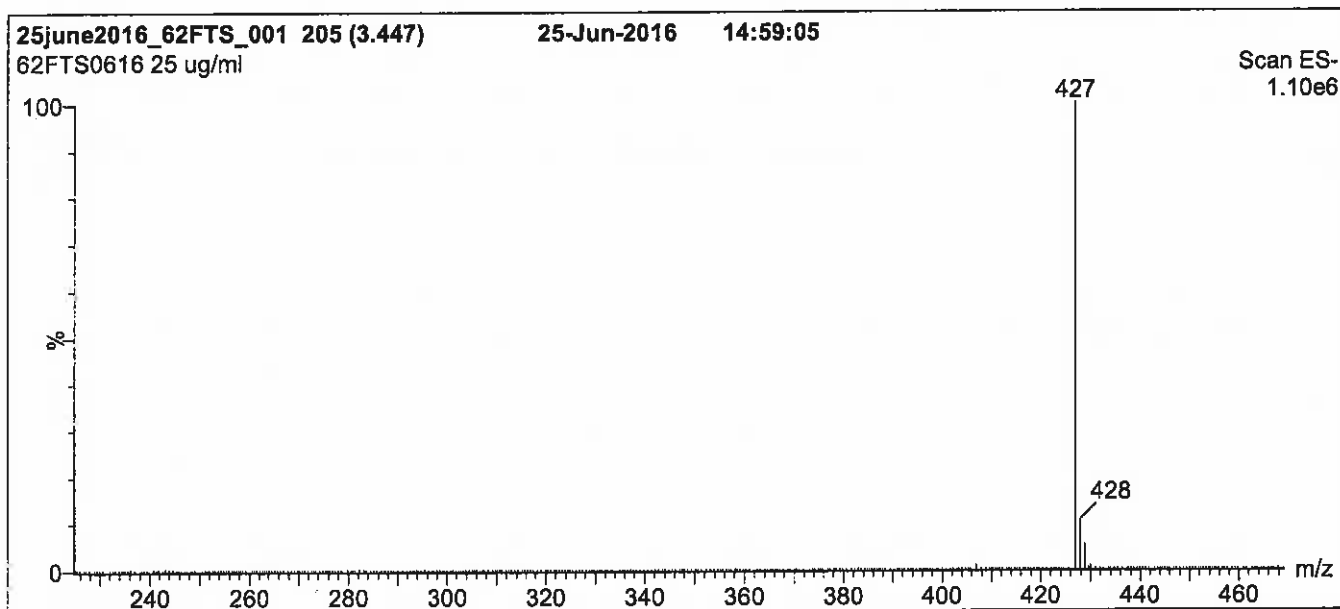
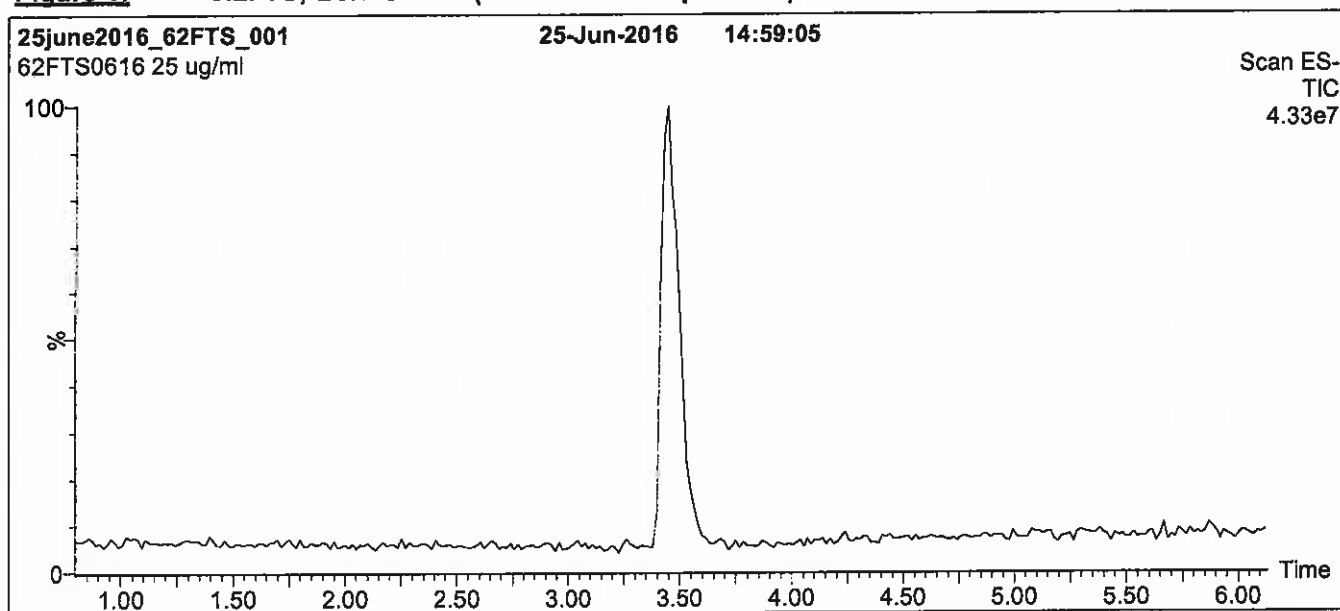
QUALITY MANAGEMENT:

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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

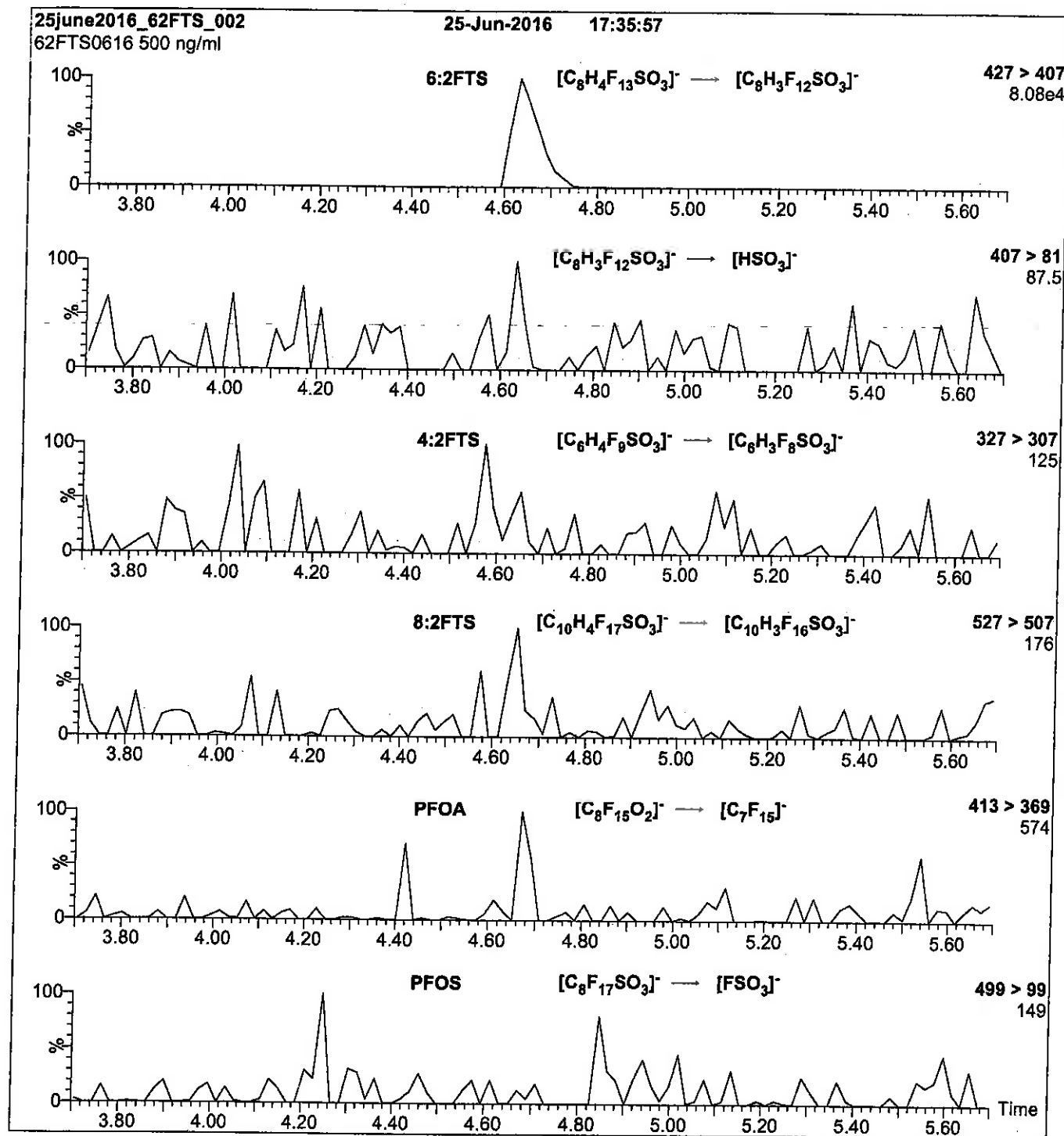
Flow: 300 μ l/min

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

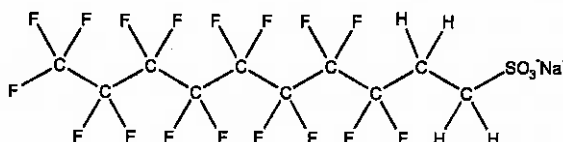


WELLINGTON LABORATORIES

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.

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Certified By:

B.G. Chittim

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

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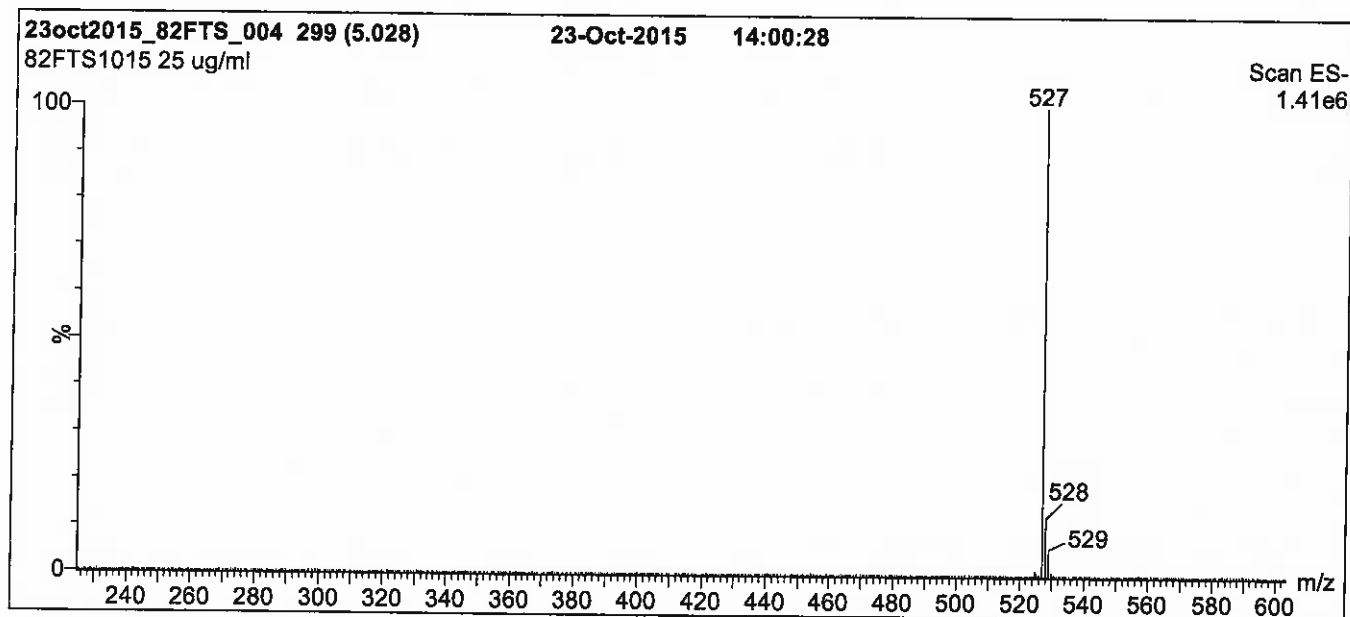
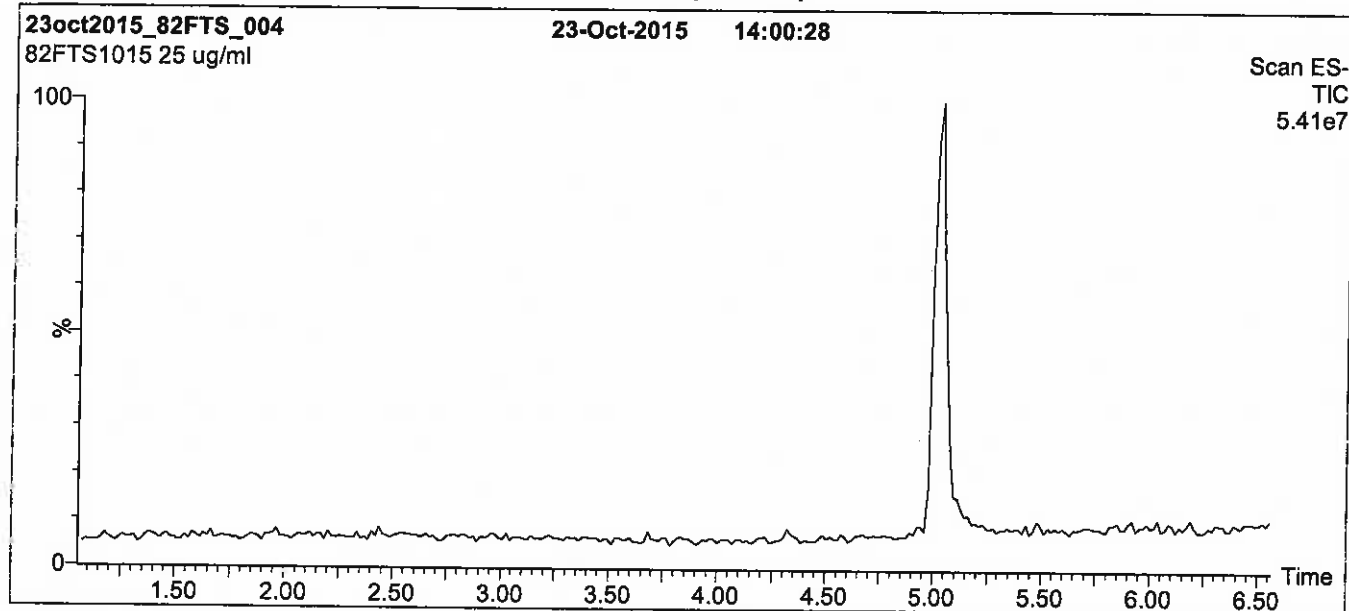
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Figure 1: 8:2FTS; LC/MS Data (TIC and Mass Spectrum)



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

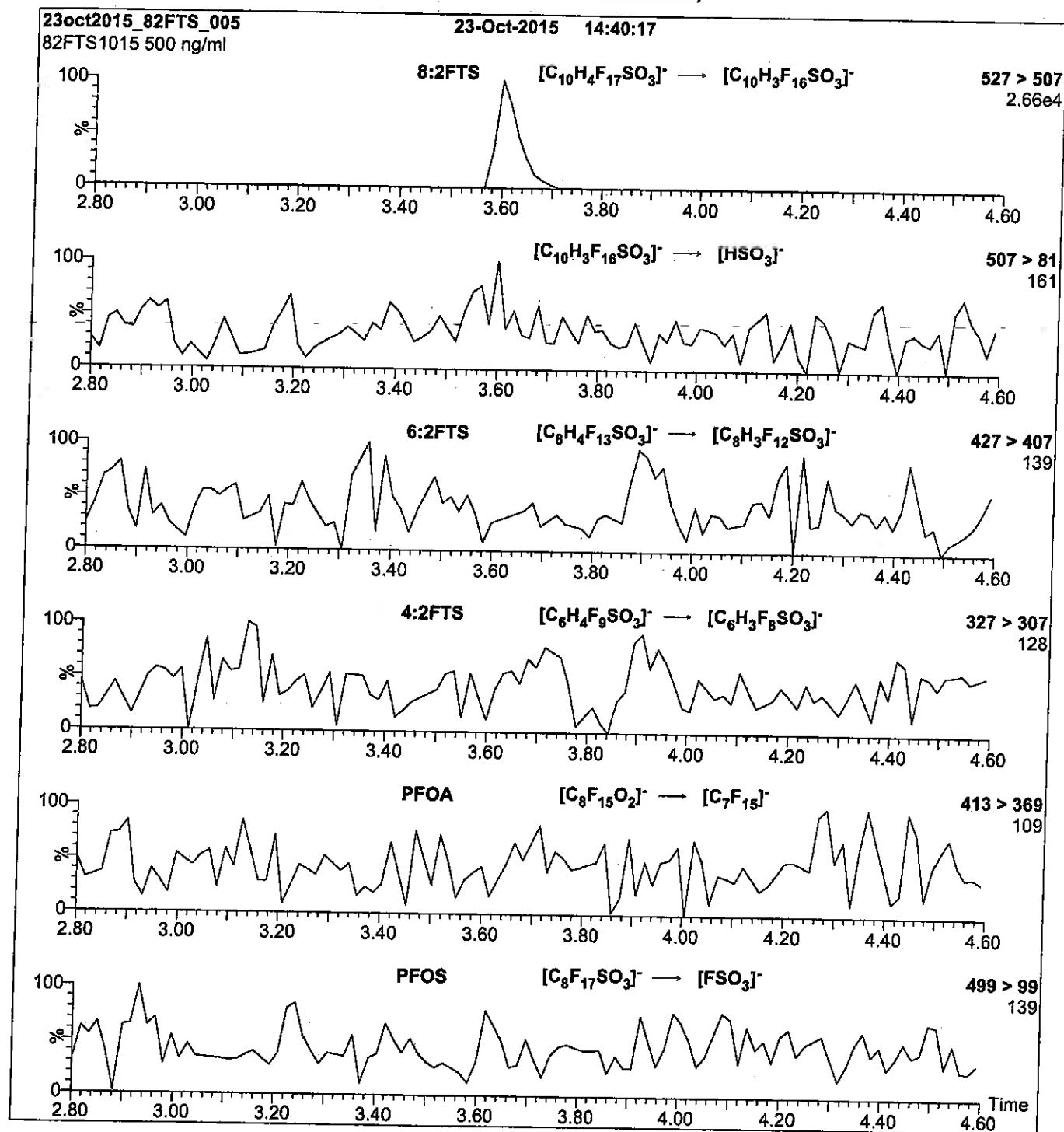
Flow: 300 μ l/min

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 μl (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 $\mu\text{l}/\text{min}$

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

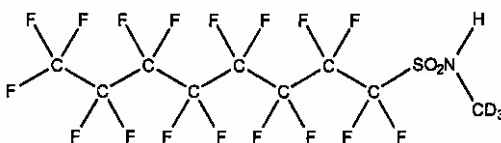
COMPOUND:

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.

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Certified By:

B.G. Chittim

Date: 06/16/2016

(mm/dd/yyyy)

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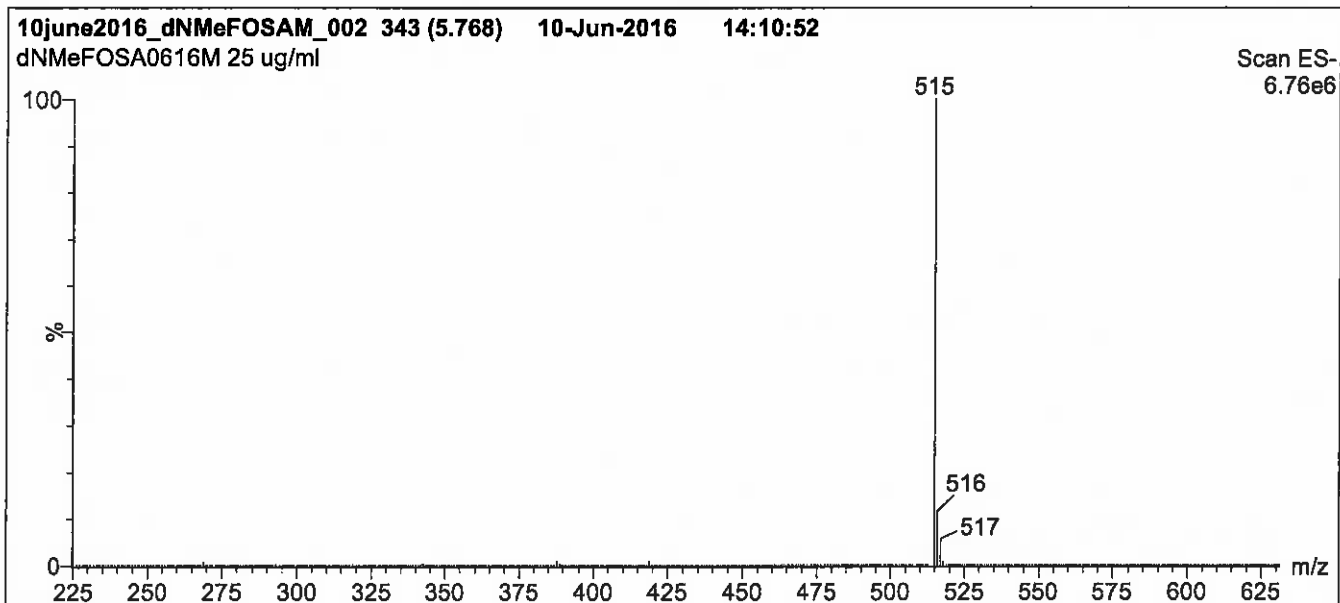
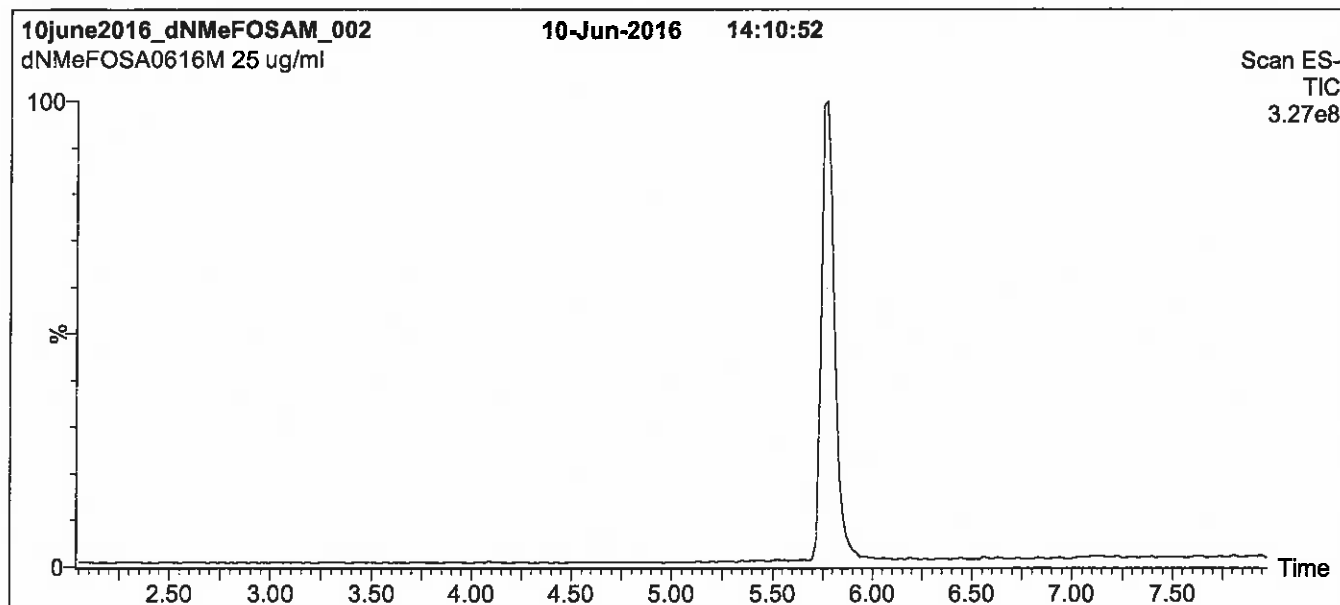
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Figure 1: d-N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)



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

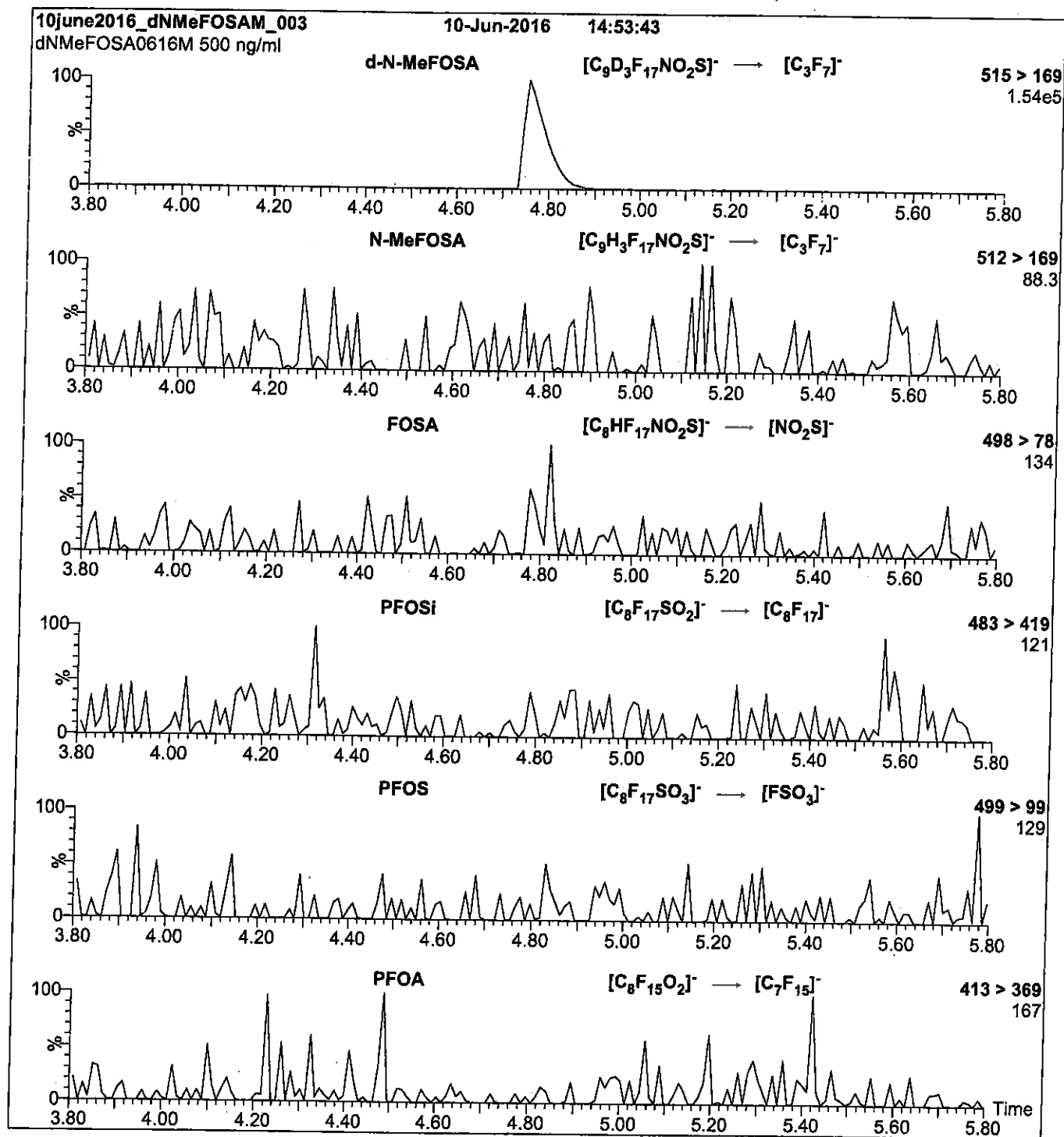
Flow: 300 μ l/min

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% H_2O
(both with 10 mM NH_4OAc 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

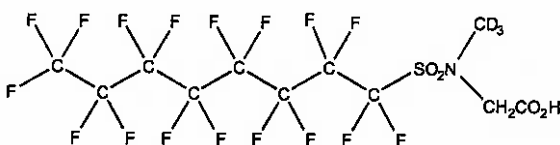
COMPOUND:

N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₁₁D₃H₃F₁₇NO₄S

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

574.23

SOLVENT(S):

Methanol

Water (<1%)

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.

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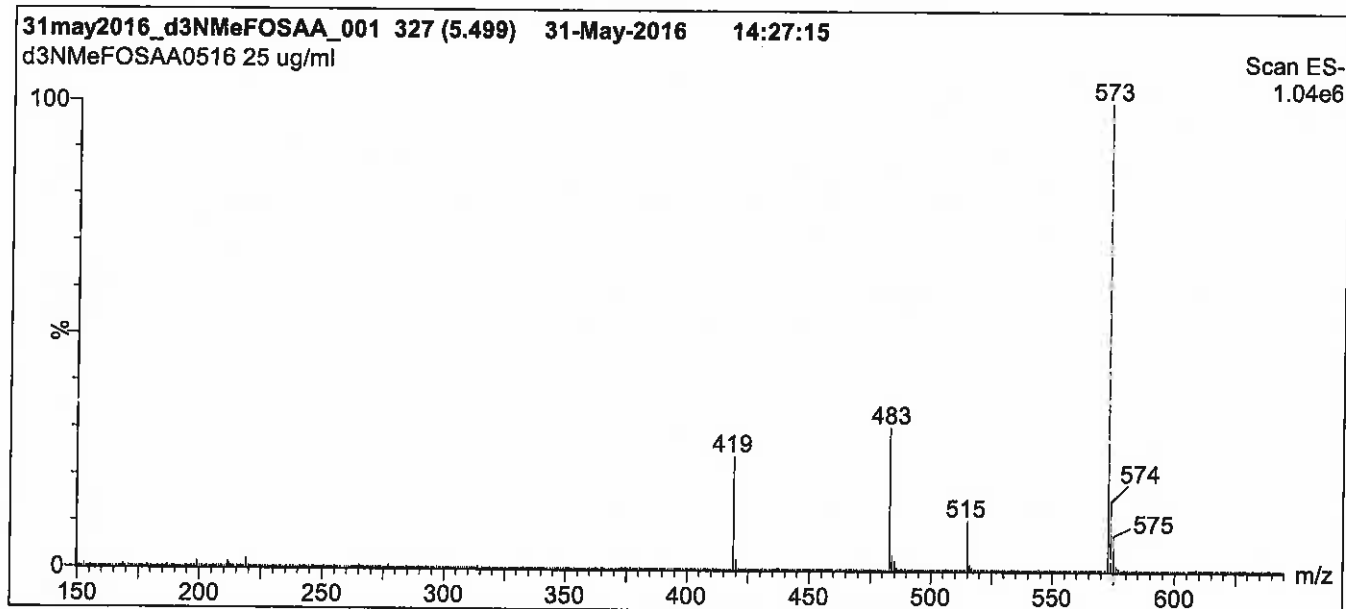
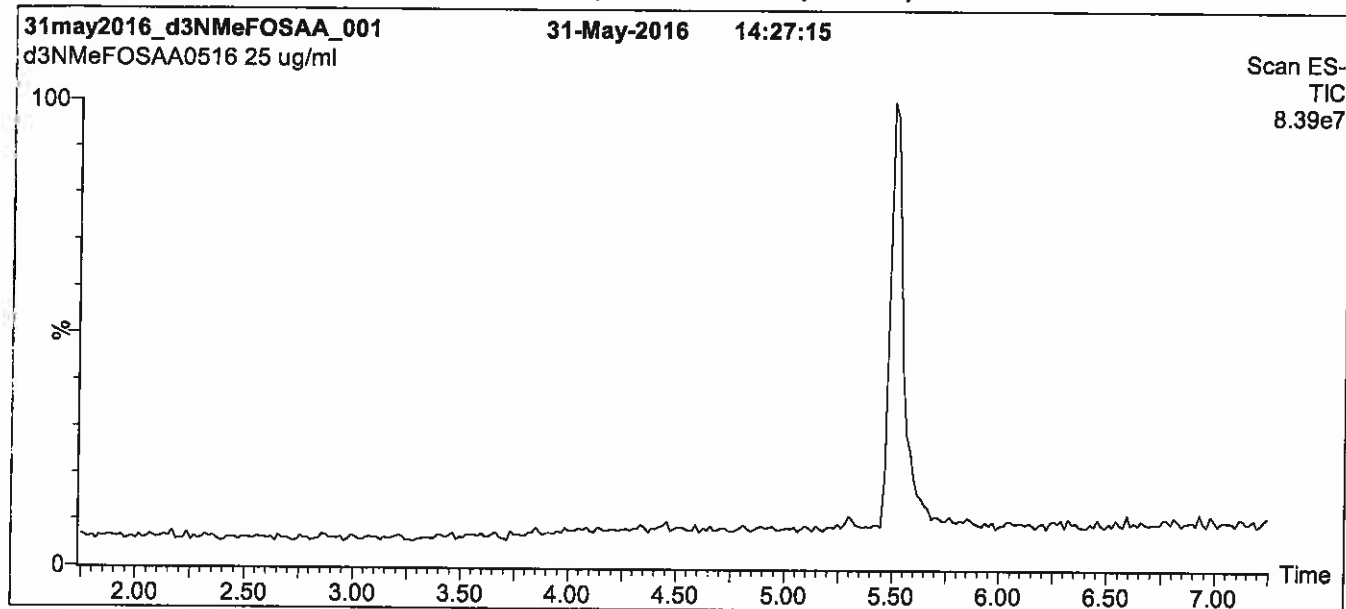
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Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

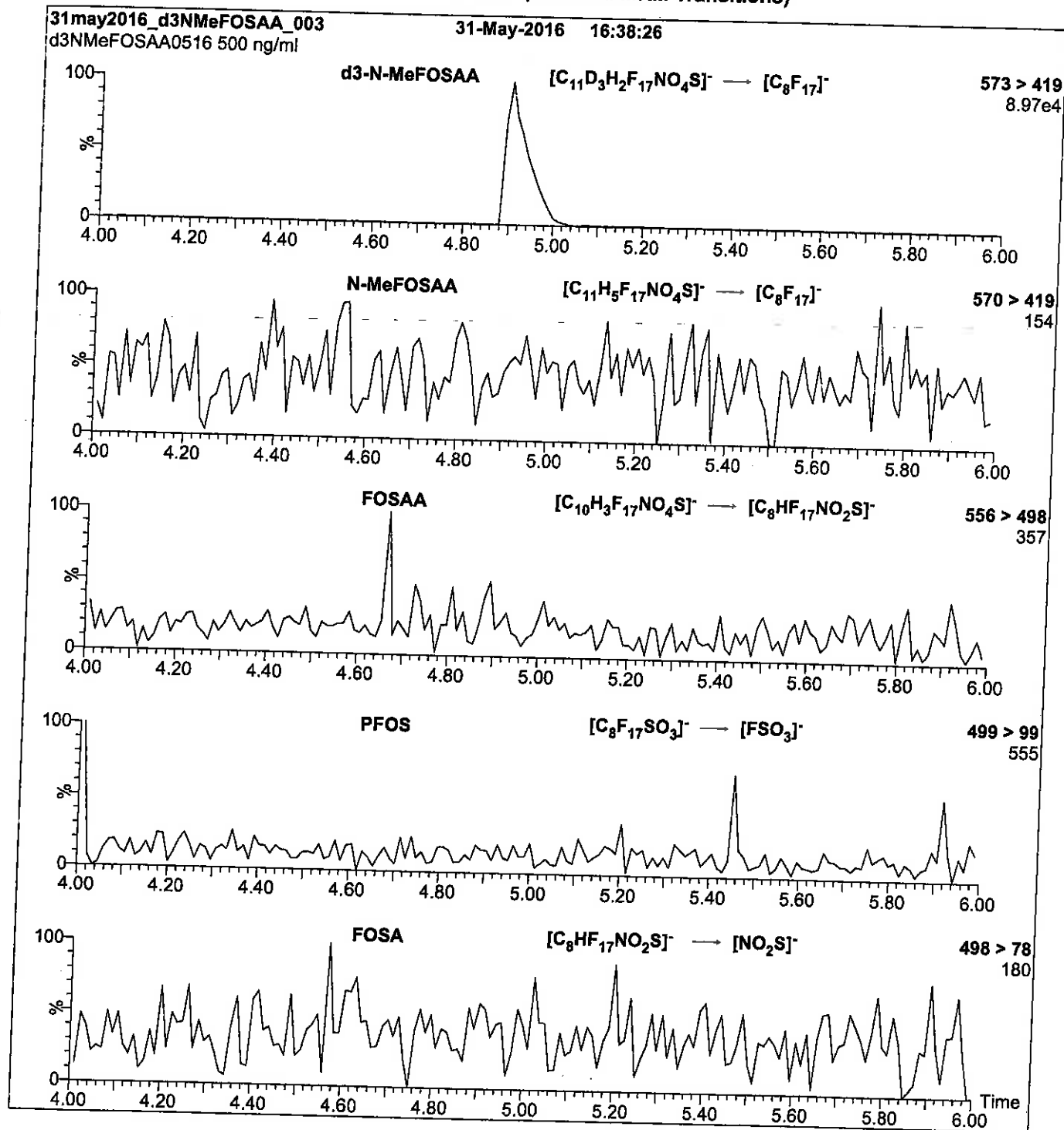
Flow: 300 μ l/min

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 Ppdt: SBC

d5-N-EtFOSAA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

d5-N-EtFOSAA

LOT NUMBER:

d5NEtFOSAA0716

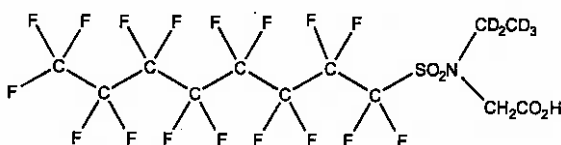
COMPOUND:

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

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.

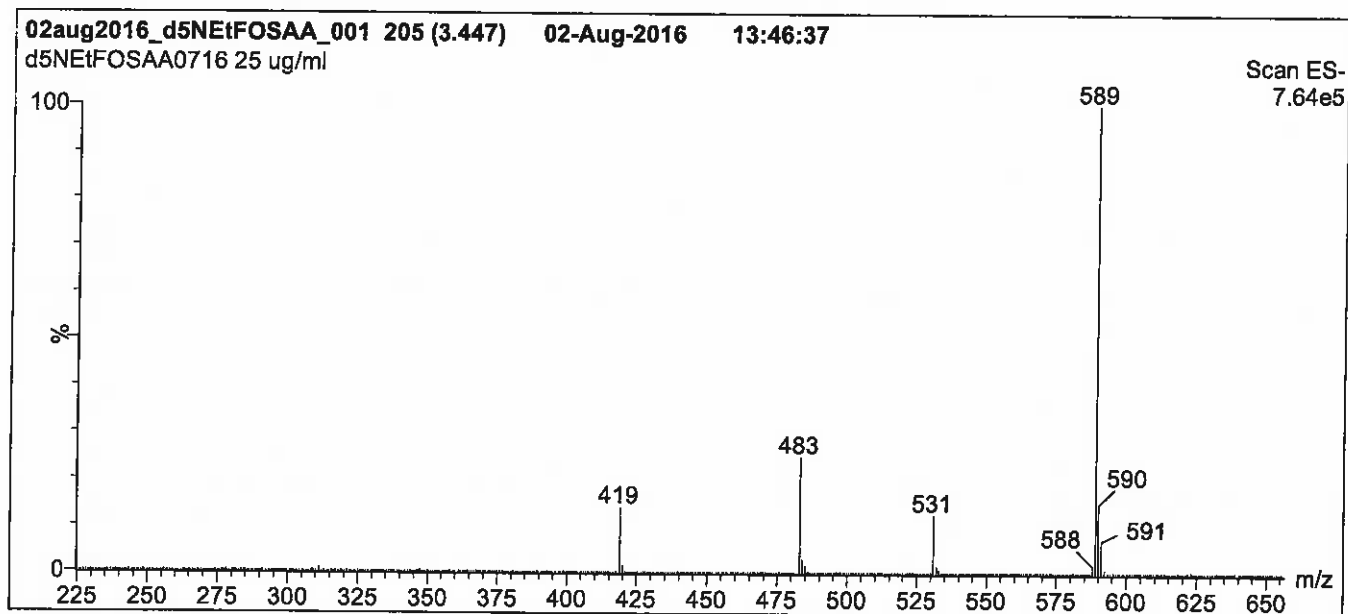
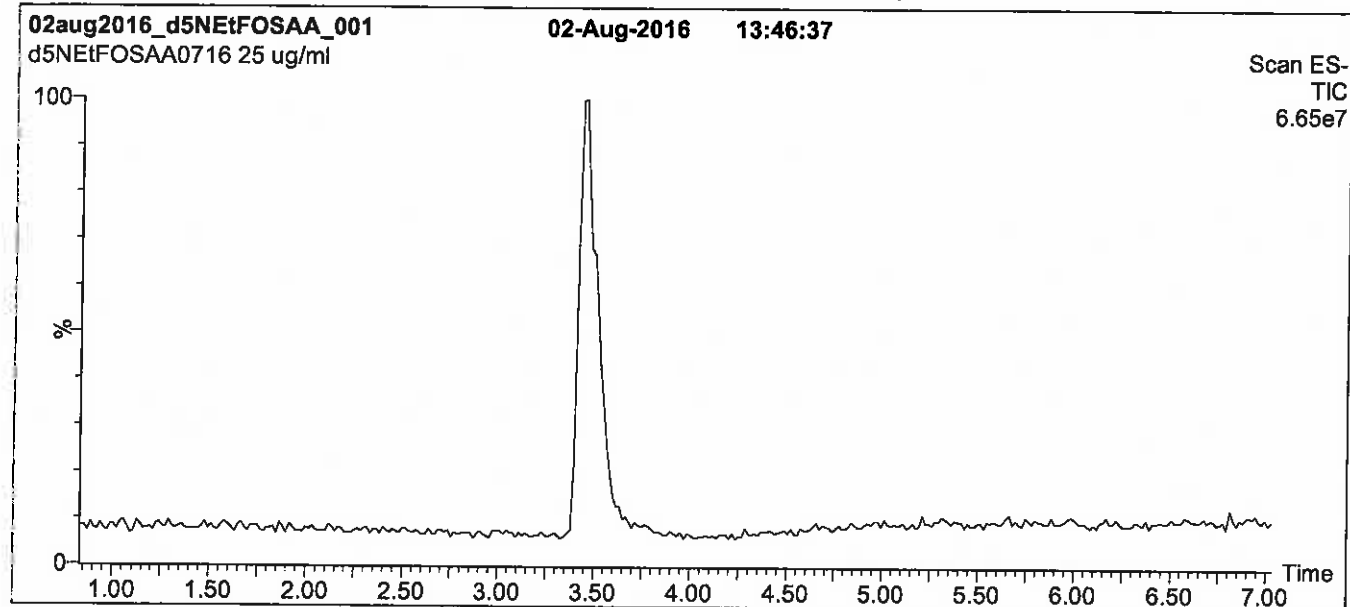
QUALITY MANAGEMENT:

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: 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

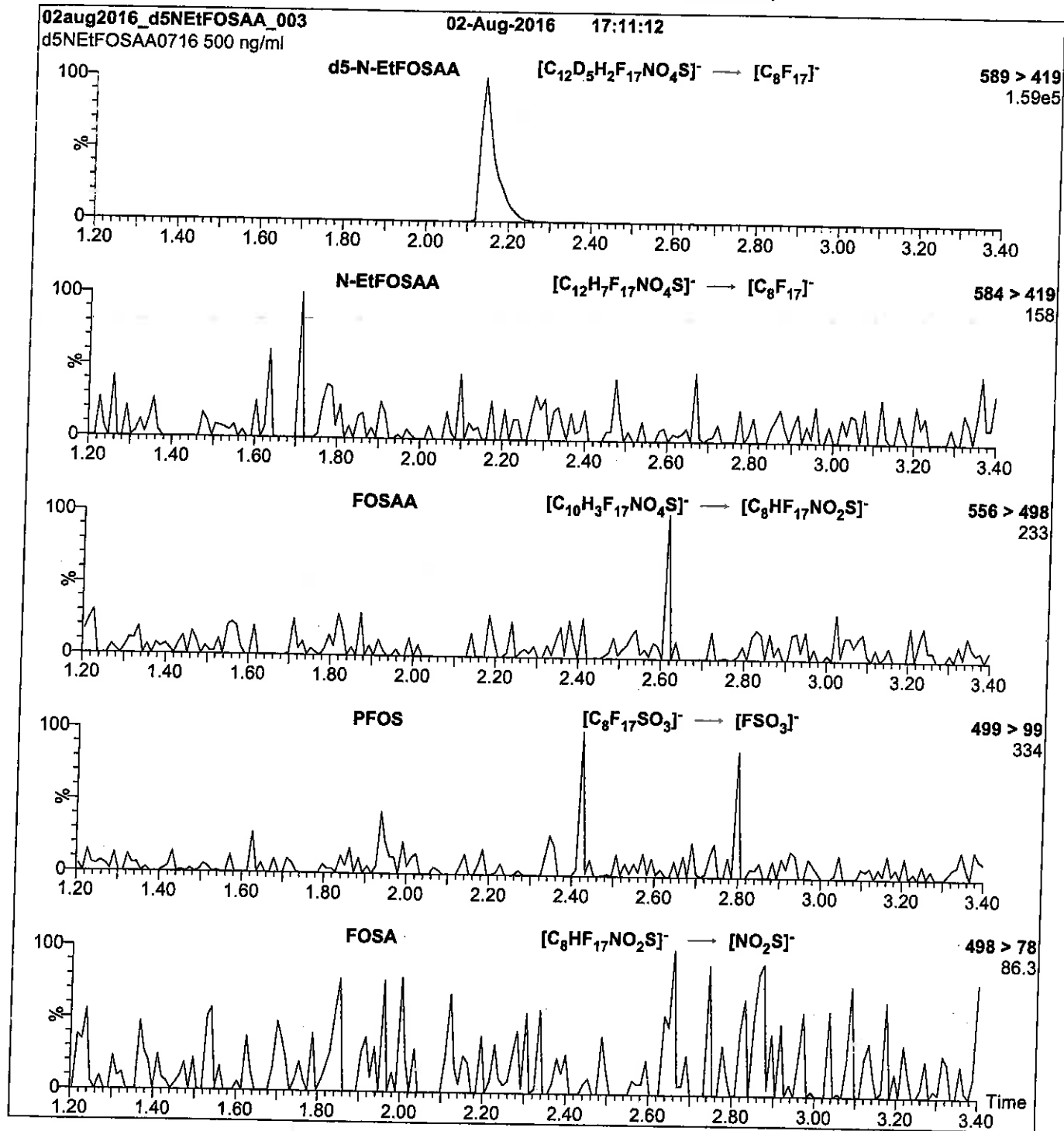
Flow: 350 μ l/min

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

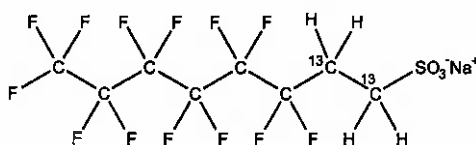
COMPOUND:

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

INTENDED USE:

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

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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.

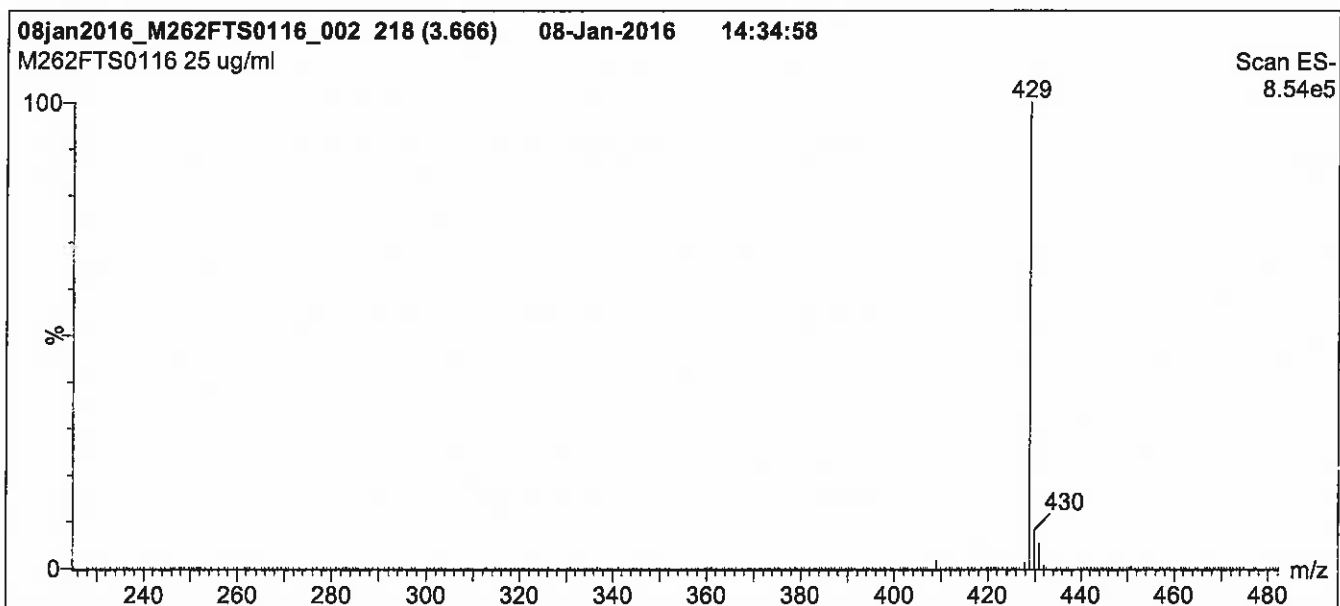
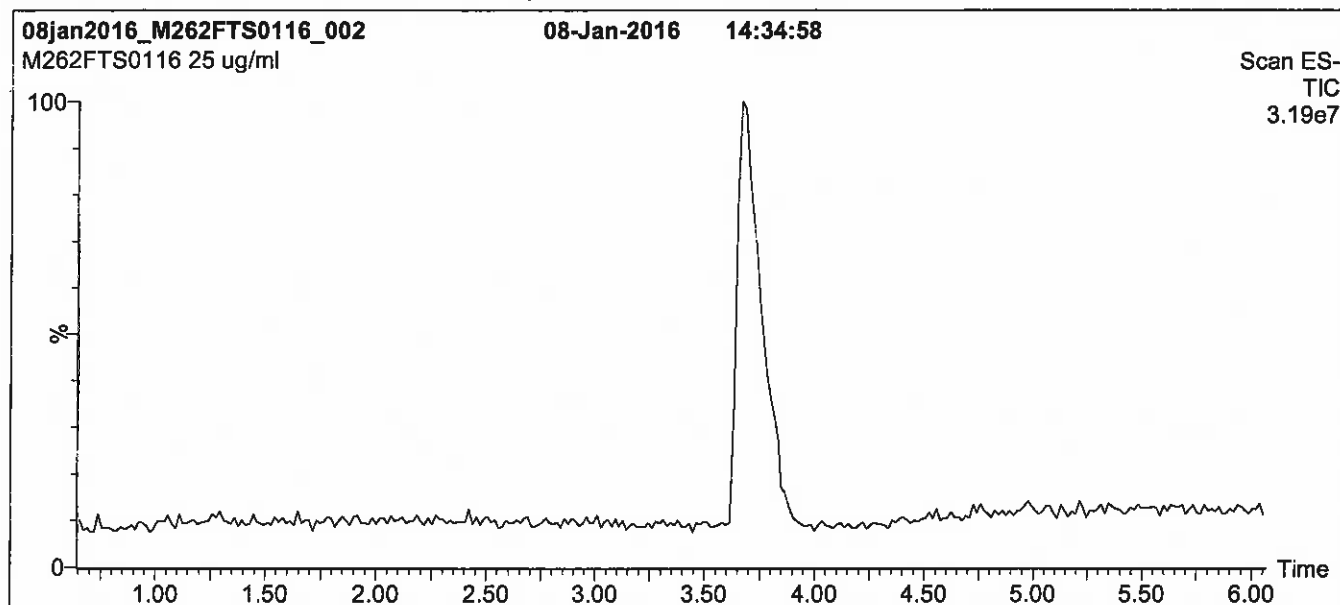
QUALITY MANAGEMENT:

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: 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.

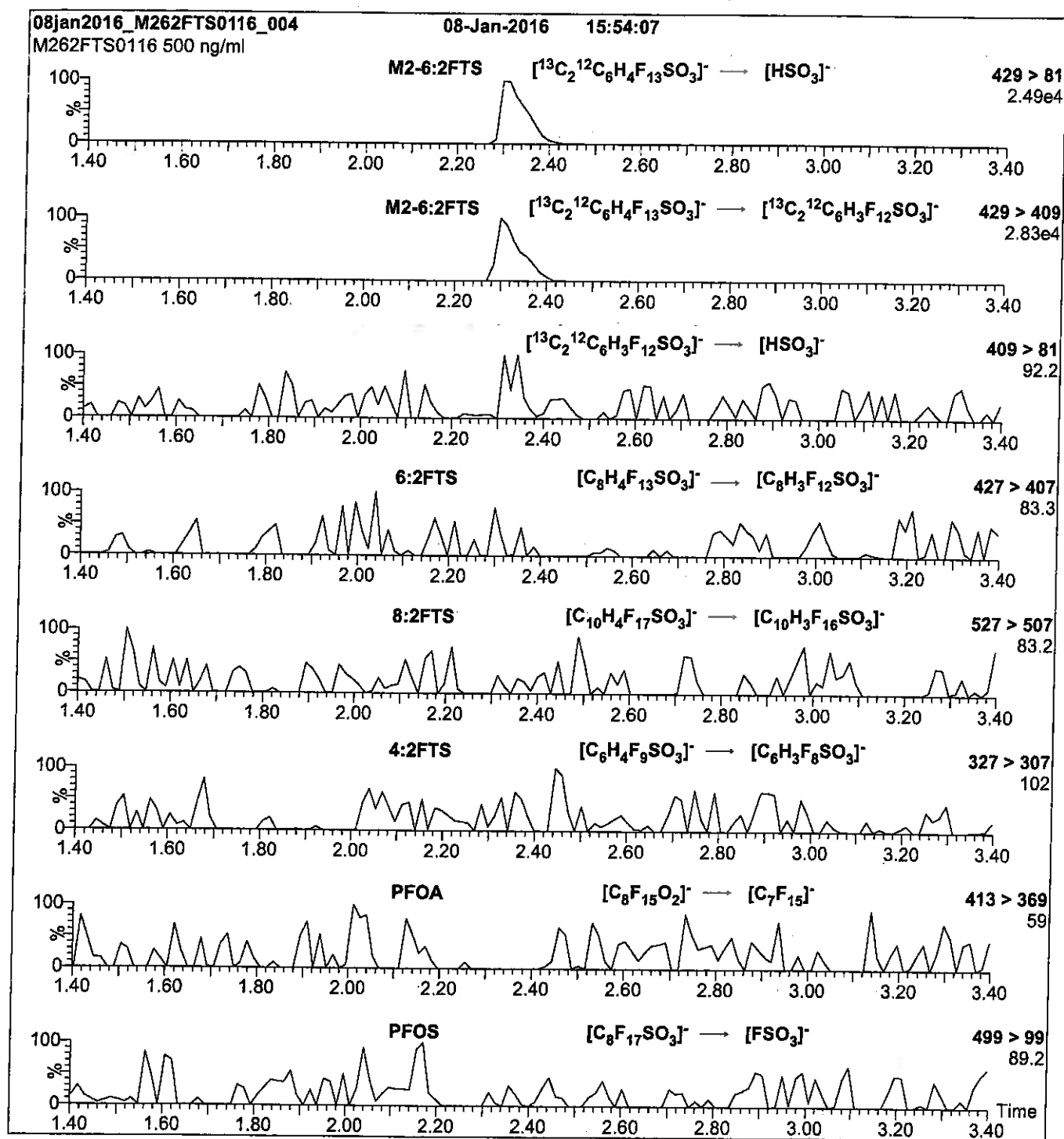
Time: 10 min
Flow: 300 μ l/min

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:

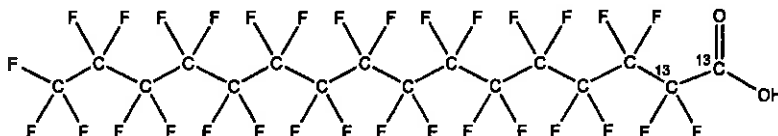
M2PFHxDA

LOT NUMBER:

M2PFHxDA1112

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

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₁₄HF₃₁O₂**MOLECULAR WEIGHT:**

816.11

CONCENTRATION:

50 ± 2.5 µg/ml

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
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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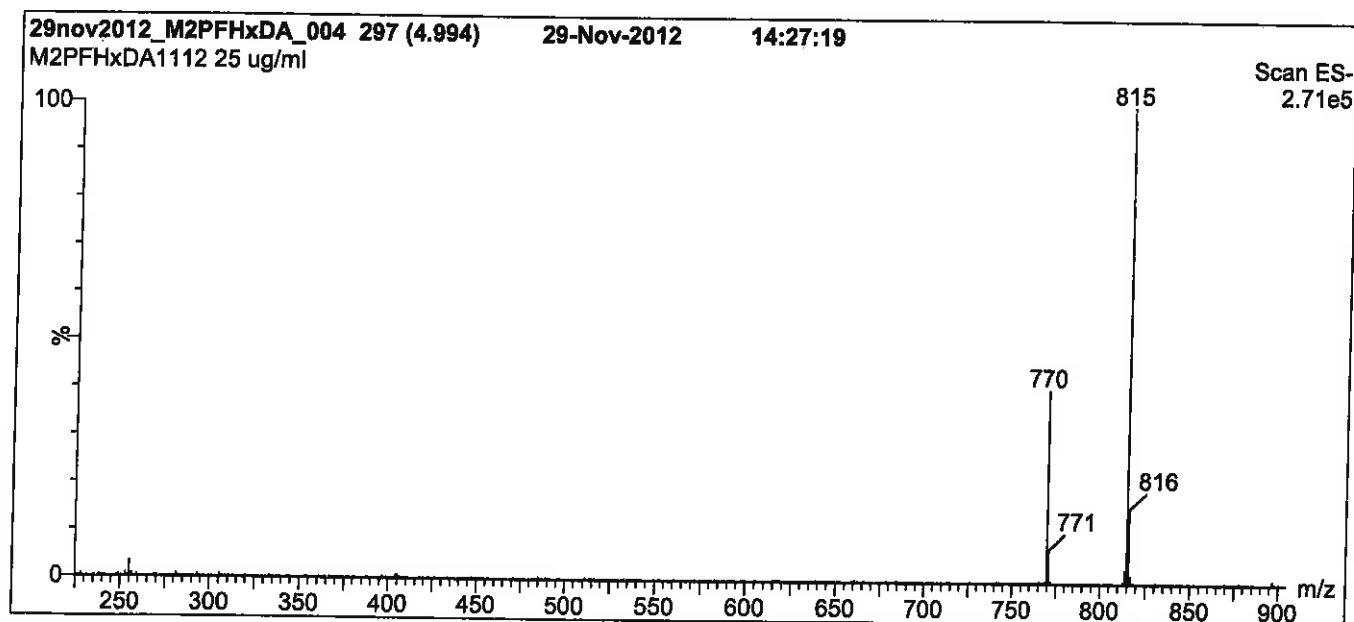
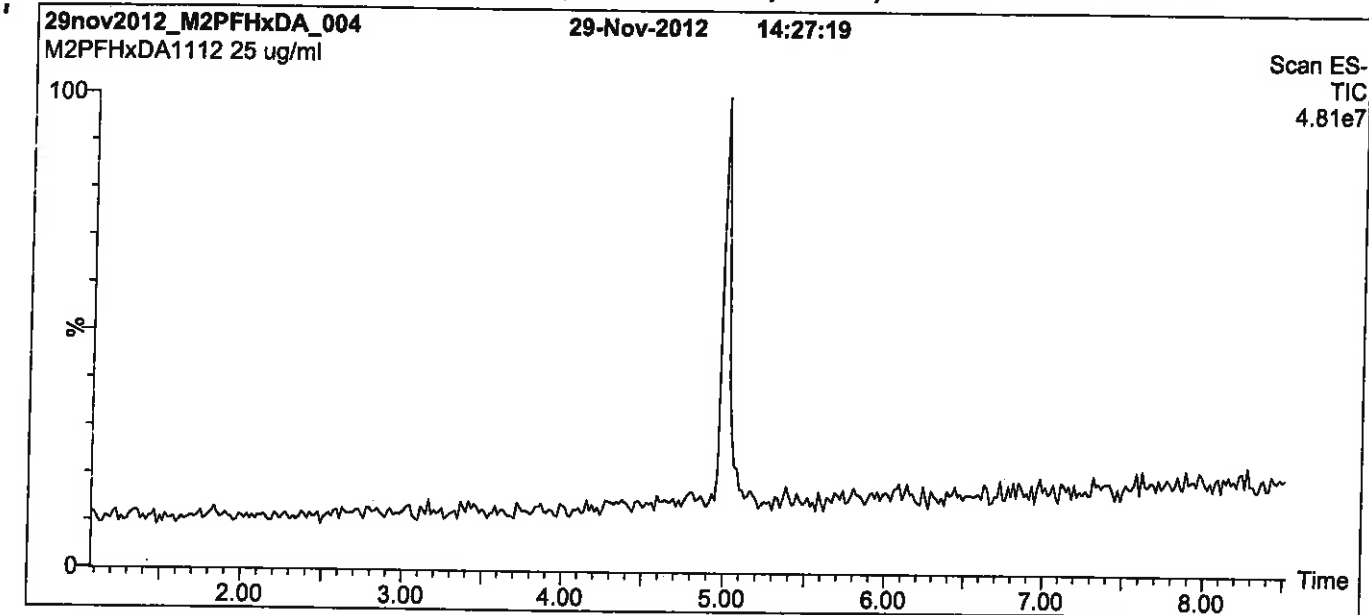
QUALITY MANAGEMENT:

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Figure 1: 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)

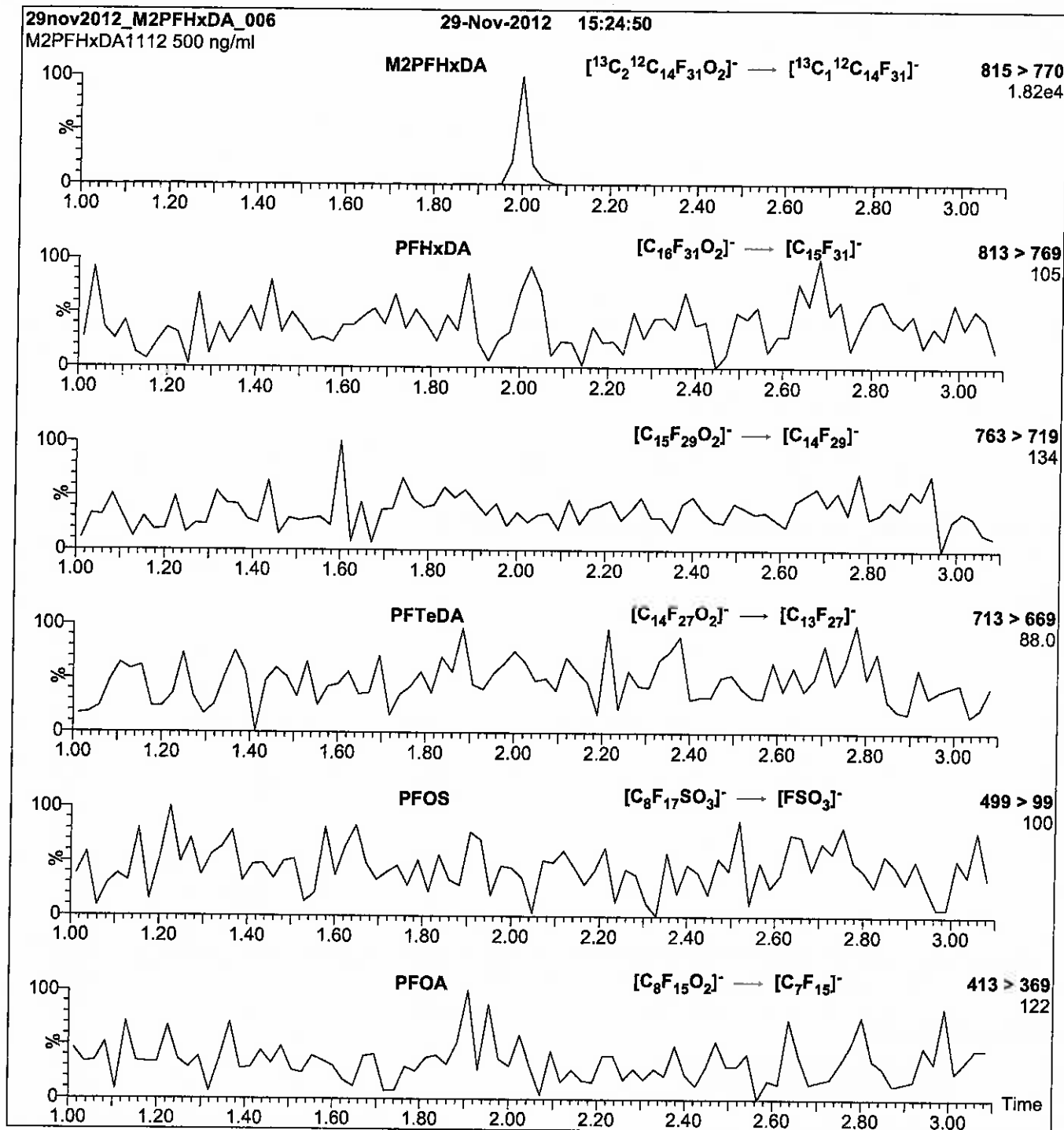
Capillary Voltage (kV) = 2.00

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



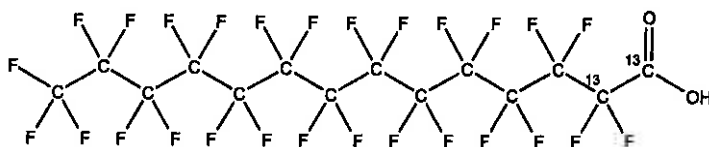
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WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

739563
ID: LCM2PFTeDA_00007
Exp: 12/07/20 Prod: SEC
13C2-PFTeDA at 50ug/mL

PRODUCT CODE: M2PFTeDA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]tetradecanoic acid
LOT NUMBER: M2PFTeDA1115

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

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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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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:

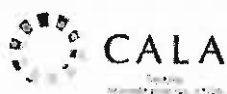
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

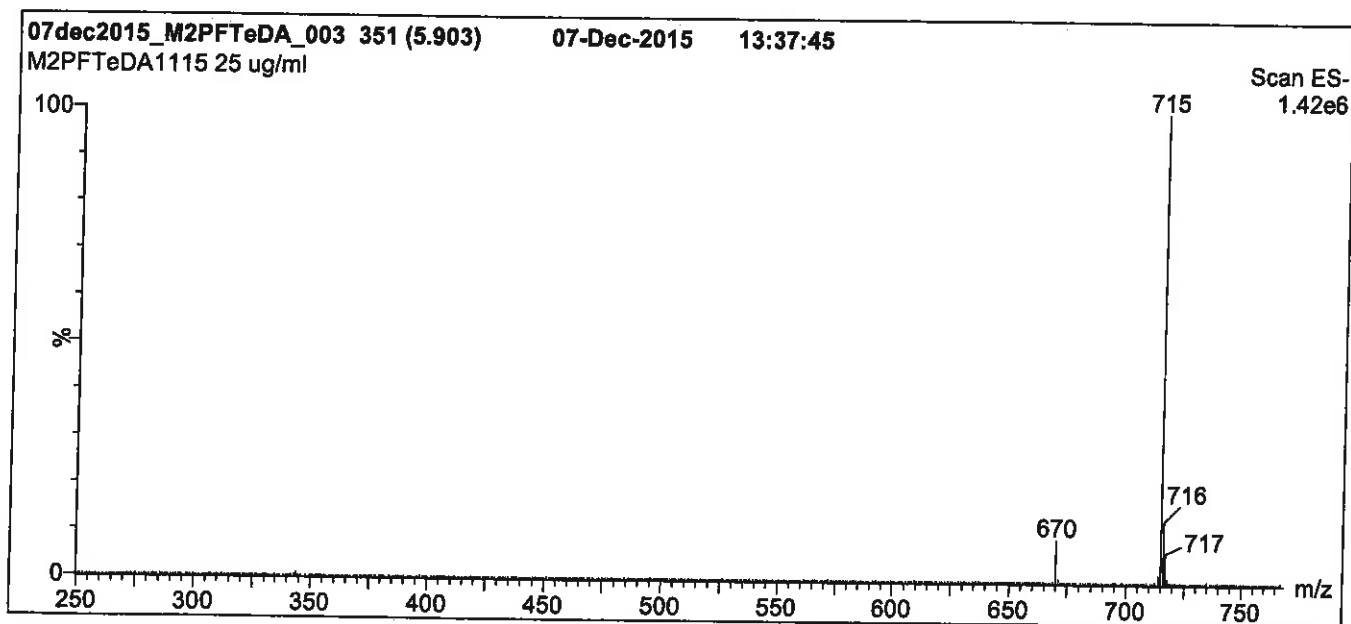
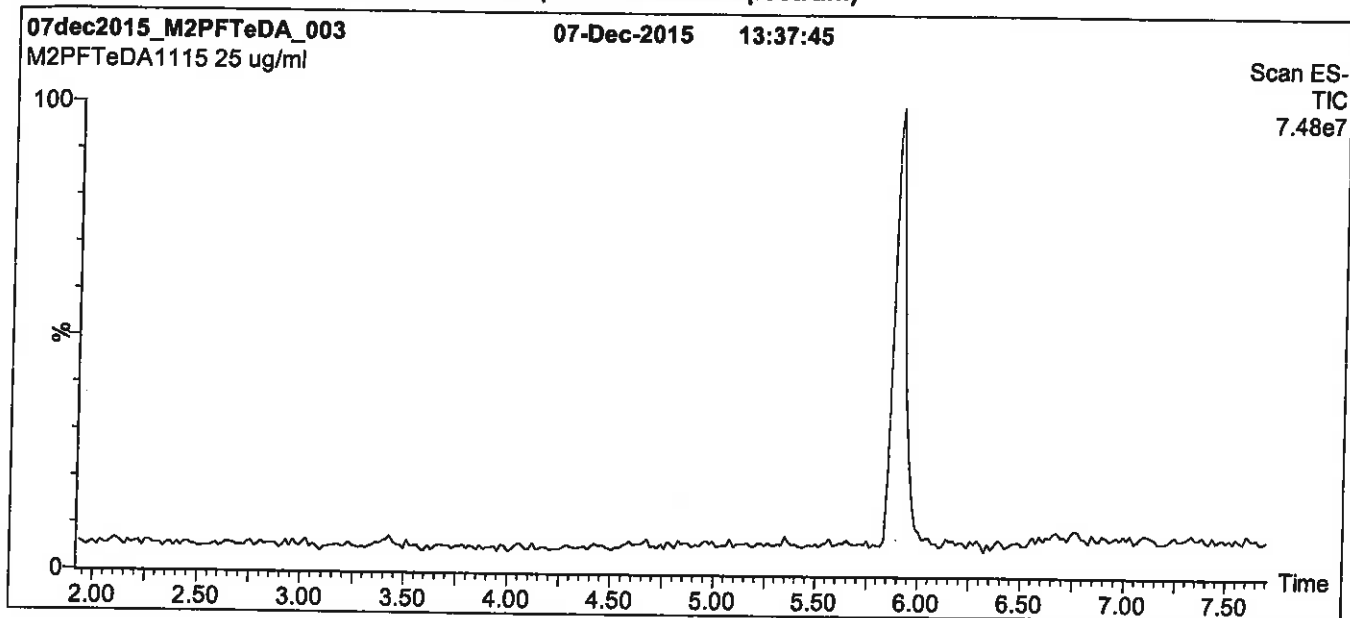
QUALITY MANAGEMENT:

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: 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

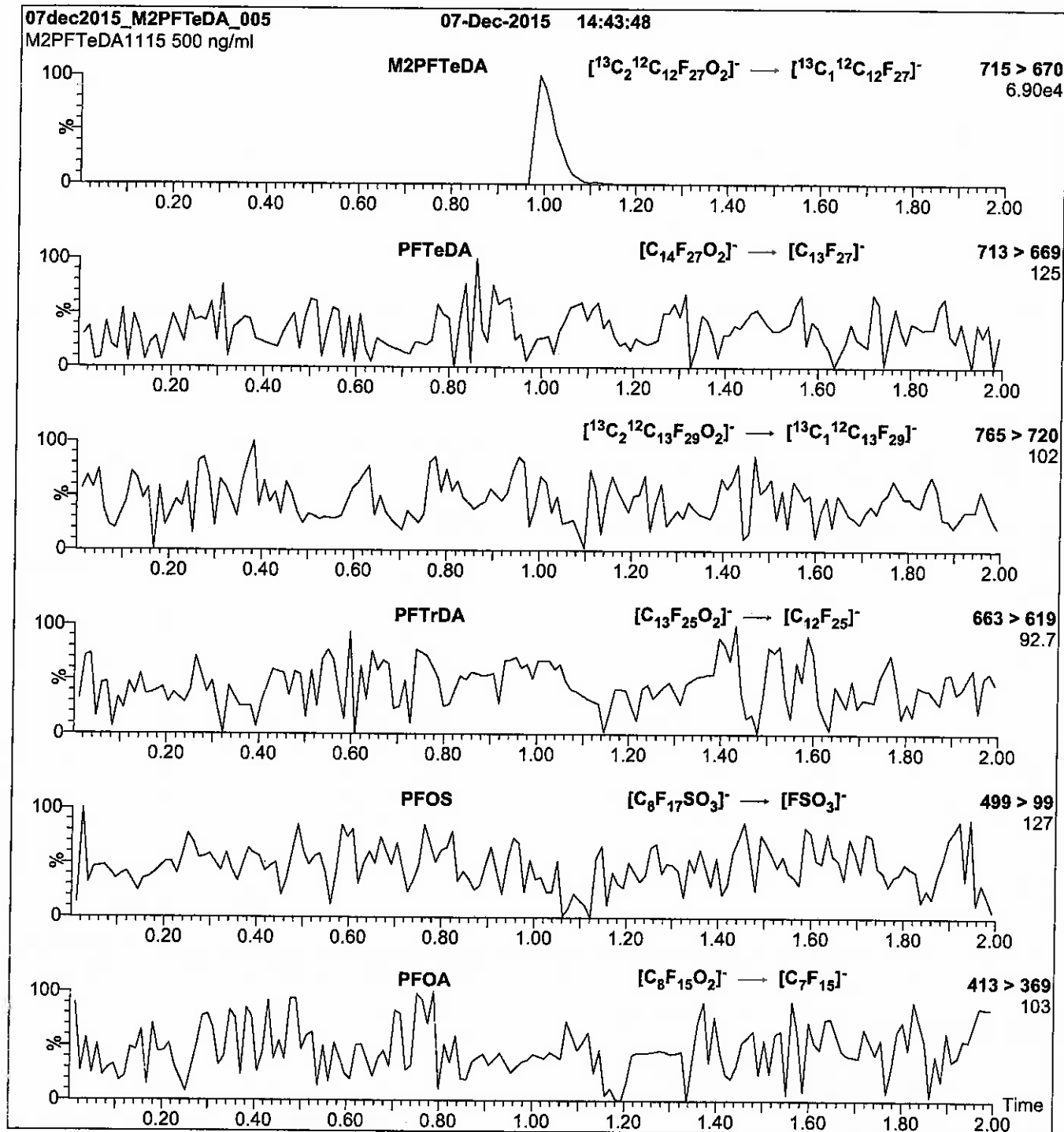
Flow: 300 μ l/min

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

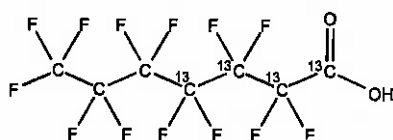
COMPOUND:

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

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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LIMITED WARRANTY:

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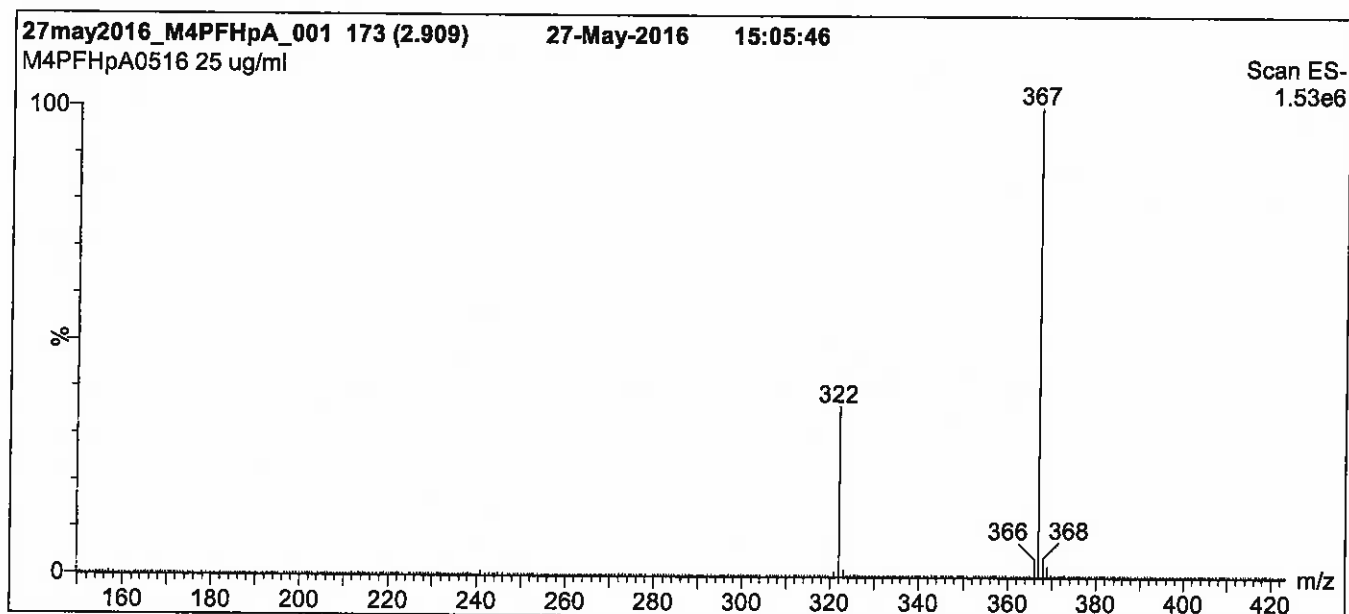
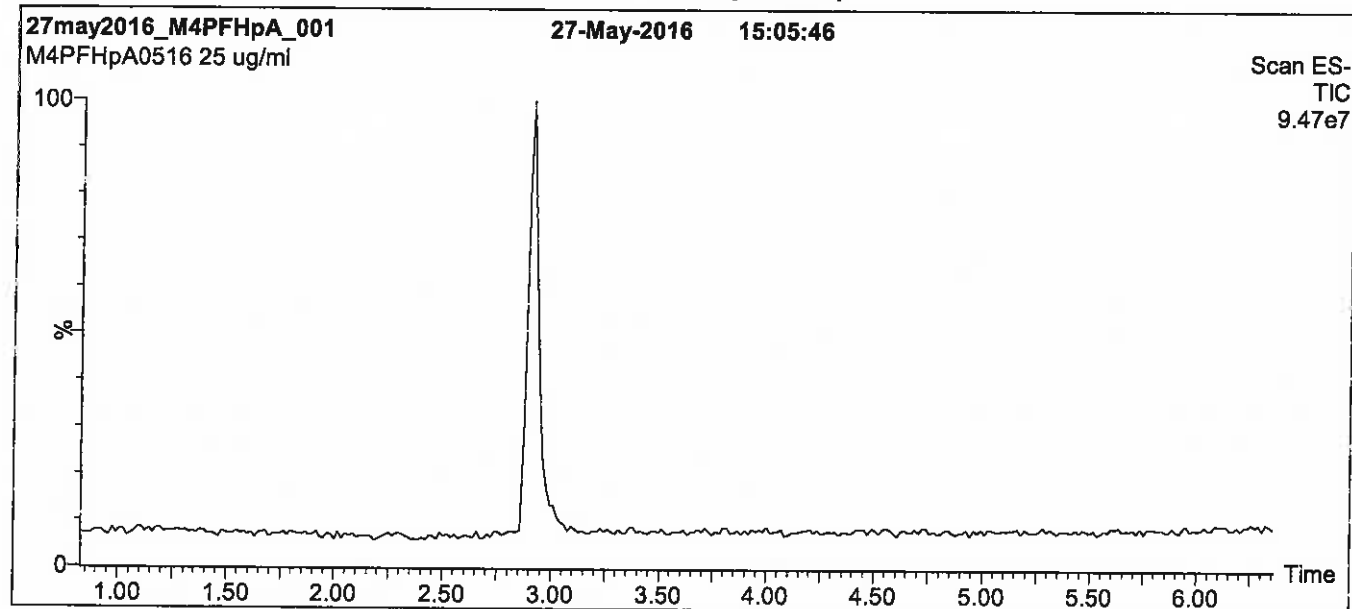
QUALITY MANAGEMENT:

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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

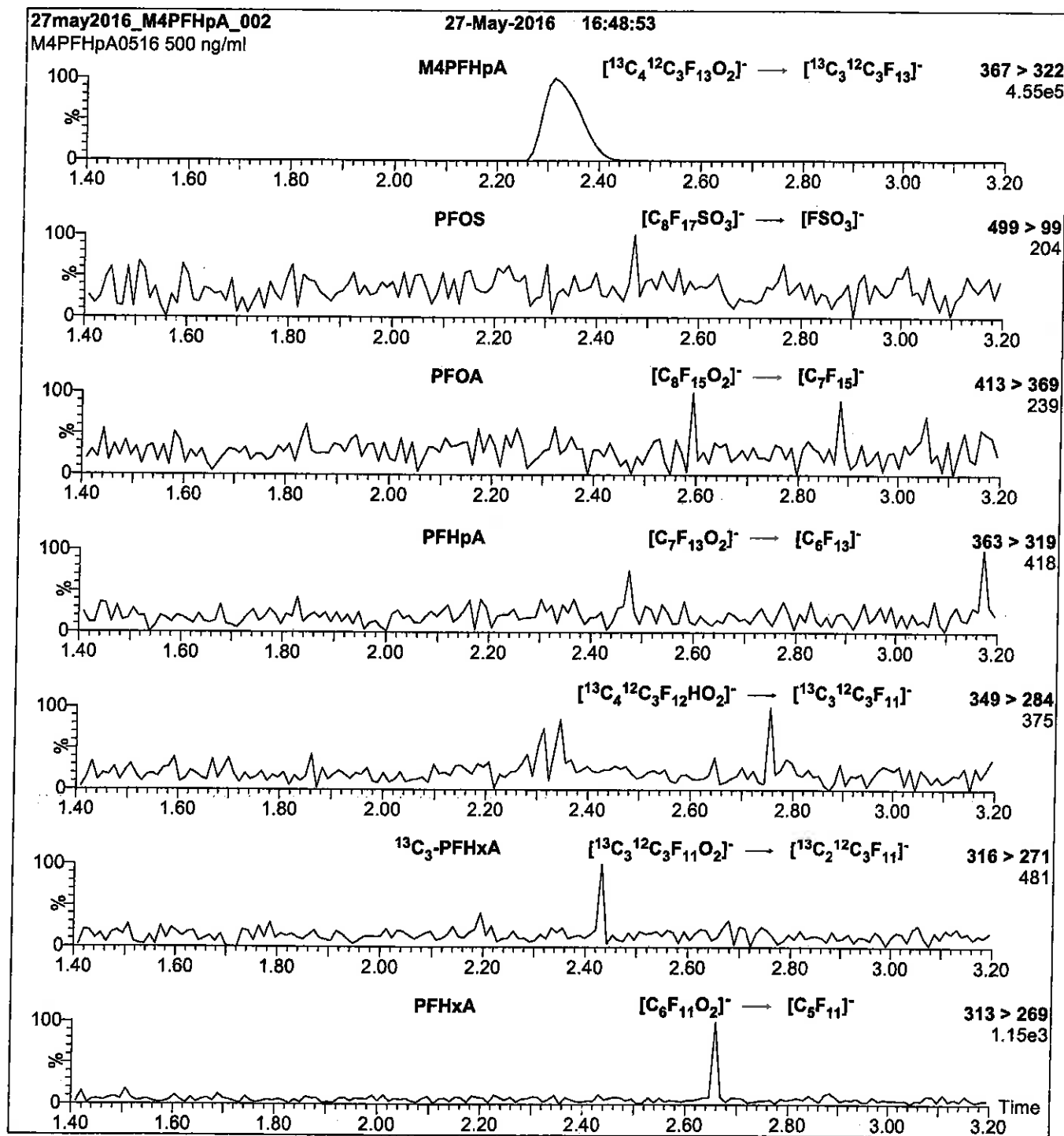
Flow: 300 μ l/min

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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CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 LR

PRODUCT CODE:

M5PFPeA

LOT NUMBER:

M5PFPeA0515

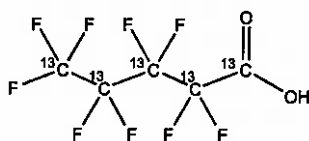
COMPOUND:

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

EXPIRY DATE: (mm/dd/yyyy)

05/22/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

(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.
- 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

INTENDED USE:

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LIMITED WARRANTY:

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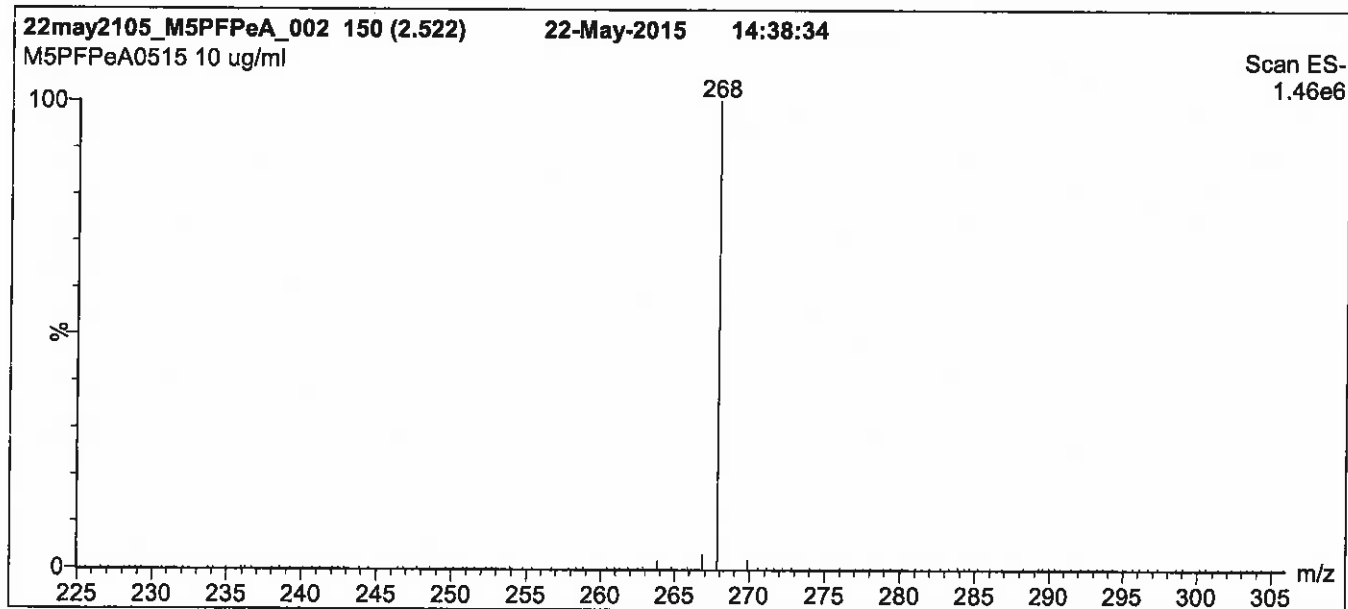
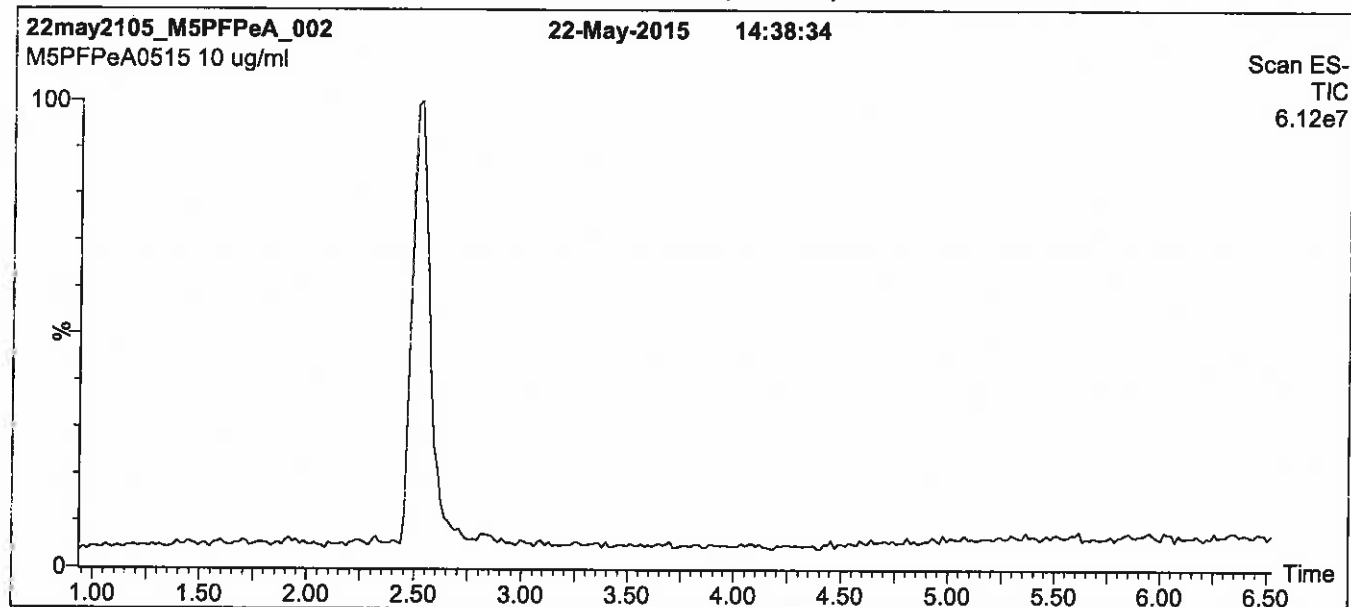
QUALITY MANAGEMENT:

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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

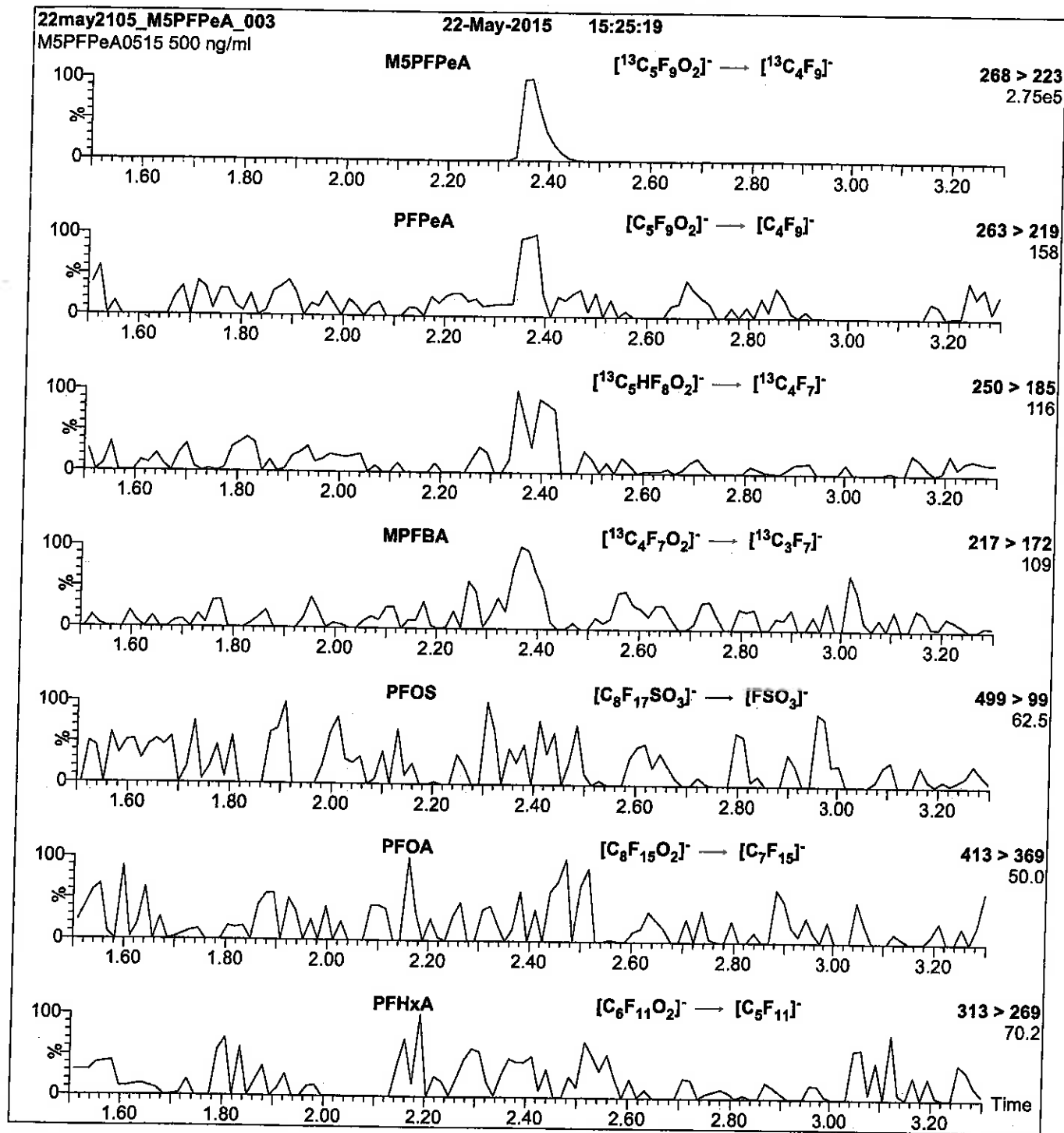
Flow: 300 μ l/min

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:

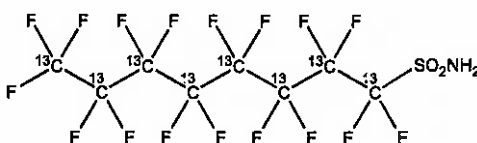
M8FOSA-I

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
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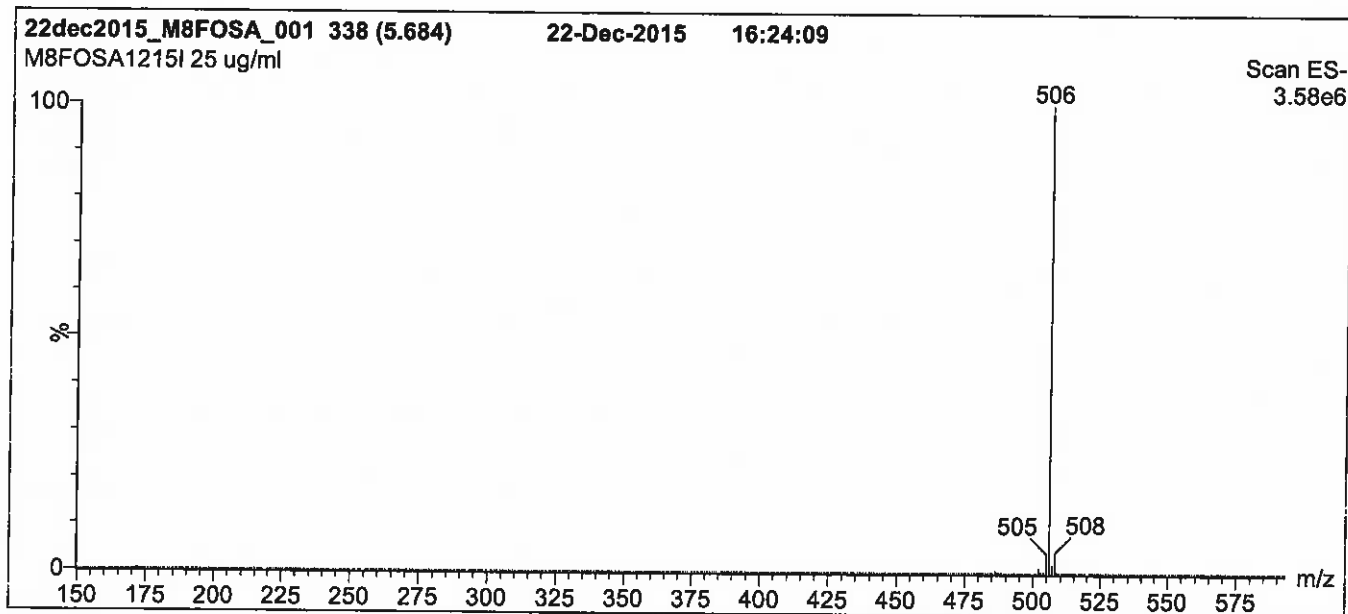
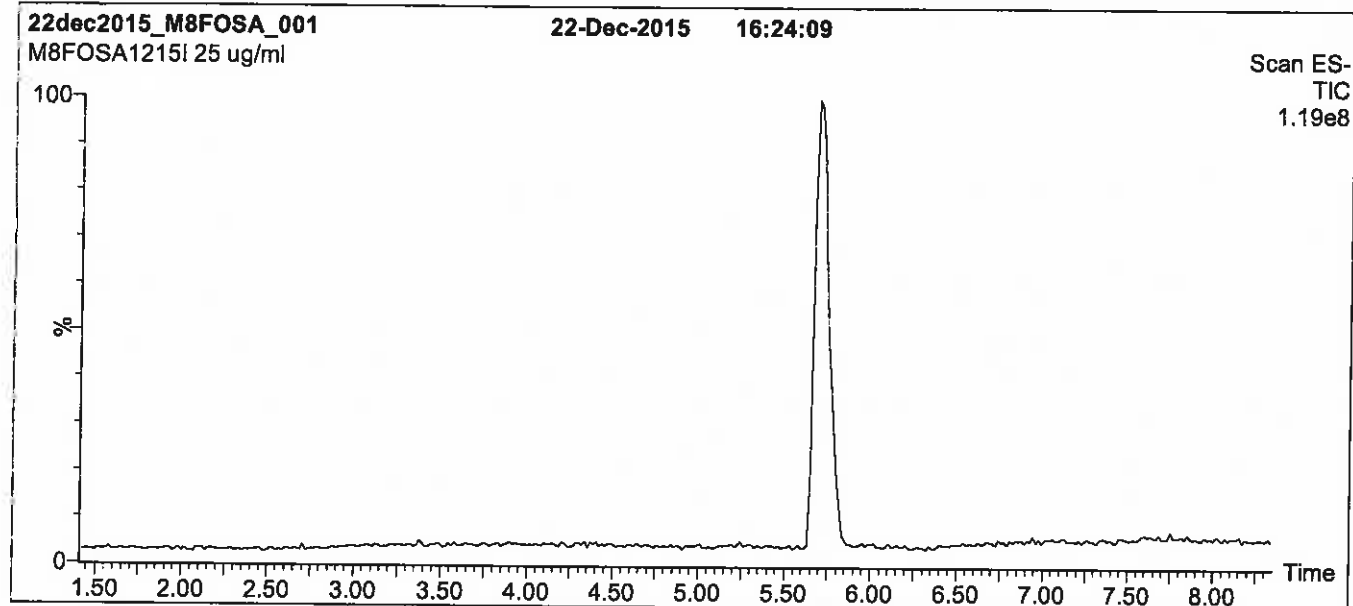
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MS: Micromass Quattro micro API MS

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1.7 μ m, 2.1 x 100 mm

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

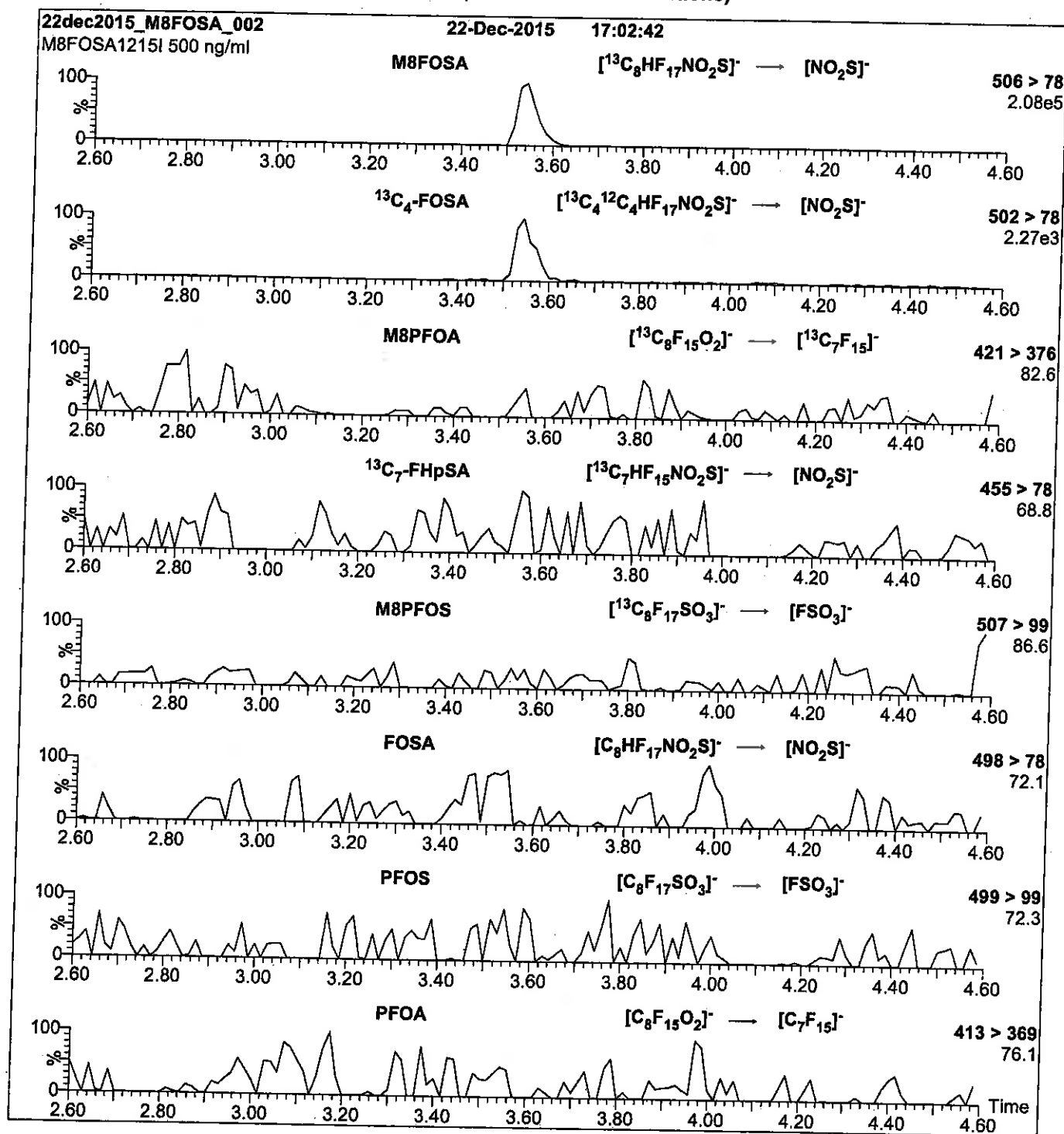
Flow: 300 μ l/min

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

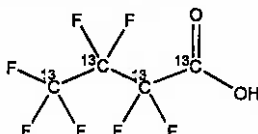
COMPOUND:

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:

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.

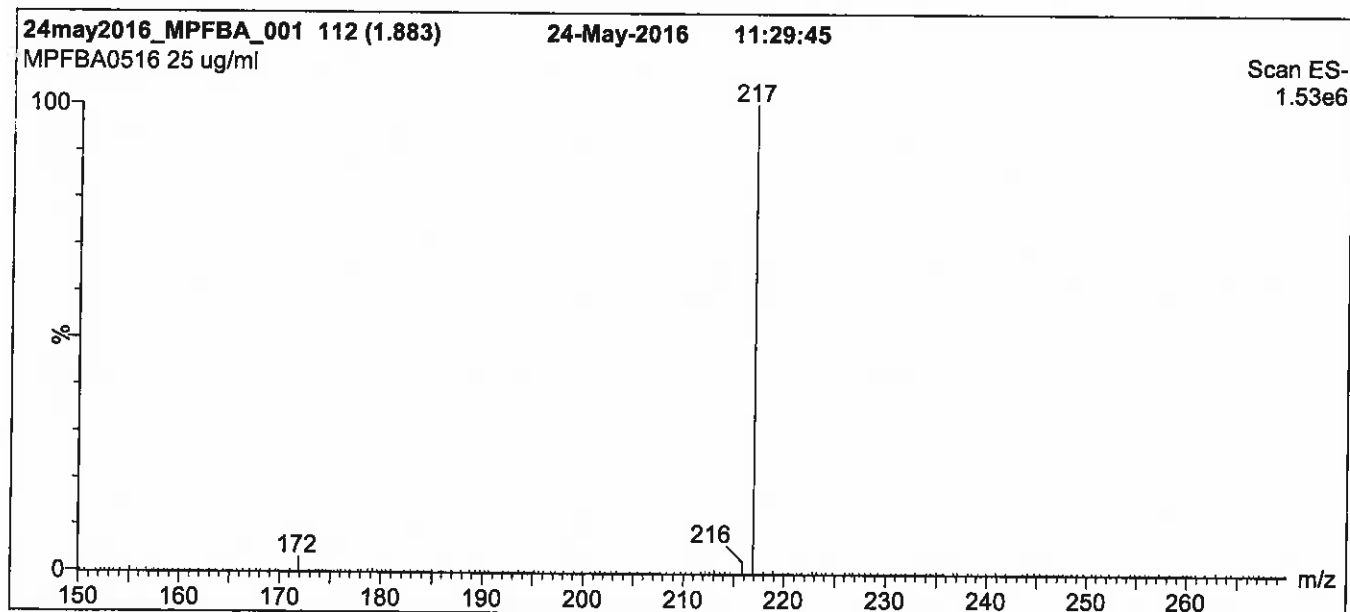
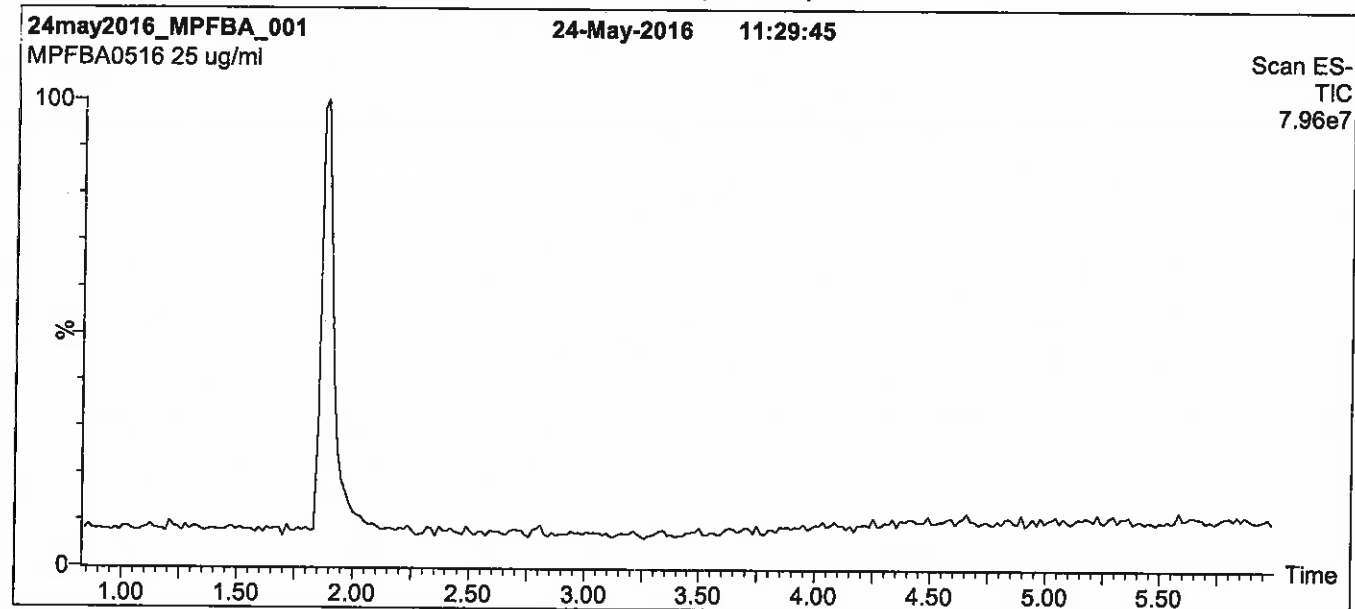
QUALITY MANAGEMENT:

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: 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

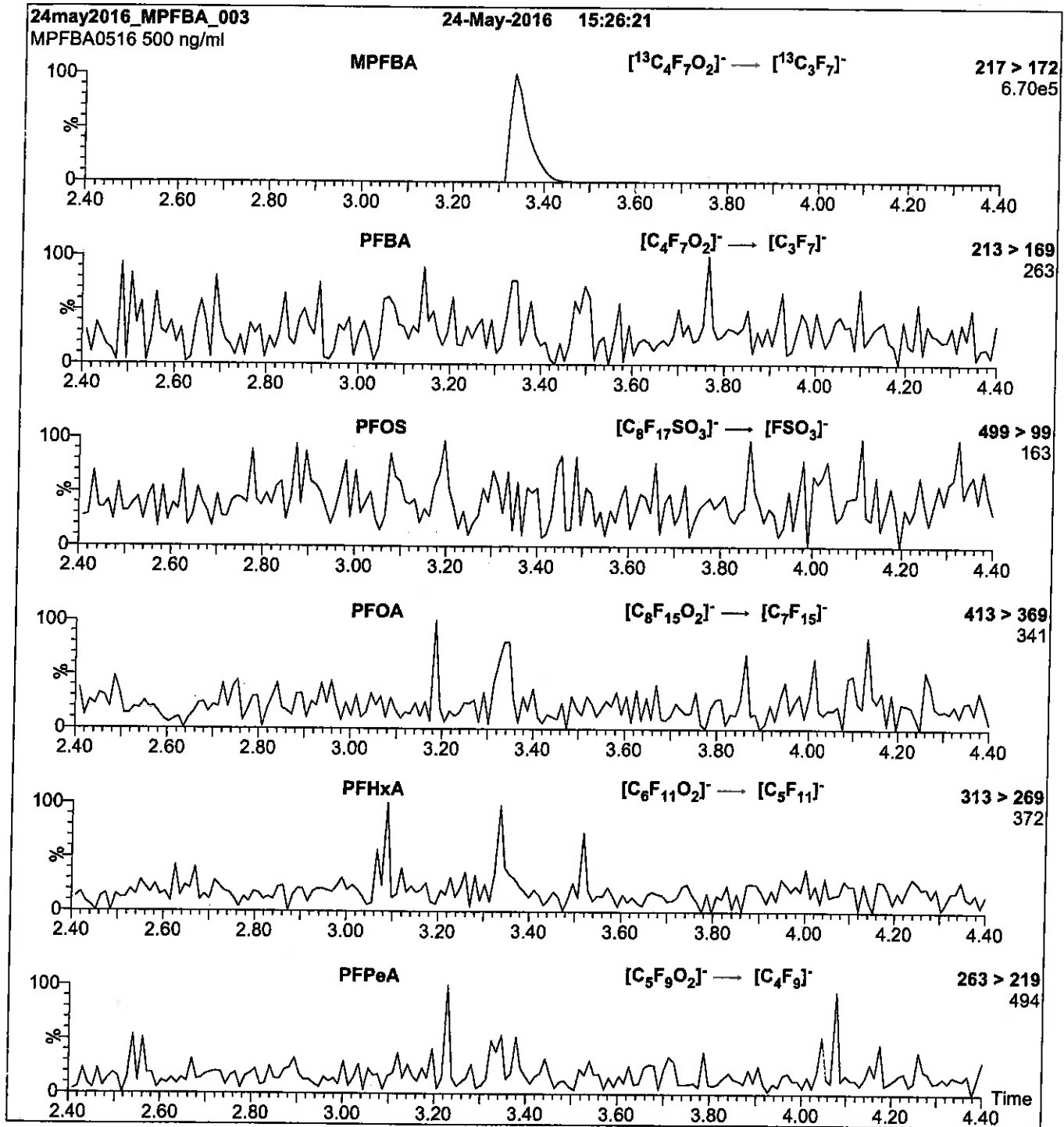
Flow: 300 μ l/min

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 Prep: SBC
13C2-Perfluorodecanoic a

PRODUCT CODE:

MPFDA

LOT NUMBER:

MPFDA0815

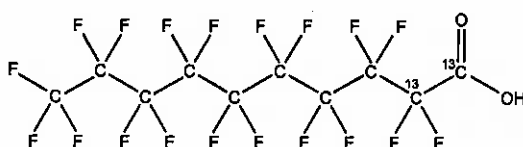
COMPOUND:

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

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

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

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

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

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.

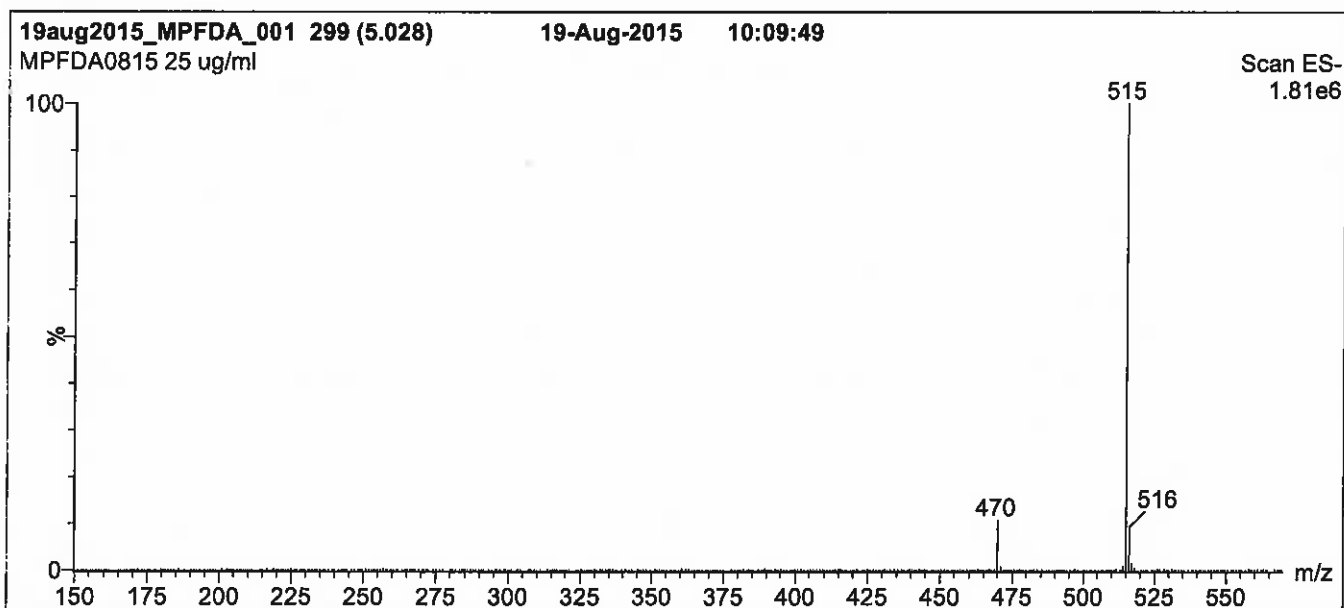
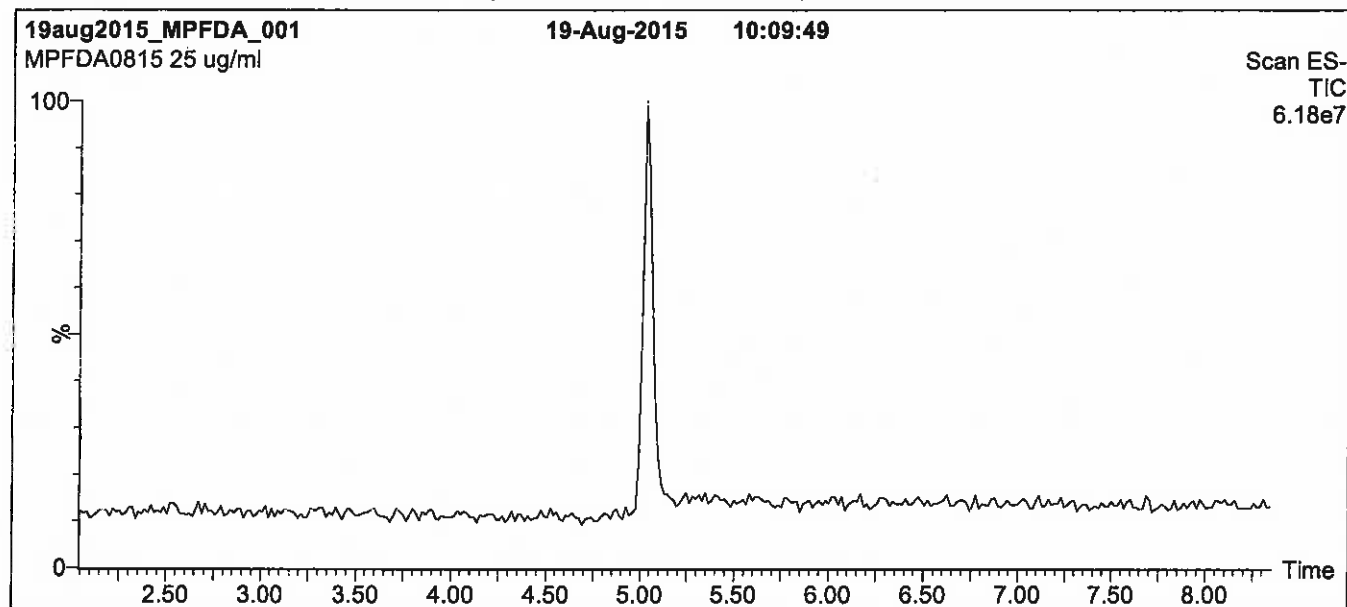
QUALITY MANAGEMENT:

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: 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

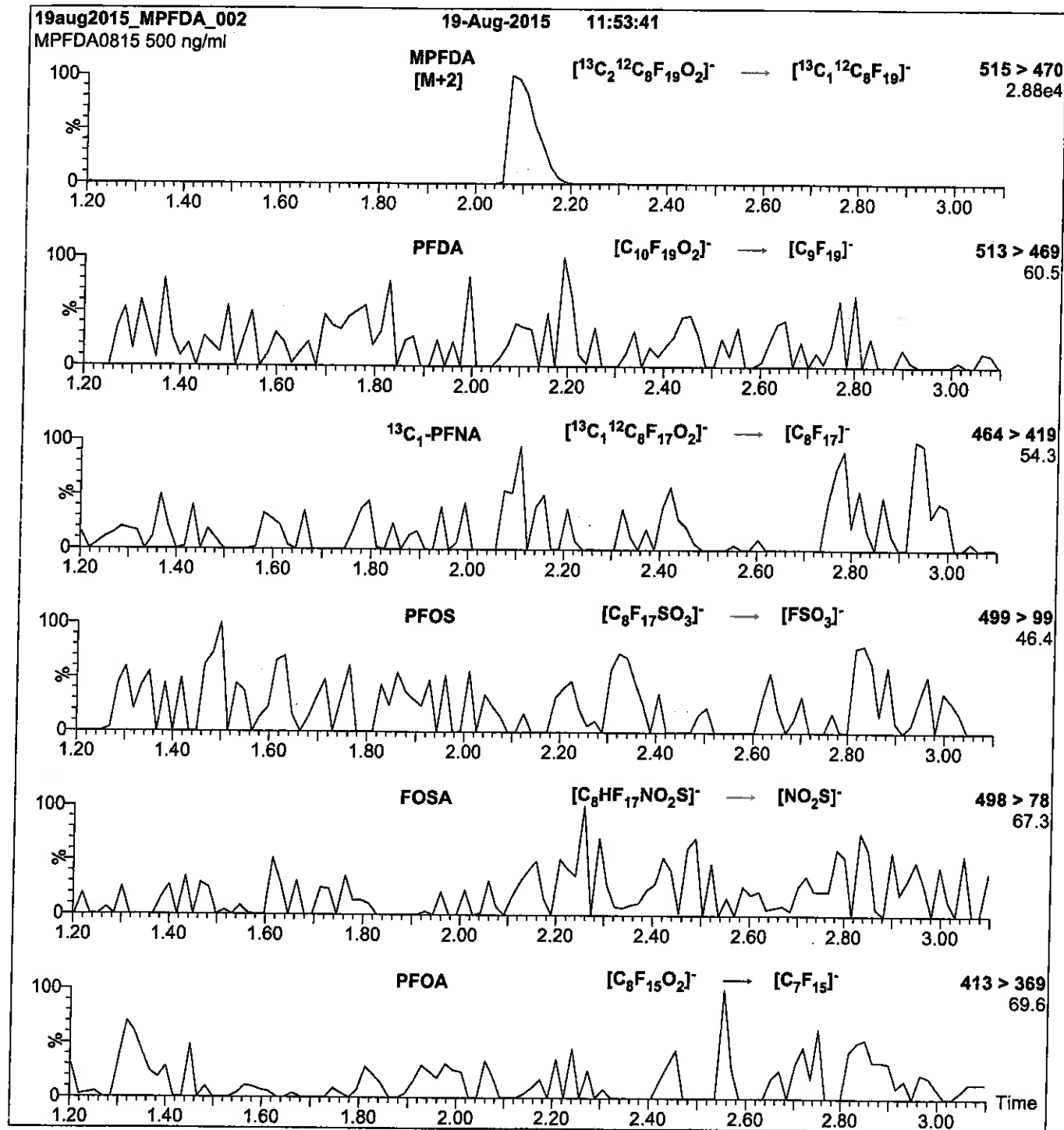
Flow: 300 μ l/min

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

LCMPFD_oA_00008

R: gbe 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

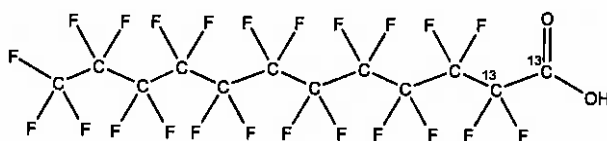
COMPOUND:

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

INTENDED USE:

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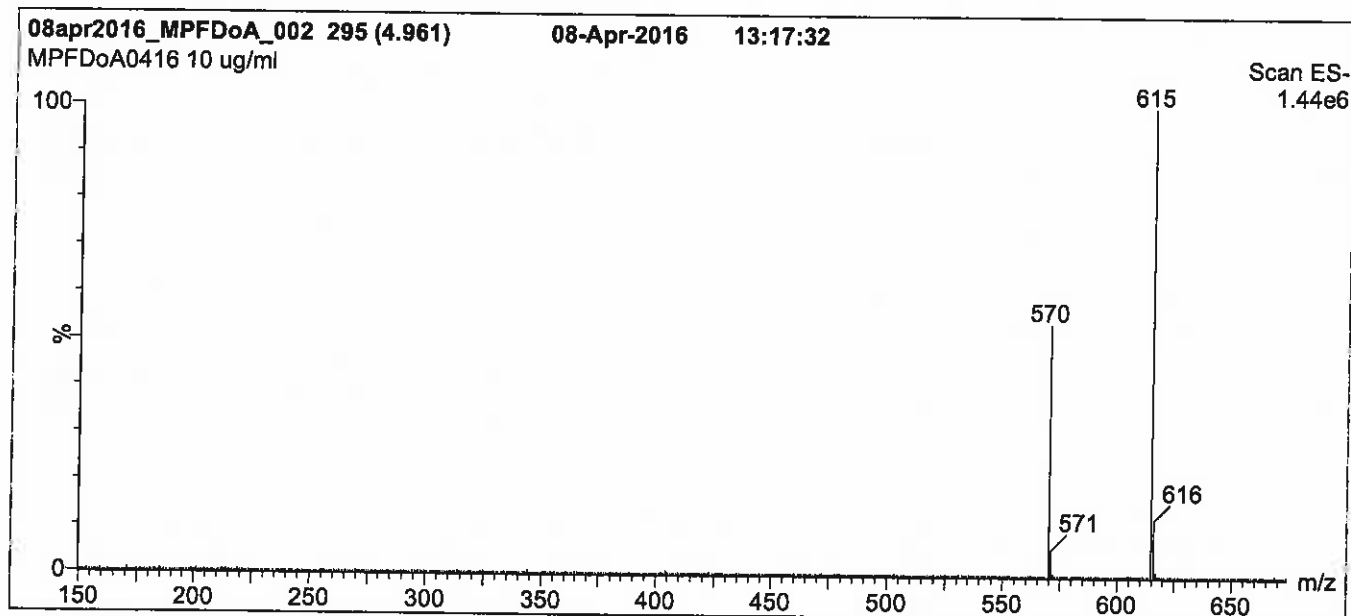
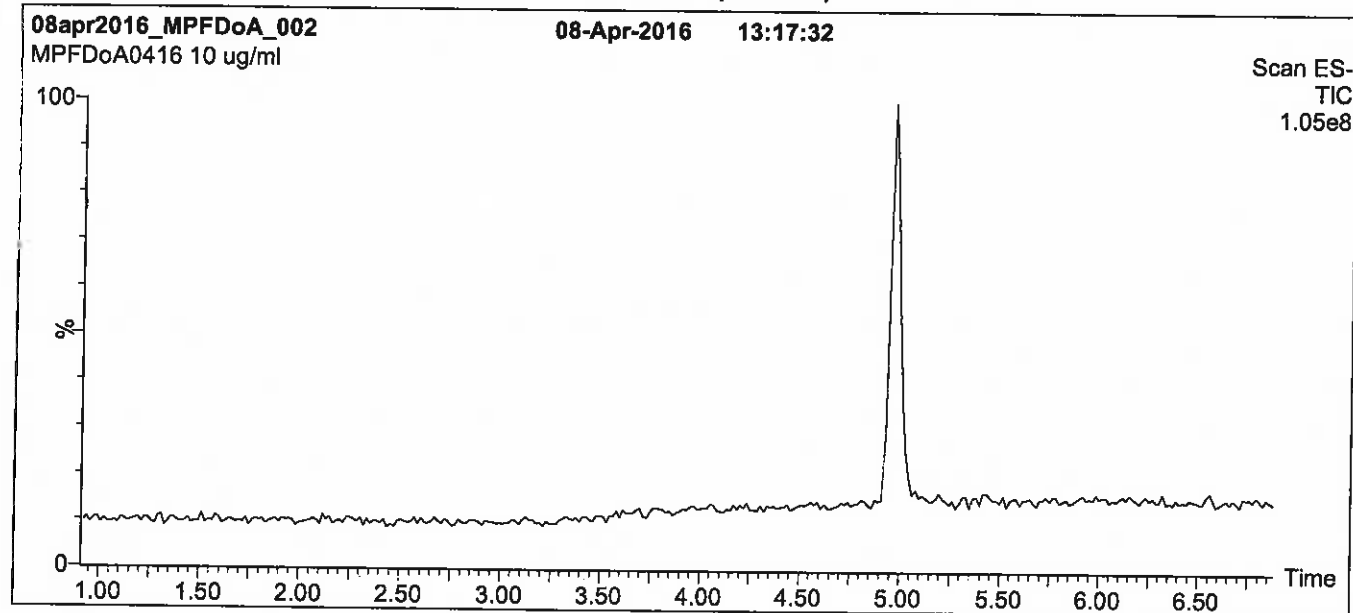
QUALITY MANAGEMENT:

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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

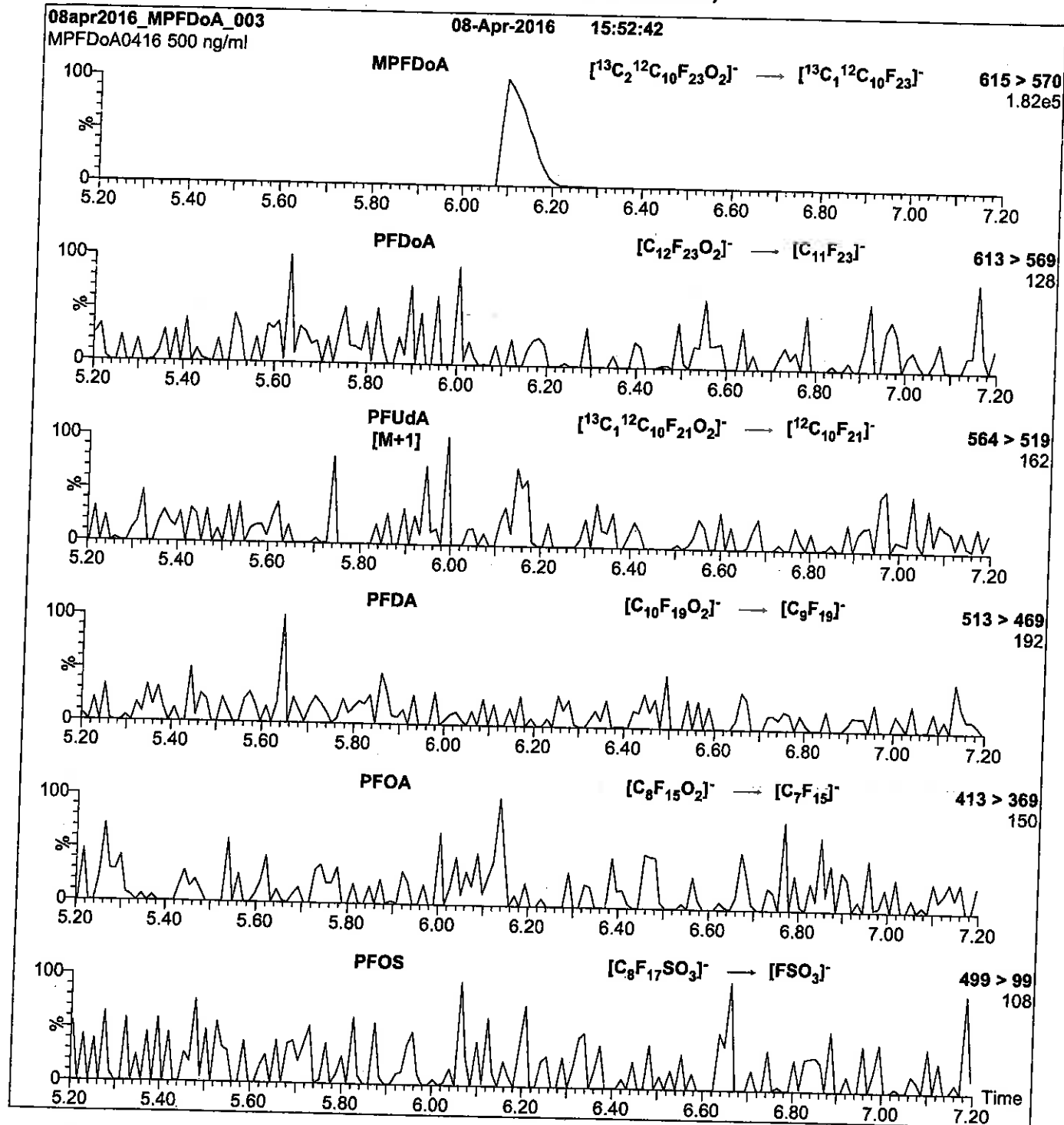
Flow: 300 μ l/min

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



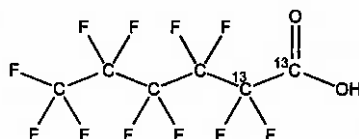
WELLINGTON LABORATORIES

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

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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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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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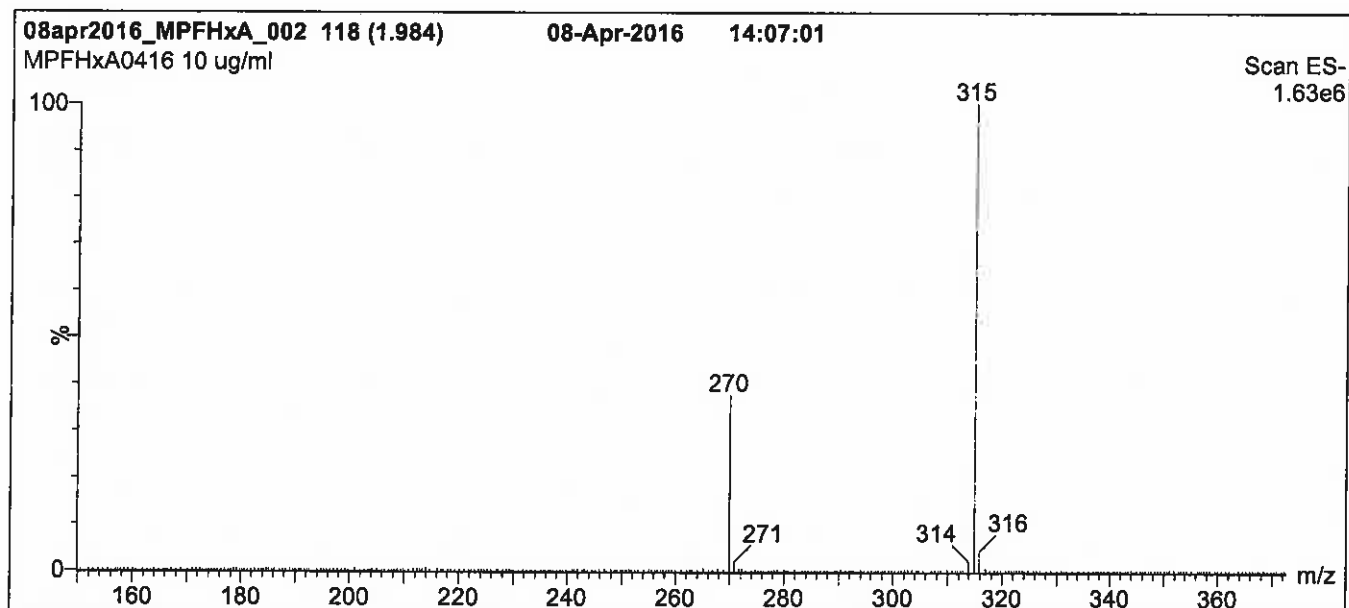
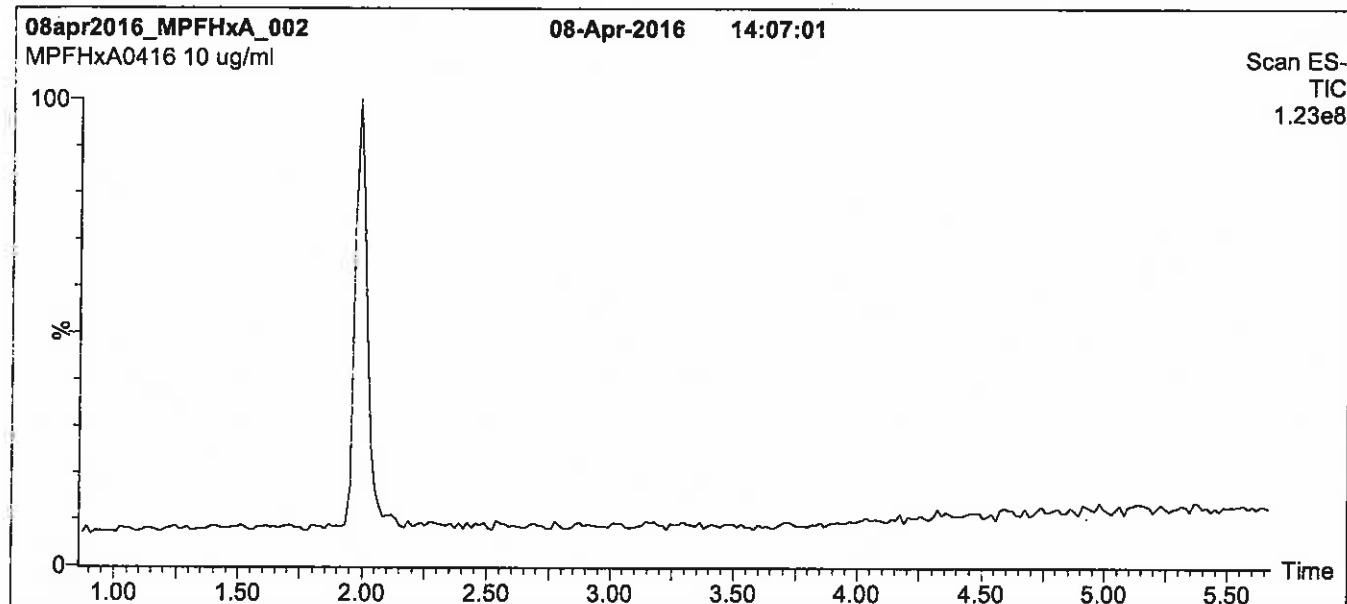
QUALITY MANAGEMENT:

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: 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)

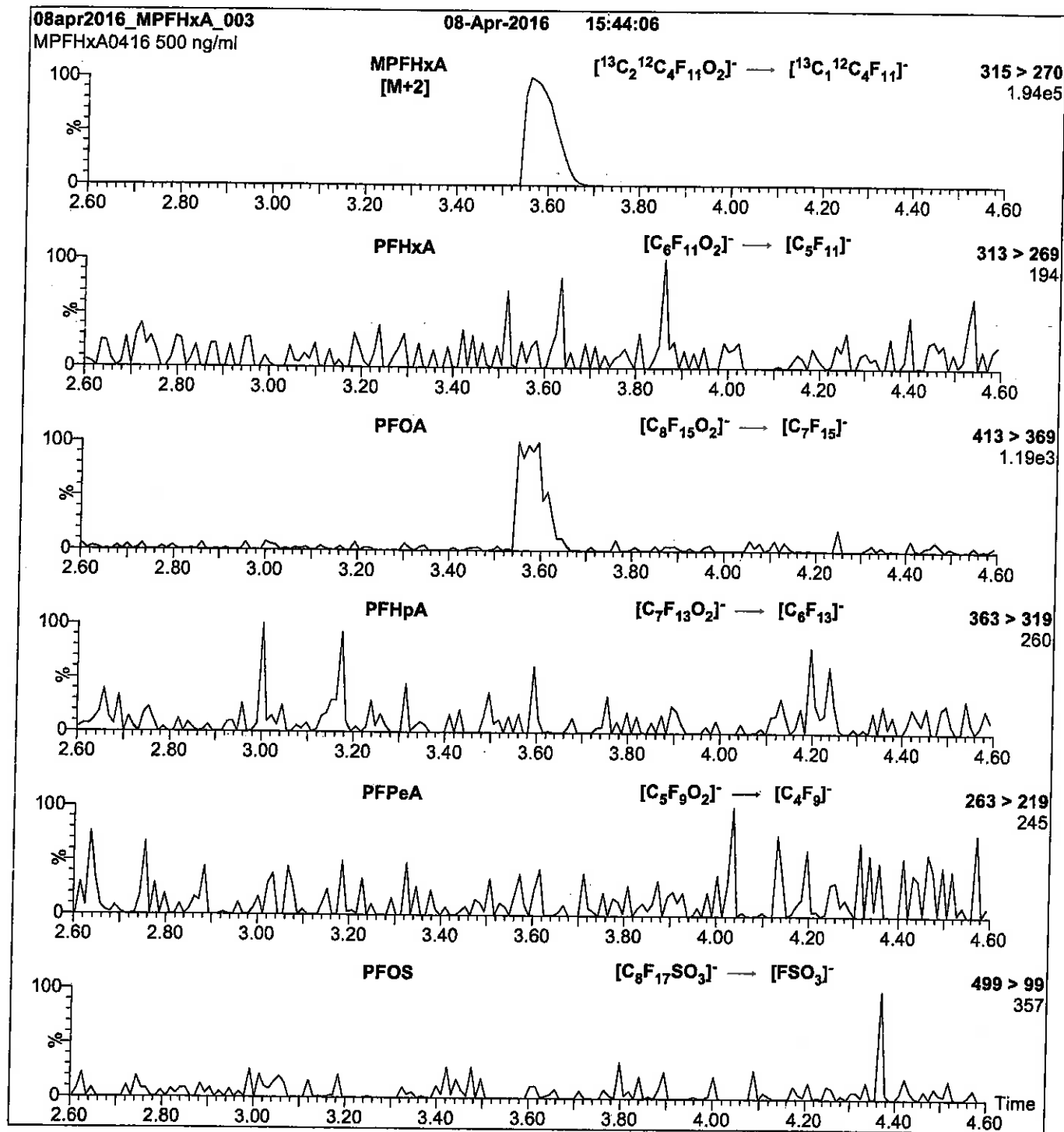
Capillary Voltage (kV) = 2.00

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

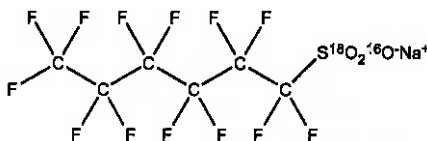
COMPOUND:

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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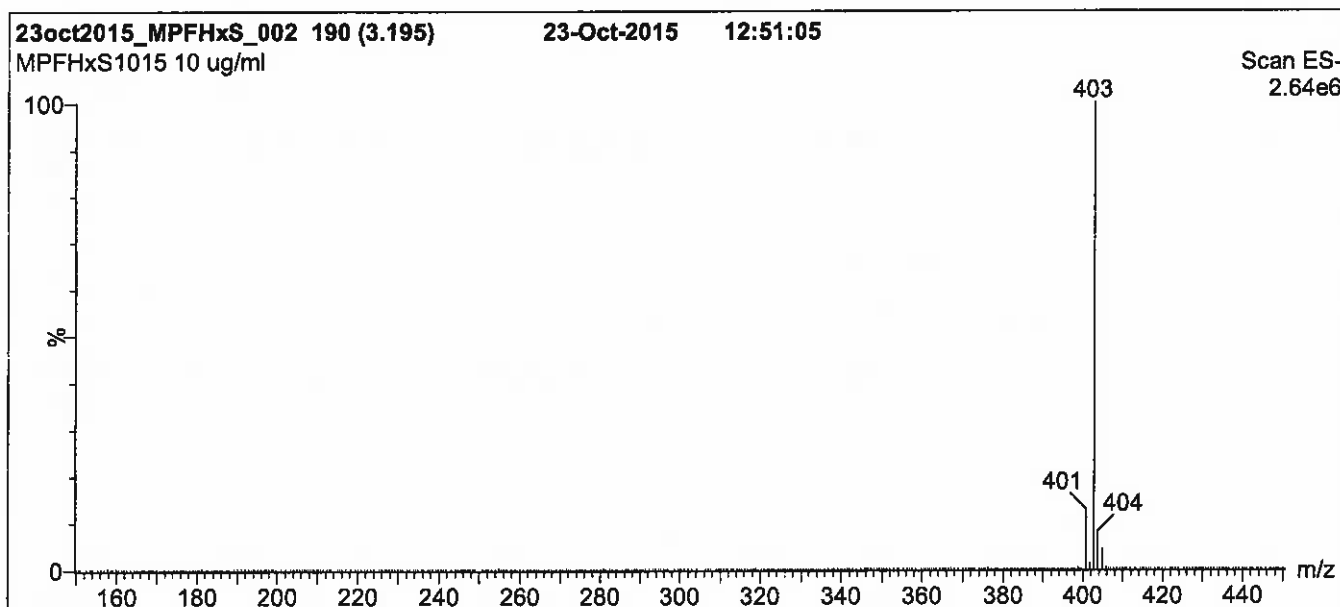
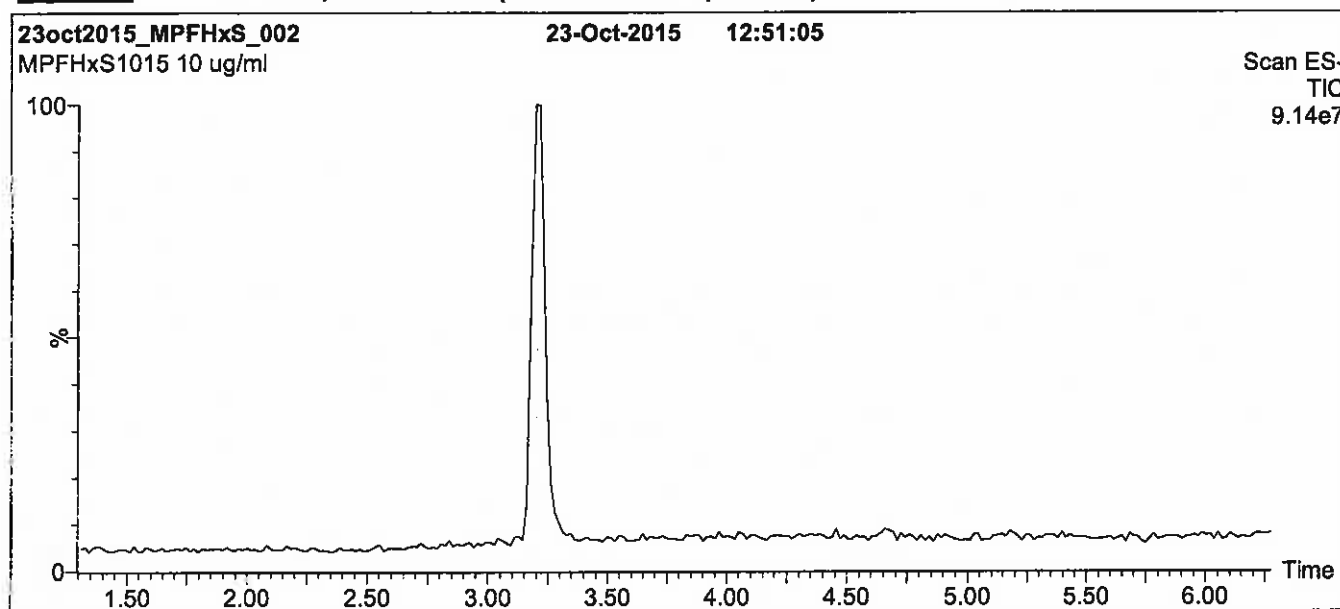
QUALITY MANAGEMENT:

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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

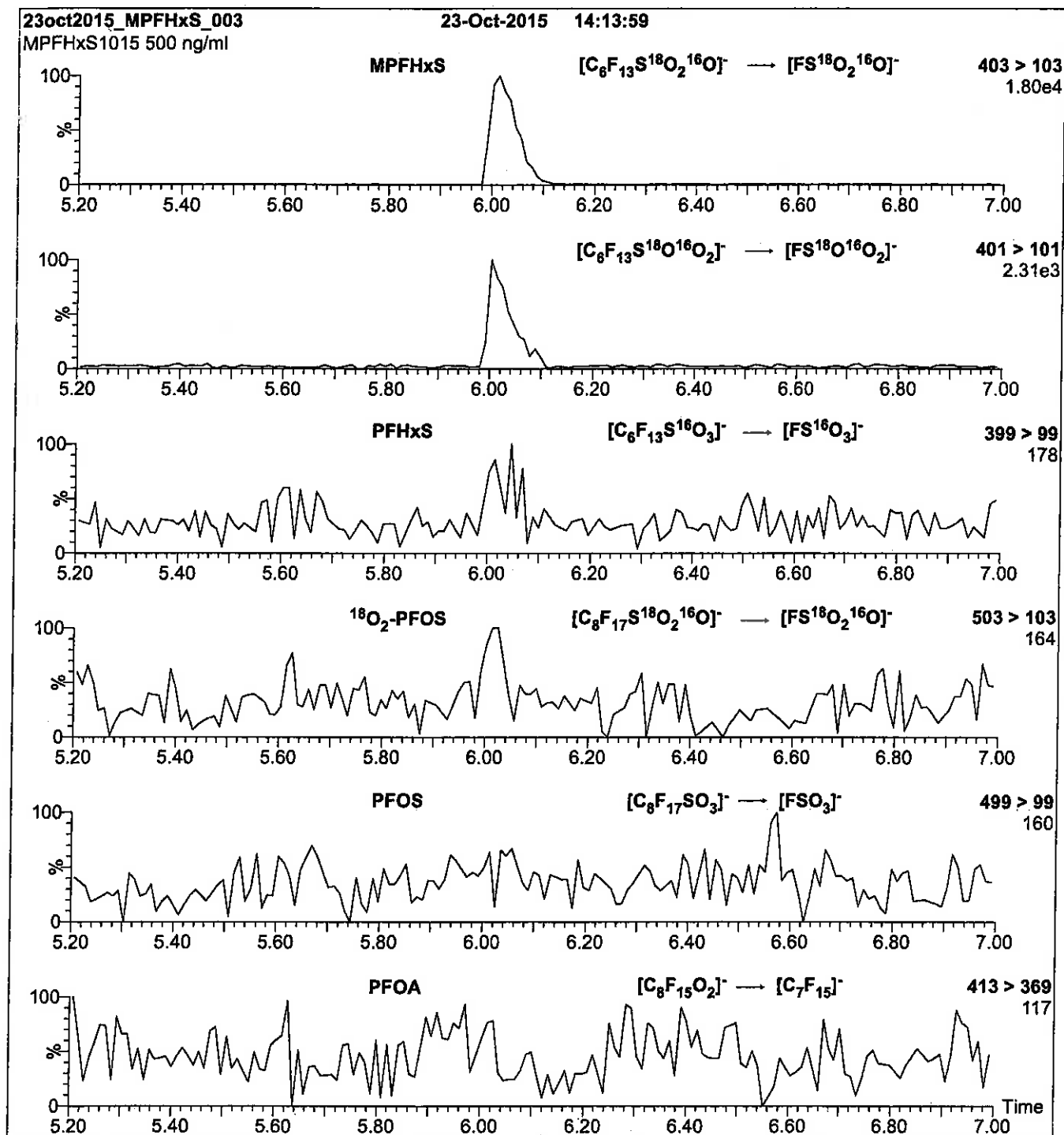
Flow: 300 μ l/min

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:

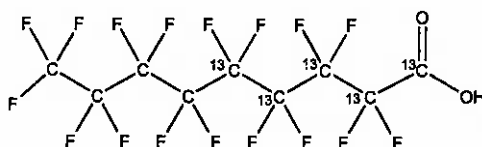
MPFNA

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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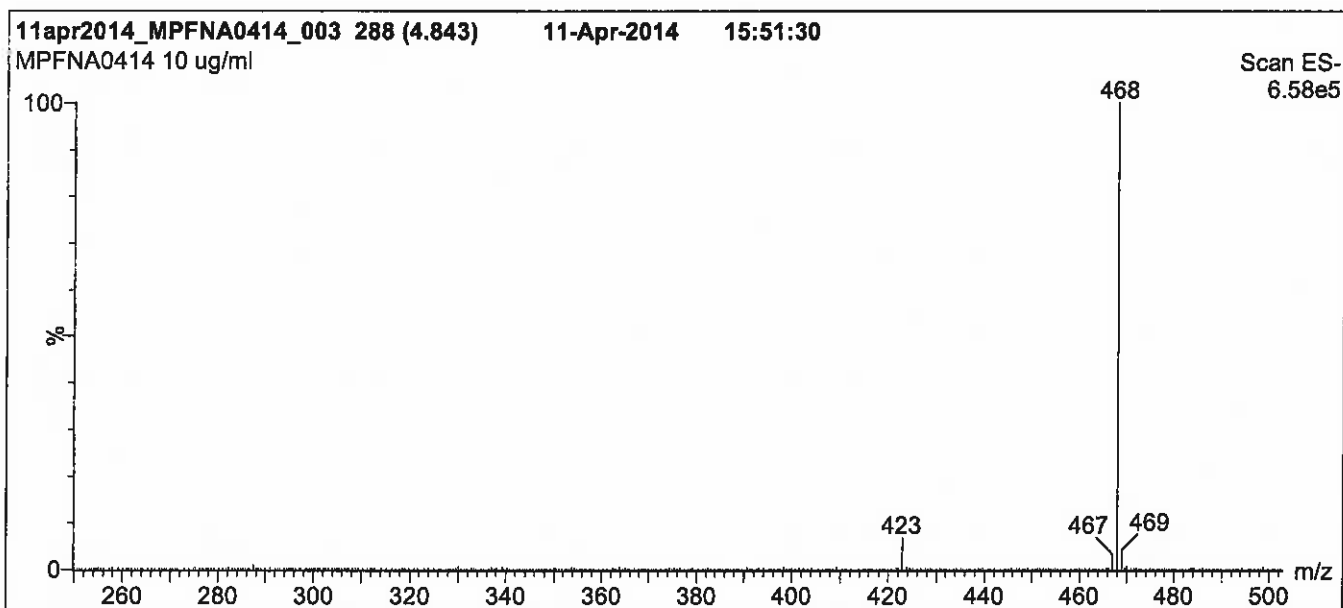
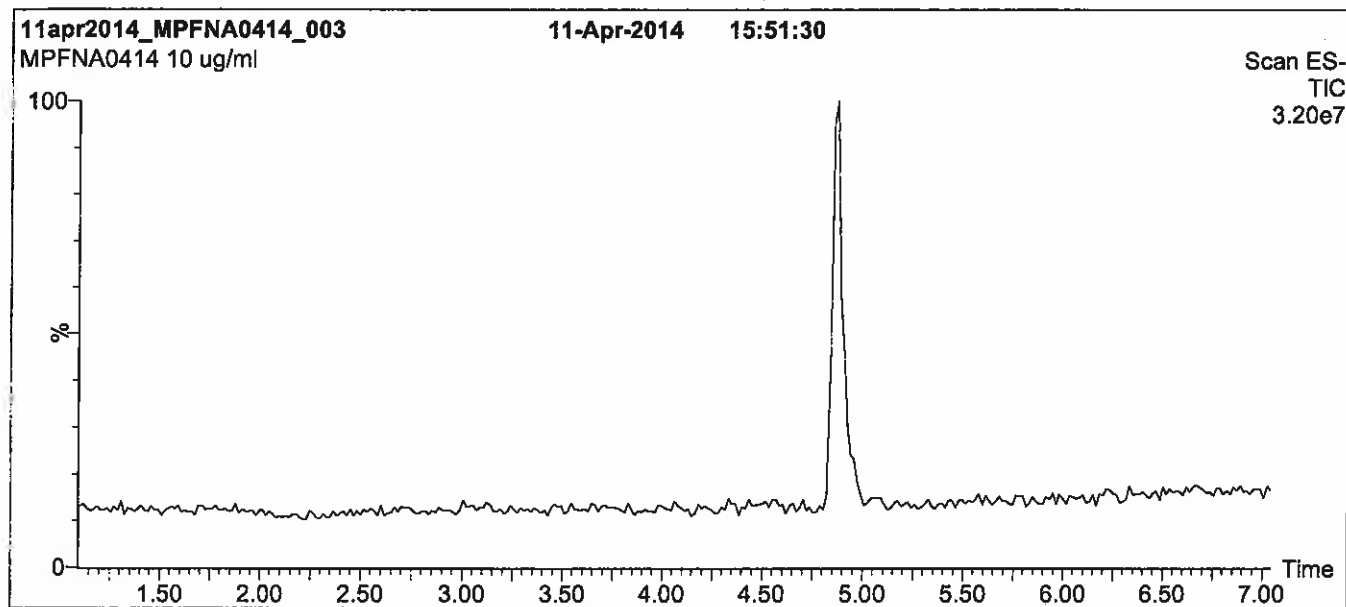
QUALITY MANAGEMENT:

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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

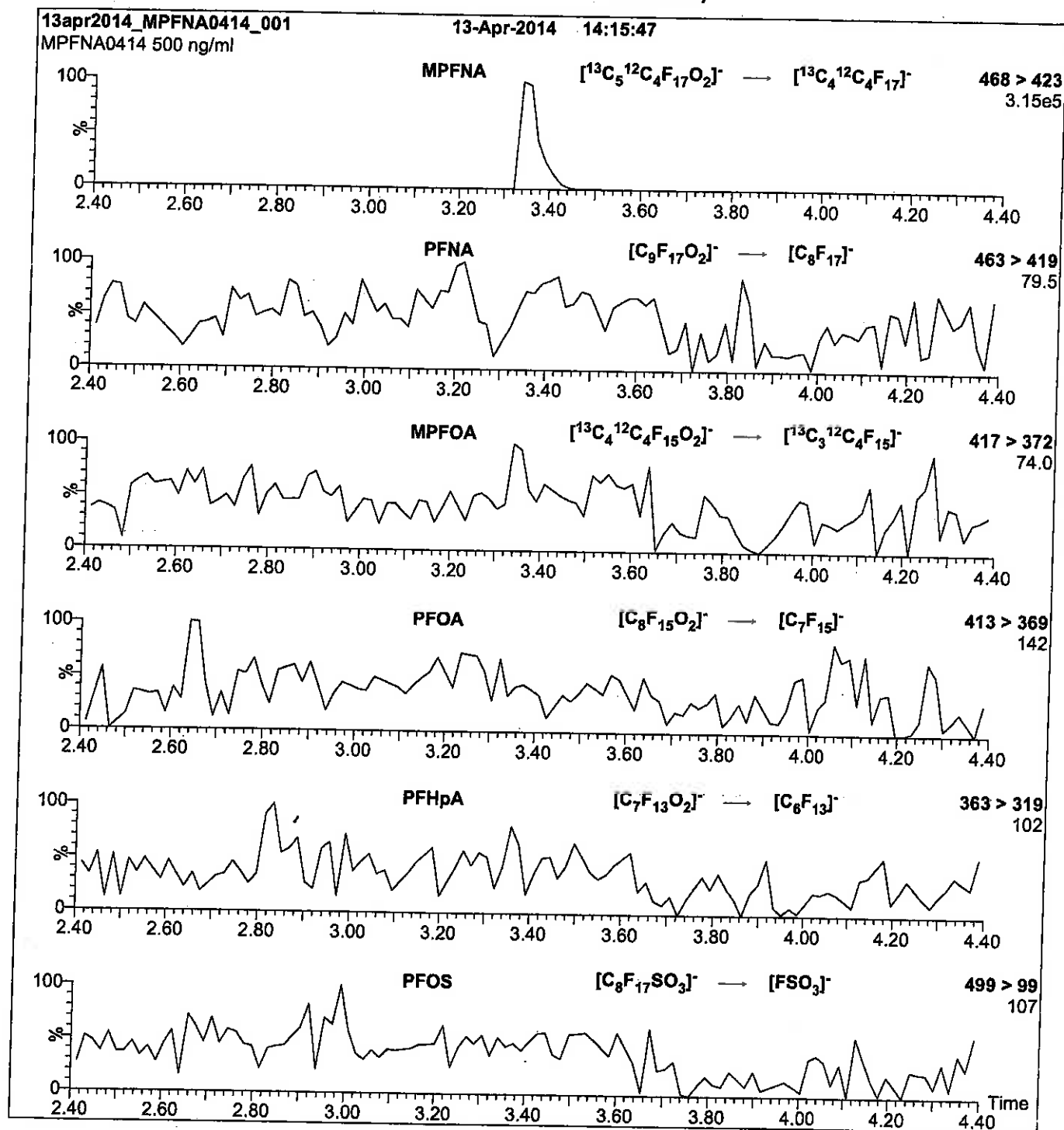
Flow: 300 μ l/min

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) = 3.28e-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

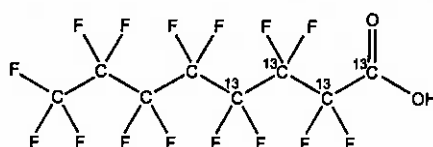
COMPOUND:

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

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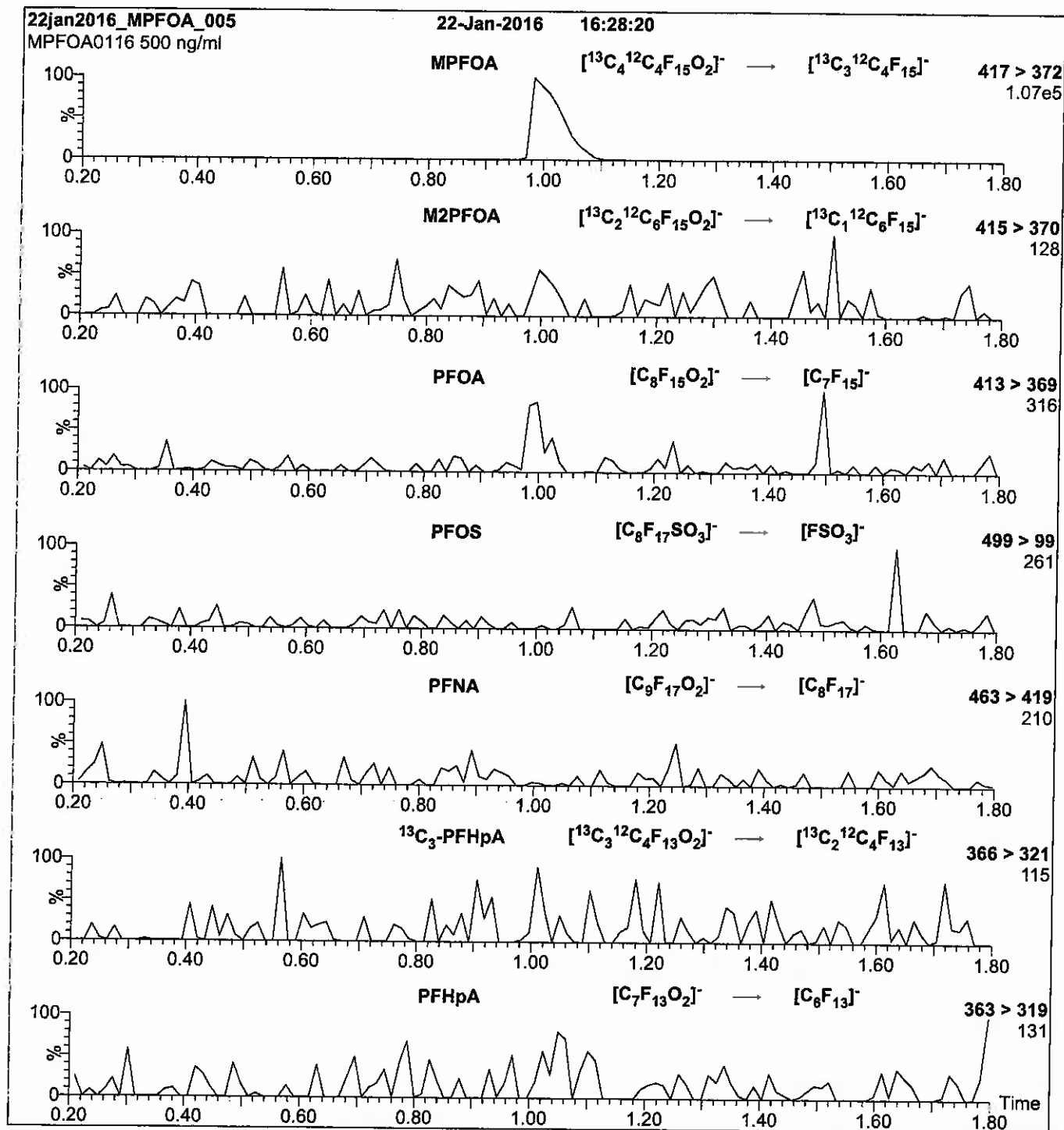
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Figure 2: MPFOA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

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

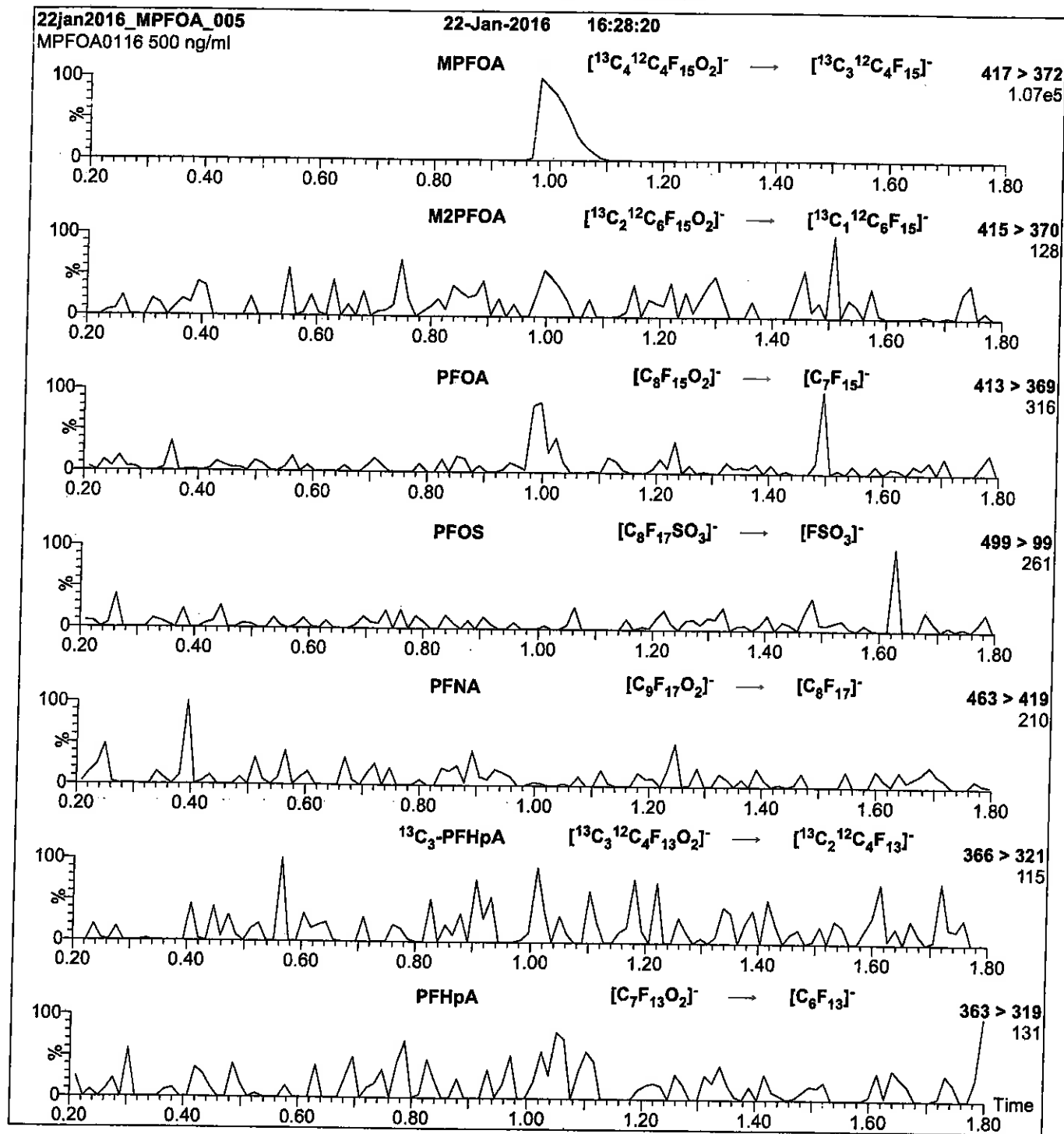
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.58e-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

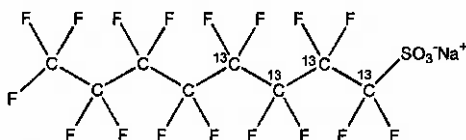


WELLINGTON LABORATORIES

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)

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.

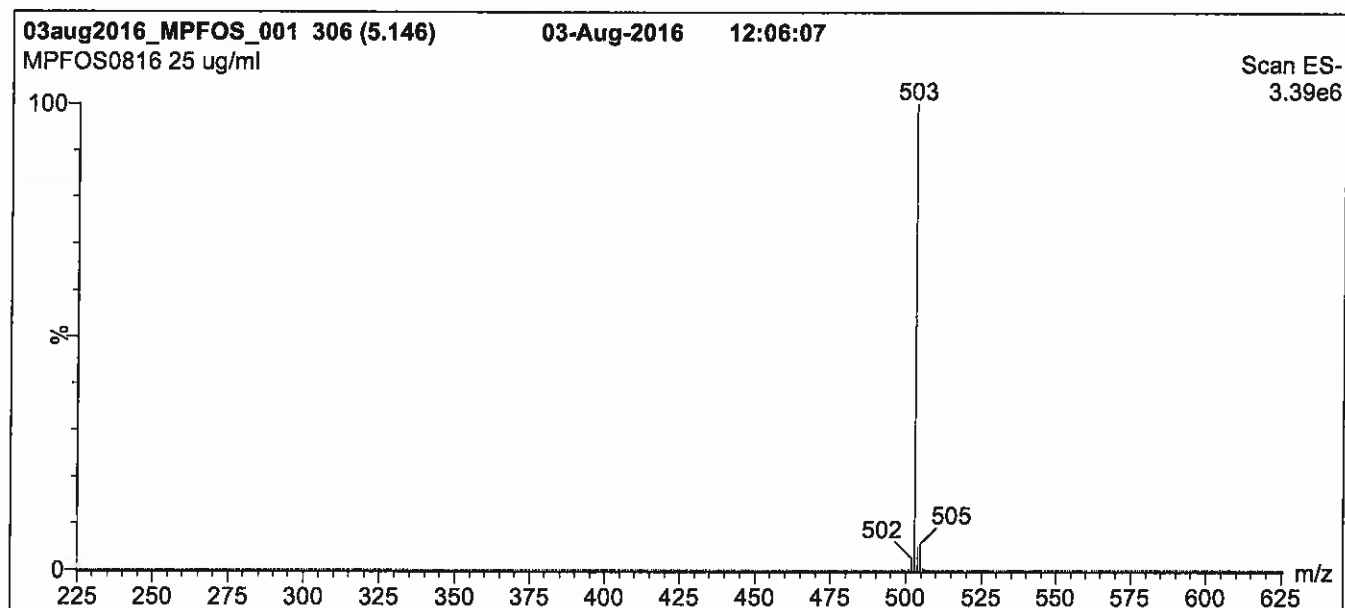
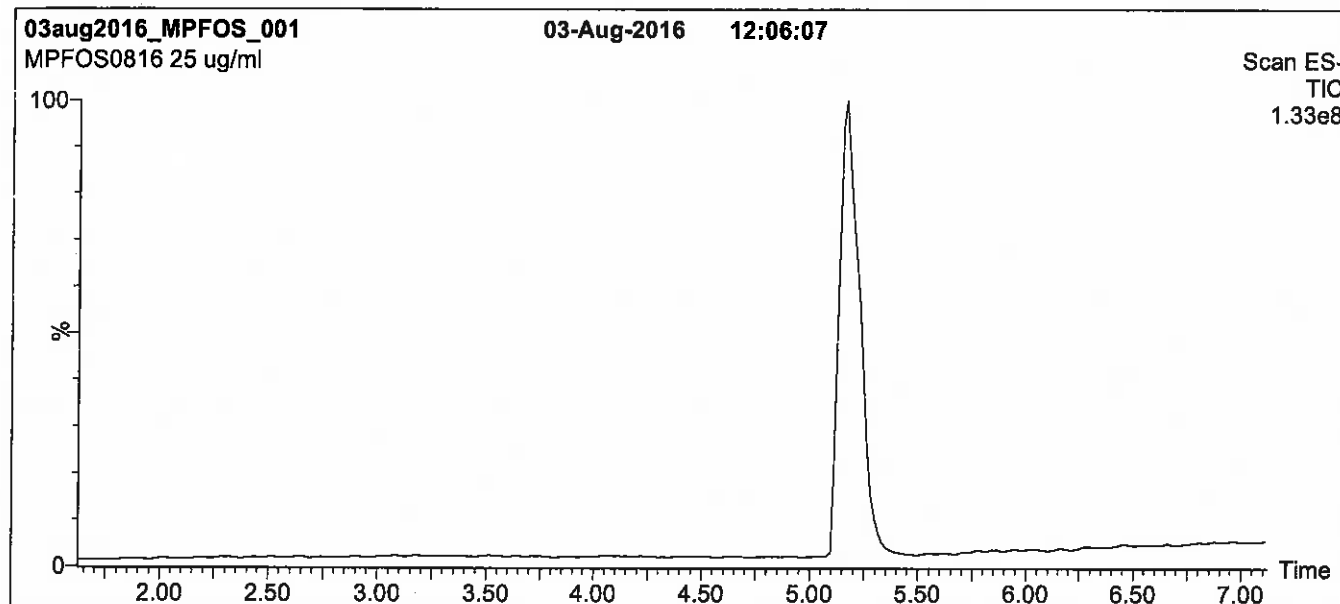
QUALITY MANAGEMENT:

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: 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

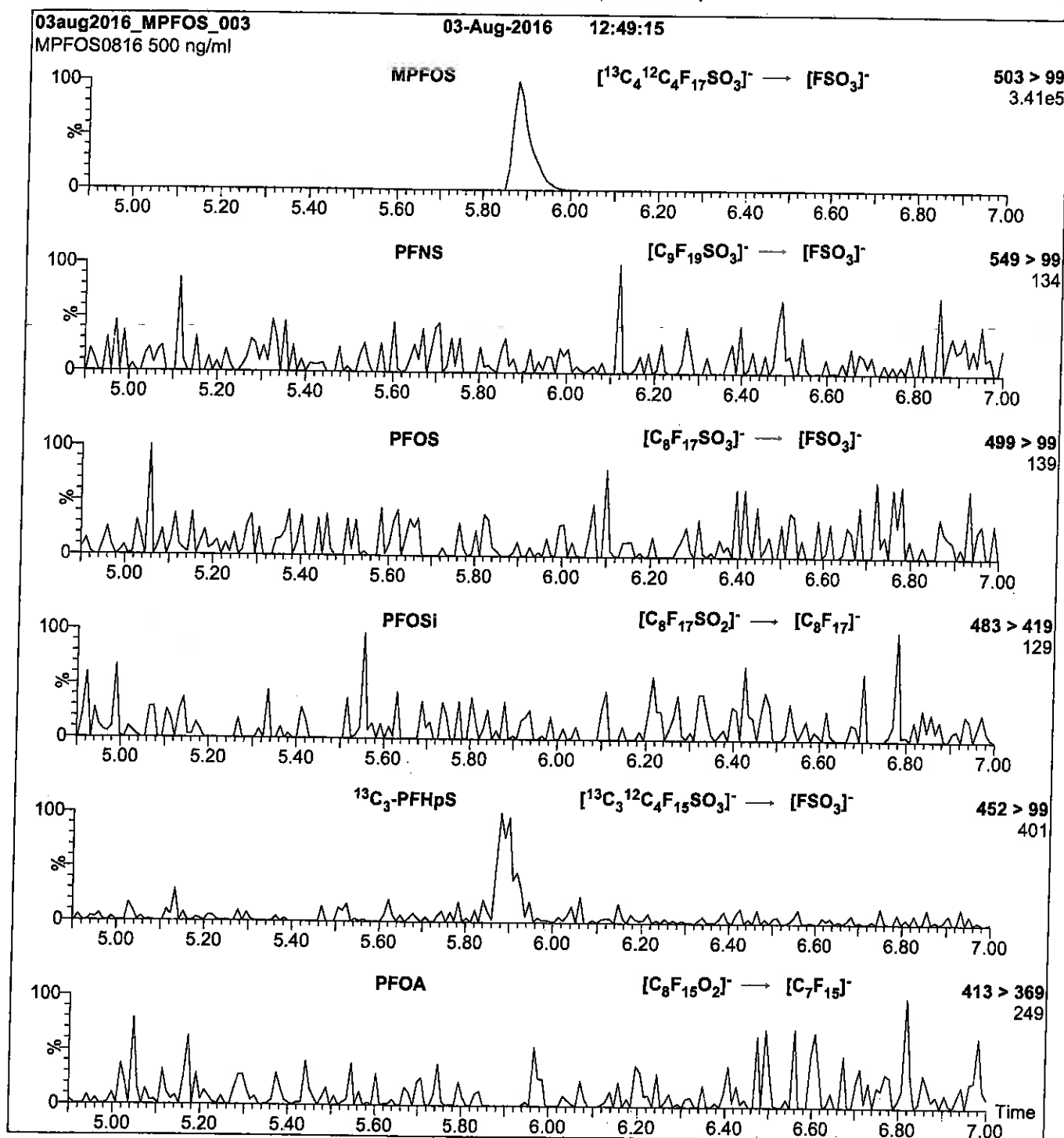
Flow: 300 μ l/min

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

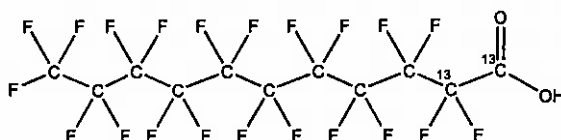
COMPOUND:

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

INTENDED USE:

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

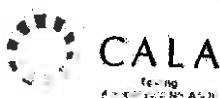
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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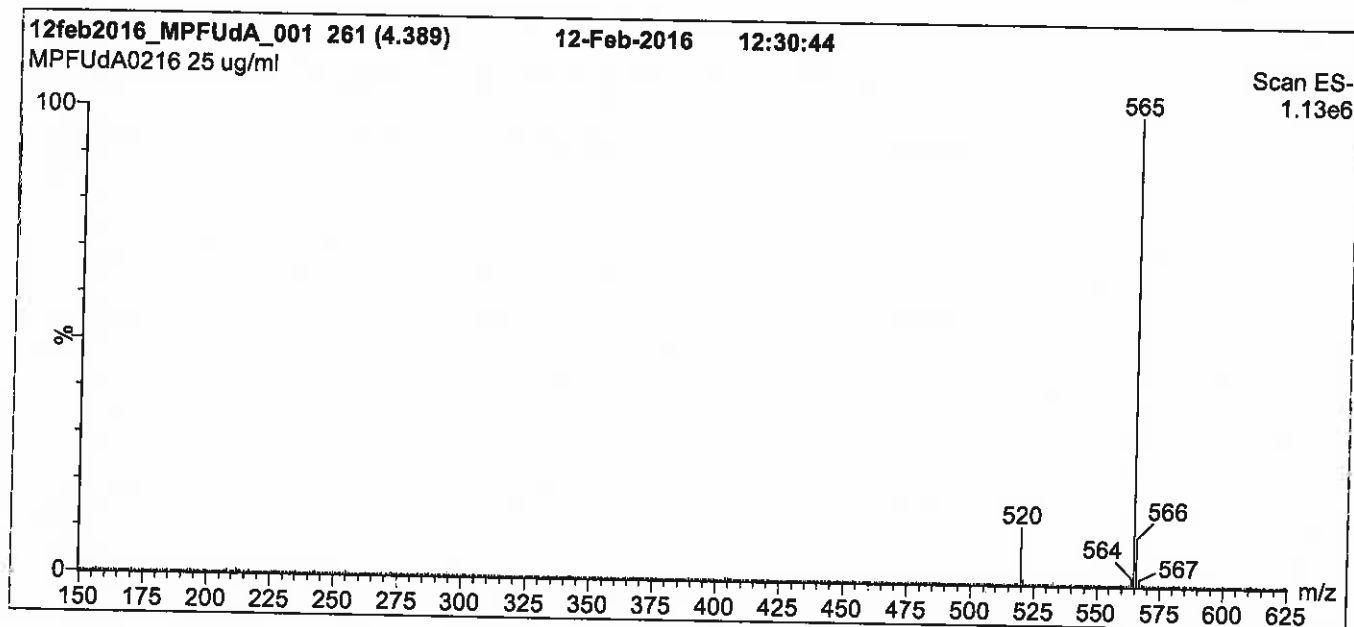
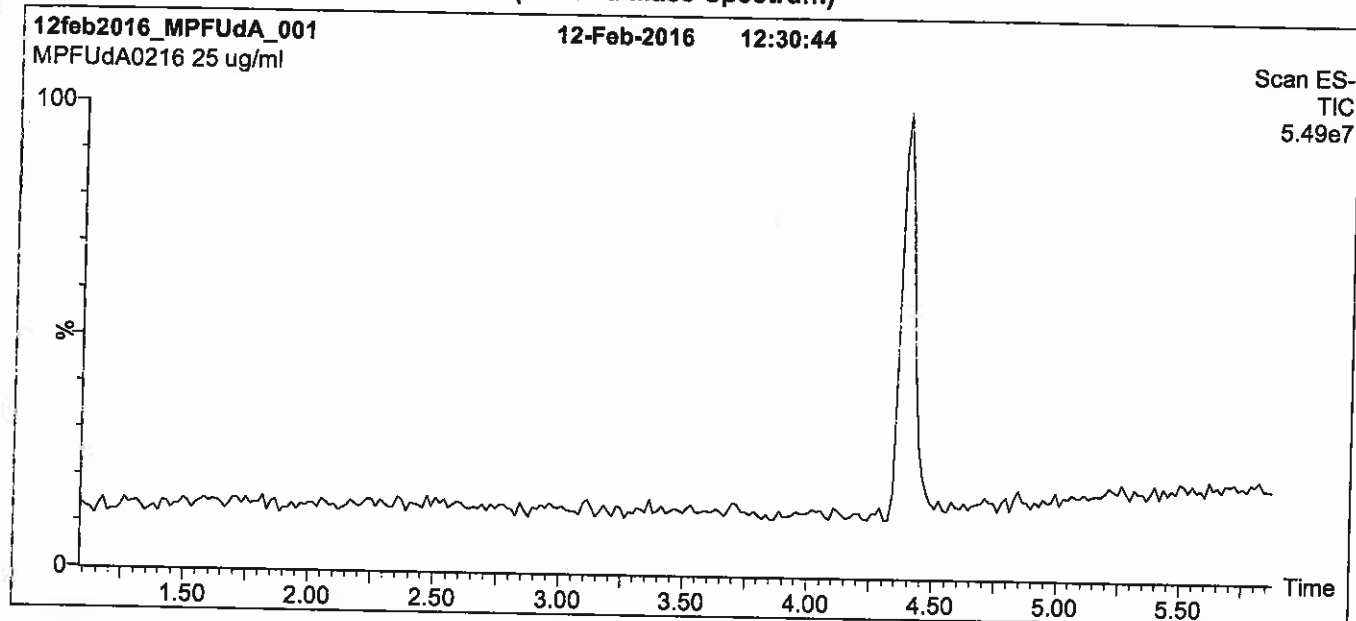
QUALITY MANAGEMENT:

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).



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: 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

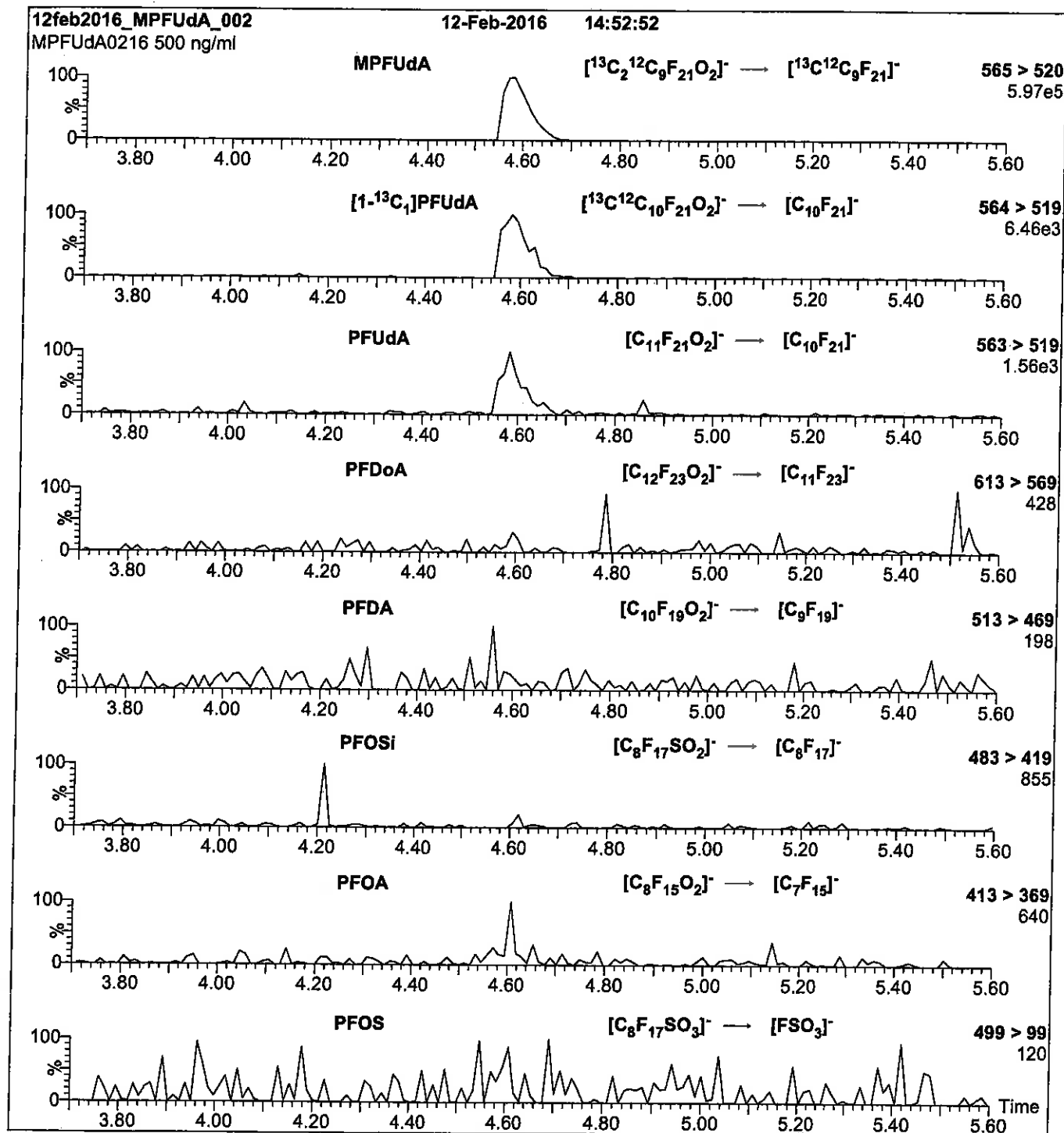
Flow: 300 μ l/min

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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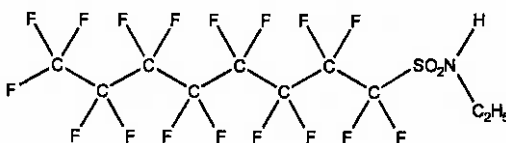
CERTIFICATE OF ANALYSIS DOCUMENTATION

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/27/2016
(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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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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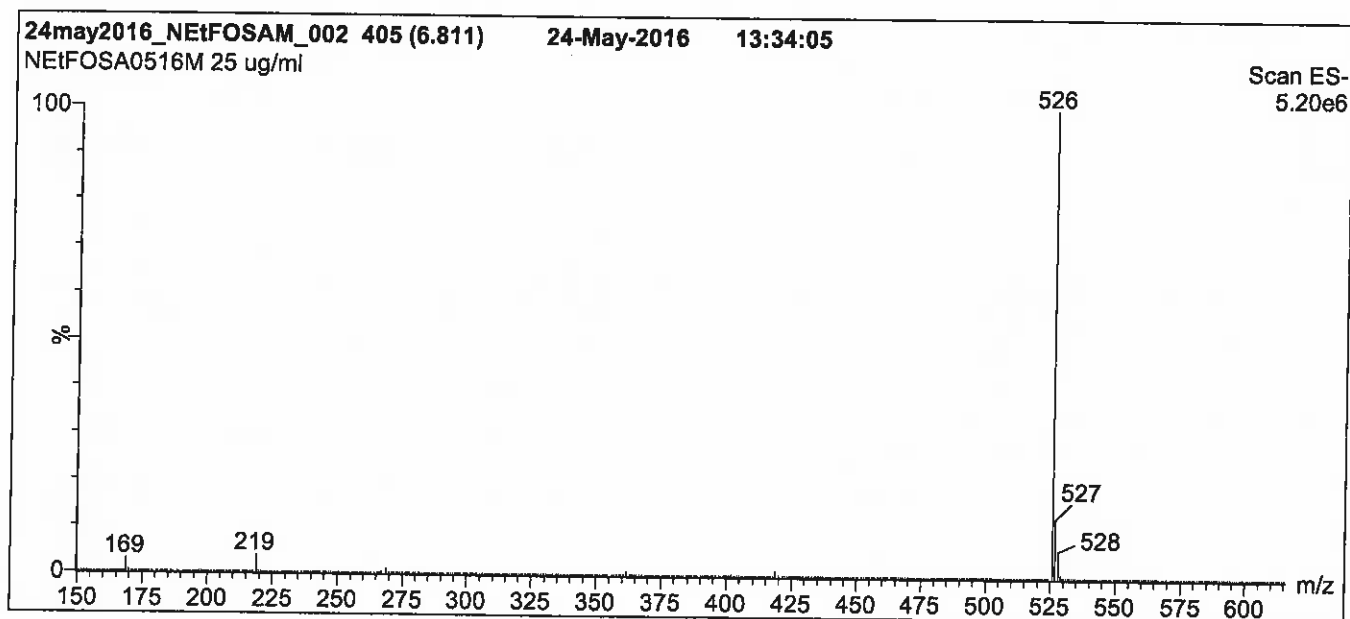
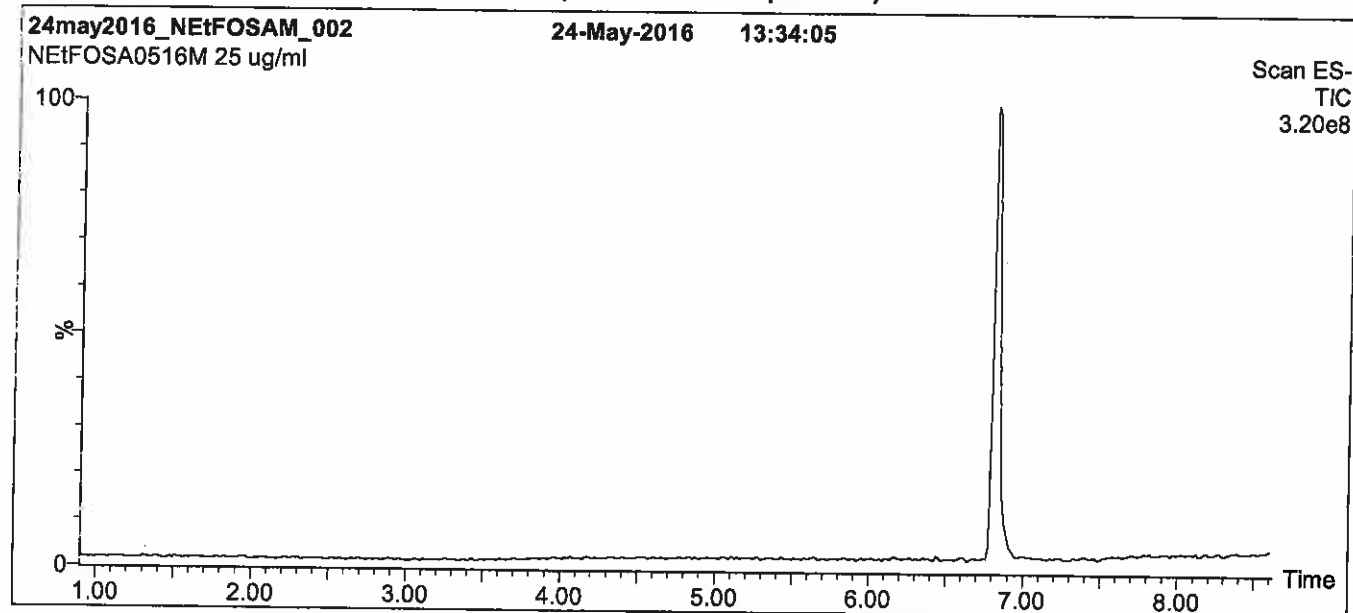
QUALITY MANAGEMENT:

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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

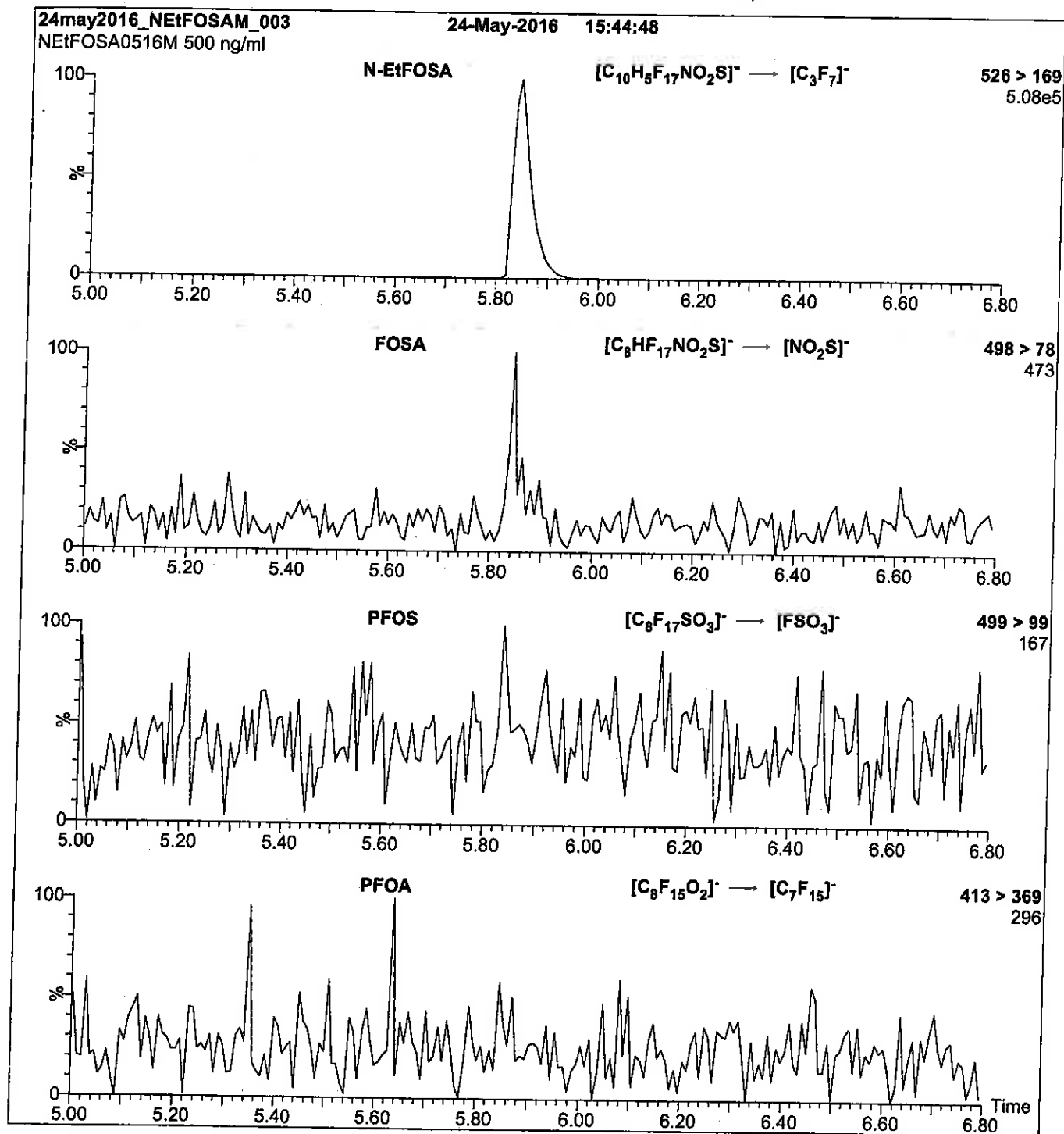
Flow: 300 μ l/min

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 Ppd: SBC
N-EtFOSAA

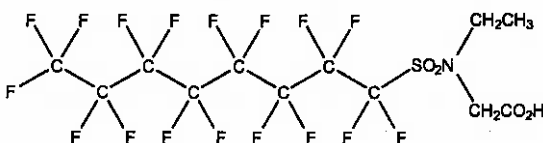


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSAA **LOT NUMBER:** NEtFOSAA0116
COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2991-50-6



MOLECULAR FORMULA: $C_{12}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 585.23
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)

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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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.

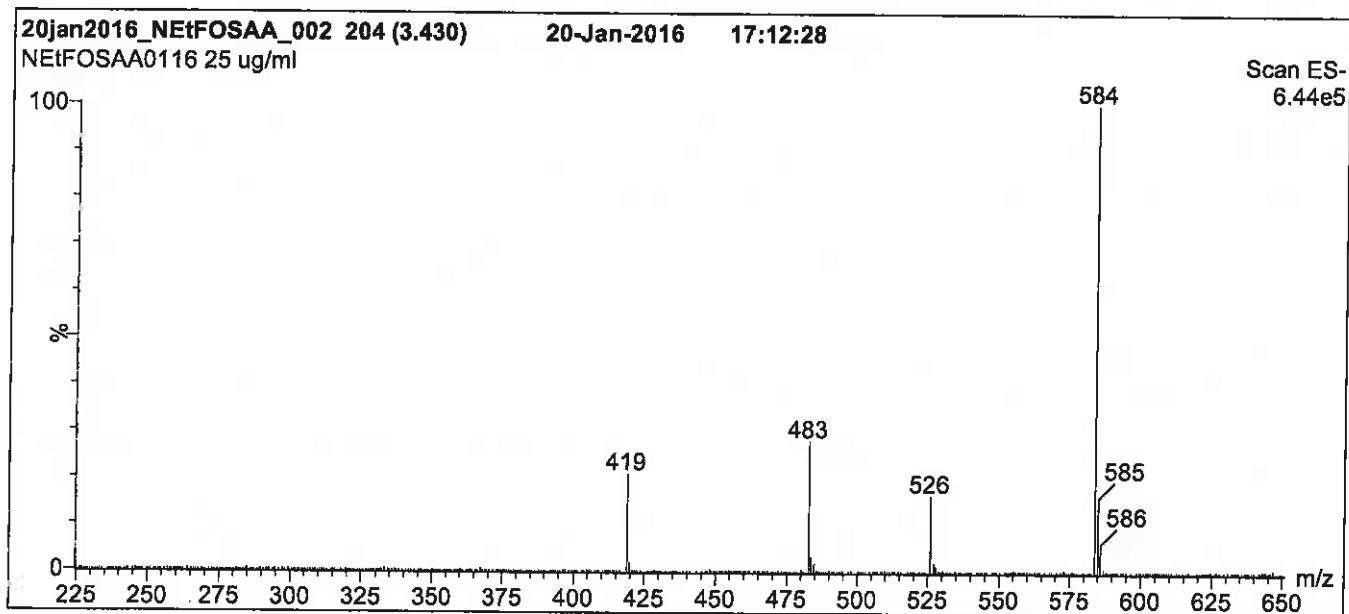
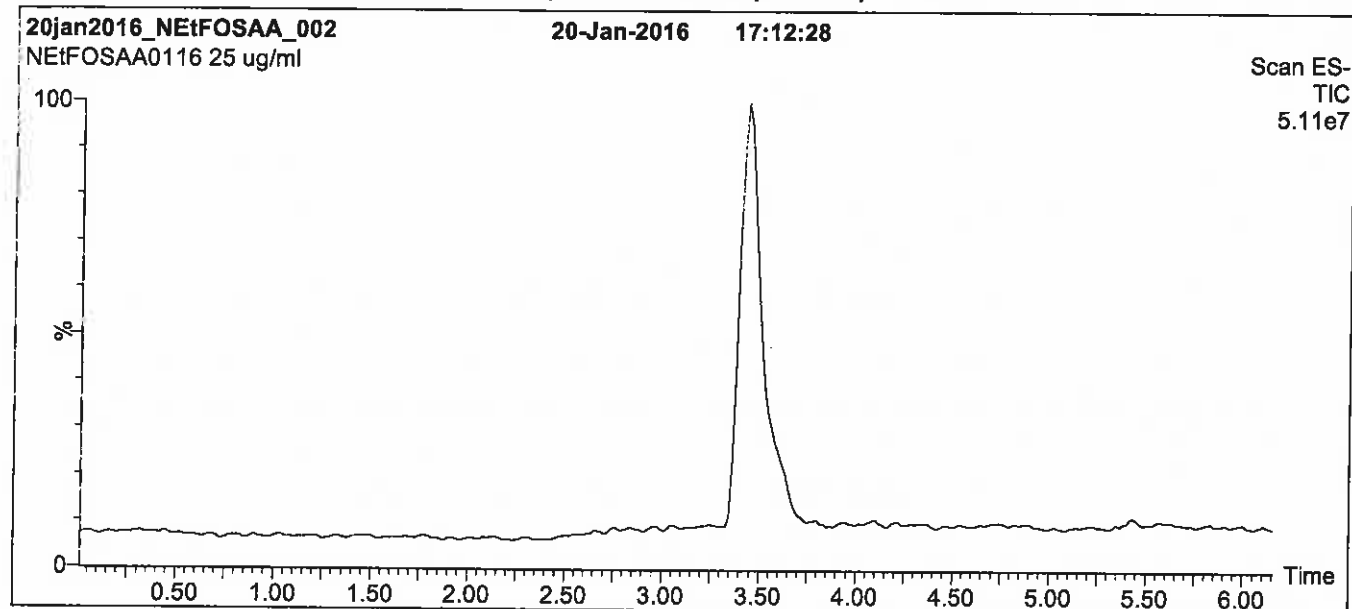
QUALITY MANAGEMENT:

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).



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: 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

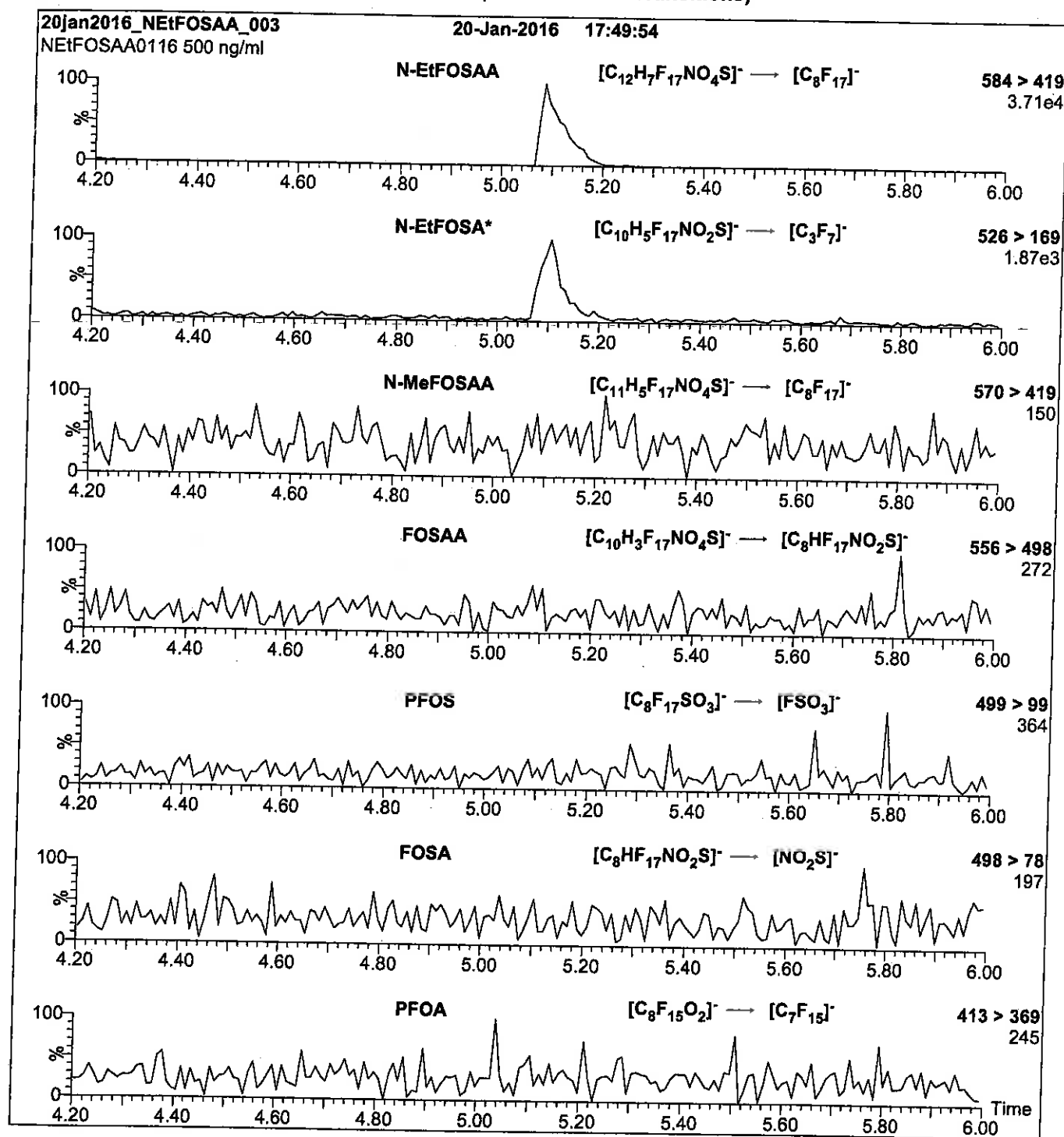
Flow: 300 μ l/min

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

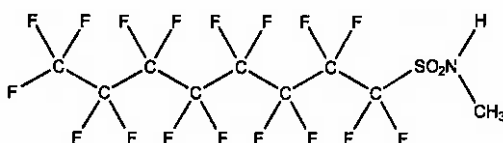
COMPOUND:

N-methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₈H₄F₁₇NO₂S

CONCENTRATION:

50 ± 2.5 µg/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:

513.17

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/26/2016

(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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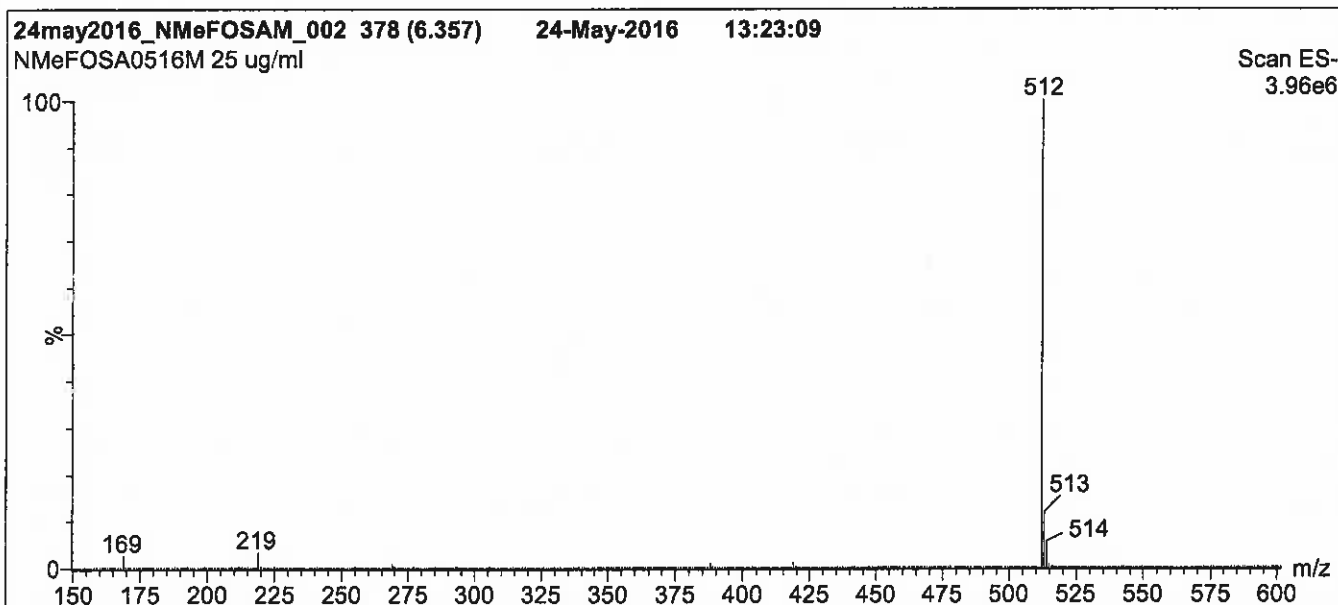
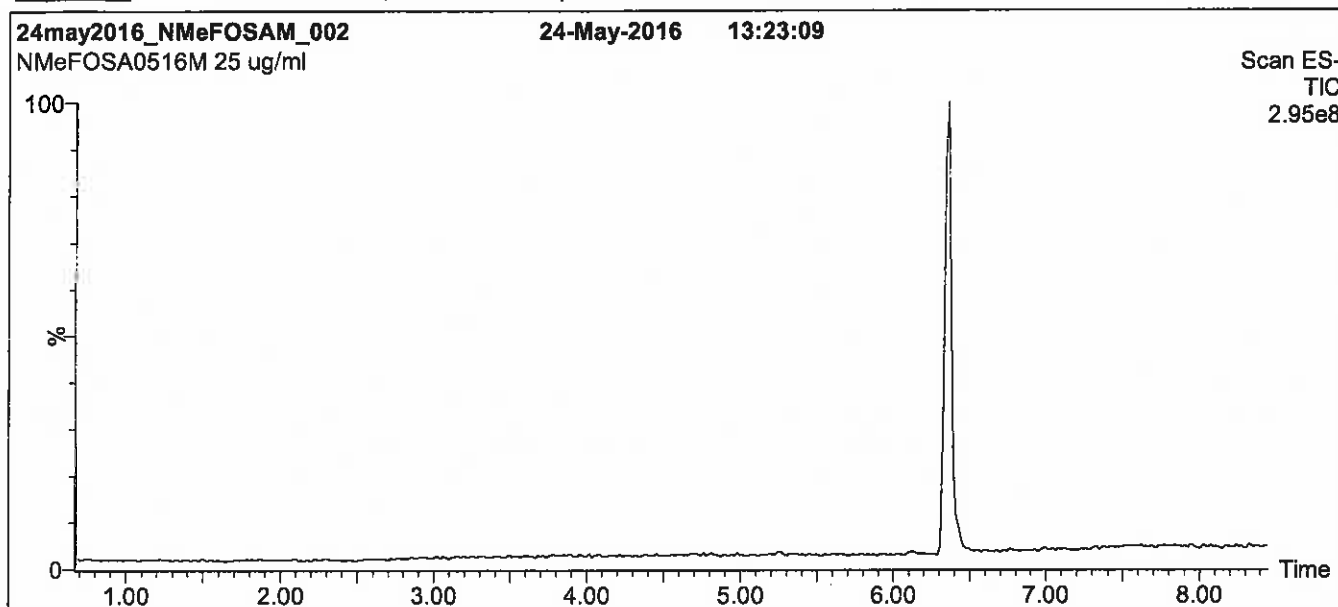
QUALITY MANAGEMENT:

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: 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

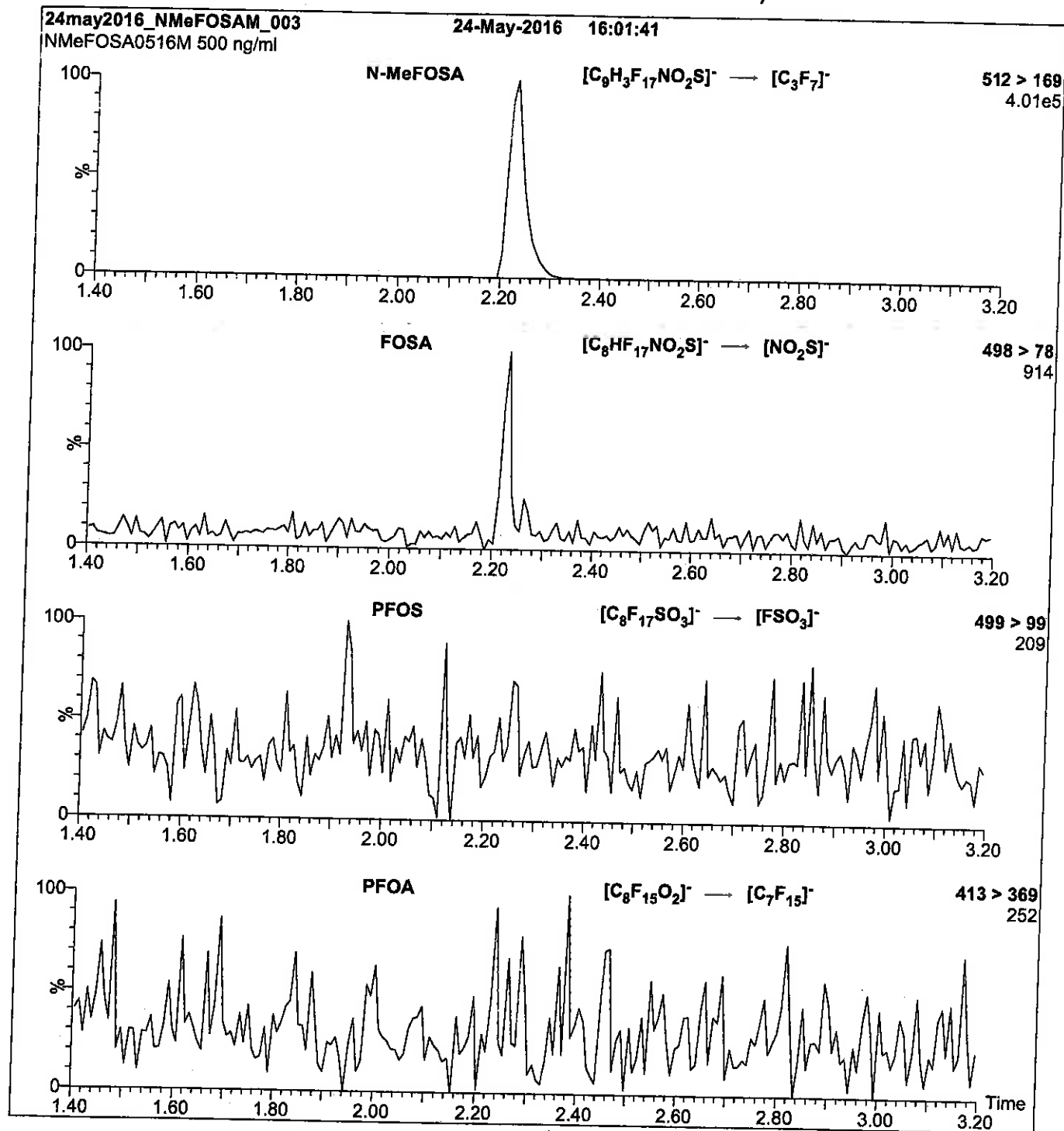
Flow: 300 μ l/min

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

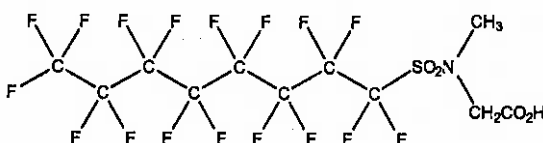


WELLINGTON LABORATORIES

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)

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

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LIMITED WARRANTY:

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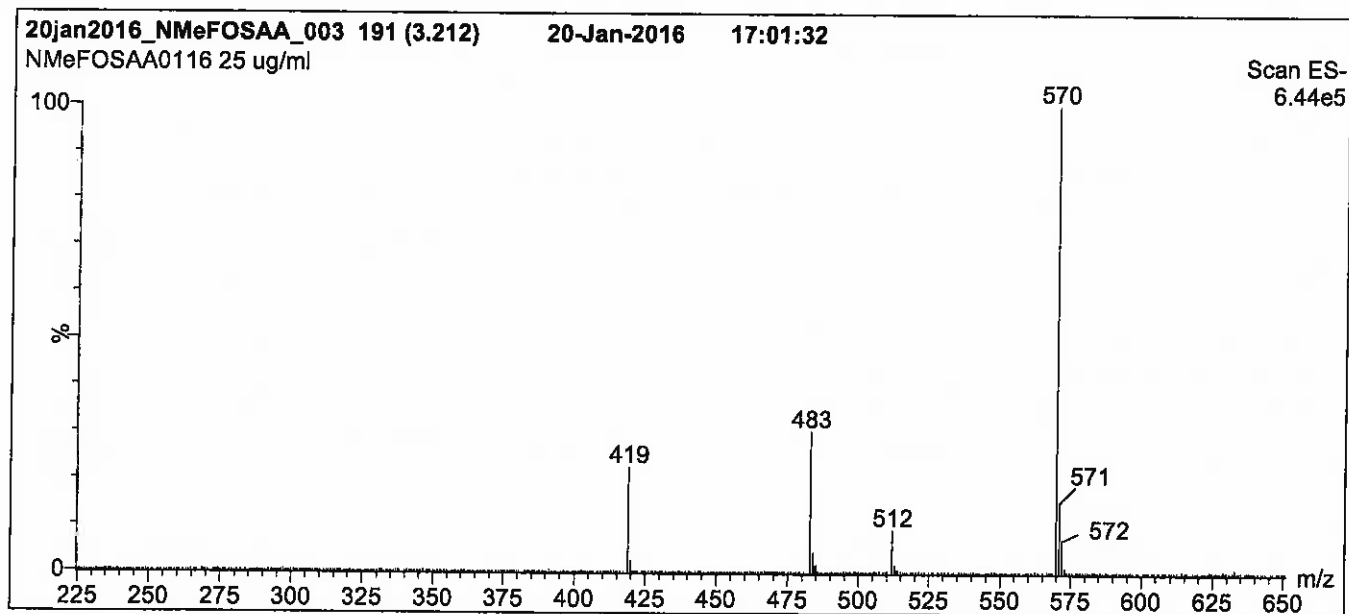
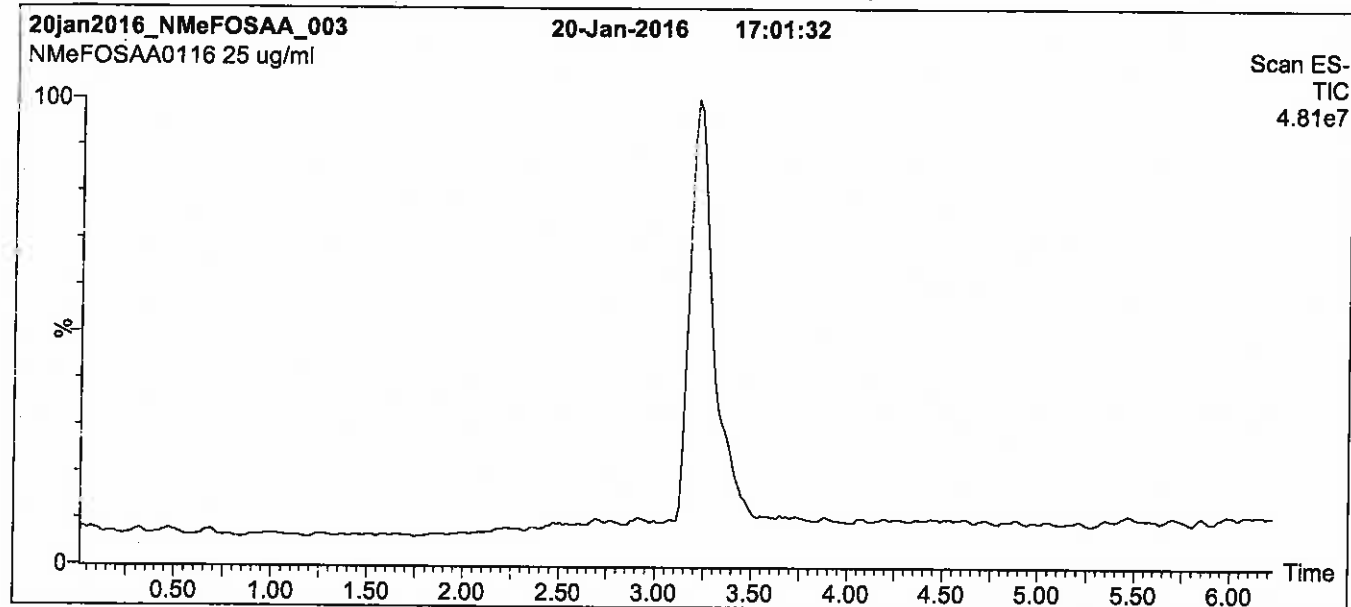
QUALITY MANAGEMENT:

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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

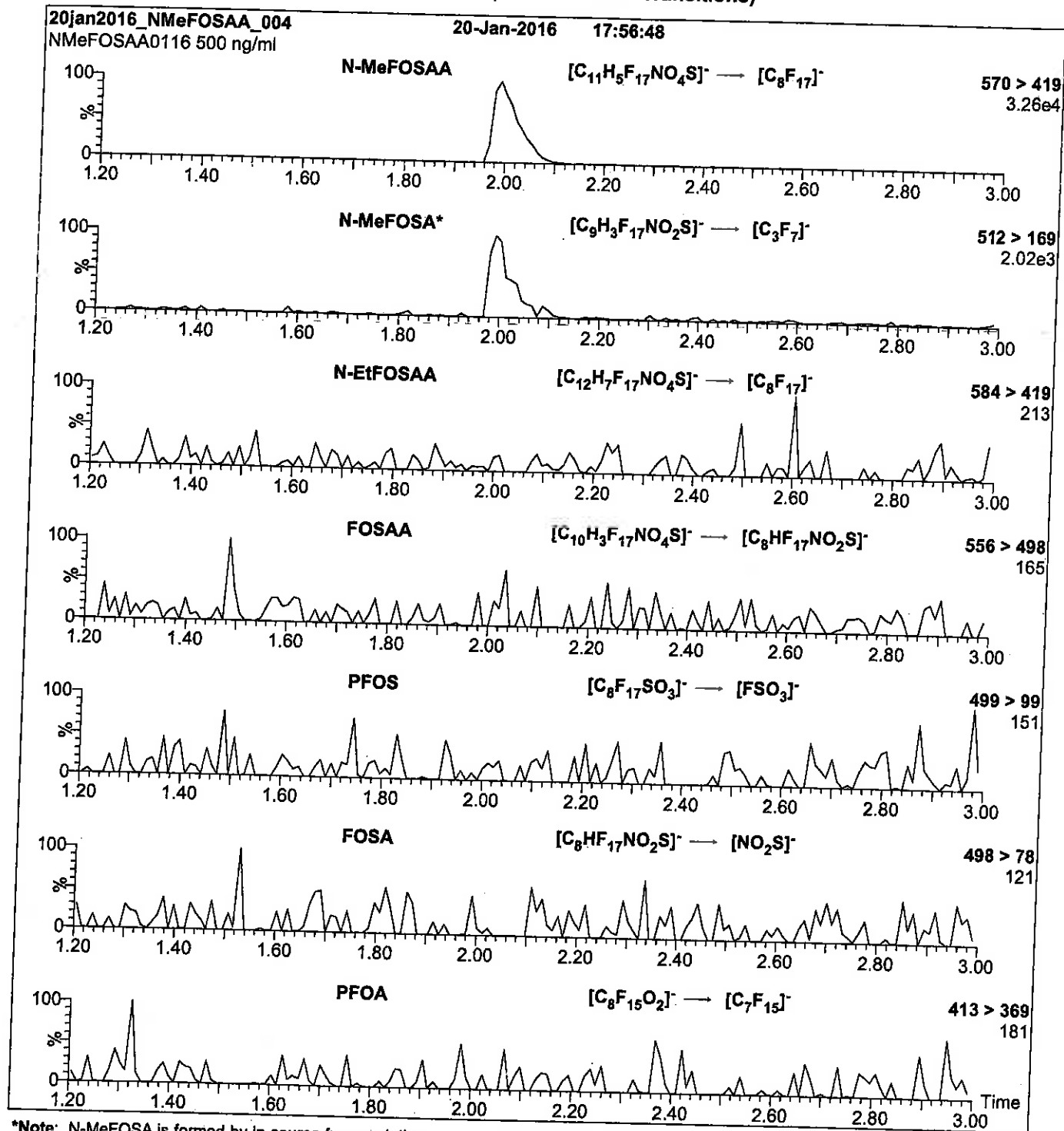
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc 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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**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:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

UNCERTAINTY:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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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-butanesulfonate	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

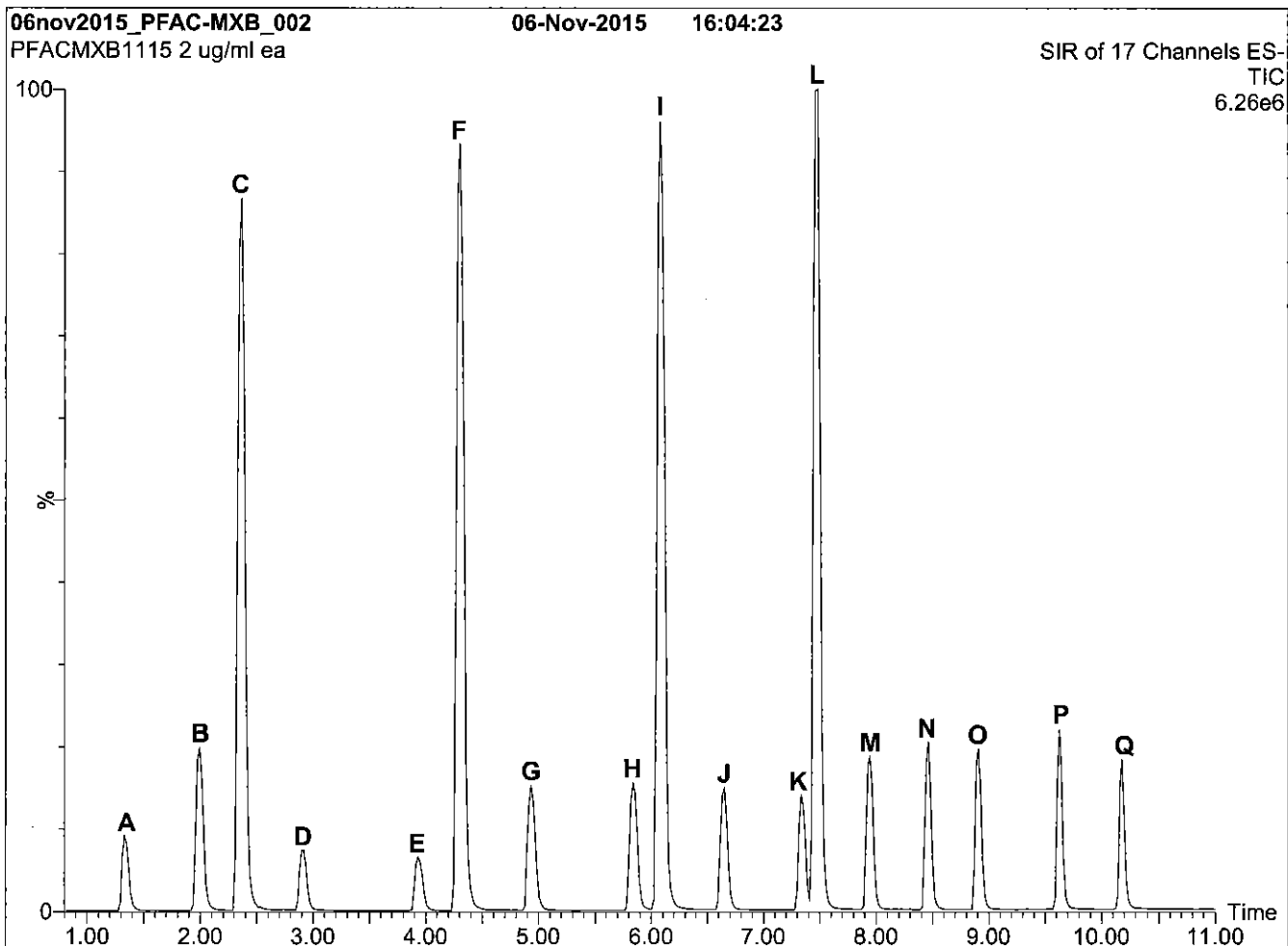
Certified By:


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)

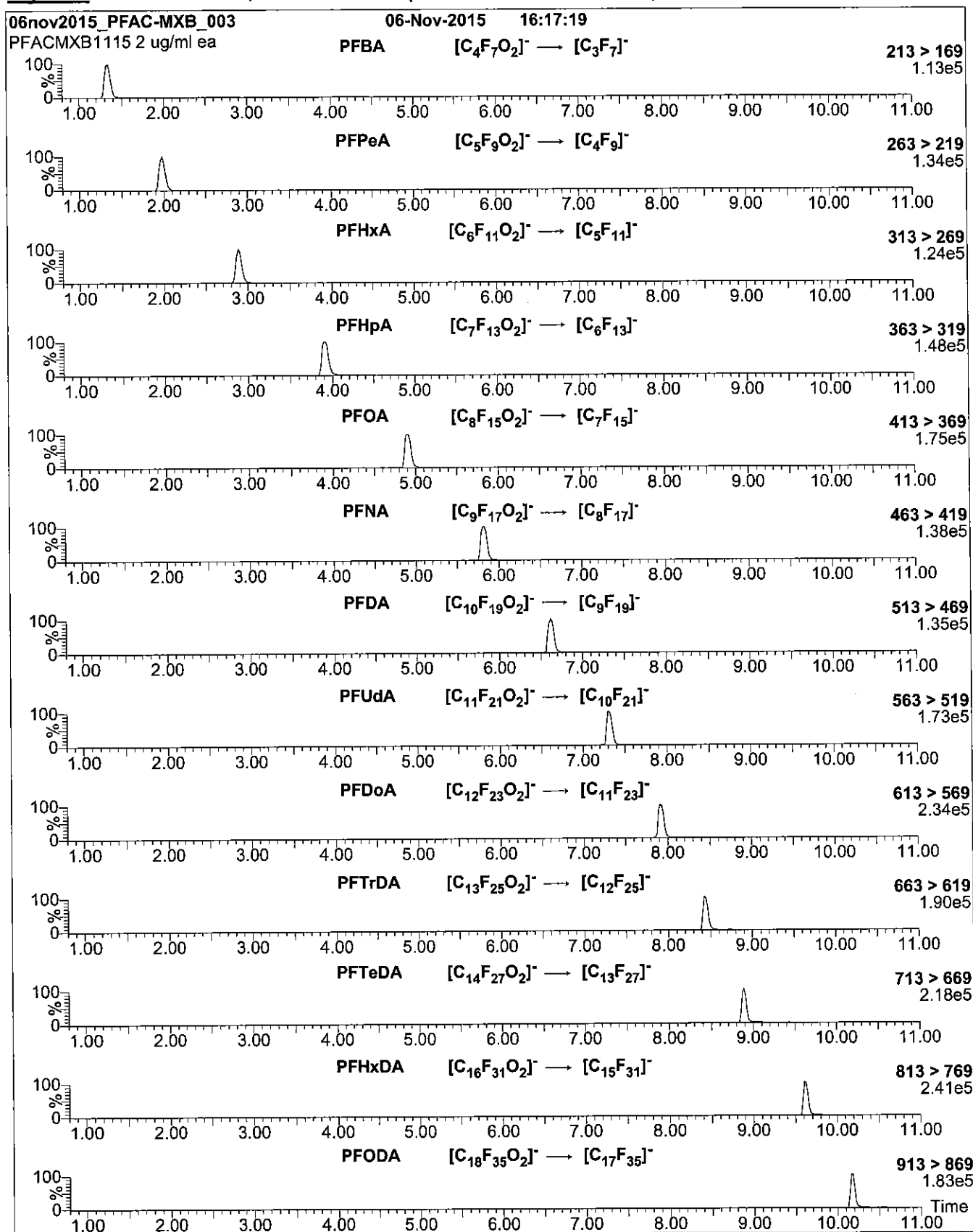
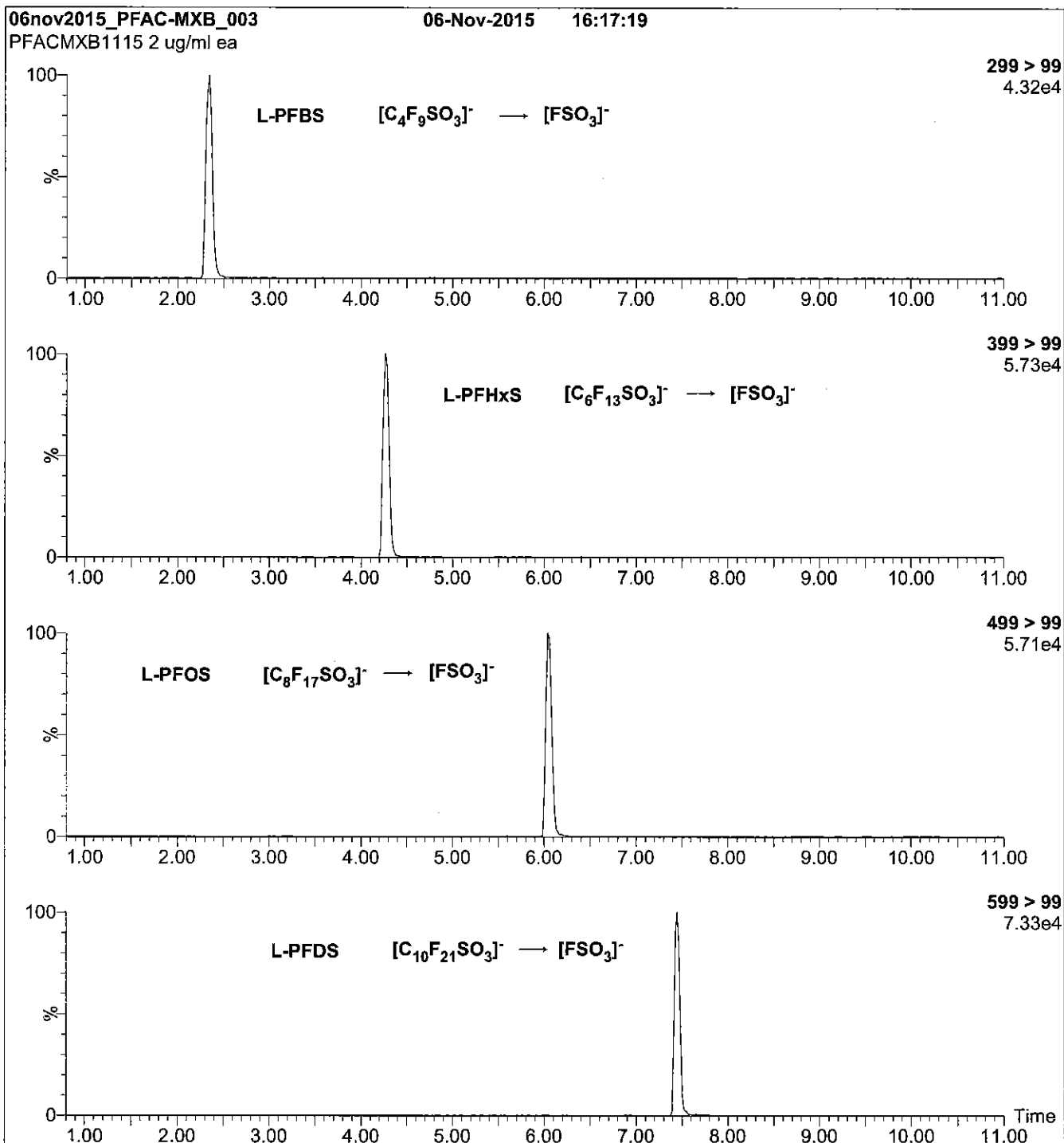


Figure 3: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)



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



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

PRODUCT CODE:

PFBA

LOT NUMBER:

PFBA0516

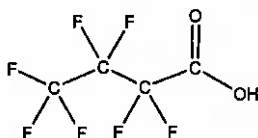
COMPOUND:

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

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.

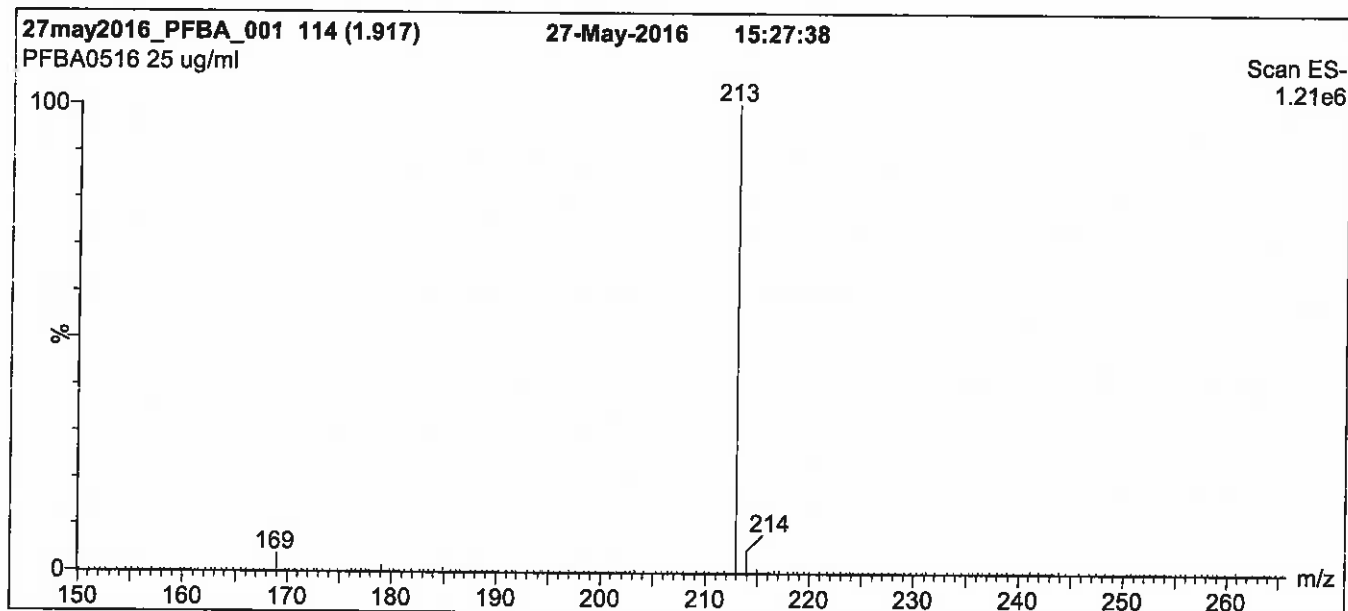
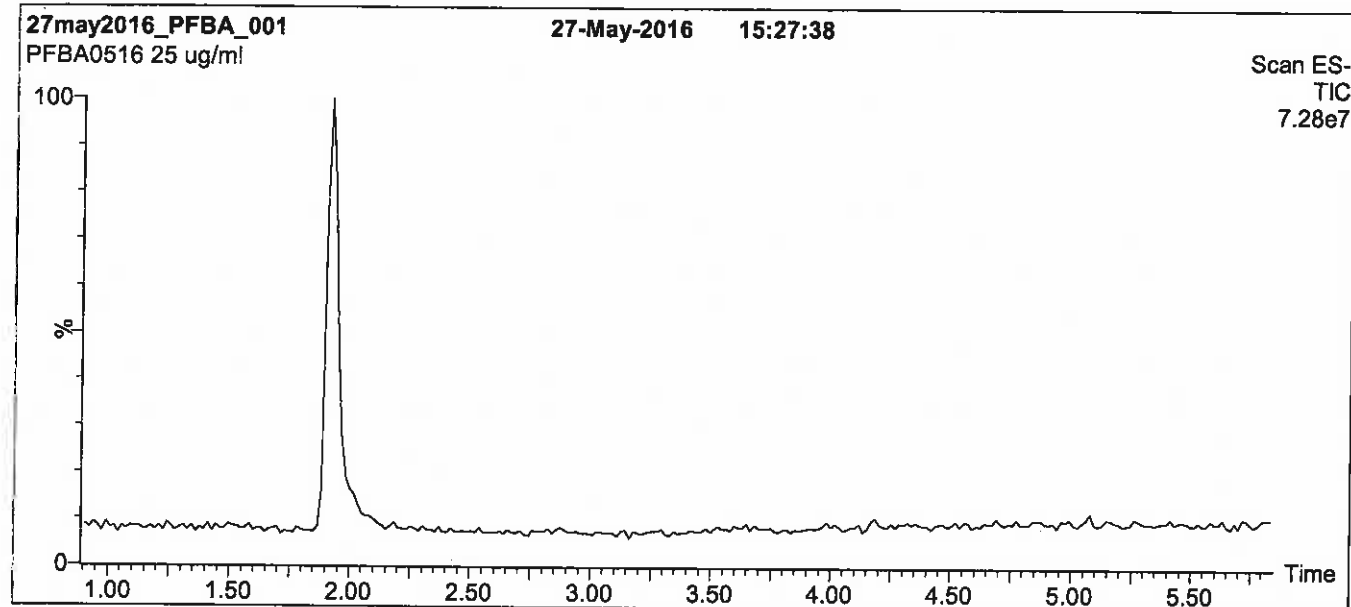
QUALITY MANAGEMENT:

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: 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

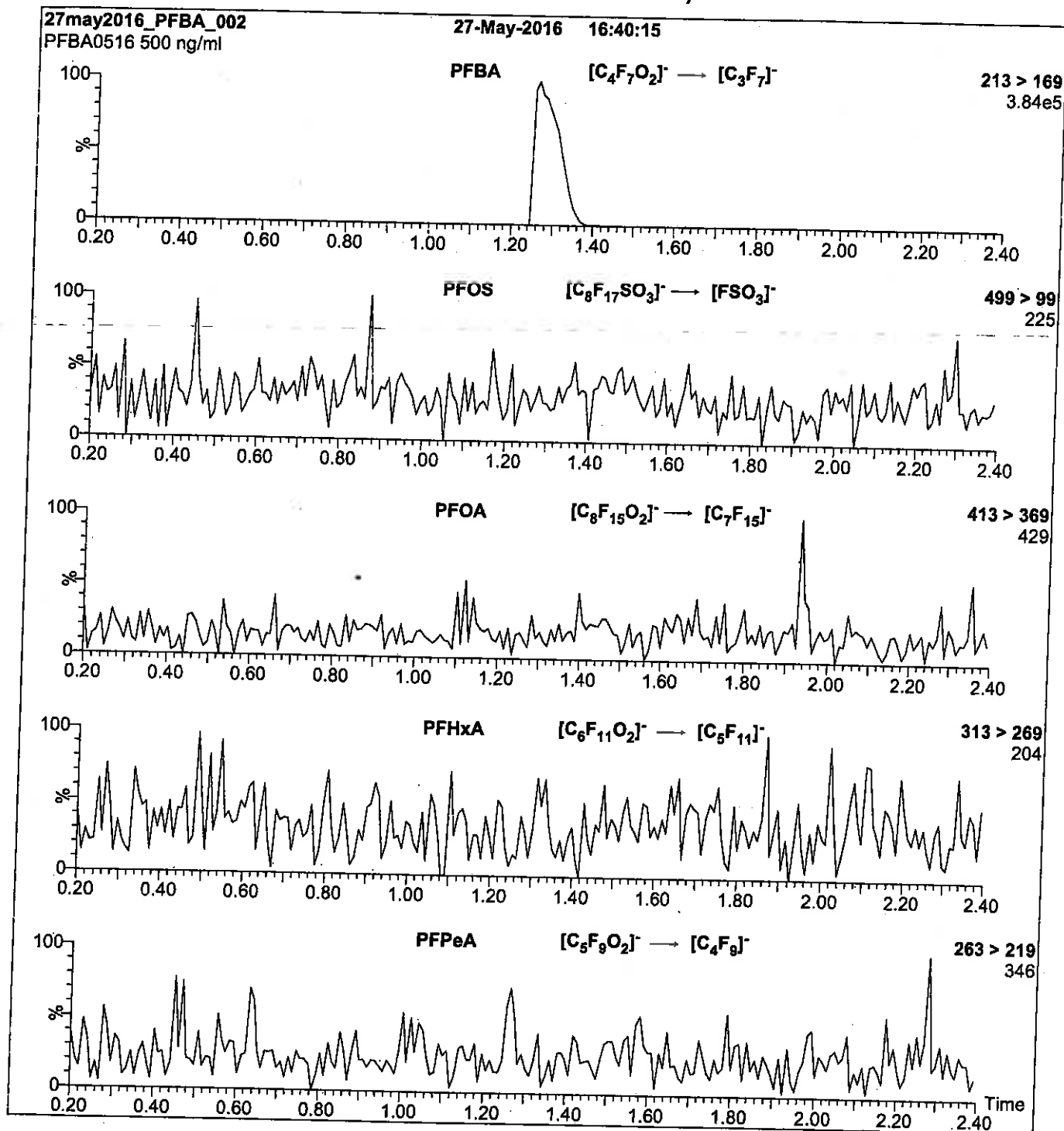
Flow: 300 μ l/min

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

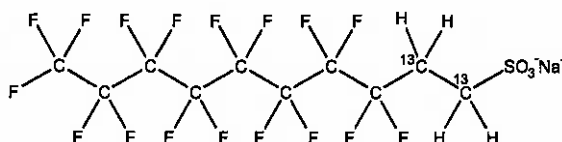


WELLINGTON LABORATORIES

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).

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Certified By:

B.G. Chittim

Date: 01/18/2016
(mm/dd/yyyy)

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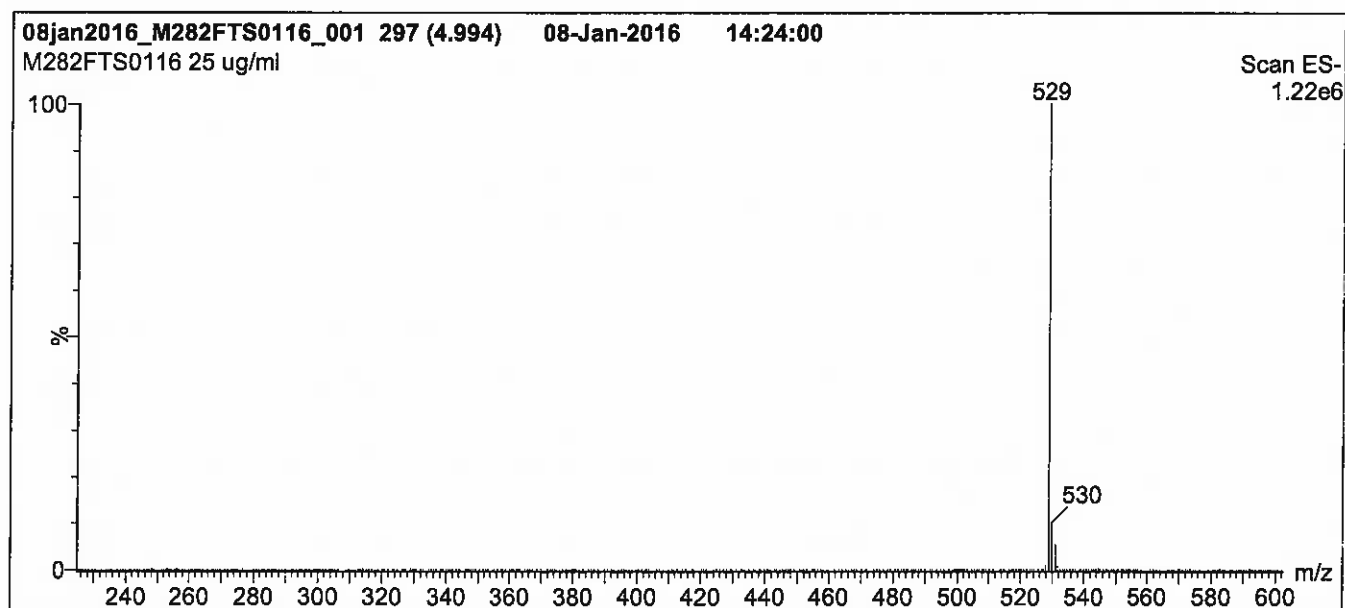
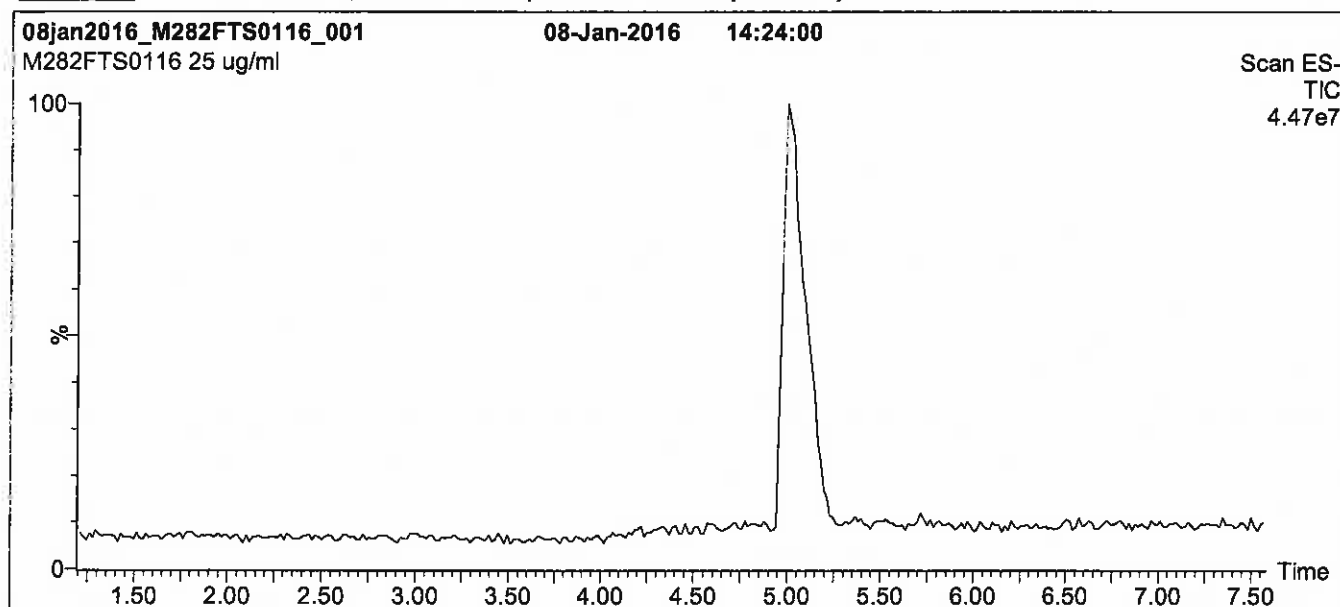
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Figure 1: M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)



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.

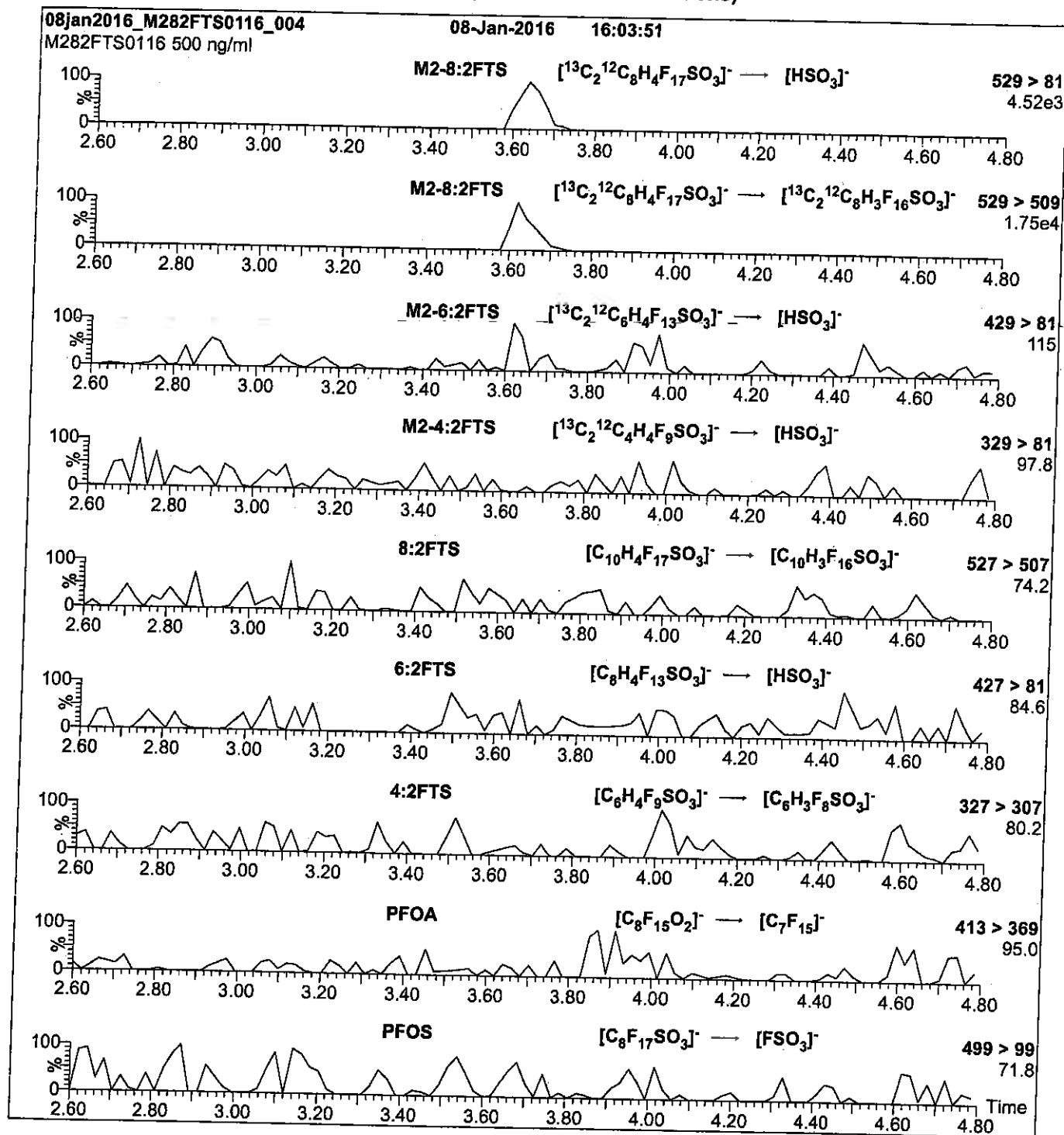
Time: 10 min
Flow: 300 μ l/min

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: LCPFBFS_00005

Exp: 03/15/21 Prod: SBC

PF-1-butanedisulfonate K sa



730512

ID: LCPFBFS_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

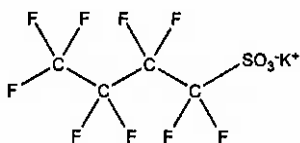
LOT NUMBER:

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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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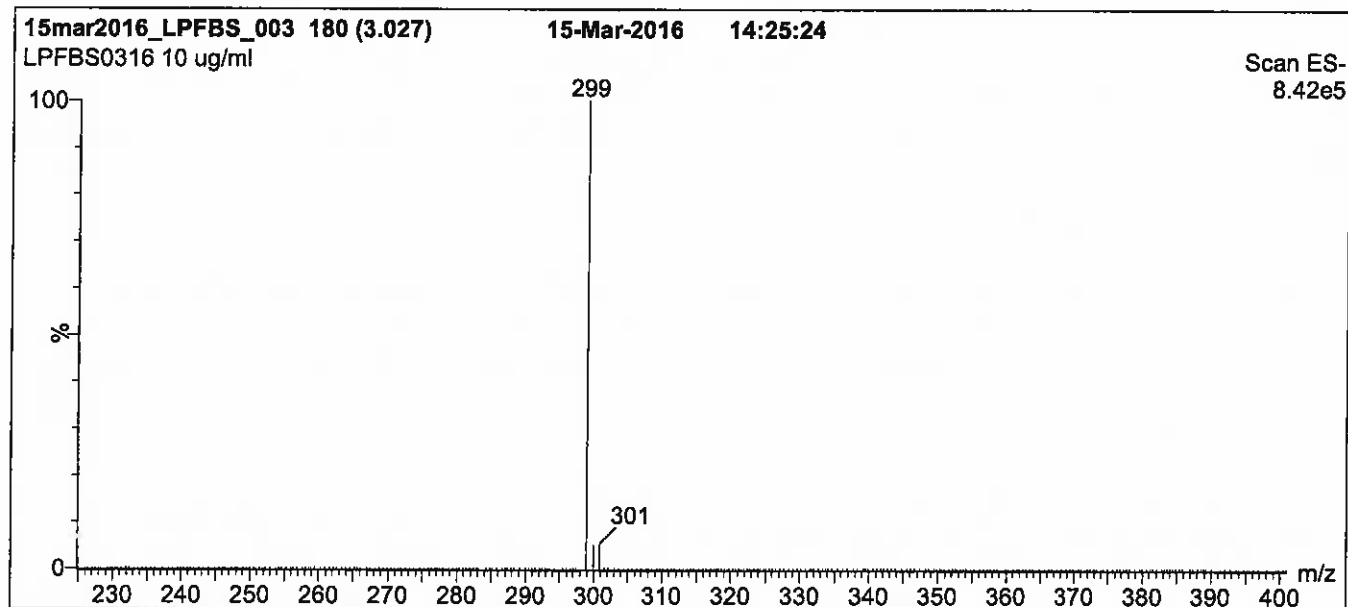
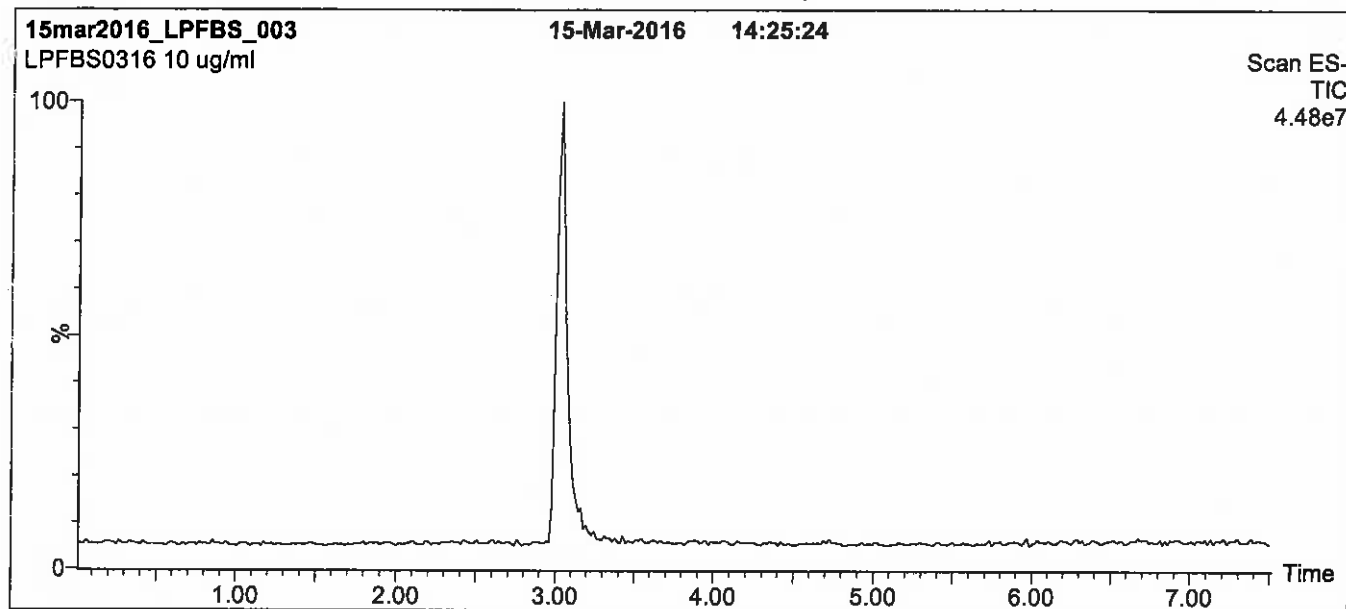
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Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)



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

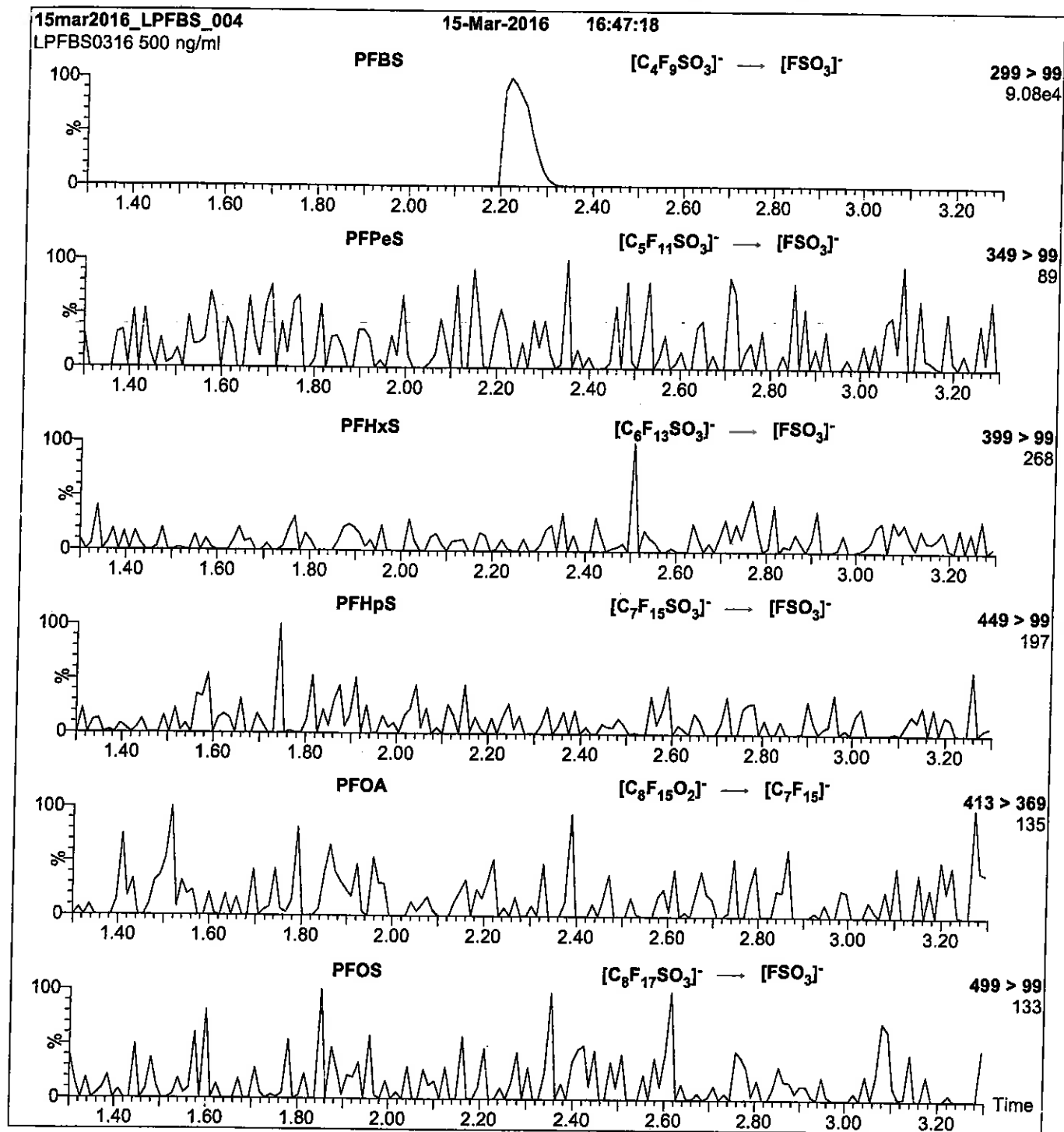
Flow: 300 μ l/min

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

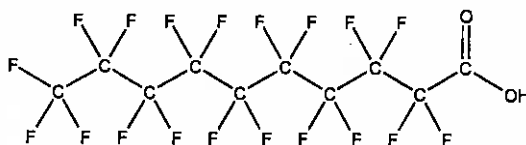
COMPOUND:

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)

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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.

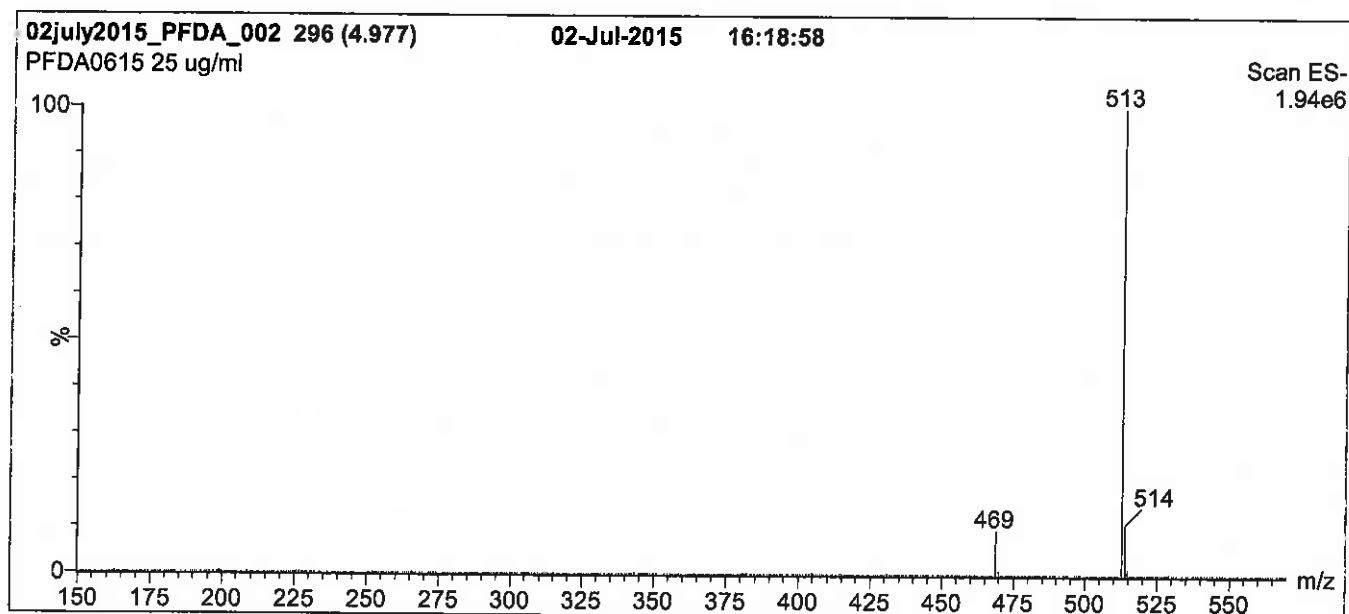
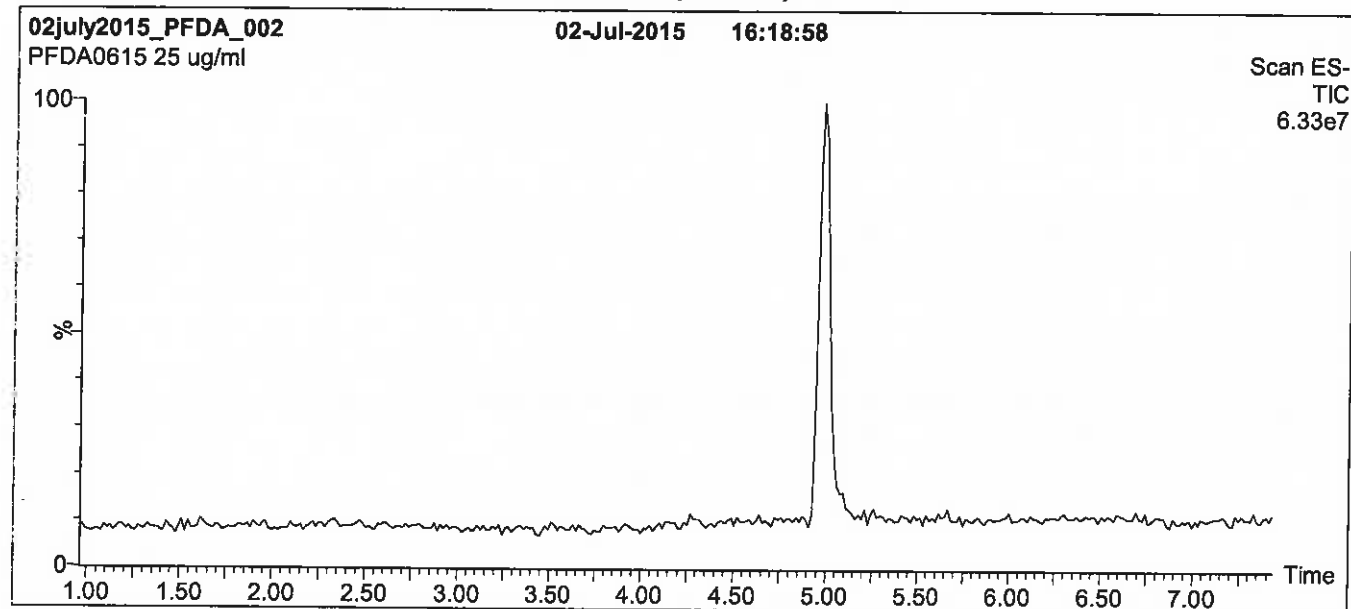
QUALITY MANAGEMENT:

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: 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

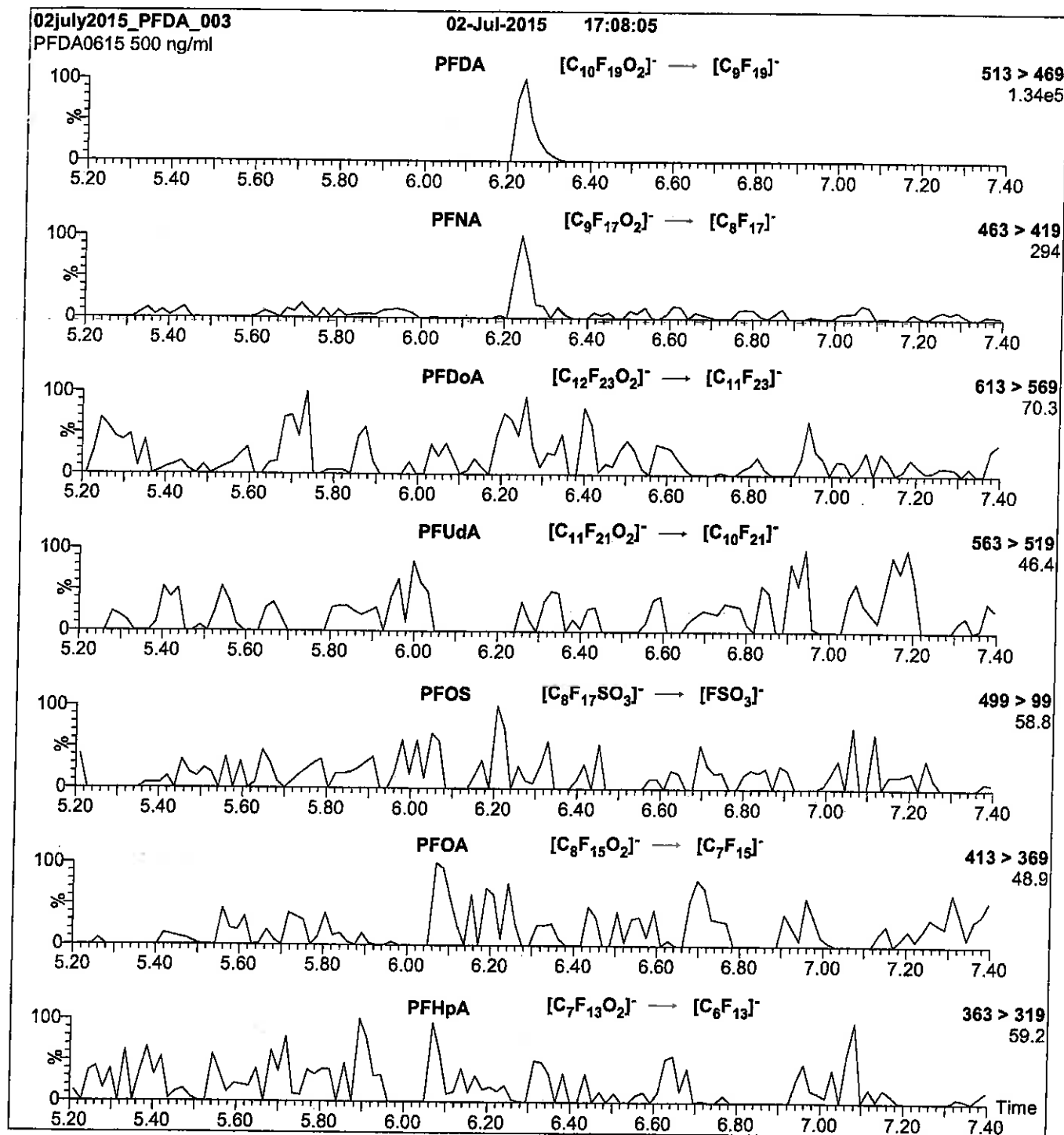
Flow: 300 μ l/min

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: LCPFDaA_00005
Exp: 01/30/20 Pripd: CSW
PF-n-dodecanoic acid

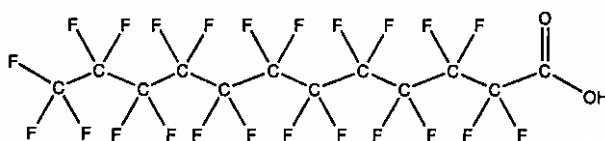


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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDaA **LOT NUMBER:** PFDaA0115
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:

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HOMOGENEITY:

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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:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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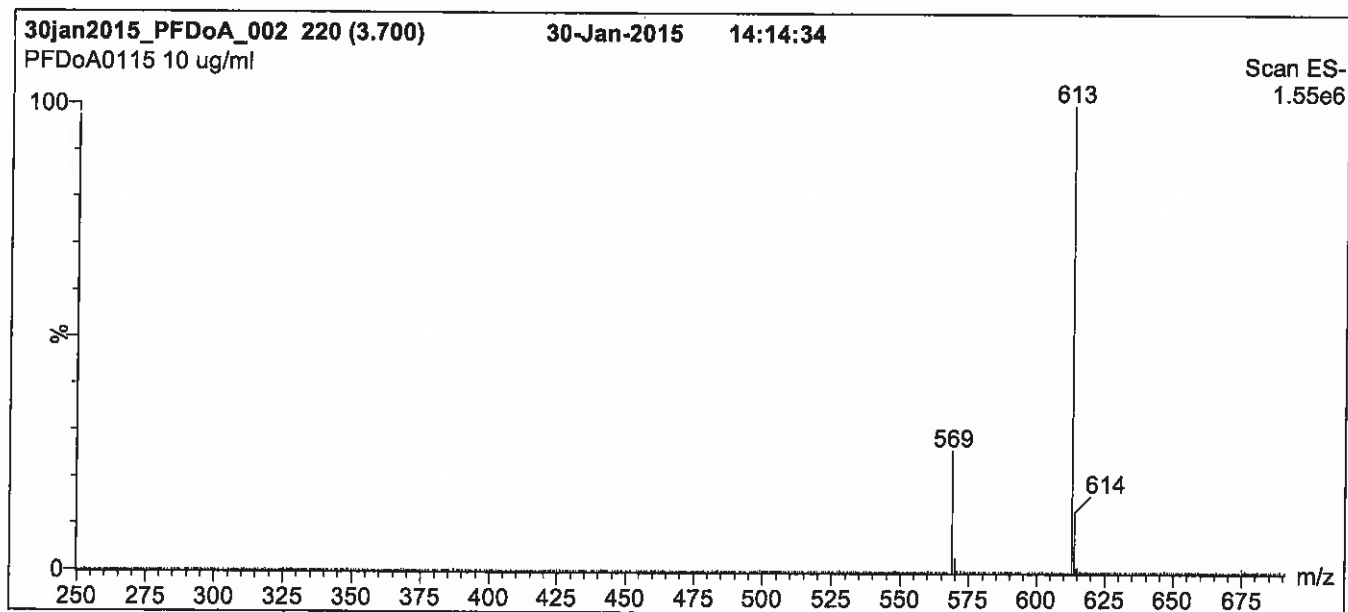
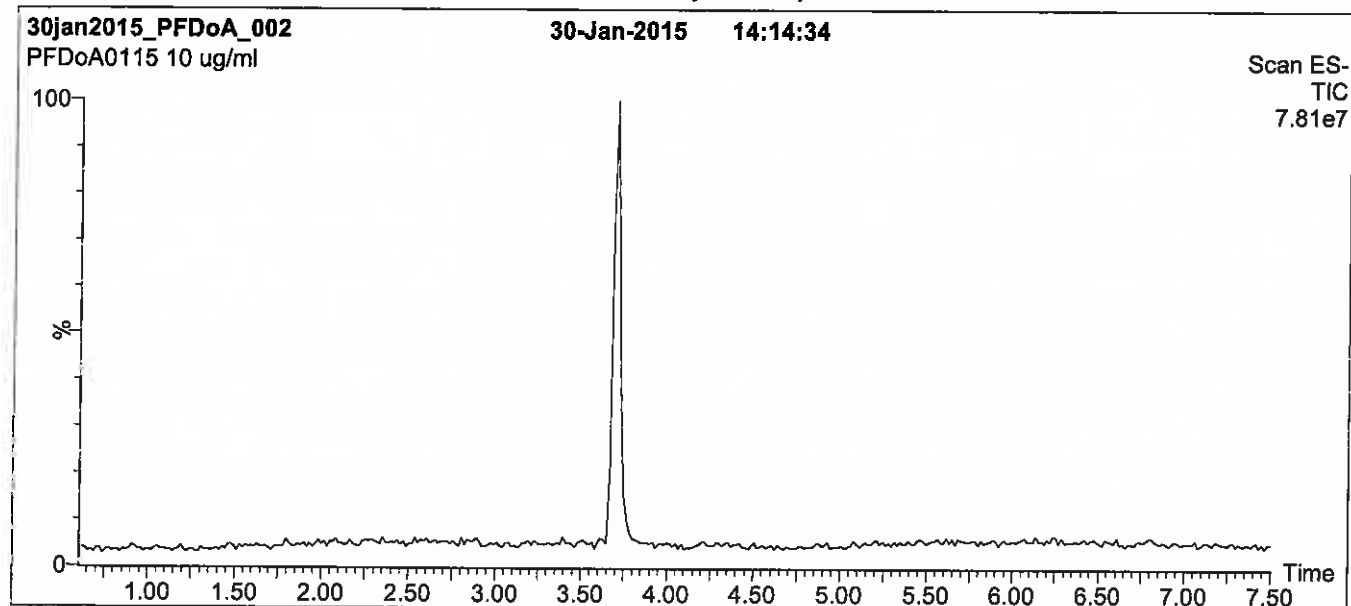
QUALITY MANAGEMENT:

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Figure 1: 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

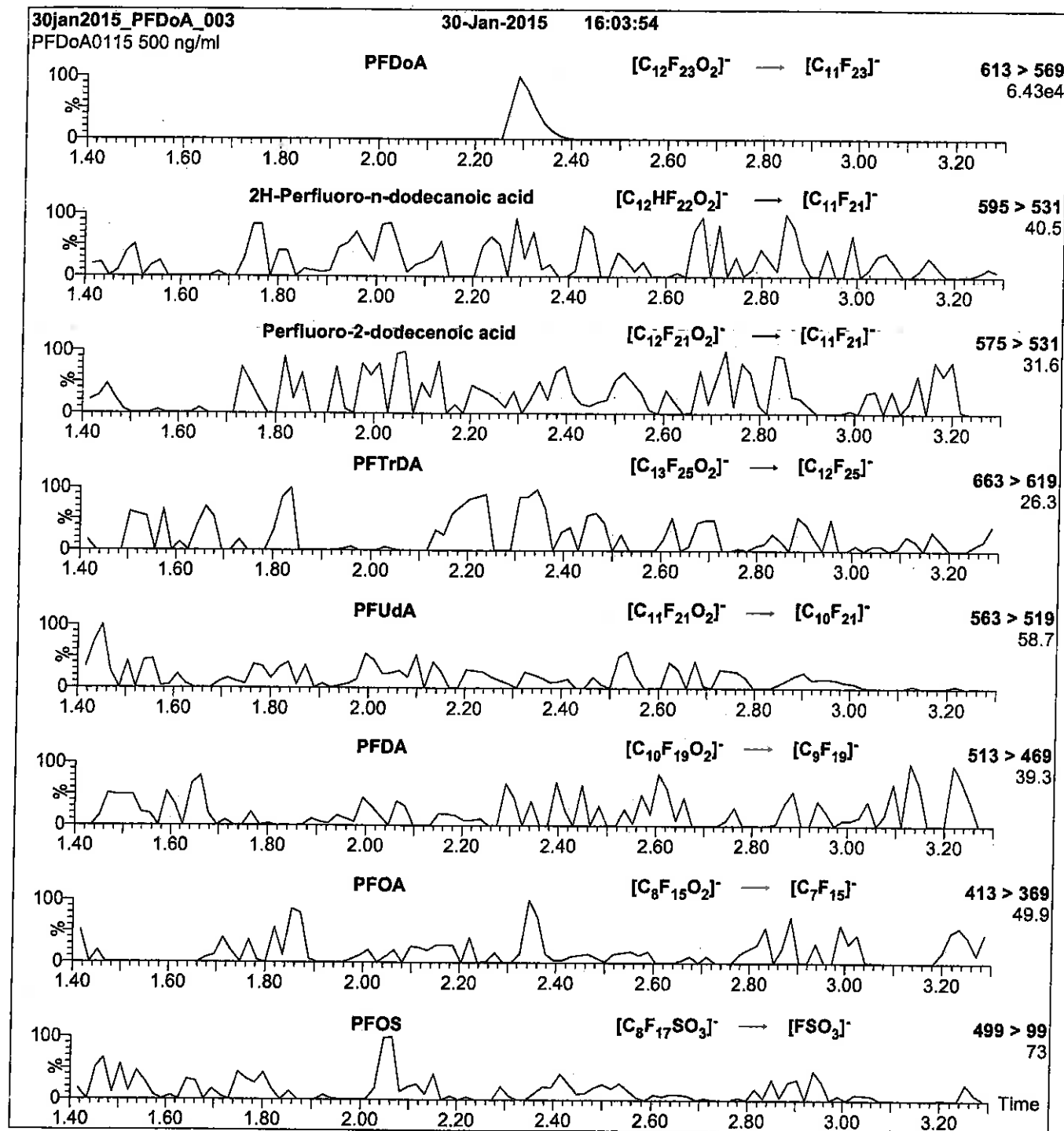
Flow: 300 μ l/min

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 PFD0A)

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: 8BC 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:

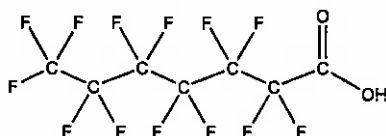
PFHpA0116

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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HOMOGENEITY:

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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.

TRACEABILITY:

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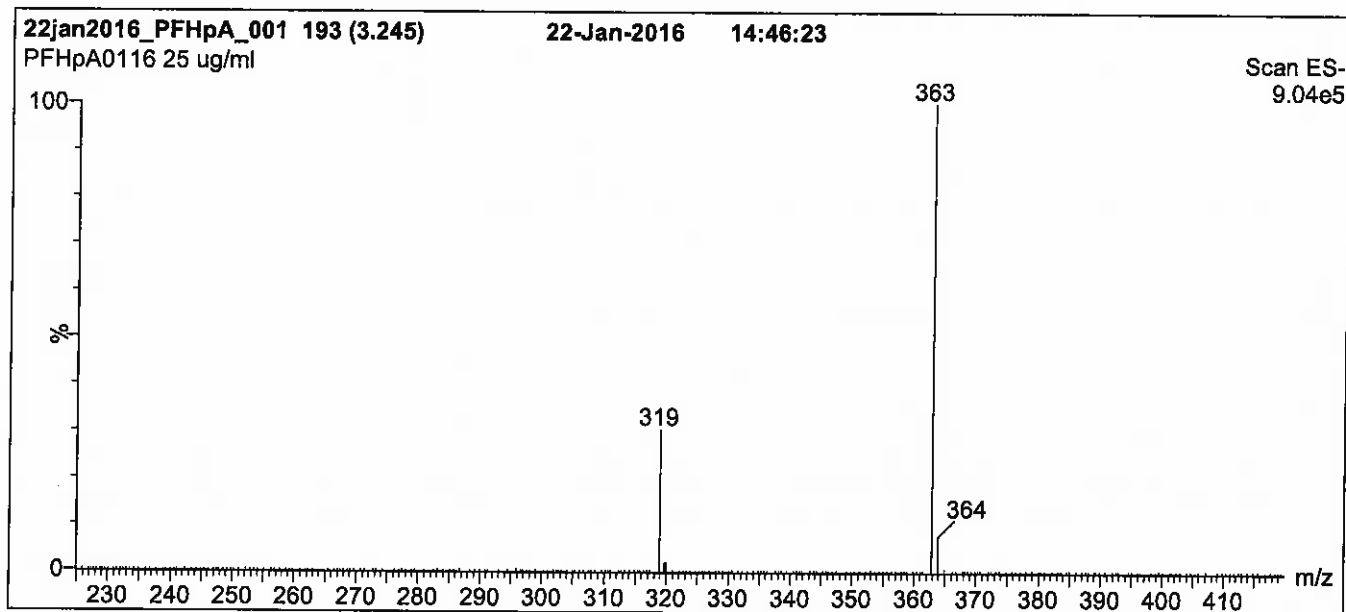
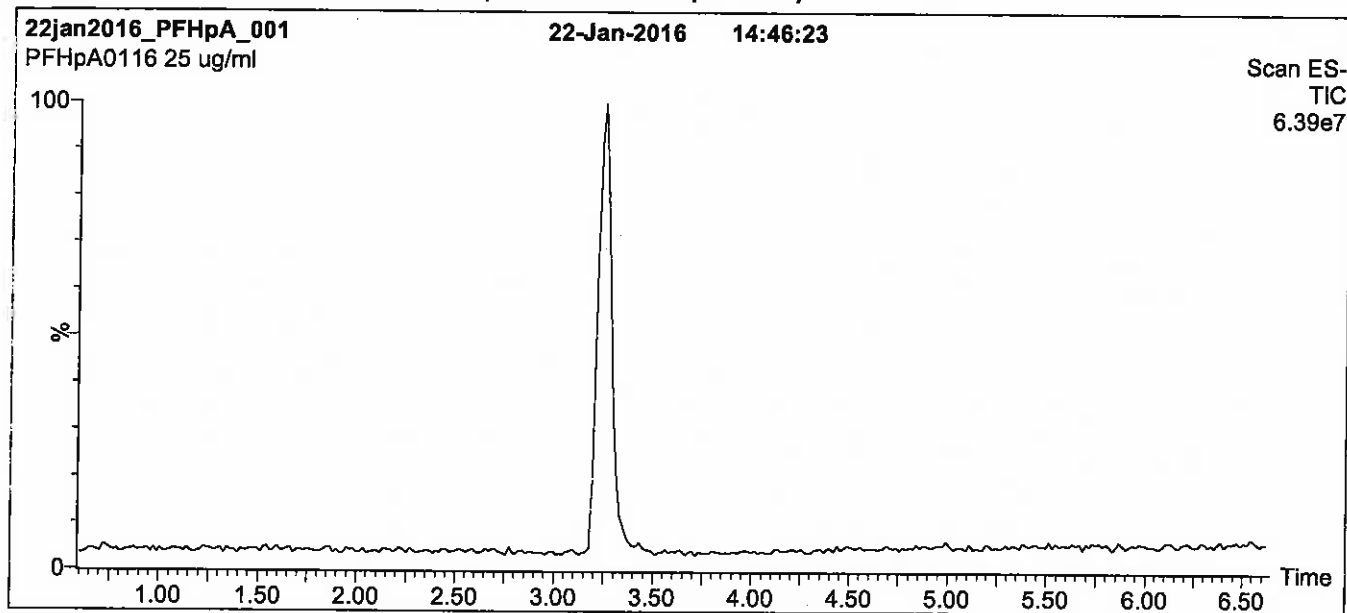
QUALITY MANAGEMENT:

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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

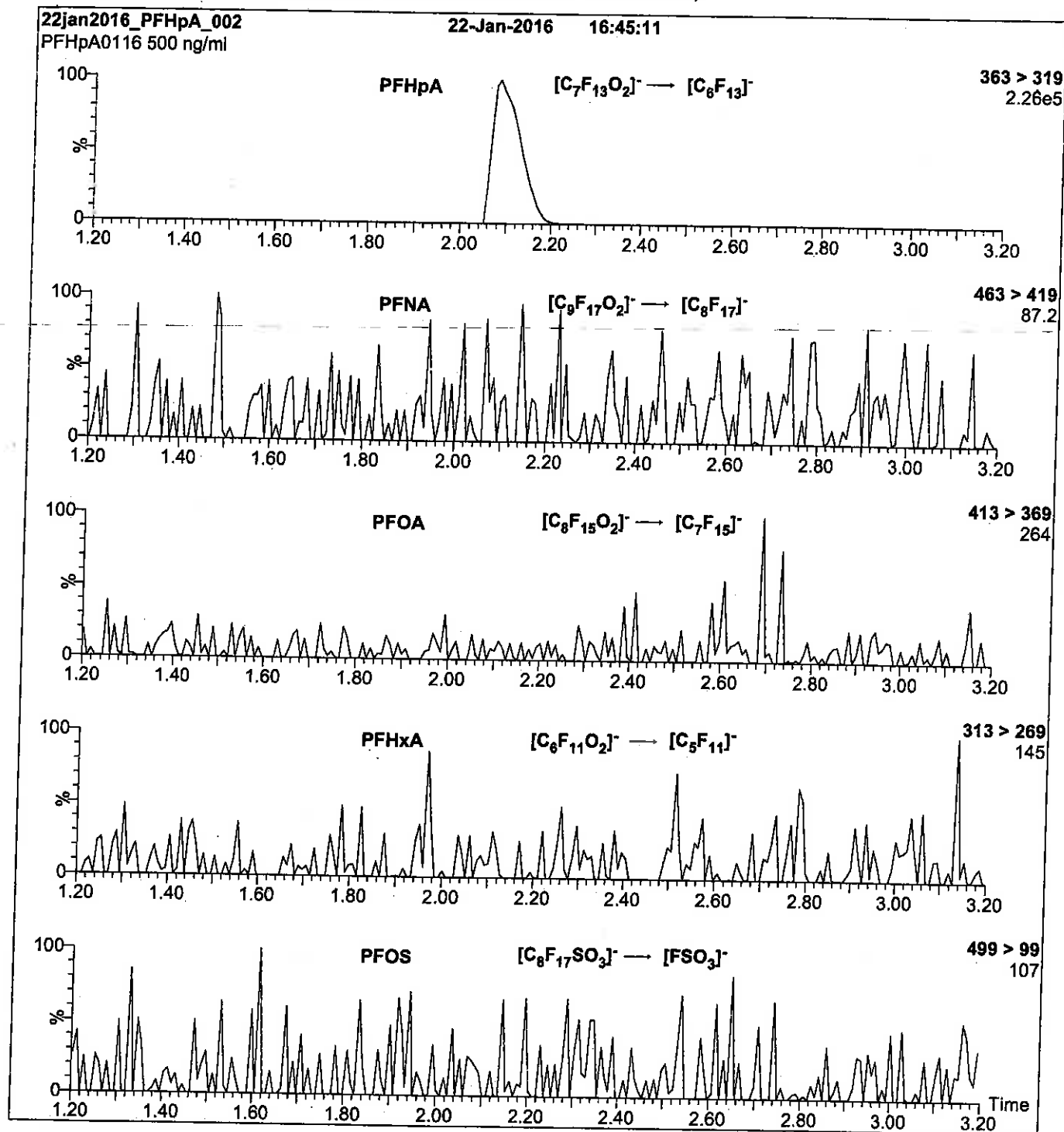
Flow: 300 μ l/min

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: 8BC 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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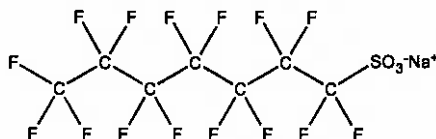
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFHPS
COMPOUND: Sodium perfluoro-1-heptanesulfonate

LOT NUMBER: LPFHPS1115

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $C_7F_{15}SO_3Na$
CONCENTRATION: $50.0 \pm 2.5 \mu g/mL$ (Na salt)
 $47.6 \pm 2.4 \mu g/mL$ (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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where x is expressed as a relative standard uncertainty of the individual parameter.

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LIMITED WARRANTY:

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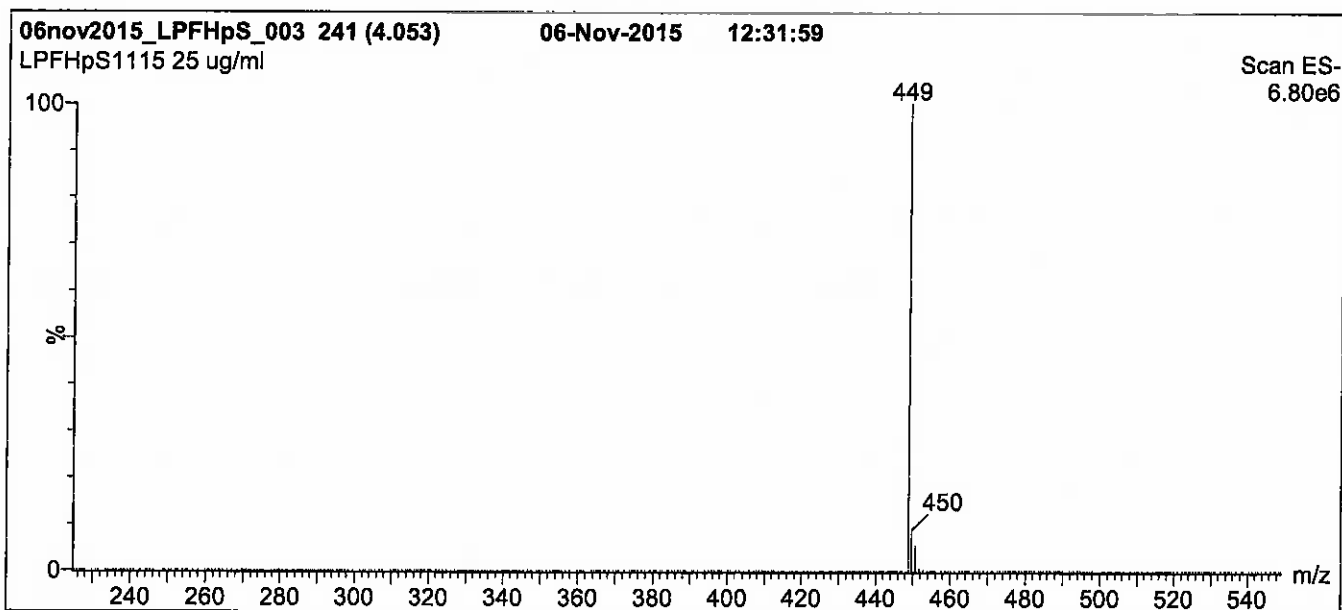
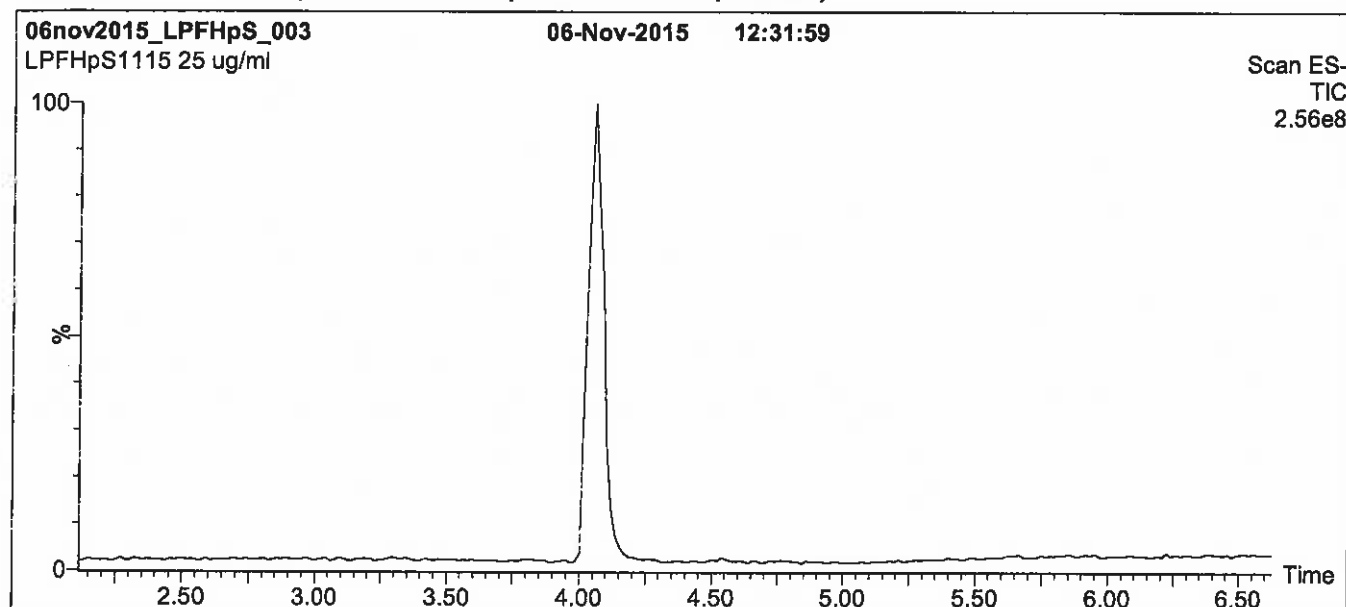
QUALITY MANAGEMENT:

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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

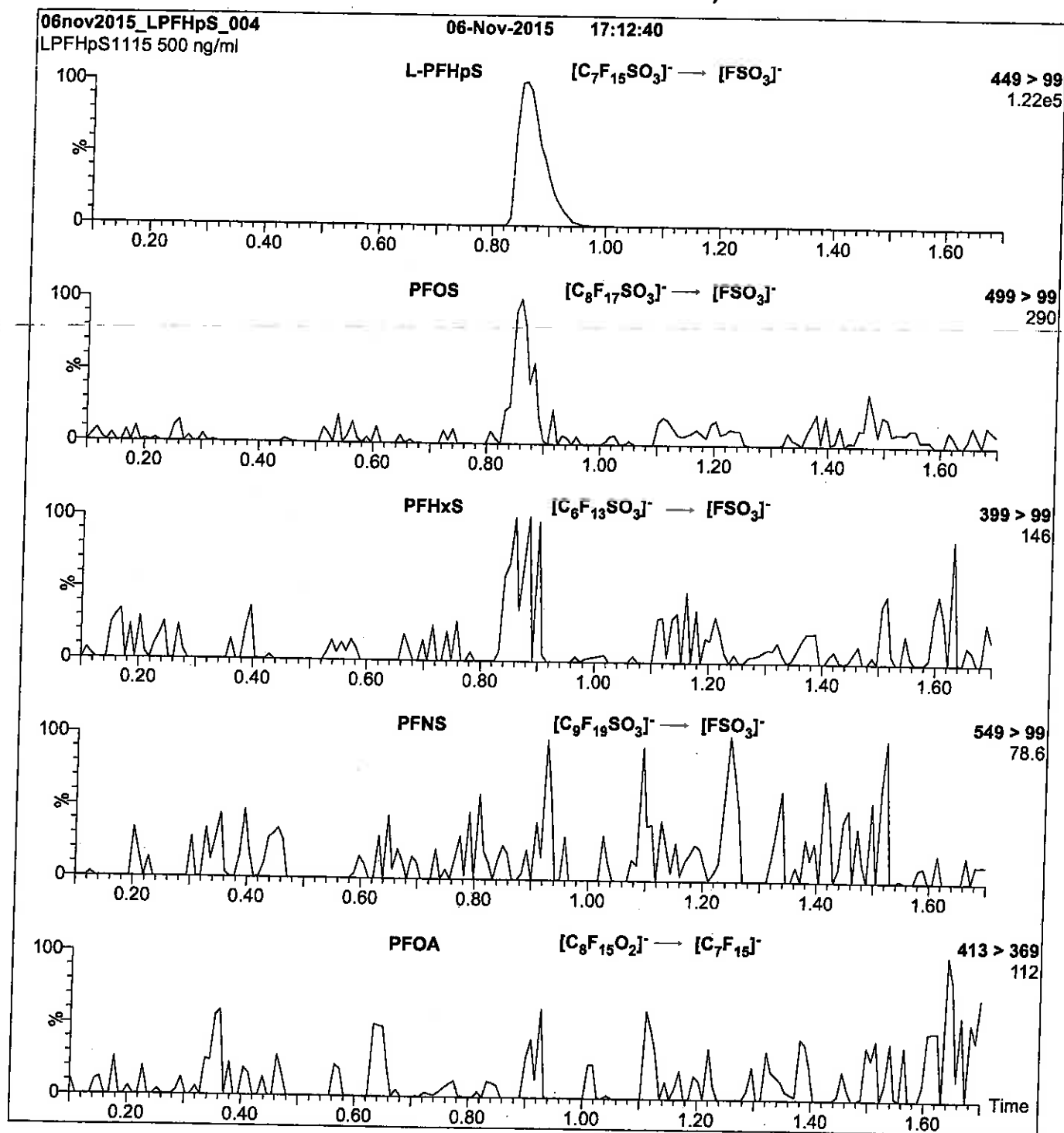
Flow: 300 μ l/min

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% 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) = 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



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHxA

LOT NUMBER:

PFHxA1215

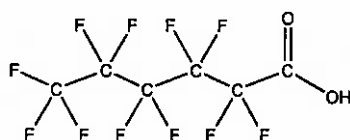
COMPOUND:

Perfluoro-n-hexanoic acid

STRUCTURE:

CAS #:

307-24-4



MOLECULAR FORMULA:

C₆HF₁₁O₂

MOLECULAR WEIGHT:

314.05

CONCENTRATION:

50 ± 2.5 µg/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
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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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:

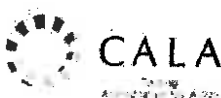
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

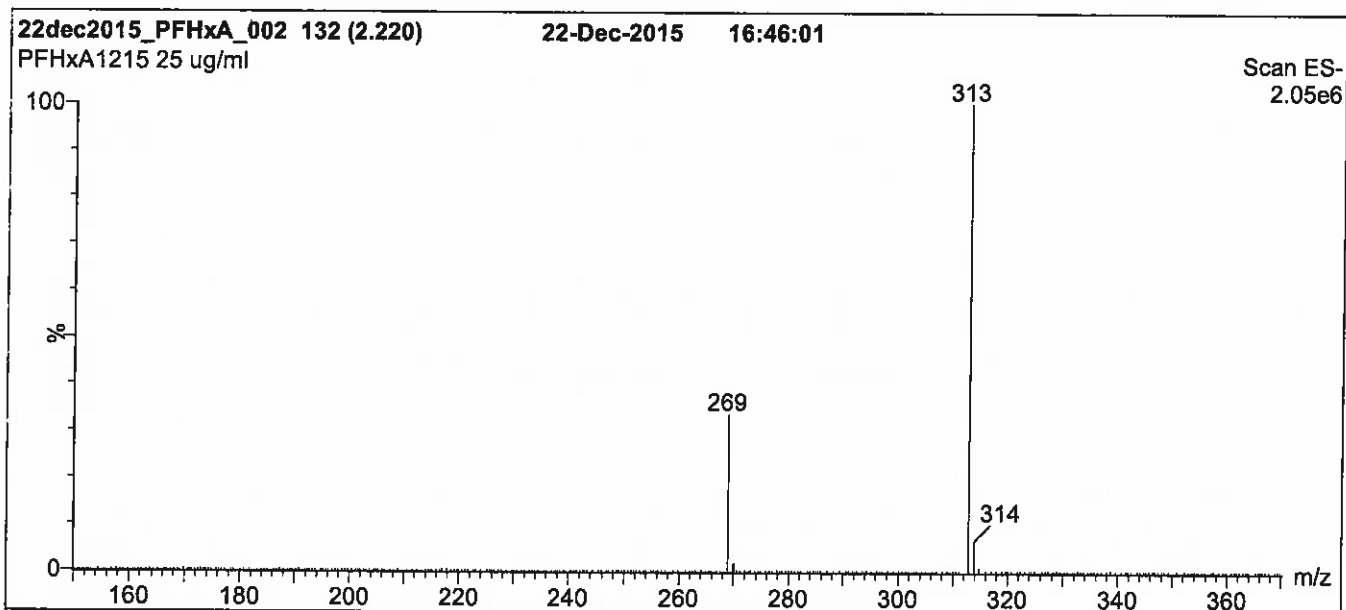
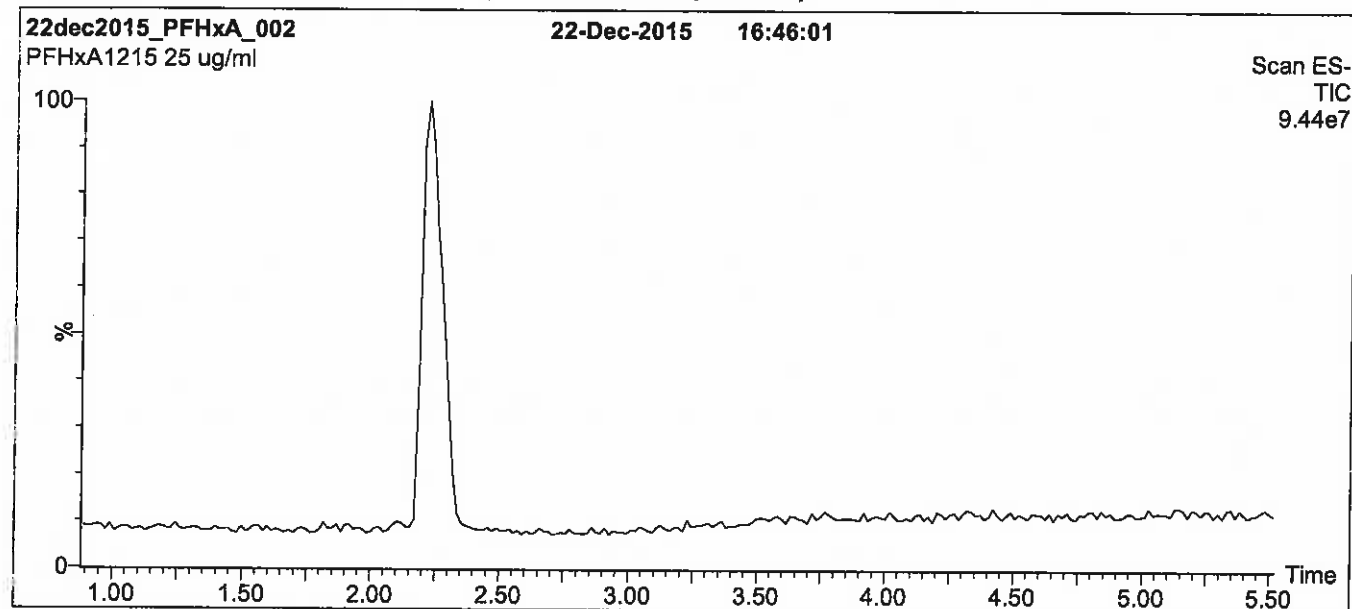
QUALITY MANAGEMENT:

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: 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

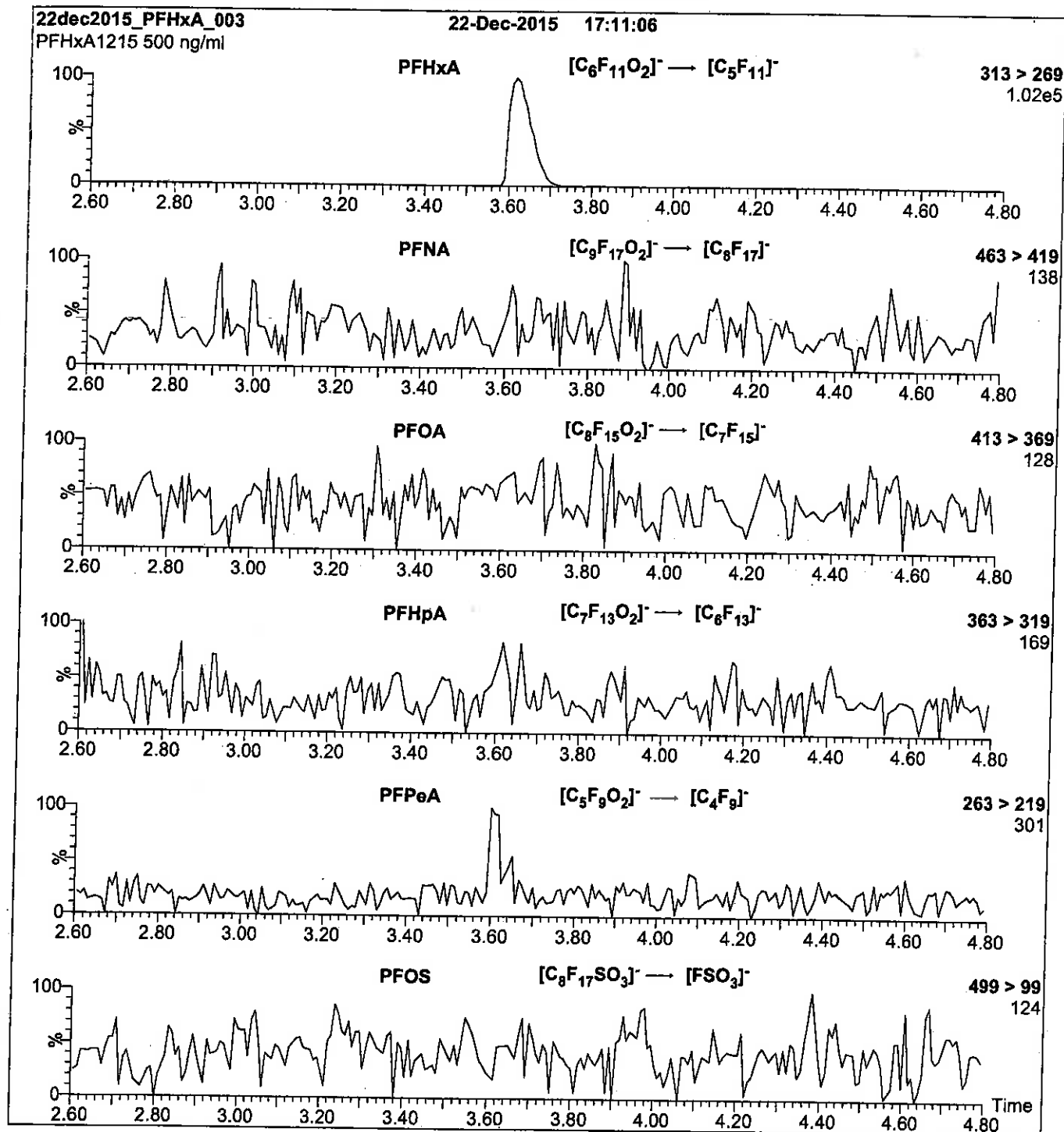
Flow: 300 μ l/min

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



WELLINGTON
LABORATORIES



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:

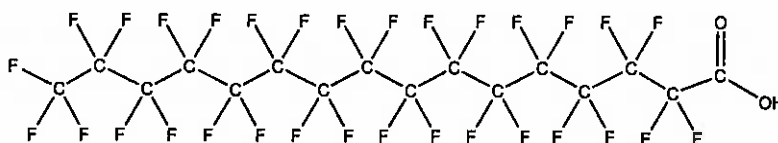
PFHxDA0516

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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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where x is expressed as a relative standard uncertainty of the individual parameter.

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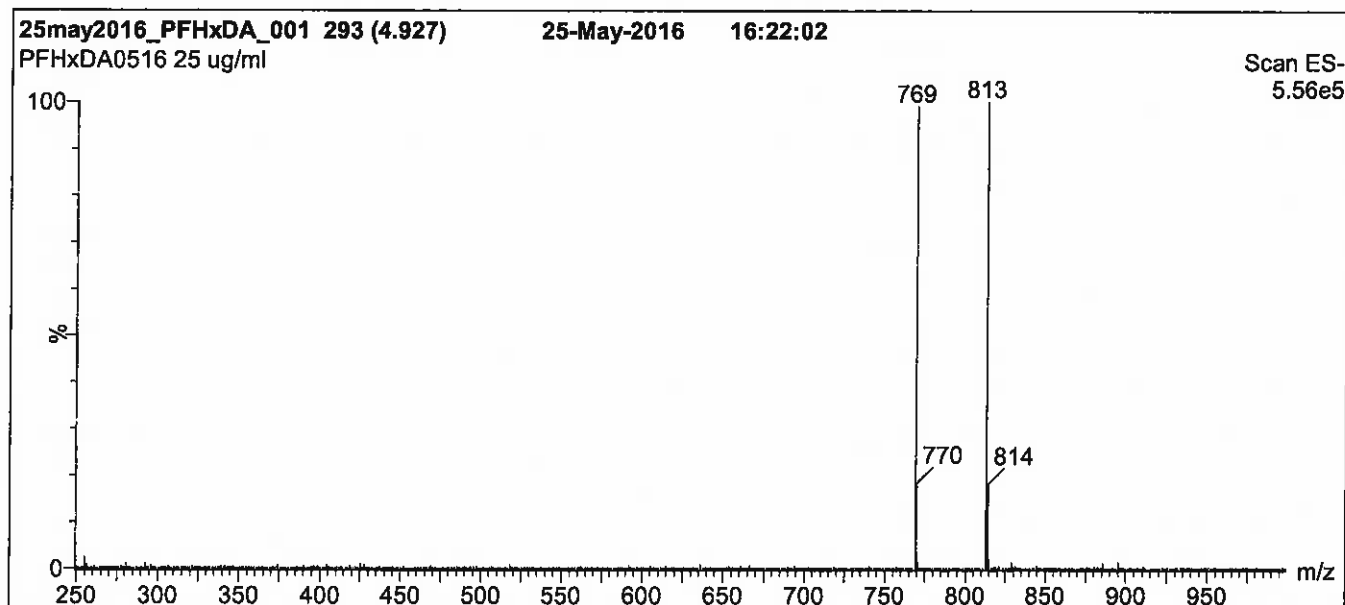
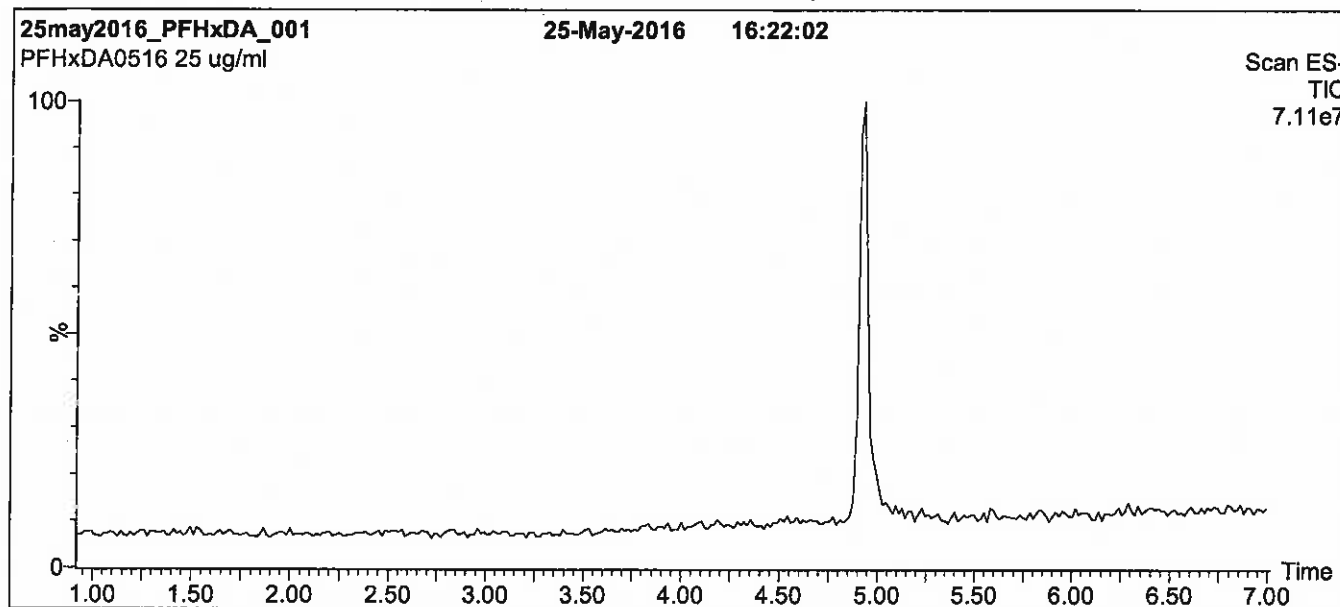
QUALITY MANAGEMENT:

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: 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

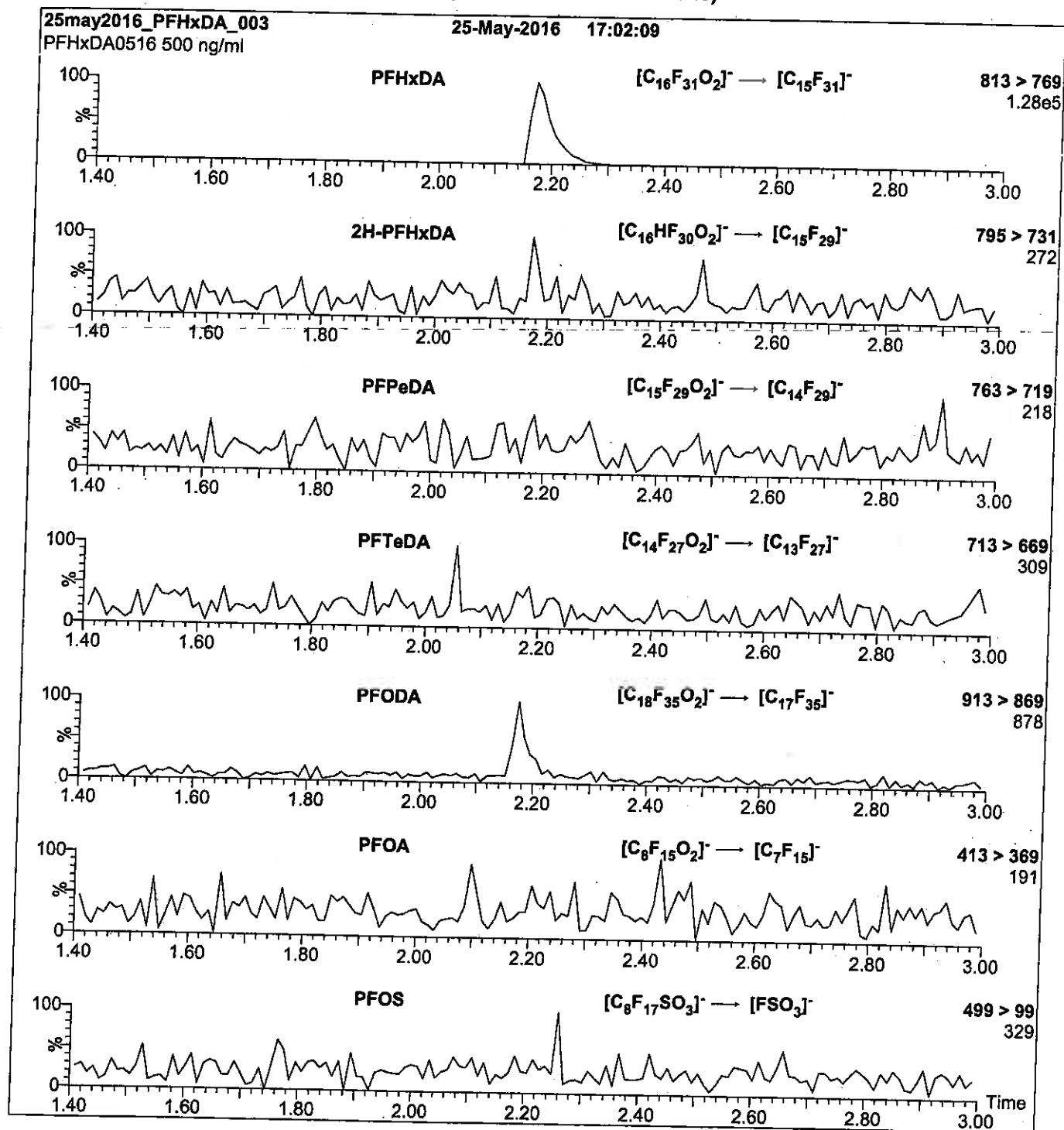
Flow: 300 μ l/min

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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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.

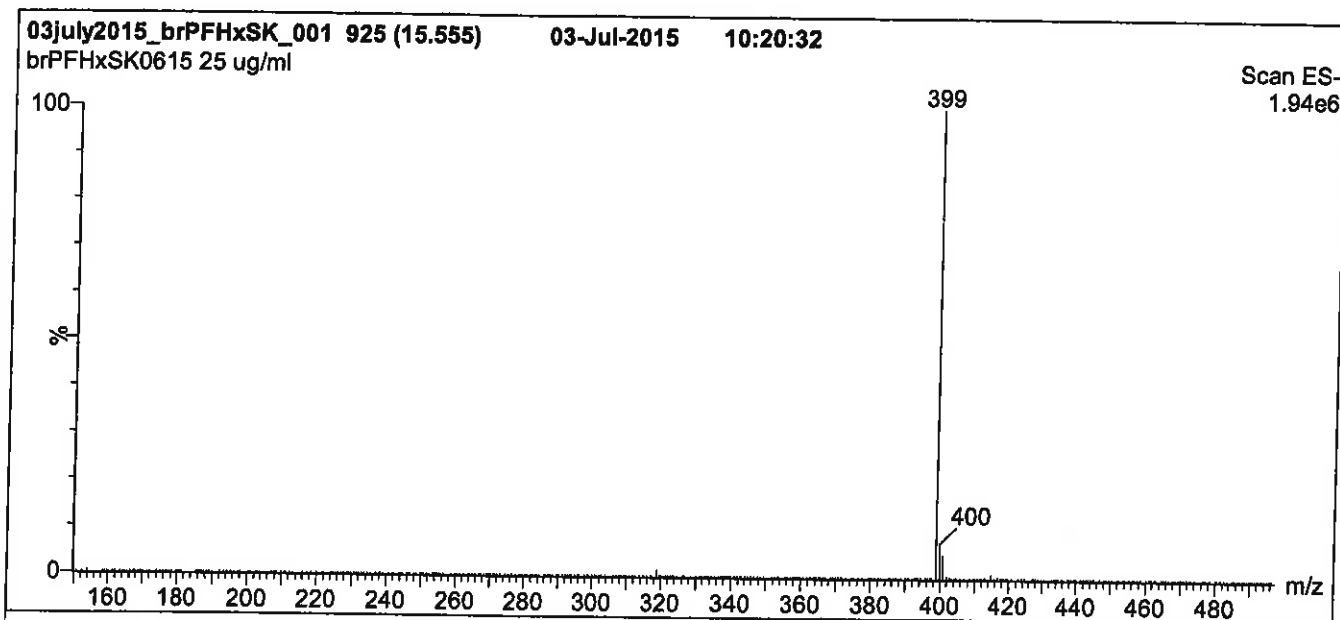
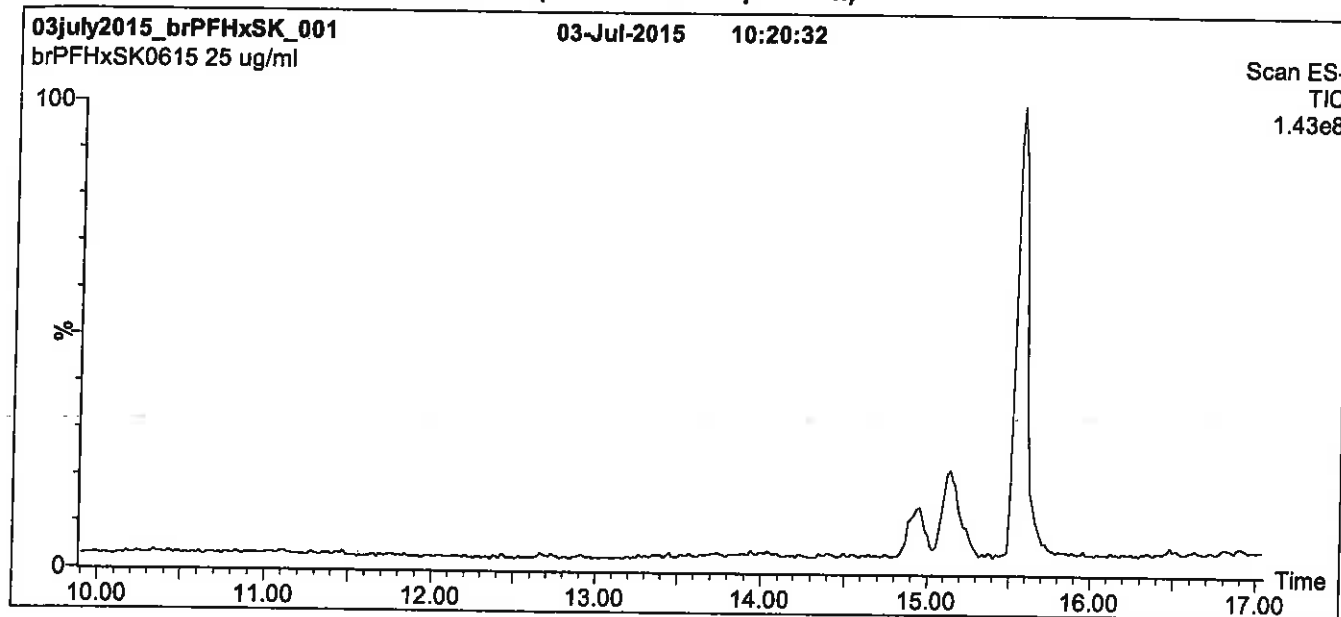
Certified By:


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

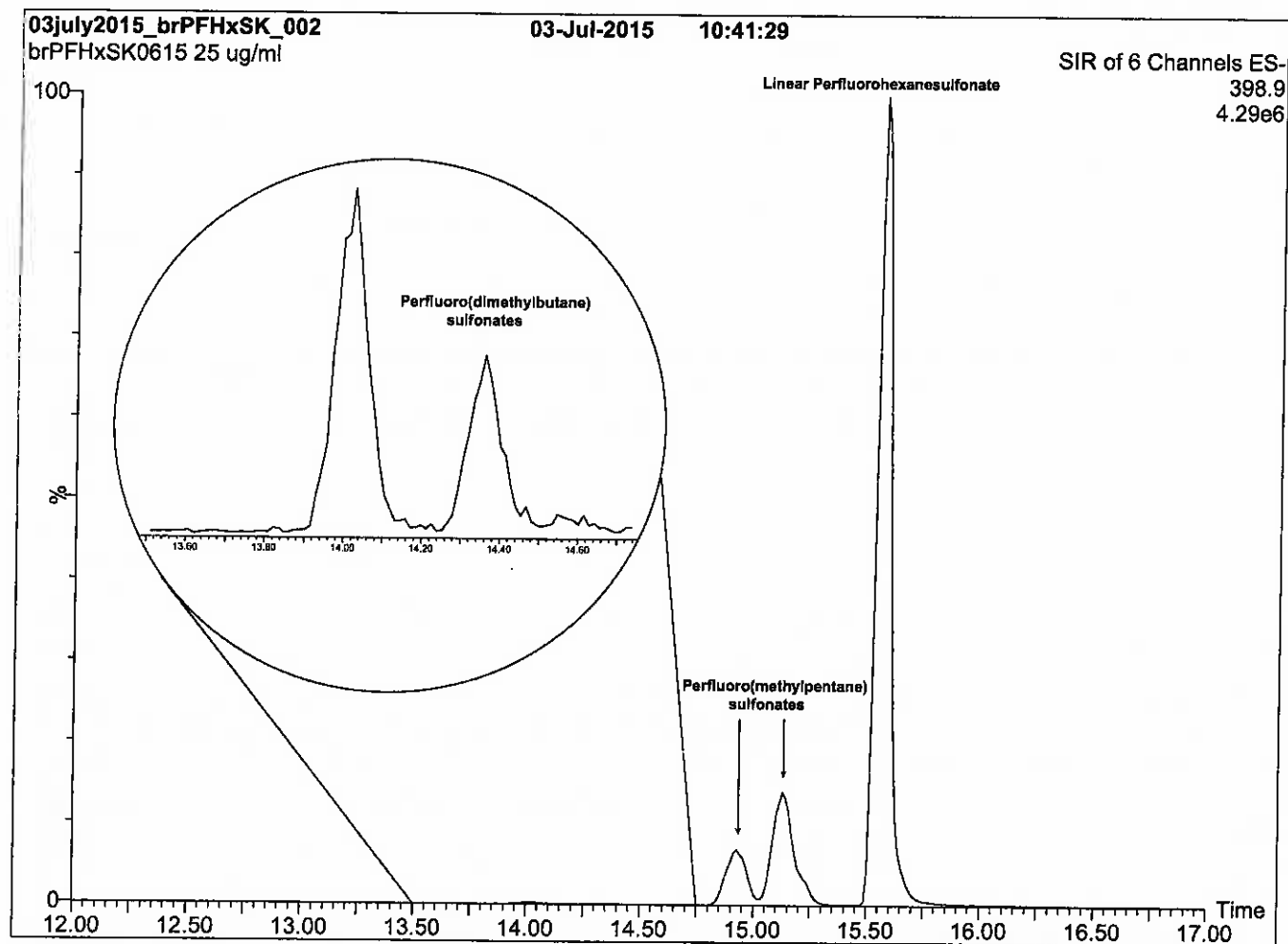
Flow: 300 μ l/min

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

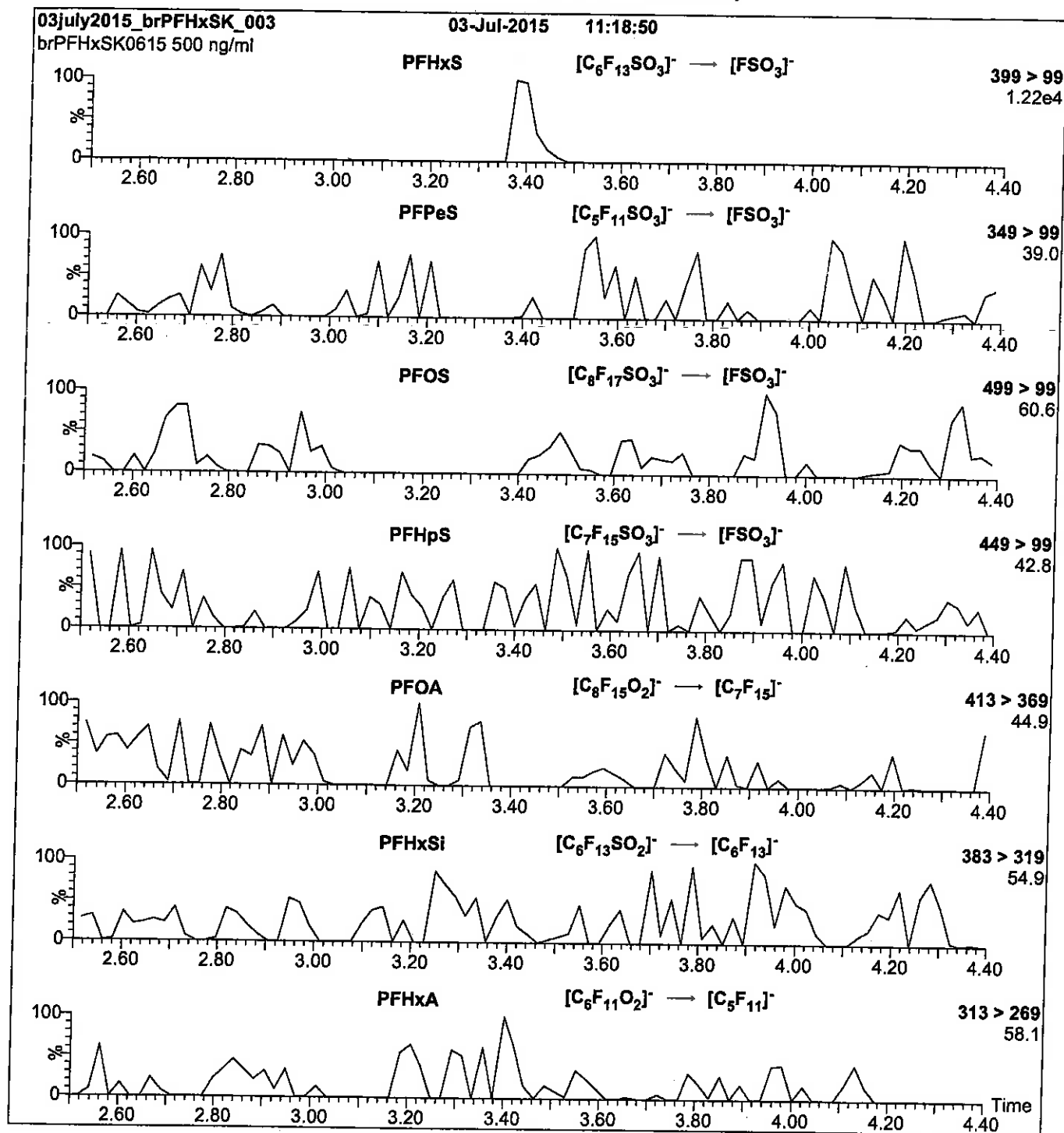
Flow: 300 μ l/min

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 Pp4: SBC
PF-n-nonanoic acid



730560
ID: LCPFNA_00007
Exp: 10/23/20 Pp4: SBC
PF-n-nonanoic acid

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

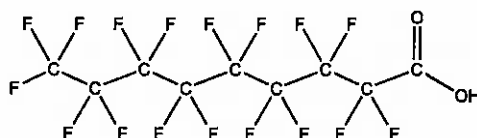
COMPOUND:

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
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SYNTHESIS / CHARACTERIZATION:

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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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LIMITED WARRANTY:

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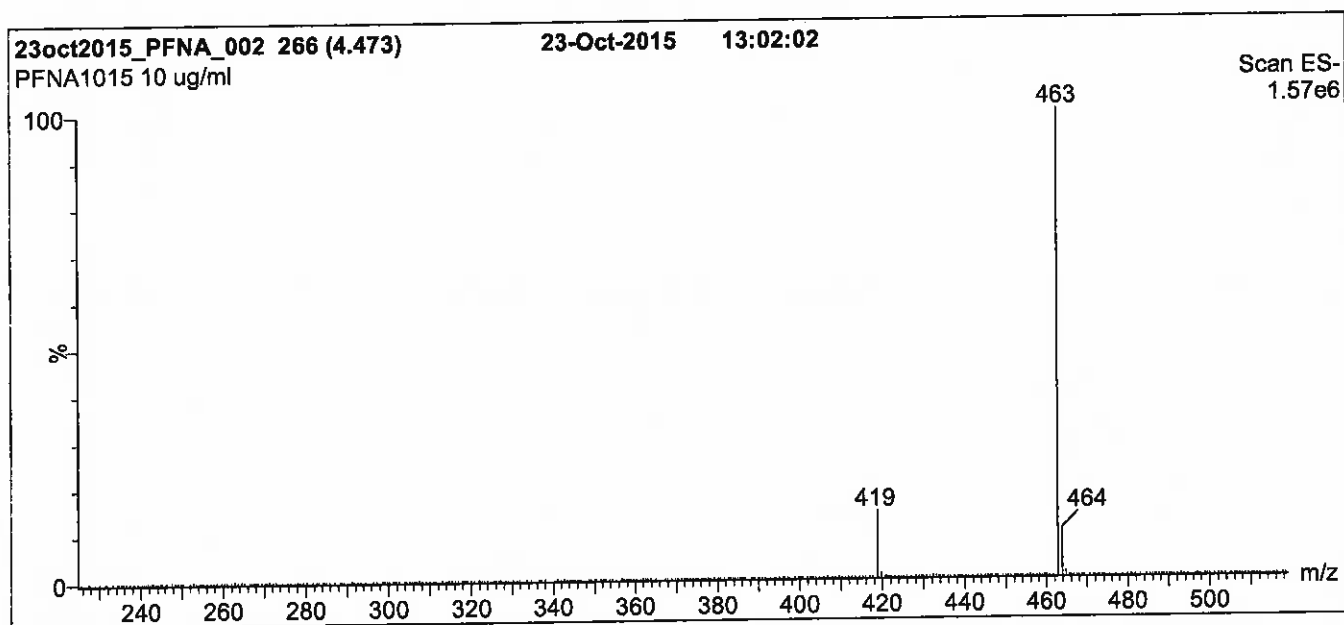
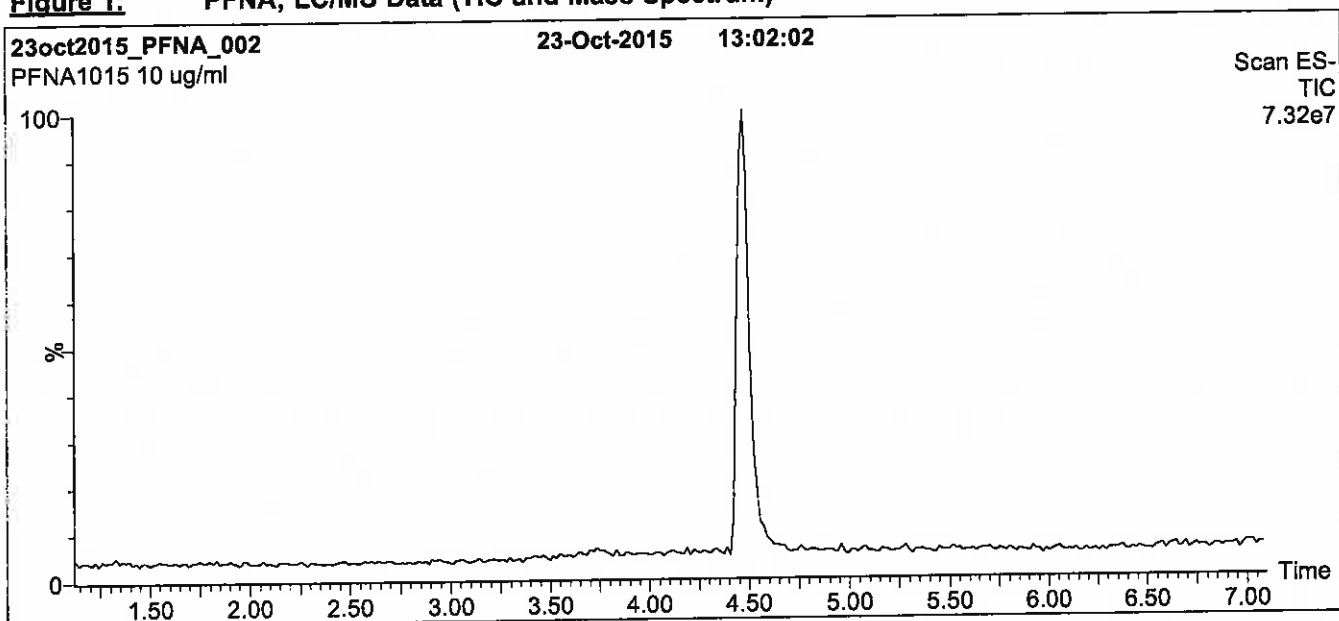
QUALITY MANAGEMENT:

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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

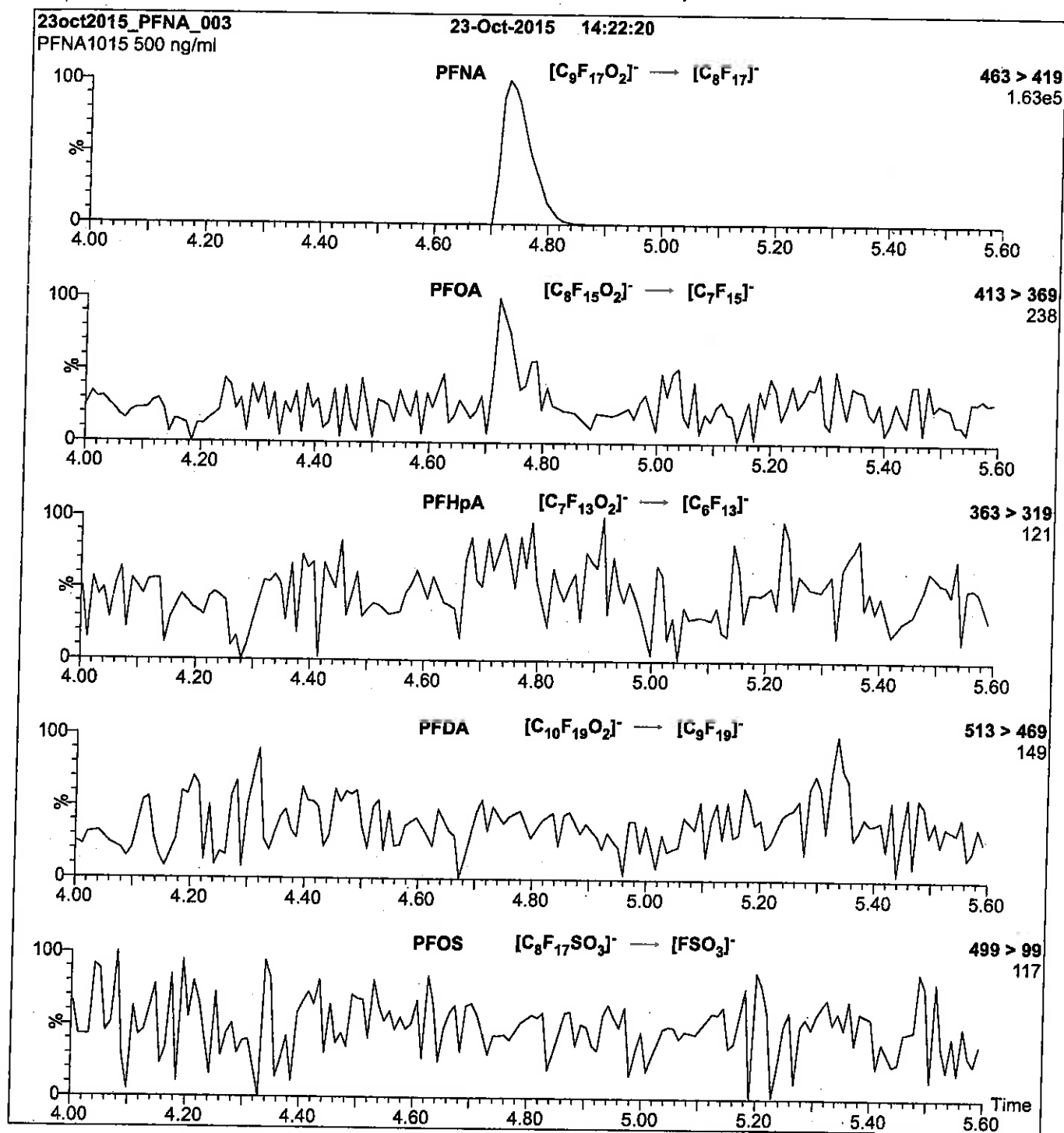
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc 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:

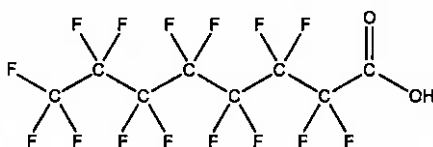
PFOA1115

COMPOUND:

Perfluoro-n-octanoic acid

STRUCTURE:**CAS #:**

335-67-1

**MOLECULAR FORMULA:** $C_8H_15O_2$ **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

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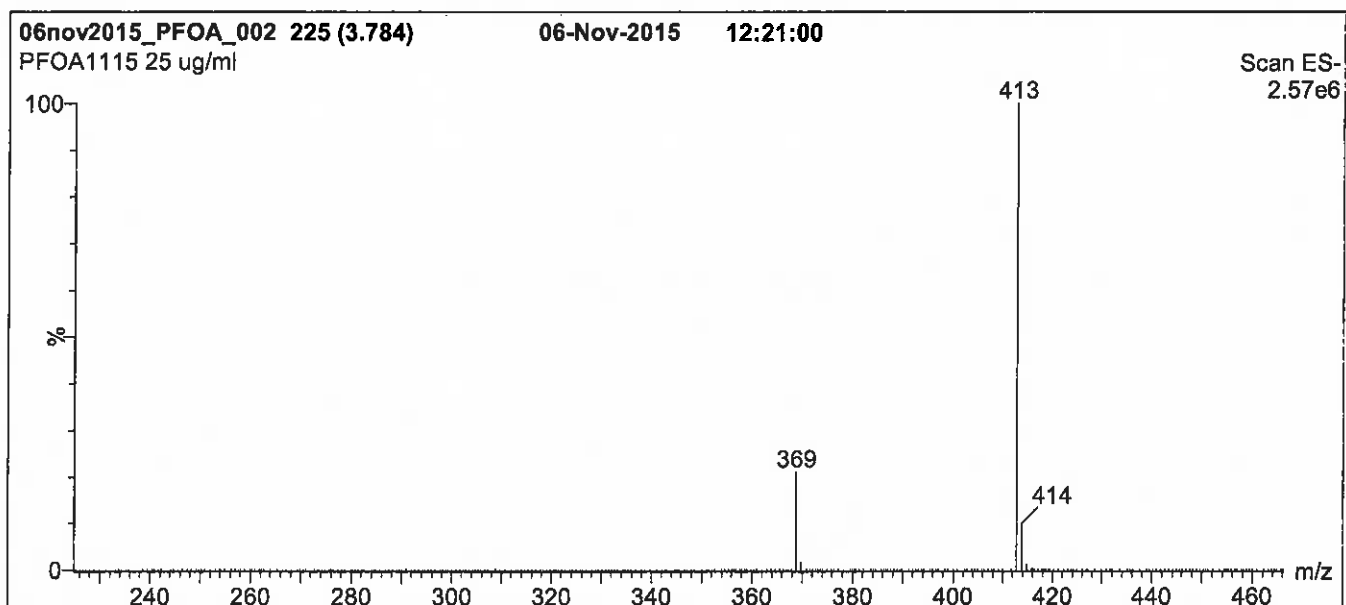
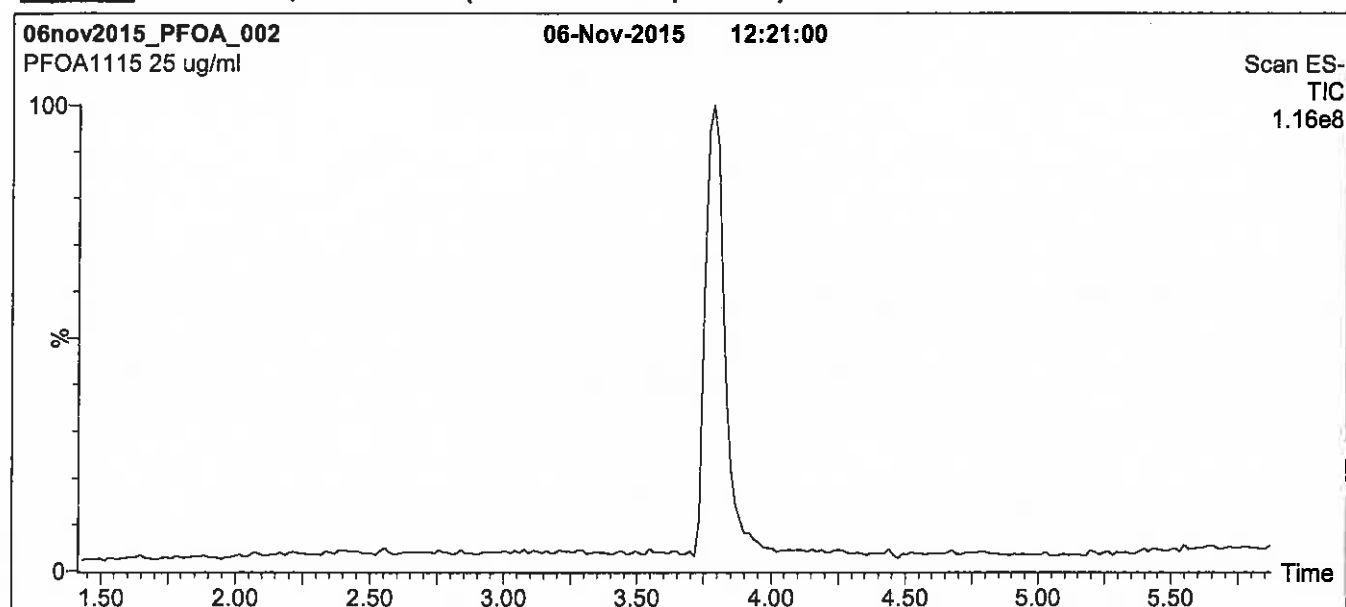
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Figure 1: PFOA; LC/MS Data (TIC and Mass Spectrum)



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

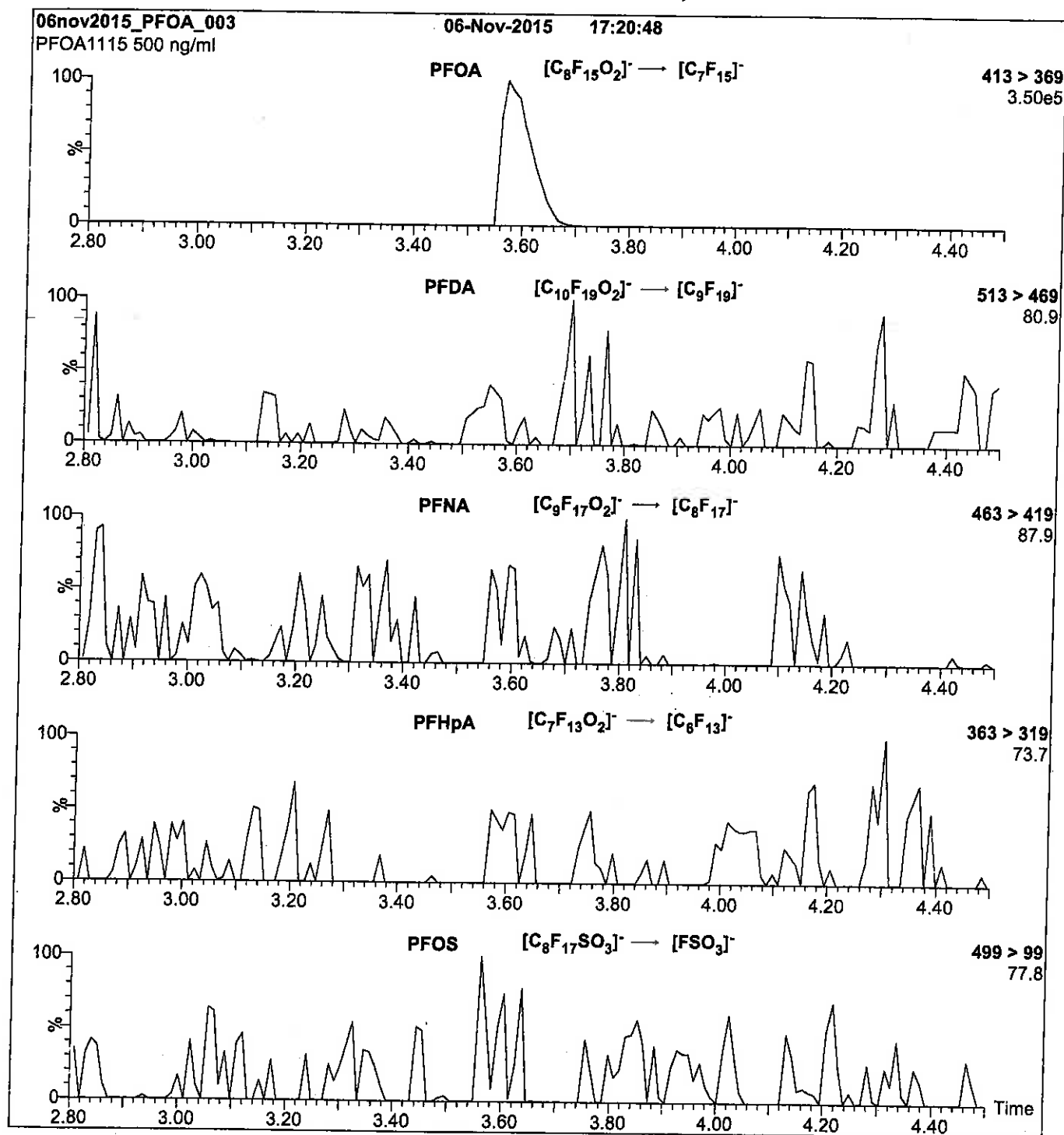
Flow: 300 μ l/min

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

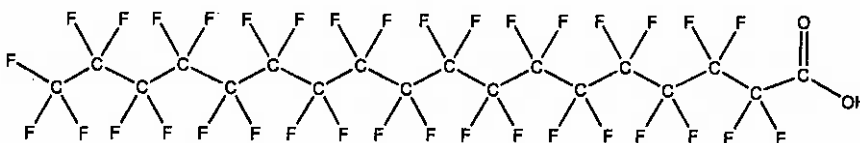
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

$C_{18}H_{36}O_2$

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

$50 \pm 2.5 \mu\text{g/mL}$

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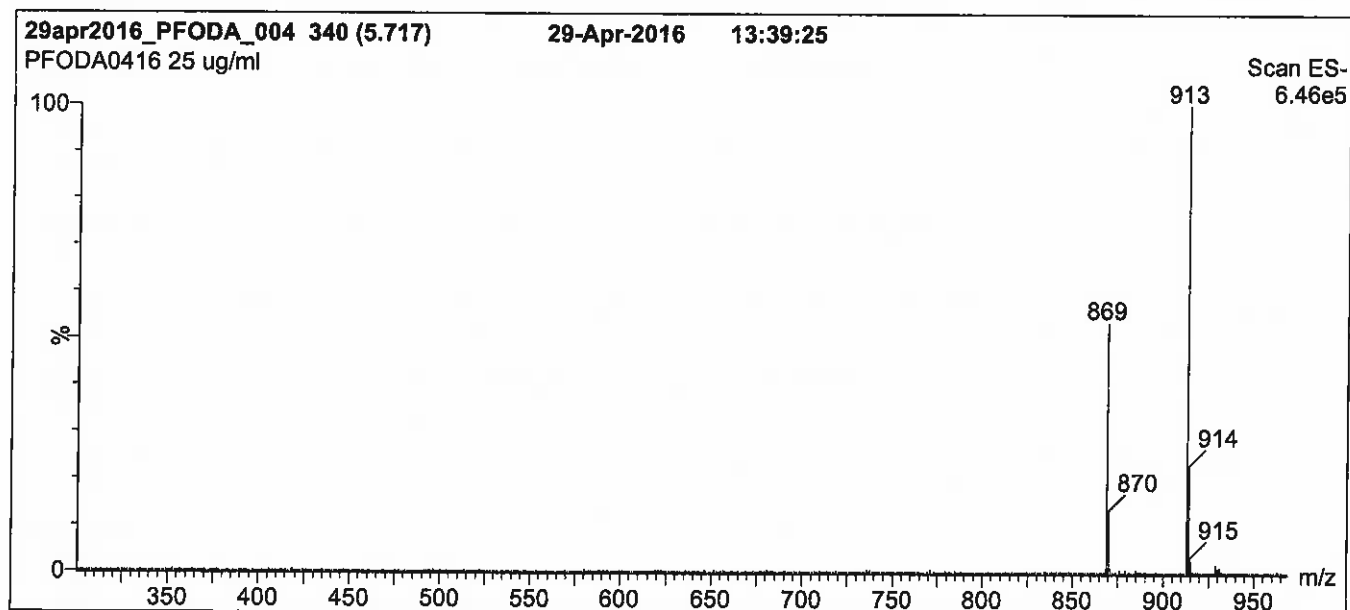
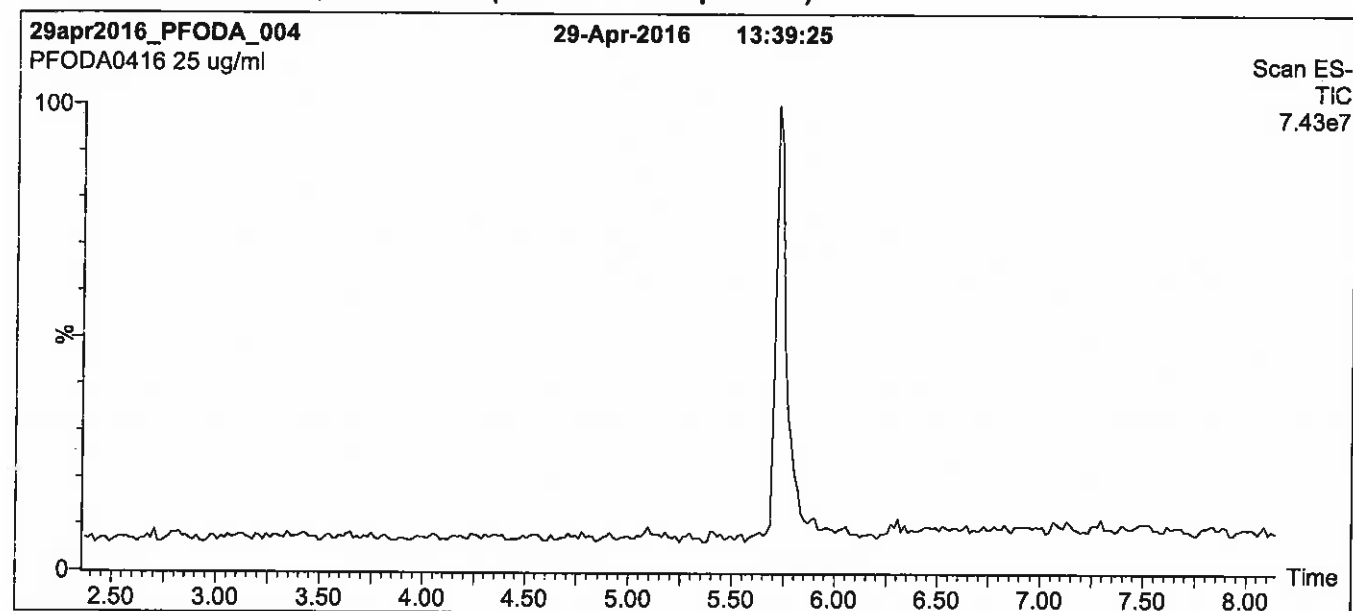
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Figure 1: PFODA; LC/MS Data (TIC and Mass Spectrum)



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

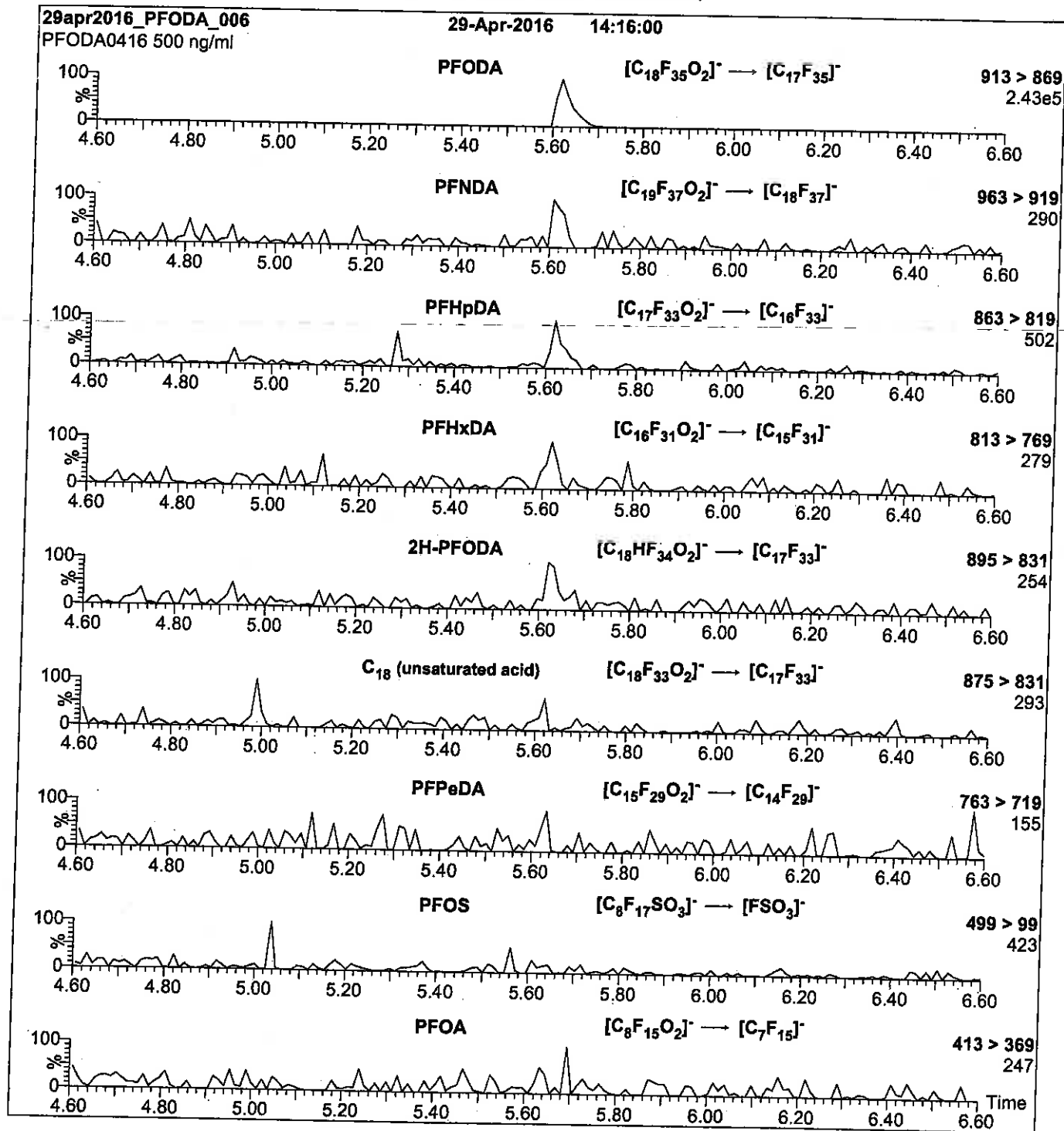
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 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
LABORATORIES

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).

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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.

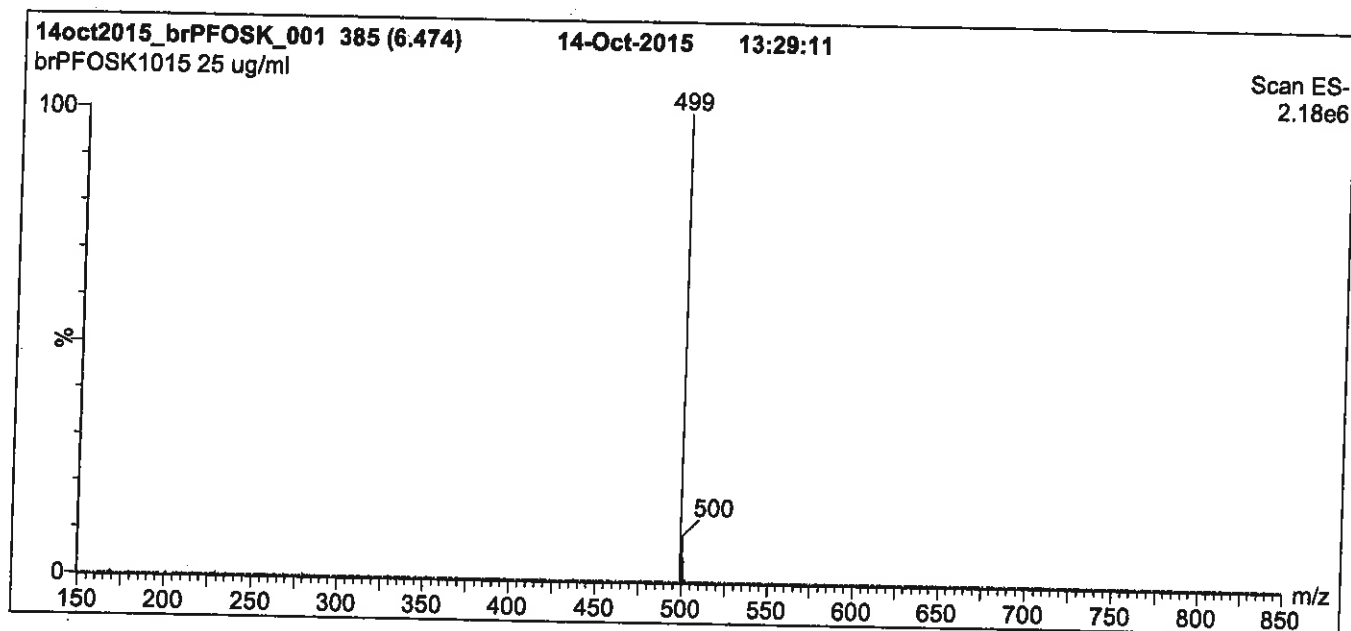
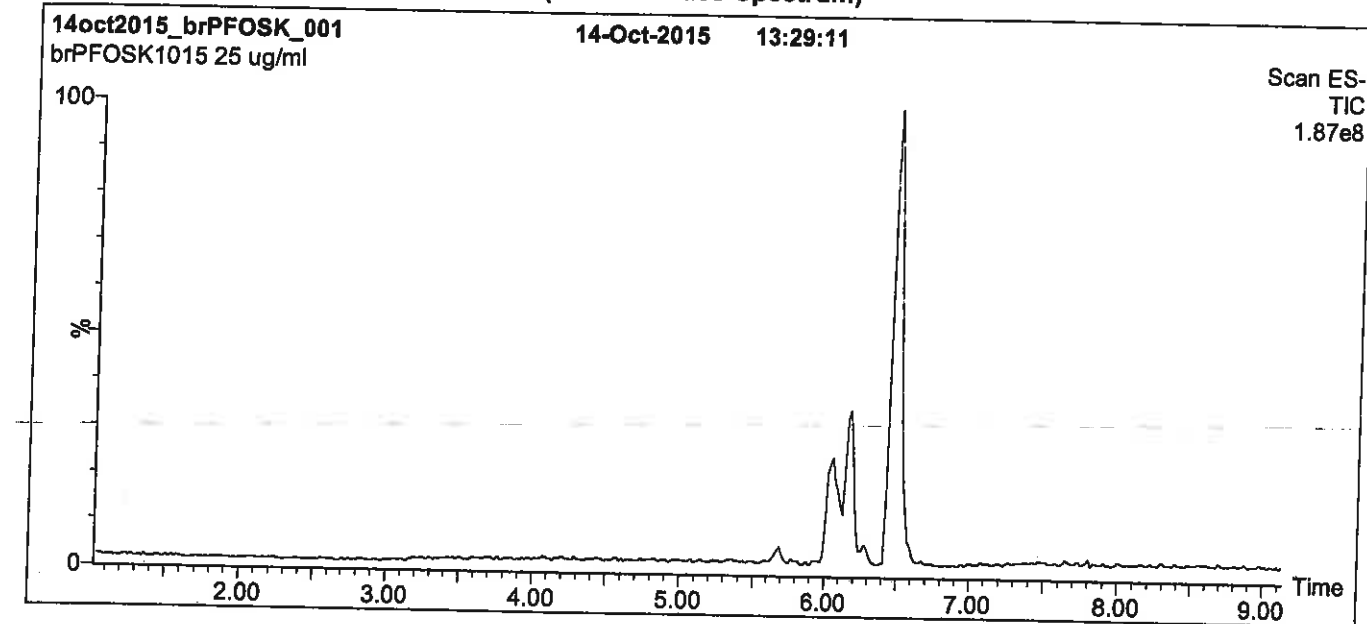
Certified By:


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

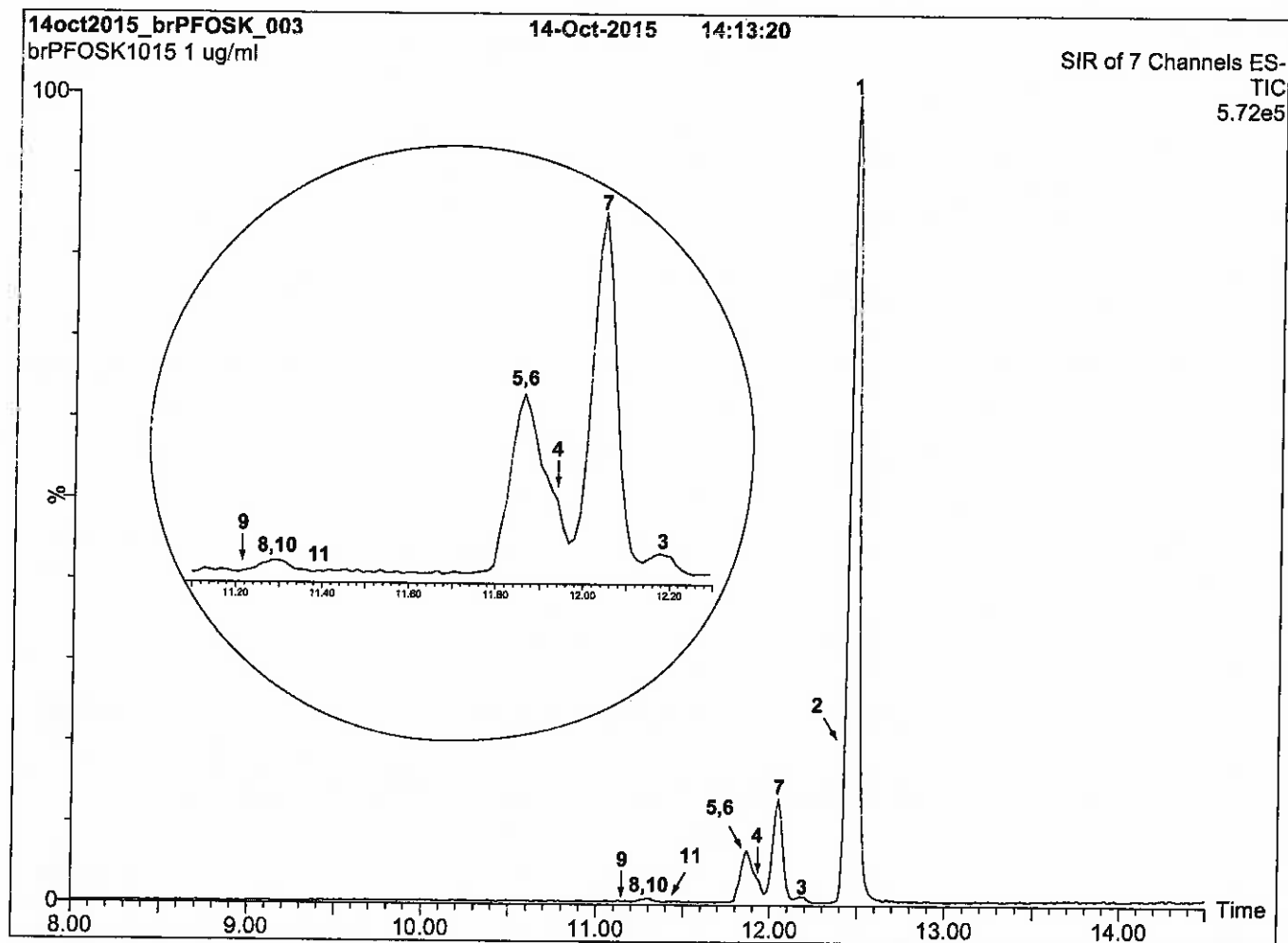
Flow: 300 μ l/min

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

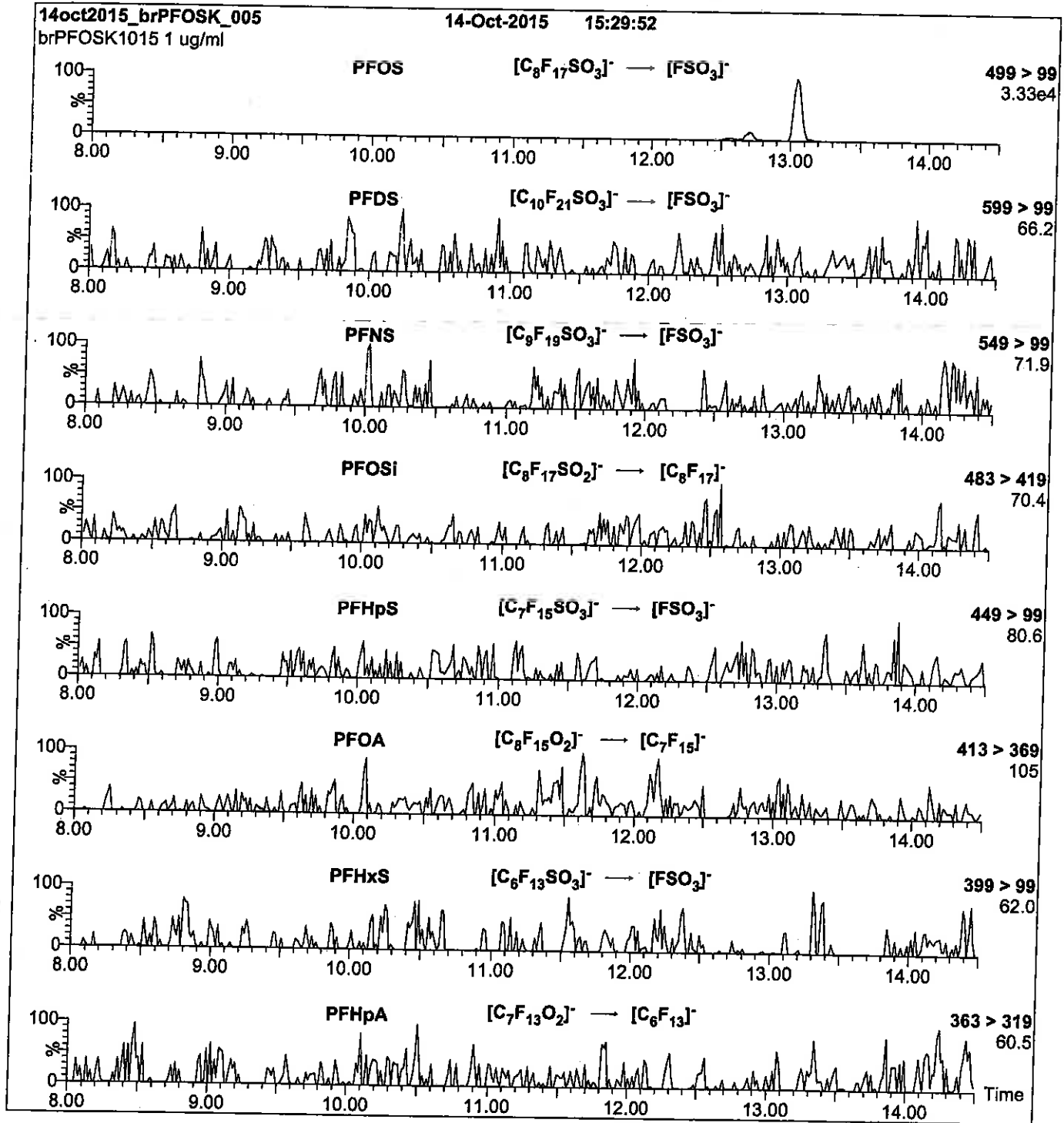
Chromatographic Conditions:

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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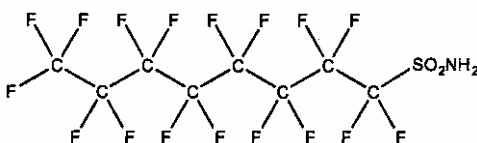
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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: $50 \pm 2.5 \mu\text{g/ml}$
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 09/11/2015

(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:

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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HOMOGENEITY:

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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:

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.

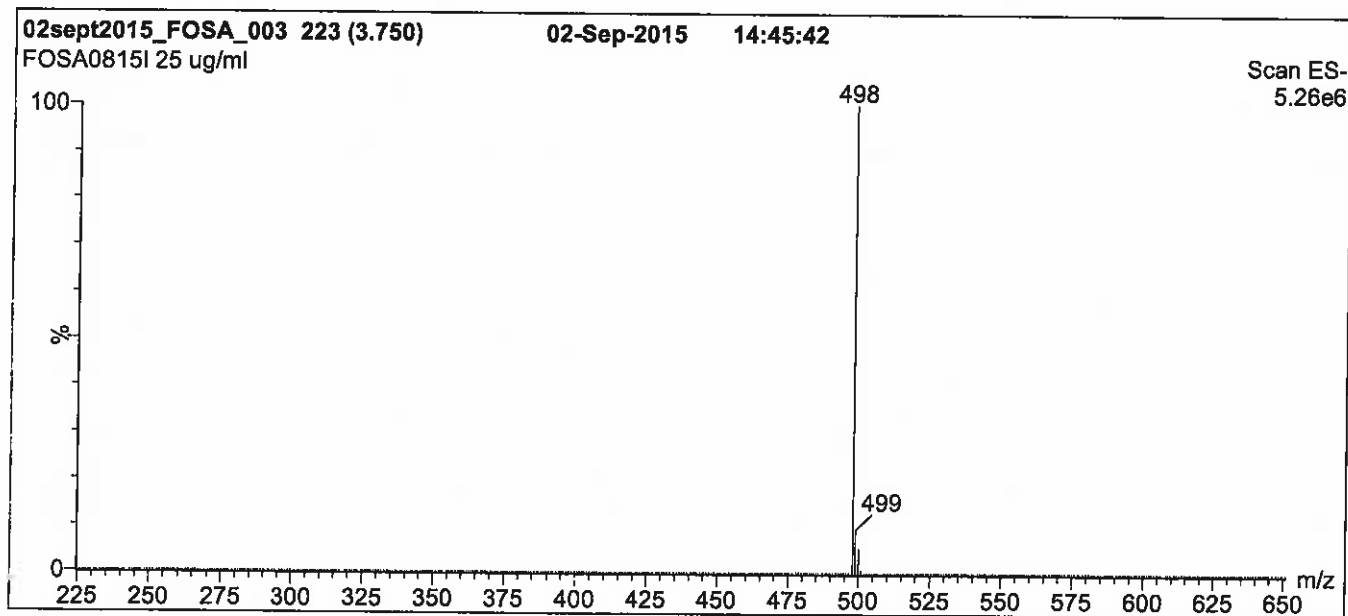
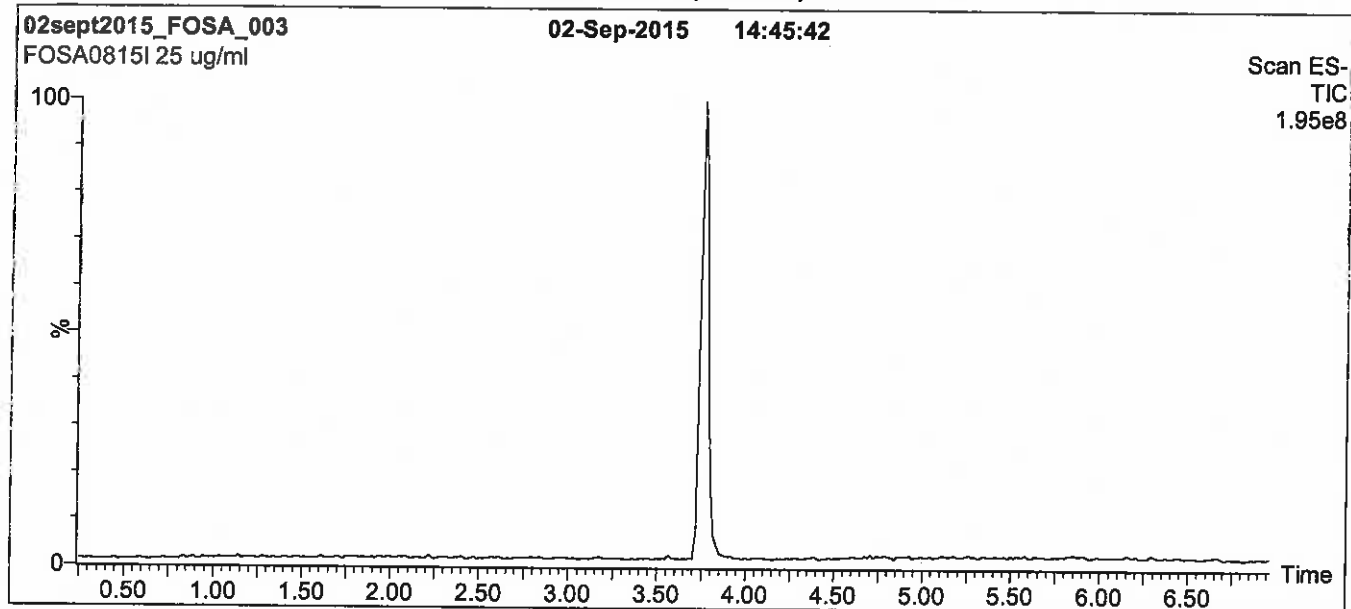
QUALITY MANAGEMENT:

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: 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

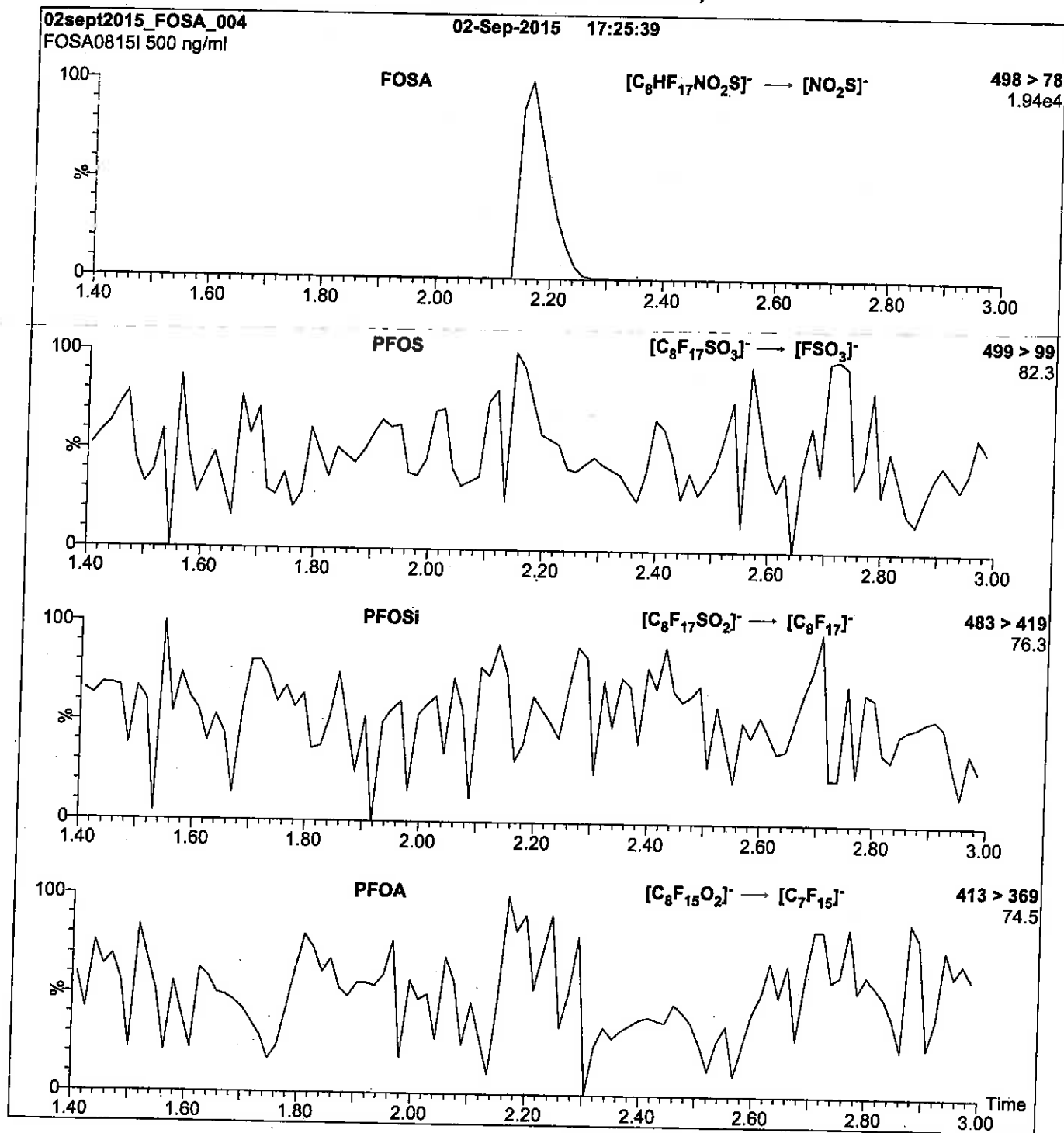
Flow: 300 μ l/min

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:

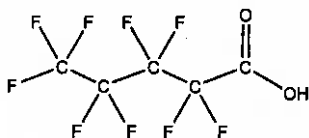
PFPeA0115

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
 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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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:

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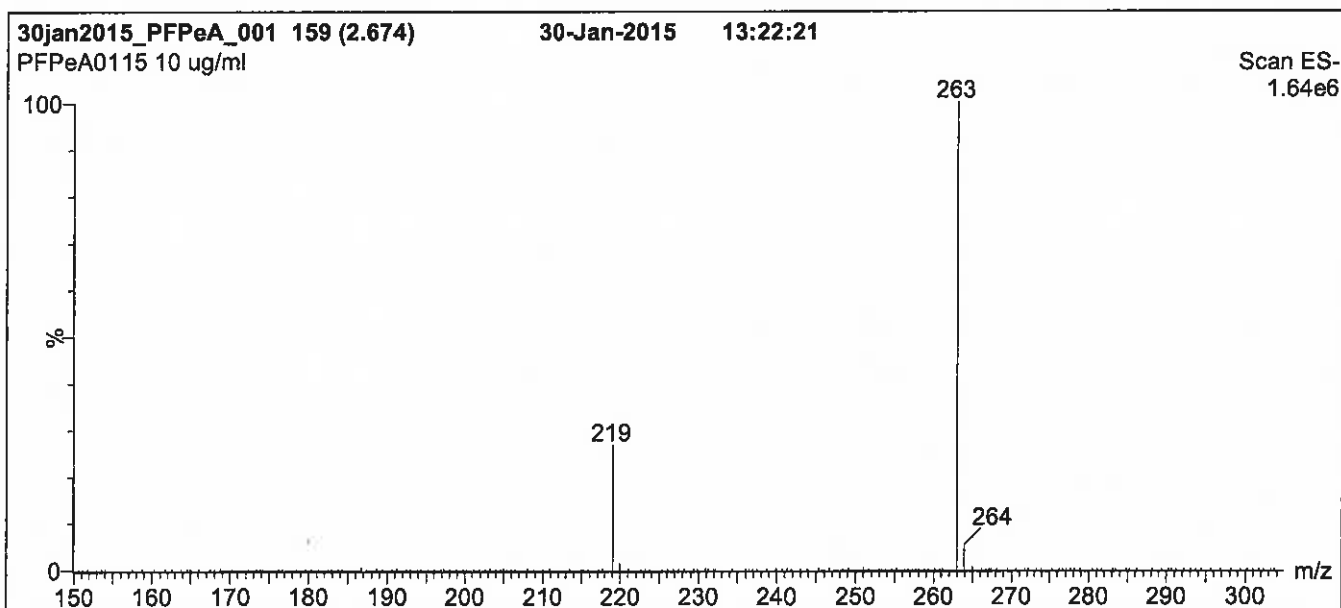
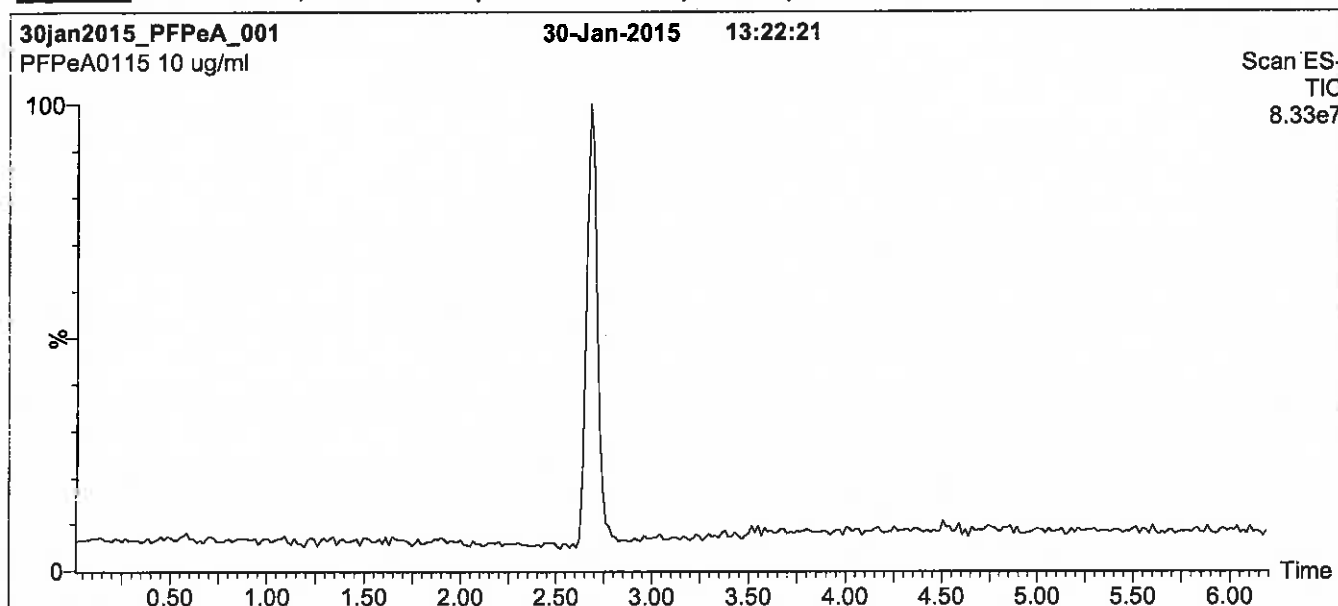
QUALITY MANAGEMENT:

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: PFPeA; 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 7.5 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

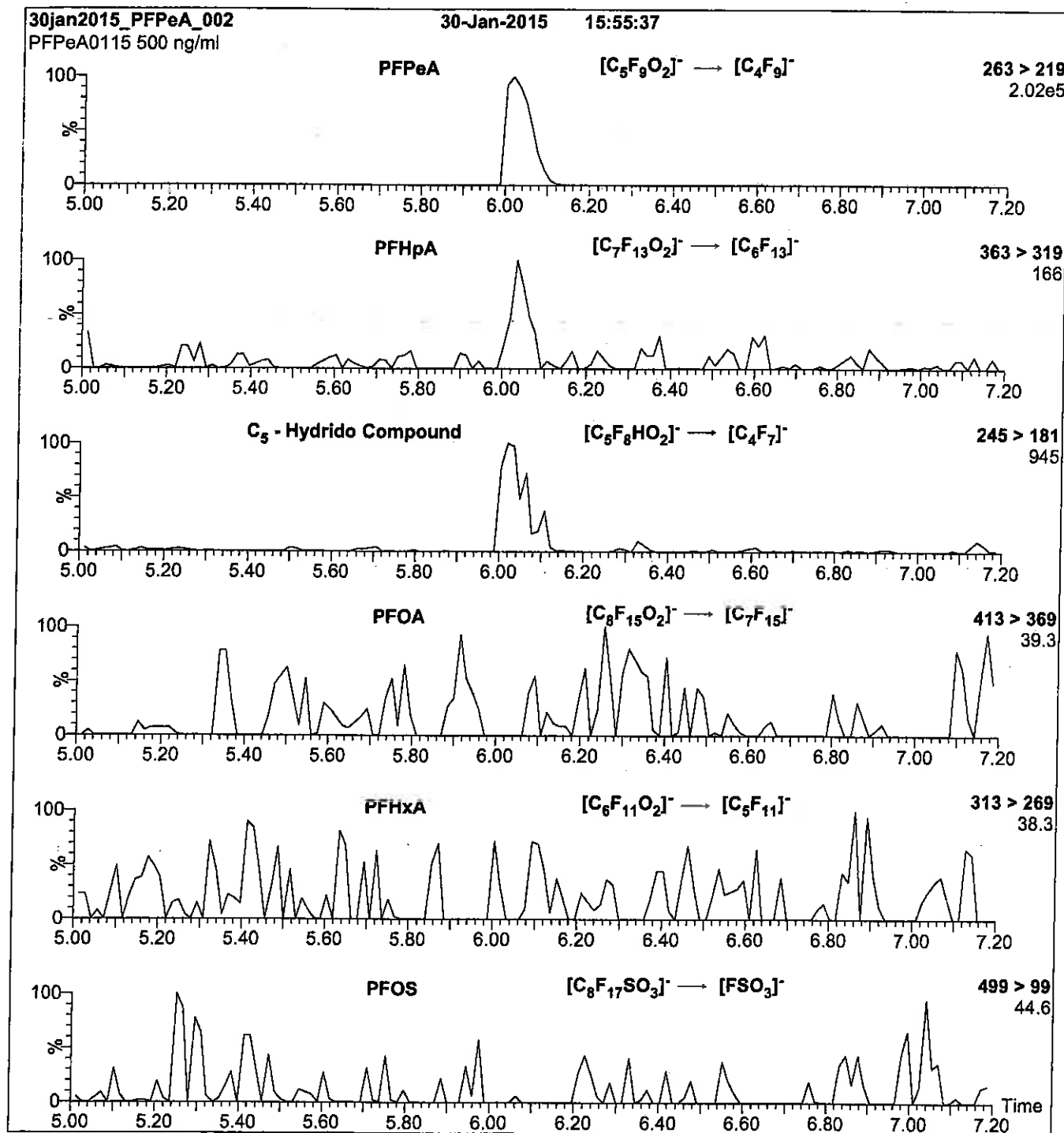
Flow: 300 μ l/min

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) = 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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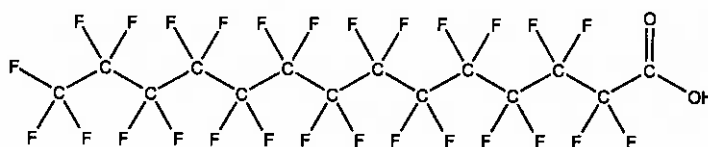
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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
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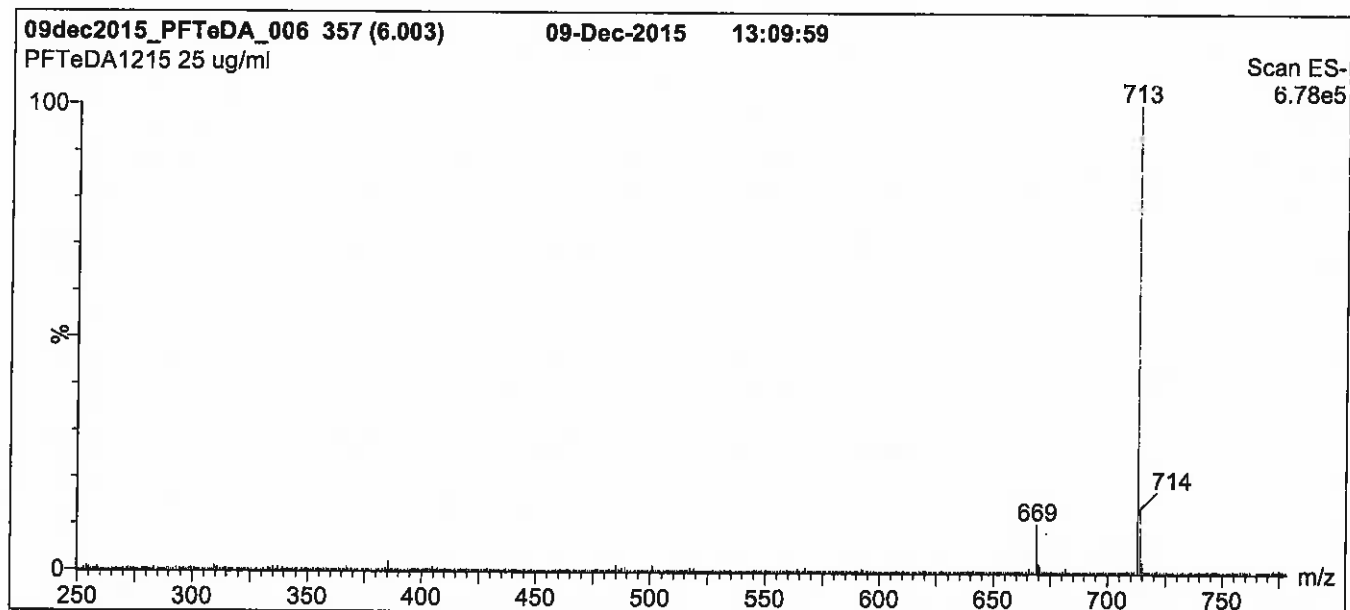
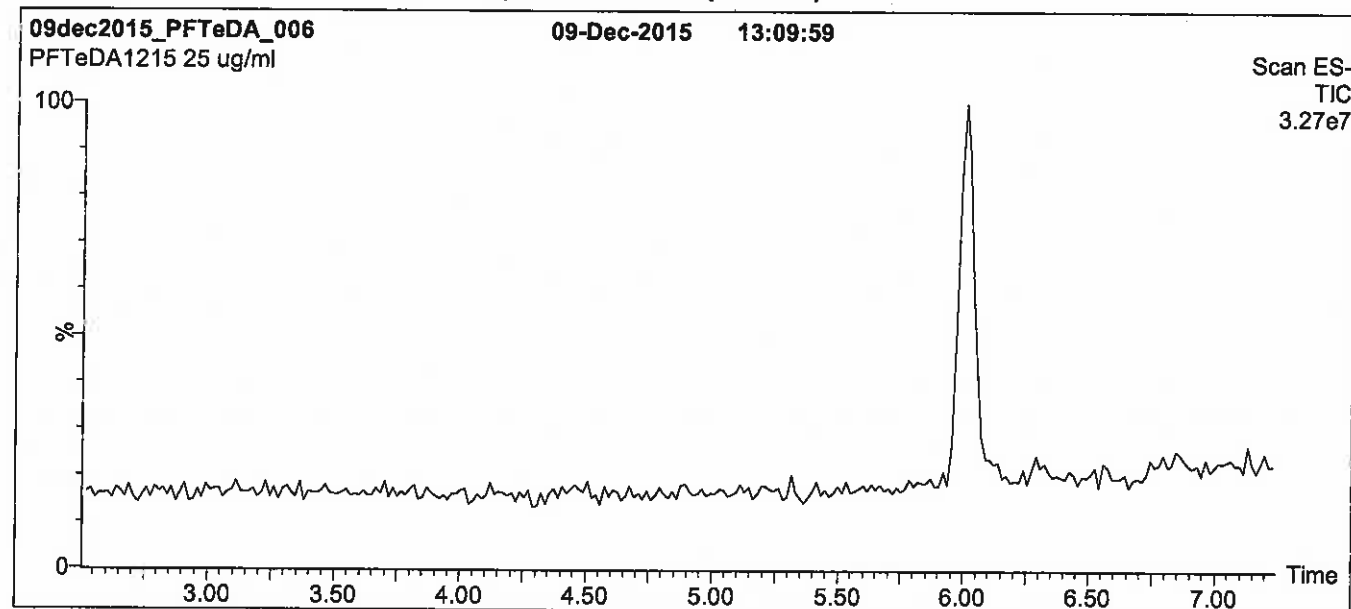
QUALITY MANAGEMENT:

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: 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

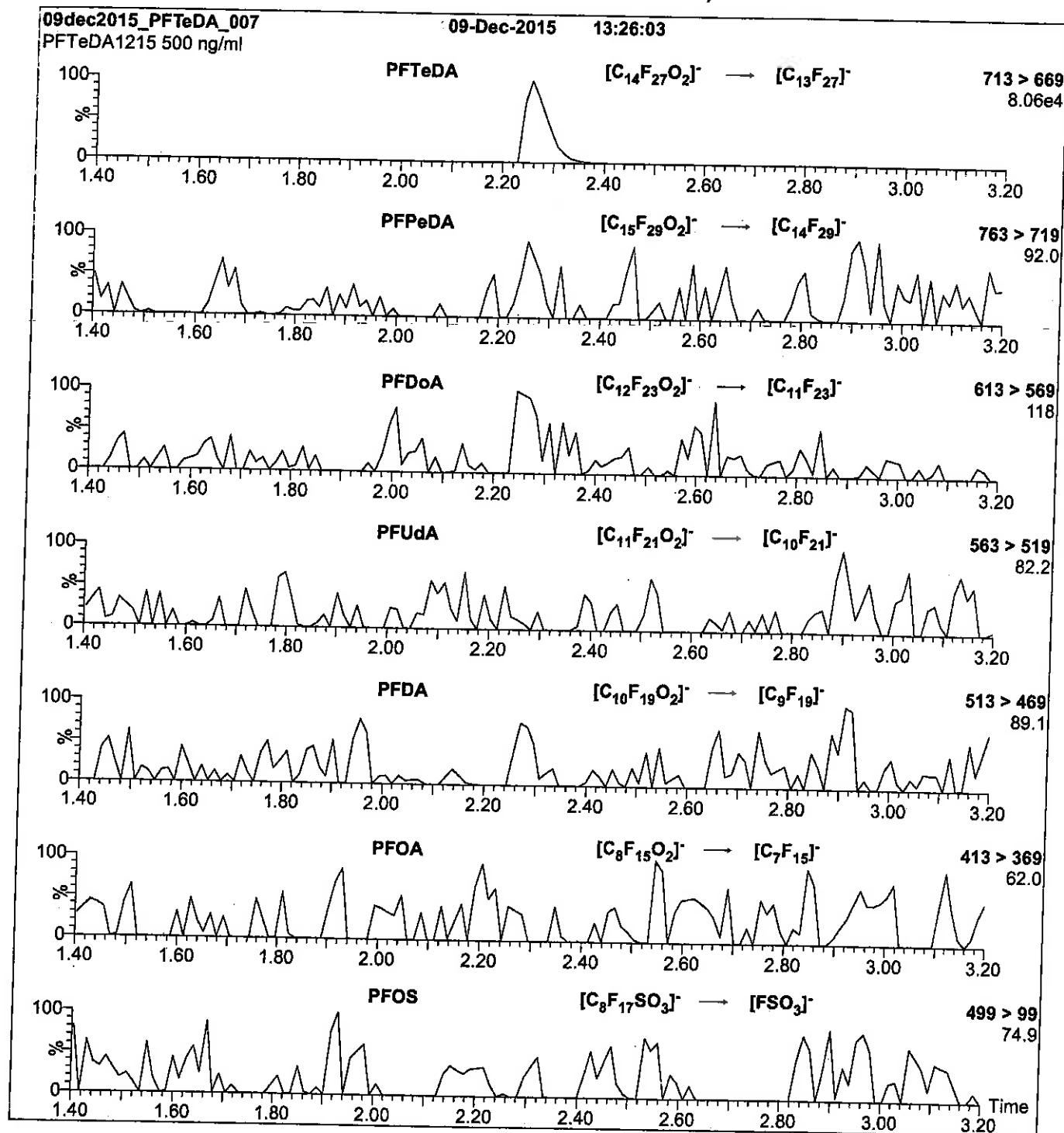
Flow: 300 μ l/min

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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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFTTrDA

LOT NUMBER:

PFTTrDA0216

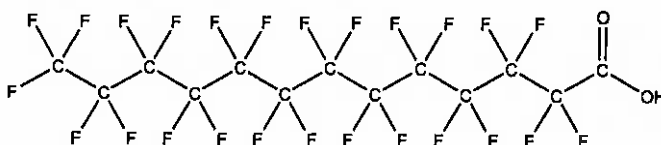
COMPOUND:

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 PFDoA ($C_{12}H_{23}O_2$), 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:

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.

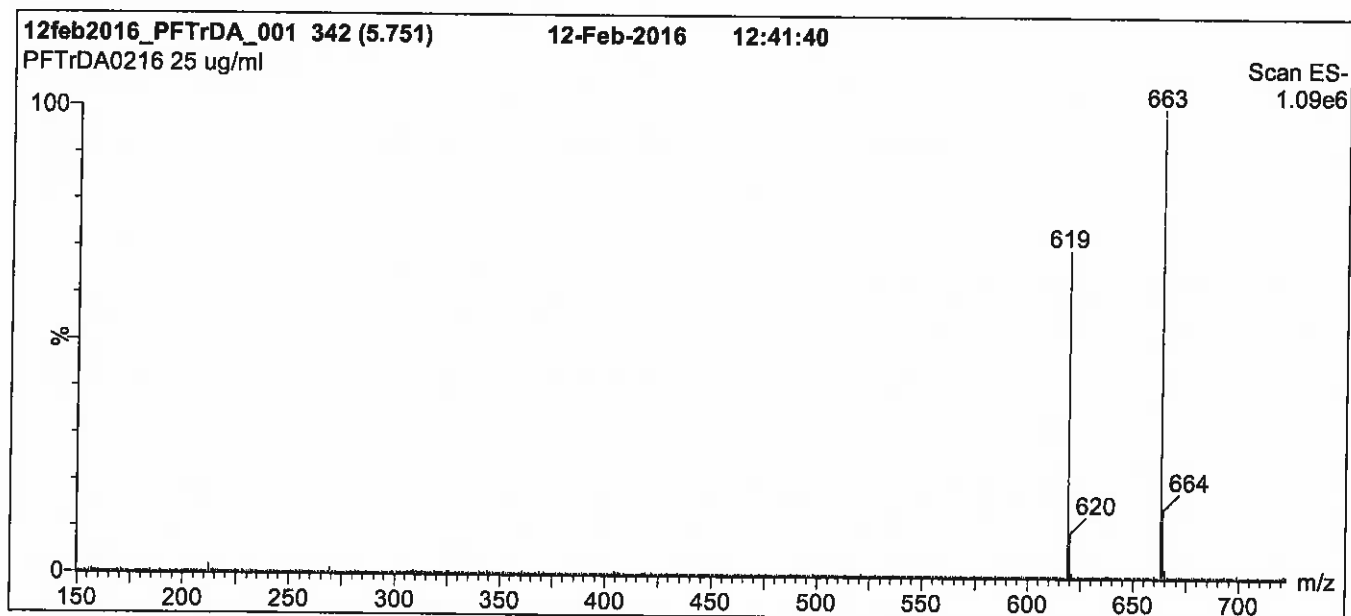
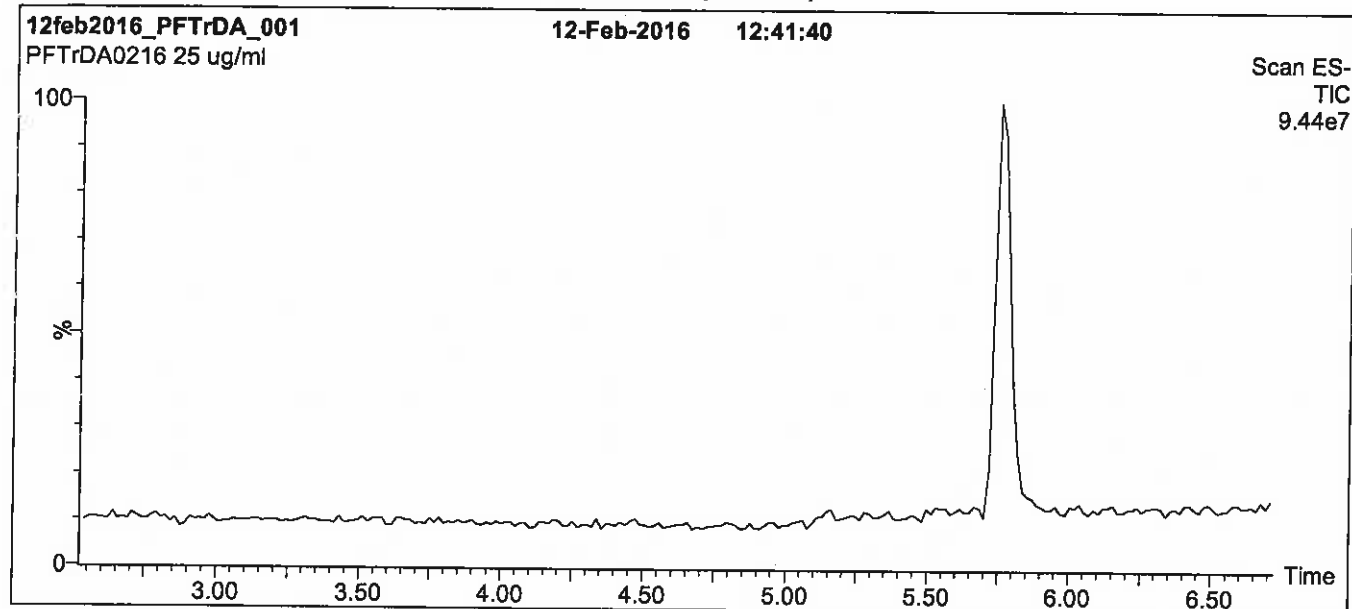
QUALITY MANAGEMENT:

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: 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

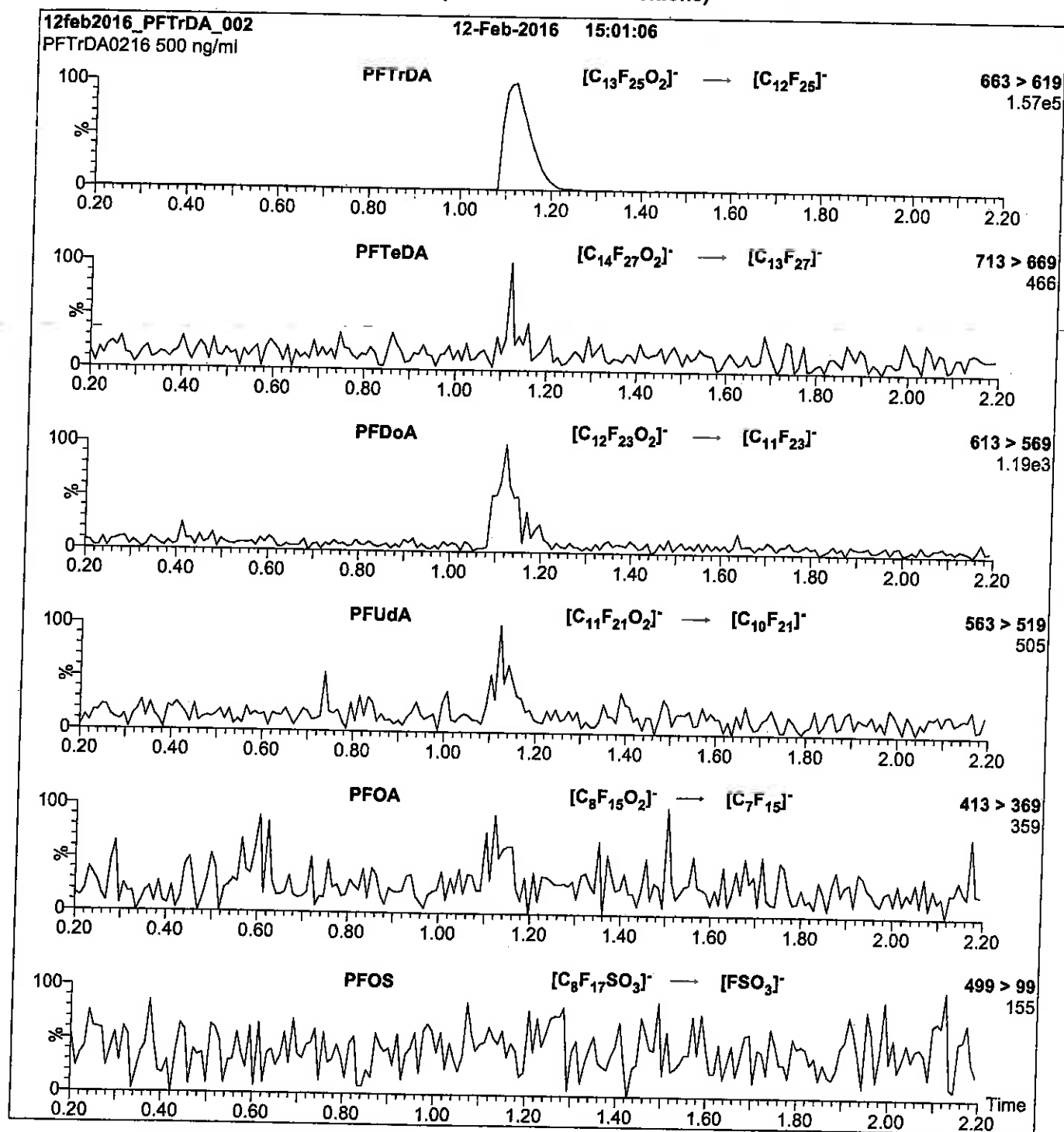
Flow: 300 μ l/min

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



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFUdA

LOT NUMBER:

PFUdA0815

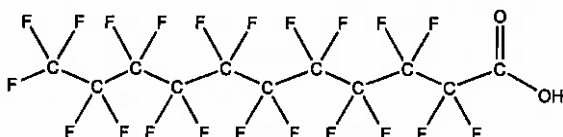
COMPOUND:

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

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

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

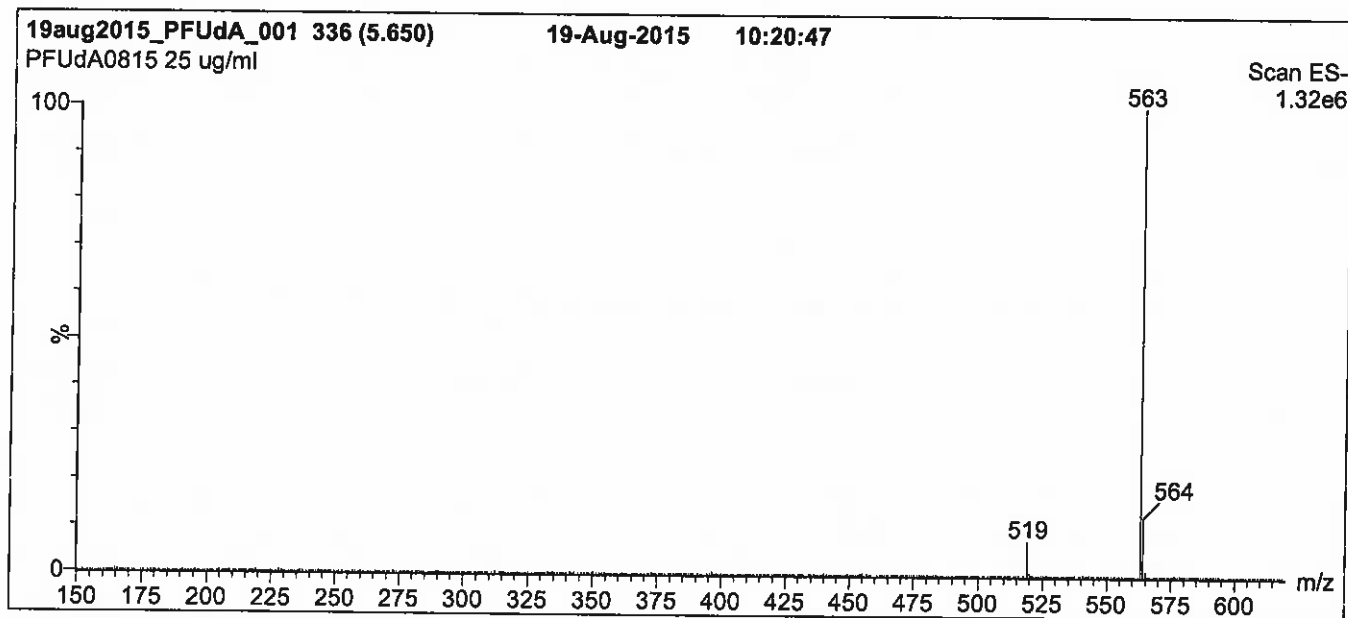
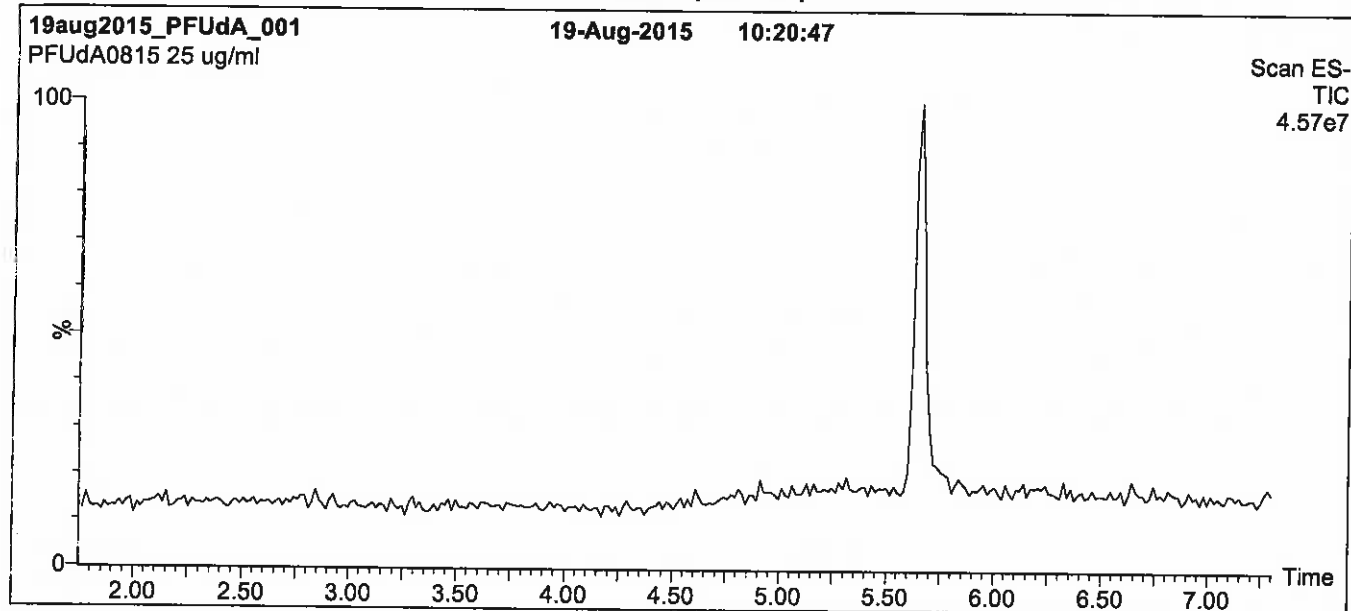
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Figure 1: PFUdA; LC/MS Data (TIC and Mass Spectrum)



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

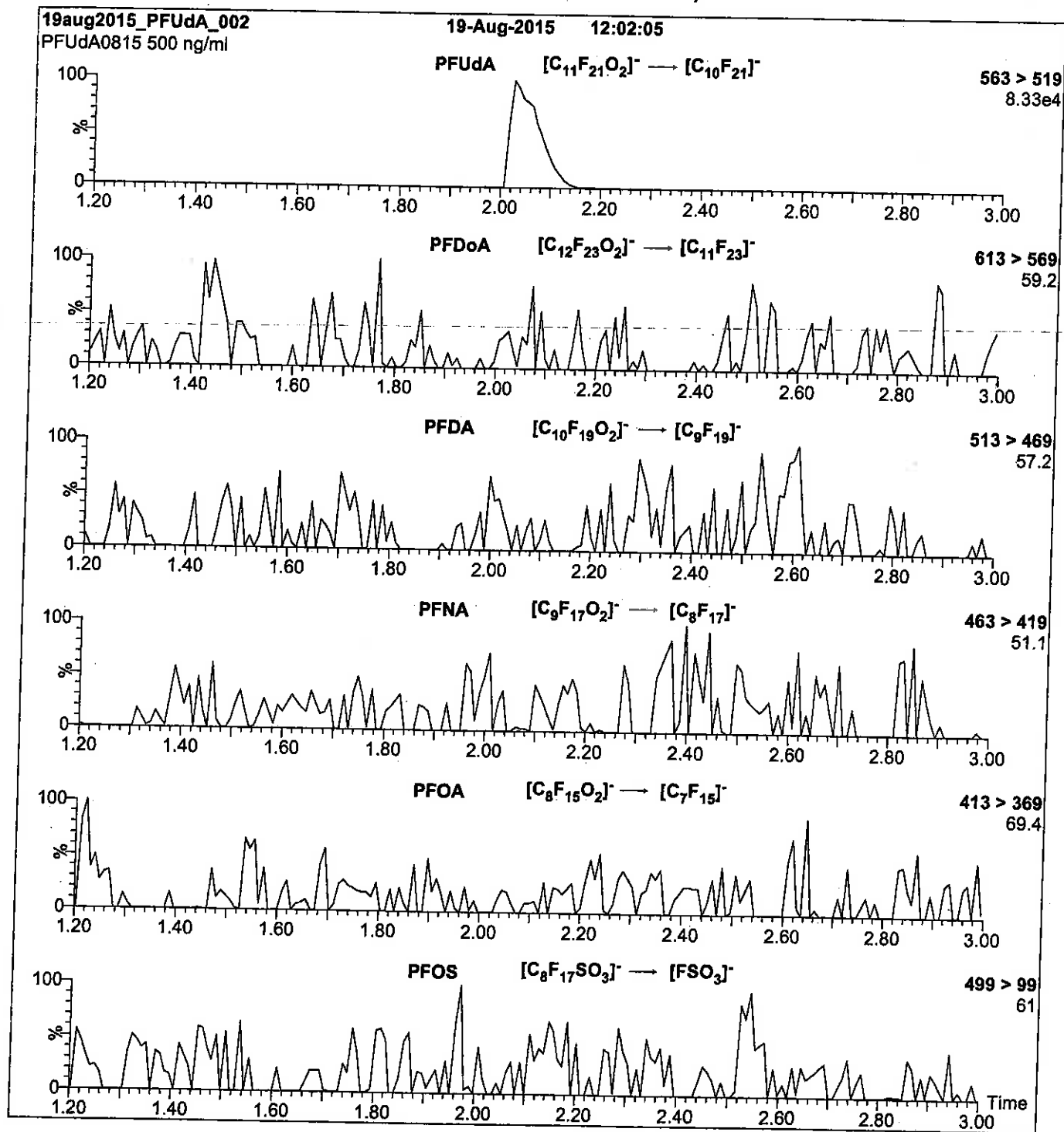
Flow: 300 μ l/min

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

Reagent

MS14DIC_00007



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 **Lot No.:** A0124653
Description : 1,4-dioxane
1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : February 28, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	1,4-Dioxane CAS # 123-91-1 Purity 99% (Lot SHBG6312V)	1,984.0 µg/mL	+/- 11.7844 µg/mL Gravimetric +/- 42.5460 µg/mL Unstressed +/- 43.7790 µg/mL Stressed

Solvent: Methylene Chloride (MEOH FREE)
 CAS # 75-09-2
 Purity 99%

Column:

105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:

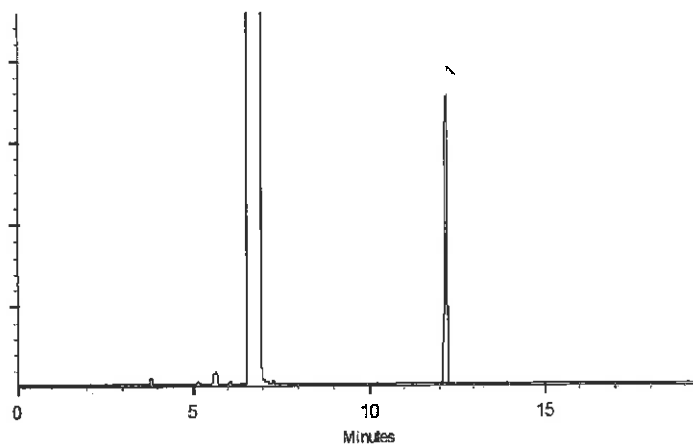
200°C

Det. Temp:

250°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckal - Mix Technician

Date Mixed: 02-Feb-2017

Balance: 1128360905

Justine Albertson - Operations Tech-ARM GC

Date Passed: 06-Feb-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS14DTA_00022

Certificate of Analysis

Description: 1,4-Dioxane, 1x1ml, methanol, 2000ug/ml

Catalog Number: CRM48367

Lot Number: LC16305V

Expiration: September 2018

Storage: Room Temperature

Instructions for Use:

This sample is ready to use.
No additional sample preparation
is necessary.

Analyte	CAS Number	Certified Conc. ug/mL	Uncertainty ug/mL	k
1,4-Dioxane	123-91-1	2000	+/- 58.2	2.00

Manufactured and certified by Sigma-Aldrich RTC, Inc.



Page 1 of 2

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Notes:

- Certified value – based on a prepared to value and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.
- Expanded Uncertainty – Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a t-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.
- k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Confidence interval = 95%
- Traceability: The standard was manufactured under an ISO/IEC certified quality system. The balance used to weight raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SMRs were available or other certified reference material as specified by each analyte.
- Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See instructions for minimum sub-sample size.

Certification Date: 9/25/2015
Form: CRM48367


Duane Funk
QC Manager

Manufactured and certified by Sigma-Aldrich RTC, Inc.



Page 2 of 2

SIGMA-ALDRICH®

Reagent

MS14DTA_00023



110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 Lot No.: A0121319
Description : 1,4-dioxane
1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul
Container Size : 2 mL Pkg Amt: > 1 mL
Expiration Date : August 31, 2021 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	1,4-Dioxane CAS # 123-91-1 Purity 99% (Lot SHBG1461V)	2,001.0 µg/mL	+/- 11.7430 µg/mL Gravimetric +/- 42.8714 µg/mL Unstressed +/- 44.1160 µg/mL Stressed

Solvent: Methylene Chloride (MEOH FREE)
CAS # 75-09-2
Purity 99%

Column:

105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

Carrier Gas:

hydrogen-constant pressure 11.0 psi.

Temp. Program:

40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:

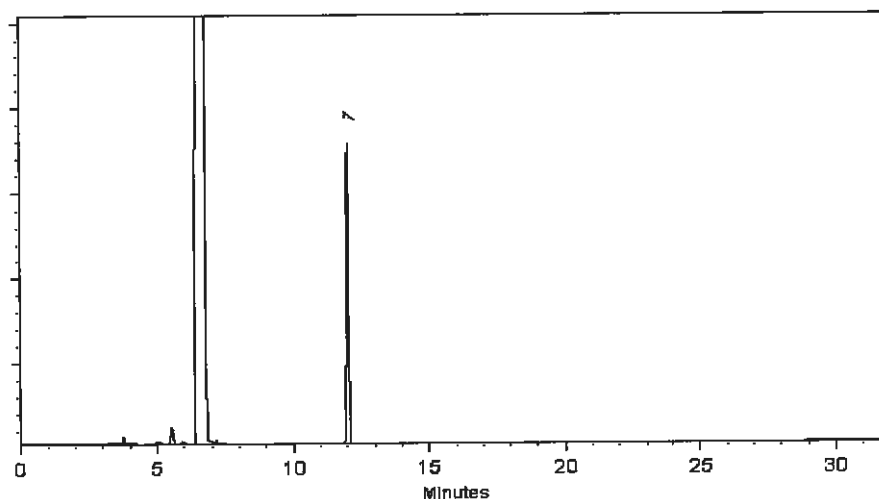
200°C

Det. Temp:

250°C

Det. Type:

FID

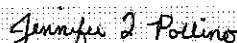


This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Dawn Brownson - Mix Technician

Date Mixed: 31-Aug-2016

Balance: 1128360905


Jennifer L. Pollino - QC Analyst

Date Passed: 02-Sep-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS8270IS_00016



110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567684 **Lot No.:** A0120796

Description : 8270 Internal Standard

8270 Internal Standard 2,000µg/mL, Methylene Chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : August 31, 2021 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)
1	1,4-Dichlorobenzene-d4 CAS # 3855-82-1 (Lot PR-18488) Purity 99%	2,008.2 µg/mL	+/- 11.6758 µg/mL Gravimetric +/- 90.4505 µg/mL Unstressed +/- 100.3660 µg/mL Stressed
2	Naphthalene-d8 CAS # 1146-65-2 (Lot M-1452) Purity 99%	2,004.0 µg/mL	+/- 11.6514 µg/mL Gravimetric +/- 90.2614 µg/mL Unstressed +/- 100.1561 µg/mL Stressed
3	Acenaphthene-d10 CAS # 15067-26-2 (Lot PR-25444) Purity 99%	2,007.7 µg/mL	+/- 11.6729 µg/mL Gravimetric +/- 90.4280 µg/mL Unstressed +/- 100.3410 µg/mL Stressed
4	Phenanthrene-d10 CAS # 1517-22-2 (Lot PR-23065) Purity 99%	2,011.4 µg/mL	+/- 11.6945 µg/mL Gravimetric +/- 90.5947 µg/mL Unstressed +/- 100.5260 µg/mL Stressed
5	Chrysene-d12 CAS # 1719-03-5 (Lot PR-26678) Purity 98%	2,018.8 µg/mL	+/- 11.7375 µg/mL Gravimetric +/- 90.9280 µg/mL Unstressed +/- 100.8958 µg/mL Stressed
6	Perylene-d12 CAS # 1520-96-3 (Lot PR-24113) Purity 99%	2,002.6 µg/mL	+/- 11.6433 µg/mL Gravimetric +/- 90.1983 µg/mL Unstressed +/- 100.0862 µg/mL Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

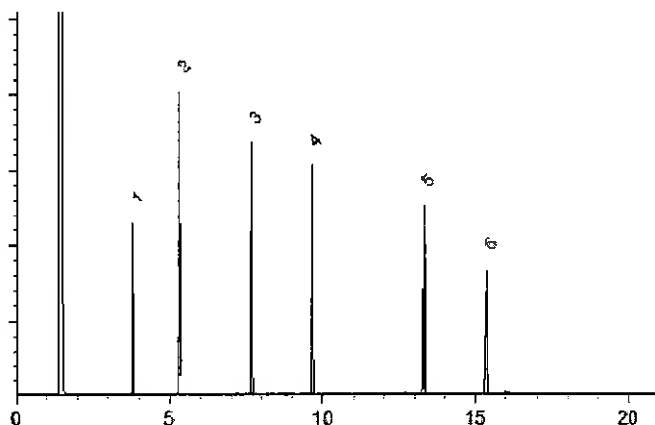
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Dawn Brownson - Mix Technician

Date Mixed: 03-Aug-2016 **Balance:** 1128353505


Dawn Brownson - QC Analyst

Date Passed: 05-Aug-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS8270SU_00094

RESTEK® CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 570814 **Lot No.:** A0117528

Description : 8270 Surrogate Standard RTS with Indicator

8270 Surrogate Standard RTS with Indicator 100 µg/ml,
Methanol/Methylene Chloride (95:5), 100 ml/bottle

Container Size : 100 mL **Pkg Amt:** > 100 mL

Expiration Date : February 28, 2019 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2-Fluorophenol CAS # 367-12-4 Purity 99% (Lot STBC5591V)	100.5 µg/mL	+/- 0.5843 +/- 2.9326 +/- 3.5586	µg/mL Gravimetric Unstressed Stressed
2	Phenol-d5 CAS # 4165-62-2 Purity 99% (Lot X479P8)	100.2 µg/mL	+/- 0.5827 +/- 2.9250 +/- 3.5494	µg/mL Gravimetric Unstressed Stressed
3	Nitrobenzene-d5 CAS # 4165-60-0 Purity 99% (Lot PR-24042)	100.0 µg/mL	+/- 0.5814 +/- 2.9183 +/- 3.5413	µg/mL Gravimetric Unstressed Stressed
4	2-Fluorobiphenyl CAS # 321-60-8 Purity 99% (Lot S26B003)	100.0 µg/mL	+/- 0.5815 +/- 2.9186 +/- 3.5416	µg/mL Gravimetric Unstressed Stressed
5	2,4,6-Tribromophenol CAS # 118-79-6 Purity 99% (Lot 29699MJV)	100.6 µg/mL	+/- 0.5846 +/- 2.9344 +/- 3.5608	µg/mL Gravimetric Unstressed Stressed
6	p-Terphenyl-d14 CAS # 1718-51-0 Purity 99% (Lot PR-21037)	100.0 µg/mL	+/- 0.5814 +/- 2.9183 +/- 3.5413	µg/mL Gravimetric Unstressed Stressed

Solvent: Methanol/Methylene Chloride (95:5)
CAS # 67-56-1/75-09-2
Purity 99%

Tech Tips:

Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:

30m x 0.25mm x 0.25µm
Rtx-S (cat.#10223)

Carrier Gas:

hydrogen-constant flow 1.8 mL/min.

Temp. Program:

80°C (hold 0.1 min.) to 330°C
@ 9.6°C/min. (hold 0.86 min.)

Inj. Temp:

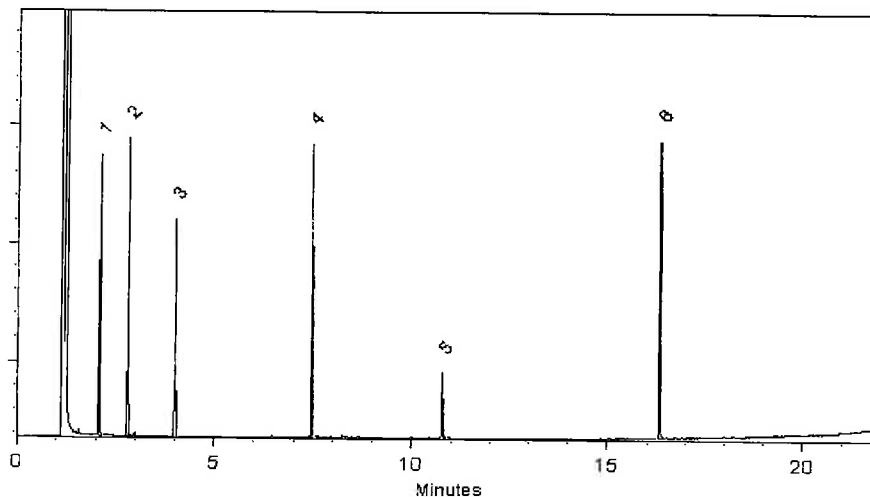
250°C

Det. Temp:

340°C

Det. Type:

FID




This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Brandon Cook - Mix Technician

Date Mixed: 23-Feb-2016

Balance: B442140311


Amanda Miller - QC Analyst

Date Passed: 26-Feb-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MS8270SU_00100



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567685 Lot No.: A0103960
Description : 8270 Surrogate Standard
8270 Surrogate Standard 5,000 ug/ml, Methylene Chloride, 5 ml/ampul
Container Size : 5 mL Pkg Amt: > 5 mL
Expiration Date : June 30, 2019 Storage: 10°C or colder
Handling: Sonicate prior to use.

Rec'd 4/22/16

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)
1	2-Fluorophenol CAS # 367-12-4 (Lot STBC5591V) Purity 99%	5,006.1 µg/mL	+/- 29.1044 µg/mL Gravimetric +/- 124.7363 µg/mL Unstressed +/- 156.8636 µg/mL Stressed
2	Phenol-d5 CAS # 4165-62-2 (Lot X479P6) Purity 99%	5,002.5 µg/mL	+/- 29.0834 µg/mL Gravimetric +/- 124.6466 µg/mL Unstressed +/- 156.7508 µg/mL Stressed
3	Nitrobenzene-d5 CAS # 4165-60-0 (Lot PR-20474) Purity 99%	5,003.7 µg/mL	+/- 29.0901 µg/mL Gravimetric +/- 124.6753 µg/mL Unstressed +/- 156.7868 µg/mL Stressed
4	2-Fluorobiphenyl CAS # 321-60-8 (Lot B19Z016) Purity 99%	5,002.4 µg/mL	+/- 29.0826 µg/mL Gravimetric +/- 124.6429 µg/mL Unstressed +/- 156.7461 µg/mL Stressed
5	2,4,6-Tribromophenol CAS # 118-79-6 (Lot 29699MJV) Purity 99%	5,024.2 µg/mL	+/- 29.2093 µg/mL Gravimetric +/- 125.1861 µg/mL Unstressed +/- 157.4292 µg/mL Stressed
6	p-Terphenyl-d14 CAS # 1718-51-0 (Lot PR-20577) Purity 99%	5,010.4 µg/mL	+/- 29.1291 µg/mL Gravimetric +/- 124.8422 µg/mL Unstressed +/- 156.9968 µg/mL Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

Tech Tips:

Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:

30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

Carrier Gas:

hydrogen-constant pressure 10 psi.

Temp. Program:

40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:

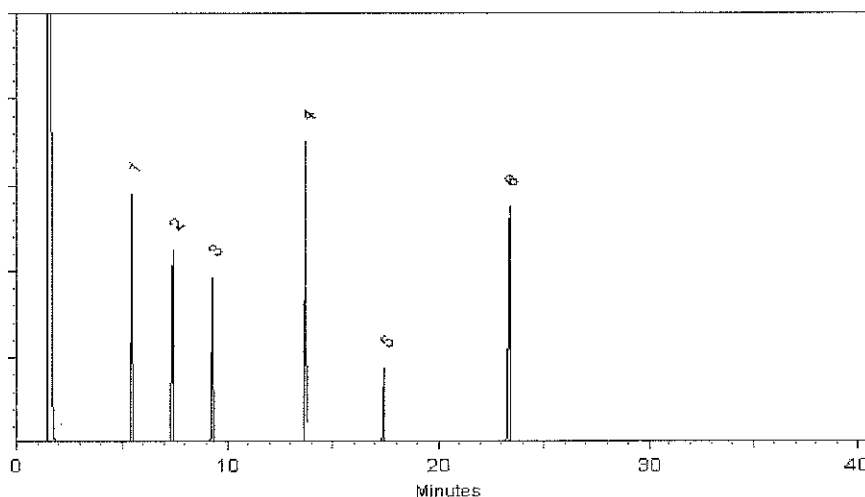
250°C

Det. Temp:

330°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Rebecca Hawes

Date Mixed: 11-Jun-2014

Balance: 1128360905

Jennifer L. Pollino
Jennifer L. Pollino - QC Analyst

Date Passed: 23-Jun-2014

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Method 8270C SIM

Semivolatile Organic Compounds
(GC/MS SIM) by Method 8270C (SIM)

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-26103-1

SDG No.: _____

Matrix: Water

Level: Low

GC Column (1): HP-5MS ID: 0.25 (mm)

Client Sample ID	Lab Sample ID	NBZ #
MEAFF-MRD-0504-021 7	320-26103-6	72
MEAFF-MRD-0621-021 7	320-26103-7	58
MEAFF-MRD-0503-021 7	320-26103-11	68
MEAFF-MRD-0615-021 7	320-26103-12	59
	MB 320-152910/1-A	69
	LCS 320-152910/2-A	73
	LCSD 320-152910/3-A	74

NBZ = Nitrobenzene-d5

QC LIMITS
42-91

Column to be used to flag recovery values

FORM II WS-MS-0011

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: S031402.D
Lab ID: LCS 320-152910/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	10.0	3.23	32	12-52	M

Column to be used to flag recovery and RPD values

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: S031403.D
Lab ID: LCSD 320-152910/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	10.0	3.00	30	7	20	12-52	M

Column to be used to flag recovery and RPD values

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Lab File ID: S031401.D Lab Sample ID: MB 320-152910/1-A
Matrix: Water Date Extracted: 03/02/2017 13:45
Instrument ID: SV1 Date Analyzed: 03/14/2017 15:04
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-152910/2-A	S031402.D	03/14/2017 15:27
	LCSD 320-152910/3-A	S031403.D	03/14/2017 15:49
MEAFF-MRD-0504-0217	320-26103-6	S031404.D	03/14/2017 16:12
MEAFF-MRD-0621-0217	320-26103-7	S031405.D	03/14/2017 16:35
MEAFF-MRD-0503-0217	320-26103-11	S031406.D	03/14/2017 16:57
MEAFF-MRD-0615-0217	320-26103-12	S031407.D	03/14/2017 17:20

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Sample No.: ICIS 320-151686/5 Date Analyzed: 02/22/2017 11:03
 Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm)
 Lab File ID (Standard): 14D0222E.D Heated Purge: (Y/N) N
 Calibration ID: 28577

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		786305	7.20				
UPPER LIMIT		1572610	7.70				
LOWER LIMIT		393153	6.70				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 320-151686/9		879747	7.20				
CCV 320-154875/2		683060	7.17				
MB 320-152910/1-A		701549	7.17				
LCS 320-152910/2-A		668815	7.17				
LCSD 320-152910/3-A		666531	7.17				
320-26103-6	MEAFF-MRD-0504-0217	589375	7.17				
320-26103-7	MEAFF-MRD-0621-0217	647073	7.17				
320-26103-11	MEAFF-MRD-0503-0217	612220	7.17				
320-26103-12	MEAFF-MRD-0615-0217	676372	7.17				
CCVC 320-154875/29		679174	7.17				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
 RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Client Sample ID: MEAFF-MRD-0504-0217 Lab Sample ID: 320-26103-6
Matrix: Water Lab File ID: S031404.D
Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 14:30
Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
Sample wt/vol: 1067.4 (mL) Date Analyzed: 03/14/2017 16:12
Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.47	U	0.94	0.47	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	72		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031404.D
 Lims ID: 320-26103-A-6-A
 Client ID: MEAFF-MRD-0504-0217
 Sample Type: Client
 Inject. Date: 14-Mar-2017 16:12:30 ALS Bottle#: 4 Worklist Smp#: 6
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-6-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 16:42:24

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane

58	3.320					ND			
88	3.320								

* 2 1,4-Dichlorobenzene-d4

152	7.173	7.172	0.001	100	589375	10.0	80- 120	100	
150	7.173	7.172	0.001		906691		135- 175	154	
115	7.173	7.172	0.001		326252		35.8- 75.8	55.4	

\$ 3 Nitrobenzene-d5

82	8.035	8.035	0.000	100	255024	3.58	80- 120	100	
128	8.043	8.035	0.008		135620		33.8- 73.8	53.2	
54	8.035	8.035	0.000		147634		37.5- 77.5	57.9	

Reagents:

MS8270IS_00016	Amount Added: 5.00	Units: uL	Run Reagent
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TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031404.D

Injection Date: 14-Mar-2017 16:12:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26103-A-6-A

Lab Sample ID: 320-26103-6

Worklist Smp#: 6

Client ID: MEAFF-MRD-0504-0217

Injection Vol: 1.0 ul

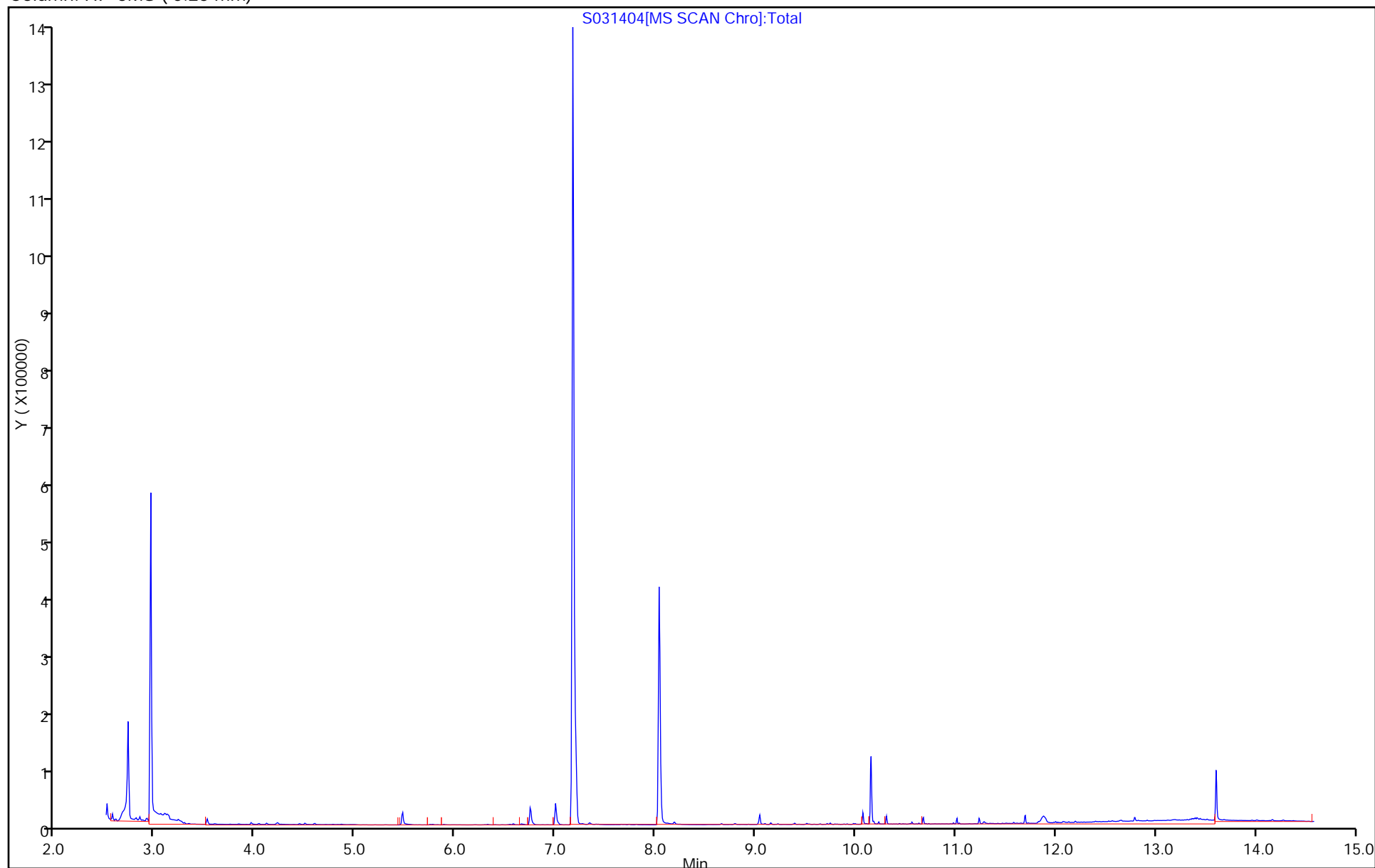
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031404.D
Lims ID: 320-26103-A-6-A
Client ID: MEAFF-MRD-0504-0217
Sample Type: Client
Inject. Date: 14-Mar-2017 16:12:30 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 320-26103-a-6-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 16:42:24

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.58	71.66

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Client Sample ID: MEAFF-MRD-0621-0217 Lab Sample ID: 320-26103-7
Matrix: Water Lab File ID: S031405.D
Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 16:00
Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
Sample wt/vol: 1057.6 (mL) Date Analyzed: 03/14/2017 16:35
Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.47	U	0.95	0.47	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	58		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031405.D
 Lims ID: 320-26103-C-7-A
 Client ID: MEAFF-MRD-0621-0217
 Sample Type: Client
 Inject. Date: 14-Mar-2017 16:35:30 ALS Bottle#: 5 Worklist Smp#: 7
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-c-7-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 17:05:08

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane

58	3.320					ND			
88	3.320								

* 2 1,4-Dichlorobenzene-d4

152	7.172	7.172	0.000	100	647073	10.0	80- 120	100	
150	7.172	7.172	0.000		1002456		135- 175	155	
115	7.172	7.172	0.000		362985		35.8- 75.8	56.1	

\$ 3 Nitrobenzene-d5

82	8.035	8.035	0.000	98	228357	2.92	80- 120	100	
128	8.043	8.035	0.008		121547		33.8- 73.8	53.2	
54	8.035	8.035	0.000		132330		37.5- 77.5	57.9	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031405.D

Injection Date: 14-Mar-2017 16:35:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26103-C-7-A

Lab Sample ID: 320-26103-7

Worklist Smp#: 7

Client ID: MEAFF-MRD-0621-0217

Injection Vol: 1.0 ul

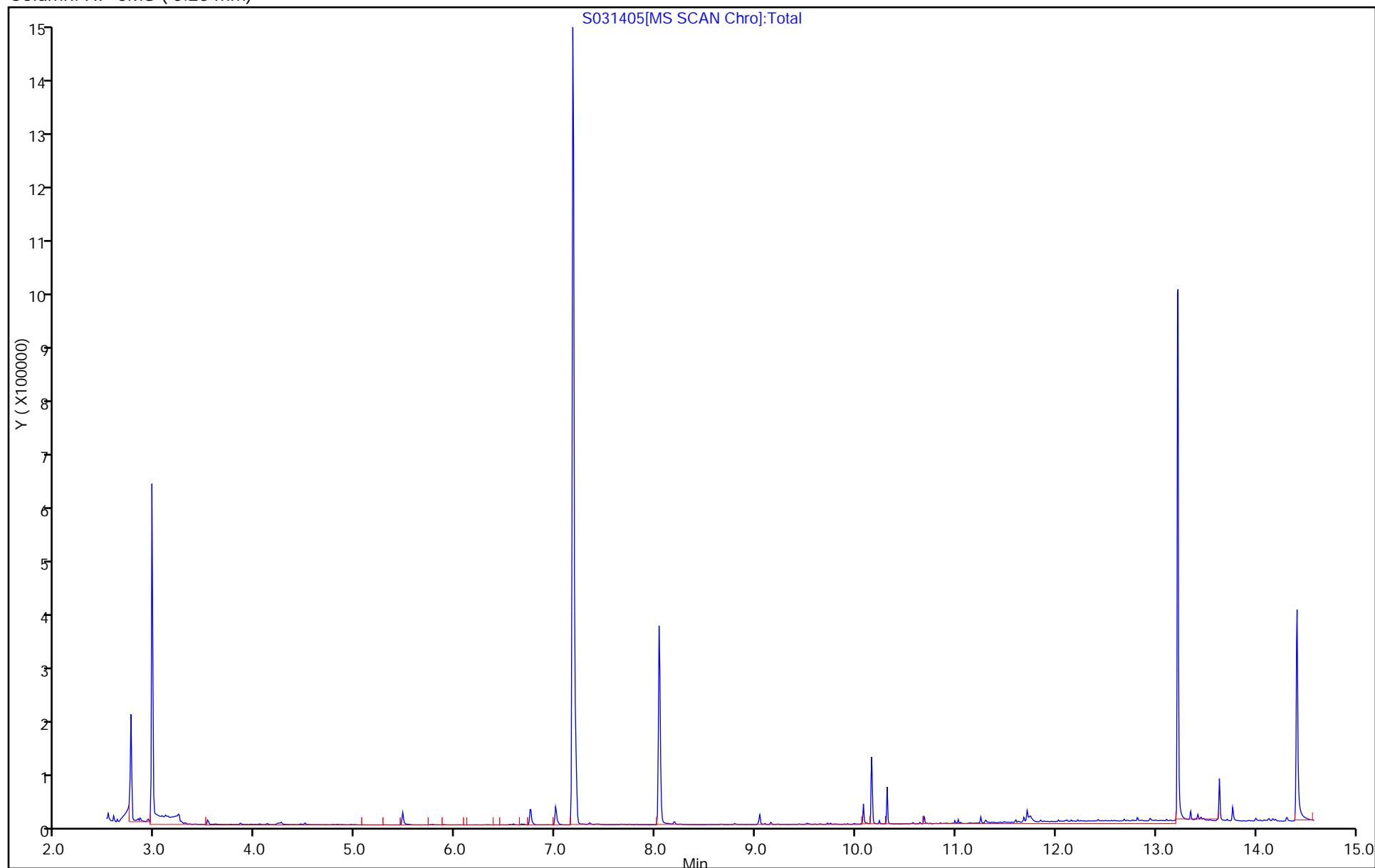
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031405.D
Lims ID: 320-26103-C-7-A
Client ID: MEAFF-MRD-0621-0217
Sample Type: Client
Inject. Date: 14-Mar-2017 16:35:30 ALS Bottle#: 5 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 320-26103-c-7-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 17:05:08

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	2.92	58.44

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0503-0217 Lab Sample ID: 320-26103-11
 Matrix: Water Lab File ID: S031406.D
 Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 14:35
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1034.8 (mL) Date Analyzed: 03/14/2017 16:57
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.97	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	68		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031406.D
 Lims ID: 320-26103-A-11-A
 Client ID: MEAFF-MRD-0503-0217
 Sample Type: Client
 Inject. Date: 14-Mar-2017 16:57:30 ALS Bottle#: 6 Worklist Smp#: 8
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-11-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 17:17:43

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane									
58	3.336	3.320	0.016	58	1252	0.0510	80- 120	100	7
88	3.336	3.320	0.016		6342		90- 130	507	
LOD = 0.1200									
* 2 1,4-Dichlorobenzene-d4									
152	7.173	7.172	0.001	100	612220	10.0	80- 120	100	
150	7.173	7.172	0.001		952892		135- 175	156	
115	7.173	7.172	0.001		342827		35.8- 75.8	56.0	
\$ 3 Nitrobenzene-d5									
82	8.036	8.035	0.001	100	249543	3.38	80- 120	100	
128	8.036	8.035	0.001		132548		33.8- 73.8	53.1	
54	8.036	8.035	0.001		143368		37.5- 77.5	57.5	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031406.D

Injection Date: 14-Mar-2017 16:57:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26103-A-11-A

Lab Sample ID: 320-26103-11

Worklist Smp#: 8

Client ID: MEAFF-MRD-0503-0217

Injection Vol: 1.0 ul

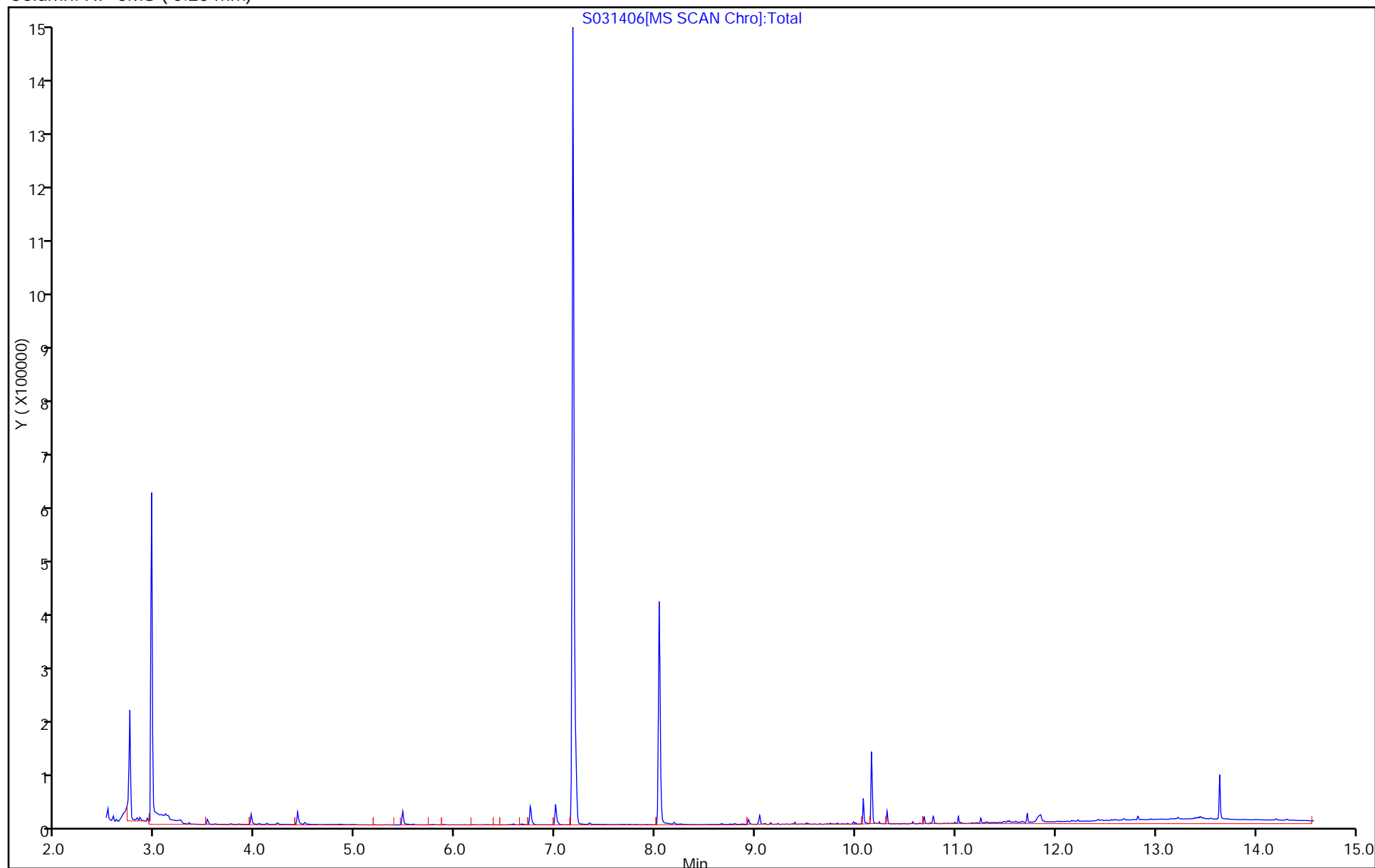
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031406.D
Lims ID: 320-26103-A-11-A
Client ID: MEAFF-MRD-0503-0217
Sample Type: Client
Inject. Date: 14-Mar-2017 16:57:30 ALS Bottle#: 6 Worklist Smp#: 8
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 320-26103-a-11-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 17:17:43

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.38	67.50

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0615-0217 Lab Sample ID: 320-26103-12
 Matrix: Water Lab File ID: S031407.D
 Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 16:05
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1026.3 (mL) Date Analyzed: 03/14/2017 17:20
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.49	U	0.97	0.49	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	59		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031407.D
 Lims ID: 320-26103-D-12-A
 Client ID: MEAFF-MRD-0615-0217
 Sample Type: Client
 Inject. Date: 14-Mar-2017 17:20:30 ALS Bottle#: 7 Worklist Smp#: 9
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-d-12-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 14-Mar-2017 17:39:59 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK005

First Level Reviewer: onishim

Date: 14-Mar-2017 17:40:11

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane									
58	3.337	3.320	0.017	30	2038	0.0751	80- 120	100	7
88	3.337	3.320	0.017		3440		90- 130	169	
LOD = 0.1200									
* 2 1,4-Dichlorobenzene-d4									
152	7.173	7.172	0.001	100	676372	10.0	80- 120	100	
150	7.173	7.172	0.001		1049684		135- 175	155	
115	7.173	7.172	0.001		378489		35.8- 75.8	56.0	
\$ 3 Nitrobenzene-d5									
82	8.036	8.035	0.001	99	239180	2.93	80- 120	100	
128	8.036	8.035	0.001		126846		33.8- 73.8	53.0	
54	8.036	8.035	0.001		137070		37.5- 77.5	57.3	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

MS8270IS_00016

Amount Added: 5.00

Units: uL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031407.D

Injection Date: 14-Mar-2017 17:20:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26103-D-12-A

Lab Sample ID: 320-26103-12

Worklist Smp#: 9

Client ID: MEAFF-MRD-0615-0217

Injection Vol: 1.0 ul

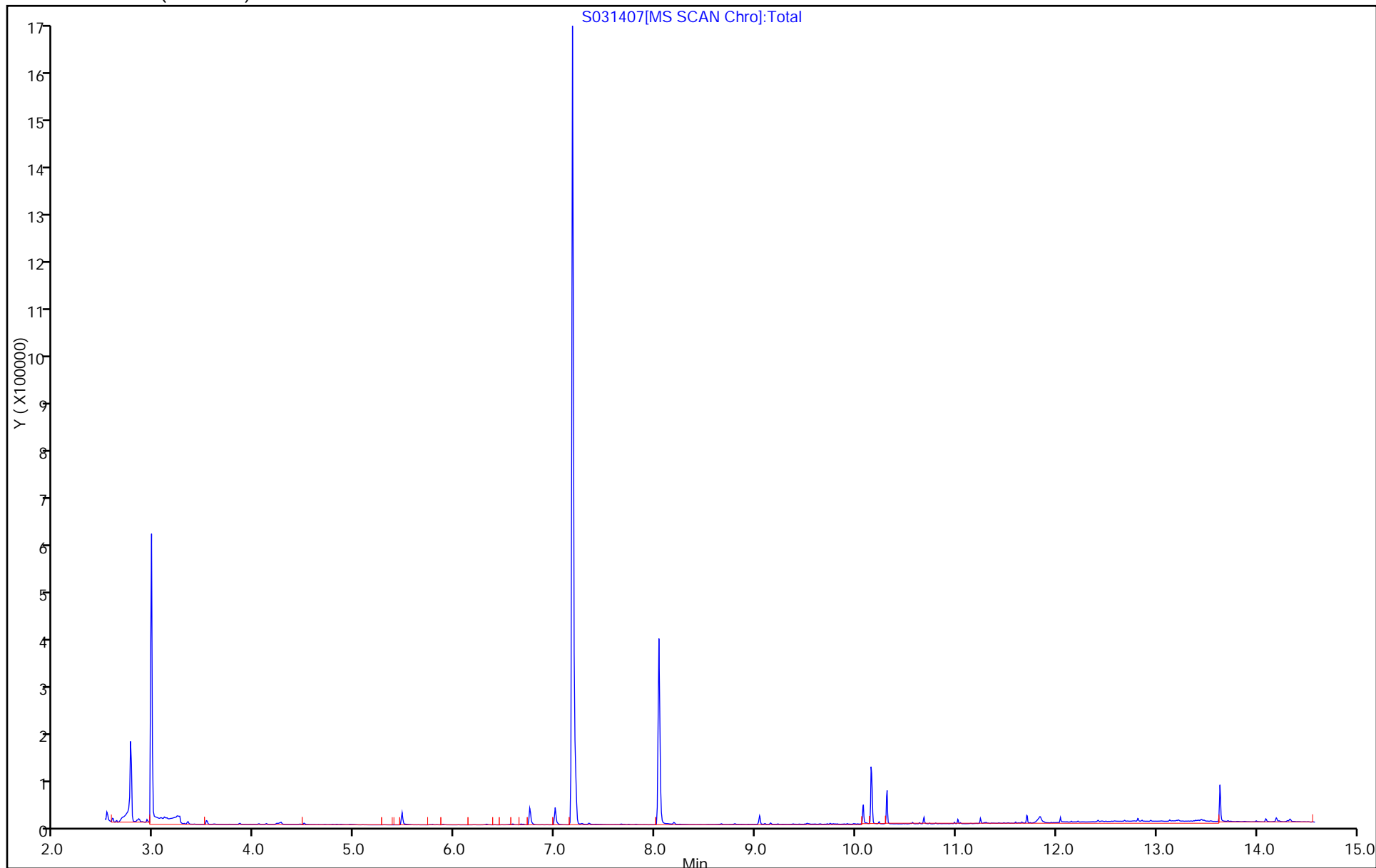
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031407.D
Lims ID: 320-26103-D-12-A
Client ID: MEAFF-MRD-0615-0217
Sample Type: Client
Inject. Date: 14-Mar-2017 17:20:30 ALS Bottle#: 7 Worklist Smp#: 9
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 320-26103-d-12-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 14-Mar-2017 17:39:59 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: onishim

Date: 14-Mar-2017 17:40:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	2.93	58.56

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1 Analy Batch No.: 151686

SDG No.: _____

Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/22/2017 09:35 Calibration End Date: 02/22/2017 12:09 Calibration ID: 28577

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-151686/1	14D0222A.D
Level 2	IC 320-151686/2	14D0222B.D
Level 3	IC 320-151686/3	14D0222C.D
Level 4	IC 320-151686/4	14D0222D.D
Level 5	ICIS 320-151686/5	14D0222E.D
Level 6	IC 320-151686/6	14D0222F.D
Level 7	IC 320-151686/7	14D0222G.D
Level 8	IC 320-151686/8	14D0222H.D

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 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
1,4-Dioxane	0.4455 0.3906	0.3950 0.4282	0.3860 0.3515	0.4401	0.3728	Ave		0.4012				8.4		15.0			
Nitrobenzene-d5	1.2661 1.2121	1.1089 1.3702	1.1243 1.1151	1.3085	1.1565	Ave		1.2077				8.2		15.0			

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

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1 Analy Batch No.: 151686

SDG No.: _____

Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/22/2017 09:35 Calibration End Date: 02/22/2017 12:09 Calibration ID: 28577

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-151686/1	14D0222A.D
Level 2	IC 320-151686/2	14D0222B.D
Level 3	IC 320-151686/3	14D0222C.D
Level 4	IC 320-151686/4	14D0222D.D
Level 5	ICIS 320-151686/5	14D0222E.D
Level 6	IC 320-151686/6	14D0222F.D
Level 7	IC 320-151686/7	14D0222G.D
Level 8	IC 320-151686/8	14D0222H.D

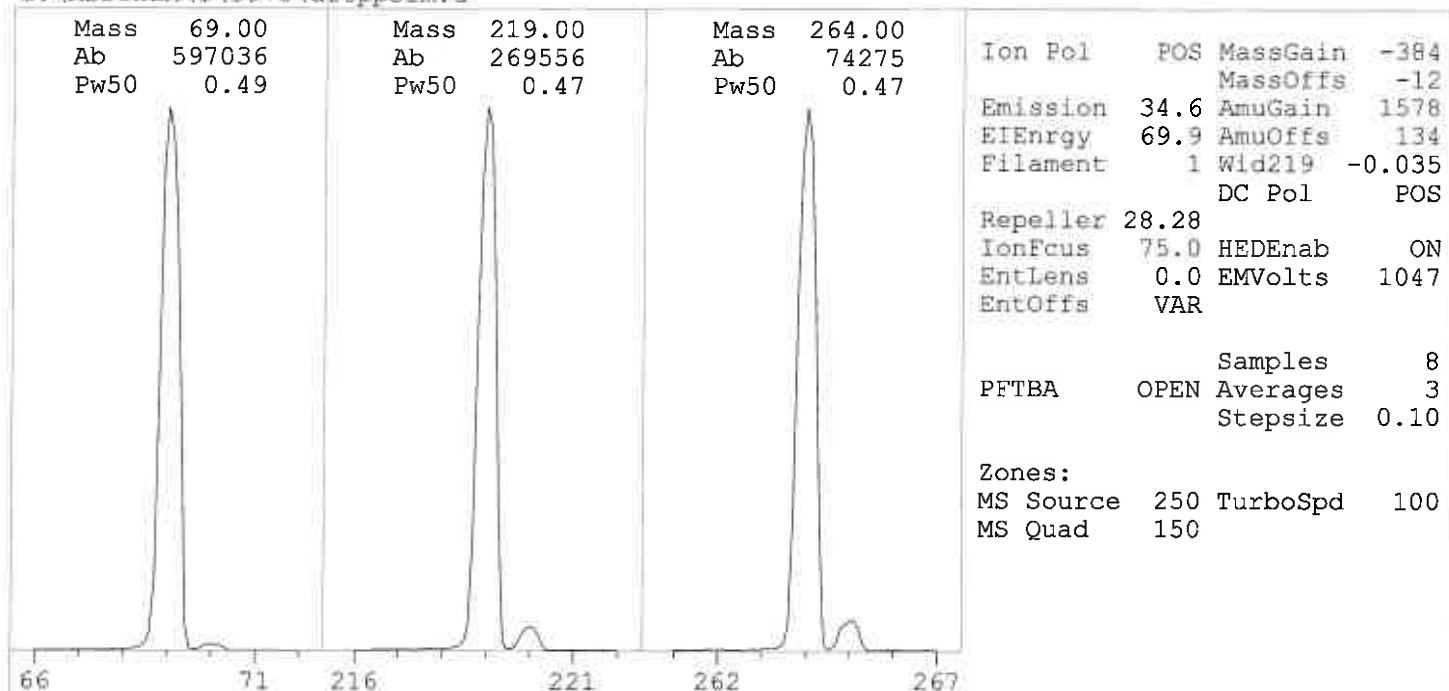
ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1,4-Dioxane	DCBd 4	Ave	15367 570238	28517 1391248	59554 2749219	150814	293131	0.500 20.0	1.00 50.0	2.00 100	5.00	10.0
Nitrobenzene-d5	DCBd 4	Ave	43667 1769342	80062 4451578	173471 8721763	448379	909372	0.500 20.0	1.00 50.0	2.00 100	5.00	10.0

Curve Type Legend:

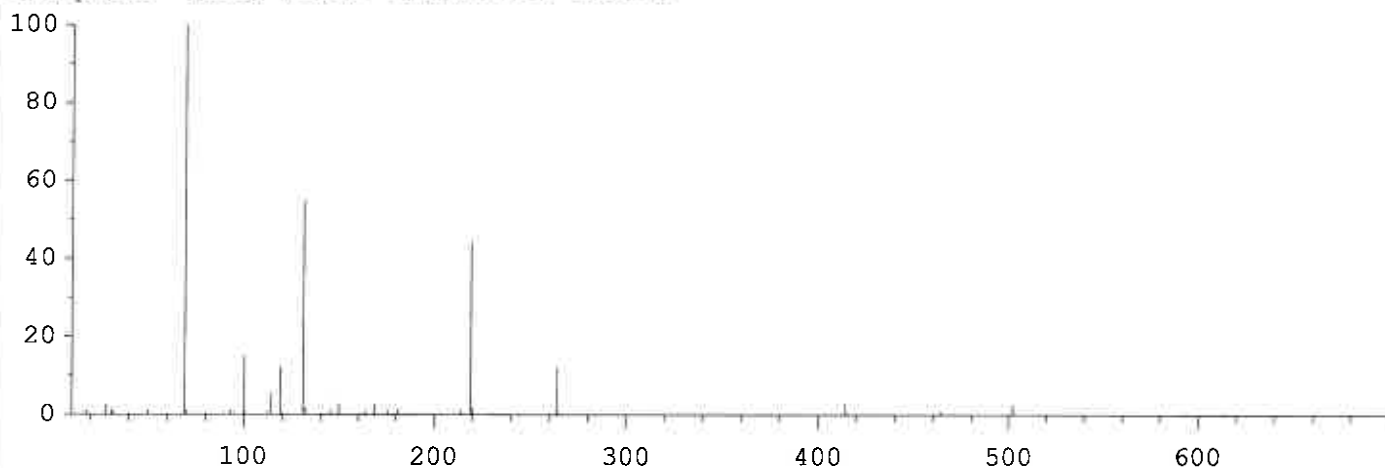
Ave = Average ISTD

Wed Feb 22 09:33:16 2017
C:\MSDCHEM\1\5973\dftppsims.u

Instrument: SV1



Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
126 peaks Base: 69.00 Abundance: 484096



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	484096	100.00	70.10	5442	1.12
219.00	215424	44.50	220.00	9518	4.42
264.00	59680	12.33	265.00	3715	6.22

Air/Water Check: H2O~0.93% N2~2.53% O2~0.67% CO2~0.07% N2/H2O~272.84%

Column Flow: Front: 1.4 Back: 0 ml/min. Interface Temp: 250

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 264; EM Gain 158740
Repeller Maximum 35 volts using ion 219;

MassGain Values @Samples: -384@3 -384@2 -384@1 -384@0 -384@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	134.0	134.0	134.0	134.0	134.0	134.0	134.0
Entrance Lens Offset:	14.6	12.0	13.3	12.5	13.8	12.8	12.8
Target Abund(%)	1.0	100.0	55.0	45.0	3.0	2.0	
Actual Tune Abund(%)	1.0	100.0	55.0	44.5	3.0	2.4	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D
 Lims ID: IC CS-1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 22-Feb-2017 09:35:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-1 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:26 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 10:04:37

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											M
58	3.355	3.354	0.001	78	15367	0.5000	0.5552	80- 120	100	13377	M
88	3.355	3.354	0.001		19805			92- 132	129		
* 2 1,4-Dichlorobenzene-d4											
152	7.197	7.197	0.000	99	689814	10.0	10.0	80- 120	100		
150	7.197	7.197	0.000		1067566			136- 176	155		
115	7.197	7.197	0.000		393942			37.1- 77.1	57.1		
\$ 3 Nitrobenzene-d5											M
82	8.059	8.059	0.000	100	43667	0.5000	0.5242	80- 120	100		M
128	8.059	8.059	0.000		20703			29.8- 69.8	47.4		
54	8.059	8.059	0.000		25267			38.3- 78.3	57.9		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL1_00011

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D

Injection Date: 22-Feb-2017 09:35:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-1

Worklist Smp#: 1

Client ID:

Injection Vol: 1.0 ul

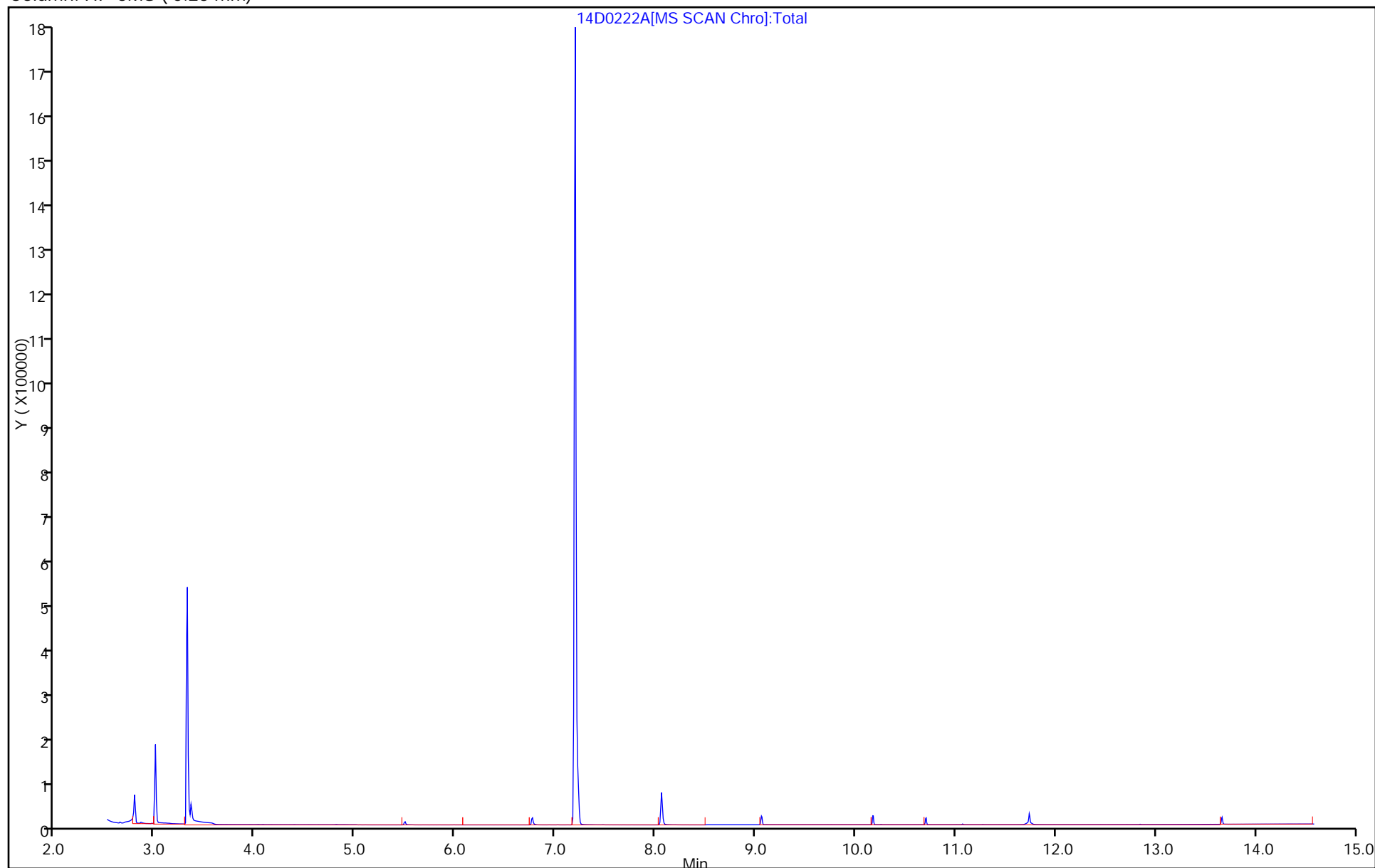
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D

Injection Date: 22-Feb-2017 09:35:30

Instrument ID: SV1

Lims ID: IC CS-1

Client ID:

Operator ID:

ALS Bottle#:

1

Worklist Smp#:

1

Injection Vol: 1.0 ul

Dil. Factor:

1.0000

Method: 1,4-Dioxane

Limit Group:

MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

Detector

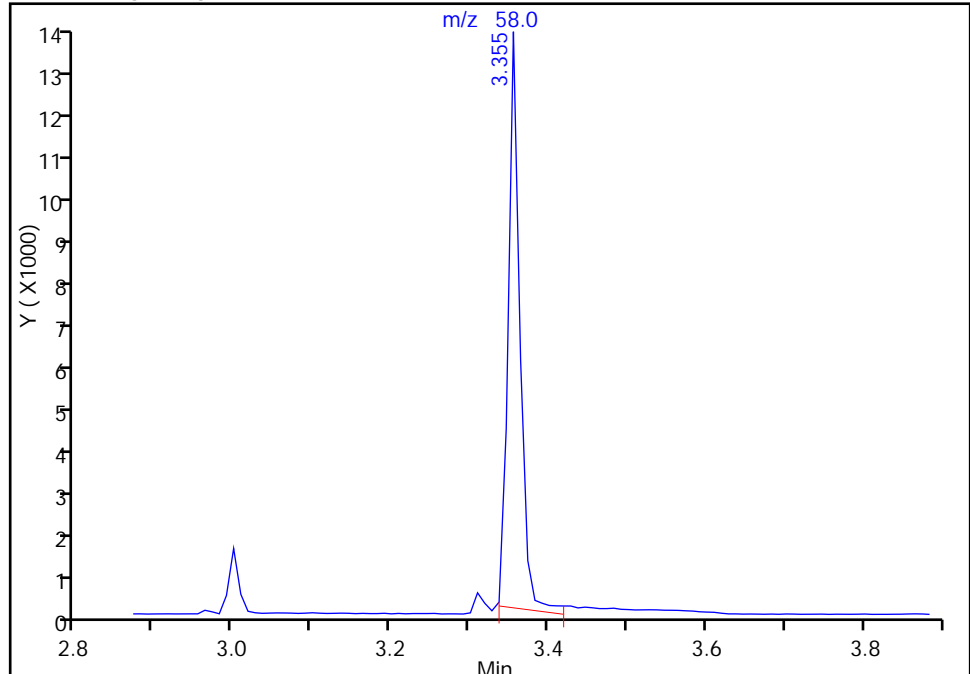
MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

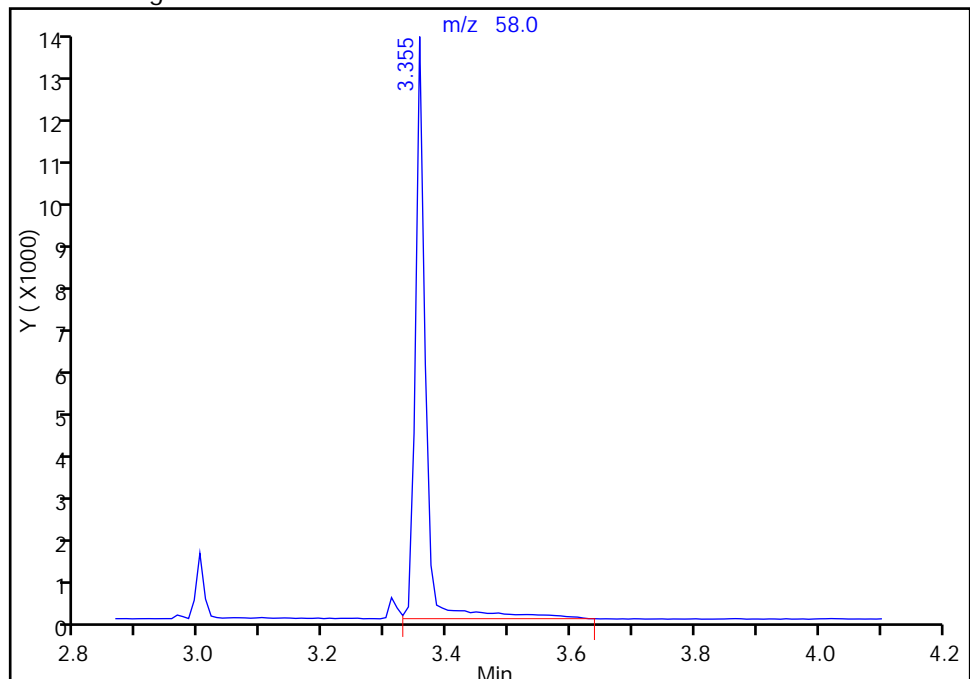
RT: 3.36
Area: 13722
Amount: 0.500000
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 15367
Amount: 0.555238
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:26

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D

Injection Date: 22-Feb-2017 09:35:30

Instrument ID: SV1

Lims ID: IC CS-1

Client ID:

Operator ID:

ALS Bottle#:

1

Worklist Smp#: 1

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

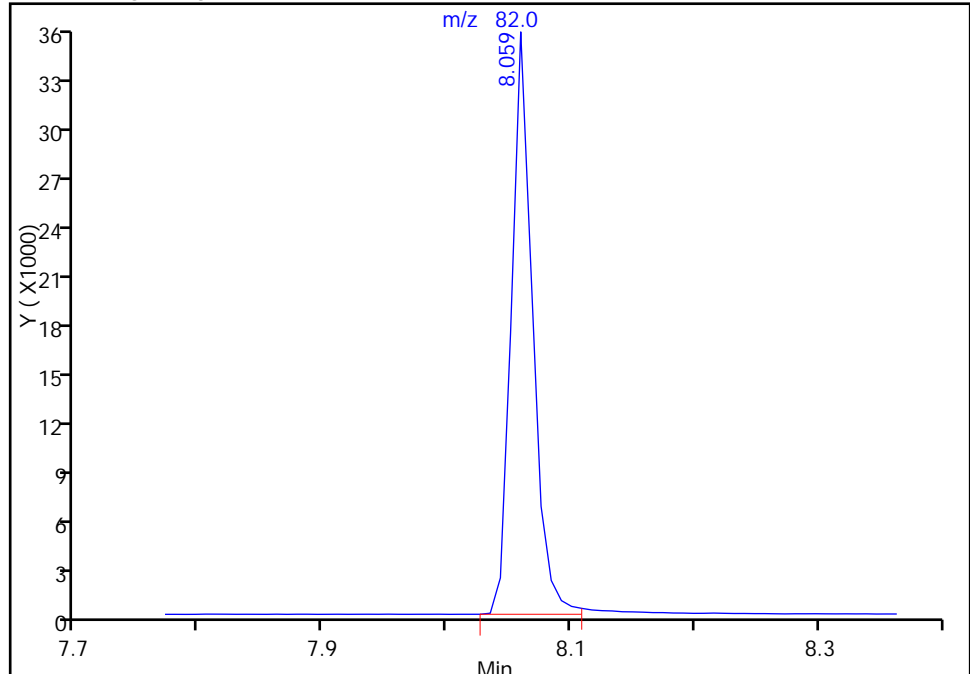
Detector: MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

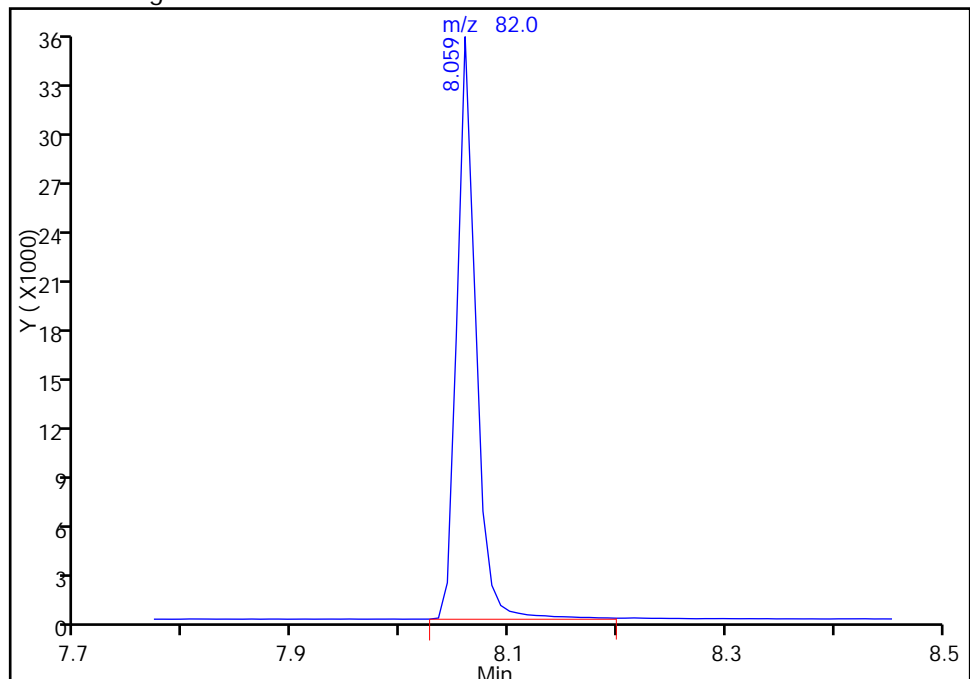
RT: 8.06
Area: 42828
Amount: 0.500000
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 43667
Amount: 0.524163
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:26

Audit Action: Manually Integrated

Audit Reason: Peak Tail

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D
 Lims ID: IC CS-2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 22-Feb-2017 09:56:30 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-2 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:27 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 10:17:50

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.355	3.354	0.001	97	28517	1.00	0.9844	80- 120	100	M
88	3.364	3.354	0.010		33413			92- 132	117	
* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	721993	10.0	10.0	80- 120	100	
150	7.197	7.197	0.000		1123841			136- 176	156	
115	7.197	7.197	0.000		416847			37.1- 77.1	57.7	
\$ 3 Nitrobenzene-d5										
82	8.060	8.059	0.001	99	80062	1.00	0.9182	80- 120	100	M
128	8.060	8.059	0.001		38136			29.8- 69.8	47.6	
54	8.060	8.059	0.001		46077			38.3- 78.3	57.6	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL2_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D

Injection Date: 22-Feb-2017 09:56:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-2

Worklist Smp#: 2

Client ID:

Injection Vol: 1.0 ul

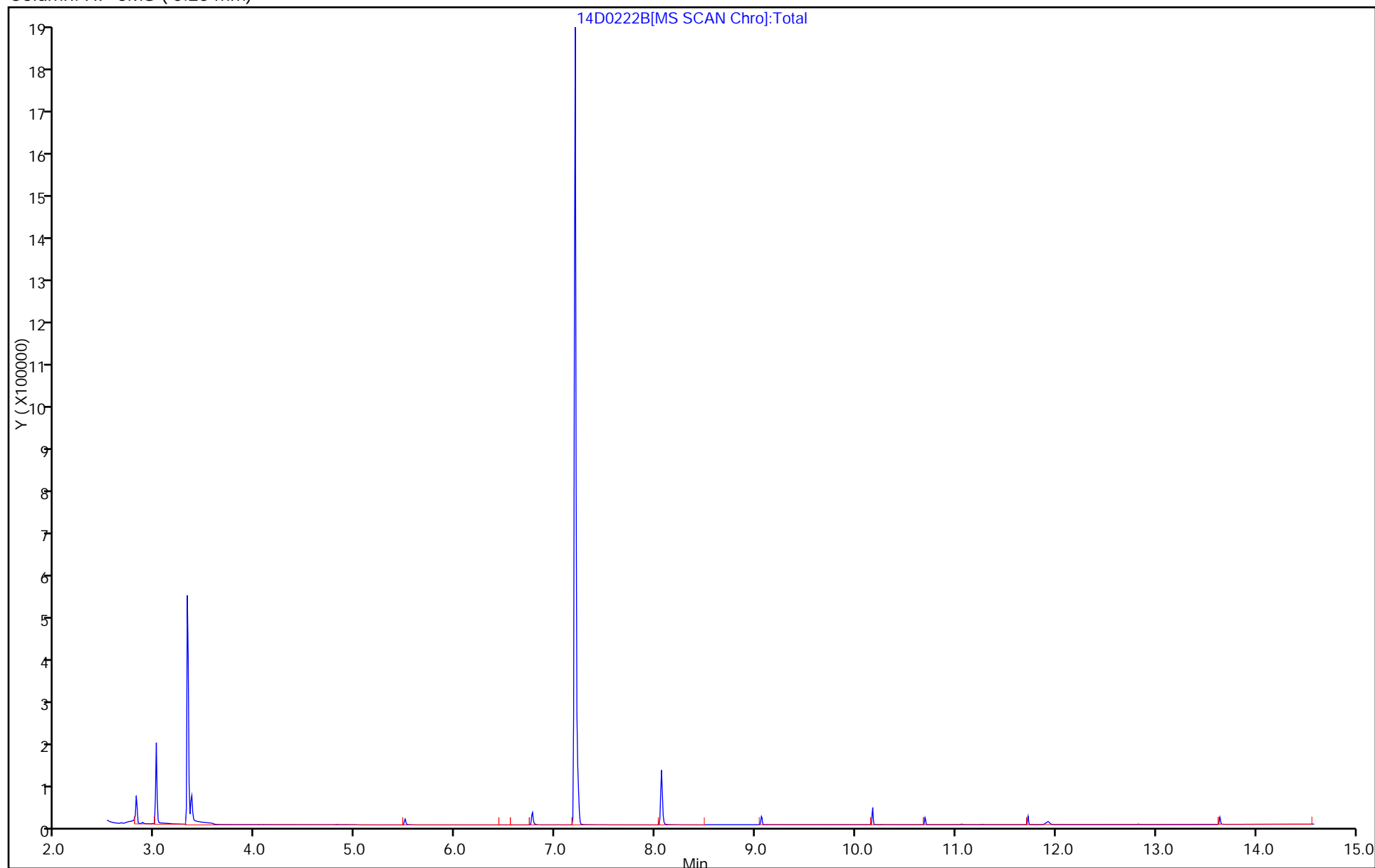
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D

Injection Date: 22-Feb-2017 09:56:30

Instrument ID: SV1

Lims ID: IC CS-2

Client ID:

Operator ID:

ALS Bottle#:

2

Worklist Smp#: 2

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

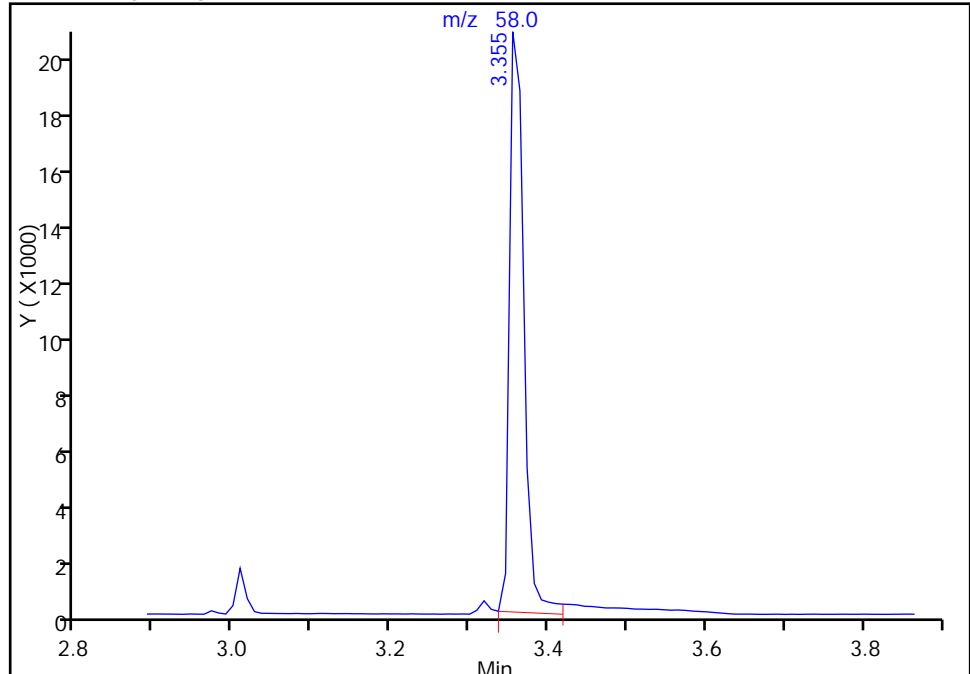
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

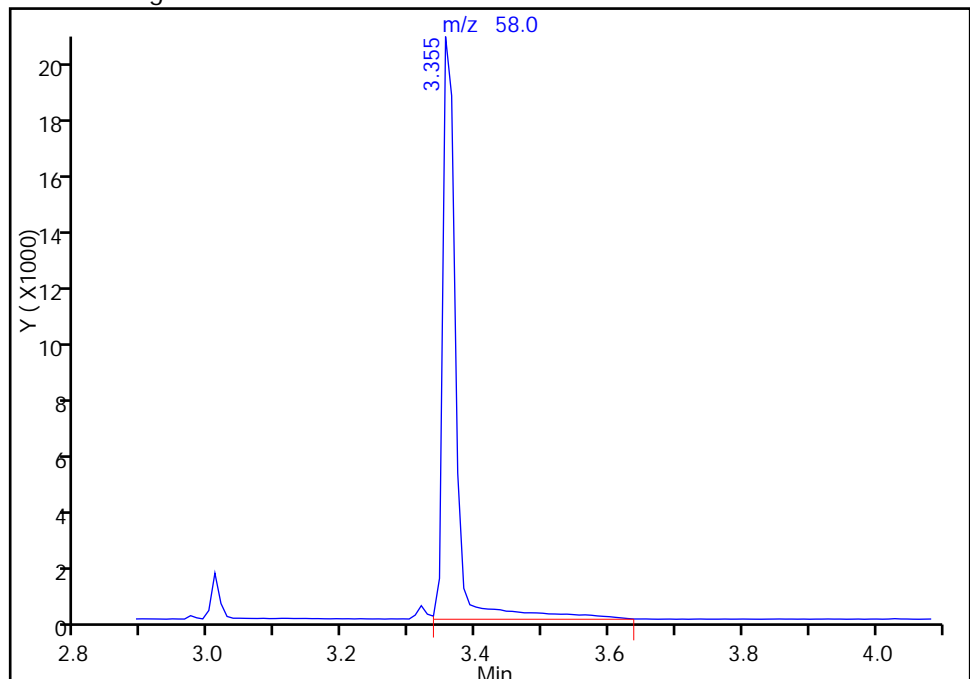
RT: 3.35
Area: 25950
Amount: 0.893015
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 28517
Amount: 0.984448
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:27

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D

Injection Date: 22-Feb-2017 09:56:30

Instrument ID: SV1

Lims ID: IC CS-2

Client ID:

Operator ID:

ALS Bottle#:

2

Worklist Smp#:

2

Injection Vol: 1.0 ul

Dil. Factor:

1.0000

Method: 1,4-Dioxane

Limit Group:

MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

Detector

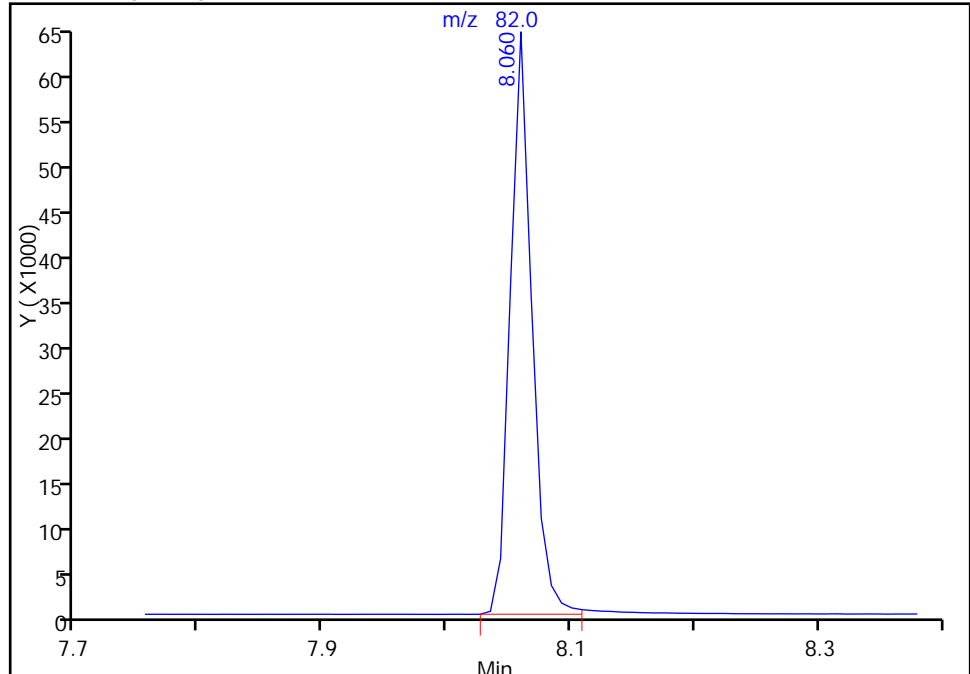
MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

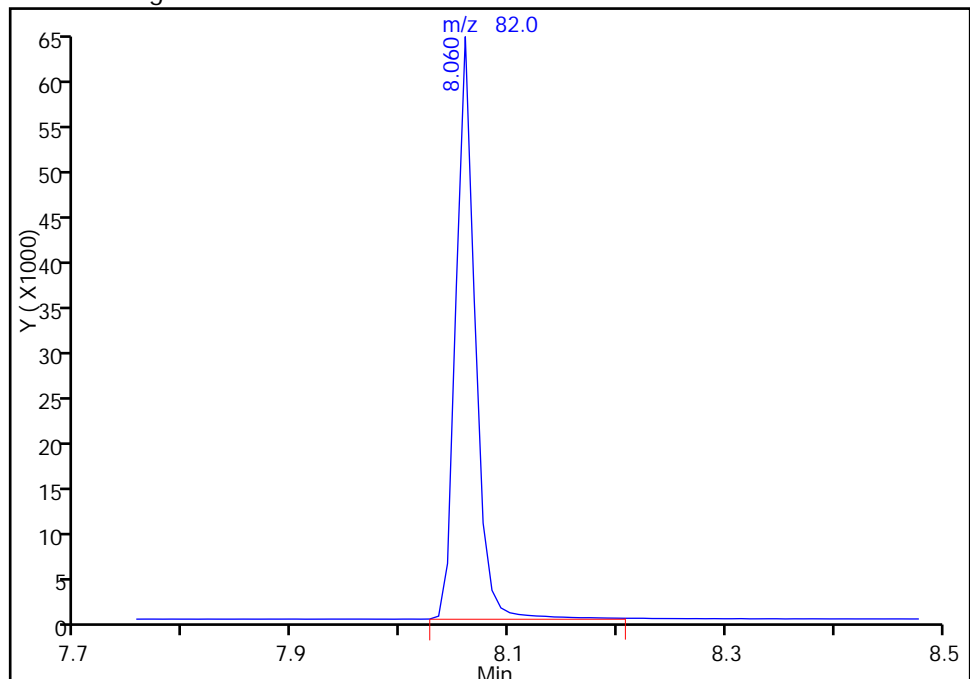
RT: 8.06
Area: 78635
Amount: 0.924884
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 80062
Amount: 0.918203
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:27

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D
 Lims ID: IC CS-3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 22-Feb-2017 10:19:30 ALS Bottle#: 3 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-3 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:28 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 10:46:45

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.357	3.354	0.003	97	59554	2.00	1.92	80- 120	100	M
88	3.366	3.354	0.012		69299			92- 132	116	
* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	771483	10.0	10.0	80- 120	100	
150	7.197	7.197	0.000		1199044			136- 176	155	
115	7.197	7.197	0.000		444192			37.1- 77.1	57.6	
\$ 3 Nitrobenzene-d5										
82	8.060	8.059	0.001	97	173471	2.00	1.86	80- 120	100	M
128	8.060	8.059	0.001		83892			29.8- 69.8	48.4	
54	8.060	8.059	0.001		99669			38.3- 78.3	57.5	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL3_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D

Injection Date: 22-Feb-2017 10:19:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-3

Worklist Smp#: 3

Client ID:

Injection Vol: 1.0 ul

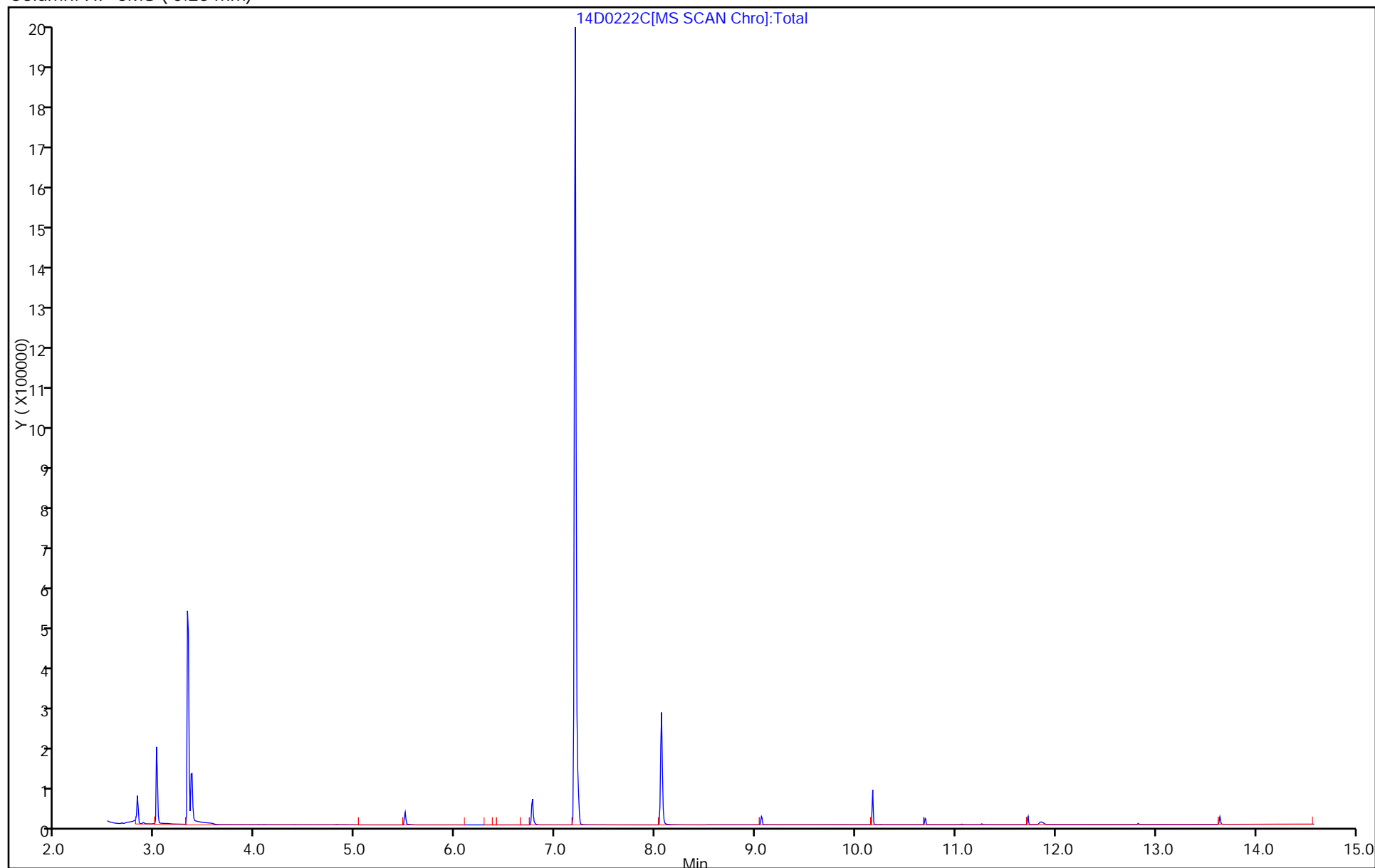
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D

Injection Date: 22-Feb-2017 10:19:30

Instrument ID: SV1

Lims ID: IC CS-3

Client ID:

Operator ID:

ALS Bottle#:

3

Worklist Smp#:

3

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

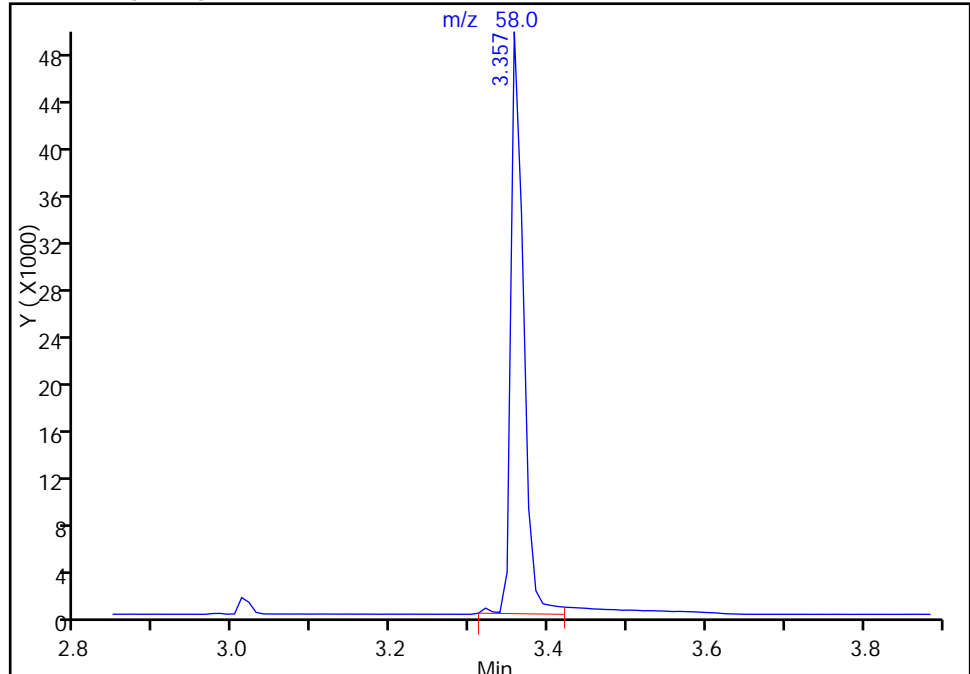
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

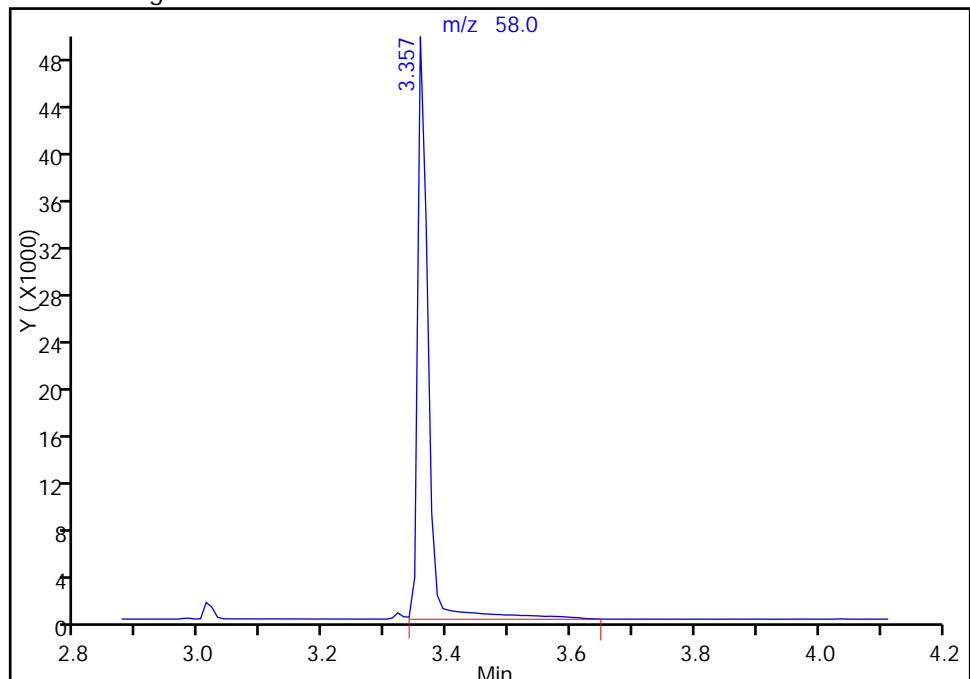
RT: 3.36
Area: 55647
Amount: 1.801497
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 59554
Amount: 1.924007
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:28

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D

Injection Date: 22-Feb-2017 10:19:30

Instrument ID: SV1

Lims ID: IC CS-3

Client ID:

Operator ID:

ALS Bottle#:

3

Worklist Smp#: 3

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

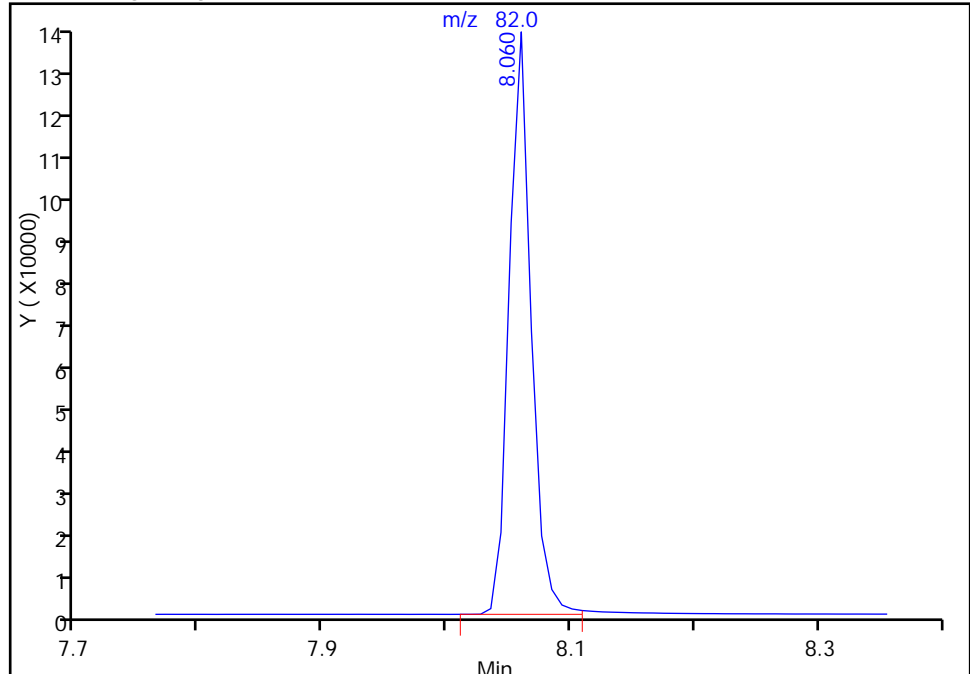
Detector: MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

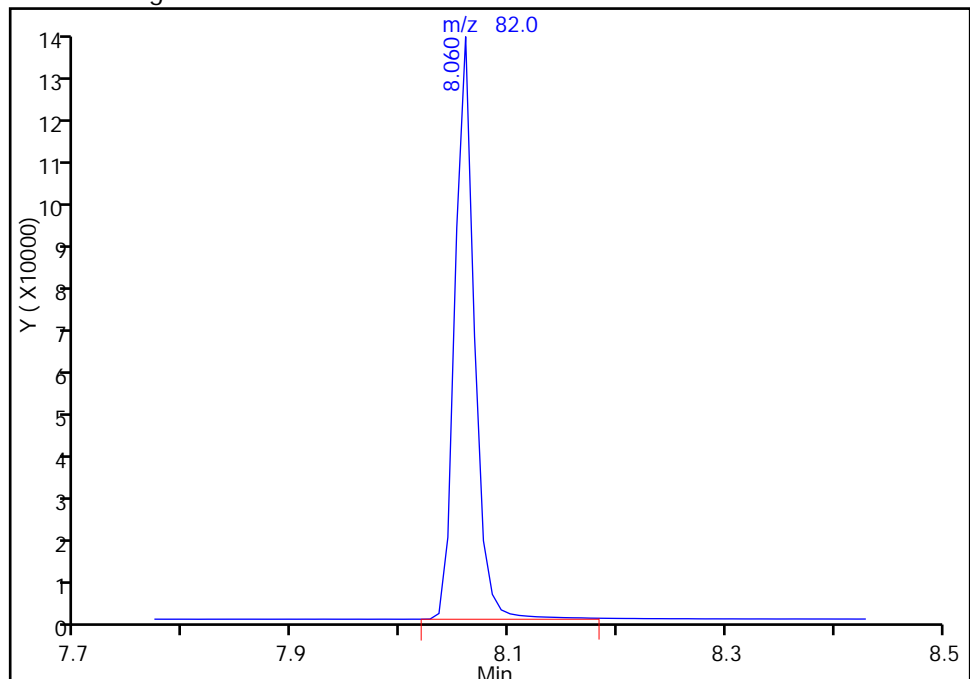
RT: 8.06
Area: 171502
Amount: 1.912842
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 173471
Amount: 1.861855
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:28

Audit Action: Manually Integrated

Audit Reason: Peak Tail

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D
 Lims ID: IC CS-4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 22-Feb-2017 10:41:30 ALS Bottle#: 4 Worklist Smp#: 4
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-4 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:29 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 11:21:20

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.345	3.354	-0.009	96	150814	5.00	5.48	80- 120	100	M
88	3.354	3.354	0.000		168162			92- 132	112	
* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	685347	10.0	10.0	80- 120	100	
150	7.197	7.197	0.000		1065860			136- 176	156	
115	7.197	7.197	0.000		391582			37.1- 77.1	57.1	
\$ 3 Nitrobenzene-d5										
82	8.060	8.059	0.001	97	448379	5.00	5.42	80- 120	100	
128	8.060	8.059	0.001		223263			29.8- 69.8	49.8	
54	8.051	8.059	-0.008		261235			38.3- 78.3	58.3	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL4_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D

Injection Date: 22-Feb-2017 10:41:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-4

Worklist Smp#: 4

Client ID:

Injection Vol: 1.0 ul

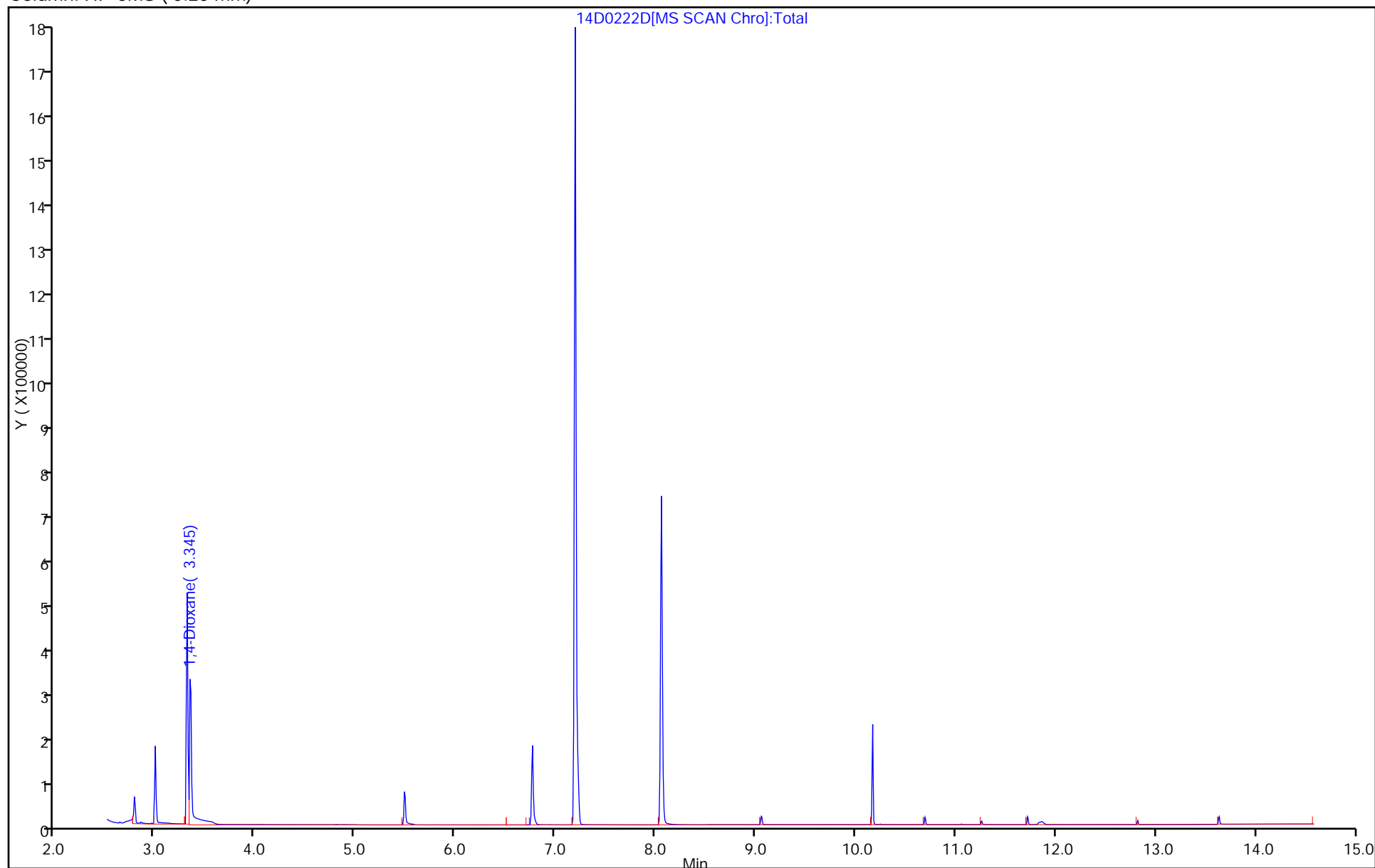
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D

Injection Date: 22-Feb-2017 10:41:30

Instrument ID: SV1

Lims ID: IC CS-4

Client ID:

Operator ID:

ALS Bottle#:

4

Worklist Smp#: 4

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

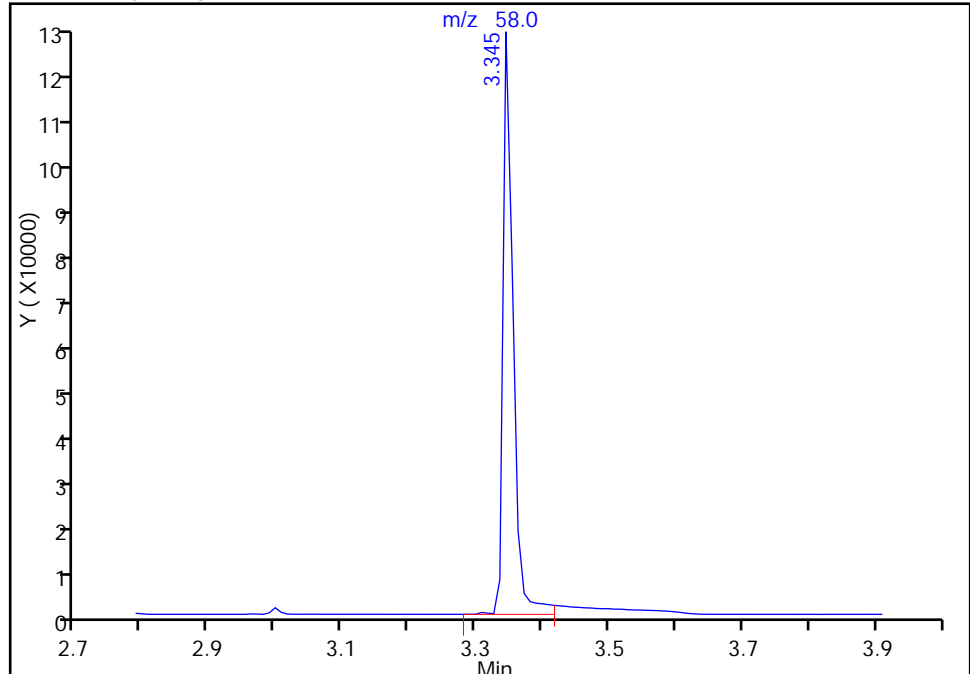
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

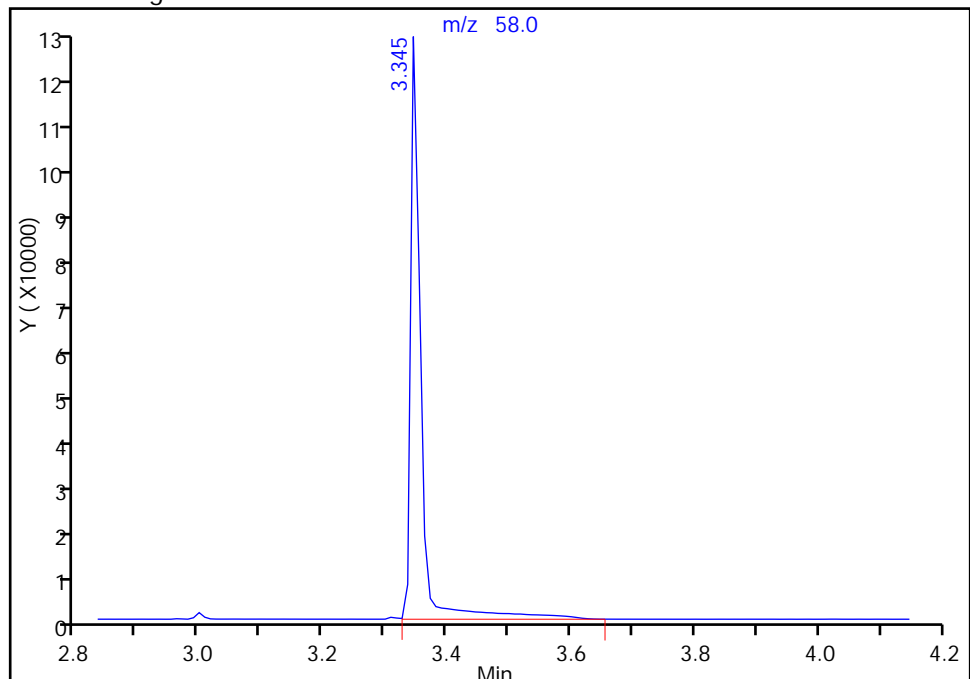
RT: 3.35
Area: 137931
Amount: 4.941853
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 150814
Amount: 5.484704
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:29

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D
 Lims ID: ICIS CS-5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 22-Feb-2017 11:03:30 ALS Bottle#: 5 Worklist Smp#: 5
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: ICIS CS-5 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:30 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 11:21:43

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											M
58	3.354	3.354	0.000	81	293131	10.0	9.29	80- 120	100	145920	M
88	3.354	3.354	0.000		351365			92- 132	120		
* 2 1,4-Dichlorobenzene-d4											
152	7.197	7.197	0.000	100	786305	10.0	10.0	80- 120	100		
150	7.197	7.197	0.000		1219926			136- 176	155		
115	7.197	7.197	0.000		448437			37.1- 77.1	57.0		
\$ 3 Nitrobenzene-d5											
82	8.059	8.059	0.000	99	909372	10.0	9.58	80- 120	100		
128	8.059	8.059	0.000		466333			29.8- 69.8	51.3		
54	8.051	8.059	-0.008		534392			38.3- 78.3	58.8		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D

Injection Date: 22-Feb-2017 11:03:30

Instrument ID: SV1

Operator ID:

Lims ID: ICIS CS-5

Worklist Smp#: 5

Client ID:

Injection Vol: 1.0 ul

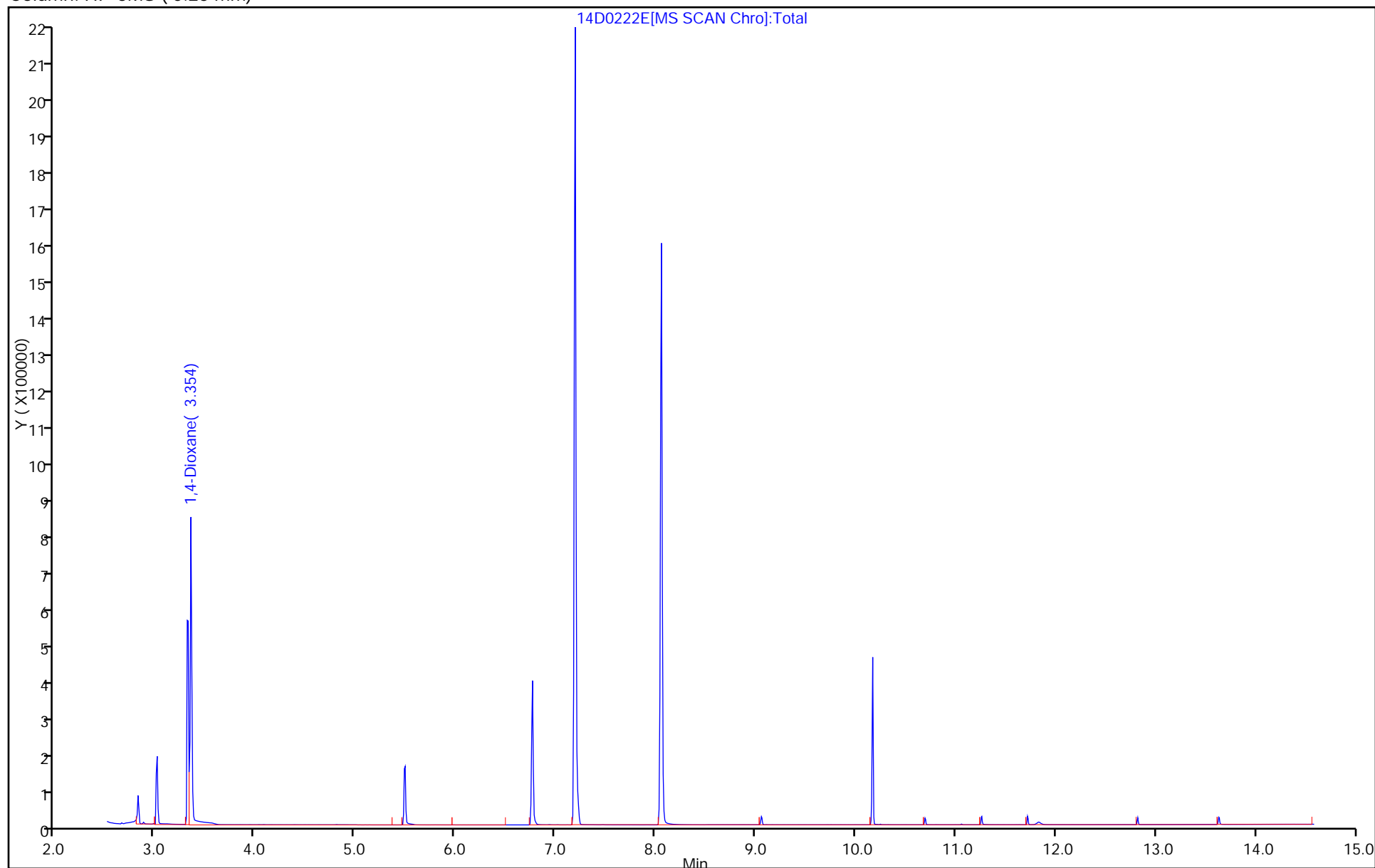
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D

Injection Date: 22-Feb-2017 11:03:30

Instrument ID: SV1

Lims ID: ICIS CS-5

Client ID:

Operator ID:

ALS Bottle#:

5

Worklist Smp#: 5

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

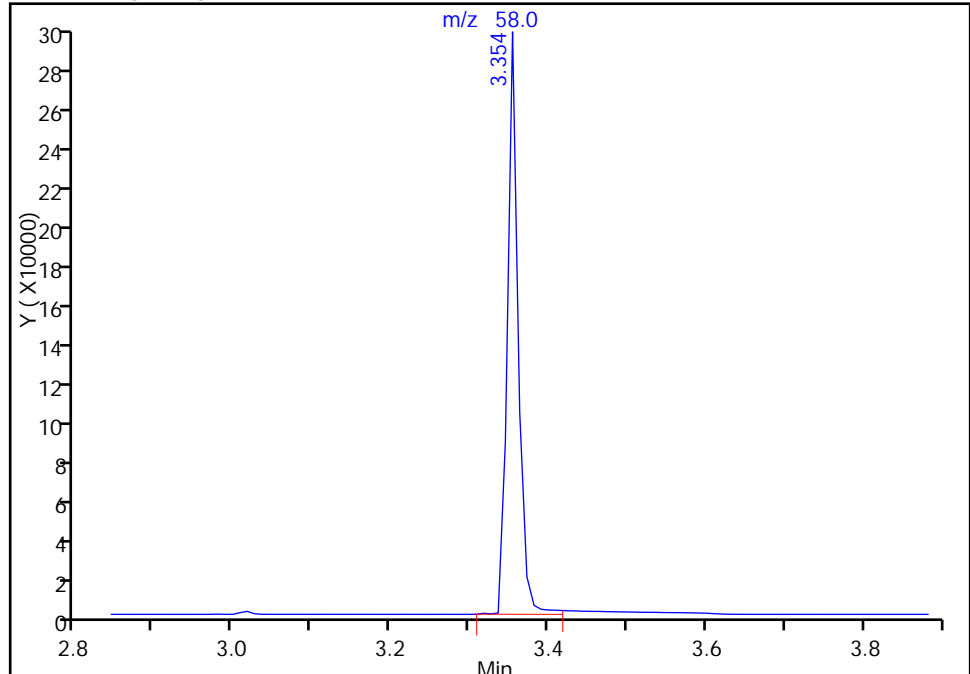
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

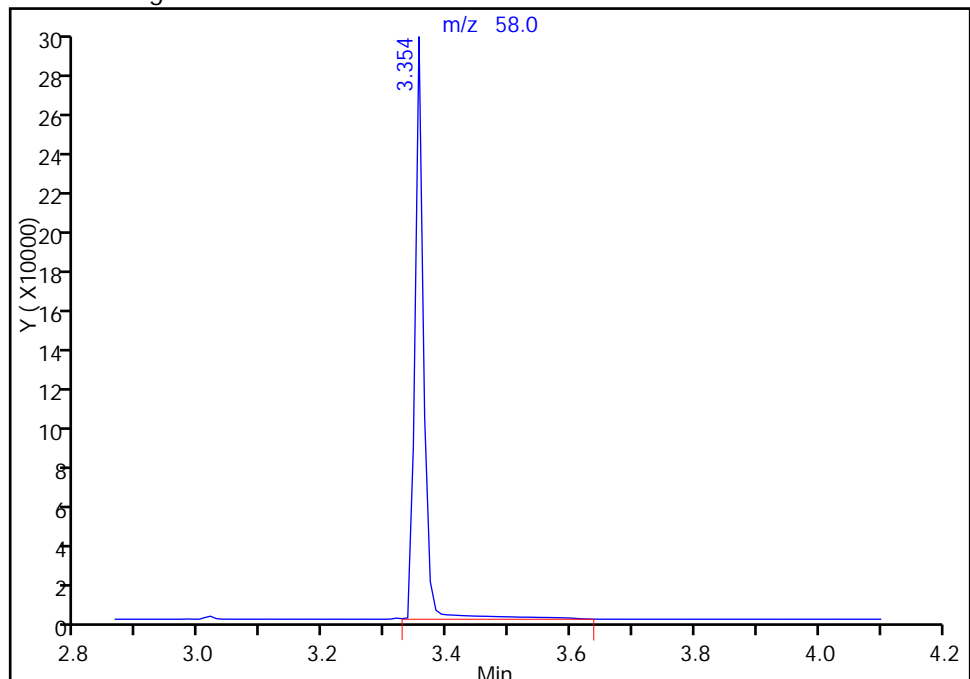
RT: 3.35
Area: 280244
Amount: 8.808838
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 293131
Amount: 9.291648
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:30

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D
 Lims ID: IC CS-6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 22-Feb-2017 11:25:30 ALS Bottle#: 6 Worklist Smp#: 6
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-6 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:31 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 11:46:54

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.355	3.354	0.001	100	570238	20.0	19.5	80- 120	100	M
88	3.364	3.354	0.010		655548			92- 132	115	
* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	729888	10.0	10.0	80- 120	100	
150	7.197	7.197	0.000		1138534			136- 176	156	
115	7.197	7.197	0.000		417127			37.1- 77.1	57.1	
\$ 3 Nitrobenzene-d5										
82	8.059	8.059	0.000	96	1769342	20.0	20.1	80- 120	100	
128	8.068	8.059	0.009		911496			29.8- 69.8	51.5	
54	8.059	8.059	0.000		1041598			38.3- 78.3	58.9	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL6_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D

Injection Date: 22-Feb-2017 11:25:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-6

Worklist Smp#: 6

Client ID:

Injection Vol: 1.0 ul

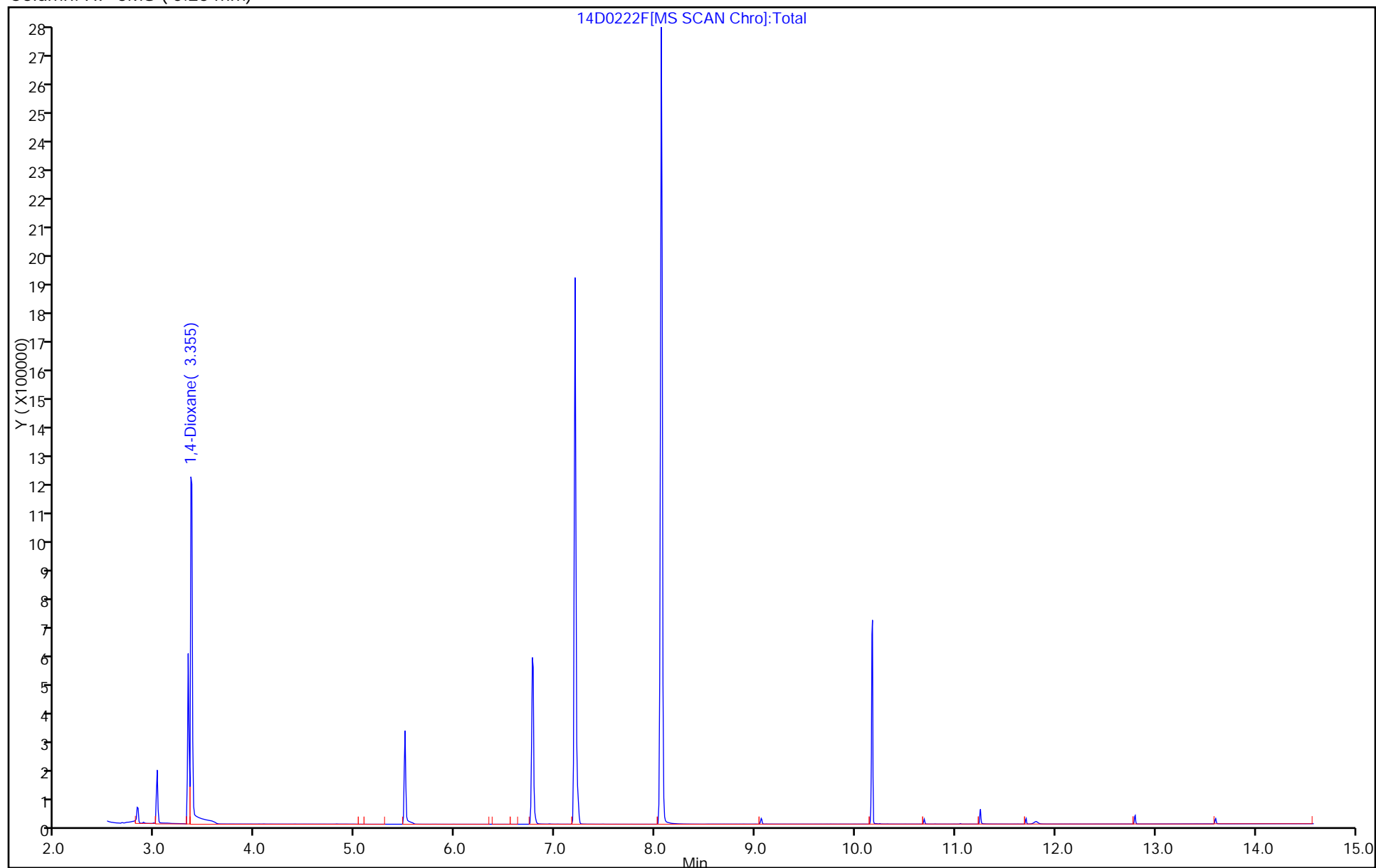
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D

Injection Date: 22-Feb-2017 11:25:30

Instrument ID: SV1

Lims ID: IC CS-6

Client ID:

Operator ID:

ALS Bottle#:

6

Worklist Smp#: 6

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

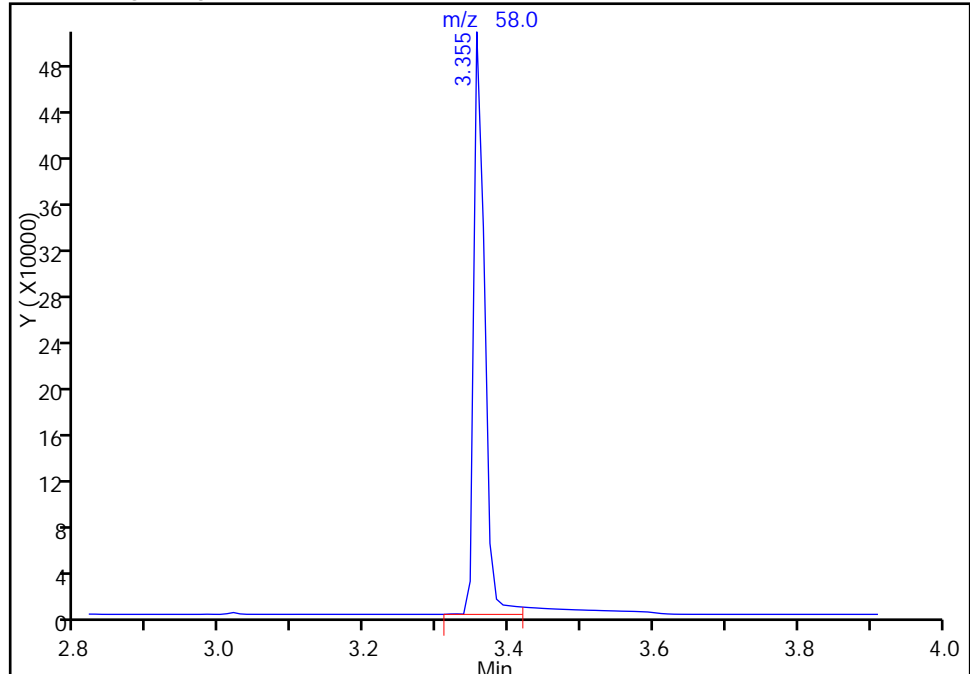
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

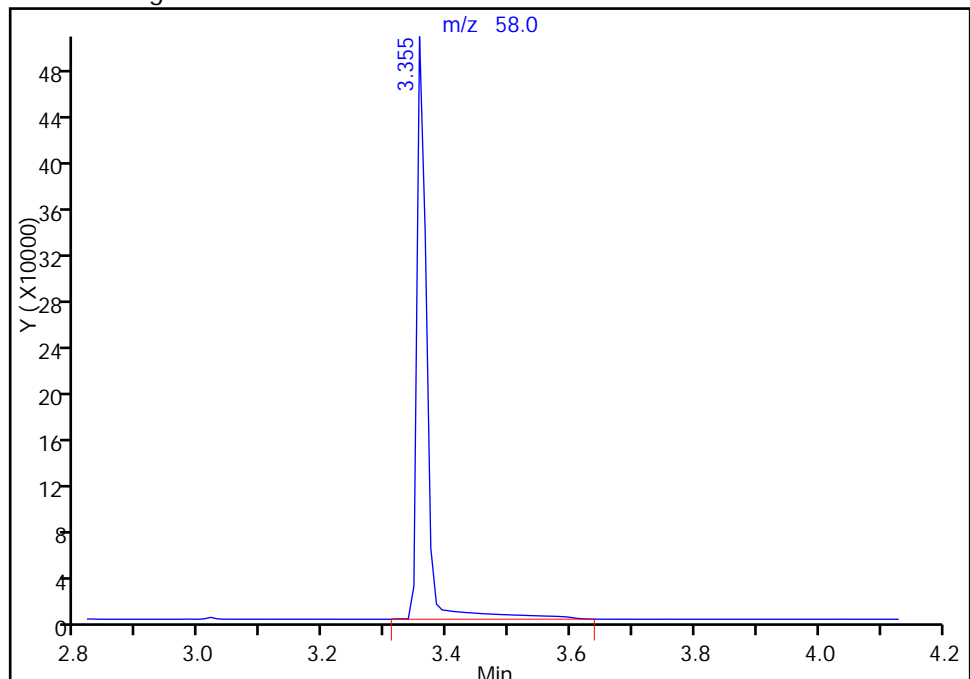
RT: 3.36
Area: 530709
Amount: 18.155454
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 570238
Amount: 19.472510
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:30

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D
 Lims ID: IC CS-7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 22-Feb-2017 11:47:30 ALS Bottle#: 7 Worklist Smp#: 7
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-7 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:31 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 12:18:18

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.355	3.354	0.001	90	1391248	50.0	53.4	80- 120	100	M
88	3.364	3.354	0.010		1577040			92- 132	113	
* 2 1,4-Dichlorobenzene-d4										
152	7.198	7.197	0.001	100	649782	10.0	10.0	80- 120	100	
150	7.198	7.197	0.001		1006292			136- 176	155	
115	7.198	7.197	0.001		370252			37.1- 77.1	57.0	
\$ 3 Nitrobenzene-d5										
82	8.068	8.059	0.009	97	4451578	50.0	56.7	80- 120	100	
128	8.068	8.059	0.009		2303805			29.8- 69.8	51.8	
54	8.068	8.059	0.009		2601883			38.3- 78.3	58.4	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL7_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D

Injection Date: 22-Feb-2017 11:47:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-7

Worklist Smp#: 7

Client ID:

Injection Vol: 1.0 ul

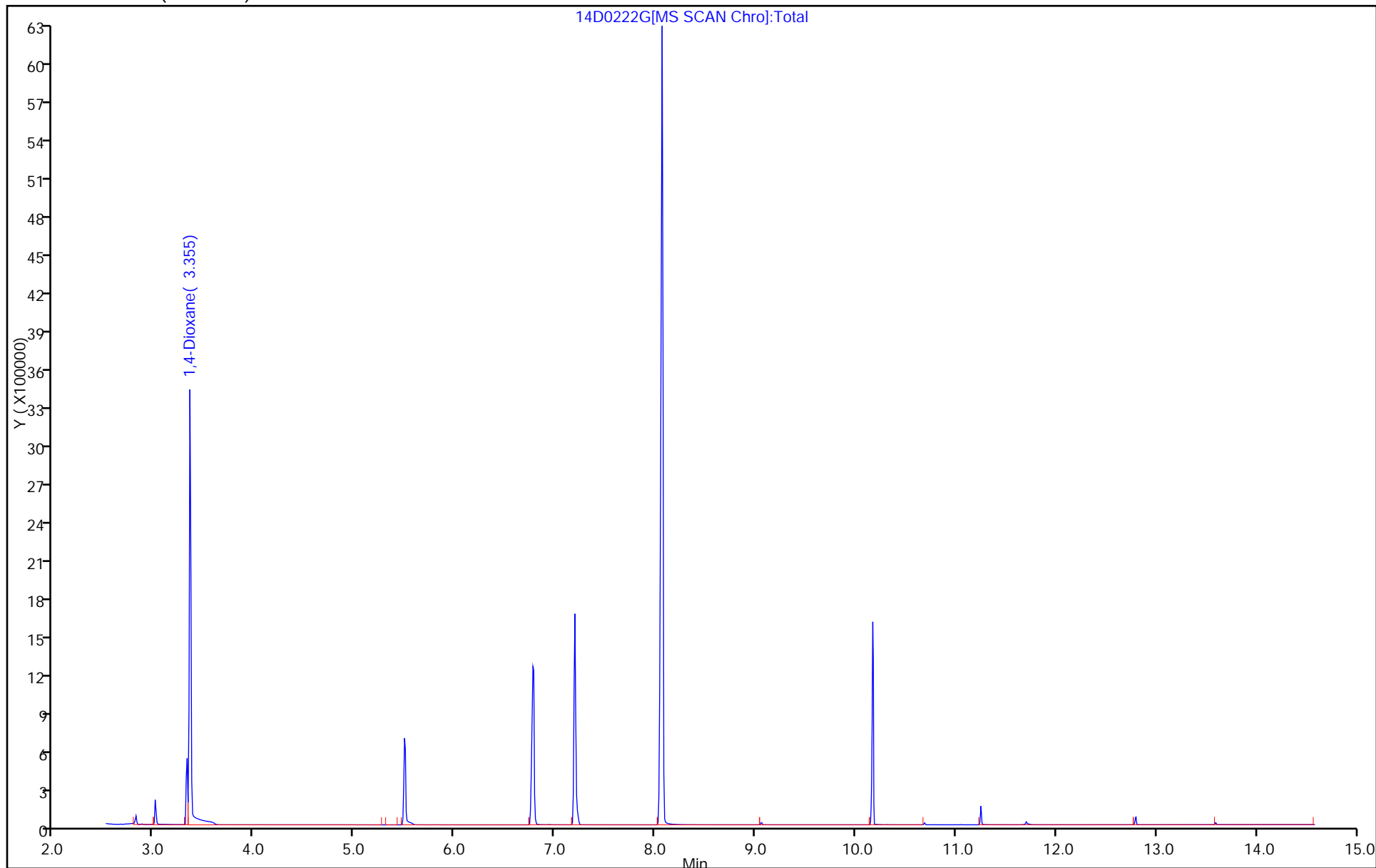
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D

Injection Date: 22-Feb-2017 11:47:30

Instrument ID: SV1

Lims ID: IC CS-7

Client ID:

Operator ID:

ALS Bottle#:

7

Worklist Smp#:

7

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

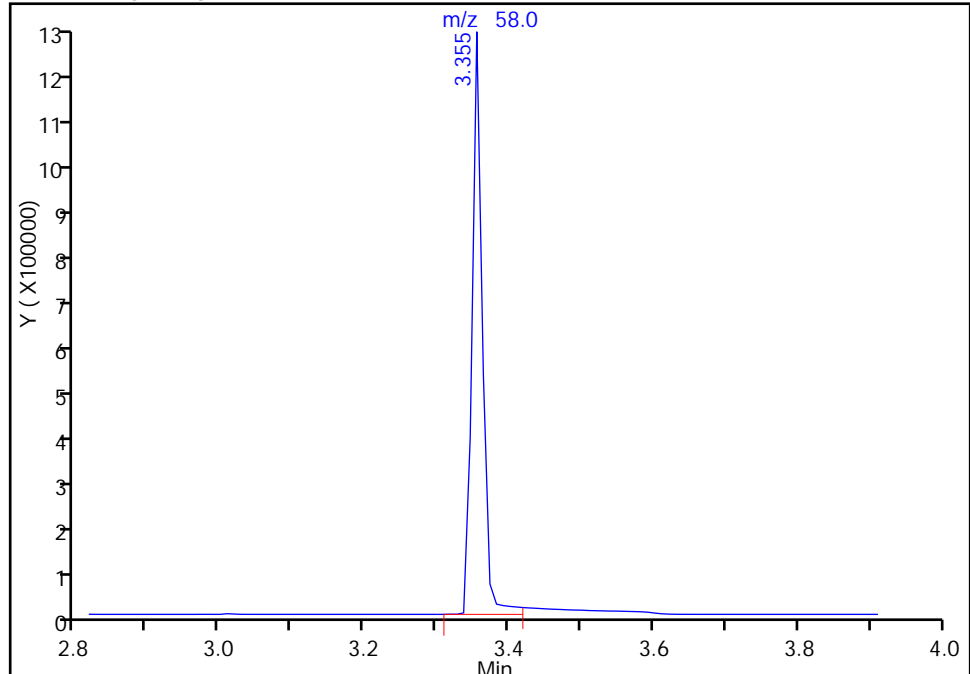
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

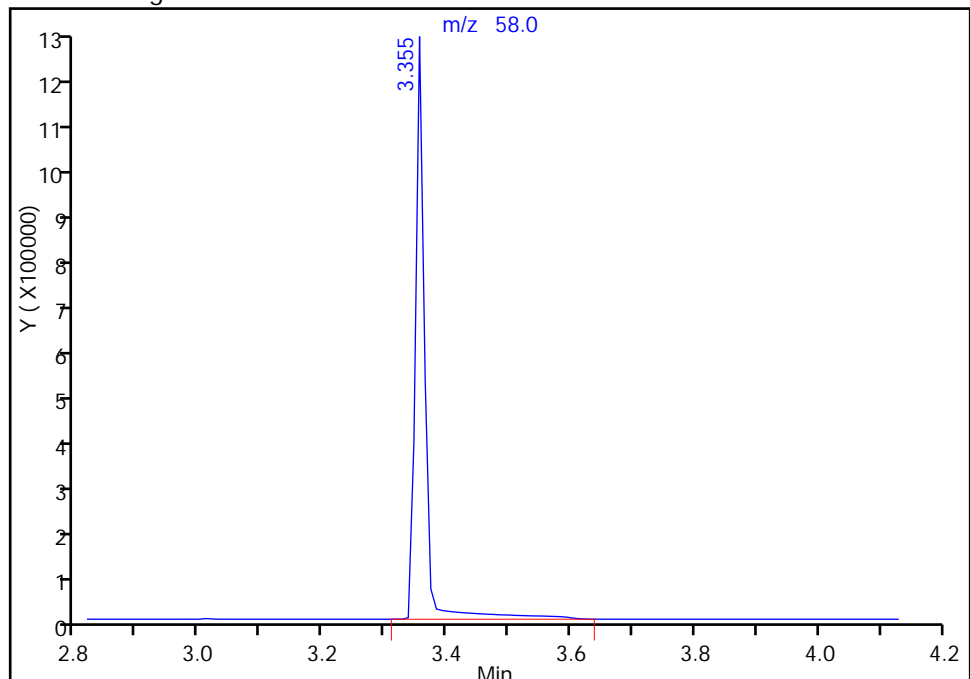
RT: 3.36
Area: 1295874
Amount: 49.348837
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 1391248
Amount: 53.365292
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:31

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Lims ID: IC CS-8
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 22-Feb-2017 12:09:30 ALS Bottle#: 8 Worklist Smp#: 8
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-8 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:32 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim

Date: 22-Feb-2017 12:42:13

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.365	3.354	0.011	73	2749219	100.0	87.6	80- 120	100	M
88	3.365	3.354	0.011		3047664			92- 132	111	
* 2 1,4-Dichlorobenzene-d4										
152	7.198	7.197	0.001	99	782185	10.0	10.0	80- 120	100	
150	7.198	7.197	0.001		1219969			136- 176	156	
115	7.198	7.197	0.001		445630			37.1- 77.1	57.0	
\$ 3 Nitrobenzene-d5										
82	8.085	8.059	0.026	98	8721763	100.0	92.3	80- 120	100	
128	8.085	8.059	0.026		4541021			29.8- 69.8	52.1	
54	8.077	8.059	0.018		5217430			38.3- 78.3	59.8	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL8_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D

Injection Date: 22-Feb-2017 12:09:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-8

Worklist Smp#: 8

Client ID:

Injection Vol: 1.0 ul

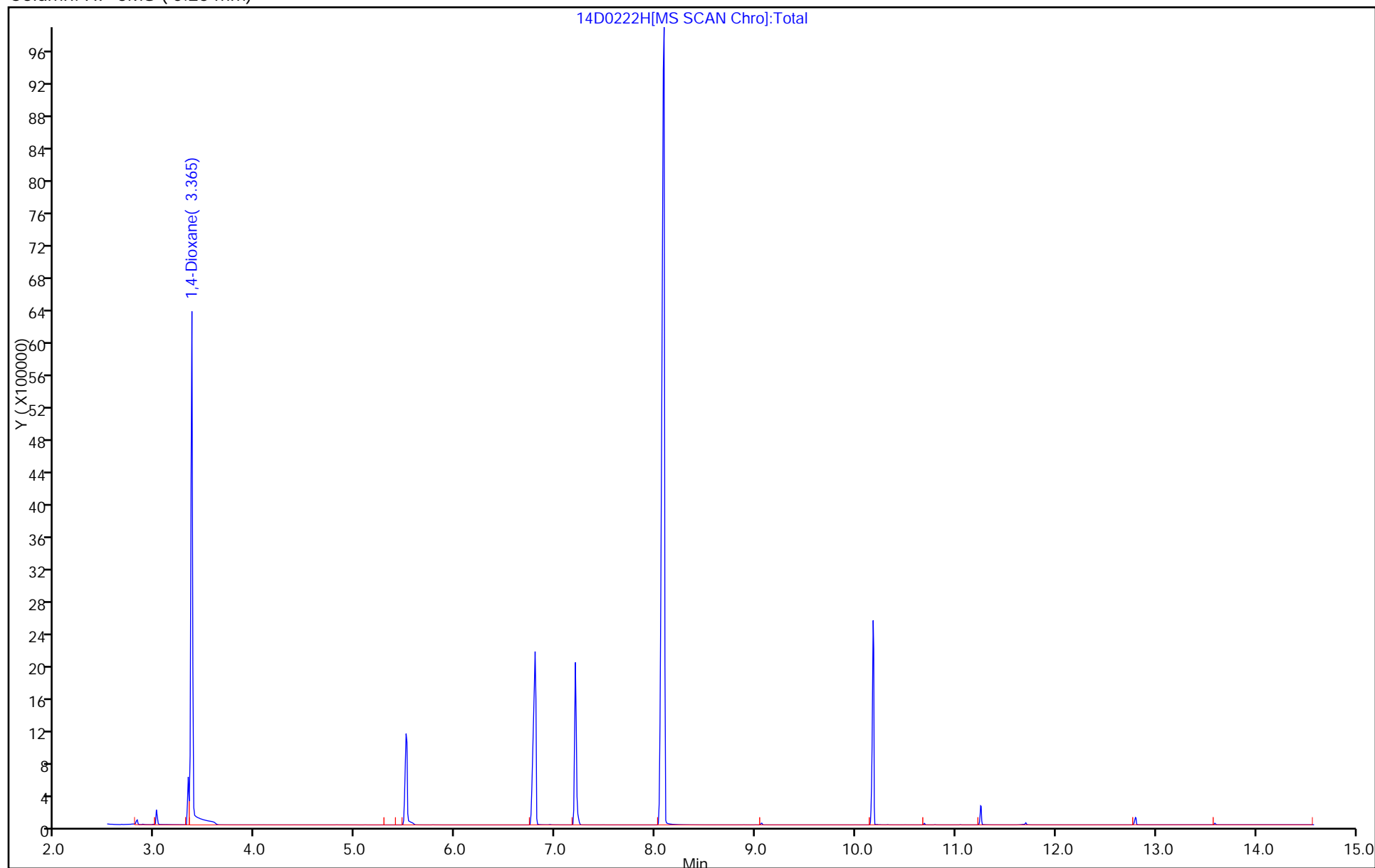
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D

Injection Date: 22-Feb-2017 12:09:30

Instrument ID: SV1

Lims ID: IC CS-8

Client ID:

Operator ID:

ALS Bottle#:

8

Worklist Smp#: 8

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

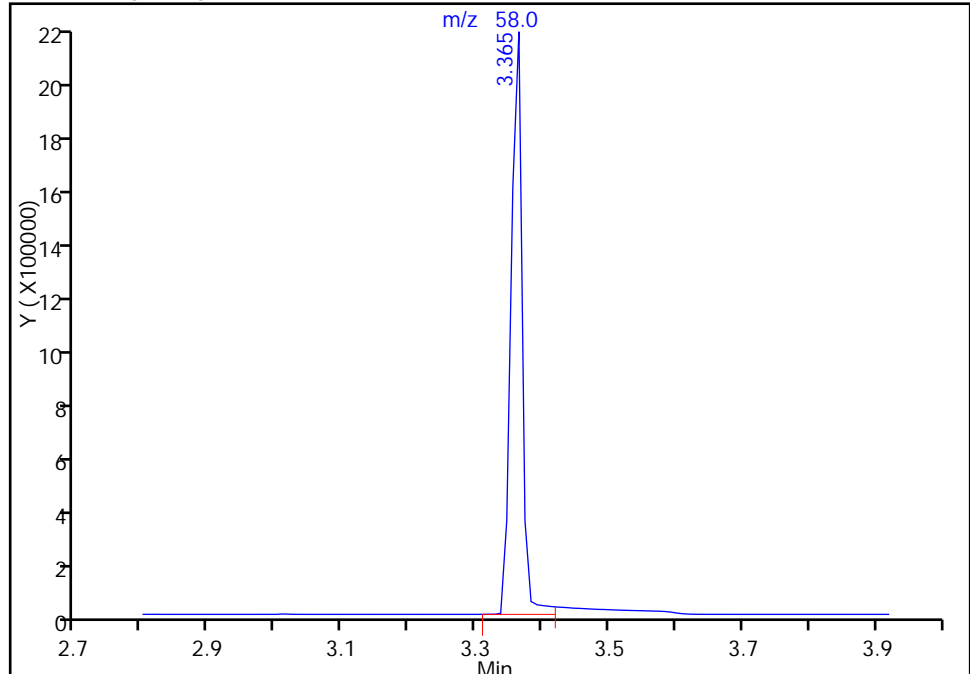
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

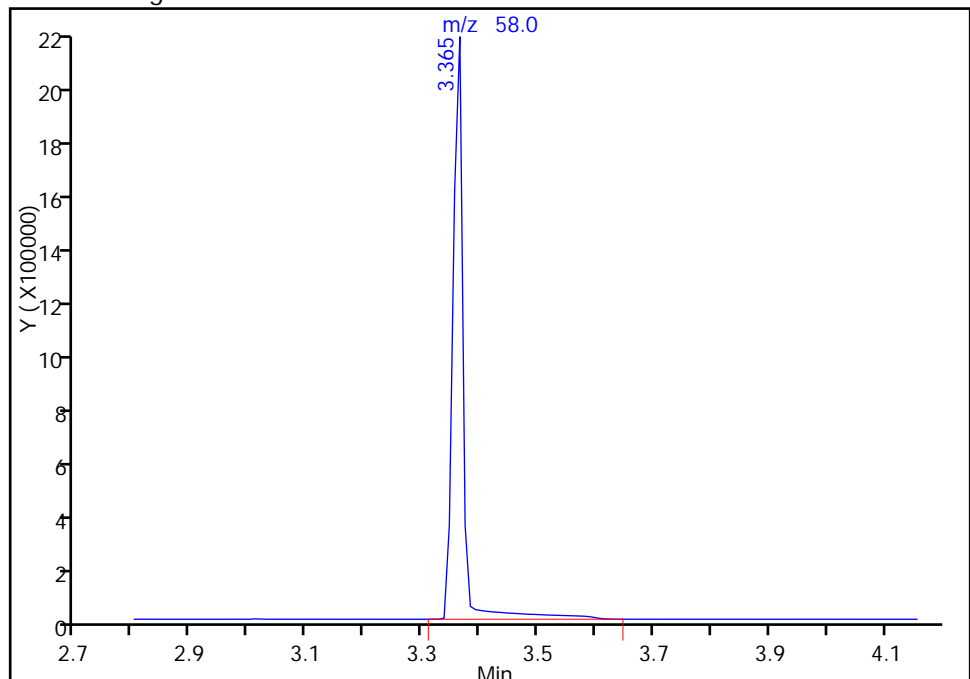
RT: 3.36
Area: 2566879
Amount: 82.391732
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 2749219
Amount: 87.603583
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:32

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Lab Sample ID: ICV 320-151686/9 Calibration Date: 02/22/2017 12:31
Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
Lab File ID: 14D0222.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3365		8.39	10.0	-16.1	30.0
Nitrobenzene-d5	Ave	1.208	1.092		9.04	10.0	-9.6	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 22-Feb-2017 12:31:30 ALS Bottle#: 9 Worklist Smp#: 9
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: ICV 14D
 Operator ID: Instrument ID: SV1
 Sublist:

Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:32 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D

Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											
58	3.371	3.354	0.017	62	295999	10.0	8.39	80- 120	100	1939	
88	3.371	3.354	0.017		362512			92- 132	122		
* 2 1,4-Dichlorobenzene-d4											
152	7.198	7.197	0.001	100	879747	10.0	10.0	80- 120	100		
150	7.198	7.197	0.001		1372333			136- 176	156		
115	7.198	7.197	0.001		505357			37.1- 77.1	57.4		
\$ 3 Nitrobenzene-d5											
82	8.060	8.059	0.001	99	960674	10.0	9.04	80- 120	100		
128	8.060	8.059	0.001		494326			29.8- 69.8	51.5		
54	8.052	8.059	-0.007		562315			38.3- 78.3	58.5		

Reagents:

MS14DICV_00004

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222.D

Injection Date: 22-Feb-2017 12:31:30

Instrument ID: SV1

Operator ID:

Lims ID: ICV

Worklist Smp#: 9

Client ID:

Injection Vol: 1.0 ul

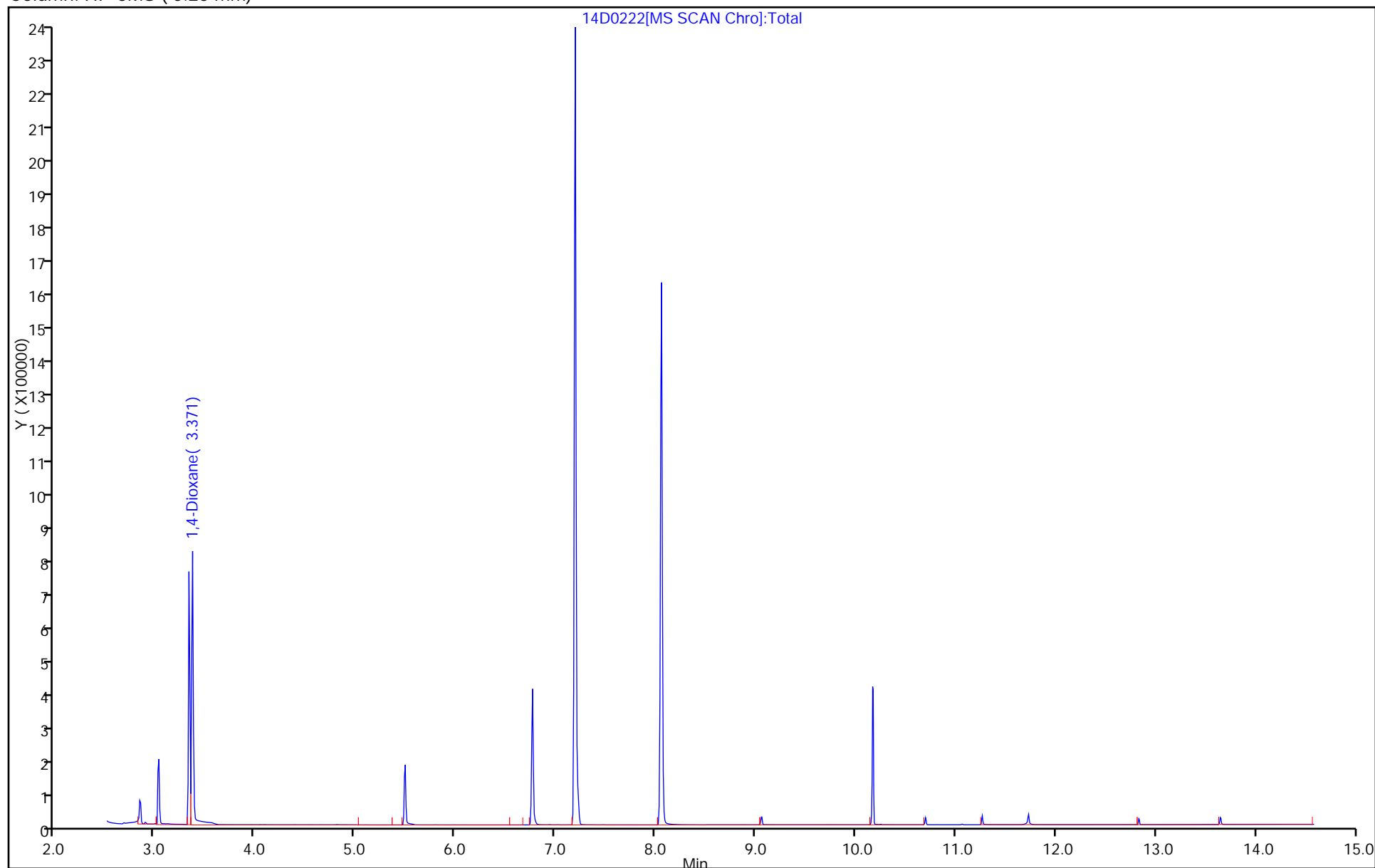
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



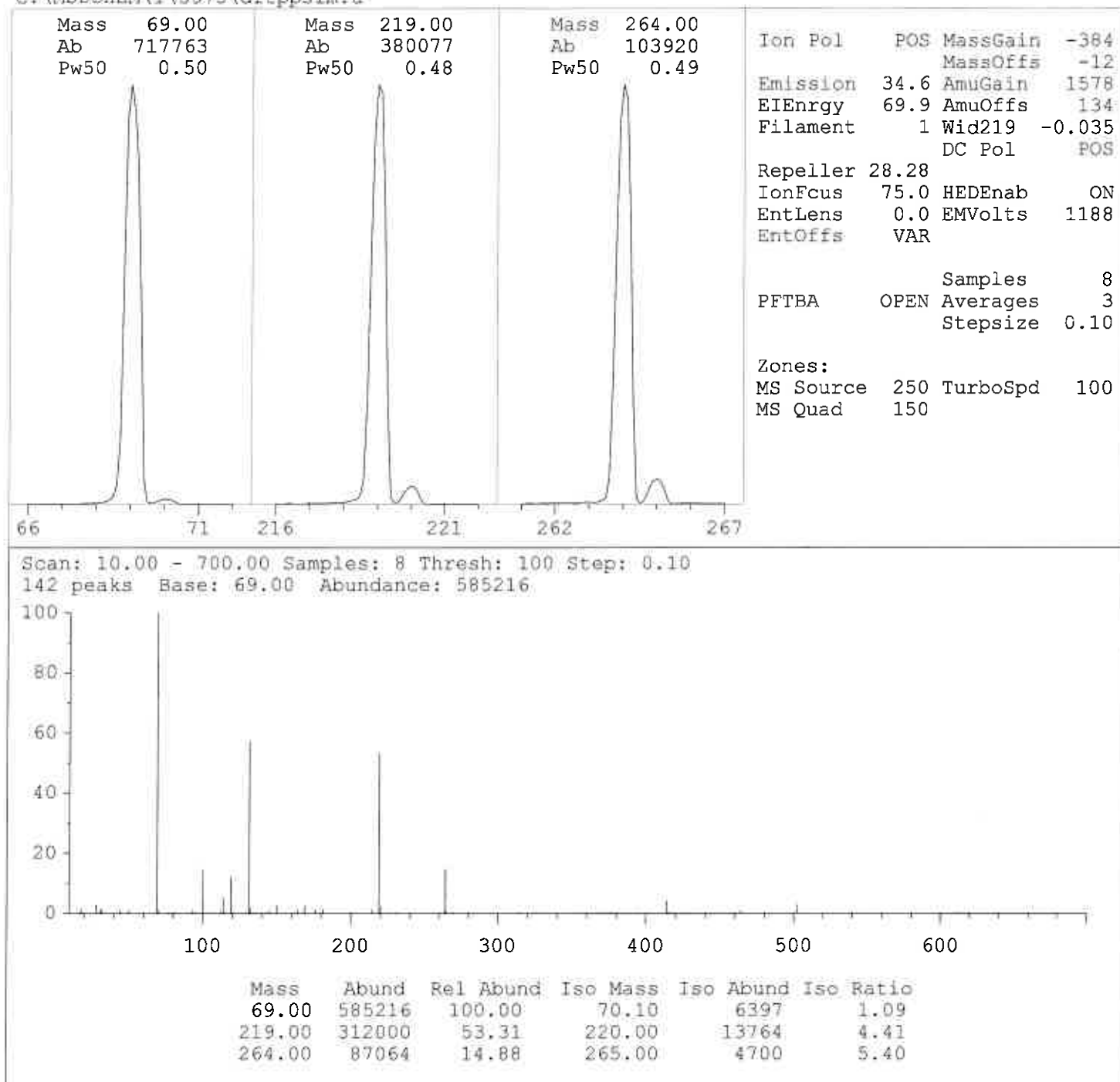
FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Lab Sample ID: CCV 320-154875/2 Calibration Date: 03/14/2017 14:42
Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
Lab File ID: 14D0314.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3923		9.78	10.0	-2.2	30.0
Nitrobenzene-d5	Ave	1.208	1.204		9.97	10.0	-0.3	30.0

Tue Mar 14 14:14:56 2017
C:\MSDCHEM\1\5973\dftppsims.u

Instrument: SV1



Air/Water Check: H2O~1.49% N2~2.83% O2~0.93% CO2~0.99% N2/H2O~190.25%

Column Flow: Front: 1.4 Back: 0 ml/min. Interface Temp: 250

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 264; EM Gain 206251
Repeller Maximum 35 volts using ion 219;

MassGain Values @Samples: -384@3 -384@2 -384@1 -384@0 -384@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	134.0	134.0	134.0	134.0	134.0	134.0	134.0
Entrance Lens Offset:	14.6	12.0	13.3	12.5	13.8	12.8	12.8
Target Abund(%)	1.0	100.0	55.0	45.0	3.0	2.0	
Actual Tune Abund(%)	0.9	100.0	57.1	53.3	4.3	3.0	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D
 Lims ID: CCV
 Client ID:
 Sample Type: CCV
 Inject. Date: 14-Mar-2017 14:42:30 ALS Bottle#: 96 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: CCV 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 15:23:26

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											M
58	3.320	3.320	0.000	91	267975	10.0	9.78	80- 120	100	118656	M
88	3.329	3.320	0.009		295886			90- 130	110		
* 2 1,4-Dichlorobenzene-d4											
152	7.172	7.172	0.000	97	683060	10.0	10.0	80- 120	100		
150	7.172	7.172	0.000		1056782			135- 175	155		
115	7.172	7.172	0.000		381437			35.8- 75.8	55.8		
\$ 3 Nitrobenzene-d5											
82	8.035	8.035	0.000	96	822559	10.0	9.97	80- 120	100		
128	8.035	8.035	0.000		442211			33.8- 73.8	53.8		
54	8.035	8.035	0.000		472906			37.5- 77.5	57.5		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D

Injection Date: 14-Mar-2017 14:42:30

Instrument ID: SV1

Operator ID:

Lims ID: CCV

Worklist Smp#: 2

Client ID:

Injection Vol: 1.0 ul

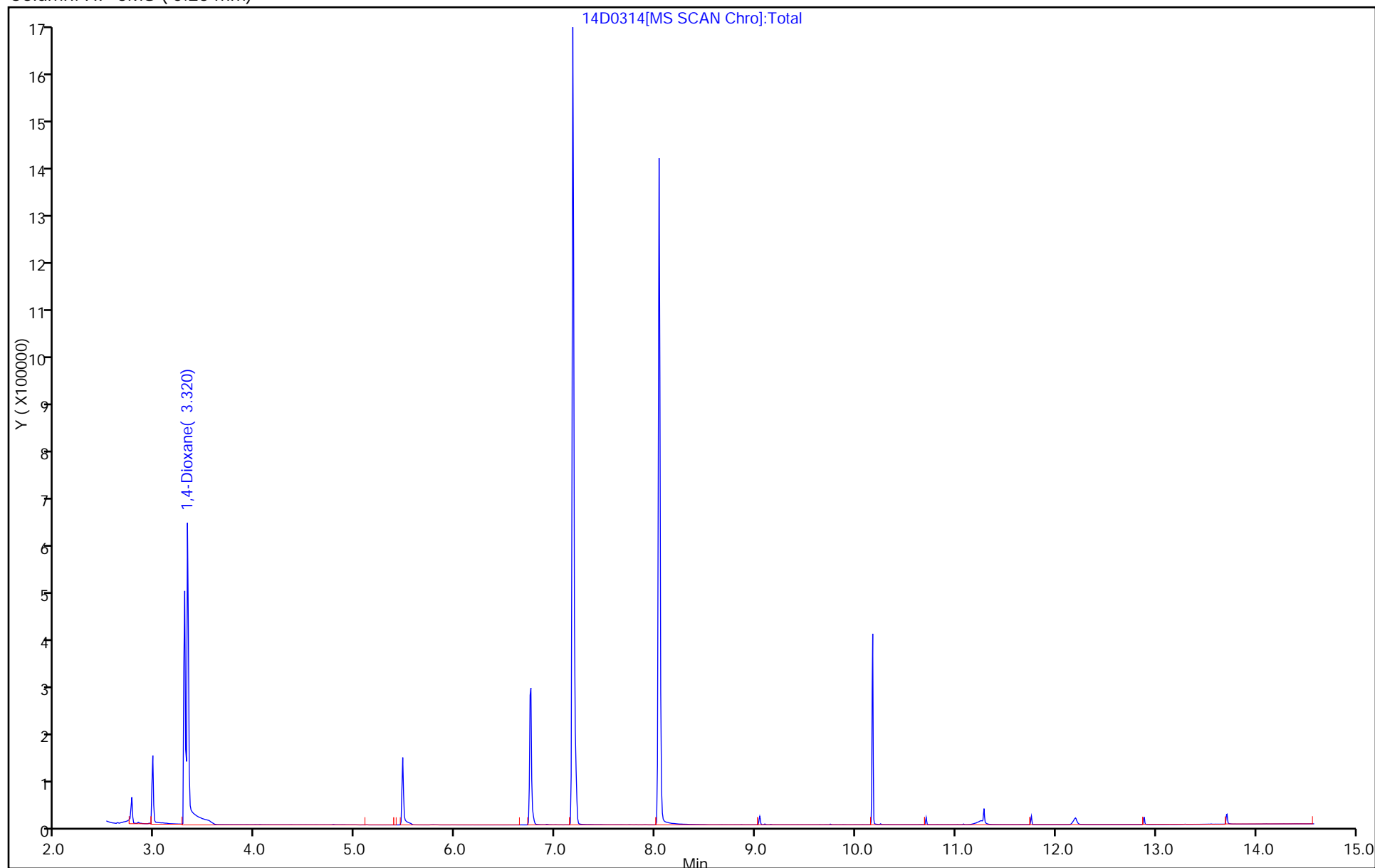
Dil. Factor: 1.0000

ALS Bottle#: 96

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D

Injection Date: 14-Mar-2017 14:42:30

Instrument ID: SV1

Lims ID: CCV

Client ID:

Operator ID:

ALS Bottle#:

96

Worklist Smp#: 2

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

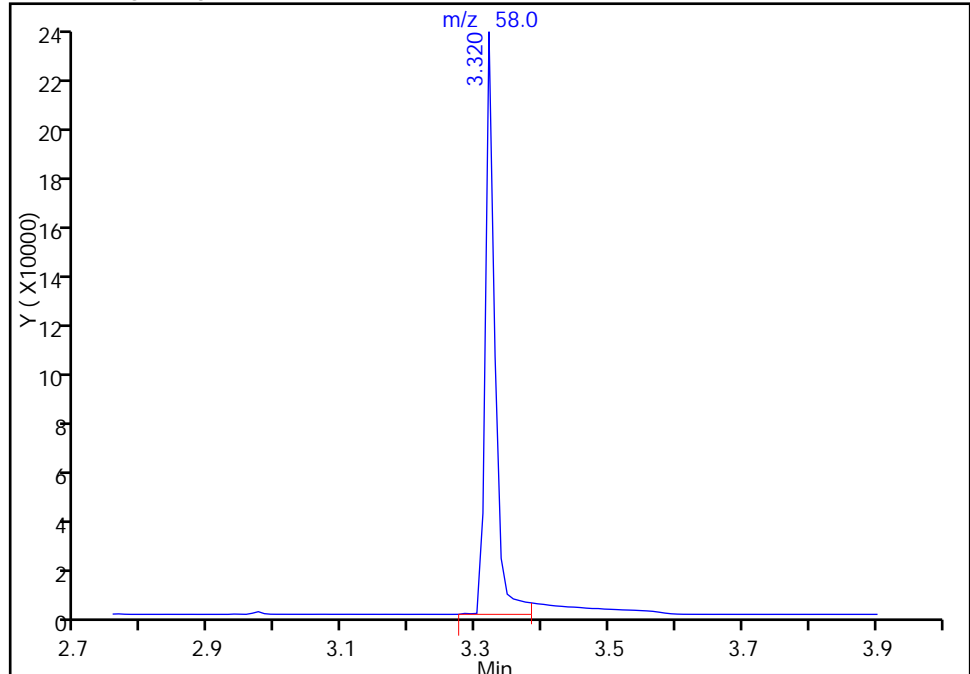
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

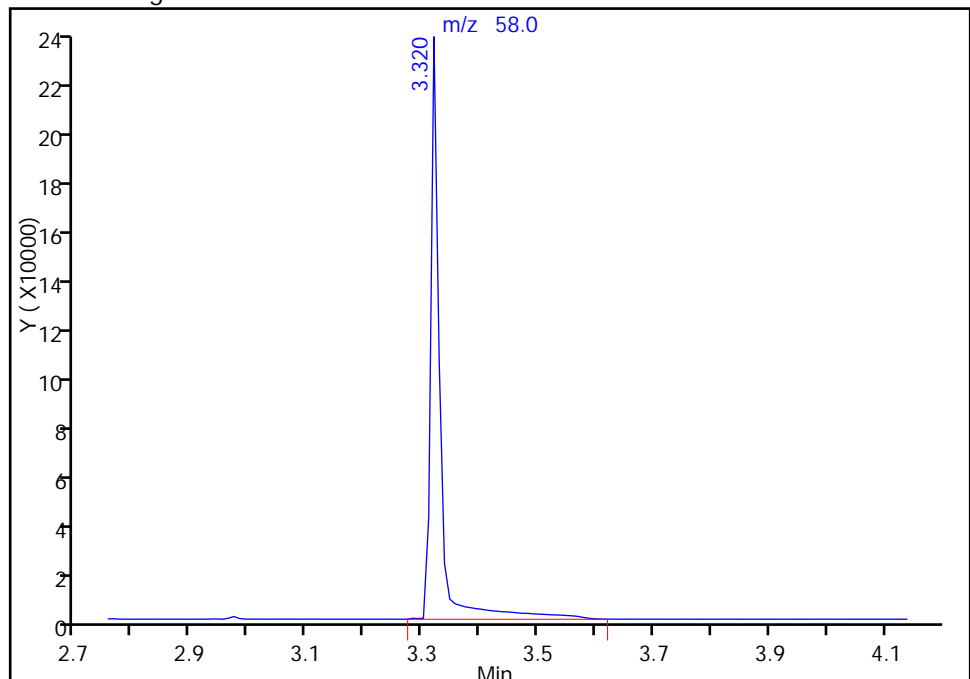
RT: 3.32
Area: 238941
Amount: 8.718742
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 267975
Amount: 9.778167
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 14:26:39

Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Lab Sample ID: CCVC 320-154875/29 Calibration Date: 03/15/2017 00:49
Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
Lab File ID: 14D0314A.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3975		9.91	10.0	-0.9	50.0
Nitrobenzene-d5	Ave	1.208	1.204		9.97	10.0	-0.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D
 Lims ID: CCVC
 Client ID:
 Sample Type: CCVC
 Inject. Date: 15-Mar-2017 00:49:30 ALS Bottle#: 96 Worklist Smp#: 29
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: CCVC 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:36:53 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: chajjita

Date: 15-Mar-2017 15:13:17

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											M
58	3.319	3.319	0.000	78	269963	10.0	9.91	80- 120	100	66474	M
88	3.319	3.319	0.000		290765			88- 128	108		
* 2 1,4-Dichlorobenzene-d4											
152	7.174	7.174	0.000	100	679174	10.0	10.0	80- 120	100		
150	7.174	7.174	0.000		1055158			135- 175	155		
115	7.174	7.174	0.000		381694			36.2- 76.2	56.2		
\$ 3 Nitrobenzene-d5											
82	8.036	8.036	0.000	99	817415	10.0	9.97	80- 120	100		
128	8.036	8.036	0.000		440948			33.9- 73.9	53.9		
54	8.036	8.036	0.000		465051			36.9- 76.9	56.9		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D

Injection Date: 15-Mar-2017 00:49:30

Instrument ID: SV1

Operator ID:

Lims ID: CCVC

Worklist Smp#: 29

Client ID:

Injection Vol: 1.0 ul

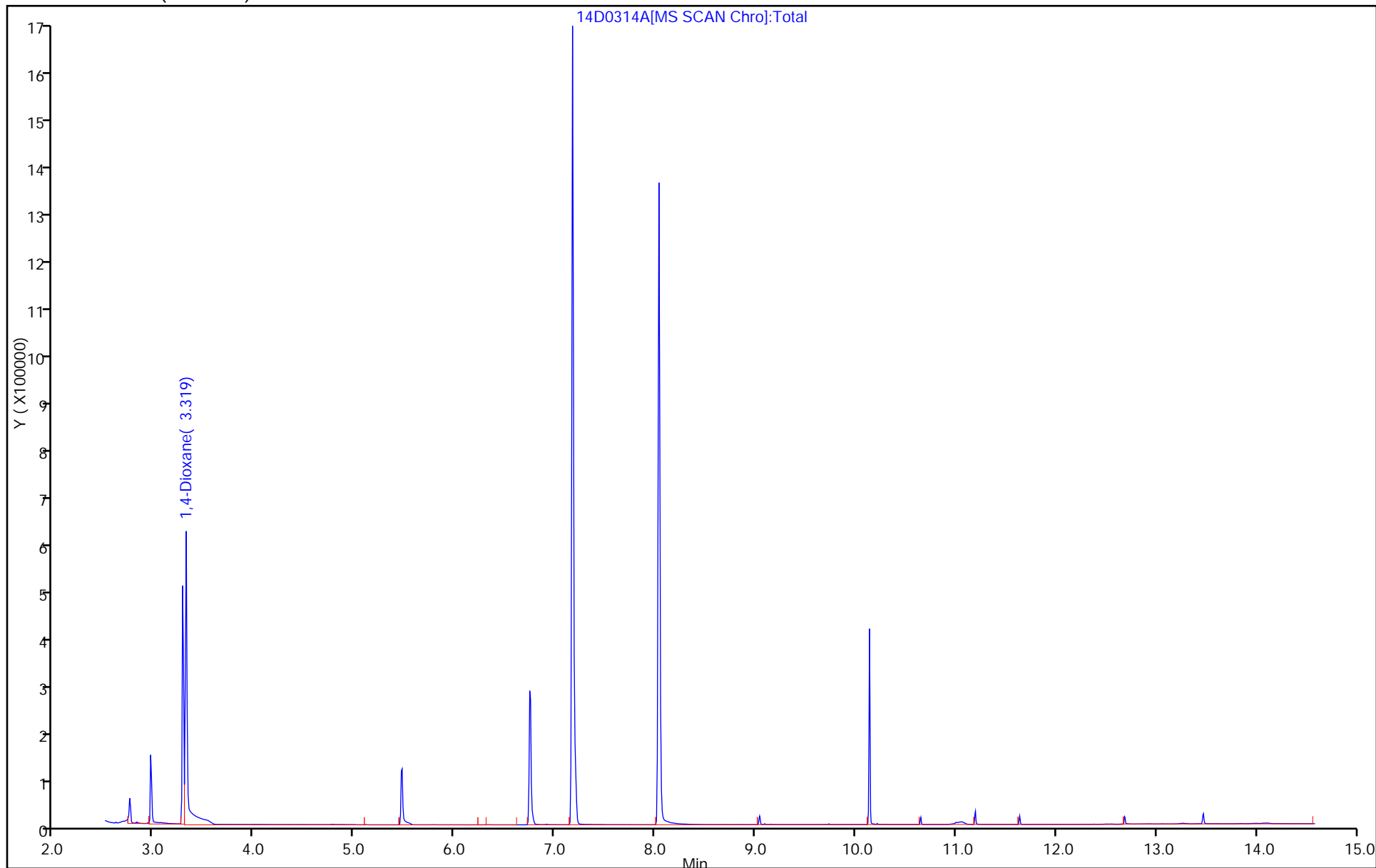
Dil. Factor: 1.0000

ALS Bottle#: 96

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D

Injection Date: 15-Mar-2017 00:49:30

Instrument ID: SV1

Lims ID: CCVC

Client ID:

Operator ID:

ALS Bottle#:

96

Worklist Smp#: 29

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

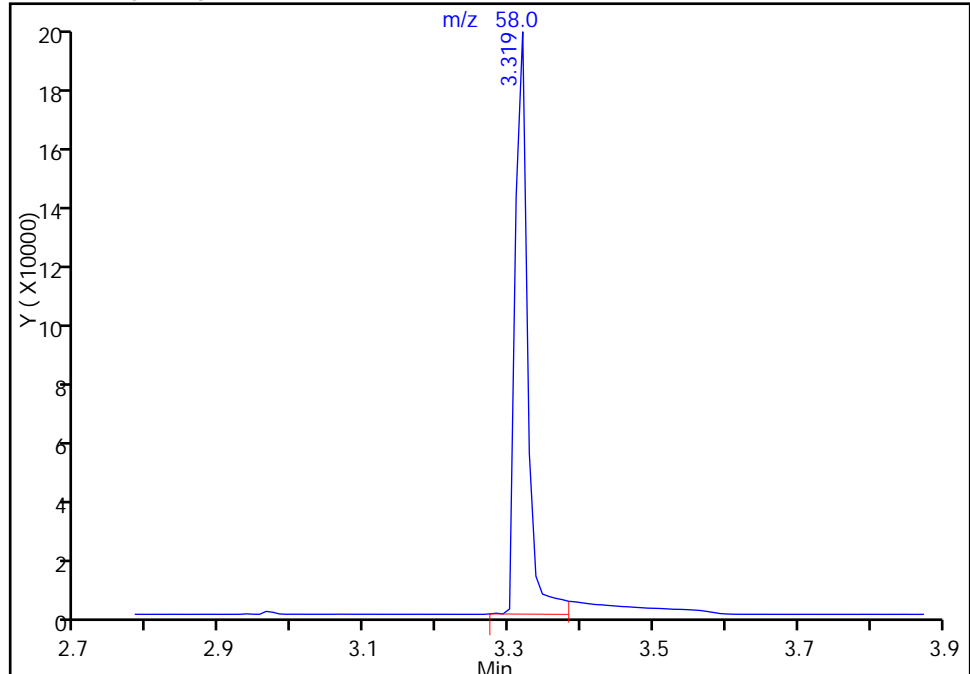
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

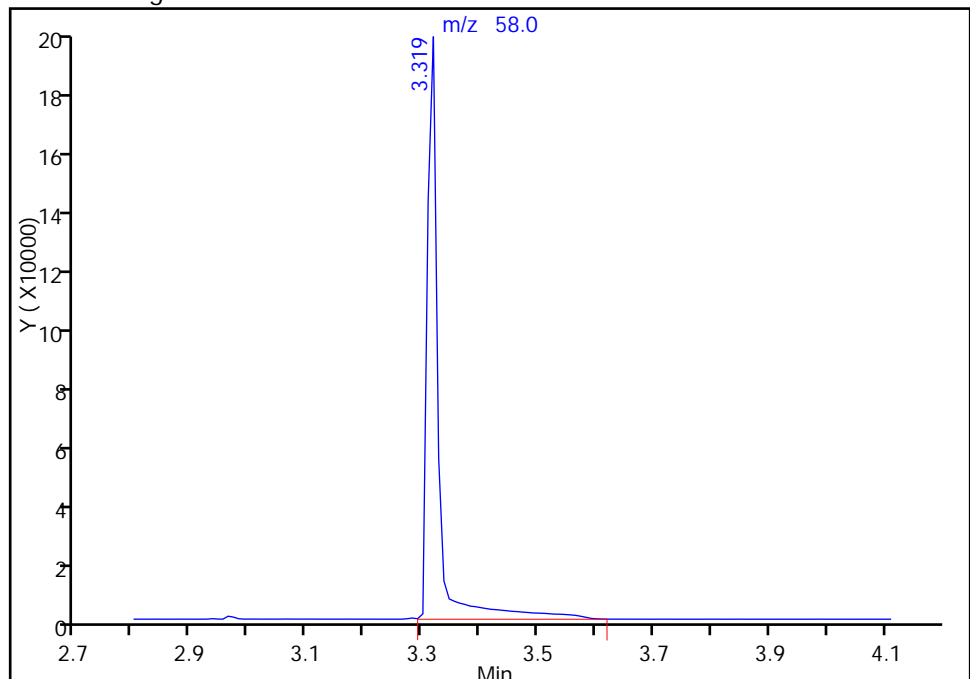
RT: 3.32
Area: 240662
Amount: 8.831785
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 269963
Amount: 9.907069
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 08:36:50

Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-152910/1-A
 Matrix: Water Lab File ID: S031401.D
 Analysis Method: WS-MS-0011 Date Collected: _____
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 15:04
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.50	U	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	69		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031401.D
 Lims ID: MB 320-152910/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 14-Mar-2017 15:04:30 ALS Bottle#: 1 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152910/1-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 15:23:54

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane

58	3.320									ND
88	3.320									

* 2 1,4-Dichlorobenzene-d4

152	7.173	7.172	0.001	100	701549	10.0	10.0	80- 120	100	
150	7.173	7.172	0.001		1088625			135- 175	155	
115	7.173	7.172	0.001		393895			35.8- 75.8	56.1	

\$ 3 Nitrobenzene-d5

82	8.036	8.035	0.001	99	290807	5.00	3.43	80- 120	100	
128	8.036	8.035	0.001		153968			33.8- 73.8	52.9	
54	8.036	8.035	0.001		166488			37.5- 77.5	57.3	

Reagents:

MS8270IS_00016	Amount Added: 5.00	Units: uL	Run Reagent
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TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031401.D

Injection Date: 14-Mar-2017 15:04:30

Instrument ID: SV1

Operator ID:

Lims ID: MB 320-152910/1-A

Worklist Smp#: 3

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

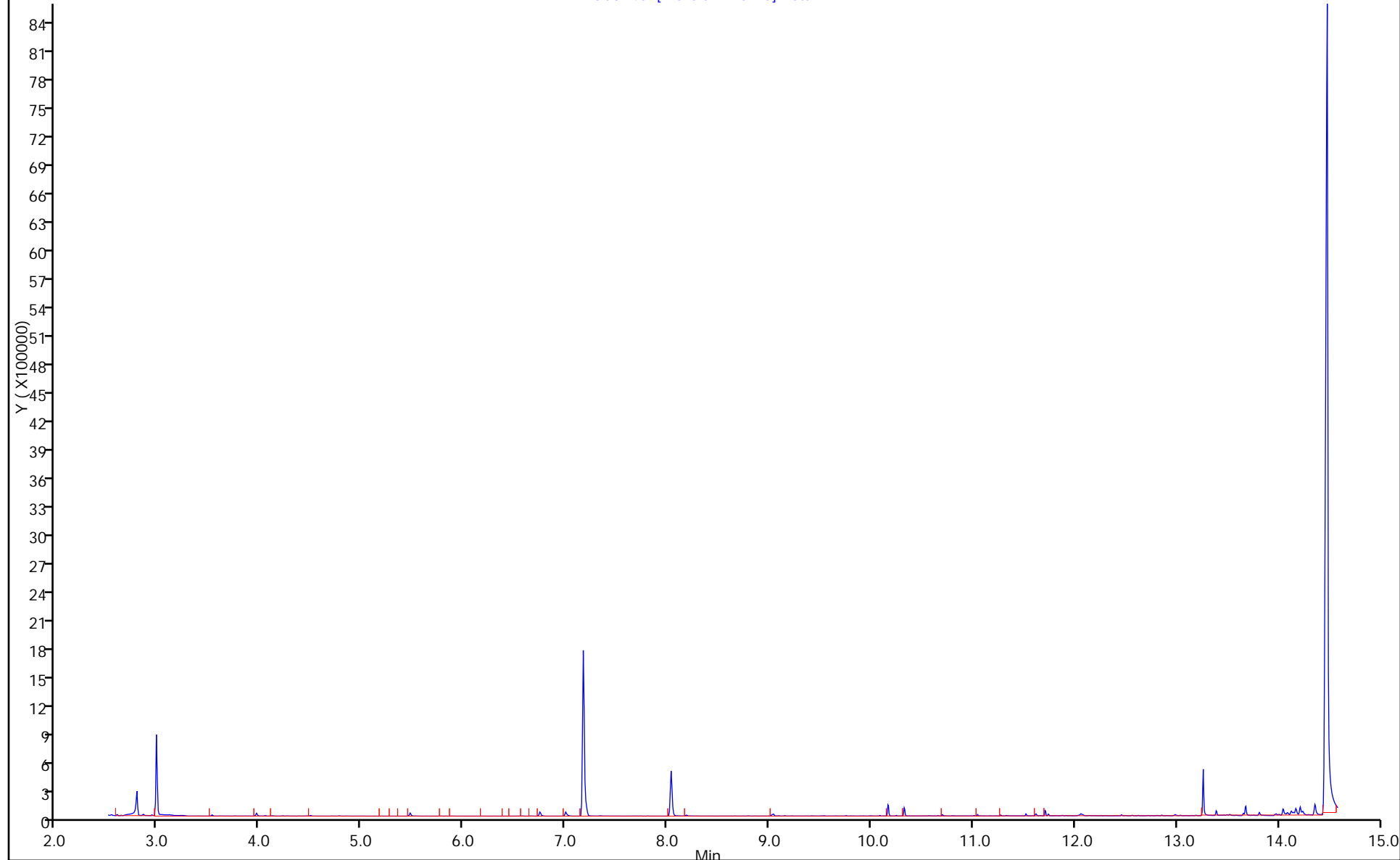
ALS Bottle#: 1

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

S031401[MS SCAN Chro]:Total



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031401.D
Lims ID: MB 320-152910/1-A
Client ID:
Sample Type: MB
Inject. Date: 14-Mar-2017 15:04:30 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-152910/1-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 15:23:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.43	68.65

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
SDG No.: _____
Client Sample ID: _____ Lab Sample ID: LCS 320-152910/2-A
Matrix: Water Lab File ID: S031402.D
Analysis Method: WS-MS-0011 Date Collected: _____
Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 15:27
Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	3.23	M	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	73		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031402.D
 Lims ID: LCS 320-152910/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 14-Mar-2017 15:27:30 ALS Bottle#: 2 Worklist Smp#: 4
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-152910/2-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 16:24:22

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.321	3.320	0.001	84	86567	10.0	3.23	80- 120	100	M
88	3.330	3.320	0.010		93055			90- 130	107	
* 2 1,4-Dichlorobenzene-d4										
152	7.173	7.172	0.001	100	668815	10.0	10.0	80- 120	100	
150	7.173	7.172	0.001		1033555			135- 175	155	
115	7.173	7.172	0.001		374147			35.8- 75.8	55.9	
\$ 3 Nitrobenzene-d5										
82	8.035	8.035	0.000	99	294068	5.00	3.64	80- 120	100	
128	8.035	8.035	0.000		156872			33.8- 73.8	53.3	
54	8.035	8.035	0.000		168384			37.5- 77.5	57.3	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031402.D

Injection Date: 14-Mar-2017 15:27:30

Instrument ID: SV1

Operator ID:

Lims ID: LCS 320-152910/2-A

Worklist Smp#: 4

Client ID:

Injection Vol: 1.0 ul

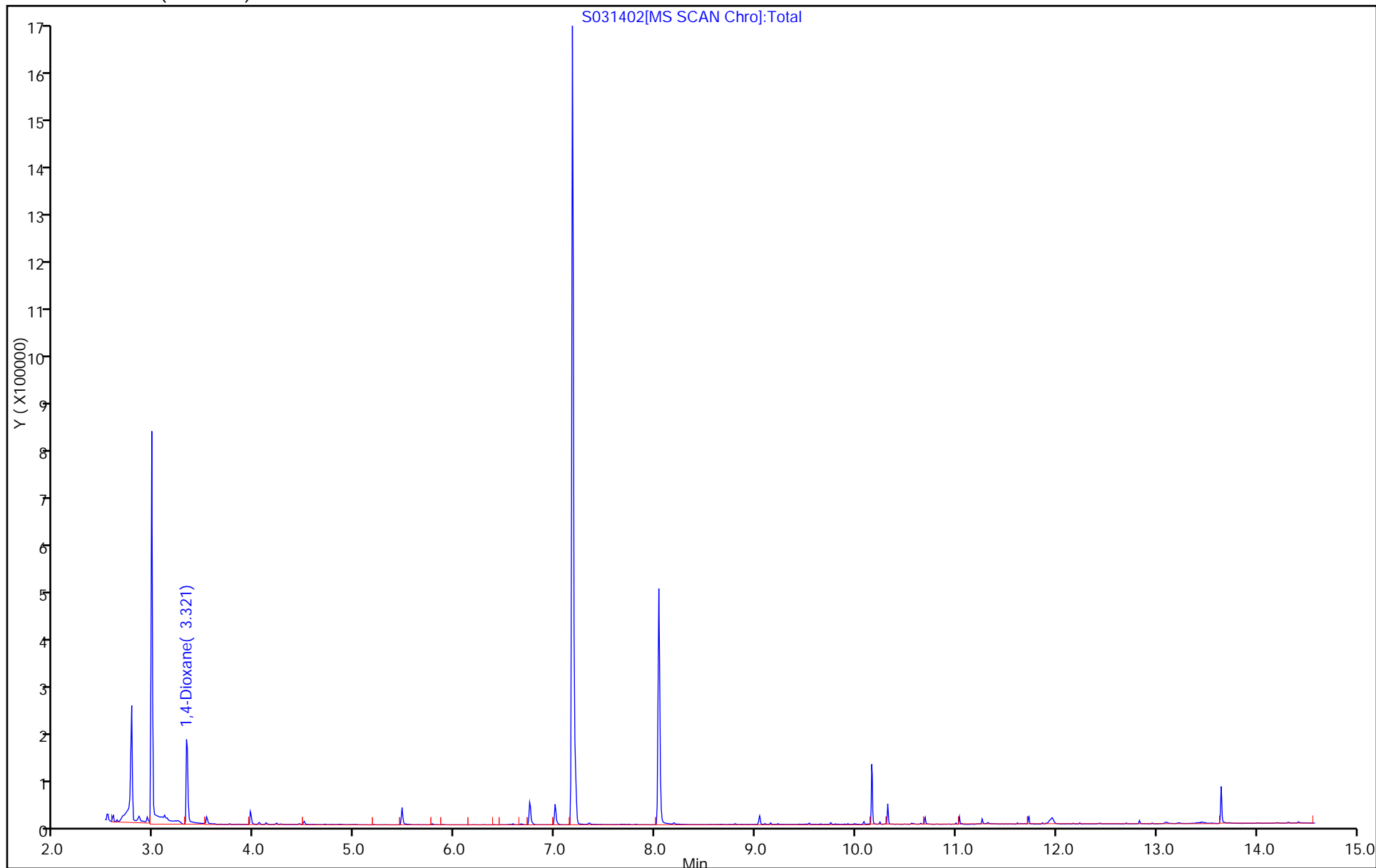
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031402.D
Lims ID: LCS 320-152910/2-A
Client ID:
Sample Type: LCS
Inject. Date: 14-Mar-2017 15:27:30 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-152910/2-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: onishim

Date: 14-Mar-2017 16:24:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.64	72.81

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031402.D

Injection Date: 14-Mar-2017 15:27:30

Instrument ID: SV1

Lims ID: LCS 320-152910/2-A

Client ID:

Operator ID:

ALS Bottle#:

2

Worklist Smp#:

4

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

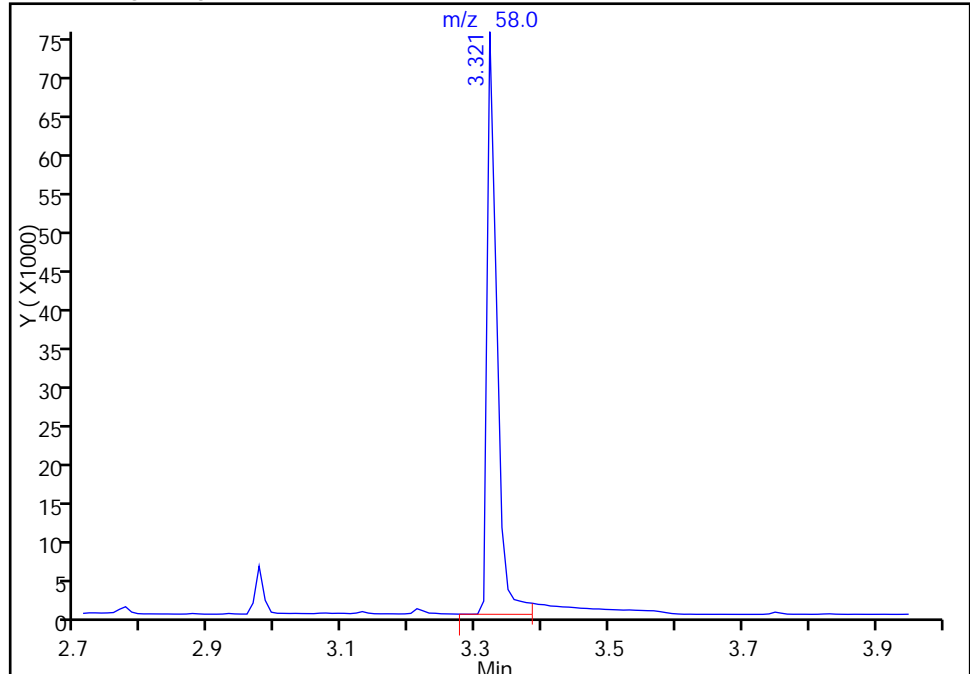
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

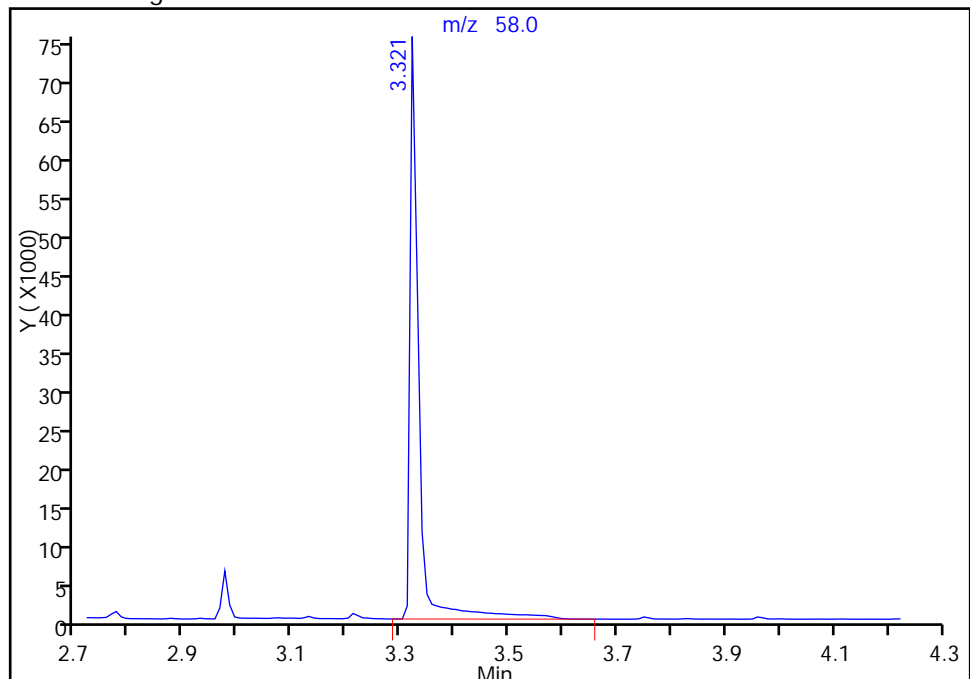
RT: 3.32
Area: 77953
Amount: 2.905018
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 86567
Amount: 3.226030
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 14:27:06

Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-152910/3-A
 Matrix: Water Lab File ID: S031403.D
 Analysis Method: WS-MS-0011 Date Collected: _____
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 15:49
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	3.00	M	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	74		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031403.D
 Lims ID: LCSD 320-152910/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 14-Mar-2017 15:49:30 ALS Bottle#: 3 Worklist Smp#: 5
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-152910/3-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita

Date: 15-Mar-2017 14:27:20

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.320	3.320	0.000	71	80341	10.0	3.00	80- 120	100	M
88	3.329	3.320	0.009		84337			90- 130	105	
* 2 1,4-Dichlorobenzene-d4										
152	7.173	7.172	0.001	100	666531	10.0	10.0	80- 120	100	
150	7.173	7.172	0.001		1033458			135- 175	155	
115	7.173	7.172	0.001		374542			35.8- 75.8	56.2	
\$ 3 Nitrobenzene-d5										
82	8.035	8.035	0.000	100	299630	5.00	3.72	80- 120	100	
128	8.043	8.035	0.008		158722			33.8- 73.8	53.0	
54	8.035	8.035	0.000		172676			37.5- 77.5	57.6	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS8270IS_00016

Amount Added: 5.00

Units: uL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031403.D

Injection Date: 14-Mar-2017 15:49:30

Instrument ID: SV1

Operator ID:

Lims ID: LCSD 320-152910/3-A

Worklist Smp#: 5

Client ID:

Injection Vol: 1.0 ul

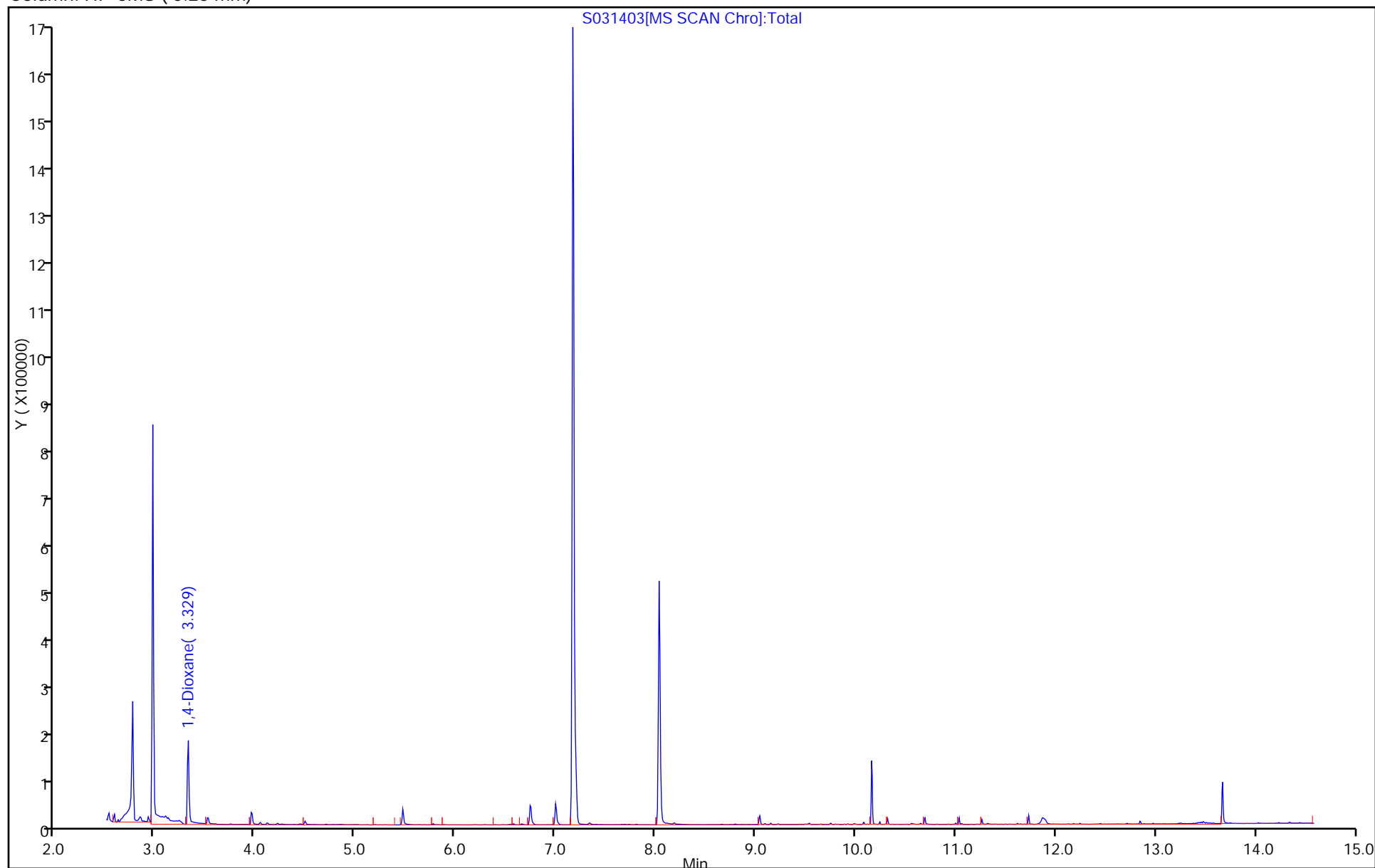
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031403.D
Lims ID: LCSD 320-152910/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 14-Mar-2017 15:49:30 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-152910/3-a
Operator ID: Instrument ID: SV1
Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
Limit Group: MSS - 8270SIM 14DX - ICAL
Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
Process Host: XAWRK013

First Level Reviewer: chajjita

Date: 15-Mar-2017 14:27:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.72	74.45

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031403.D

Injection Date: 14-Mar-2017 15:49:30

Instrument ID: SV1

Lims ID: LCSD 320-152910/3-A

Client ID:

Operator ID:

ALS Bottle#:

3

Worklist Smp#:

5

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

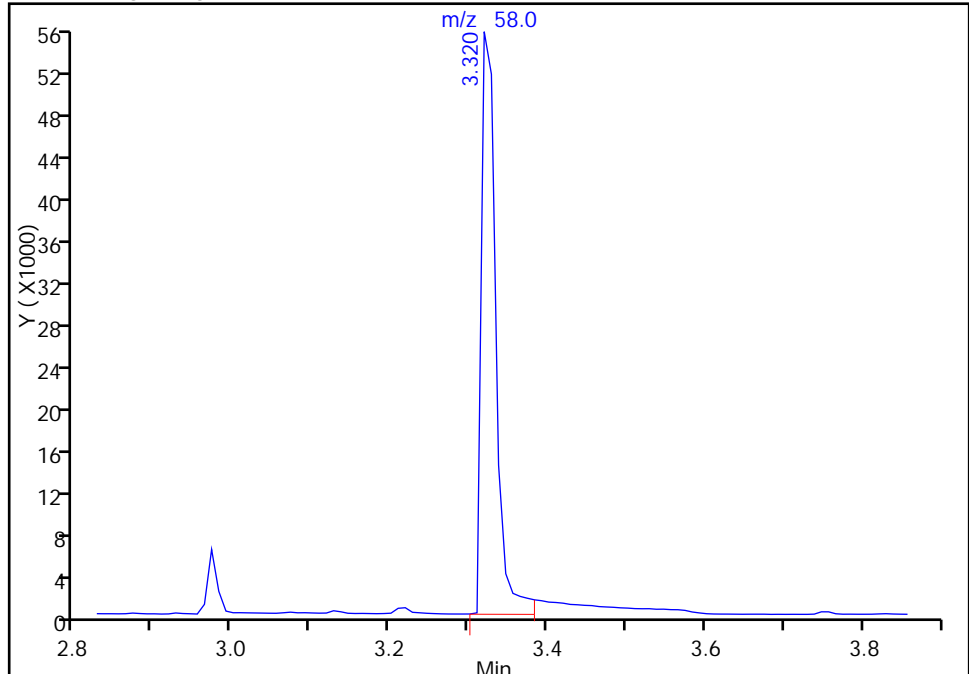
Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

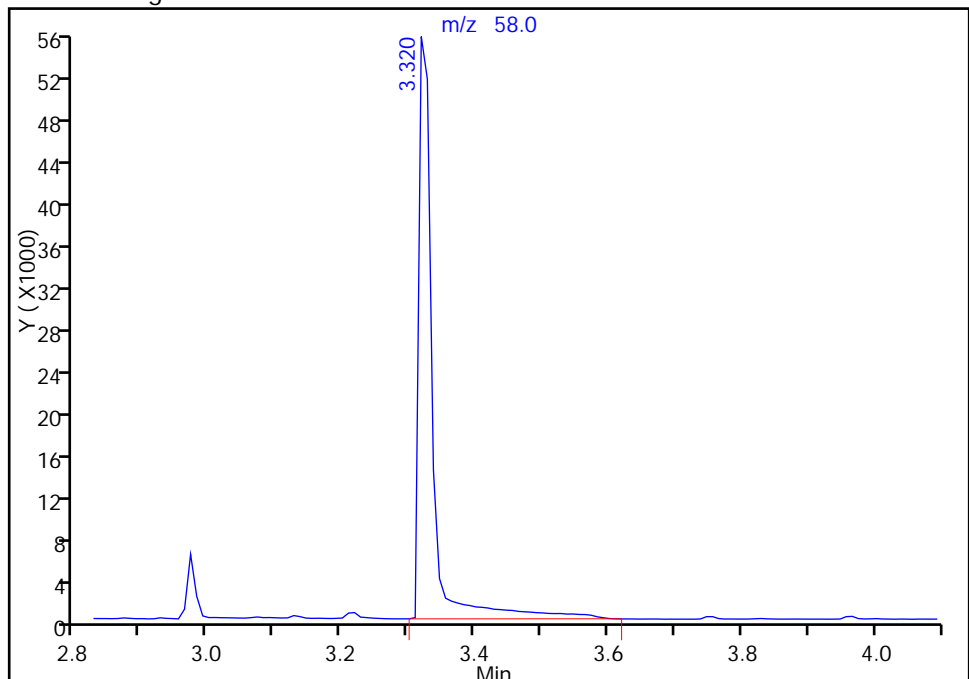
RT: 3.32
Area: 72253
Amount: 2.701827
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 80341
Amount: 3.004270
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 14:27:14

Audit Action: Manually Integrated

Audit Reason: Peak Tail

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: SV1 Start Date: 02/22/2017 09:35Analysis Batch Number: 151686 End Date: 02/22/2017 12:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-151686/1		02/22/2017 09:35	1	14D0222A.D	HP-5MS 0.25 (mm)
IC 320-151686/2		02/22/2017 09:56	1	14D0222B.D	HP-5MS 0.25 (mm)
IC 320-151686/3		02/22/2017 10:19	1	14D0222C.D	HP-5MS 0.25 (mm)
IC 320-151686/4		02/22/2017 10:41	1	14D0222D.D	HP-5MS 0.25 (mm)
ICIS 320-151686/5		02/22/2017 11:03	1	14D0222E.D	HP-5MS 0.25 (mm)
IC 320-151686/6		02/22/2017 11:25	1	14D0222F.D	HP-5MS 0.25 (mm)
IC 320-151686/7		02/22/2017 11:47	1	14D0222G.D	HP-5MS 0.25 (mm)
IC 320-151686/8		02/22/2017 12:09	1	14D0222H.D	HP-5MS 0.25 (mm)
ICV 320-151686/9		02/22/2017 12:31	1	14D0222.D	HP-5MS 0.25 (mm)

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26103-1

SDG No.: _____

Instrument ID: SV1Start Date: 03/14/2017 14:42Analysis Batch Number: 154875End Date: 03/15/2017 00:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154875/2		03/14/2017 14:42	1	14D0314.D	HP-5MS 0.25 (mm)
MB 320-152910/1-A		03/14/2017 15:04	1	S031401.D	HP-5MS 0.25 (mm)
LCS 320-152910/2-A		03/14/2017 15:27	1	S031402.D	HP-5MS 0.25 (mm)
LCSD 320-152910/3-A		03/14/2017 15:49	1	S031403.D	HP-5MS 0.25 (mm)
320-26103-6		03/14/2017 16:12	1	S031404.D	HP-5MS 0.25 (mm)
320-26103-7		03/14/2017 16:35	1	S031405.D	HP-5MS 0.25 (mm)
320-26103-11		03/14/2017 16:57	1	S031406.D	HP-5MS 0.25 (mm)
320-26103-12		03/14/2017 17:20	1	S031407.D	HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 17:42	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:05	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:28	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:50	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:13	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:35	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:58	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 20:21	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 20:43	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 21:06	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 21:28	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 21:50	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 22:13	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 22:35	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 22:57	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 23:20	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 23:42	1		HP-5MS 0.25 (mm)
ZZZZZ		03/15/2017 00:04	1		HP-5MS 0.25 (mm)
ZZZZZ		03/15/2017 00:27	1		HP-5MS 0.25 (mm)
CCVC 320-154875/29		03/15/2017 00:49	1	14D0314A.D	HP-5MS 0.25 (mm)

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Batch Number: 152910 Batch Start Date: 03/02/17 13:45 Batch Analyst: Kuzmenko, NataliaBatch Method: 3510C Batch End Date: 03/06/17 12:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	ReceivedpH	GrossWeight	TareWeight	InitialAmount	FinalAmount	MS14DSP 00030
MB 320-152910/1		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	
LCS 320-152910/2		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	500 uL
LCSD 320-152910/3		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	500 uL
320-26103-A-6	MEAFF-MRD-0504-0 217	3510C, WS-MS-0011	T	7 SU	1578.6 g	511.16 g	1067.4 mL	1.0 mL	
320-26103-C-7	MEAFF-MRD-0621-0 217	3510C, WS-MS-0011	T	5 SU	1578.9 g	521.26 g	1057.6 mL	1.0 mL	
320-26103-A-11	MEAFF-MRD-0503-0 217	3510C, WS-MS-0011	T	7 SU	1549.9 g	515.14 g	1034.8 mL	1.0 mL	
320-26103-D-12	MEAFF-MRD-0615-0 217	3510C, WS-MS-0011	T	5 SU	1547.5 g	521.20 g	1026.3 mL	1.0 mL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	MS14DSU 00003					
MB 320-152910/1		3510C, WS-MS-0011		0.5 mL					
LCS 320-152910/2		3510C, WS-MS-0011		0.5 mL					
LCSD 320-152910/3		3510C, WS-MS-0011		0.5 mL					
320-26103-A-6	MEAFF-MRD-0504-0 217	3510C, WS-MS-0011	T	0.5 mL					
320-26103-C-7	MEAFF-MRD-0621-0 217	3510C, WS-MS-0011	T	0.5 mL					
320-26103-A-11	MEAFF-MRD-0503-0 217	3510C, WS-MS-0011	T	0.5 mL					
320-26103-D-12	MEAFF-MRD-0615-0 217	3510C, WS-MS-0011	T	0.5 mL					

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.

WS-MS-0011

Page 1 of 2

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Batch Number: 152910 Batch Start Date: 03/02/17 13:45 Batch Analyst: Kuzmenko, NataliaBatch Method: 3510C Batch End Date: 03/06/17 12:40

Batch Notes	
Balance ID	QA-036
Analyst ID - Concentration	NGK 3/06/17 FV-1mL vials # 16178661
Na2SO4 ID	SS00346
Oven, Bath or Block Temperature 1	75 C
Pipette ID	K35057E
Prep Solvent ID	0000164143
Prep Solvent Name	DCM
Prep Solvent Volume Used	180 mL
Person's name who did the prep	SR/AAR 03/02/2017
Analyst ID - Reagent Drop Witness	AAR 3/2/17
Analyst ID - Reagent Drop	SR 3/2/17
Water Bath ID	BT-021, BT-020

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.

Dec 3/17
LH

LIMS Batch Number: 154975	Worklist #: 40922	Instrument ID: SV1
Analyst/1 st Reviewer: Aptm/pel 3/15/17	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
Matrix: (Non-potable Water) Solid Leachate Tissue Air Waste	QC Type (circle): Standard QAPP (DOD) Other- Explain QSM 5.0	
Job Nos: 320-26103, 320-26105, 320-26273, 320-26324	Prep Batch(es): 152910, 153906	ICAL Batch: 151696

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
A. Tune/Calibration Verification					
1. Did DFTPP meet tune criteria? If SIM, did the PFTBA Tune check meet ion ratio criteria?		/		✓	
2. Are the Benzidine and PCP tailing ≤ 2? (8270D) Benzidine tailing ≤ 3 and PCP tailing ≤ 5? (8270C)	/			✓	If no, list details: _____
3. Is the DDT degradation ≤ 20%	/			✓	If no, list details: _____
4. Were all standards injected within 12 hr of DFTPP? (or 24 hrs for 625)?		/		✓	If no, list details: _____
5. Was the correct ICAL used for quantitation? Date and Instrument ID of ICAL verified? (Check in both Chrom/Target and TALS)		/		✓	
6. Do the RFs meet method minimum criteria? (8270D/625) Are the RFs for SPCCs ≥ 0.050? (8270C) SPCC: 2,4-Dinitrophenol, 4-Nitrophenol, Hexachlorocyclopentadiene & N-nitroso-di-n-propylamine		/		✓	If no, list details: _____
7. Is the %D (difference or drift) ≤ 20% for all CCCs? All other analytes within 15%, or lab limits (8270C); %D ≤ 20% for all analytes, at least 80% of compounds meet criteria? (8270D) %D ≤ 30% for all analytes (non-DOD SIM) %D ≤ 20% for all analytes (DOD SIM) CCC: Phenol, 1,4-DCB, 2-Nitrophenol, 2,4-Dichlorophenol, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, Acenaphthene, N-nitrosodiphenylamine, Pentachlorophenol, Di-n-octyl phthalate & Benzo(a)pyrene		/		✓	If no, list details: _____ (8270C: %D high, samples ND?) (8270D: <20% of cmpds fail criteria & for failed cmpds RL standard verifies sensitivity for NDs?)
8. For any compound > 20% D (low), was RL standard analyzed and detected? (8270D)	/			✓	
9. NOTE: For any compounds > 20% D (high or low), detects will be flagged as "EST" & narrated.	/			✓	□ Must be done in consultation with client.
10. Are the internal standard responses within limits?		/		✓	If no, list details: _____

TestAmerica Sacramento

GCMS CCV and Tune Data Review Checklist

LIMS Batch Number: 154975	Worklist #: 40922	Instrument ID: SV1
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(between -50% and +100% of the mid-level ICAL standard)					
11. Are the internal standard retention times within method limits? (± 30 sec of ICAL mid pt for 8270C/D)				✓	If no, list details: _____
12. Benzo(b & k)fluoranthene: height of the valley between must be less than 50% of the average of the two peak heights?				✓	
13. Elution order checked Isomeric pairs and coeluters?					Chrom: View/Documents/Methods/Isomers)
• aniline / bis(2-chloroethyl)ether	✓				
• n-nitrosodiphenylamine/diphenylamine * (conc)	✓				
• 1,3-, 1,4-, 1,2-dichlorobenzene	✓				
• benzyl alcohol / 2-methylphenol / 4-methylphenol	✓				
• 2 & 1 - methylnaphthalene	✓				
• 2,4,6- and 2,4,5-trichlorophenol	✓				
• phenanthrene / anthracene	✓				
• fluoranthene / pyrene	✓				
• benzo(a)anthracene / chrysene	✓				
• benzo(e)pyrene / benzo(a)pyrene / perylene	✓				
• bis(2-ethylhexyl)/di-n-octyl phthalate	✓				
• benzo(b)fluoranthene / benzo(k)fluoranthene	✓				
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	✓				
• saffrole/1-chloronaphthalene	✓				
• 1-/2-naphthylamine	✓				
• 2 and 1-chloronaphthalene	✓				
• 2,4- and 2,6-dichlorophenol	✓				
14. If any criteria from items above were not met, was a NCM generated & approved by supervisor?		✓		✓	
15. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2nd review of all MIs required)		✓		✓	
16. Is the ICV properly linked?		✓		✓	
17. Is the FC43 Tune Documentation attached in TALS (SIM Methods: NPE, CWM, 1,4-Dx, PAH, PAH-IDA)		✓		✓	
18. Isotope Dilution: S/N for all IDA > 10:1, S/N for targets > 2.5:1	✓				
19. 1,4-Dx: S/N > 10:1 (client criteria > 20:1)?		✓		✓	

2nd Reviewer:

Review Date:

3/7/17

Comments:

Sacramento
GCMS Semivolatile Sample & QC Data Review Checklist

LIMS Batch Number: 154875	Worklist #: 40822	Instrument ID: SV1
Analyst/1st Reviewer: APIWAL 3/15/17	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
Matrix: (Non-potable Water) Solid Leachate Tissue Air Waste	QC Type (circle): Standard QAPP (DOD) Other- Explain: (SM 5.0)	
Job Nos: 320 - 26103, 320 - 26105, 320 - 26273, 320 - 26324	Prep Batch(es): 152910, 153806	

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
B. Client Sample and QC Sample Results					
1. All samples & QC injected within method time criteria? (8270C, 8270D 12 hr; 625=24 hr)		/		/	Time of last Injection: 00:49
2. LCS (LFB) %recovery within limits? (625=cmpd specific-Table 5 'P' value (All other methods =lab statistical limits)		/		/	
3. MS/MSD (LFM/LFMD) %recoveries within limits? (625=cmpd specific-Table 5 'P' value) (All other methods =lab statistical limits)		/		/	
4. MS/MSD RPD within limits? (625=cmpd specific-limits) (All other methods =lab statistical limits)		/		/	
5. Do all spiked samples (LCS, MS, MSD) yield positive detections? Concentrations of ND require evaluation, correction or explanation.		/		/	
6. Are all duplicate or spiked duplicate sample RPDs <75%? Excessive RPDs (>75%) require evaluation, correction or explanation.		/		/	
7. Target cmpds in Method Blank are below required concentration.		/		/	
8. Surrogates within %Recovery acceptance limits for all samples and QC? If no, list details:		/		/	<input type="checkbox"/> Samples submitted for re-extraction <input type="checkbox"/> Confirmed by re-extraction <input type="checkbox"/> Insufficient sample for re-extraction <input type="checkbox"/> Surrogates high, samples ND <input type="checkbox"/> Visual Matrix Interference-Client notified- Explain: _____ _____ _____
9. Internal standard (IS) response between -50% and +100% of (circle one) CCV standard? Mid-point ICAL? If no, list details:		/		/	<input type="checkbox"/> High IS response. Sample(s) rerun to confirm, or at dilution. <input type="checkbox"/> Low IS response. Sample(s) reanalyzed.

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Based on Corp Form No. CA-Q-WI-045, Rev. 0, dated 11 Nov 2014

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TestAmerica Sacramento

GCMS CCV and Tune Data Review Checklist

LIMS Batch Number: 154875	Worklist #: 40822	Instrument ID: SV1
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Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
B. Client Sample and QC Sample Results (continued)					
10. Are internal standards <0.5 min of IS in last CCV?		/		/	
11. Samples with target analyte concentrations > calibration range diluted and reanalyzed? <i>If no, list details:</i>		/		/	<input type="checkbox"/> Results E flagged
11. Are peaks evaluated to assure there are no saturated peaks?		/		/	
12. Were preparation & analysis Holding Times met for all samples in the batch? Were analytical holding times met for all samples in the batch? <i>If no, list details:</i>		/		/	<input type="checkbox"/> H flag for samples past hold <input type="checkbox"/> NCM filed for samples past hold
13. Were prep and dilution factors verified between Chrom and TALS and final report?		/		/	Comments:
14. Were spectra for all detections evaluated for correct identification?		/		/	
15. Was a review performed of all chromatographic peaks that were deleted to verify removal was appropriate?		/		/	
16. Were unidentified peaks reviewed for missed target compounds?		/		/	
17. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2nd review of all MIs required)		/		/	
18. Were Isomeric pairs checked for correct assignment? (verify against ICAL & CCV)		/		/	
19. Were results from diluted & undiluted runs compared?	/			/	
20. Dilution: Is highest target analyte >20% of calibration range?	/			/	<input type="checkbox"/> Is there matrix preventing? <input type="checkbox"/> Are clean ups required?
C. Other -- Final Report Data Review					
21. Were all project requirements met?		/		/	
22. Samples checked to ensure all requested targets uploaded and reported correctly?		/		/	
23. Results for Samples/LCS/MS/MSD calculated/reported correctly in TALS and in final report? <i>Are recovery & RPD limits present in final report?</i>		/		/	(Reagents associated correctly?) (Limits in reference data?)
24. NCMs reviewed for applicability, correct references to batches/analytes, grammatical/typographical errors?		/		/	
25. Raw Data					
a. Unused data is clearly identified		/		/	
b. All crossed out data is initialed and dated		/		/	
c. Out of control QC is clearly identified		/		/	
d. Any data that has a qualifier tick is commented on with appropriate action taken		/		/	

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GCMS CCV and Tune Data Review Checklist

LIMS Batch Number: 154875	Worklist #: 40822	Instrument ID: SV1
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Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
C. Other -- Final Report Data Review (continued)					
e. The first page of the run includes the filename, instrument, and analyst initials/signature		/		/	
26. Run Log					If Chrom worklist is used for runlog, all runs upload to Worklist
a. Unused data is clearly identified		/		/	
b. All crossed out data is initialed and dated, not obliterated		/		/	
c. Analyst initials/signature provided		/		/	
27. TALS Samples Tab				/	
a. LIMS Sample IDs / Containers are correct		/		/	
b. Method and matrix are correct		/		/	
c. Date and time match raw data		/		/	
• Dilutions are correct		/		/	
• Correct suffix designated (where applicable)		/		/	
28. TALS Worksheet Tab is complete and correct		/		/	
29. TALS Reagent Tab is complete and correct		/		/	
30. TALS QC Links Tab is correct		/		/	Missing QC? <input type="checkbox"/> Check QC links, to samples and duplicates <input type="checkbox"/> Check cross batch links <input type="checkbox"/> QC at second level review? Missing limits? <input checked="" type="checkbox"/> Check QC links <input type="checkbox"/> Check spike (reagents) associated with appropriate analytes <input type="checkbox"/> check limits in ref. data-QA
31. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted		/		/	
b. All reported analytes are marked Primary or Secondary		/		/	
c. Flags are correctly applied (no flags missing)		/		/	<input type="checkbox"/> Apply manually <input type="checkbox"/> Failing condition not propagated to samples- Re-calc
32. TALS Batch Information Screen documentation is complete		/		/	
32. TALS Status set to appropriate review level		/		/	<input type="checkbox"/> Check for "yellow calculator"

2nd Reviewer:

Review Date:

Comments:

GCMS Semivolatile ICAL Data Review Checklist

Internal Standard

LIMS Batch Number: 151686	Worklist #: 40122	Instrument ID: SV1 (2/22/17)
Analyst/1 st Reviewer: ONL	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
QC Type (circle): Standard QAPP DOD Other-Explain _____		

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
A: Tune/Calibration Verification					
1. Did DFTPP meet tune criteria? If SIM, did the PFTBA Tune check meet ion ratio criteria?		✓		✓	
2. Are the Benzidine and PCP tailing ≤ 2? (8270D) Benzidine tailing ≤ 3 and PCP tailing ≤ 5? (8270C)	✓				If no, list details: _____
3. Is the DDT degradation ≤ 20%	✓				If no, list details: _____
4. Were all standards injected within 12 hr of DFTPP? (or 24 hrs for 625)?		✓		✓	If no, list details: _____
5. Were ≥ 5 levels of each compound analyzed? (≥ 3 levels for 625) (≥ 5 levels of surrogate analyzed for DoD)?		✓		✓	
6. Was low level standard at or below RL?		✓		✓	
7. If calibration points removed, were reasons for removal documented? Did sufficient calibration points remain? (removal from middle of curve not allowed)		✓		✓	(e.g.; some points <RL removed)
8. Does the low level standard have enough sensitivity to produce at least 5-10 scans across the peak, and all secondary ions are present?		✓		✓	
9. Do the average RFs meet minimum RF requirements? (625 – not method defined) (8270C-SPCCs = ≥0.05) (8270D- all cmpds have min RFs defined in method/SOP)		✓		✓	SPCC: 2,4-Dinitrophenol, 4-Nitrophenol, Hexachlorocyclopentadiene & N-nitroso-di-n-propylamine
10. Did the calibration %RSD meet method requirements? (625: ≤ 35% all cmpds) (8270C: ≤ 30% for CCCs & ≤ 15% for all other cmpds/surrogates) (8270D: ≤ 20% for all cmpds/surrogates) (SIM Methods: ≤ 30% for all cmpds/surrogates (Std) or : ≤ 15% for all cmpds/surrogates (DOD))		✓		✓	CCC: Phenol, 1,4-DCB, 2-Nitrophenol, 2,4-Dichlorophenol, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, Acenaphthene, N-nitrosodiphenylamine, Pentachlorophenol, Di-n-octyl phthalate & Benzo(a)pyrene
11. Was a linear or quadratic regression fit used for analytes that exceeded the %RSD requirements?	✓				
12. If regression fit used, is correlation coefficient ≥ 0.990?	✓				
13. Does the low point of a linear regression fit meet	✓				

LIMS Batch Number: 151686

Worklist #: 40122

Instrument ID: SVI

the $\pm 30\%$ read-back criteria? (8270D)					
14. At least 6 consecutive points used for quadratic curves?	/				
15. For quadratic – examine plot: Is a tangent's slope to the curve entirely positive or negative and continuous? (does not flatten or recurve within the range of calibration)	✓				
16. For quadratic – evaluate curve fitting errors: Does each point fall within criteria when 'read-back' against the curve? (TA requirement – CA-Q-S-005; recommended limits $\pm 30\%$ low point & $\pm 20\%$ all other points) (Chrom Report = Details of Calibration per Analyte)	✓				
17. Is the concentration intercept $< RL $ for each cmpd? ("X" intercept in Chrom; "Y" intercept in Target)		/		/	
18. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2 nd review of all MIs required)		/		/	Reasons: 1) Split Peak; 2) Undetected peak; 3) Tailing; 4) RT shift; 5) Wrong peak selected; 6) Baseline Correction; 7) Other-explain
19. Was the high point checked for detector saturation?		/		/	
20. Do the relative retention times for each analyte in each standard agree within ± 0.006 units?		/		/	
21. Benzo(b & k)fluoranthene: height of the valley between must be less than 50% of the average of the two peak heights?	/				
22. Elution order checked Isomeric pairs and coeluters?					Chrom: View/Documents/Methods/Isomers)
• aniline / bis(2-chloroethyl)ether	/				
• n-nitrosodiphenylamine/diphenylamine * (conc)	/				
• 1,3- , 1,4- , 1,2-dichlorobenzene	✓				
• benzyl alcohol / 2-methylphenol / 4-methylphenol	/				
• 2 & 1 - methylnaphthalene	✓				
• 2,4,6- and 2,4,5-trichlorophenol	✓				
• phenanthrene / anthracene	/				
• fluoranthene / pyrene	/				
• benzo(a)anthracene / chrysene	/				
• benzo(e)pyrene / benzo(a)pyrene / perylene	✓				
• bis(2-ethylhexyl)/di-n-octyl phthalate	✓				
• benzo(b)fluoranthene / benzo(k)fluoranthene	✓				
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	✓				
• safrole/1-chloronaphthalene	✓				
• 1-/2-naphthylamine	/				
• 2 and 1-chloronaphthalene	/				
• 2,4- and 2,6-dichlorophenol	/				
• 2,4,6 and 2,4,5-tribromophenol	/				

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 40822_031417_14D

Worklist Num: 40822

Instrument: SV1

Method: 1,4-Dioxane

Batch Directory: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b

Analysis Type: SemiVOA

Creator: Onishi, Marc

Inj Volume: 1.00

Inj Vol Units: ul

Run Reagents:













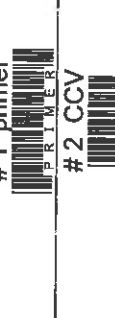
MS8270IS_00016, Amount Added: 5.00 , Units: uL

















Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
primer	320-0040822-001	Client	14-Mar-2017 14:16:30	QC031401.D	96	1.0		sv
CCV	320-0040822-002	CCV	14-Mar-2017 14:42:30	14D0314.D	96	1.0		sv
MB 320-152910/1-A	320-0040822-003	MB	14-Mar-2017 15:04:30	S031401.D	1	1.0		sv
LCS 320-152910/2-A	320-0040822-004	LCS	14-Mar-2017 15:27:30	S031402.D	2	1.0		sv
LCSD 320-152910/3-A	320-0040822-005	LCSD	14-Mar-2017 15:49:30	S031403.D	3	1.0		sv
320-26103-A-6-A	320-0040822-006	Client	14-Mar-2017 16:12:30	S031404.D	4	1.0	MEAFF-MRD-0504-0217	sv
320-26103-C-7-A	320-0040822-007	Client	14-Mar-2017 16:35:30	S031405.D	5	1.0	MEAFF-MRD-0621-0217	sv
320-26103-A-11-A	320-0040822-008	Client	14-Mar-2017 16:57:30	S031406.D	6	1.0	MEAFF-MRD-0503-0217	sv
320-26103-D-12-A	320-0040822-009	Client	14-Mar-2017 17:20:30	S031407.D	7	1.0	MEAFF-MRD-0615-0217	sv
320-26105-B-1-A	320-0040822-010	Client	14-Mar-2017 17:42:30	S031408.D	8	1.0	MEAFF-08MW01D-0217	sv
320-26105-A-2-A	320-0040822-011	Client	14-Mar-2017 18:05:30	S031409.D	9	1.0	MEAFF-08MW01-0217	sv
320-26105-A-3-A	320-0040822-012	Client	14-Mar-2017 18:28:30	S031410.D	10	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-A-3-B MS	320-0040822-013	MS	14-Mar-2017 18:50:30	S031411.D	11	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-A-3-C MSD	320-0040822-014	MSD	14-Mar-2017 19:13:30	S031412.D	12	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-B-12-A	320-0040822-015	Client	14-Mar-2017 19:35:30	S031413.D	13	1.0	MEAFF-08MW03-0217	sv
320-26105-B-13-A	320-0040822-016	Client	14-Mar-2017 19:58:30	S031414.D	14	1.0	MEAFF-08MW06-0217	sv
320-26105-A-14-A	320-0040822-017	Client	14-Mar-2017 20:21:30	S031415.D	15	1.0	MEAFF-FD02-0217	sv
MB 320-153806/1-A	320-0040822-018	MB	14-Mar-2017 20:43:30	S031416.D	16	1.0		sv
LCS 320-153806/2-A	320-0040822-019	LCS	14-Mar-2017 21:06:30	S031417.D	17	1.0		sv
LCSD 320-153806/3-A	320-0040822-020	LCSD	14-Mar-2017 21:28:30	S031418.D	18	1.0		sv
320-26273-A-1-A	320-0040822-021	Client	14-Mar-2017 21:50:30	S031419.D	19	1.0	MEAFF-4AMW03-0317	sv
320-26273-B-2-A	320-0040822-022	Client	14-Mar-2017 22:13:30	S031420.D	20	1.0	MEAFF-MRD-0630-0317	sv
320-26273-B-3-A	320-0040822-023	Client	14-Mar-2017 22:35:30	S031421.D	21	1.0	MEAFF-4AMW01-0317	sv
320-26273-A-4-A	320-0040822-024	Client	14-Mar-2017 22:57:30	S031422.D	22	1.0	MEAFF-4CMW01-0317	sv
320-26273-B-5-A	320-0040822-025	Client	14-Mar-2017 23:20:30	S031423.D	23	1.0	MEAFF-4CMW03-0317	sv
320-26273-B-6-A	320-0040822-026	Client	14-Mar-2017 23:42:30	S031424.D	24	1.0	MEAFF-FD05-0317	sv
320-26324-D-5-A	320-0040822-027	Client	15-Mar-2017 00:04:30	S031425.D	25	1.0	MEAFF-EB03-GW-0317	sv
320-26324-C-6-A	320-0040822-028	Client	15-Mar-2017 00:27:30	S031426.D	26	1.0	MEAFF-EB04-GW-0317	sv
CCVC	320-0040822-029	CCVC	15-Mar-2017 00:49:30	14D0314A.D	96	1.0		sv

TestAmerica Laboratories
Worklist Report

Worklist Name: 40822_031417_14D
Instrument Name: SV1
Injection Volume: 1.000000
Analysis Type: Semi VOA
Batch Directory: \\ChromNA\Sacramento\ChromData\SV120170314-40822.b
Upload Directory: \\CORPTALSAPP12\320-WS-RawData\Organics\MS\SV1
Run Reagent: MS8270IS_00016
Amount Added: 5.000000, Units: uL

Worklist Number: 40822
Chrom Method: 1,4-Dioxane
Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
320-0040822-001	# 1 primer 	MS14DL5_00010	Client	sv	1.000000	mL	1.000000
320-0040822-002	# 2 CCV 	MS14DL5_00010	CCV	sv	1.000000	mL	1.000000
320-0040822-003	# 3 MB 320-152910/1-A 		MB	sv	1.000000	mL	1.000000
320-0040822-004	# 4 LCS 320-152910/2-A 		LCS	sv	1.000000	mL	1.000000
320-0040822-005	# 5 LCSD 320-152910/3-A 		LCSD	sv	1.000000	mL	1.000000
320-0040822-006	# 6 320-26103-A-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-007	# 7 320-26103-C-7-A 		Client	sv	1.000000	mL	1.000000
320-0040822-008	# 8 320-26103-A-11-A 		Client	sv	1.000000	mL	1.000000
320-0040822-009	# 9 320-26103-D-12-A 		Client	sv	1.000000	mL	1.000000
320-0040822-010	#10 320-26105-B-1-A 		Client	sv	1.000000	mL	1.000000
320-0040822-011	#11 320-26105-A-2-A 		Client	sv	1.000000	mL	1.000000
320-0040822-012	#12 320-26105-A-3-A 		Client	sv	1.000000	mL	1.000000
320-0040822-013	#13 320-26105-A-3-B MS 		MS	sv	1.000000	mL	1.000000

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
320-0040822-014	#14 320-26105-A-3-C MSD 		MSD	sv	1.000000	mL	1.000000
320-0040822-015	#15 320-26105-B-12-A 		Client	sv	1.000000	mL	1.000000
320-0040822-016	#16 320-26105-B-13-A 		Client	sv	1.000000	mL	1.000000
320-0040822-017	#17 320-26105-A-14-A 		Client	sv	1.000000	mL	1.000000
320-0040822-018	#18 MB 320-153806/1-A 		MB	sv	1.000000	mL	1.000000
320-0040822-019	#19 LCS 320-153806/2-A 		LCS	sv	1.000000	mL	1.000000
320-0040822-020	#20 LCSD 320-153806/3-A 		LCSD	sv	1.000000	mL	1.000000
320-0040822-021	#21 320-26273-A-1-A 		Client	sv	1.000000	mL	1.000000
320-0040822-022	#22 320-26273-B-2-A 		Client	sv	1.000000	mL	1.000000
320-0040822-023	#23 320-26273-B-3-A 		Client	sv	1.000000	mL	1.000000
320-0040822-024	#24 320-26273-A-4-A 		Client	sv	1.000000	mL	1.000000
320-0040822-025	#25 320-26273-B-5-A 		Client	sv	1.000000	mL	1.000000
320-0040822-026	#26 320-26273-B-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-027	#27 320-26324-D-5-A 		Client	sv	1.000000	mL	1.000000
320-0040822-028	#28 320-26324-C-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-029	#29 CCVC 	MS14DL5_00010	CCVC	sv	1.000000	mL	1.000000

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 40822_031417_14D

Worklist Number: 40822

Instrument Name: SV1

Chrom Method: 1,4-Dioxane

Data Directory: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	MSS - 8270SIM 14DX - ICAL Raw Batch: 154875
# 1 primer	# 1 primer
# 2 CCV	# 2 CCV
# 3 MB 320-152910/1-A	# 3 MB 320-152910/1-A
# 4 LCS 320-152910/2-A	# 4 LCS 320-152910/2-A
# 5 LCSD 320-152910/3-A	# 5 LCSD 320-152910/3-A
# 6 320-26103-A-6-A	# 6 320-26103-A-6-A
# 7 320-26103-C-7-A	# 7 320-26103-C-7-A
# 8 320-26103-A-11-A	# 8 320-26103-A-11-A
# 9 320-26103-D-12-A	# 9 320-26103-D-12-A
#10 320-26105-B-1-A	#10 320-26105-B-1-A
#11 320-26105-A-2-A	#11 320-26105-A-2-A
#12 320-26105-A-3-A	#12 320-26105-A-3-A
#13 320-26105-A-3-B MS	#13 320-26105-A-3-B MS
#14 320-26105-A-3-C MSD	#14 320-26105-A-3-C MSD
#15 320-26105-B-12-A	#15 320-26105-B-12-A
#16 320-26105-B-13-A	#16 320-26105-B-13-A
#17 320-26105-A-14-A	#17 320-26105-A-14-A
#18 MB 320-153806/1-A	#18 MB 320-153806/1-A
#19 LCS 320-153806/2-A	#19 LCS 320-153806/2-A
#20 LCSD 320-153806/3-A	#20 LCSD 320-153806/3-A
#21 320-26273-A-1-A	#21 320-26273-A-1-A
#22 320-26273-B-2-A	#22 320-26273-B-2-A
#23 320-26273-B-3-A	#23 320-26273-B-3-A
#24 320-26273-A-4-A	#24 320-26273-A-4-A
#25 320-26273-B-5-A	#25 320-26273-B-5-A
#26 320-26273-B-6-A	#26 320-26273-B-6-A
#27 320-26324-D-5-A	#27 320-26324-D-5-A
#28 320-26324-C-6-A	#28 320-26324-C-6-A
#29 CCVC	#29 CCVC

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Batch End:

Liquid-Liquid Extraction (Separatory Funnel)

Box # 0317-E

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152910/1 N/A	N/A		1000 mL 1.0 mL	8	N/A	N/A	N/A		MB 320-152910/1-A
2 LCS-320-152910/2 N/A	N/A		1000 mL 1.0 mL	8	N/A	N/A	N/A		LCS 320-152910/2-A
3 LCSD-320-152910/3 N/A	N/A		1000 mL 1.0 mL	8	N/A	N/A	N/A		LCSD 320-152910/3-A
4 320-26103-A-6 (8270_SIM_14DX)	N/A (320-26103-1)	578.6 g	1.0 mL	7	2/27/17	23_Days	4		320-26103-A-6-A
5 320-26103-C-7 (8270_SIM_14DX)	N/A (320-26103-1)	578.9 g	1.0 mL	5	2/27/17	23_Days	4		320-26103-C-7-A
6 320-26103-A-11 (8270_SIM_14DX)	N/A (320-26103-1)	549.9 g	1.0 mL	7	2/27/17	23_Days	4		320-26103-A-11-A
7 320-26103-D-12 (8270_SIM_14DX)	N/A (320-26103-1)	547.5 g	1.0 mL	5	2/27/17	23_Days	4		320-26103-D-12-A
8 320-26105-A-14 (8270_SIM_14DX)	N/A (320-26105-1)	555.1 g	1.0 mL	7	3/2/17	23_Days	4		320-26105-A-14-A
9 320-26079-D-4 (8270_SIM_14DX)	N/A (320-26078-1)	1470.4 g	1.0 mL	8	3/2/17	8_Days	2		320-26079-D-4-A
10 320-26079-E-6 (8270_SIM_14DX)	N/A (320-26078-1)	1530.4 g	1.0 mL	8 SR 03/02/17	3/2/17	8_Days	2		320-26079-E-6-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)











Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

11	320-26079-E-7 (8270_SIM_14DX)	N/A (320-26078-1)	1501.3 g	1.0 mL	8			3/2/17	8_Days	2	
12	320-26079-E-8 (8270_SIM_14DX)	N/A (320-26078-1)	1528.4 g	1.0 mL	8			3/2/17	8_Days	2	
13	320-26095-G-1 (8270_SIM_14DX)	GWIM 2/17 Surface (320-26095-1)	1473.6 g	1.0 mL	8			3/3/17	12_Days	2	
14	320-26105-B-1 (8270_SIM_14DX)	N/A (320-26105-1)	1561.7 g	1.0 mL	7			3/2/17	23_Days	4	
15	320-26105-A-2 (8270_SIM_14DX)	N/A (320-26105-1)	1136.1 g	1.0 mL	7			3/2/17	23_Days	4	dark brown water + particulates 
16	320-26105-A-3 (8270_SIM_14DX)	N/A (320-26105-1)	1560.1 g	1.0 mL	7			3/2/17	23_Days	4	
17	320-26105-A-3-MS (8270_SIM_14DX)	N/A (320-26105-1)	1566.4 g	1.0 mL	7			3/2/17	23_Days	4	
18	320-26105-A-3-MSD (8270_SIM_14DX)	N/A (320-26105-1)	1568.6 g	1.0 mL	7			3/2/17	23_Days	4	
19	320-26105-B-12 (8270_SIM_14DX)	N/A (320-26105-1)	1548.0 g	1.0 mL	7			3/2/17	23_Days	4	
20	320-26105-B-13 (8270_SIM_14DX)	N/A (320-26105-1)	1559.4 g	1.0 mL	7			3/2/17	23_Days	4	

SR
03/02/17

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Batch End:

Batch Notes	
Person's name who did the prep	SR/AAR 03/02/2017
Prep Solvent Name	DCM
Prep Solvent ID	0000164143
Prep Solvent Volume Used	180
Analyst ID - Reagent Drop	SR 03/02/17
Analyst ID - Reagent Drop Witness	GAR 3/2/17
Analyst ID - SU Reagent Drop	
Analyst ID - SU Reagent Drop Witness	
Acid used for pH adjustment	
Acid Used for pH Adjustment ID	
Base used for pH adjustment	
Base Used to Adjust pH ID	
Silica Gel ID	
Analyst ID - Concentration	
Exchange Solvent Name	
Exchange Solvent ID	
Concentration Start Time	
Concentration End Time	
Na2SO4 ID	
Water Bath ID	
Uncorrected Temperature	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Method Code: 320-3510C_IVWT-320

Analyst: Raffieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Batch End:

Oven, Bath or Block Temperature 1	
Sufficient volume for MS/MSD?	
Analyst ID - Clean Up	
Florisil ID	
Acid used for Clean Up ID	
Sulfuric Acid ID	
TBA ID	
HPLC H2O ID	
NaCl ID	
Balance ID QA-036	
Florisil Solution Reagent ID	
Mercury ID	
Filter Paper ID	
Pipette ID K35057E	
Syringe ID	
N-evap ID	
N-evap Temperature	
Uncorrected N-evap Temperature	
pH Paper ID	
Thermometer ID	
Analyst ID - Spike Analyst	
Analyst ID - Spike Witness Analyst	
Vial ID	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Batch Comment

Comments

320-26079-D-4	Method Comments:	SEE QAS
320-26079-E-6	Method Comments:	SEE QAS
320-26079-E-7	Method Comments:	SEE QAS
320-26079-E-8	Method Comments:	SEE QAS
320-26095-G-1	Method Comments:	No BKK_Must have LCSD and MS/MSD per Batch, NCM if not enough to do MS/MSD; historicals
320-26105-A-2	Method Comments:	limited volume

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152910/1	MS14DSU_00003	0.5 mL	1.0 mL		
LCS 320-152910/2	MS14DSP_00030	500 uL	1.0 mL		
LCS 320-152910/2	MS14DSU_00003	0.5 mL	1.0 mL		
LCSD 320-152910/3	MS14DSP_00030	500 uL	1.0 mL		
LCSD 320-152910/3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-A-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-C-7	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-A-11	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-D-12	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-14	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-D-4	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-7	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-8	MS14DSU_00003	0.5 mL	1.0 mL		
320-26095-G-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-B-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-2	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-3	MS14DSU_00003	0.5 mL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Batch End:

320-26105-A-3 MS	MS14DSP_00030	500 uL	1.0 mL	
320-26105-A-3 MS	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-A-3 MSD	MS14DSP_00030	500 uL	1.0 mL	
320-26105-A-3 MSD	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-B-12	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-B-13	MS14DSU_00003	0.5 mL	1.0 mL	

Reagent	Other Reagents:	Lot#:
	Amount/Units	

Preparation Batch Number(s): 152910

Test: 8270-14DX

Earliest Holding Time: 3/2/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	/
All necessary NCMs filed (including holding time)		/	/
Method/sample/login/QAS checked and correct		/	/
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		/	/
Weights in anticipated range and not targeted		/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	/
The pH is transcribed correctly in TALS		/	/
All additional information transcribed into TALS is correct and raw data is attached		/	/
Comments are transcribed correctly in TALS		/	/
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: _____

Date: _____

2nd Level Reviewer: _____

Date: _____

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Box 0317H

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

Liquid-Liquid Extraction (Separatory Funnel)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHS		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1 Adj2					
1 MB-320-153806/1 N/A	N/A		1000 mL 1.0 mL	8		N/A	N/A	N/A		MB 320-153806/1-A
2 LCS-320-153806/2 N/A	N/A		1000 mL 1.0 mL	8		N/A	N/A	N/A		LCS 320-153806/2-A
3 LCSD-320-153806/3 N/A	N/A		1000 mL 1.0 mL	8		N/A	N/A	N/A		LCSD 320-153806/3-A
4 320-26273-A-1 (8270_SIM_14DX)	N/A (320-26273-1)	1556.1 g	1.0 mL	6		3/6/17	23_Days	4		320-26273-A-1-A
5 320-26273-B-2 (8270_SIM_14DX)	N/A (320-26273-1)	1547.4 g	1.0 mL	7		3/6/17	23_Days	4		320-26273-B-2-A
6 320-26273-B-3 (8270_SIM_14DX)	N/A (320-26273-1)	1553.7 g	1.0 mL	4	7	3/6/17	23_Days	4		320-26273-B-3-A
7 320-26273-A-4 (8270_SIM_14DX)	N/A (320-26273-1)	1557.1 g	1.0 mL	8		3/6/17	23_Days	4		320-26273-A-4-A
8 320-26273-B-5 (8270_SIM_14DX)	N/A (320-26273-1)	1546.5 g	1.0 mL	8		3/6/17	23_Days	4		320-26273-B-5-A
9 320-26273-B-6 (8270_SIM_14DX)	N/A (320-26273-1)	1555.9 g	1.0 mL	8		3/6/17	23_Days	4		320-26273-B-6-A
10 320-26324-D-5 (8270_SIM_14DX)	N/A (320-26324-1)	1393.4 g	1.0 mL	8		3/9/17	23_Days	4		320-26324-D-5-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)


Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

320-26324-C-6 (8270_SIM_14DX)	N/A (320-26324-1)	1445.1 g		8	3/9/17	23_Days	4	 320-26324-C-6-A
			1.0 mL					

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Batch End:

Batch Notes	
Person's name who did the prep	SR/AAR 03/08/2017
Prep Solvent Name	DCM
Prep Solvent ID	0000164143
Prep Solvent Volume Used	180
Analyst ID - Reagent Drop	
Analyst ID - Reagent Drop Witness	
Analyst ID - SU Reagent Drop	
Analyst ID - SU Reagent Drop Witness	
Acid used for pH adjustment	
Acid Used for pH Adjustment ID	
Base used for pH adjustment	10N NaOH
Base Used to Adjust pH ID	153803
Silica Gel ID	
Analyst ID - Concentration	CRM 3/9/17
Exchange Solvent Name	
Exchange Solvent ID	
Concentration Start Time	
Concentration End Time	
Na2SO4 ID	SS-00347 and SS-00348
Water Bath ID	BT021
Uncorrected Temperature	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

Oven, Bath or Block Temperature 1	70-75°C
Sufficient volume for MS/MSD?	
Analyst ID - Clean Up	
Florissil ID	
Acid used for Clean Up ID	
Sulfuric Acid ID	
TBA ID	
HPLC H2O ID	
NaCl ID	
Balance ID	QA-036
Florissil Solution Reagent ID	
Mercury ID	
Filter Paper ID	
Pipette ID	K35057E
Syringe ID	
N-evap ID	
N-evap Temperature	
Uncorrected N-evap Temperature	
pH Paper ID	
Thermometer ID	
Analyst ID - Spike Analyst	SR 03/08/17
Analyst ID - Spike Witness Analyst	ACR 3/8/17
Vial ID	162 93 128

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Batch End:

Batch Comment	EU CRM 3/9/17
---------------	---------------

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Method Code: 320-3510C_IVWT-320

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-153806/1	MS14DSU_00003	0.5 mL	1.0 mL		
LCS 320-153806/2	MS14DSP_00030	500 uL	1.0 mL		
LCS 320-153806/2	MS14DSU_00003	0.5 mL	1.0 mL		
LCSD 320-153806/3	MS14DSP_00030	500 uL	1.0 mL		
LCSD 320-153806/3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-A-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-2	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-A-4	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-5	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26324-D-5	MS14DSU_00003	0.5 mL	1.0 mL		
320-26324-C-6	MS14DSU_00003	0.5 mL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Batch Open: 3/8/2017 8:41:00AM

Analyst: Rafieefar, Sina

Method Code: 320-3510C_IVWT-320

Batch End:

Reagent	Other Reagents:		Lot#:
	Amount/Units		

Preparation Batch Number(s): 153806

Test: 14DX

Earliest Holding Time: 3/8/17

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

1st Level Reviewer: CRM

Date: 3/9/17

2nd Level Reviewer: J. P. Hunt

Date: 3/9/17

Comments: _____

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS)
by Method PFC_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Matrix: Solid Level: Low

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

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-SDA4C-SB02-001	320-26103-1	100	123	84
MEAFF-SDA4C-SB02-0204	320-26103-2	81	96	44
MEAFF-SDA4C-SB01-001	320-26103-3	90	109	60
MEAFF-SDA4C-SB01-0204	320-26103-4	86	98	45
MEAFF-FTA2-SB02-0608	320-26103-5	103	109	103
MEAFF-FTA2-SB05-0608	320-26103-8	93	99	60
MEAFF-FTA2-SB04-0608	320-26103-9	86	85	32
MEAFF-FTA2-SB04-0608 DL	320-26103-9 DL	75	89	54
MEAFF-FTA2-SB03-0608	320-26103-10	98	102	87
	MB 320-152961/1-A	113	122 M	99
	LCS 320-152961/2-A	108	113	100
MEAFF-SDA4C-SB01-001 MS	320-26103-3 MS	90	104	68
MEAFF-SDA4C-SB01-001 MSD	320-26103-3 MSD	94	112	72

PFHxS = 1802 PFHxS	QC LIMITS
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	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.: 320-26103-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-MRD-0621-021 7	320-26103-7	32	25	121
MEAFF-MRD-0621-021 7 DL	320-26103-7 DL	137	101	138
MEAFF-MRD-0615-021 7	320-26103-12	117	77	133
	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.: 320-26103-1
 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.: 320-26103-1
SDG No.: _____
Matrix: Solid Level: Low Lab File ID: 2017.03.11C_030.d
Lab ID: LCS 320-152961/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.00	4.25	106	60-140	
Perfluorooctanesulfonic acid (PFOS)	3.71	3.90	105	60-140	M
13C4 PFOA	10.0	11.3	113	25-150	
13C4 PFOS	9.56	9.54	100	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.54	4.04	114	50-150	
18O2 PFHxS	9.46	10.2	108	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.: 320-26103-1
 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.: 320-26103-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.03.11C_034.d
 Lab ID: 320-26103-3 MS Client ID: MEAFF-SDA4C-SB01-0001 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.78	0.76	5.92	108	60-140	M
Perfluorooctanesulfonic acid (PFOS)	4.44	1.9	6.56	104	60-140	M
13C4 PFOA	12.0	13	12.4	104	25-150	
13C4 PFOS	11.4	6.9	7.78	68	25-150	
Perfluorobutanesulfonic acid (PFBS)	4.23	0.36 U	5.20	123	50-150	
18O2 PFHxS	11.3	10	10.2	90	25-150	

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

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.03.11C_035.d
 Lab ID: 320-26103-3 MSD Client ID: MEAFF-SDA4C-SB01-0001 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	4.72	5.69	105	4	30	60-140	M
Perfluorooctanesulfonic acid (PFOS)	4.38	6.93	114	5	30	60-140	M
13C4 PFOA	11.8	13.2	112			25-150	
13C4 PFOS	11.3	8.12	72			25-150	
Perfluorobutanesulfonic acid (PFBS)	4.17	5.12	123	2	30	50-150	
18O2 PFHxS	11.2	10.5	94			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.: 320-26103-1
 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-MRD-0621-0217	320-26103-7	2017.03.02A 013.d	03/02/2017 11:42
MEAFF-MRD-0615-0217	320-26103-12	2017.03.02A 015.d	03/02/2017 11:57
MEAFF-MRD-0621-0217 DL	320-26103-7 DL	2017.03.03A 007.d	03/03/2017 09:45

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab File ID: 2017.03.11C_029.d Lab Sample ID: MB 320-152961/1-A
 Matrix: Solid Date Extracted: 03/02/2017 17:04
 Instrument ID: A8_N Date Analyzed: 03/11/2017 15:42
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-152961/2-A	2017.03.11C 030.d	03/11/2017 15:50
MEAFF-SDA4C-SB02-0001	320-26103-1	2017.03.11C 031.d	03/11/2017 15:57
MEAFF-SDA4C-SB02-0204	320-26103-2	2017.03.11C 032.d	03/11/2017 16:05
MEAFF-SDA4C-SB01-0001	320-26103-3	2017.03.11C 033.d	03/11/2017 16:12
MEAFF-SDA4C-SB01-0001 MS	320-26103-3 MS	2017.03.11C 034.d	03/11/2017 16:20
MEAFF-SDA4C-SB01-0001 MSD	320-26103-3 MSD	2017.03.11C 035.d	03/11/2017 16:27
MEAFF-SDA4C-SB01-0204	320-26103-4	2017.03.11C 036.d	03/11/2017 16:35
MEAFF-FTA2-SB02-0608	320-26103-5	2017.03.11C 037.d	03/11/2017 16:42
MEAFF-FTA2-SB05-0608	320-26103-8	2017.03.11C 039.d	03/11/2017 16:57
MEAFF-FTA2-SB04-0608	320-26103-9	2017.03.11C 040.d	03/11/2017 17:05
MEAFF-FTA2-SB03-0608	320-26103-10	2017.03.11C 041.d	03/11/2017 17:12
MEAFF-FTA2-SB04-0608 DL	320-26103-9 DL	2017.03.13A 044.d	03/13/2017 16:46

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4C-SB02-0001</u>	Lab Sample ID: <u>320-26103-1</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_031.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 09:00</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>5.02(g)</u>	Date Analyzed: <u>03/11/2017 15:57</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>14.8</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</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	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.21	J 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	123		25-150
STL00991	13C4 PFOS	84		25-150
STL00994	18O2 PFHxS	100		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d
 Lims ID: 320-26103-A-1-A
 Client ID: MEAFF-SDA4C-SB02-0001
 Sample Type: Client
 Inject. Date: 11-Mar-2017 15:57:40 ALS Bottle#: 23 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-1-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:20:59 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: 13-Mar-2017 13:43:38

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	1.862	-0.009	1.000	51827	0.1238				
298.90 > 99.00	1.853	1.862	-0.009	1.000	19000		2.73(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.468	-0.004		13821573	47.5		100	383947	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.806	2.818	-0.012	1.000	101978	0.3972			873	M
413.00 > 169.00	2.806	2.818	-0.012	1.000	71035		1.44(0.90-1.10)		1832	M
D 14 13C4 PFOA										
417.00 > 372.00	2.814	2.818	-0.004		12565831	61.3		123	373282	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.188	3.192	-0.004	1.000	178026	0.8958			4641	M
499.00 > 99.00	3.188	3.192	-0.004	1.000	33693		5.28(0.90-1.10)		971	M
D 18 13C4 PFOS										
503.00 > 80.00	3.179	3.192	-0.013		9659327	40.0		83.6	357304	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d

Injection Date: 11-Mar-2017 15:57:40

Instrument ID: A8_N

Lims ID: 320-26103-A-1-A

Lab Sample ID: 320-26103-1

Client ID: MEAFF-SDA4C-SB02-0001

Operator ID: A8-PC\A8

ALS Bottle#: 23

Worklist Smp#: 28

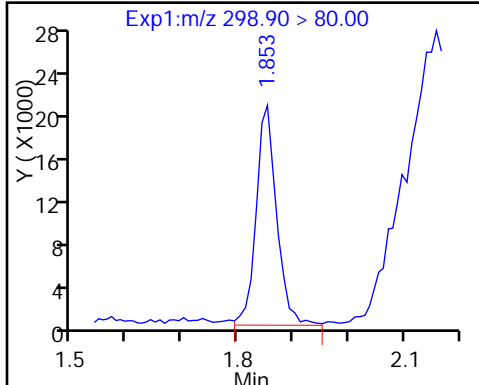
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

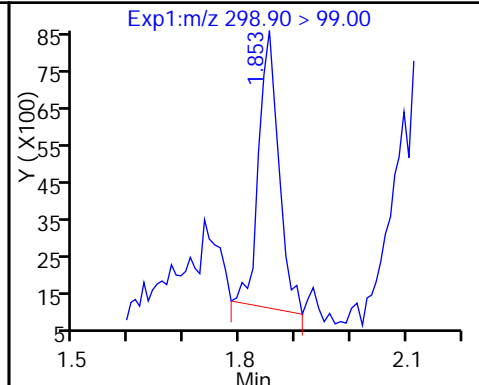
Method: A8_N

Limit Group: LC PFC_DOD ICAL

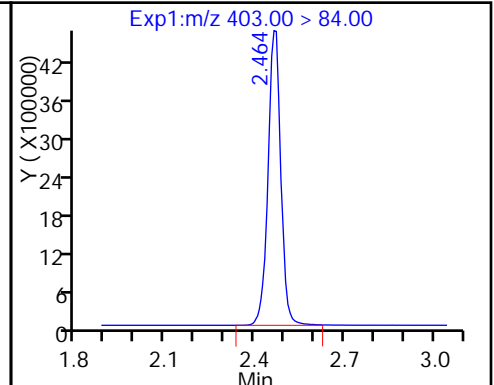
5 Perfluorobutanesulfonic acid



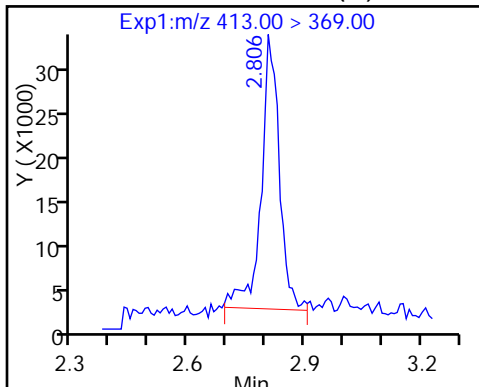
5 Perfluorobutanesulfonic acid (M)



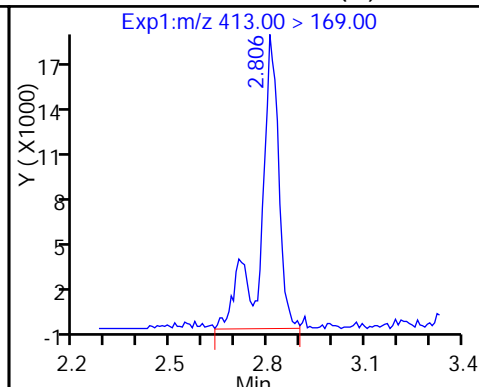
D 11 18O2 PFHxS



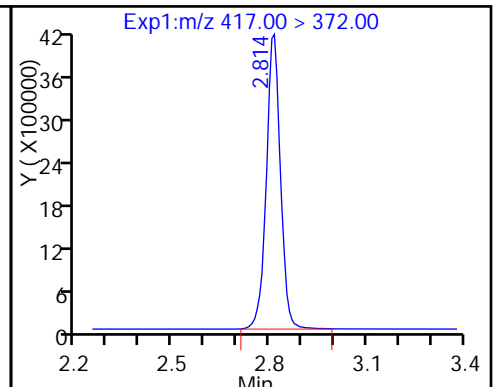
15 Perfluorooctanoic acid (M)



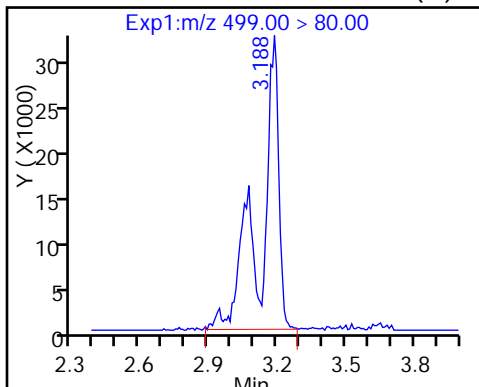
15 Perfluorooctanoic acid (M)



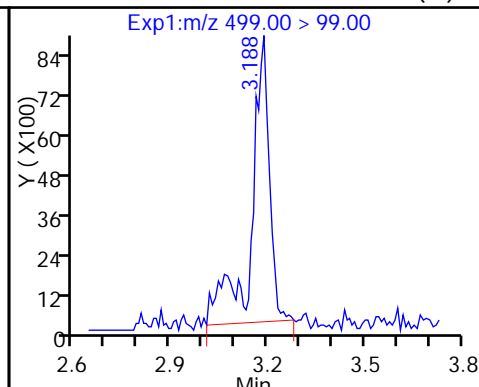
D 14 13C4 PFOA



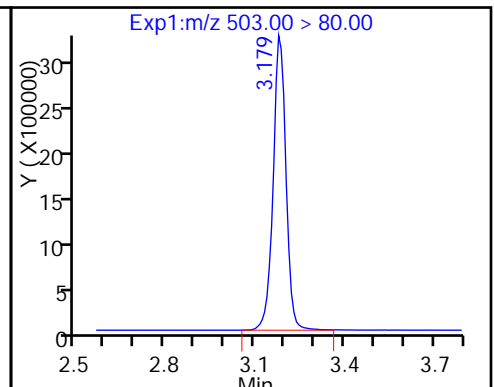
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

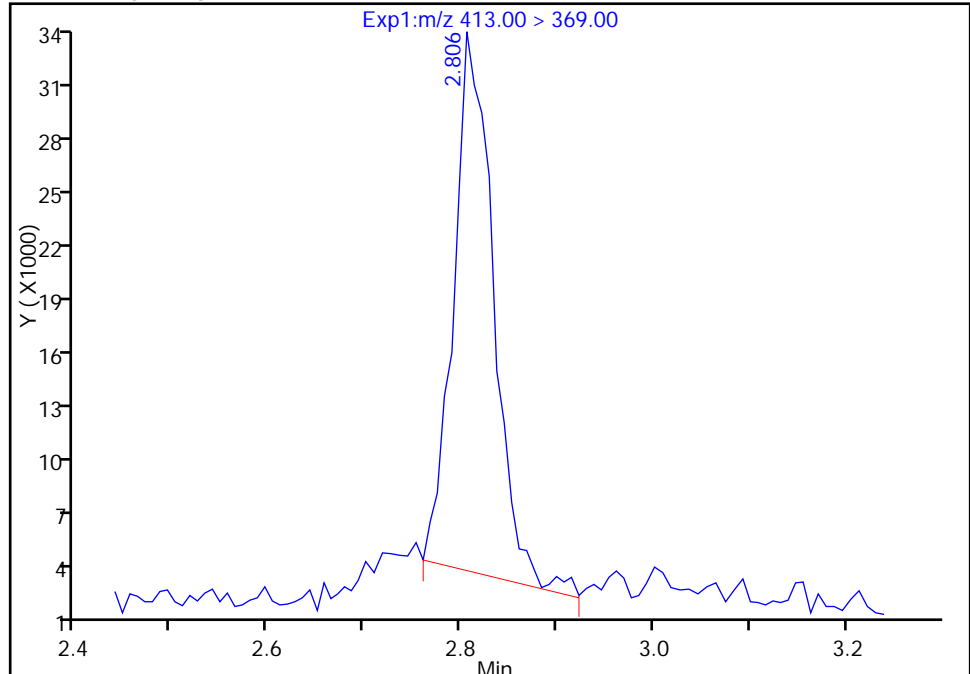
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d				
Injection Date:	11-Mar-2017 15:57:40	Instrument ID:	A8_N		
Lims ID:	320-26103-A-1-A	Lab Sample ID:	320-26103-1		
Client ID:	MEAFF-SDA4C-SB02-0001				
Operator ID:	A8-PC\A8	ALS Bottle#:	23	Worklist Smp#:	28
Injection 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

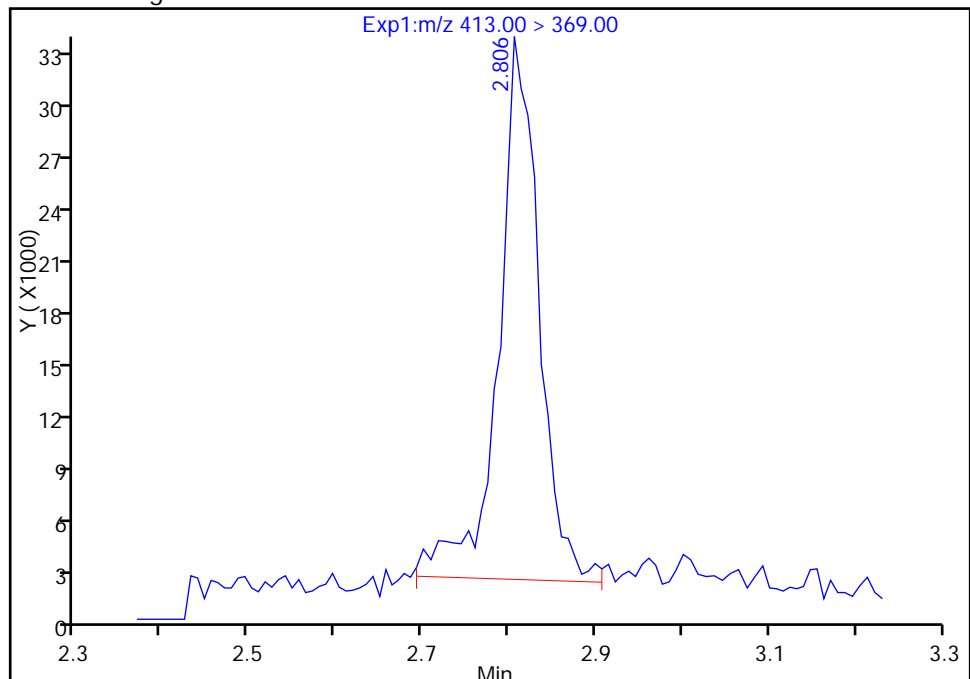
RT: 2.81
Area: 87110
Amount: 0.339267
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 101978
Amount: 0.397173
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:20:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

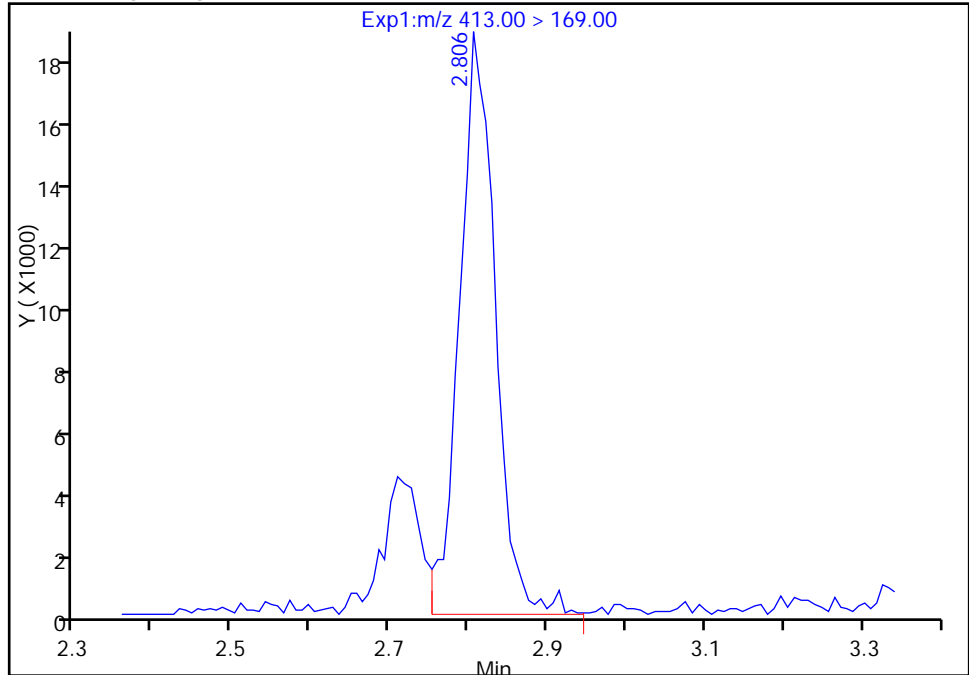
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d
Injection Date: 11-Mar-2017 15:57:40 Instrument ID: A8_N
Lims ID: 320-26103-A-1-A Lab Sample ID: 320-26103-1
Client ID: MEAFF-SDA4C-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 28
Injection Vol: 2.0 ul 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

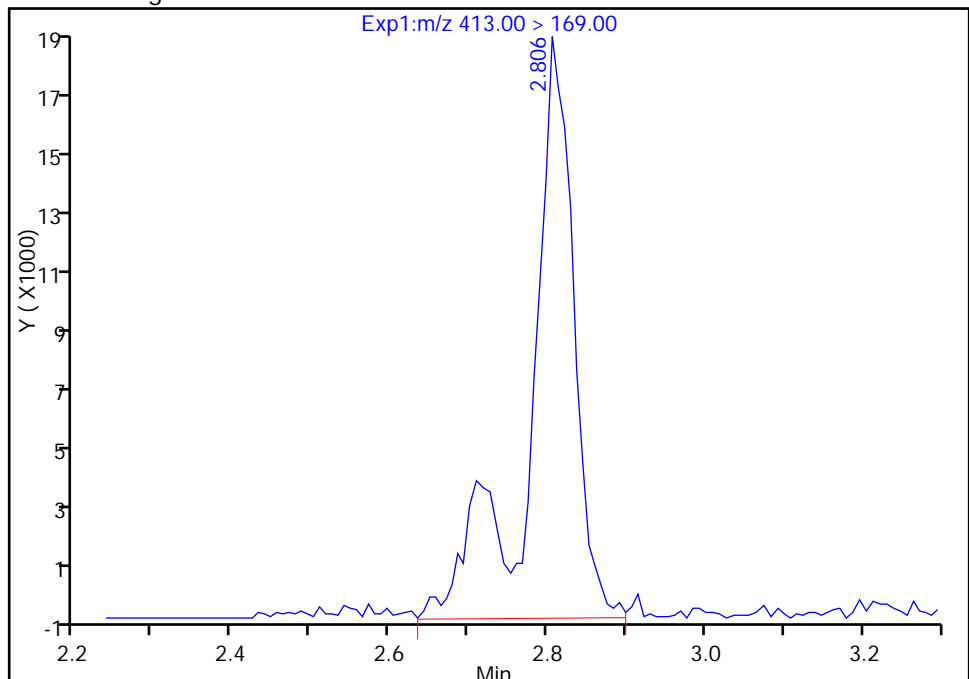
RT: 2.81
Area: 57344
Amount: 0.339267
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 71035
Amount: 0.397173
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:20:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

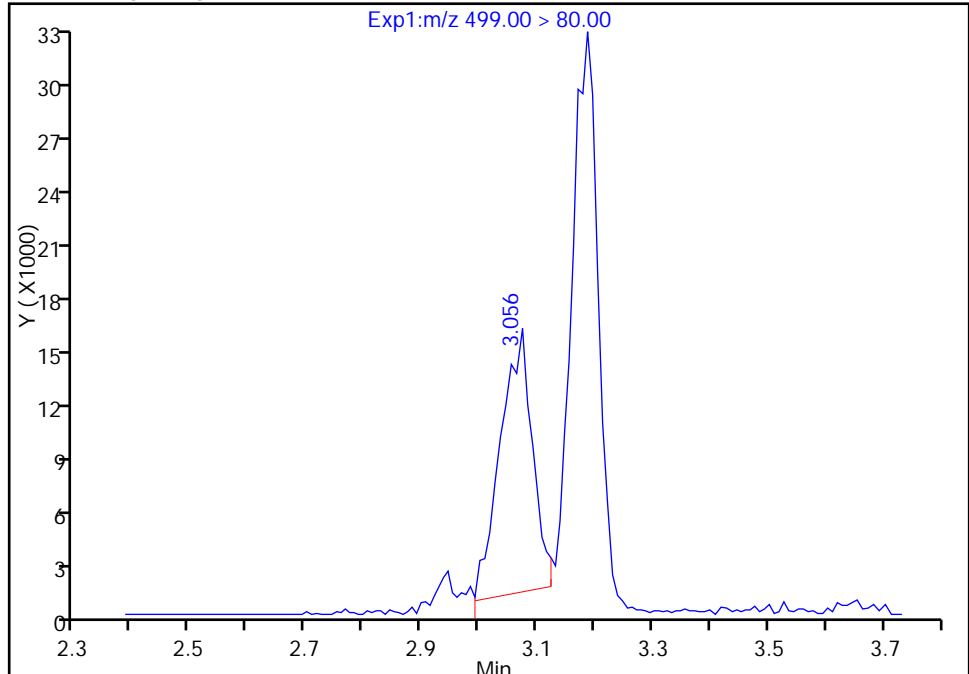
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d
Injection Date: 11-Mar-2017 15:57:40 Instrument ID: A8_N
Lims ID: 320-26103-A-1-A Lab Sample ID: 320-26103-1
Client ID: MEAFF-SDA4C-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 28
Injection Vol: 2.0 ul 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

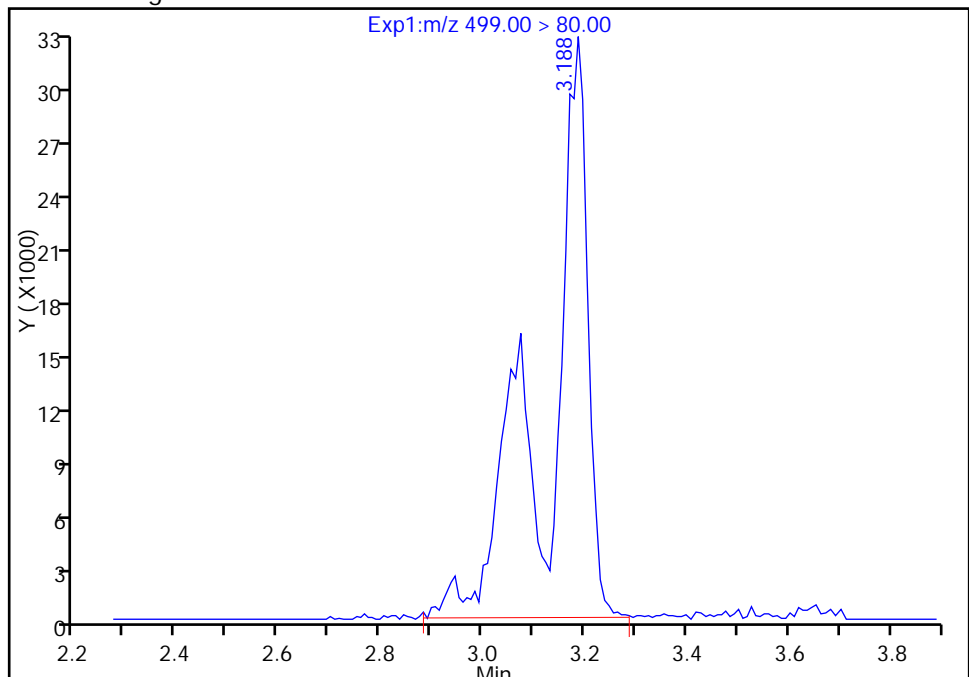
RT: 3.06
Area: 56537
Amount: 0.284477
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 178026
Amount: 0.895773
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:20:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

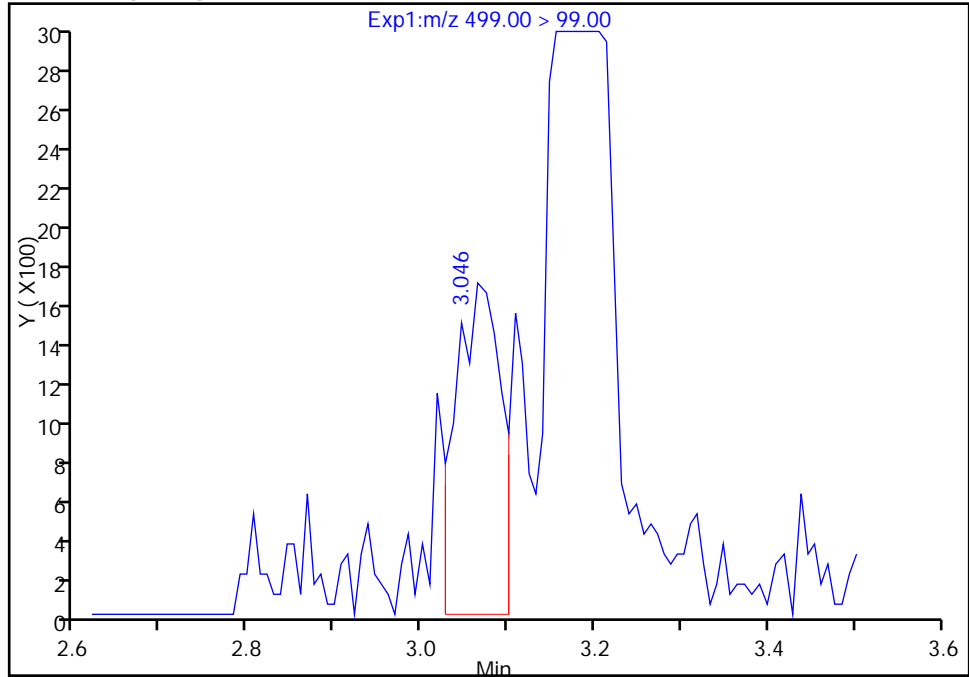
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_031.d
Injection Date: 11-Mar-2017 15:57:40 Instrument ID: A8_N
Lims ID: 320-26103-A-1-A Lab Sample ID: 320-26103-1
Client ID: MEAFF-SDA4C-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 28
Injection Vol: 2.0 ul 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

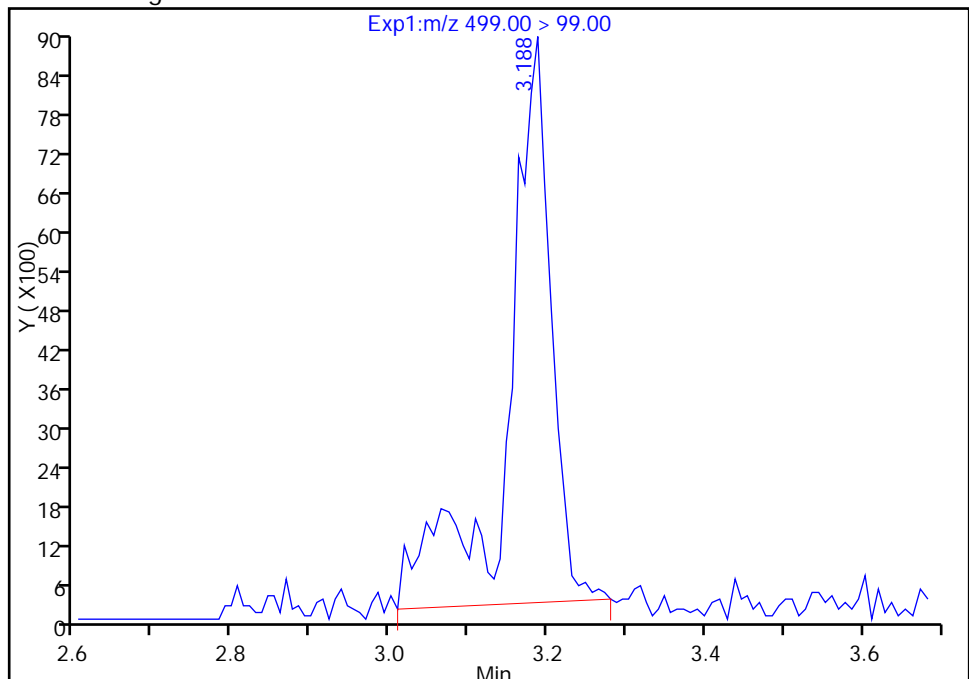
RT: 3.05
Area: 5840
Amount: 0.284477
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 33693
Amount: 0.895773
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:20:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

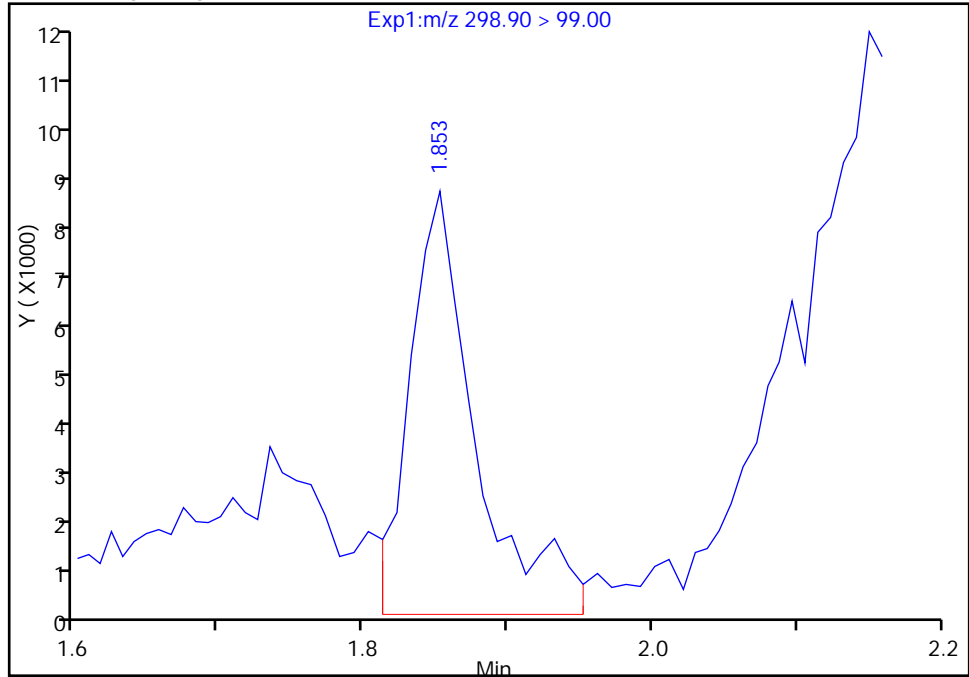
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Injection Date: 11-Mar-2017 15:57:40 Instrument ID: A8_N
Lims ID: 320-26103-A-1-A Lab Sample ID: 320-26103-1
Client ID: MEAFF-SDA4C-SB02-0001
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

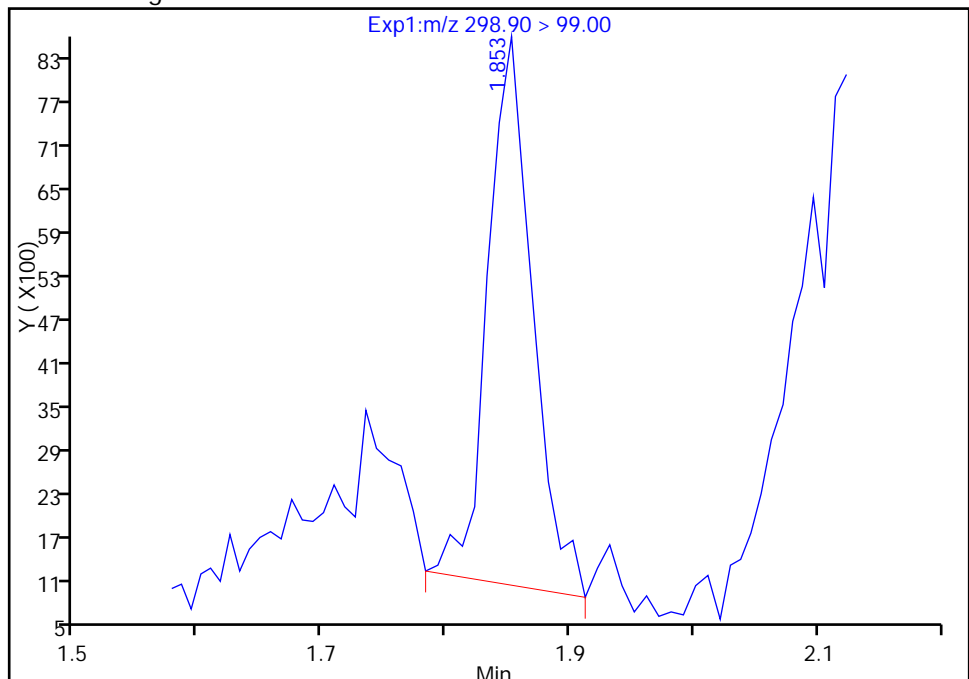
RT: 1.85
Area: 26719
Amount: 0.123812
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 19000
Amount: 0.123812
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:20:52

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4C-SB02-0204</u>	Lab Sample ID: <u>320-26103-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_032.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 09:08</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>5.00(g)</u>	Date Analyzed: <u>03/11/2017 16:05</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>14.1</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

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	96		25-150
STL00991	13C4 PFOS	44		25-150
STL00994	18O2 PFHxS	81		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_032.d
 Lims ID: 320-26103-A-2-A
 Client ID: MEAFF-SDA4C-SB02-0204
 Sample Type: Client
 Inject. Date: 11-Mar-2017 16:05:10 ALS Bottle#: 24 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-2-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:22:44 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: XAWRK006

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:44:01

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 2.475 2.468 0.007 11203778 38.5 81.4 476401

D 14 13C4 PFOA

417.00 > 372.00 2.825 2.818 0.007 9874323 48.2 96.4 270362

D 18 13C4 PFOS

503.00 > 80.00 3.192 3.192 0.0 5076916 21.0 44.0 209645

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_032.d

Injection Date: 11-Mar-2017 16:05:10

Instrument ID: A8_N

Lims ID: 320-26103-A-2-A

Lab Sample ID: 320-26103-2

Client ID: MEAFF-SDA4C-SB02-0204

Operator ID: A8-PC\A8

ALS Bottle#: 24

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

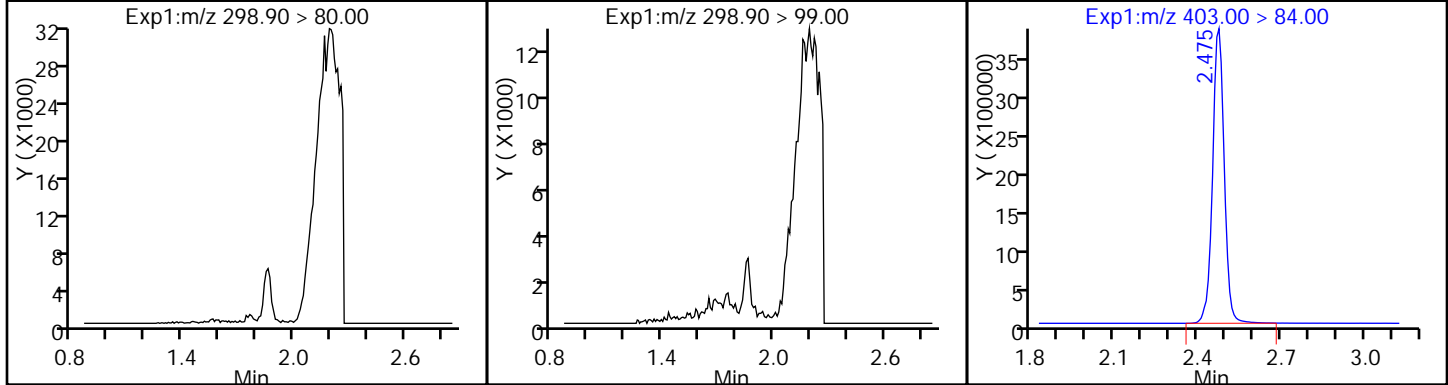
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

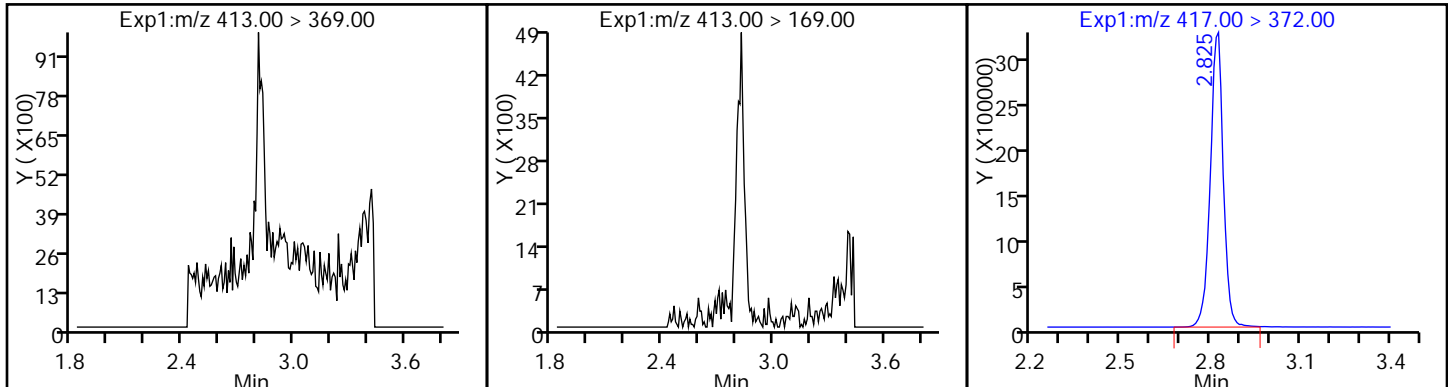
D 11 18O2 PFHxS



15 Perfluorooctanoic acid (ND)

15 Perfluorooctanoic acid (ND)

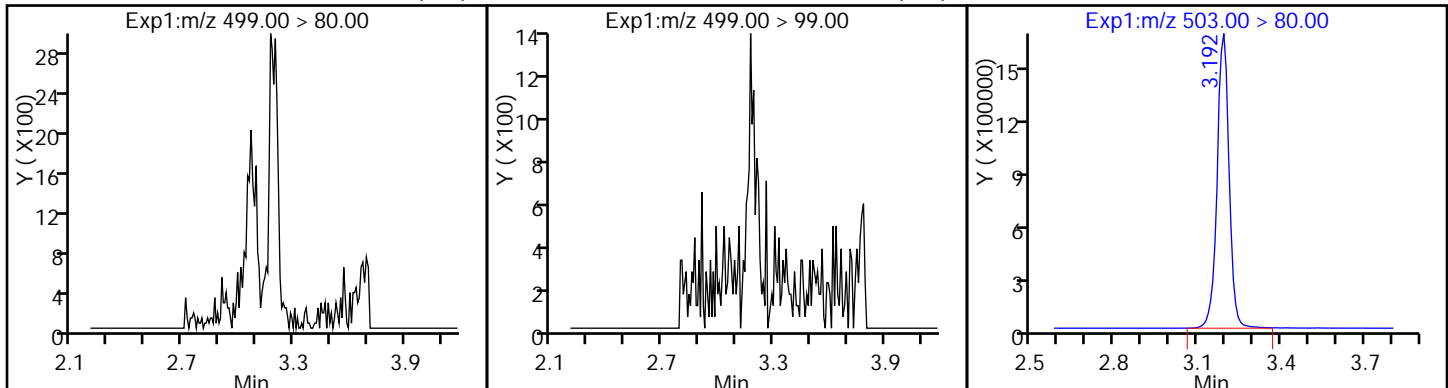
D 14 13C4 PFOA



17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4C-SB01-0001</u>	Lab Sample ID: <u>320-26103-3</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_033.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 09:21</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>4.94(g)</u>	Date Analyzed: <u>03/11/2017 16:12</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>15.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.76	M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9	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	109		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d
 Lims ID: 320-26103-A-3-A
 Client ID: MEAFF-SDA4C-SB01-0001
 Sample Type: Client
 Inject. Date: 11-Mar-2017 16:12:39 ALS Bottle#: 25 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-3-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:09:39 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:47:44

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	1.531	1.539	-0.008	1.000	288397	1.11			1484	
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.539	-0.008		15294895	52.3		105	747334	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.822	-0.010		13467154	58.0		116	706406	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.812	1.822	-0.010	1.000	333963	1.27			2412	
D 47 13C3-PFBS										
301.90 > 83.00	1.762	1.852	-0.090		503	NC				
D 60 M2-4:2FTS										
329.00 > 309.00	2.113	2.082	0.031		3683	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.104	2.117	-0.013		11710427	55.5		111	349288	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.104	2.117	-0.013	1.000	324984	1.56			3553	
D 9 13C4-PFHpA										
367.00 > 322.00	2.439	2.452	-0.013		11593092	60.1		120	377153	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.439	2.452	-0.013	1.000	211622	0.9436			1696	
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.468	-0.005		12414580	42.7		90.2	372562	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.463	2.476	-0.013	1.000	432100	1.60				M
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.805	2.818	-0.013	1.000	719194	3.15			5883	M
413.00 > 169.00	2.813	2.818	-0.005	1.003	447389		1.61(0.90-1.10)		12345	M
D 14 13C4 PFOA										
417.00 > 372.00	2.805	2.818	-0.013		11167812	54.5		109	448808	

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	2.813	2.826	-0.013	1.000	19561	0.1309				
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.178	3.192	-0.014	1.000	1143619	8.02			38081	M
499.00 > 99.00	3.170	3.192	-0.022	0.998	228098		5.01(0.90-1.10)		12126	M
20 Perfluorononanoic acid										M
463.00 > 419.00	3.186	3.192	-0.006	1.000	70867	0.4730			1113	M
D 18 13C4 PFOS										
503.00 > 80.00	3.178	3.192	-0.014		6928302	28.7		60.0	247423	
D 19 13C5 PFNA										
468.00 > 423.00	3.178	3.201	-0.023		8286340	46.6		93.2	320131	
D 21 13C8 FOSA										
506.00 > 78.00	3.508	3.519	-0.011		2402932	6.55		13.1	116366	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.542	3.544	-0.002	1.000	48463	0.5027			927	
D 23 13C2 PFDA										
515.00 > 470.00	3.534	3.544	-0.010		5322338	31.9		63.9	135520	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.867	-0.005	1.000	7314	0.1397			199	
D 30 13C2 PFUnA										
565.00 > 520.00	3.862	3.876	-0.014		2582818	19.7		39.5	138717	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.029	4.010	0.019		370	0.004205		0.0		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.163	4.159	0.004	1.000	2668	0.0972			37.3	
D 36 13C2 PFDoA										
615.00 > 570.00	4.156	4.159	-0.003		1500029	12.1		24.2	62140	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.654	4.663	-0.009		3107325	12.0		24.0	205725	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.681	4.663	0.018	1.000	46938	0.7956			487	
713.00 > 169.00	4.654	4.663	-0.009	0.994	1706		27.51(0.00-0.00)		733	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.070	5.078	-0.008		1298339	10.4		20.8	92452	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d

Injection Date: 11-Mar-2017 16:12:39

Instrument ID: A8_N

Lims ID: 320-26103-A-3-A

Lab Sample ID: 320-26103-3

Client ID: MEAFF-SDA4C-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 25

Worklist Smp#: 30

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

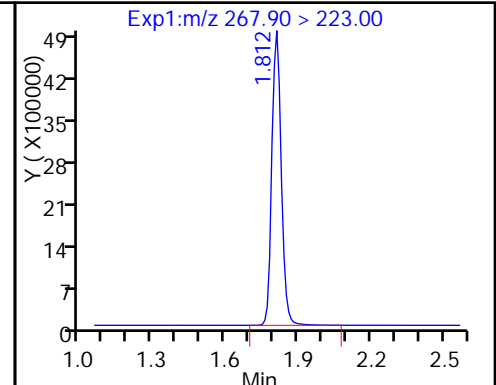
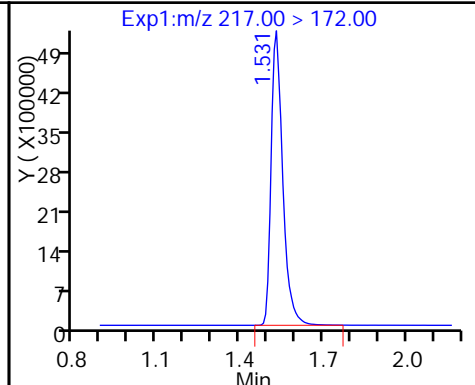
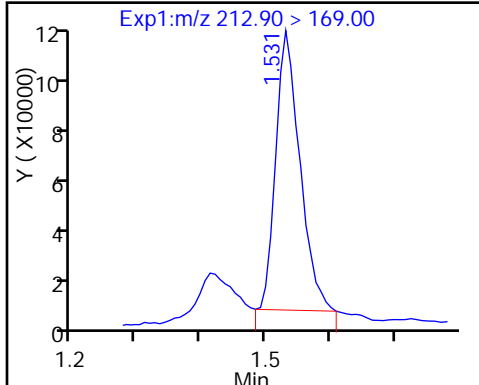
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

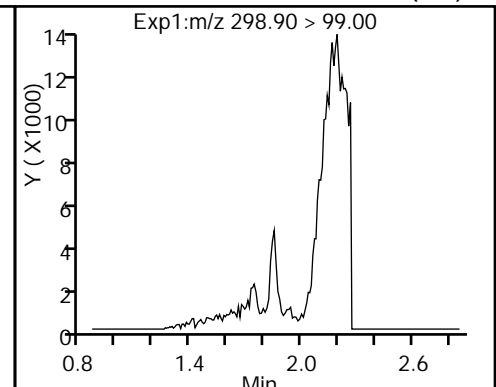
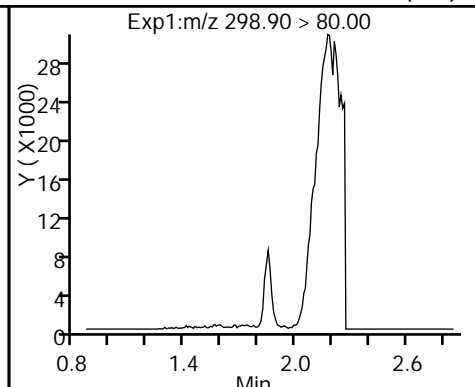
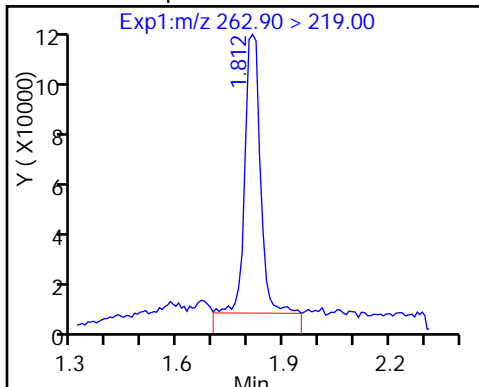
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid (ND)

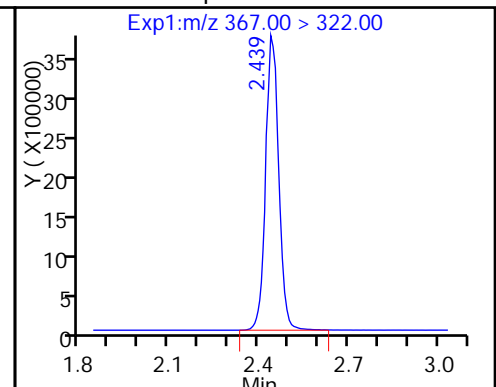
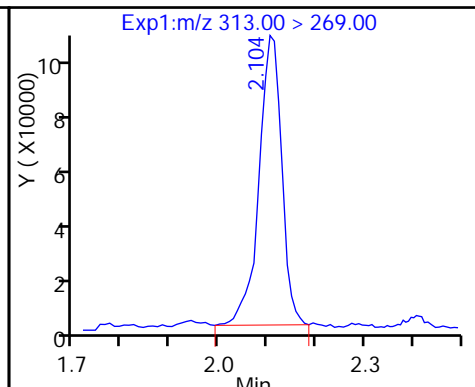
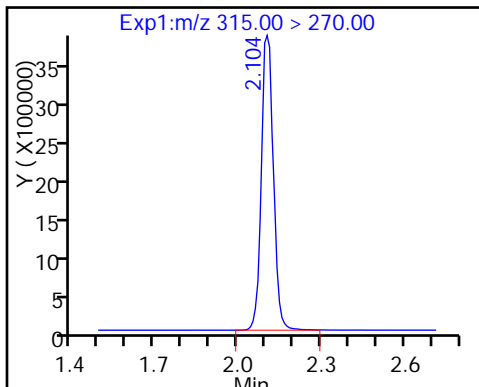
5 Perfluorobutanesulfonic acid (ND)



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

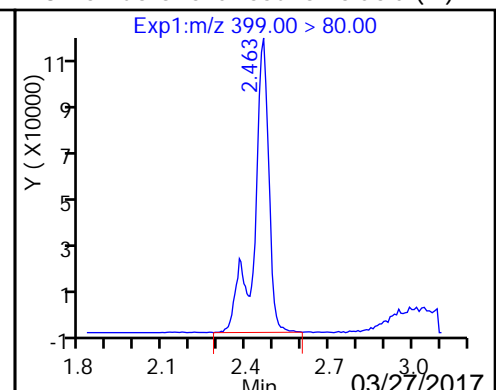
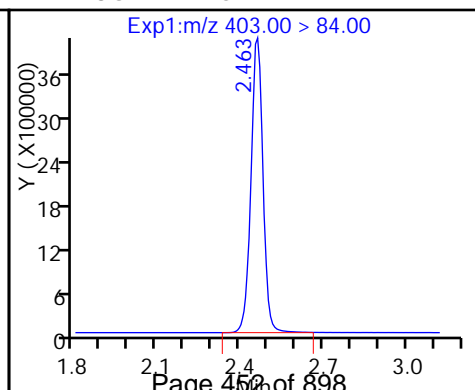
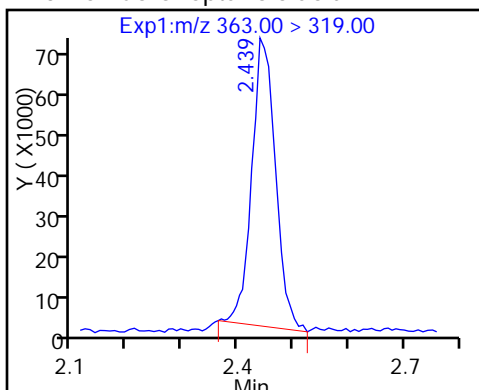
D 9 13C4-PFHpA



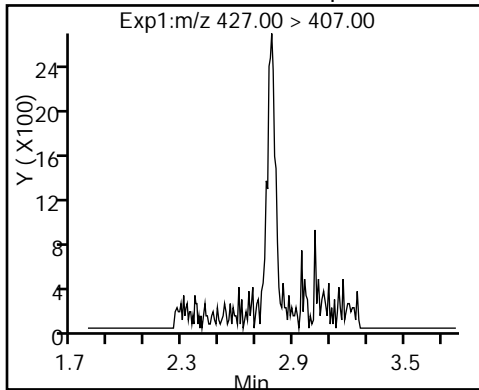
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

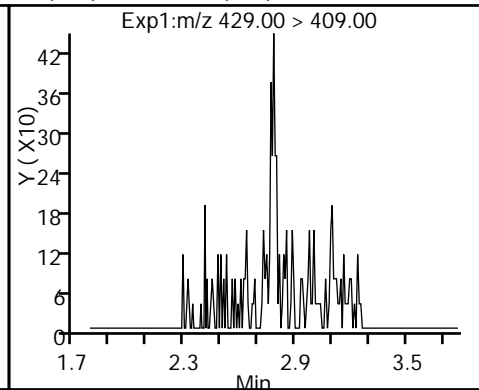
8 Perfluorohexanesulfonic acid (M)



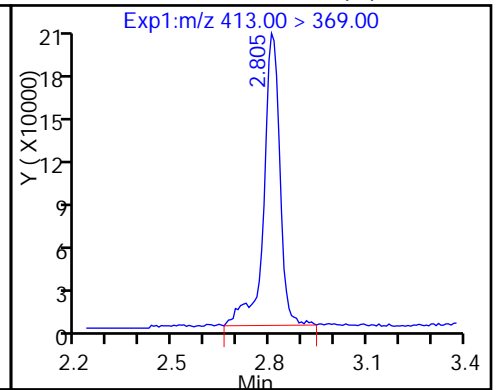
13 Sodium 1H,1H,2H,2H-perfluorooctadec-10-ynoate (M)



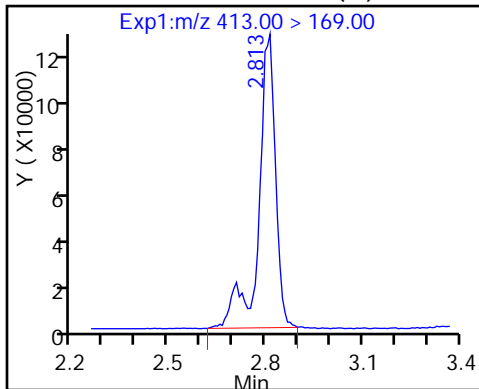
14 1H,1H,2H,2H-perfluorooctadec-10-ynoate (M)



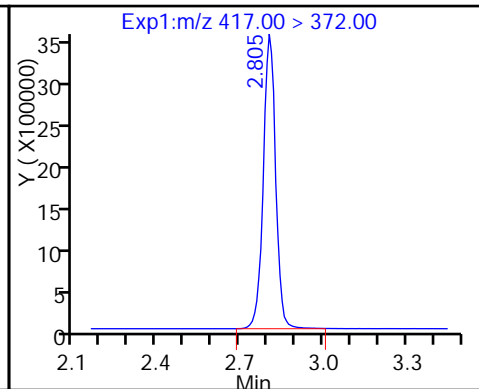
15 Perfluorooctanoic acid (M)



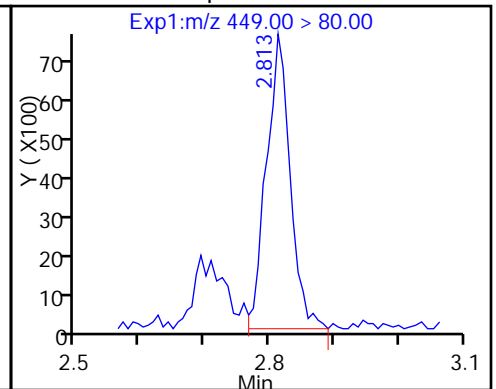
15 Perfluorooctanoic acid (M)



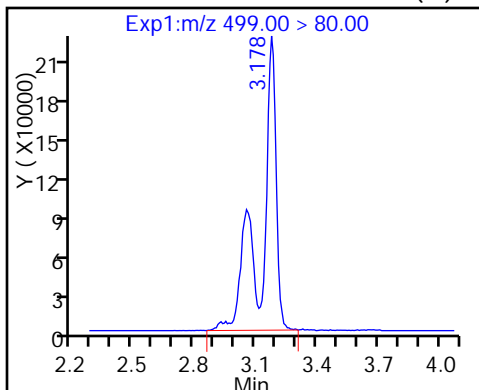
D 14 13C4 PFOA



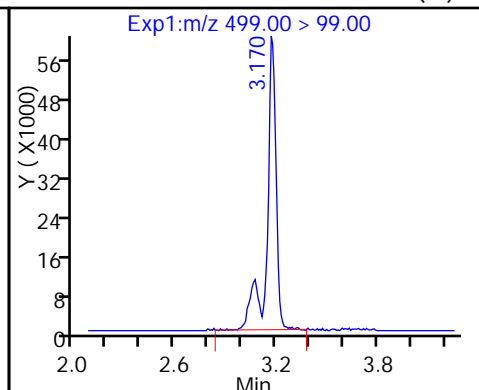
16 Perfluoroheptanesulfonic Acid



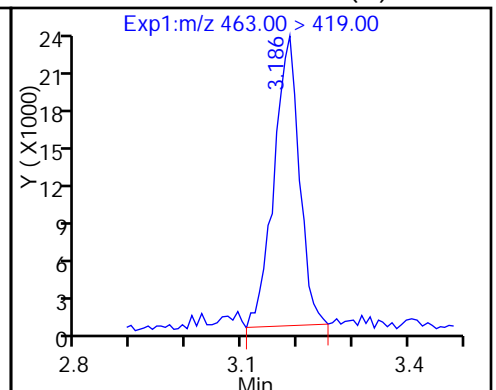
17 Perfluorooctane sulfonic acid (M)



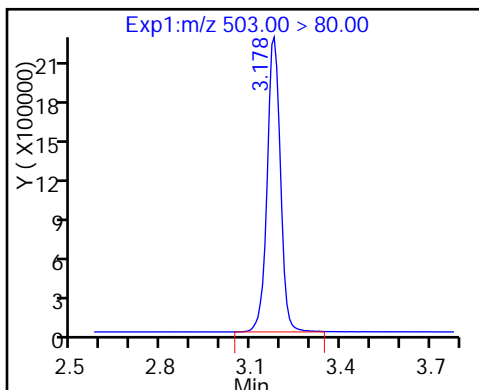
17 Perfluorooctane sulfonic acid (M)



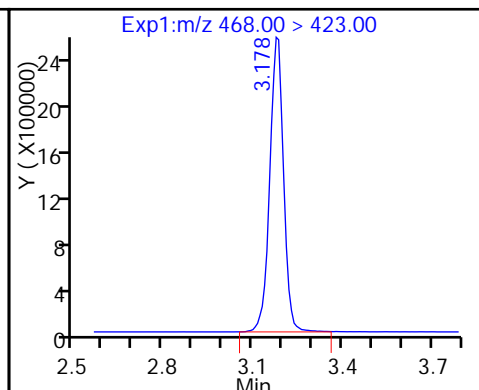
20 Perfluorononanoic acid (M)



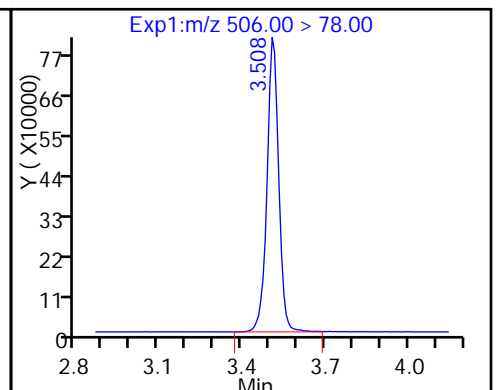
D 18 13C4 PFOS



D 19 13C5 PFNA

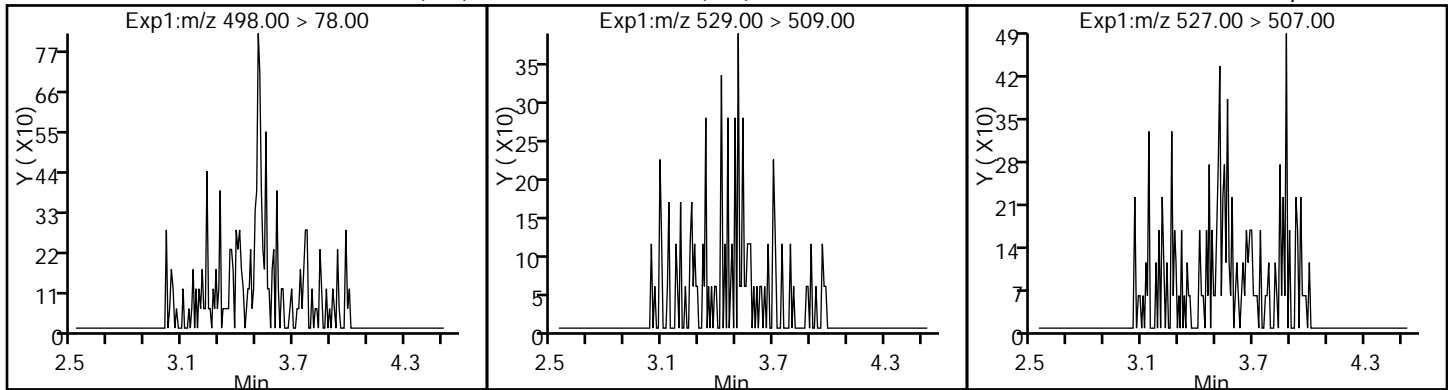


D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide (ND) D 26 M2-8:2FTS (ND)

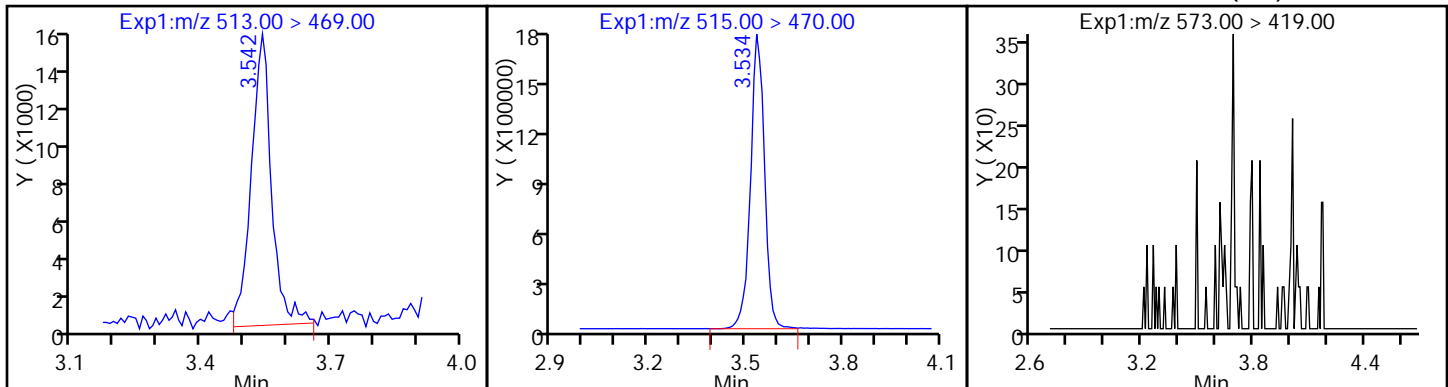
25 Sodium 1H,1H,2H,2H-perfluorooctane (ND)



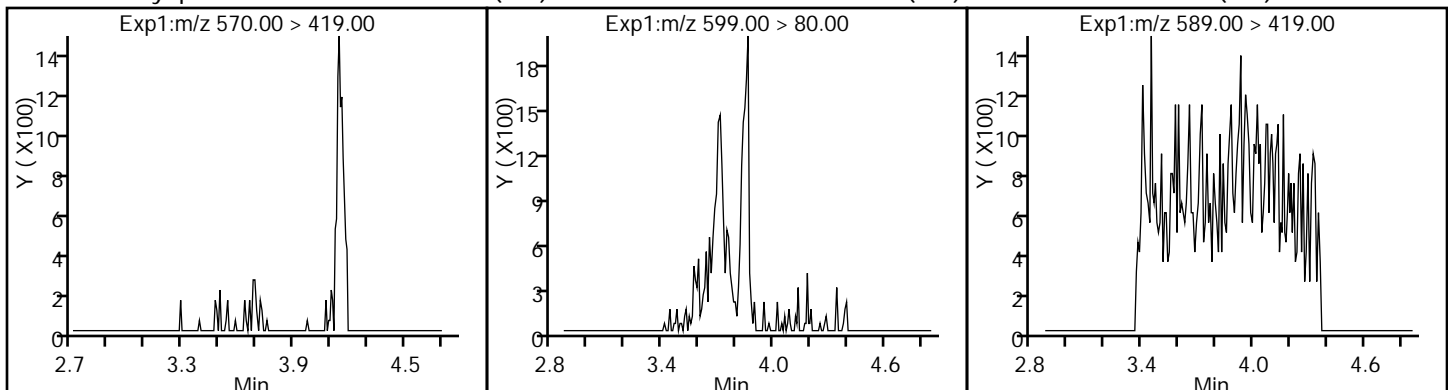
24 Perfluorodecanoic acid

D 23 13C2 PFDA

D 27 d3-NMeFOSAA (ND)

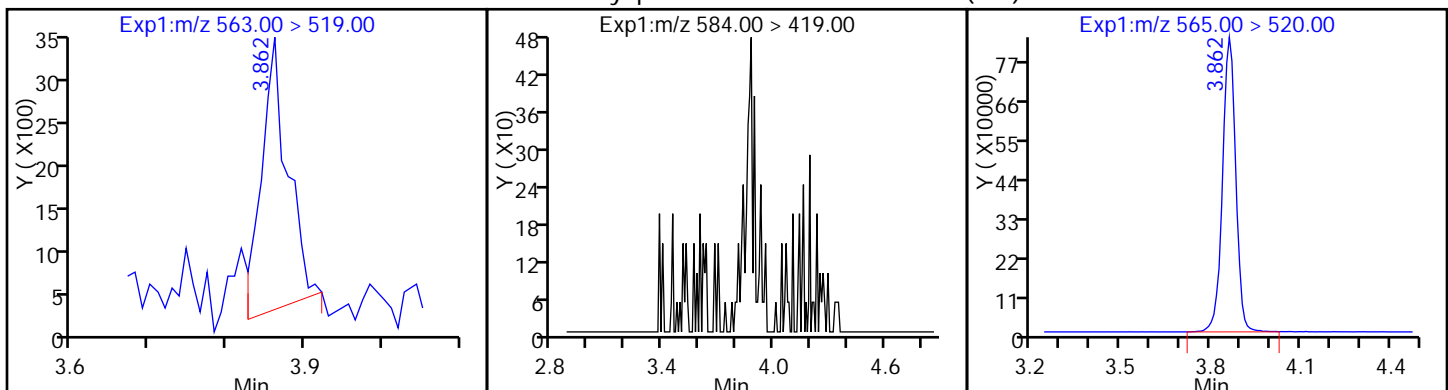


28 N-methyl perfluorooctane sulfonami (ND) D 29 Perfluorodecane Sulfonic acid (ND) D 32 d5-NEtFOSAA (ND)



31 Perfluoroundecanoic acid

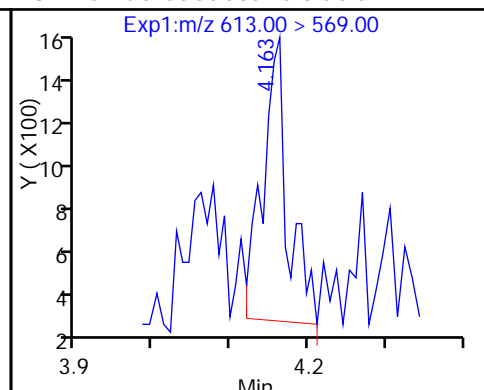
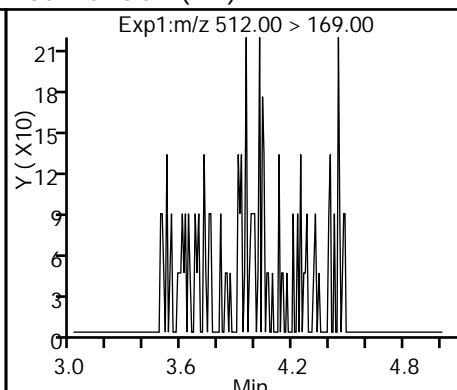
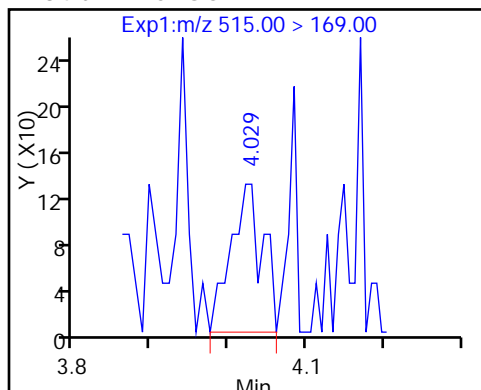
33 N-ethyl perfluorooctane sulfonamid (ND) D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

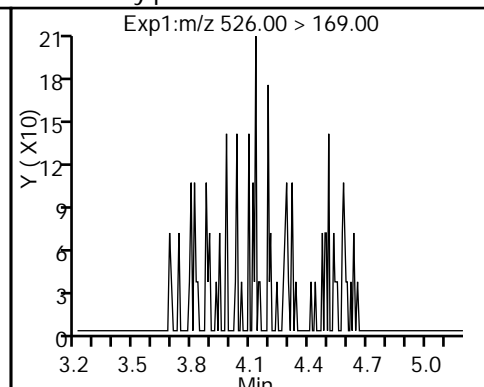
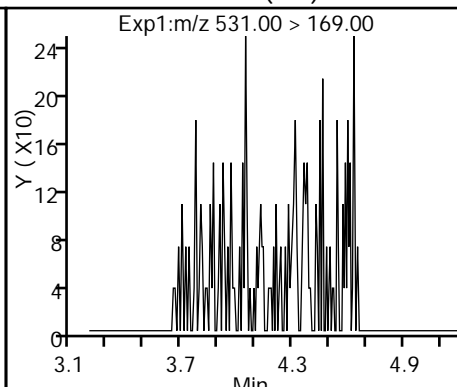
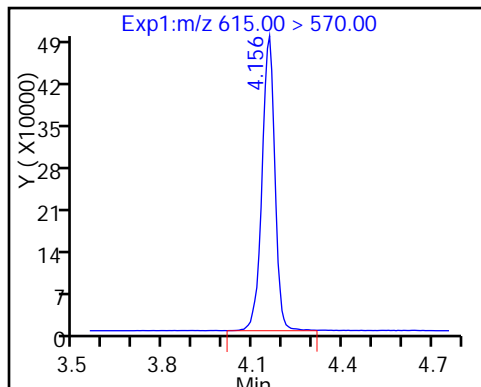
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

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

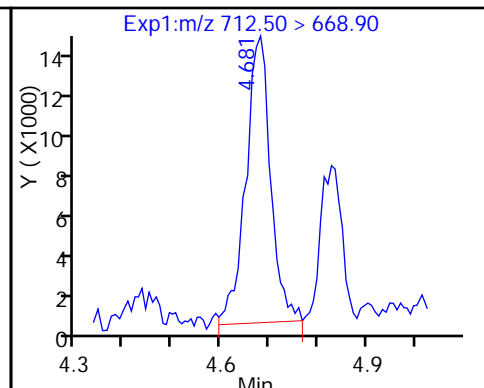
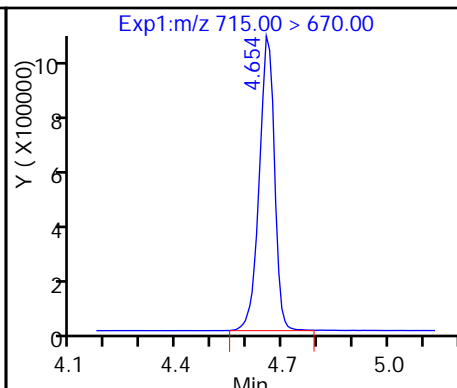
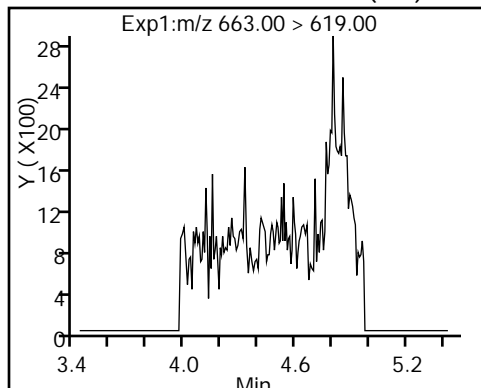
39 N-ethylperfluoro-1-octanesulfonami (ND)



41 Perfluorotridecanoic acid (ND)

D 43 13C2-PFTeDA

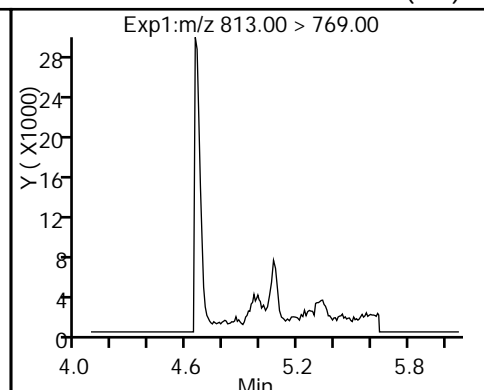
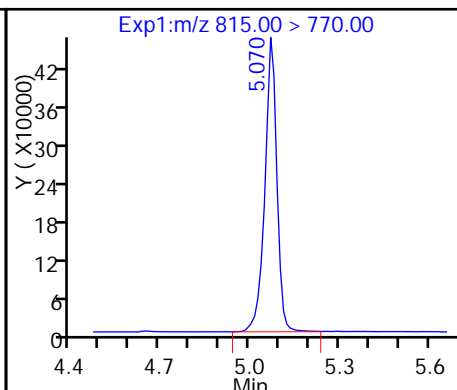
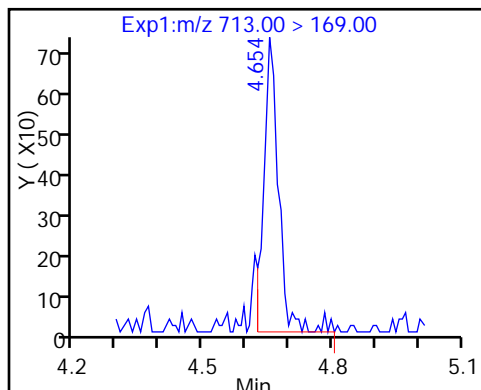
42 Perfluorotetradecanoic acid



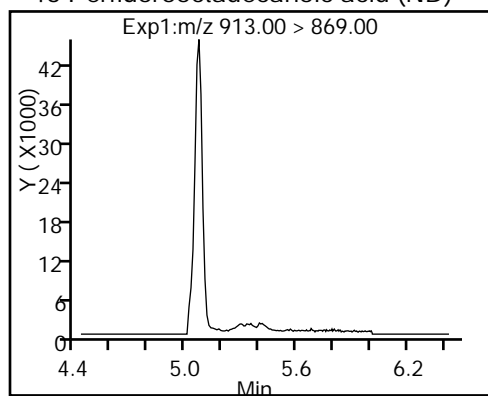
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid (ND)



46 Perfluorooctadecanoic acid (ND)



TestAmerica Sacramento

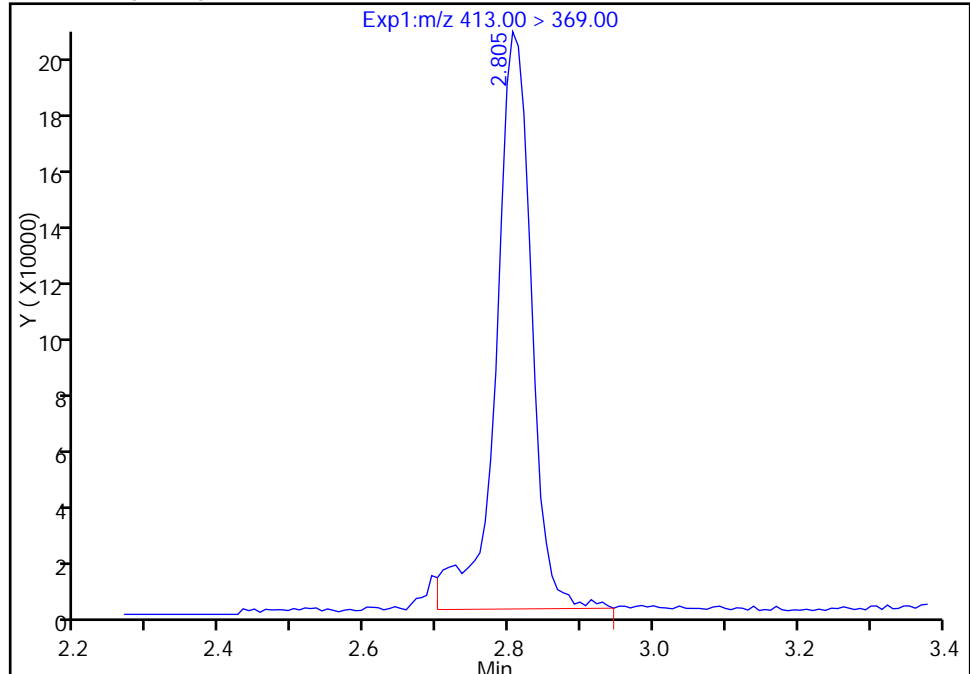
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d				
Injection Date:	11-Mar-2017 16:12:39	Instrument ID:	A8_N		
Lims ID:	320-26103-A-3-A	Lab Sample ID:	320-26103-3		
Client ID:	MEAFF-SDA4C-SB01-0001				
Operator ID:	A8-PC\A8	ALS Bottle#:	25	Worklist Smp#:	30
Injection 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

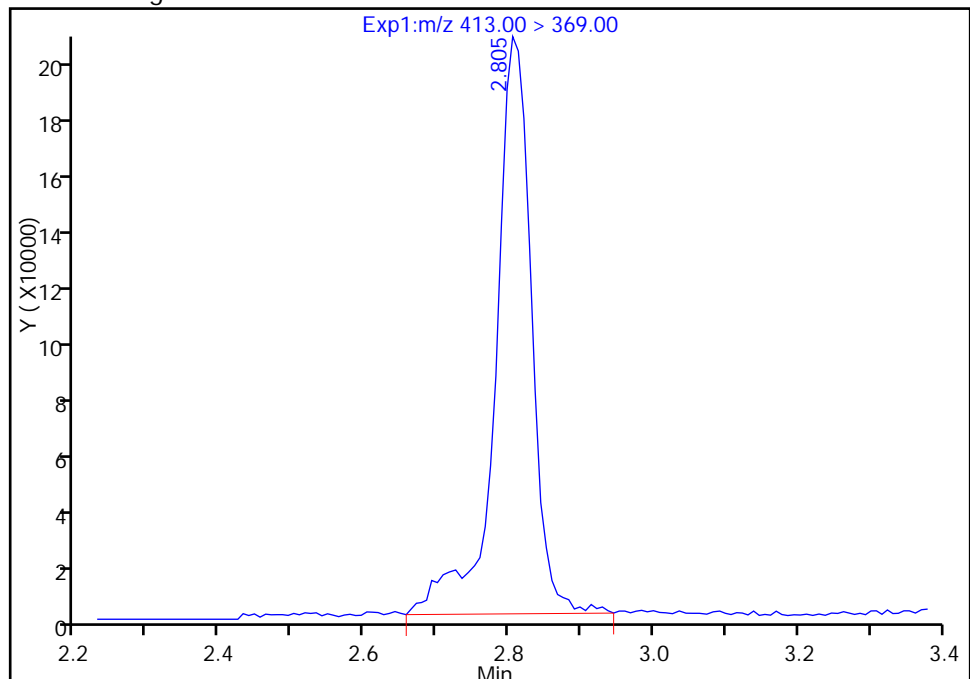
RT: 2.80
Area: 704564
Amount: 3.087569
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 719194
Amount: 3.151681
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:08:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

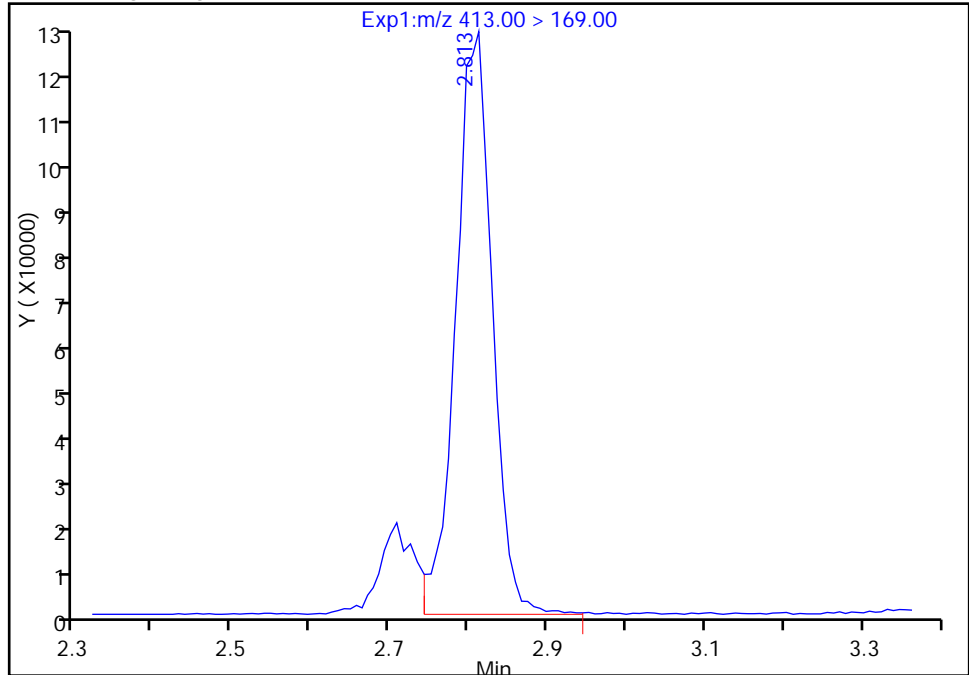
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d
Injection Date: 11-Mar-2017 16:12:39 Instrument ID: A8_N
Lims ID: 320-26103-A-3-A Lab Sample ID: 320-26103-3
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 25 Worklist Smp#: 30
Injection Vol: 2.0 ul 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

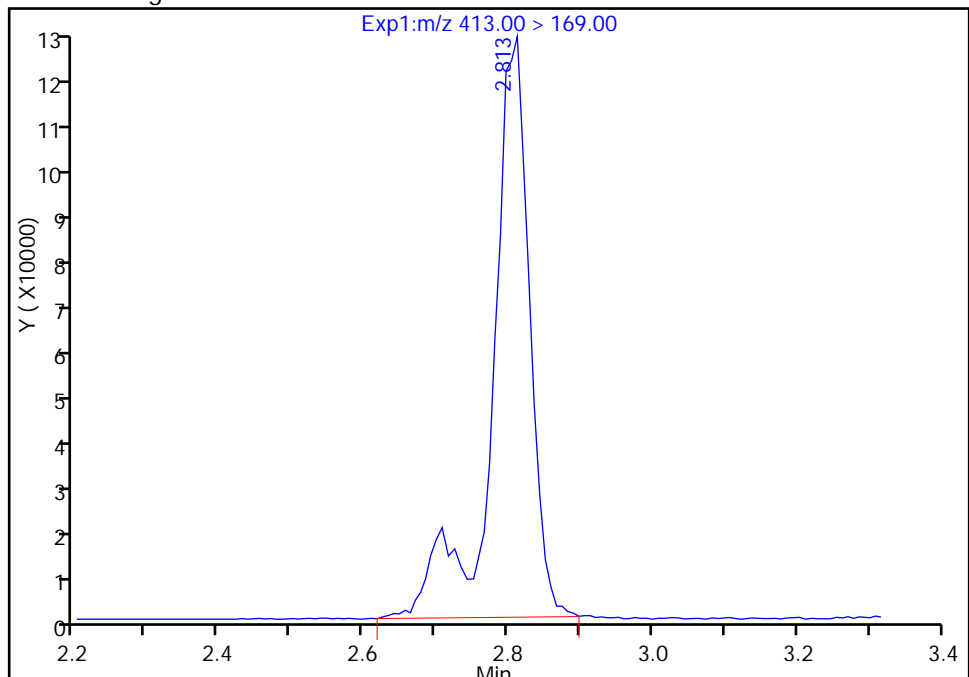
RT: 2.81
Area: 396919
Amount: 3.087569
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 447389
Amount: 3.151681
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:08:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

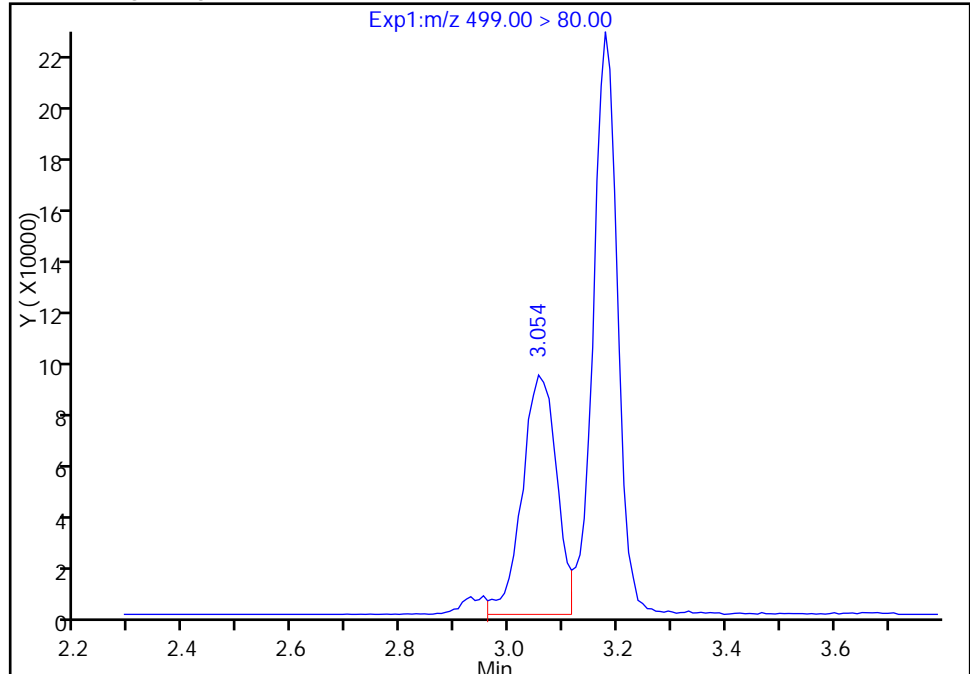
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d
Injection Date: 11-Mar-2017 16:12:39 Instrument ID: A8_N
Lims ID: 320-26103-A-3-A Lab Sample ID: 320-26103-3
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 25 Worklist Smp#: 30
Injection Vol: 2.0 ul 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

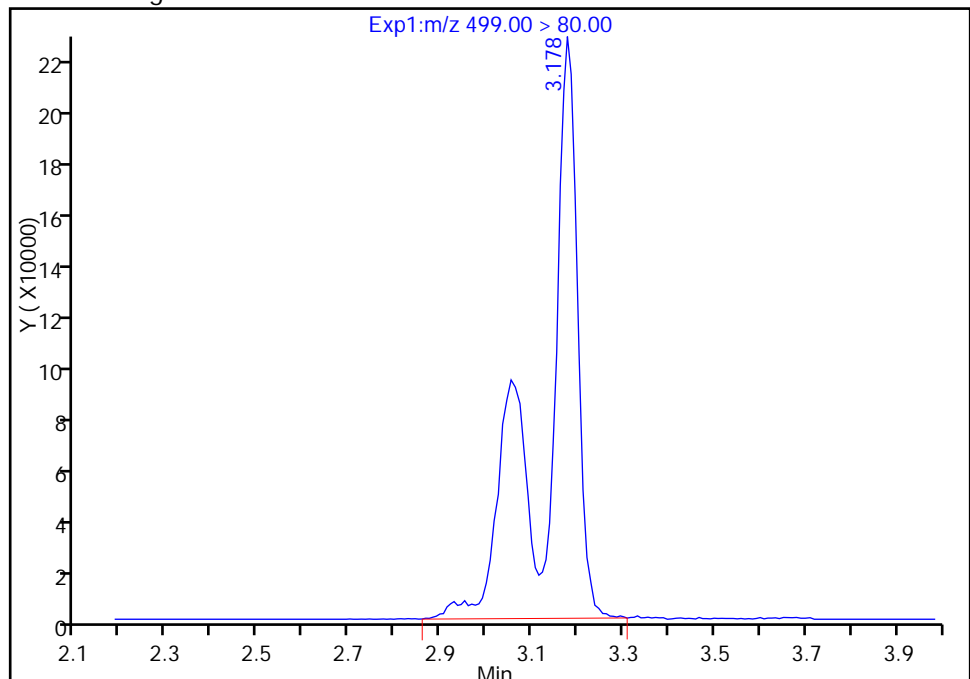
RT: 3.05
Area: 413665
Amount: 2.901906
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1143619
Amount: 8.022614
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:08:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

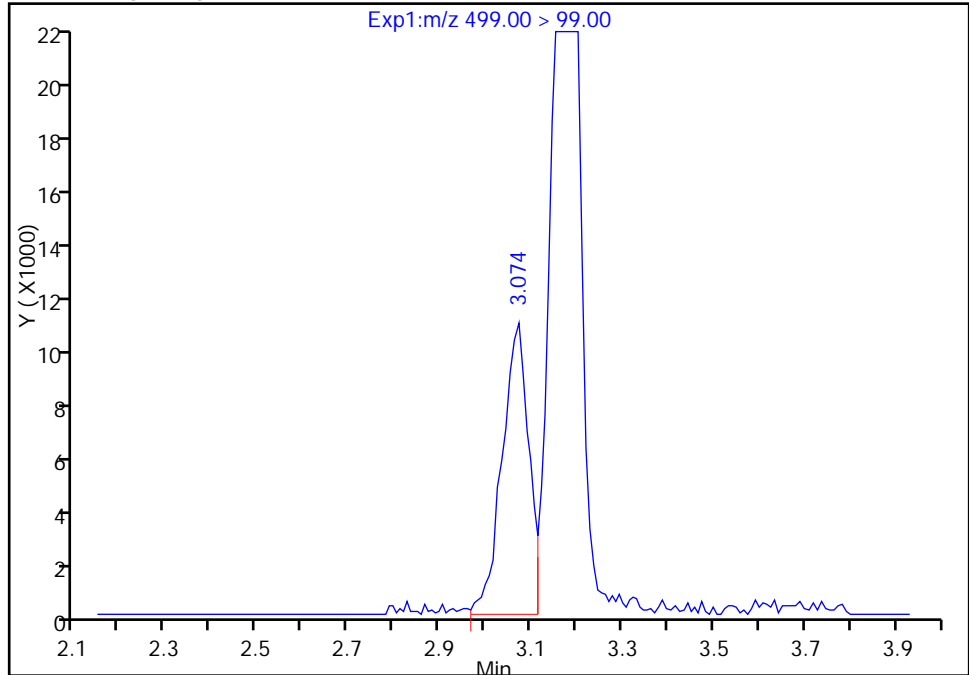
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_033.d
Injection Date: 11-Mar-2017 16:12:39 Instrument ID: A8_N
Lims ID: 320-26103-A-3-A Lab Sample ID: 320-26103-3
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 25 Worklist Smp#: 30
Injection Vol: 2.0 ul 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

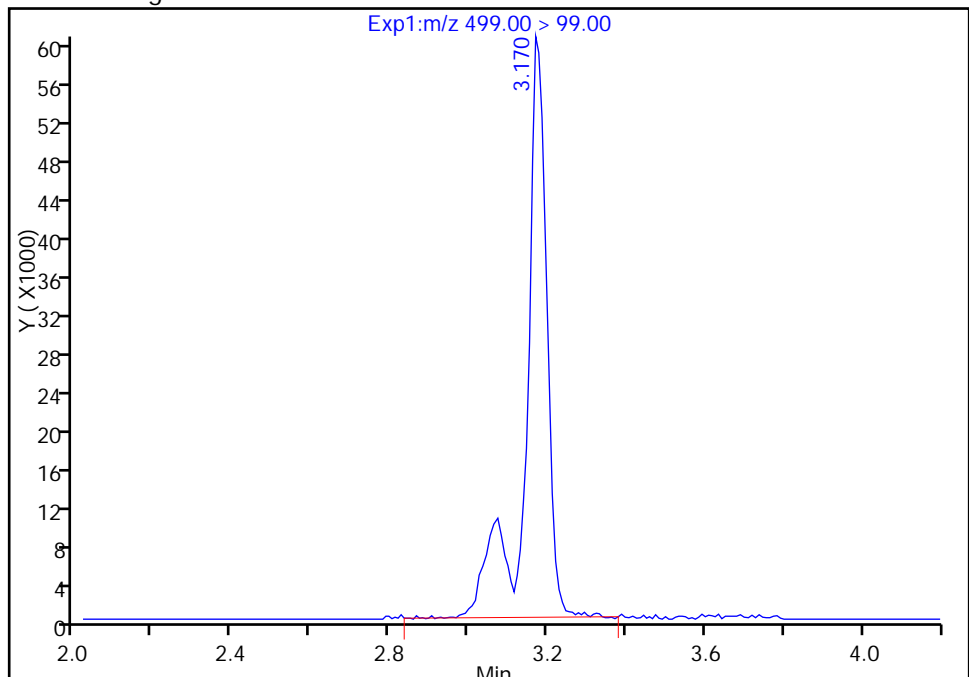
RT: 3.07
Area: 42421
Amount: 2.901906
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 228098
Amount: 8.022614
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:08:49

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-SDA4C-SB01-0204</u>	Lab Sample ID: <u>320-26103-4</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_036.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 09:33</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>5.02(g)</u>	Date Analyzed: <u>03/11/2017 16:35</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>17.6</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.42	J 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	98		25-150
STL00991	13C4 PFOS	45		25-150
STL00994	18O2 PFHxS	86		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d
 Lims ID: 320-26103-A-4-A
 Client ID: MEAFF-SDA4C-SB01-0204
 Sample Type: Client
 Inject. Date: 11-Mar-2017 16:35:06 ALS Bottle#: 28 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-4-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:24:25 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: 13-Mar-2017 13:53:08

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	1.852	1.862	-0.010	1.000	23393	0.0652				
298.90 > 99.00	1.852	1.862	-0.010	1.000	9409		2.49(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.468	-0.005		11852142	40.7		86.1	408644	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.804	2.818	-0.014	1.000	186263	0.9067			1521	M
413.00 > 169.00	2.804	2.818	-0.014	1.000	107521		1.73(0.90-1.10)		2636	M
D 14 13C4 PFOA										
417.00 > 372.00	2.812	2.818	-0.006		10053656	49.1		98.1	323888	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.177	3.192	-0.015	1.000	183822	1.73			5568	M
499.00 > 99.00	3.177	3.192	-0.015	1.000	41191		4.46(0.90-1.10)		1423	M
D 18 13C4 PFOS										
503.00 > 80.00	3.186	3.192	-0.006		5154004	21.3		44.6	194780	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d

Injection Date: 11-Mar-2017 16:35:06

Instrument ID: A8_N

Lims ID: 320-26103-A-4-A

Lab Sample ID: 320-26103-4

Client ID: MEAFF-SDA4C-SB01-0204

Operator ID: A8-PC\A8

ALS Bottle#: 28

Worklist Smp#: 33

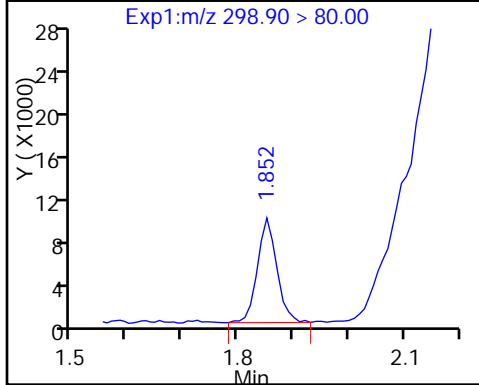
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

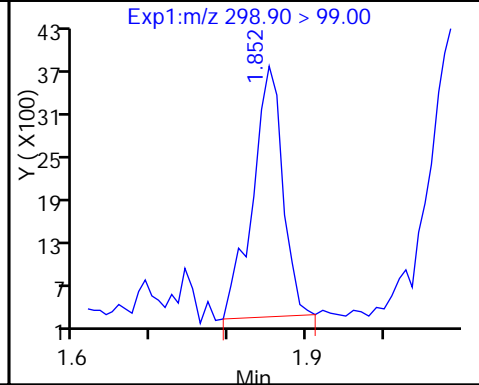
Method: A8_N

Limit Group: LC PFC_DOD ICAL

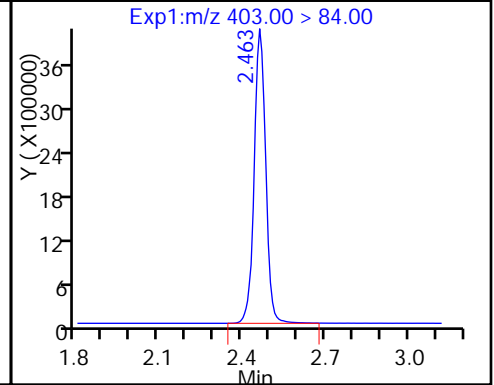
5 Perfluorobutanesulfonic acid



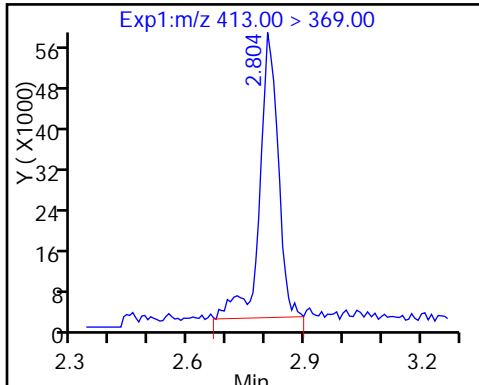
5 Perfluorobutanesulfonic acid (M)



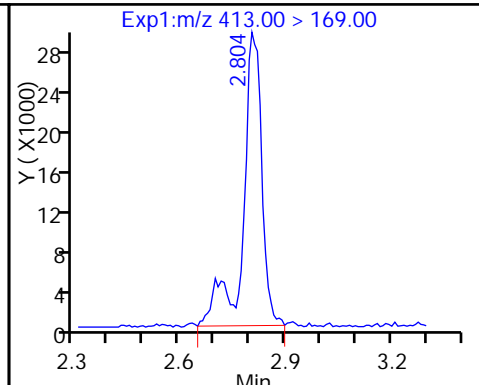
D 11 18O2 PFHxS



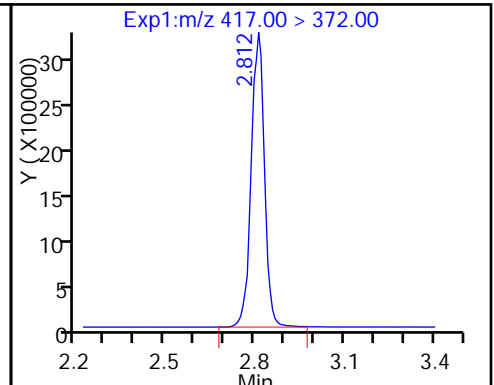
15 Perfluorooctanoic acid (M)



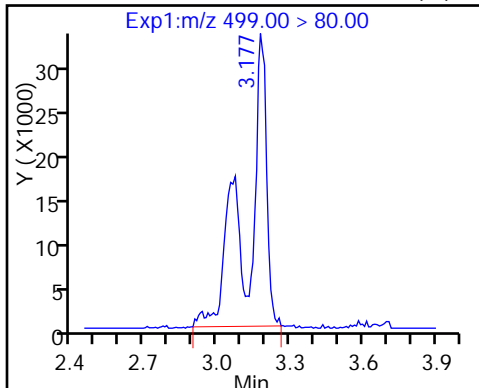
15 Perfluorooctanoic acid (M)



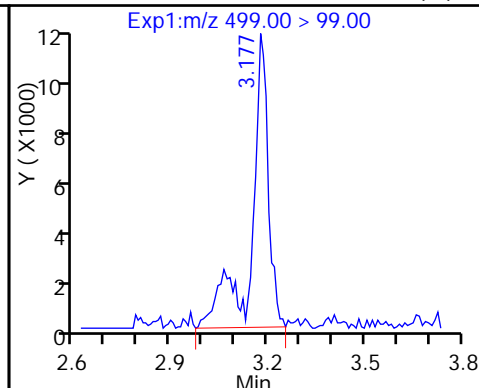
D 14 13C4 PFOA



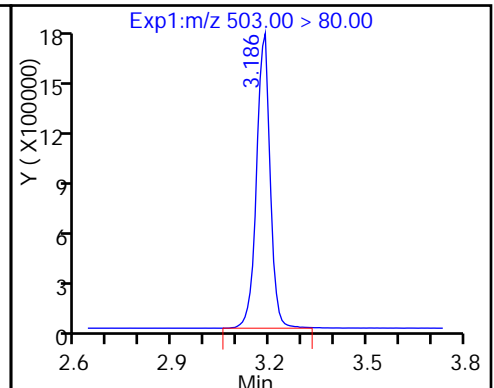
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

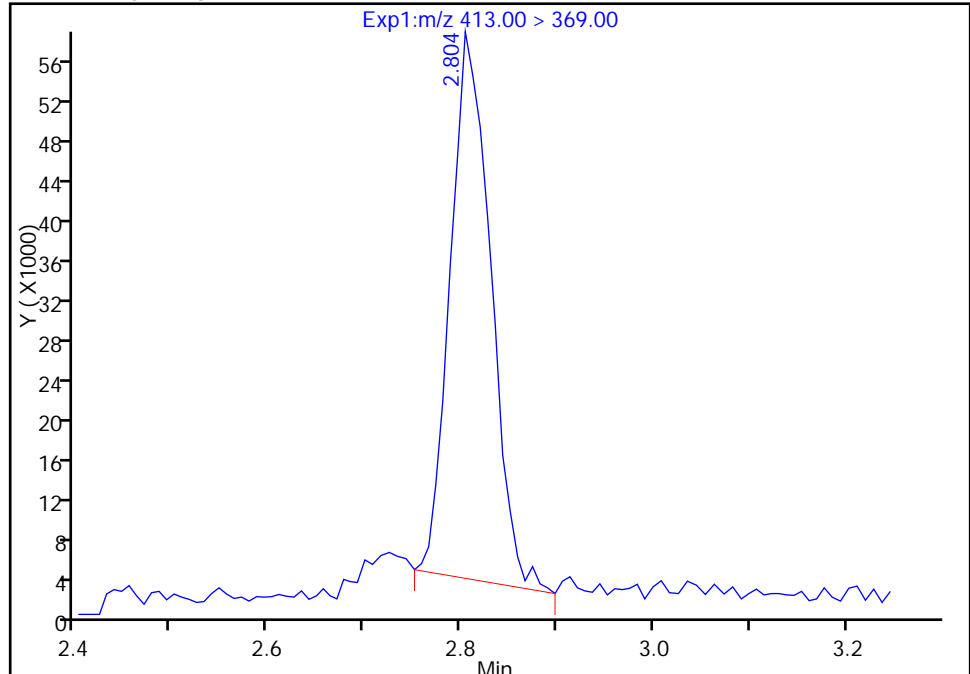
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d
Injection Date: 11-Mar-2017 16:35:06 Instrument ID: A8_N
Lims ID: 320-26103-A-4-A Lab Sample ID: 320-26103-4
Client ID: MEAFF-SDA4C-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 33
Injection Vol: 2.0 ul 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

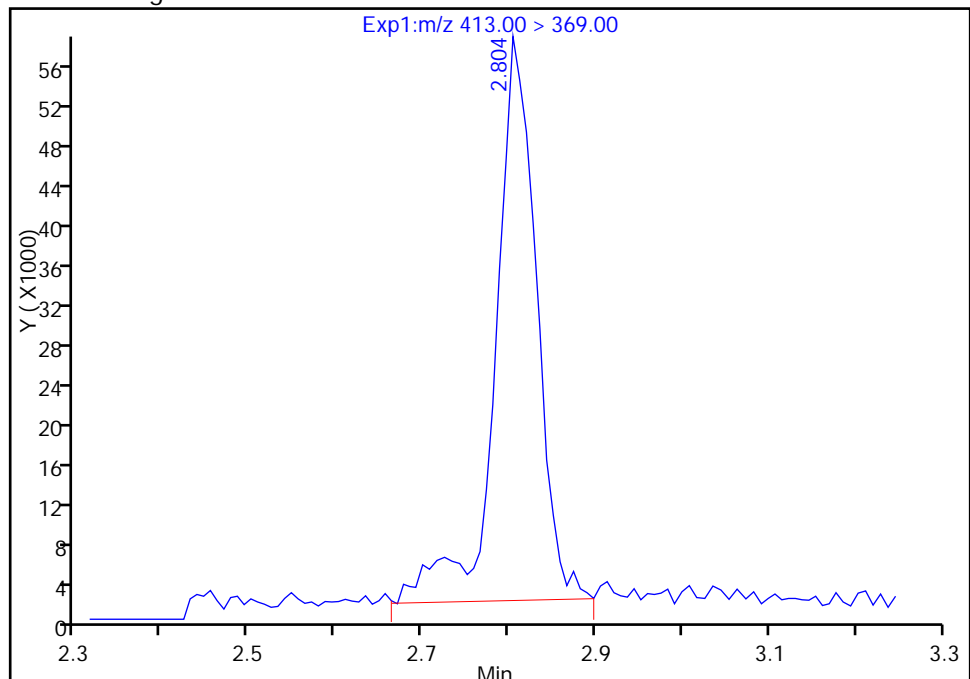
RT: 2.80
Area: 159381
Amount: 0.775848
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 186263
Amount: 0.906707
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:24:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

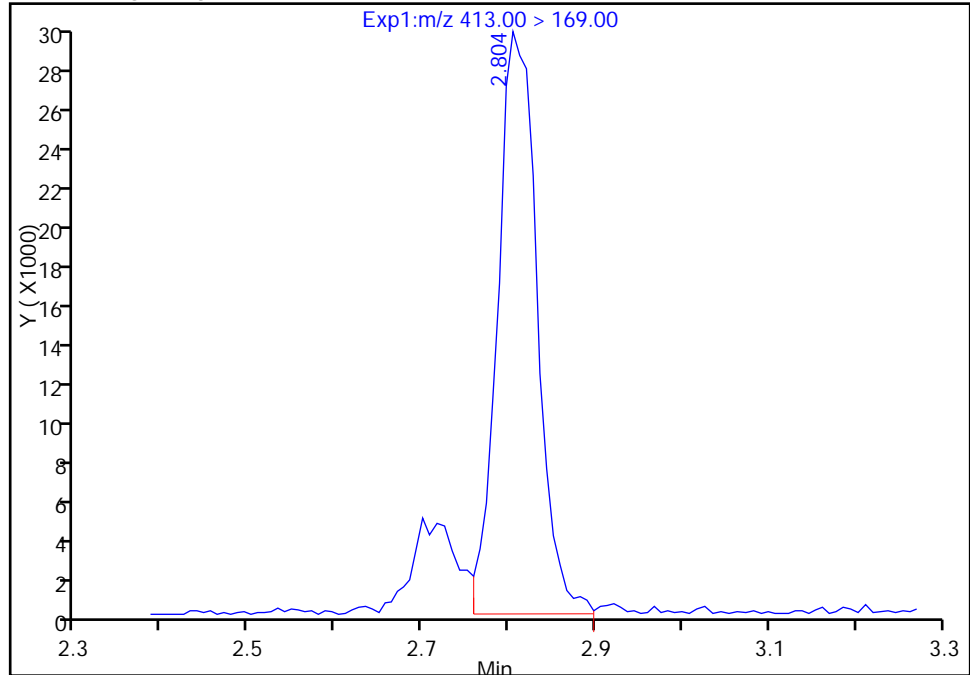
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d
Injection Date: 11-Mar-2017 16:35:06 Instrument ID: A8_N
Lims ID: 320-26103-A-4-A Lab Sample ID: 320-26103-4
Client ID: MEAFF-SDA4C-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 33
Injection Vol: 2.0 ul 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

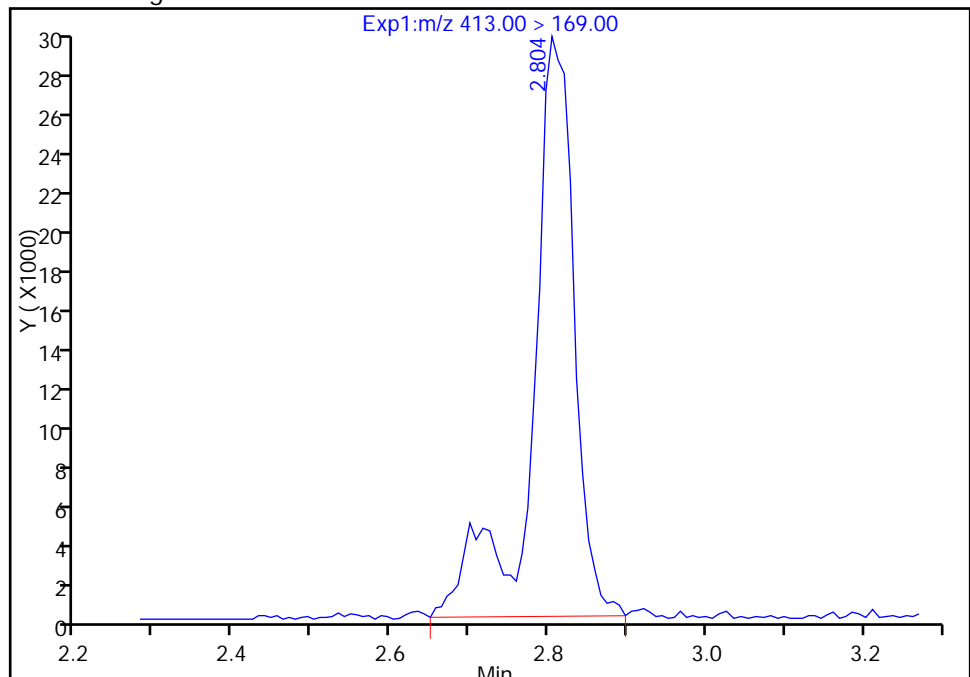
RT: 2.80
Area: 92329
Amount: 0.775848
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 107521
Amount: 0.906707
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:24:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

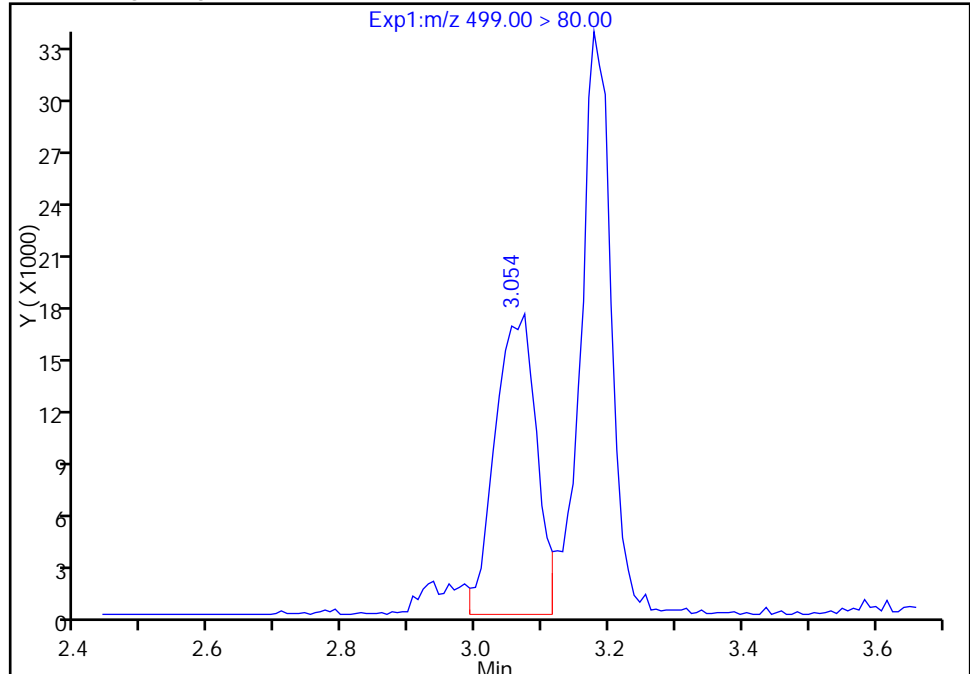
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d
Injection Date: 11-Mar-2017 16:35:06 Instrument ID: A8_N
Lims ID: 320-26103-A-4-A Lab Sample ID: 320-26103-4
Client ID: MEAFF-SDA4C-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 33
Injection Vol: 2.0 ul 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

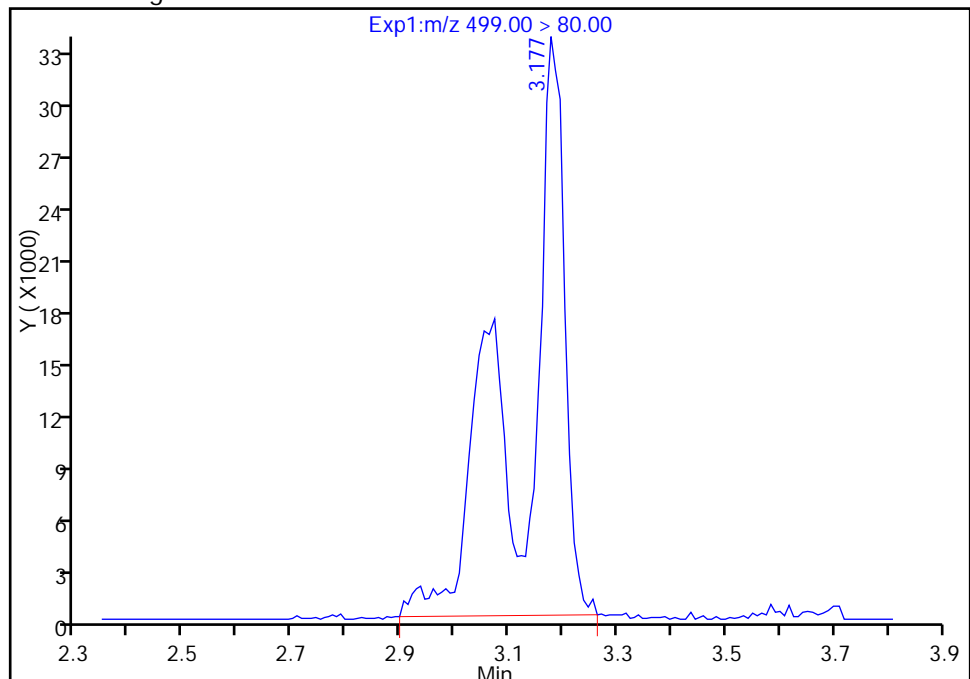
RT: 3.05
Area: 73994
Amount: 0.697771
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 183822
Amount: 1.733461
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:24:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

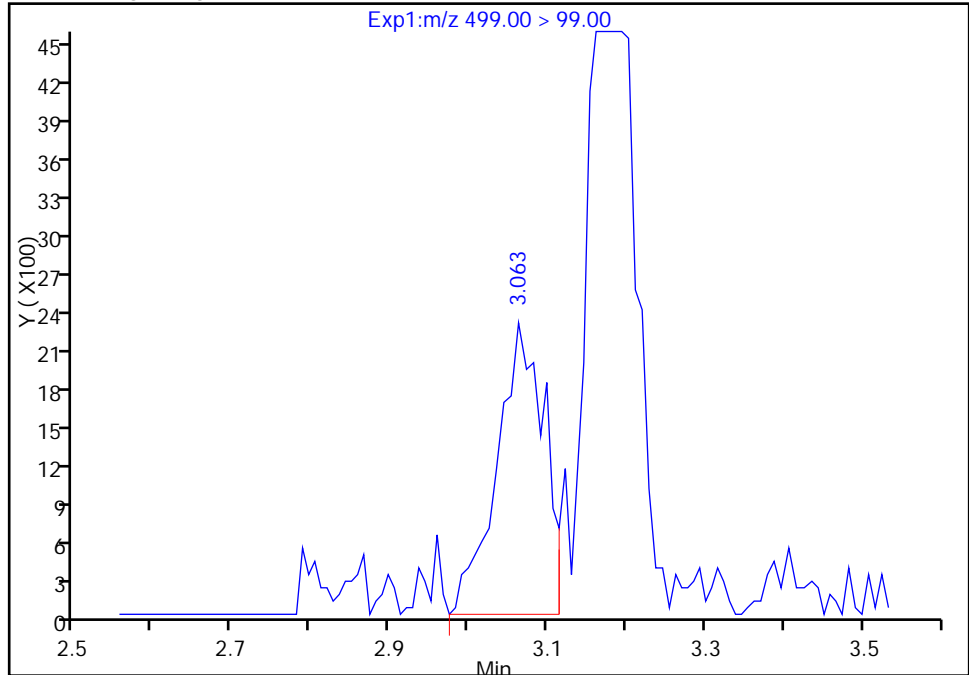
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d
Injection Date: 11-Mar-2017 16:35:06 Instrument ID: A8_N
Lims ID: 320-26103-A-4-A Lab Sample ID: 320-26103-4
Client ID: MEAFF-SDA4C-SB01-0204
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 33
Injection Vol: 2.0 ul 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

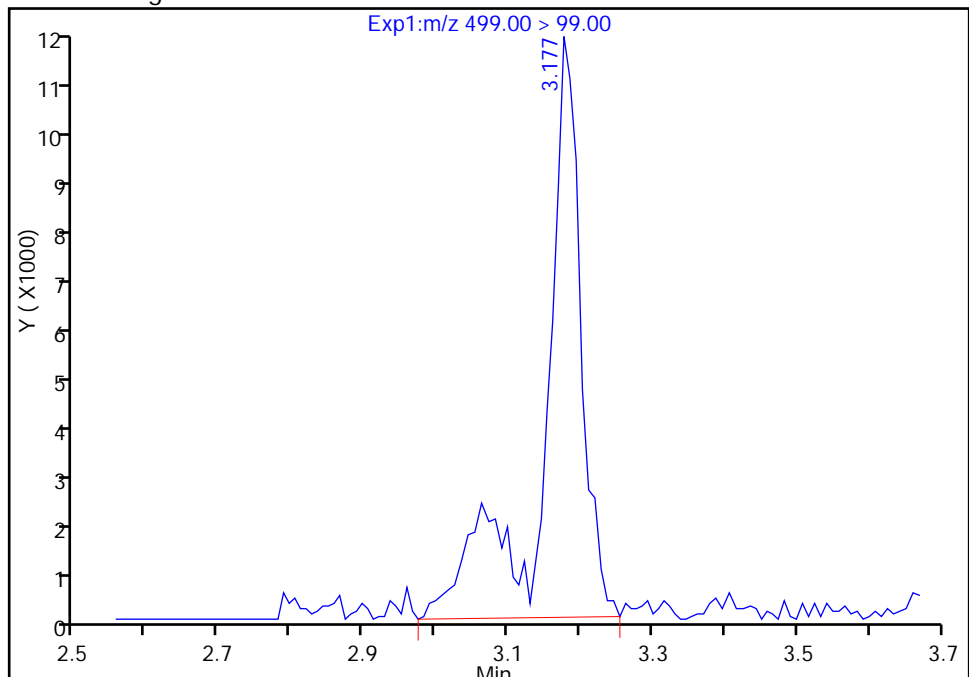
RT: 3.06
Area: 9376
Amount: 0.697771
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 41191
Amount: 1.733461
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:24:08

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

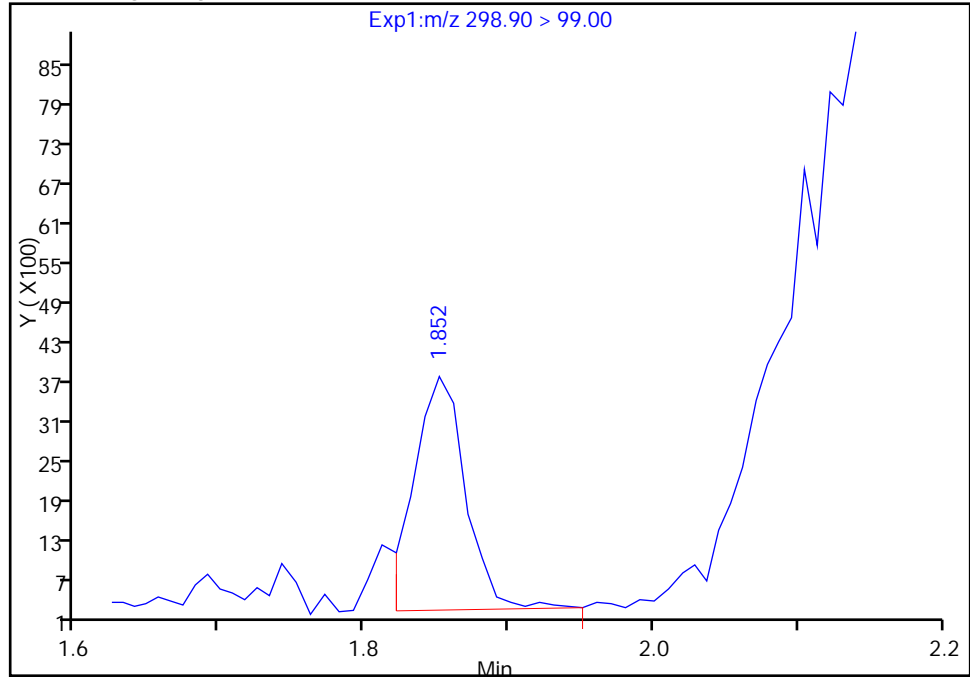
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_036.d				
Injection Date:	11-Mar-2017 16:35:06	Instrument ID:	A8_N		
Lims ID:	320-26103-A-4-A	Lab Sample ID:	320-26103-4		
Client ID:	MEAFF-SDA4C-SB01-0204				
Operator ID:	A8-PC\A8	ALS Bottle#:	28	Worklist Smp#:	33
Injection 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

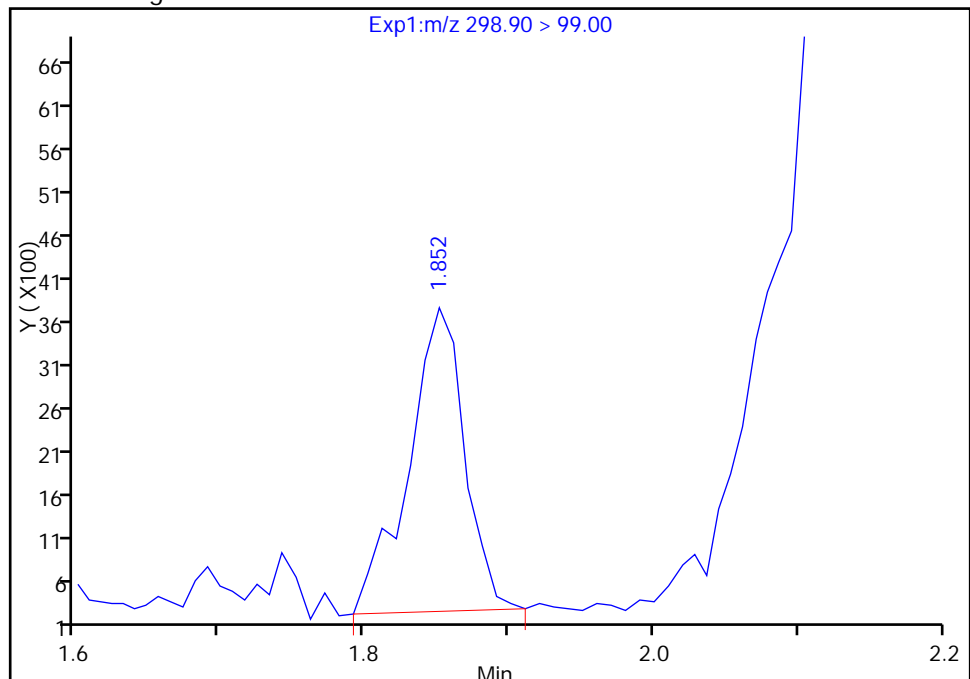
RT: 1.85
Area: 8562
Amount: 0.065171
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 9409
Amount: 0.065171
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:24:20

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA2-SB02-0608</u>	Lab Sample ID: <u>320-26103-5</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_037.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 12:00</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>5.01(g)</u>	Date Analyzed: <u>03/11/2017 16:42</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>26.1</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.41	U	0.68	0.41	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.41	U	0.68	0.41	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.41	U M	0.54	0.41	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	109		25-150
STL00991	13C4 PFOS	103		25-150
STL00994	18O2 PFHxS	103		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_037.d
 Lims ID: 320-26103-A-5-A
 Client ID: MEAFF-FTA2-SB02-0608
 Sample Type: Client
 Inject. Date: 11-Mar-2017 16:42:37 ALS Bottle#: 29 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-5-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:25:19 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: 13-Mar-2017 13:53:44

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	1.862	-0.010	1.000	110161	0.2571				
298.90 > 99.00	1.852	1.862	-0.010	1.000	48979		2.25(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.468	-0.005		14149488	48.6		103	436440	
D 14 13C4 PFOA										
417.00 > 372.00	2.805	2.818	-0.013		11133748	54.3		109	366779	
D 18 13C4 PFOS										
503.00 > 80.00	3.178	3.192	-0.014		11875765	49.1		103	155226	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_037.d

Injection Date: 11-Mar-2017 16:42:37

Instrument ID: A8_N

Lims ID: 320-26103-A-5-A

Lab Sample ID: 320-26103-5

Client ID: MEAFF-FTA2-SB02-0608

Operator ID: A8-PC\A8

ALS Bottle#: 29

Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

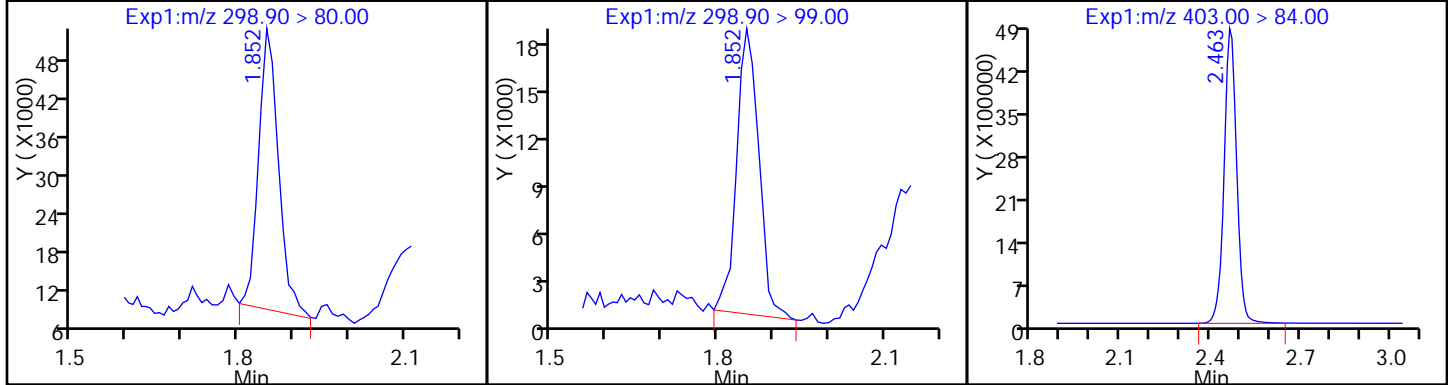
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

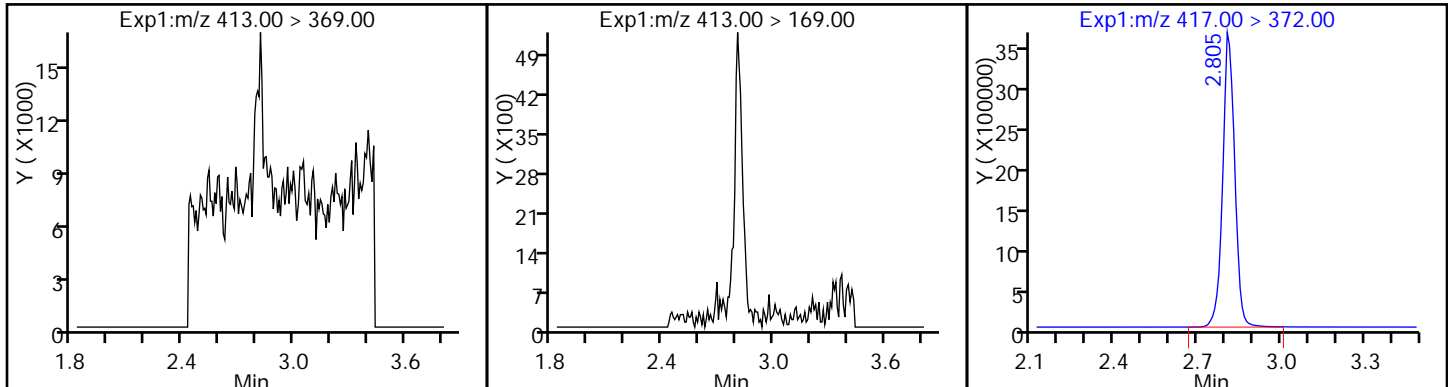
D 11 18O2 PFHxS



15 Perfluorooctanoic acid (ND)

15 Perfluorooctanoic acid (ND)

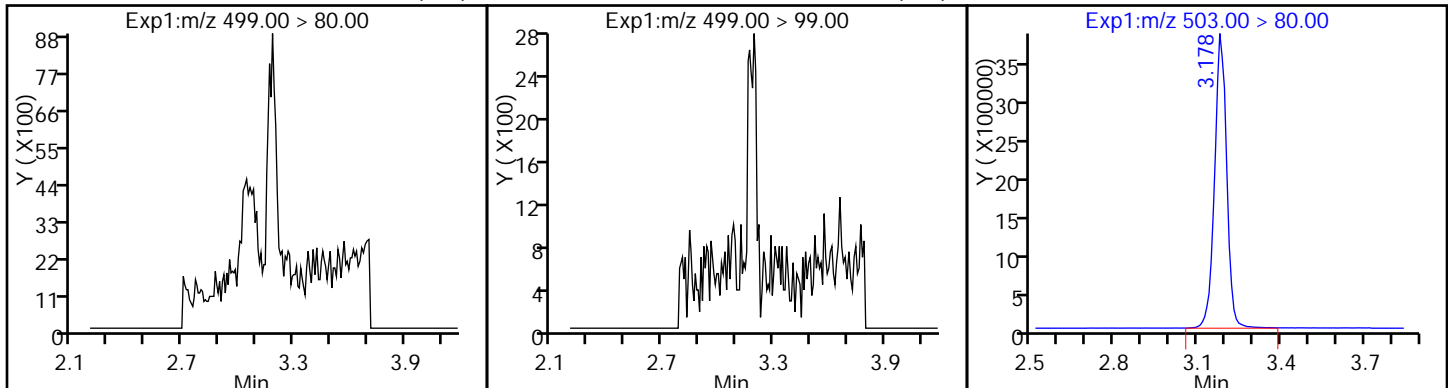
D 14 13C4 PFOA



17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS



TestAmerica Sacramento

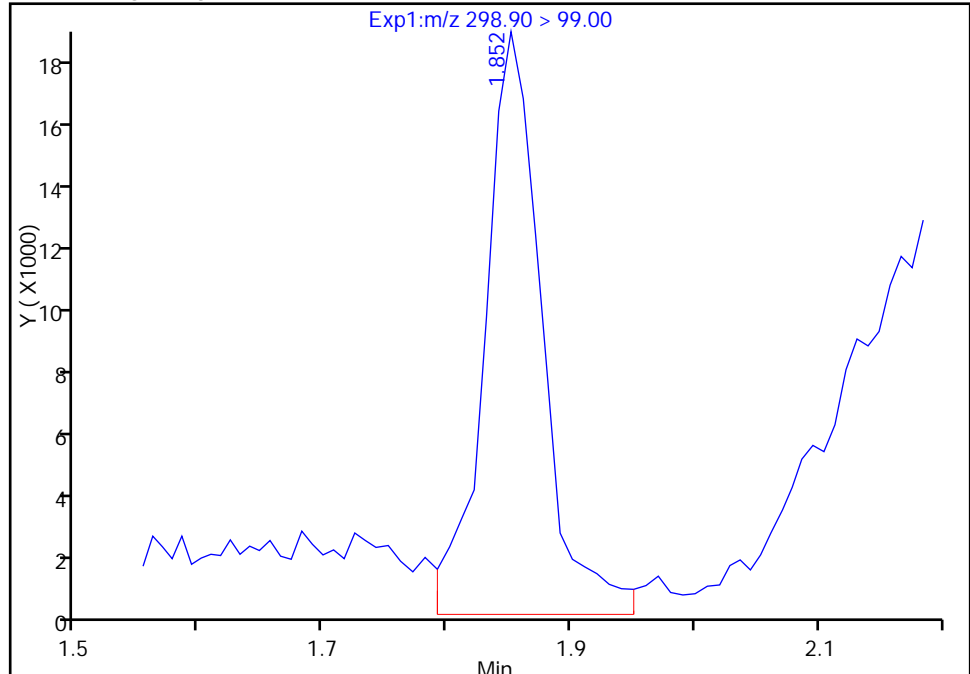
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_037.d				
Injection Date:	11-Mar-2017 16:42:37	Instrument ID:	A8_N		
Lims ID:	320-26103-A-5-A	Lab Sample ID:	320-26103-5		
Client ID:	MEAFF-FTA2-SB02-0608				
Operator ID:	A8-PC\A8	ALS Bottle#:	29	Worklist Smp#:	34
Injection 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

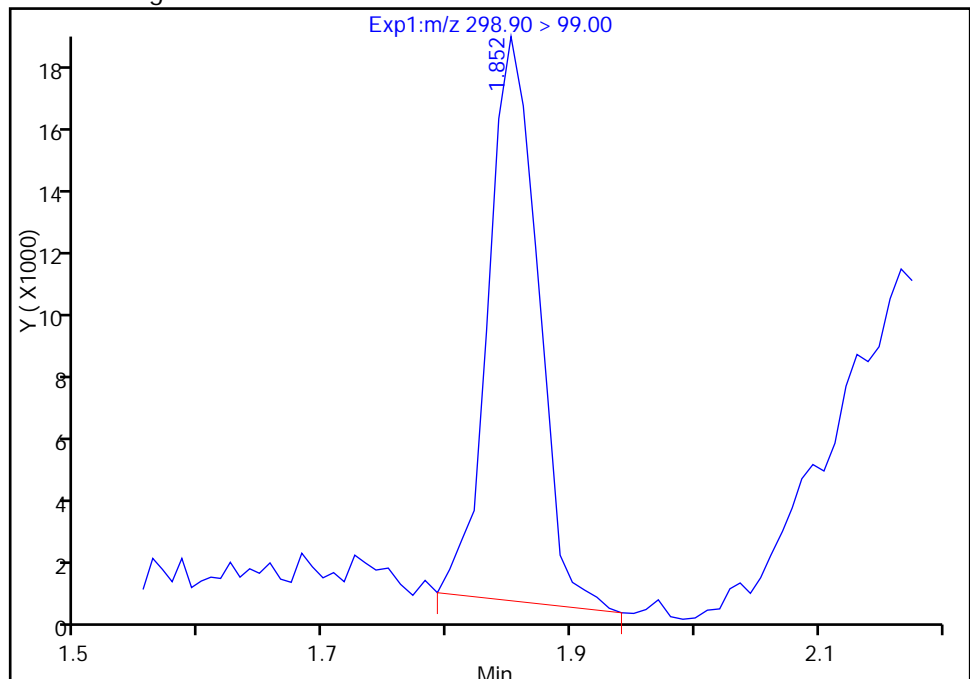
RT: 1.85
Area: 59613
Amount: 0.257070
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 48979
Amount: 0.257070
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:25:12

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0621-0217 Lab Sample ID: 320-26103-7
 Matrix: Water Lab File ID: 2017.03.02A_013.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 16:00
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 295.1 (mL) Date Analyzed: 03/02/2017 11:42
 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	<i>Perfluorooctanoic acid (PFOA)</i>	5400	M E	2.1	1.7	0.63
1763-23-1	<i>Perfluorooctanesulfonic acid (PFOS)</i>	400	E	3.4	2.5	1.1
375-73-5	<i>Perfluorobutanesulfonic acid (PFBS)</i>	860	M E	2.1	1.7	0.78

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	25		25-150
STL00991	13C4 PFOS	121		25-150
STL00994	18O2 PFHxS	32		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_013.d
 Lims ID: 320-26103-A-7-A
 Client ID: MEAFF-MRD-0621-0217
 Sample Type: Client
 Inject. Date: 02-Mar-2017 11:42:48 ALS Bottle#: 10 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-7-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 09:40:26 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: chandrasenas

Date: 02-Mar-2017 12:32:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										EM
298.90 > 80.00	1.851	1.861	-0.010	1.000	68769860	510.5				EM
298.90 > 99.00	1.861	1.861	0.0	1.005	41834102		1.64(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.473	2.483	-0.010		4448048	15.3		32.3	203797	
D 14 13C4 PFOA										
417.00 > 372.00	2.822	2.834	-0.012		2584112	12.6		25.2	65376	
15 Perfluorooctanoic acid										EM
413.00 > 369.00	2.861	2.834	0.027	1.000	167582812	3173.8			69628	EM
413.00 > 169.00	2.846	2.834	0.012	0.995	165925329		1.01(0.90-1.10)		128431	M
17 Perfluorooctane sulfonic acid										E
499.00 > 80.00	2.954	3.089	-0.135	1.000	67439452	234.6			69529	E
499.00 > 99.00	3.094	3.089	0.005	1.047	17831107		3.78(0.90-1.10)		174458	
D 18 13C4 PFOS										
503.00 > 80.00	3.210	3.202	0.008		13971283	57.8		121	209278	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_013.d

Injection Date: 02-Mar-2017 11:42:48

Instrument ID: A8_N

Lims ID: 320-26103-A-7-A

Lab Sample ID: 320-26103-7

Client ID: MEAFF-MRD-0621-0217

Operator ID: A8-PC\A8

ALS Bottle#: 10

Worklist Smp#: 22

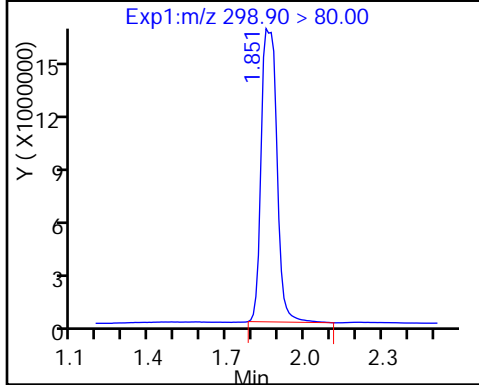
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

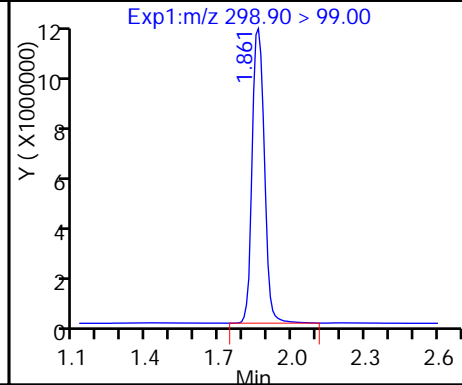
Method: A8_N

Limit Group: LC PFC_DOD ICAL

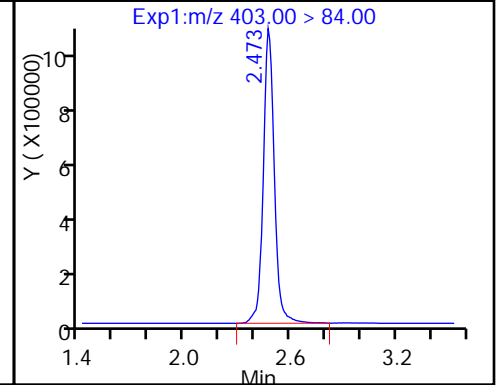
5 Perfluorobutanesulfonic acid (M)



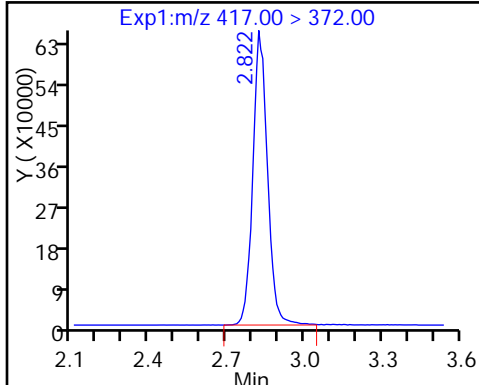
5 Perfluorobutanesulfonic acid



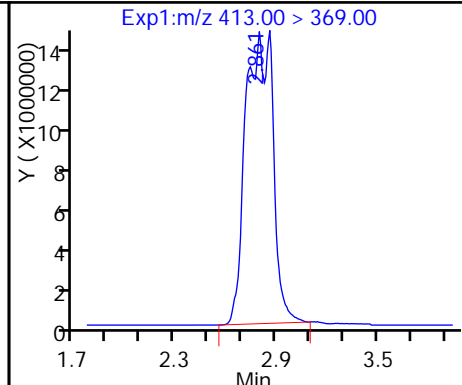
D 11 18O2 PFHxS



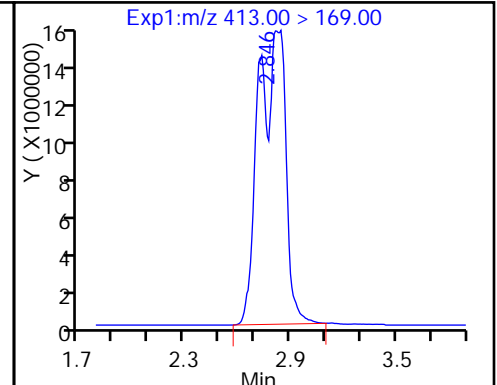
D 14 13C4 PFOA



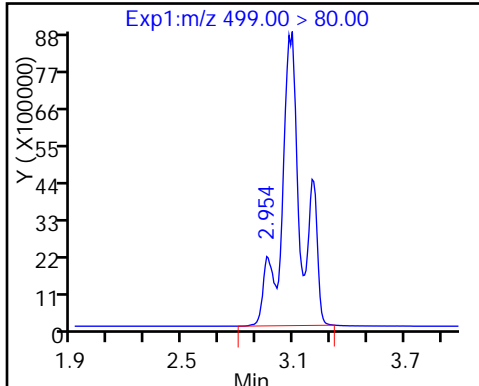
15 Perfluorooctanoic acid (M)



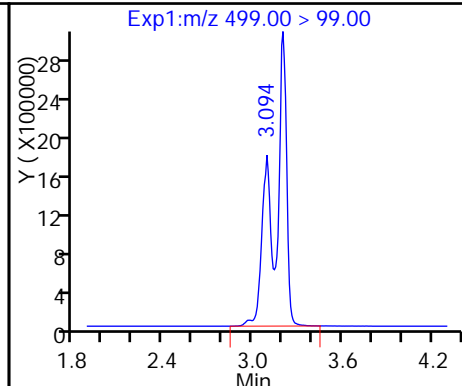
15 Perfluorooctanoic acid (M)



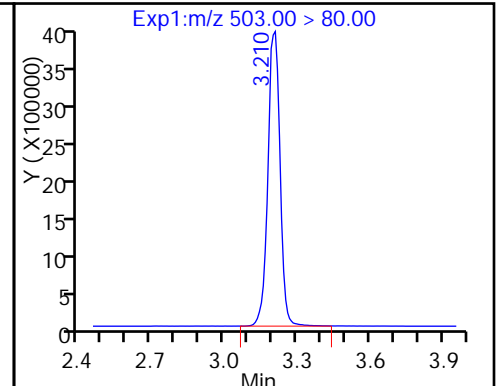
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

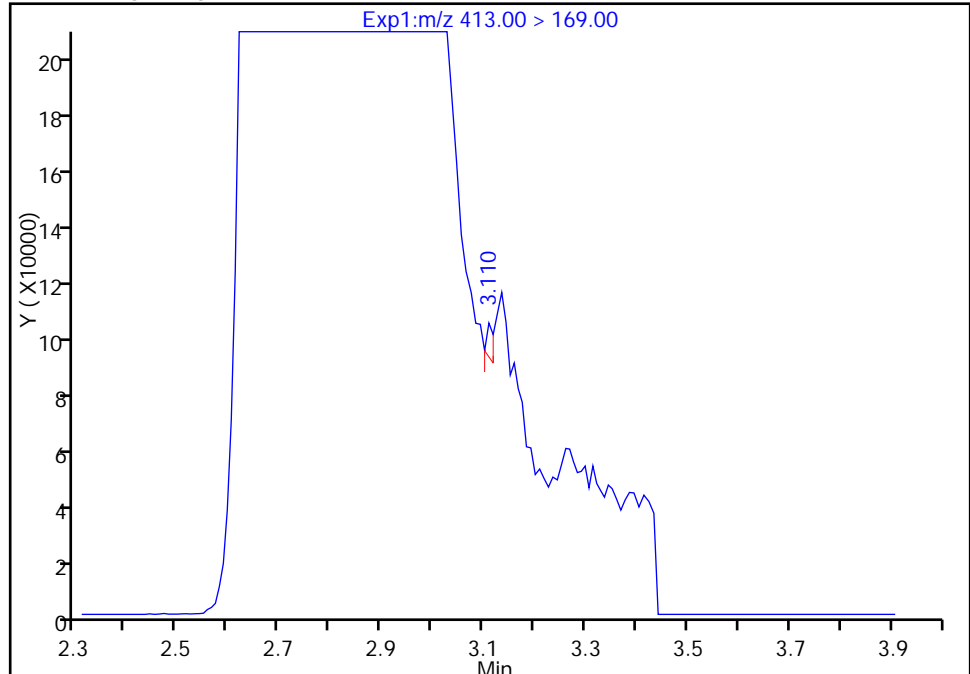
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_013.d
Injection Date: 02-Mar-2017 11:42:48 Instrument ID: A8_N
Lims ID: 320-26103-A-7-A Lab Sample ID: 320-26103-7
Client ID: MEAFF-MRD-0621-0217
Operator ID: A8-PC\A8 ALS Bottle#: 10 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

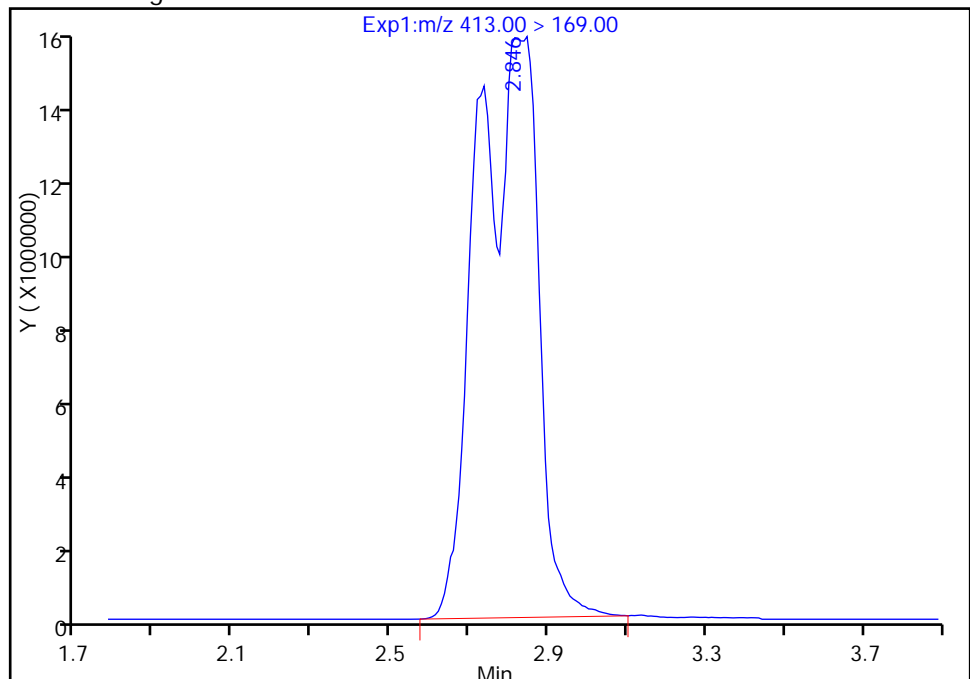
RT: 3.11
Area: 8359
Amount: 1138.5395
Amount Units: ng/ml

Processing Integration Results



RT: 2.85
Area: 165925329
Amount: 3173.8210
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:41

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

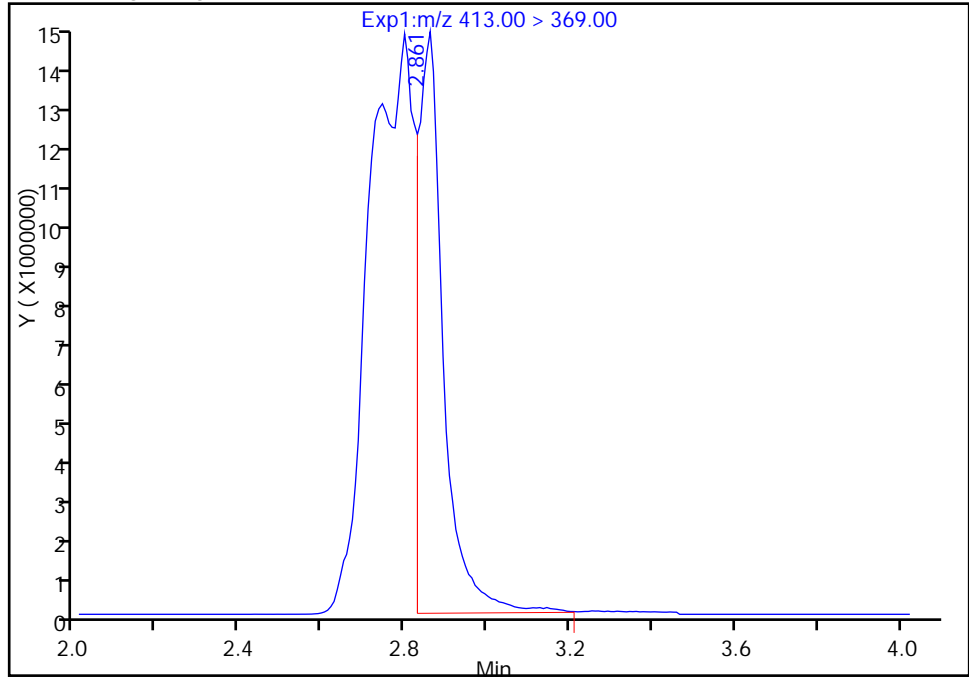
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_013.d
Injection Date: 02-Mar-2017 11:42:48 Instrument ID: A8_N
Lims ID: 320-26103-A-7-A Lab Sample ID: 320-26103-7
Client ID: MEAFF-MRD-0621-0217
Operator ID: A8-PC\A8 ALS Bottle#: 10 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

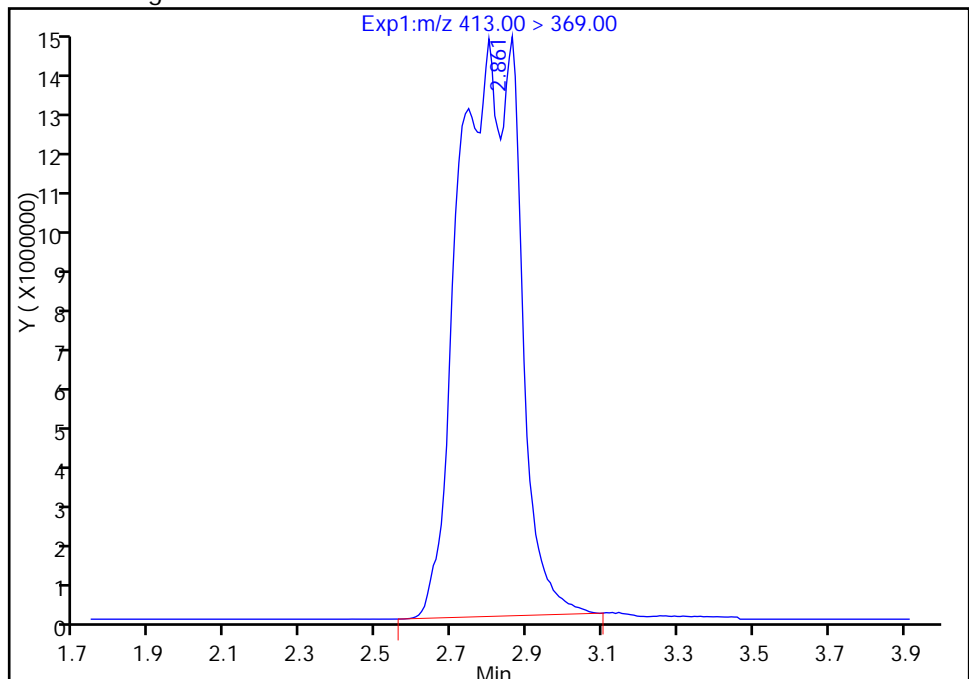
RT: 2.86
Area: 60116705
Amount: 1138.5395
Amount Units: ng/ml

Processing Integration Results



RT: 2.86
Area: 167582812
Amount: 3173.8210
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:41

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

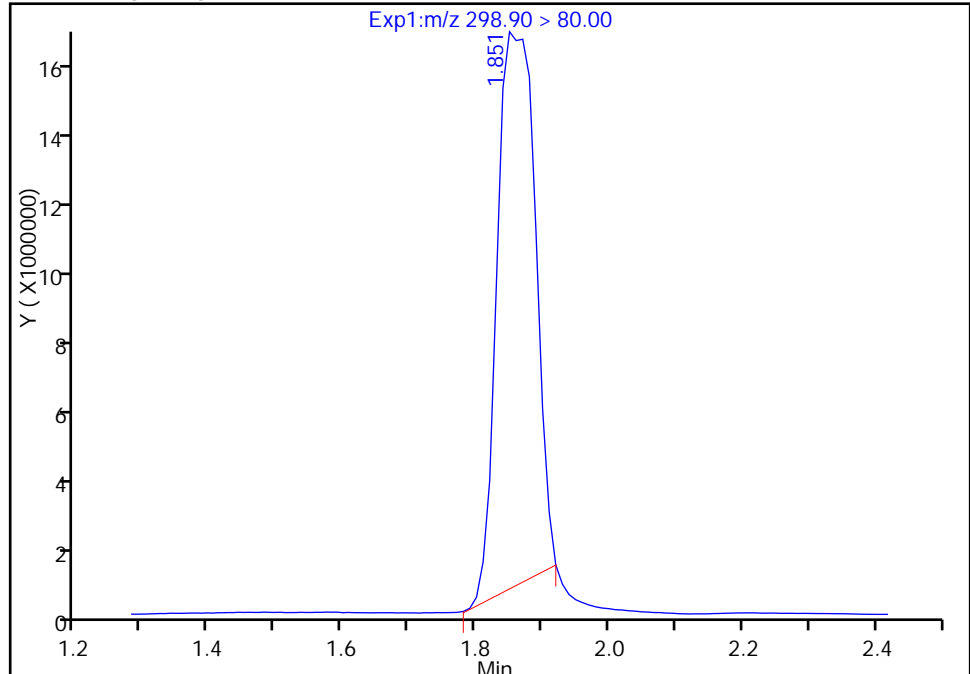
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_013.d				
Injection Date:	02-Mar-2017 11:42:48	Instrument ID:	A8_N		
Lims ID:	320-26103-A-7-A	Lab Sample ID:	320-26103-7		
Client ID:	MEAFF-MRD-0621-0217				
Operator ID:	A8-PC\A8	ALS Bottle#:	10	Worklist Smp#:	22
Injection Vol:	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

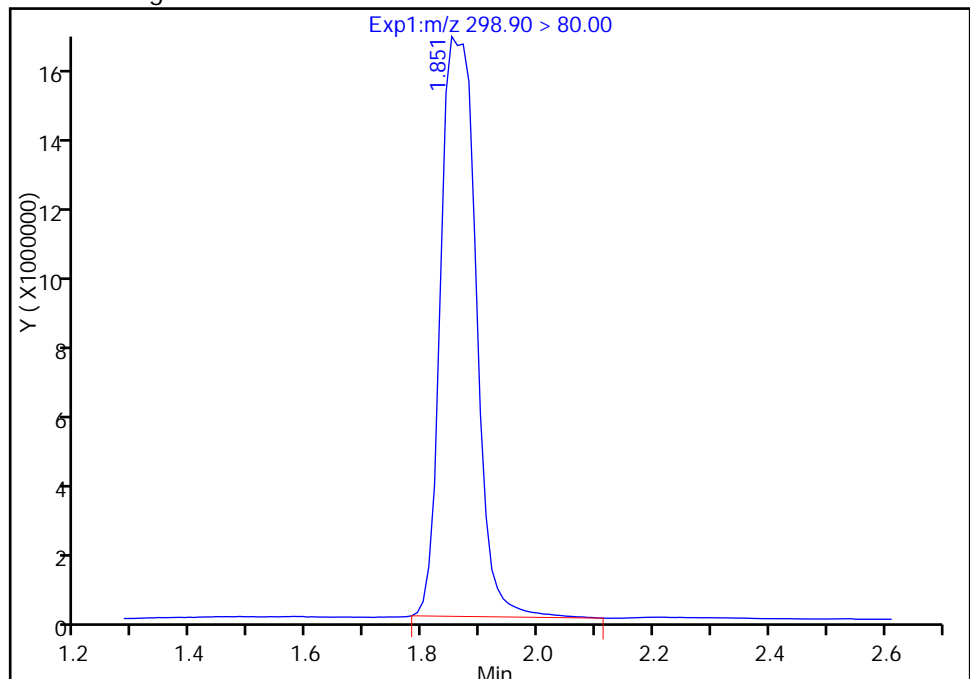
RT: 1.85
Area: 61219135
Amount: 454.4461
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 68769860
Amount: 510.4972
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:39:55

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-MRD-0621-0217 DL</u>	Lab Sample ID: <u>320-26103-7 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.03.03A_007.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 16:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>02/28/2017 16:42</u>
Sample wt/vol: <u>295.1 (mL)</u>	Date Analyzed: <u>03/03/2017 09:45</u>
Con. Extract Vol.: <u>0.50 (mL)</u>	Dilution Factor: <u>50</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>153020</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	13000	D M	110	85	32
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	410	D	170	130	54
375-73-5	Perfluorobutanesulfonic acid (PFBS)	690	D	110	85	39

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	138		25-150
STL00994	18O2 PFHxS	137		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_007.d
 Lims ID: 320-26103-A-7-A
 Client ID: MEAFF-MRD-0621-0217
 Sample Type: Client
 Inject. Date: 03-Mar-2017 09:45:29 ALS Bottle#: 2 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 50.0000
 Sample Info: 320-26103-a-7-a 50X
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:05:12 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: 03-Mar-2017 10:11:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.863	-0.002	1.000	4620669	8.10				
298.90 > 99.00	1.861	1.863	-0.002	1.000	1882756		2.45(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.484	2.492	-0.008		376618	1.29		2.7	30206	
D 14 13C4 PFOA										
417.00 > 372.00	2.834	2.850	-0.016		207253	1.01		2.0	24059	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.834	2.850	-0.016	1.000	31670502	149.6				M
413.00 > 169.00	2.842	2.850	-0.008	1.003	22074817		1.43(0.90-1.10)			M
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.089	3.106	-0.017	1.000	1592353	4.87			253602	
499.00 > 99.00	3.098	3.106	-0.008	1.003	373817		4.26(0.90-1.10)		8876	
D 18 13C4 PFOS										
503.00 > 80.00	3.210	3.228	-0.018		317984	1.32		2.8	25974	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_007.d

Injection Date: 03-Mar-2017 09:45:29

Instrument ID: A8_N

Lims ID: 320-26103-A-7-A

Lab Sample ID: 320-26103-7

Client ID: MEAFF-MRD-0621-0217

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 7

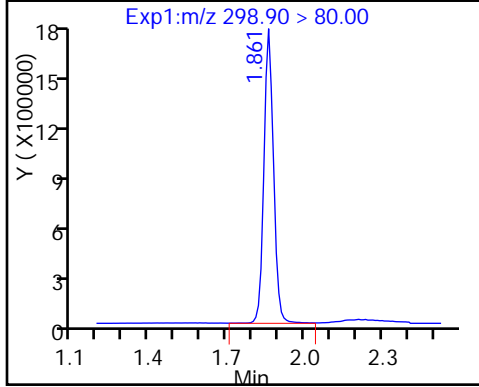
Injection Vol: 2.0 ul

Dil. Factor: 50.0000

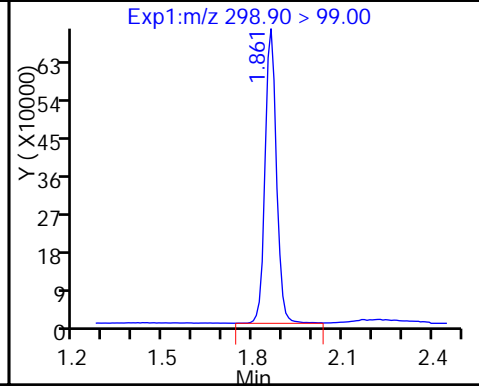
Method: A8_N

Limit Group: LC PFC_DOD ICAL

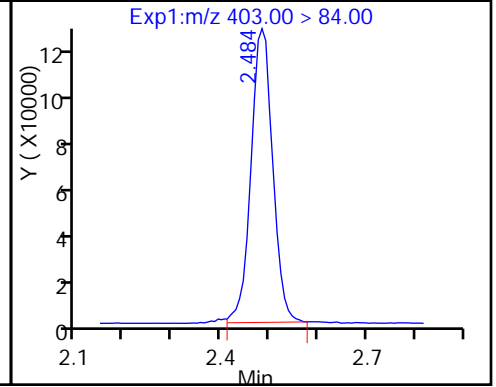
5 Perfluorobutanesulfonic acid



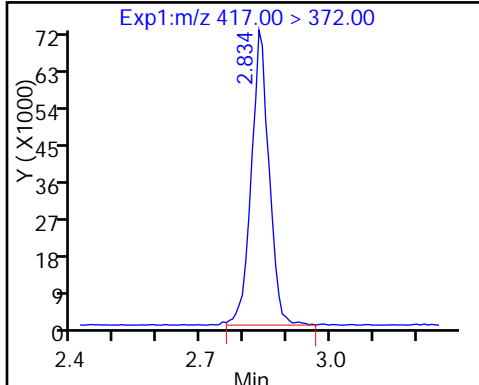
5 Perfluorobutanesulfonic acid



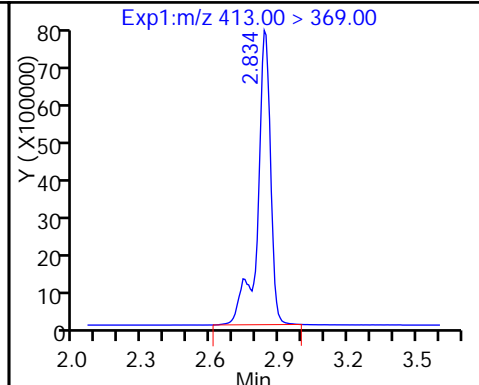
D 11 18O2 PFHxS



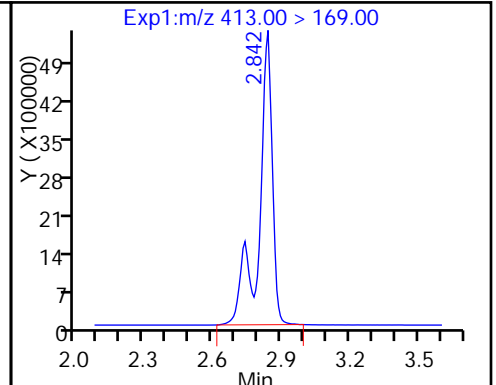
D 14 13C4 PFOA



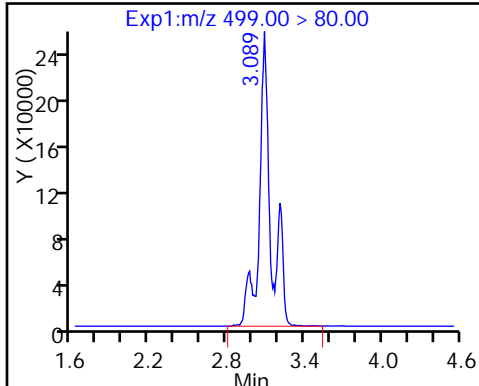
15 Perfluorooctanoic acid (M)



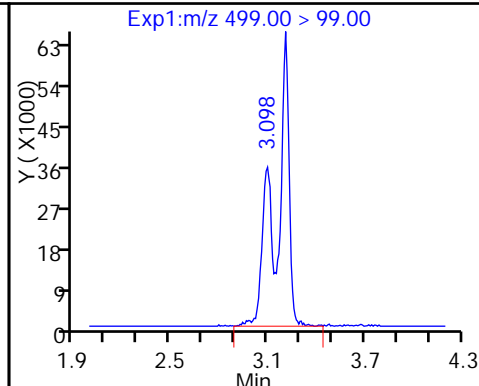
15 Perfluorooctanoic acid (M)



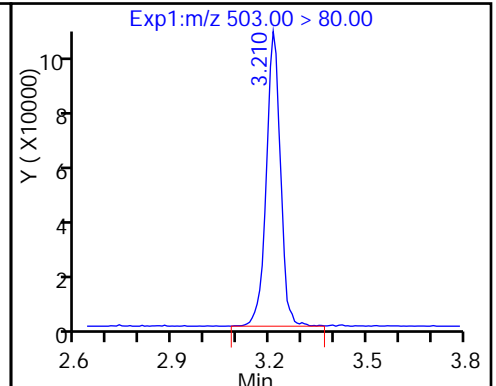
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

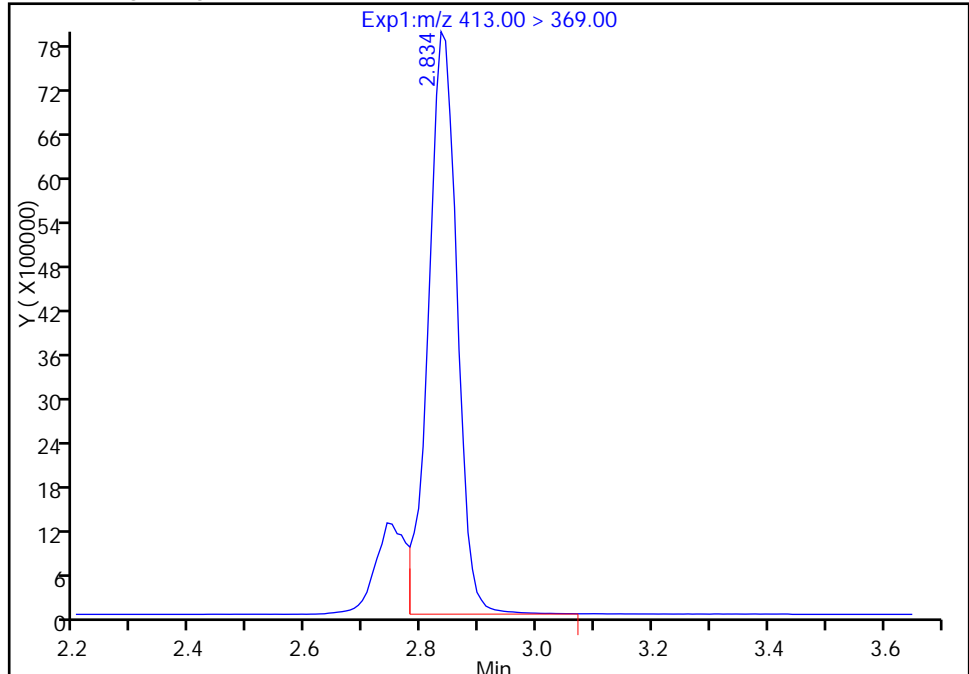
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_007.d
Injection Date: 03-Mar-2017 09:45:29 Instrument ID: A8_N
Lims ID: 320-26103-A-7-A Lab Sample ID: 320-26103-7
Client ID: MEAFF-MRD-0621-0217
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 50.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

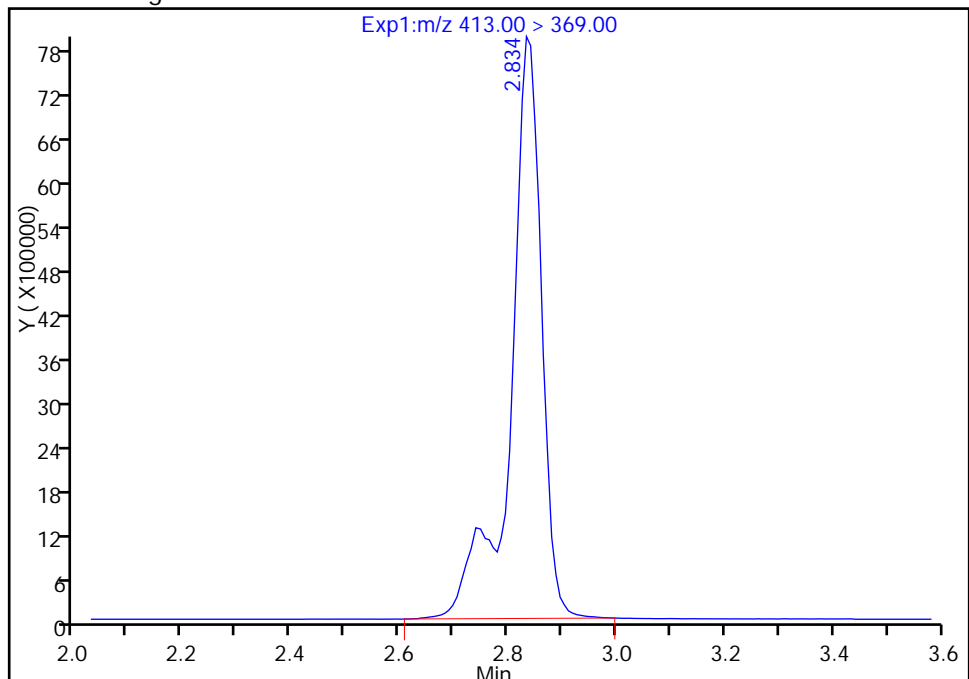
RT: 2.83
Area: 27325189
Amount: 129.0496
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 31670502
Amount: 149.5713
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:05:35

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

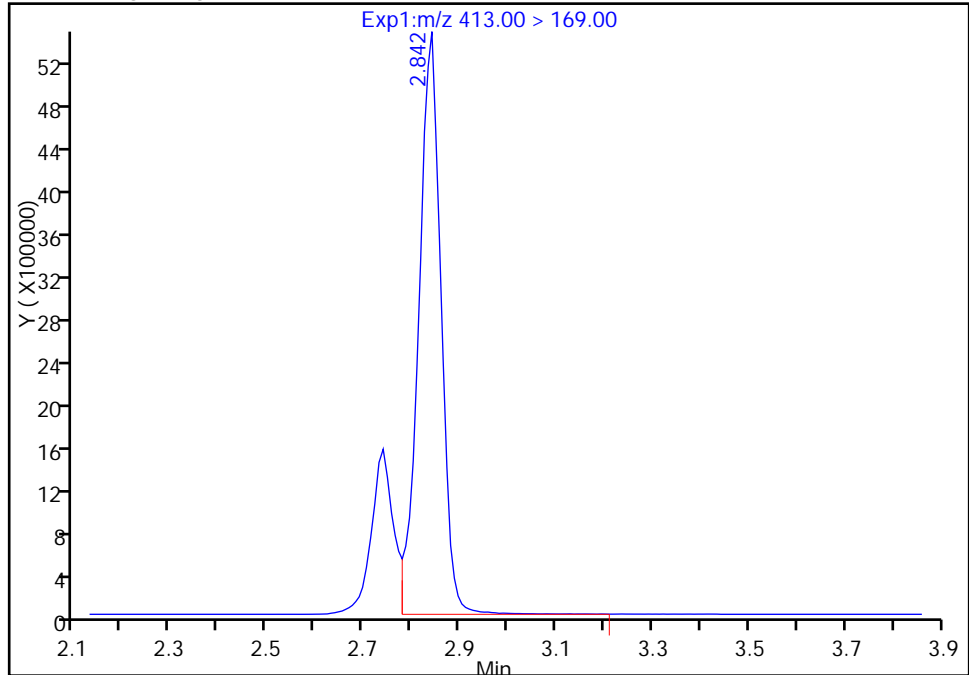
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_007.d
Injection Date: 03-Mar-2017 09:45:29 Instrument ID: A8_N
Lims ID: 320-26103-A-7-A Lab Sample ID: 320-26103-7
Client ID: MEAFF-MRD-0621-0217
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 50.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

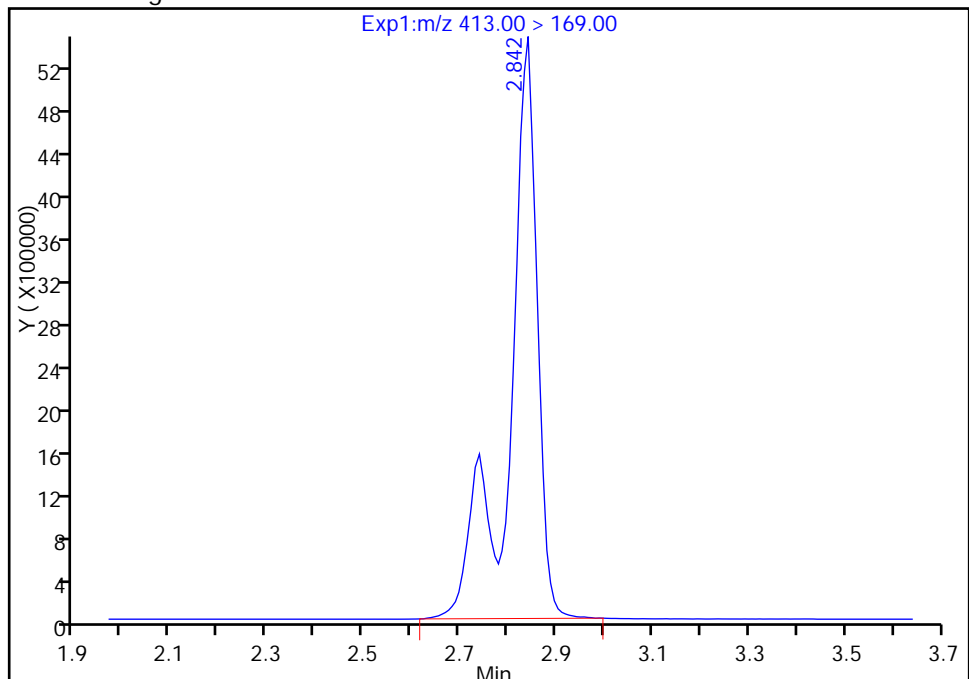
RT: 2.84
Area: 17408026
Amount: 129.0496
Amount Units: ng/ml

Processing Integration Results



RT: 2.84
Area: 22074817
Amount: 149.5713
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:05:35

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA2-SB05-0608</u>	Lab Sample ID: <u>320-26103-8</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_039.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 13:50</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>4.99(g)</u>	Date Analyzed: <u>03/11/2017 16:57</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>23.0</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	J M	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	93		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
 Lims ID: 320-26103-A-8-A
 Client ID: MEAFF-FTA2-SB05-0608
 Sample Type: Client
 Inject. Date: 11-Mar-2017 16:57:37 ALS Bottle#: 30 Worklist Smp#: 36
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-8-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:25:44 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: XAWRK006

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:56:57

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	1.853	0.0	1.000	557979	1.44				M
298.90 > 99.00	1.853	1.853	0.0	1.000	223802		2.49(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.467	-0.003		12823172	44.1		93.2	429617	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.814	2.817	-0.003	1.000	330090	1.59			1682	M
413.00 > 169.00	2.806	2.817	-0.011	0.997	210873		1.57(0.90-1.10)		4533	M
D 14 13C4 PFOA										
417.00 > 372.00	2.806	2.809	-0.003		10151324	49.5		99.1	304597	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.188	3.183	0.005	1.000	1316496	9.26			37393	M
499.00 > 99.00	3.188	3.183	0.005	1.000	315993		4.17(0.90-1.10)		7645	M
D 18 13C4 PFOS										
503.00 > 80.00	3.179	3.183	-0.004		6906811	28.6		59.8	226844	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d

Injection Date: 11-Mar-2017 16:57:37

Instrument ID: A8_N

Lims ID: 320-26103-A-8-A

Lab Sample ID: 320-26103-8

Client ID: MEAFF-FTA2-SB05-0608

Operator ID: A8-PC\A8

ALS Bottle#: 30

Worklist Smp#: 36

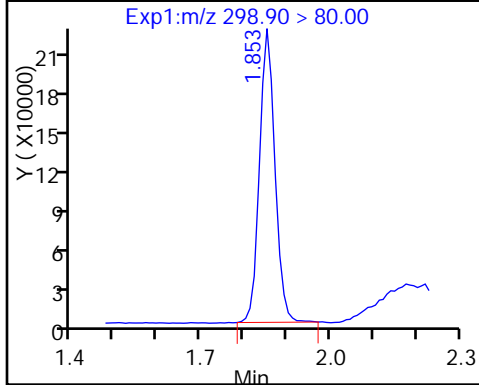
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

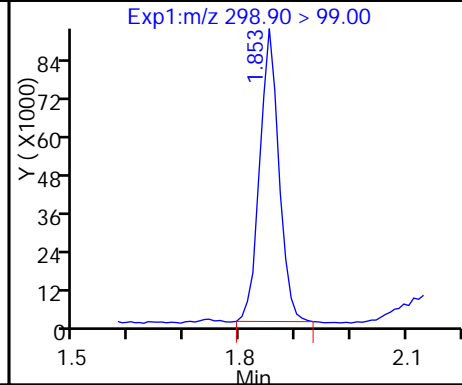
Method: A8_N

Limit Group: LC PFC_DOD ICAL

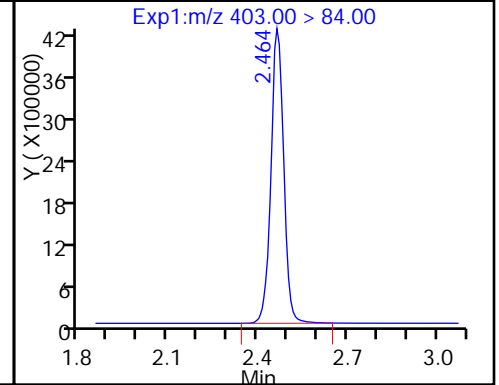
5 Perfluorobutanesulfonic acid (M)



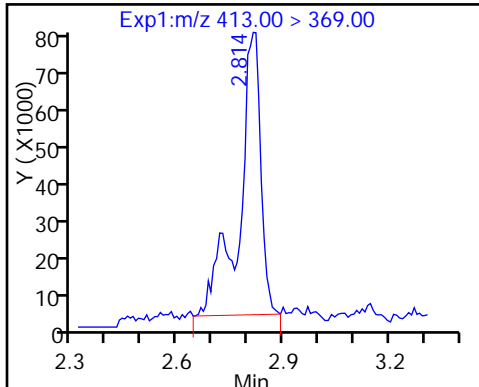
5 Perfluorobutanesulfonic acid (M)



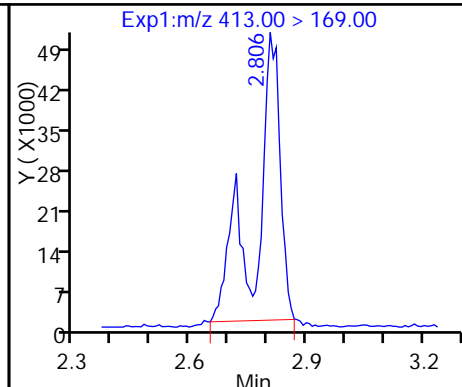
D 11 18O2 PFHxS



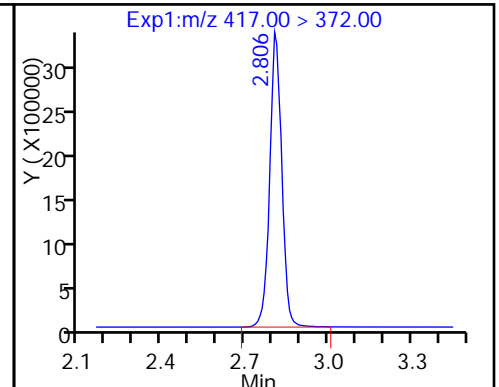
15 Perfluorooctanoic acid (M)



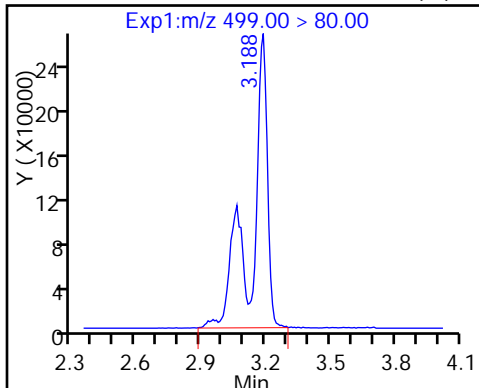
15 Perfluorooctanoic acid (M)



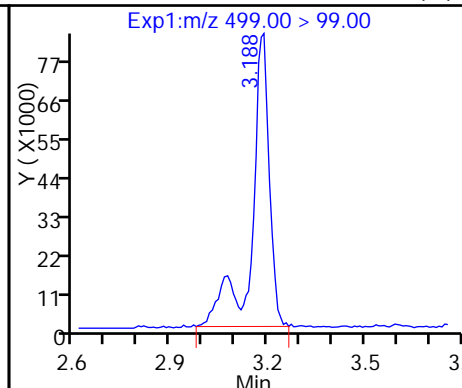
D 14 13C4 PFOA



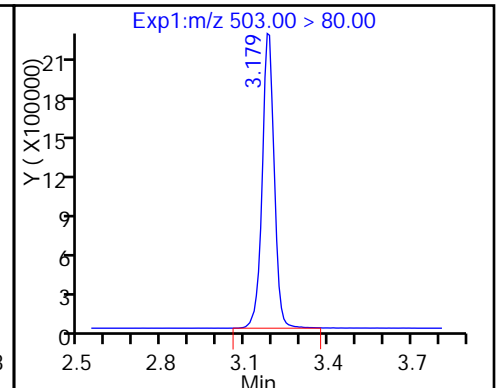
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

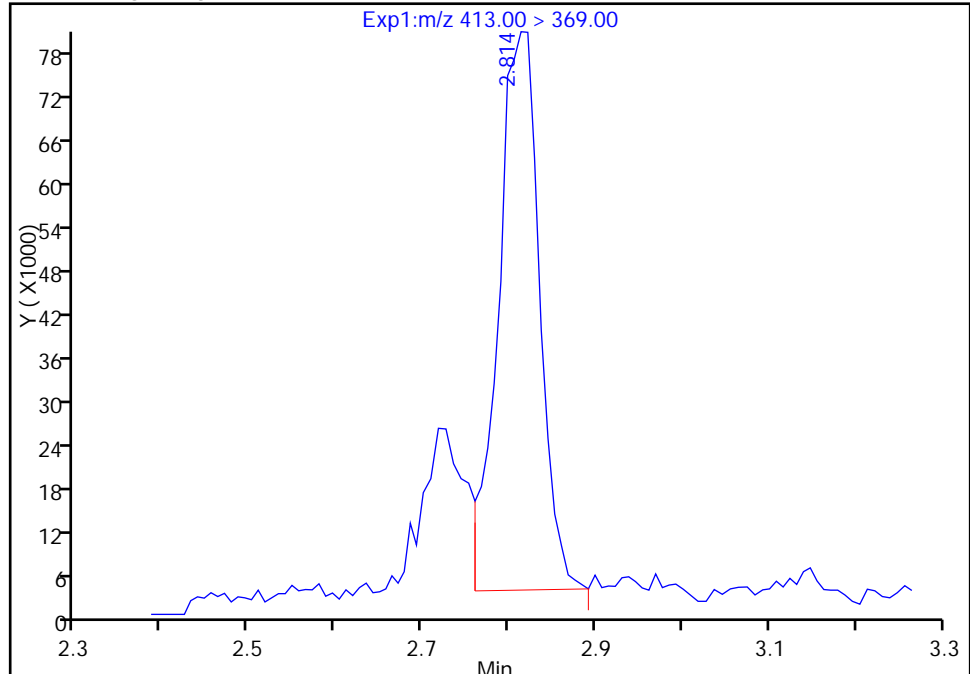
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

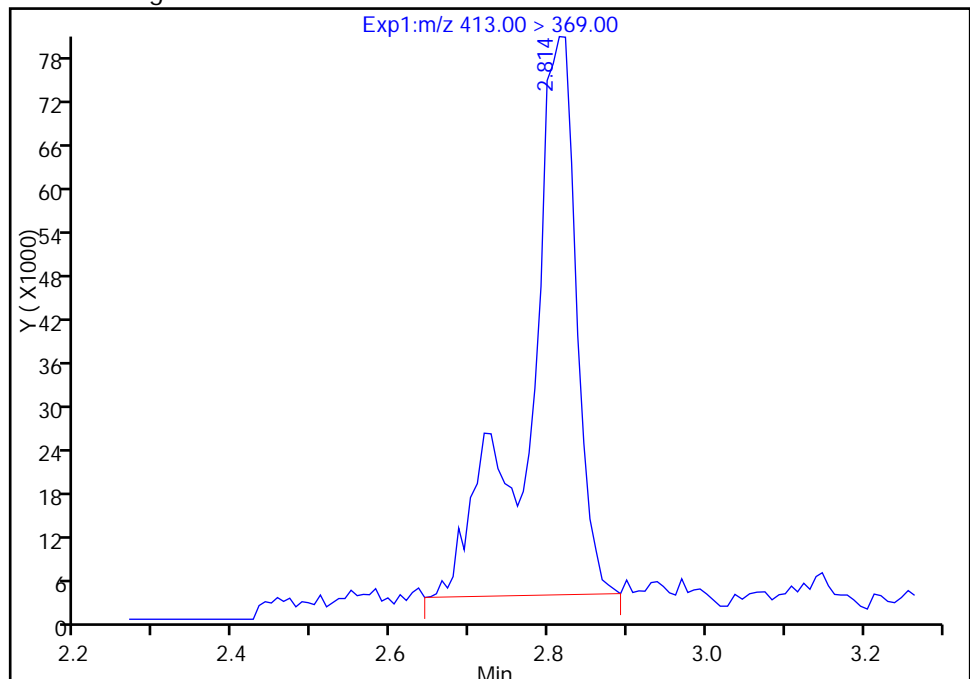
RT: 2.81
Area: 254402
Amount: 1.226485
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 330090
Amount: 1.591380
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:25:21

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

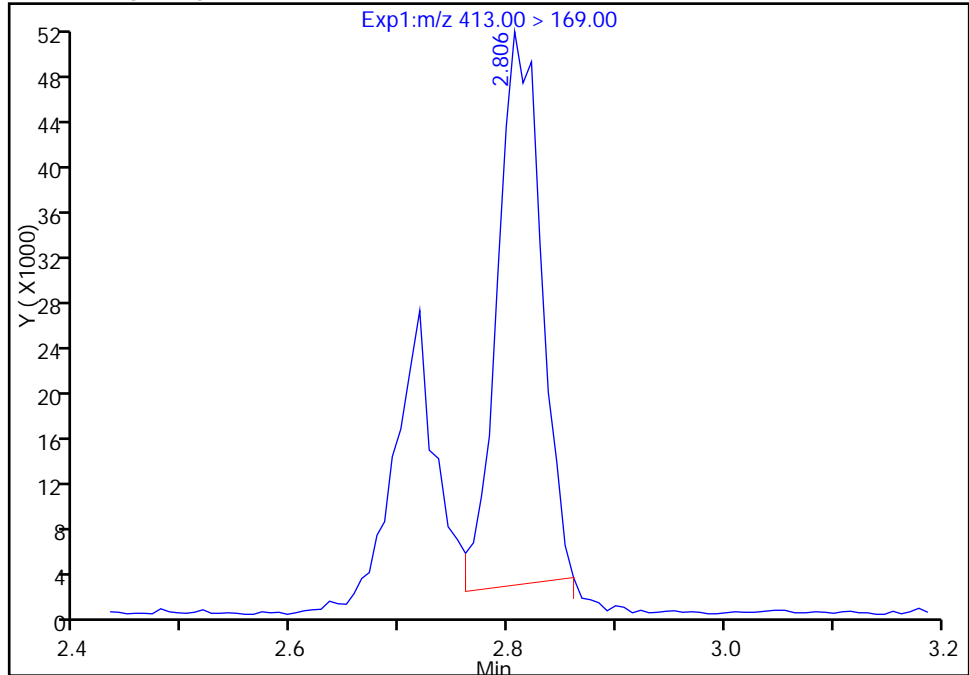
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

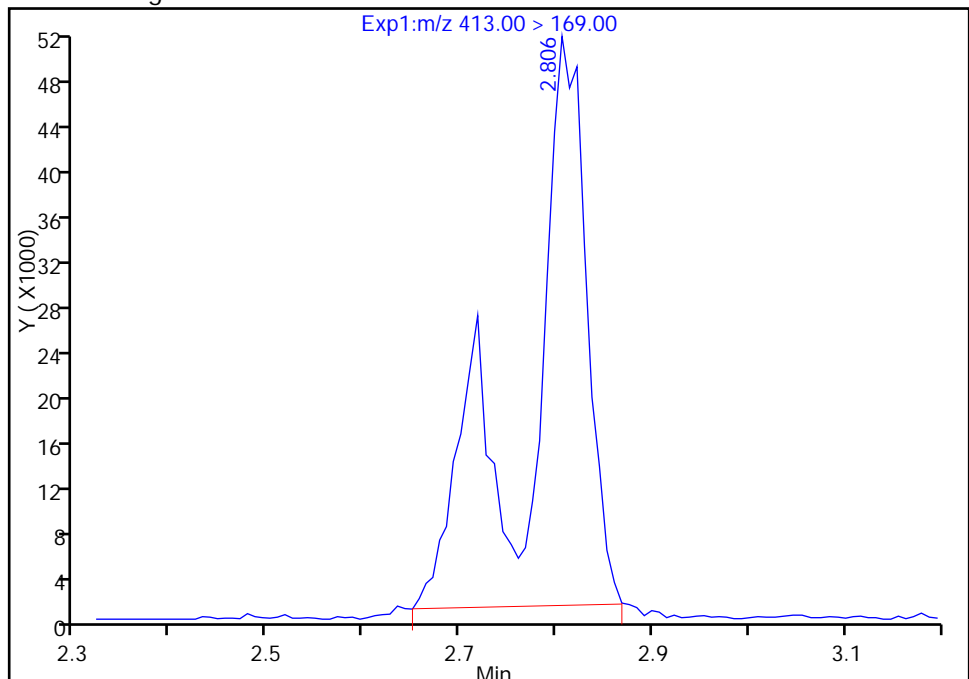
RT: 2.81
Area: 135972
Amount: 1.226485
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 210873
Amount: 1.591380
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:25:21

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

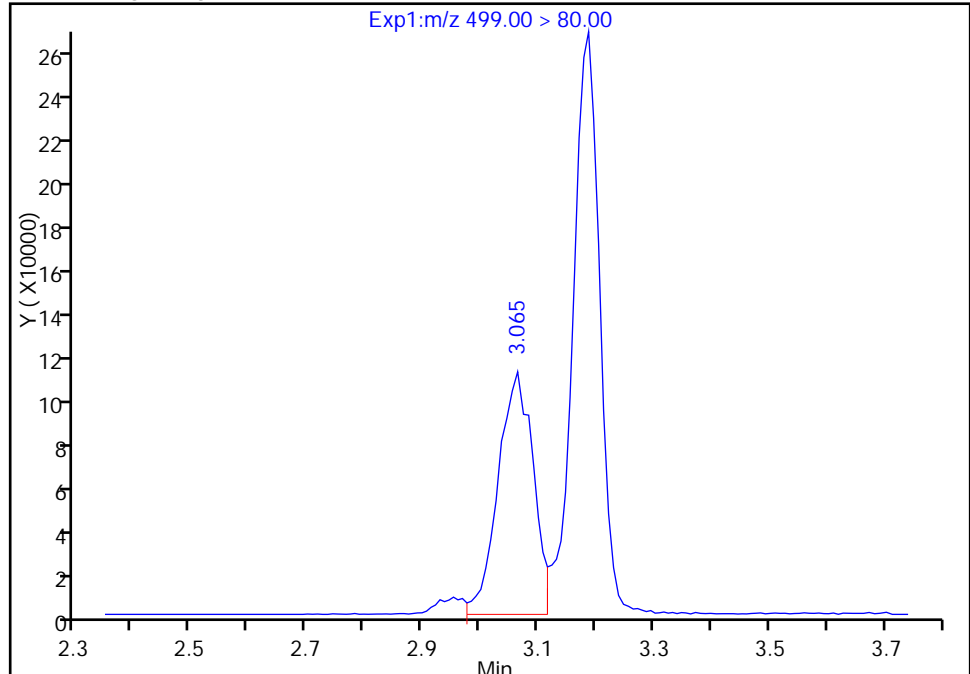
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

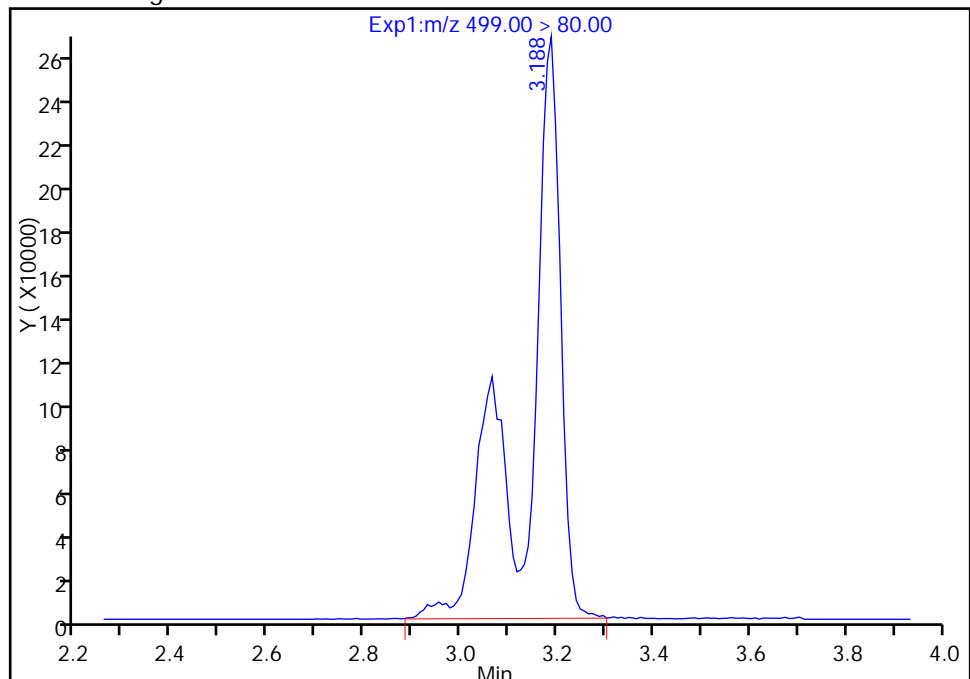
RT: 3.06
Area: 455727
Amount: 3.206923
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1316496
Amount: 9.264102
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:25:21

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

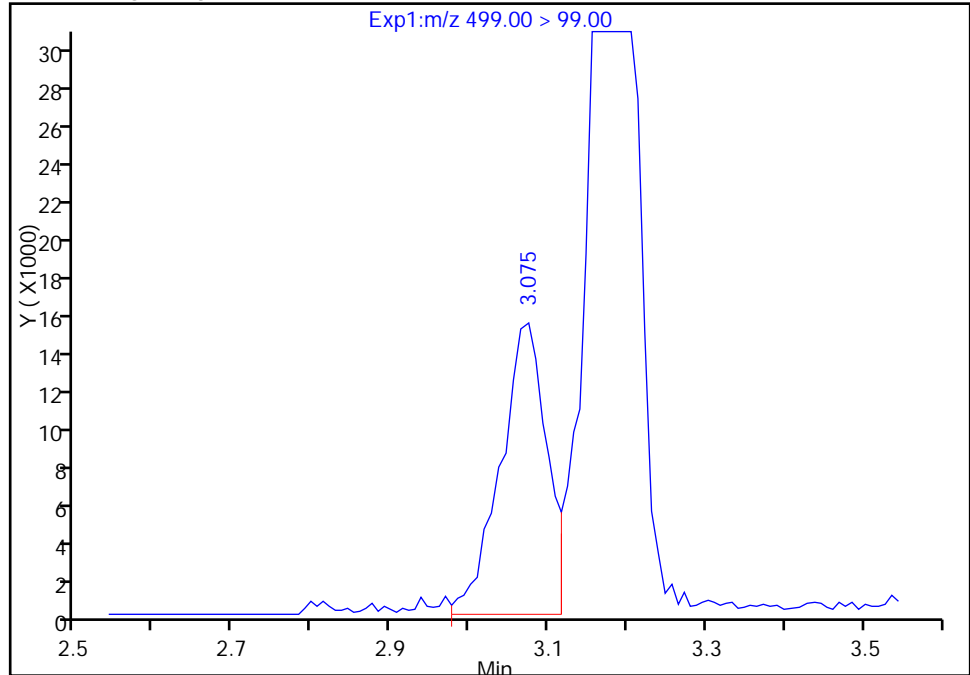
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

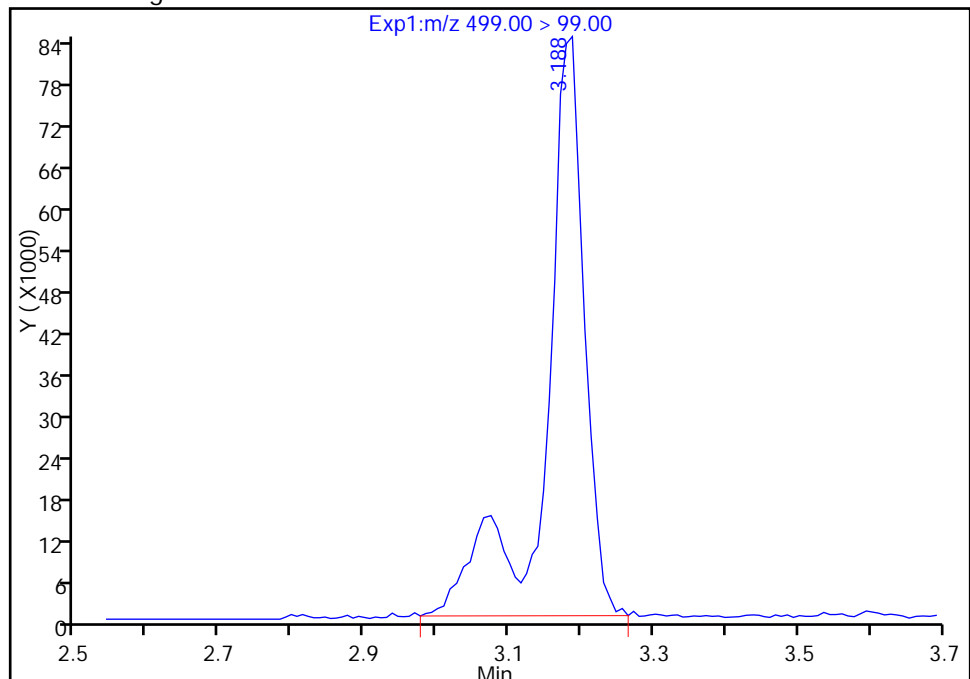
RT: 3.07
Area: 60921
Amount: 3.206923
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 315993
Amount: 9.264102
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:25:21

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

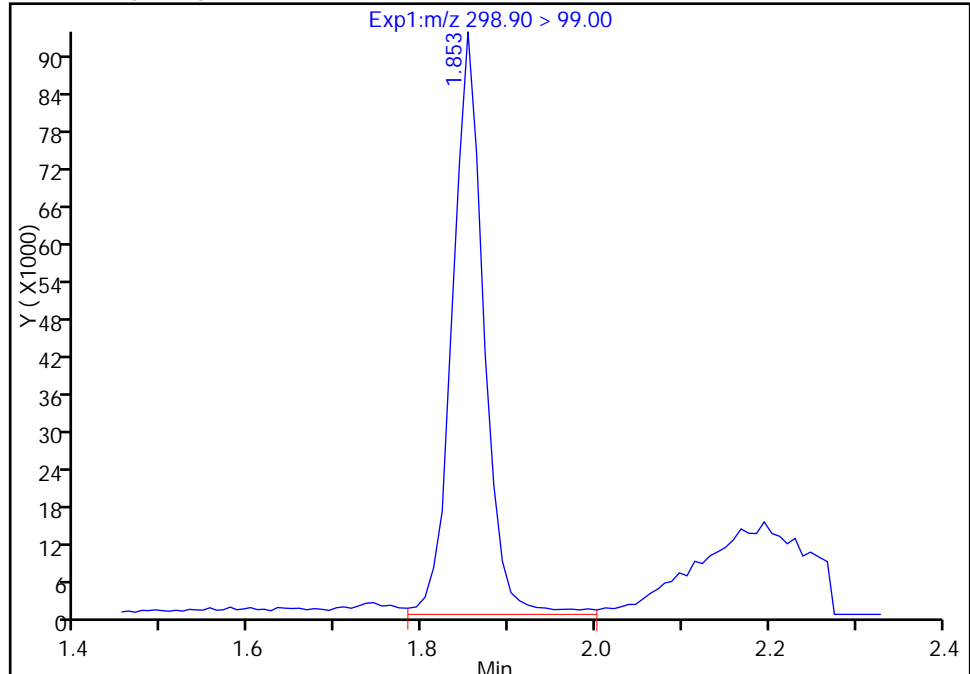
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

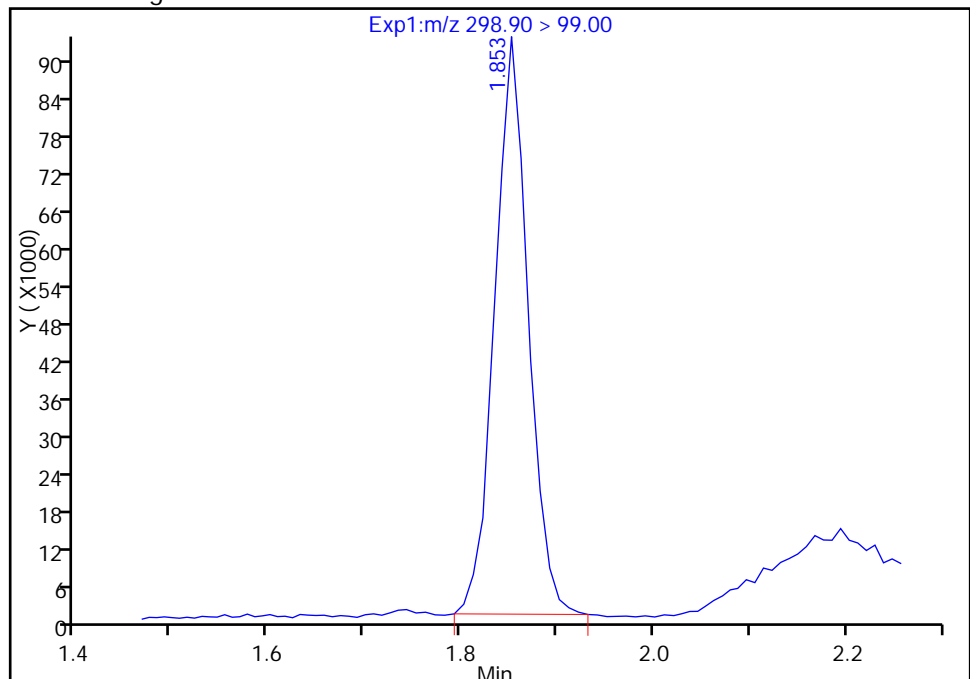
RT: 1.85
Area: 237641
Amount: 1.461067
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 223802
Amount: 1.436769
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:25:30

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

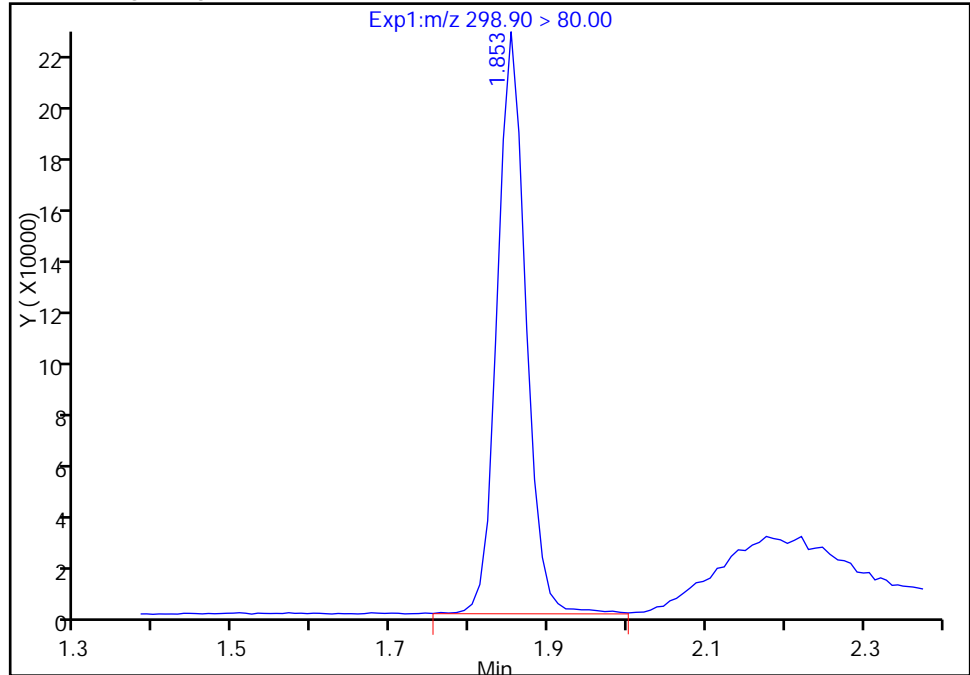
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_039.d
Injection Date: 11-Mar-2017 16:57:37 Instrument ID: A8_N
Lims ID: 320-26103-A-8-A Lab Sample ID: 320-26103-8
Client ID: MEAFF-FTA2-SB05-0608
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 36
Injection Vol: 2.0 ul 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

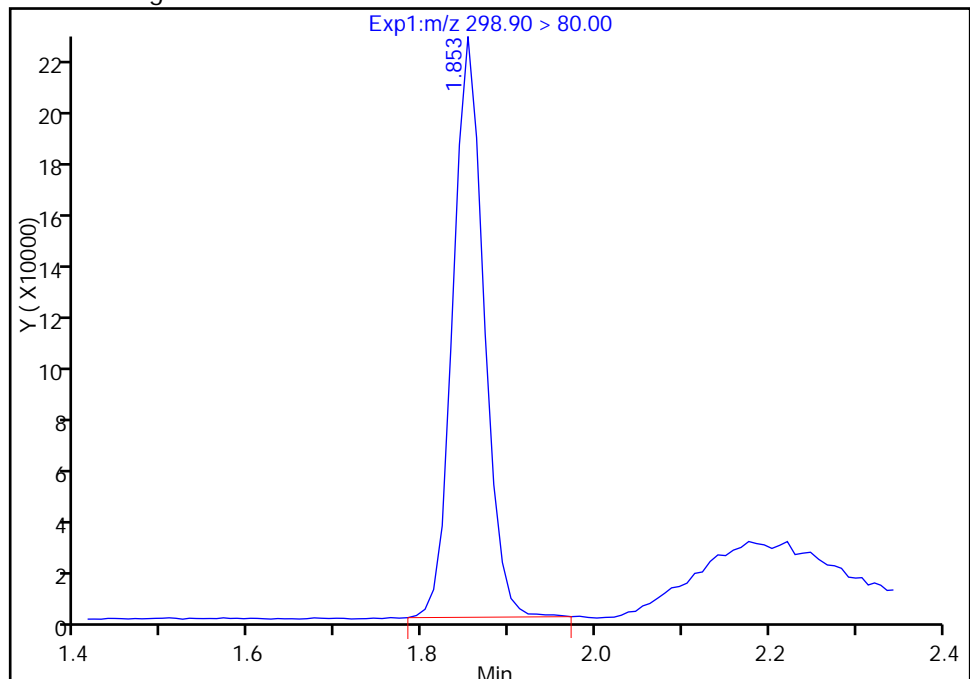
RT: 1.85
Area: 567415
Amount: 1.461067
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 557979
Amount: 1.436769
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:25:40

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA2-SB04-0608</u>	Lab Sample ID: <u>320-26103-9</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_040.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 14:35</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>4.98(g)</u>	Date Analyzed: <u>03/11/2017 17:05</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>29.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	0.71	0.43	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	770	E M	0.71	0.43	0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.1		0.57	0.43	0.15

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	85		25-150
STL00991	13C4 PFOS	32		25-150
STL00994	18O2 PFHxS	86		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d
 Lims ID: 320-26103-A-9-A
 Client ID: MEAFF-FTA2-SB04-0608
 Sample Type: Client
 Inject. Date: 11-Mar-2017 17:05:07 ALS Bottle#: 31 Worklist Smp#: 37
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-9-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:28:13 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: XAWRK006

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:57:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.852	1.853	-0.001	1.000	3934919	11.0				
298.90 > 99.00	1.852	1.853	-0.001	1.000	1645500		2.39(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.471	2.467	0.004		11862209	40.8		86.2	403269	
D 14 13C4 PFOA										
417.00 > 372.00	2.813	2.809	0.004		8672749	42.3		84.6	338179	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.813	2.817	-0.004	1.000	13558011	76.5			74968	M
413.00 > 169.00	2.813	2.817	-0.004	1.000	9045149		1.50(0.90-1.10)		160047	M
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.186	3.183	0.003	1.000	204302271	2703.1			213711	EM
499.00 > 99.00	3.178	3.183	-0.005	0.997	66469059		3.07(0.90-1.10)		549664	M
D 18 13C4 PFOS										
503.00 > 80.00	3.178	3.183	-0.005		3673497	15.2		31.8	55333	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d

Injection Date: 11-Mar-2017 17:05:07

Instrument ID: A8_N

Lims ID: 320-26103-A-9-A

Lab Sample ID: 320-26103-9

Client ID: MEAFF-FTA2-SB04-0608

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 37

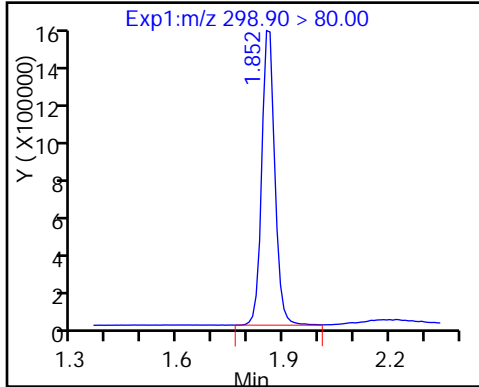
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

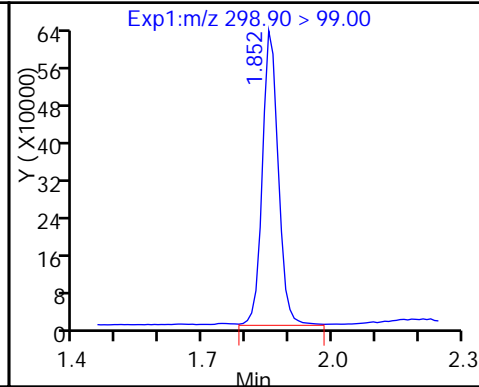
Method: A8_N

Limit Group: LC PFC_DOD ICAL

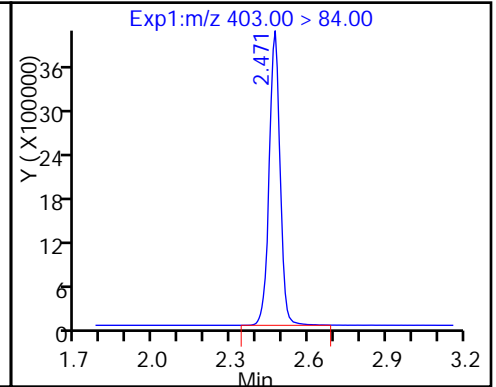
5 Perfluorobutanesulfonic acid



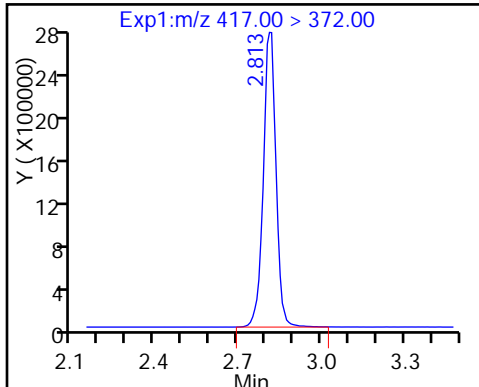
5 Perfluorobutanesulfonic acid



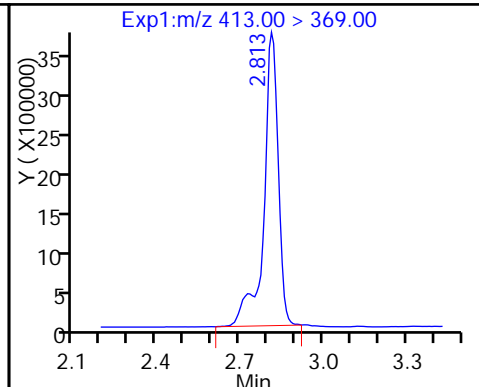
D 11 18O2 PFHxS



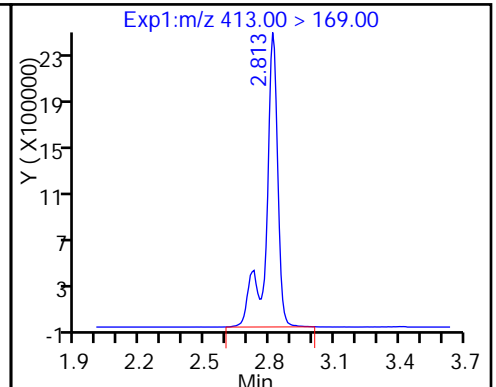
D 14 13C4 PFOA



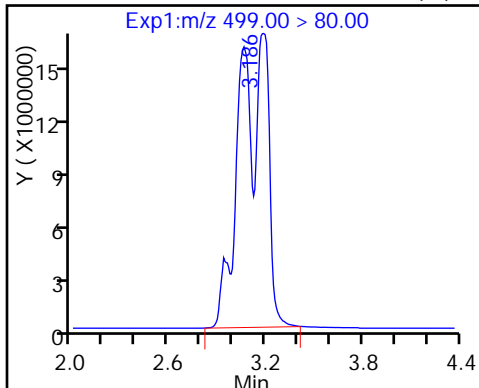
15 Perfluorooctanoic acid (M)



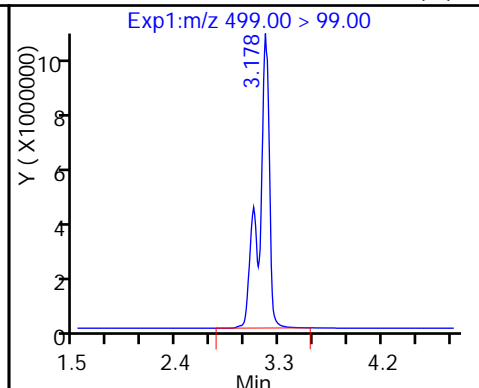
15 Perfluorooctanoic acid (M)



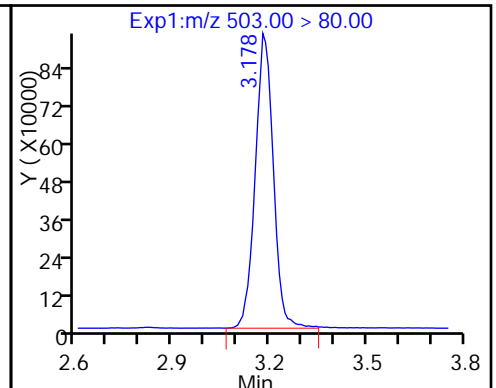
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

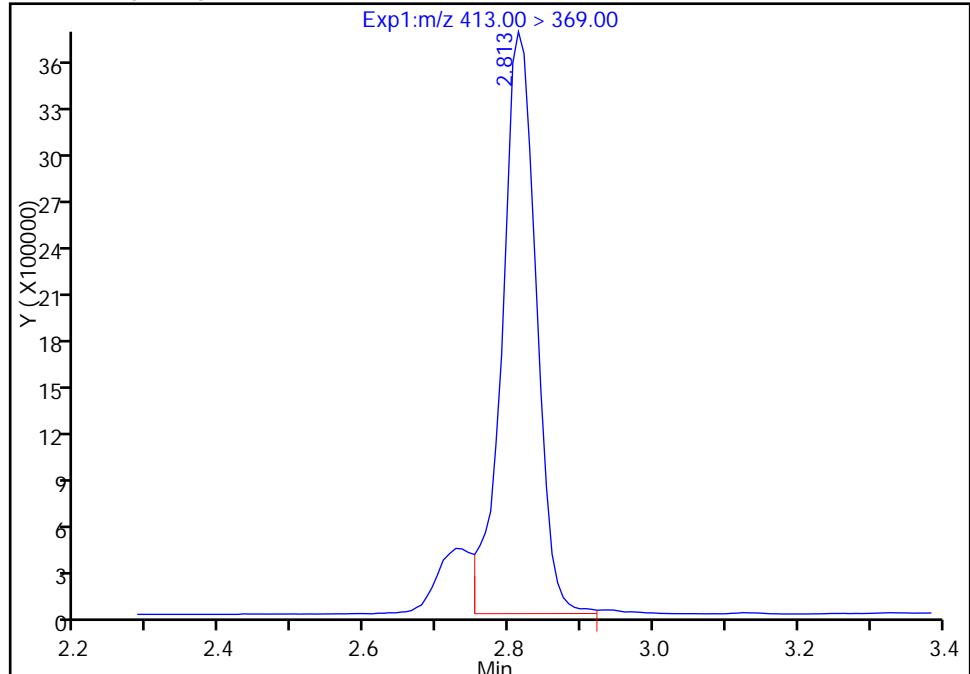
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d
Injection Date: 11-Mar-2017 17:05:07 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 37
Injection Vol: 2.0 ul 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

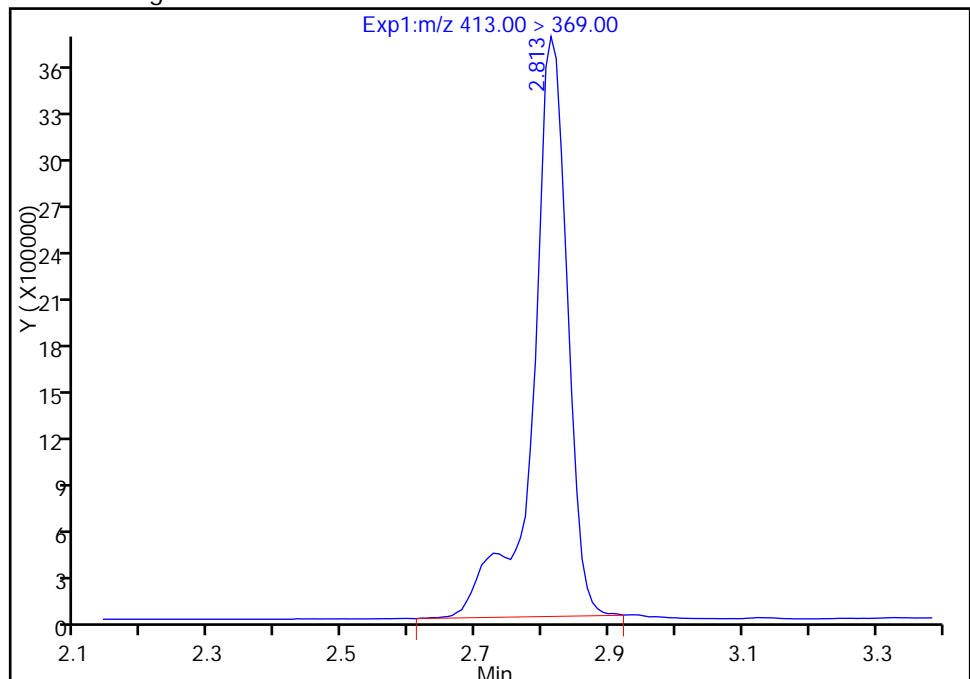
RT: 2.81
Area: 12324310
Amount: 69.545674
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 13558011
Amount: 76.507408
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:33:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

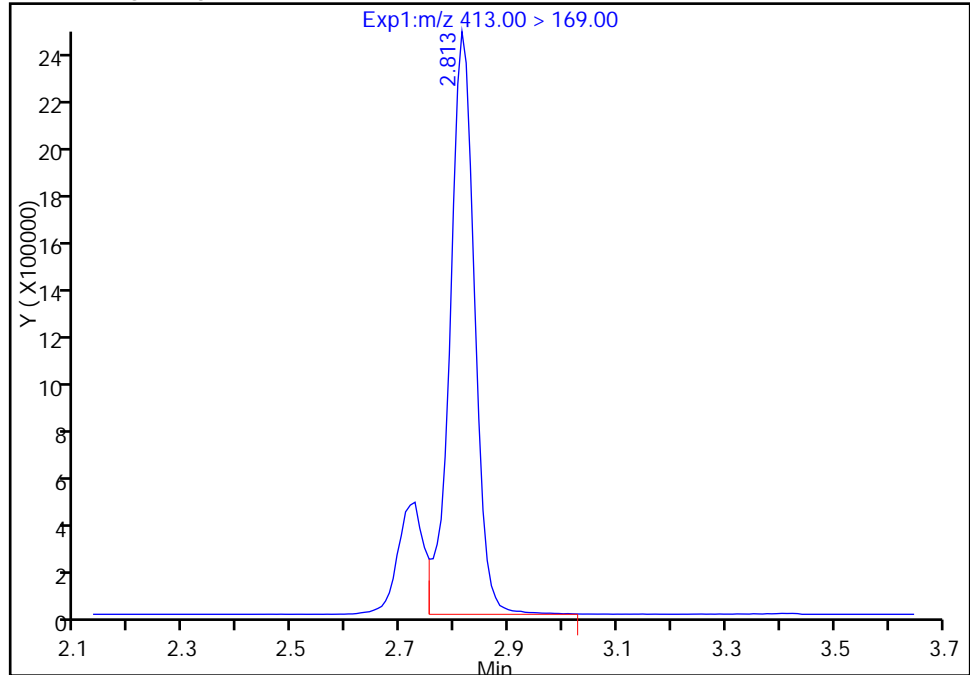
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d
Injection Date: 11-Mar-2017 17:05:07 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 37
Injection Vol: 2.0 ul 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

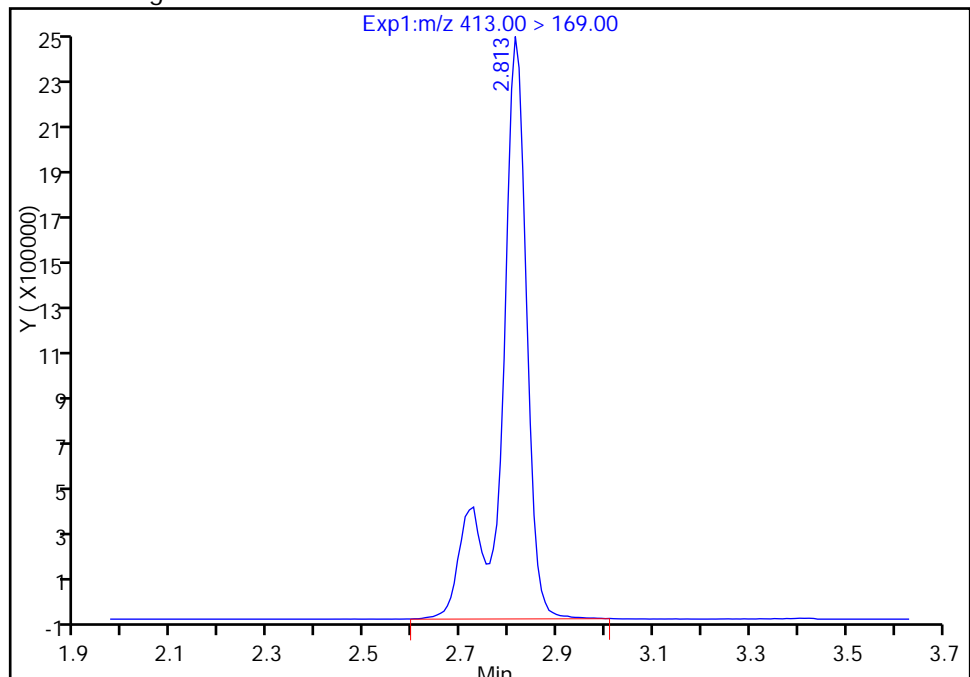
RT: 2.81
Area: 7559481
Amount: 69.545674
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 9045149
Amount: 76.507408
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:33:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

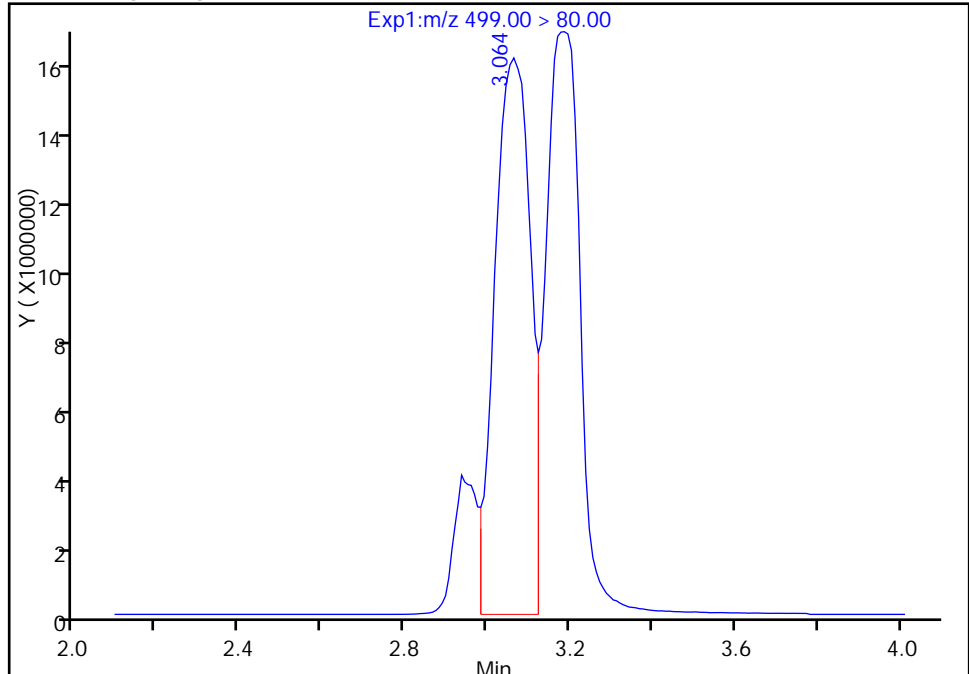
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d
Injection Date: 11-Mar-2017 17:05:07 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 37
Injection Vol: 2.0 ul 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

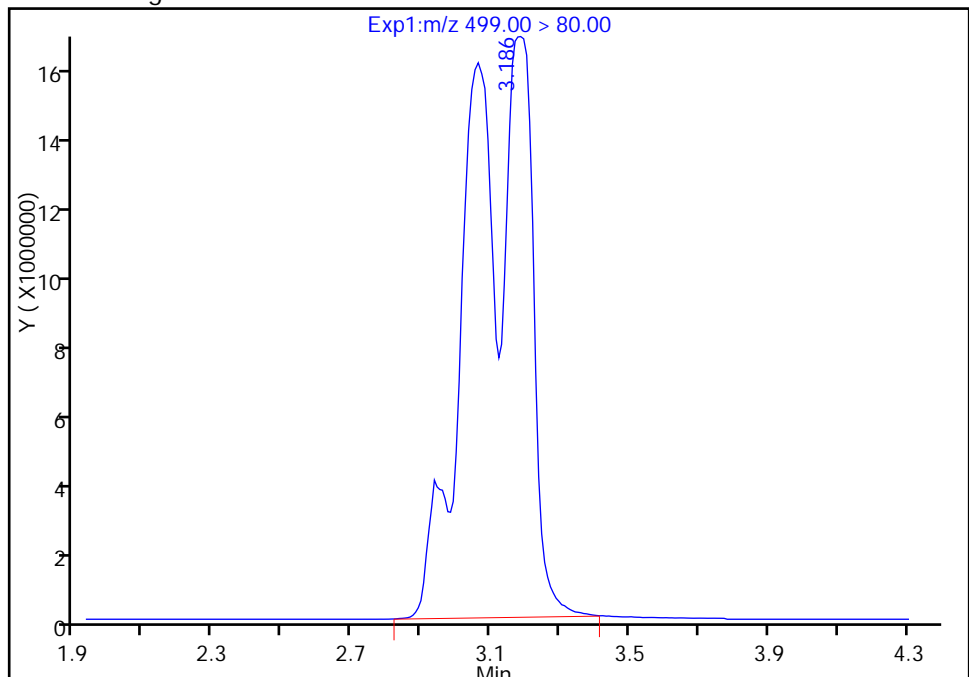
RT: 3.06
Area: 94658342
Amount: 1252.3928
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 204302271
Amount: 2703.0548
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:33:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

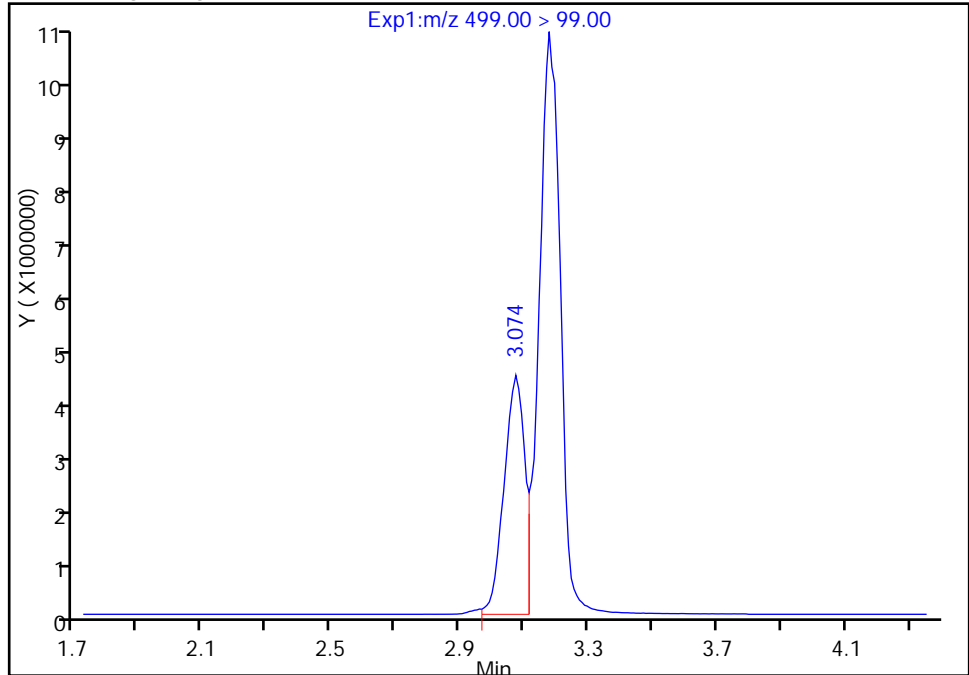
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_040.d
Injection Date: 11-Mar-2017 17:05:07 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 37
Injection Vol: 2.0 ul 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

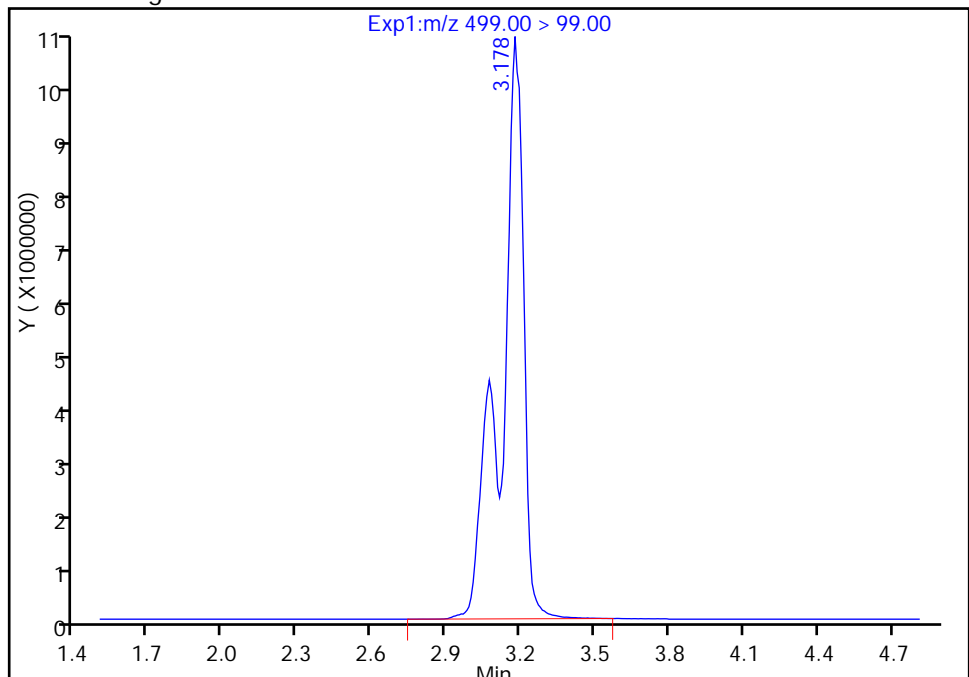
RT: 3.07
Area: 18956522
Amount: 1252.3928
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 66469059
Amount: 2703.0548
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:33:38

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA2-SB04-0608 DL</u>	Lab Sample ID: <u>320-26103-9 DL</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.13A_044.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 14:35</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>4.98(g)</u>	Date Analyzed: <u>03/13/2017 16:46</u>
Con. Extract Vol.: <u>1(mL)</u>	Dilution Factor: <u>100</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>29.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154808</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	22	J D M	71	43	14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1000	D M	71	43	18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	43	U	57	43	15

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	54		25-150
STL00994	18O2 PFHxS	75		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d
 Lims ID: 320-26103-A-9-A
 Client ID: MEAFF-FTA2-SB04-0608
 Sample Type: Client
 Inject. Date: 13-Mar-2017 16:46:05 ALS Bottle#: 28 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 100.0000
 Sample Info: 320-26103-a-9-a 100X
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 15-Mar-2017 11:40:35 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 12:16:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	30098	0.0968				
298.90 > 99.00	1.861	1.861	0.0	1.000	11830		2.54(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.469	2.469	0.0		102616	0.3528		0.7	17143	
D 14 13C4 PFOA										
417.00 > 372.00	2.826	2.819	0.007		91568	0.4468		0.9	16224	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.818	2.819	-0.001	1.000	147052	0.7859			1267	M
413.00 > 169.00	2.826	2.819	0.007	1.003	90103		1.63(0.90-1.10)		2493	M
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.185	0.008		61918	0.2562		0.5	7057	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.193	3.194	-0.001	1.000	4631208	36.4			12818	M
499.00 > 99.00	3.193	3.194	-0.001	1.000	1079070		4.29(0.90-1.10)		1303	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d

Injection Date: 13-Mar-2017 16:46:05

Instrument ID: A8_N

Lims ID: 320-26103-A-9-A

Lab Sample ID: 320-26103-9

Client ID: MEAFF-FTA2-SB04-0608

Operator ID: A8-PC\A8

ALS Bottle#: 28

Worklist Smp#: 8

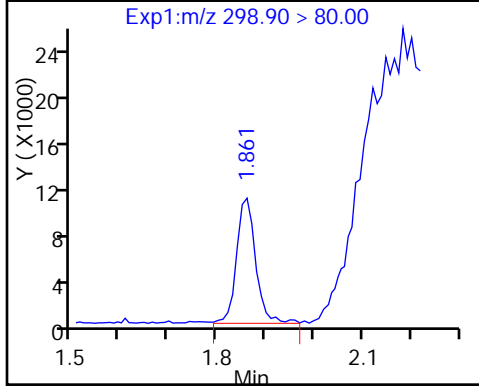
Injection Vol: 2.0 ul

Dil. Factor: 100.0000

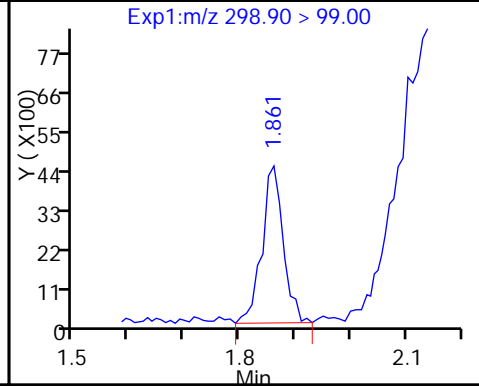
Method: A8_N

Limit Group: LC PFC_DOD ICAL

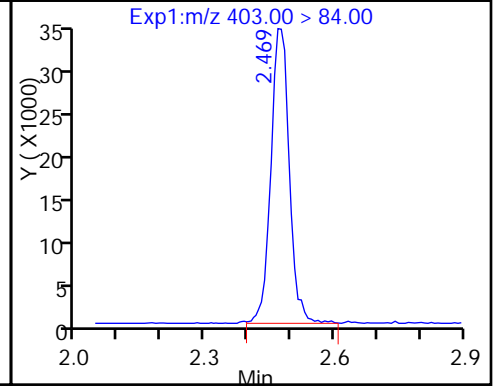
5 Perfluorobutanesulfonic acid



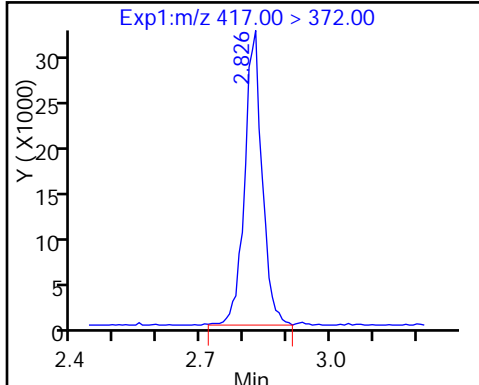
5 Perfluorobutanesulfonic acid



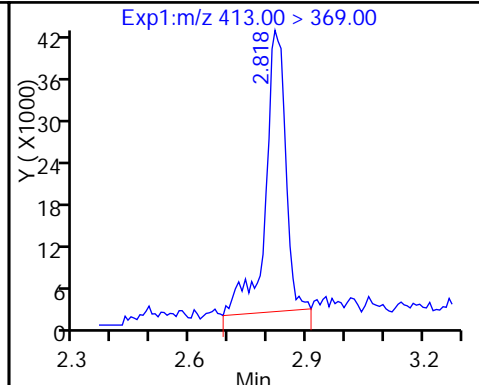
D 11 18O2 PFHxS



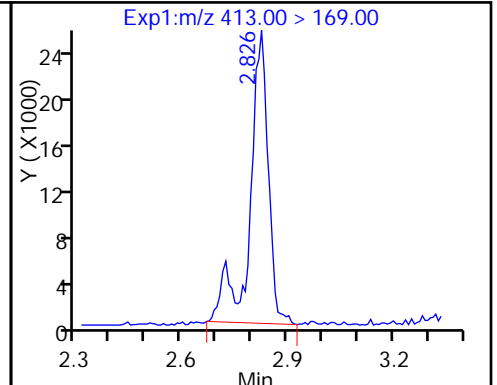
D 14 13C4 PFOA



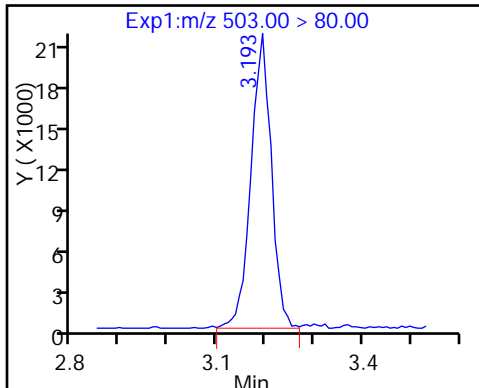
15 Perfluorooctanoic acid (M)



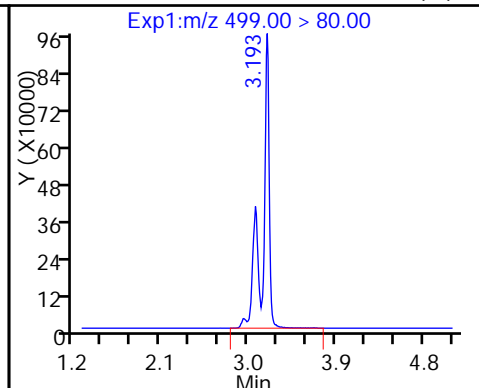
15 Perfluorooctanoic acid (M)



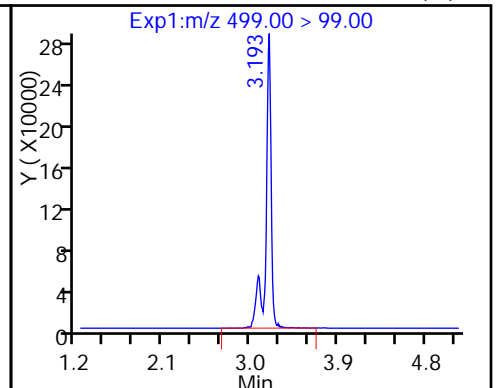
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

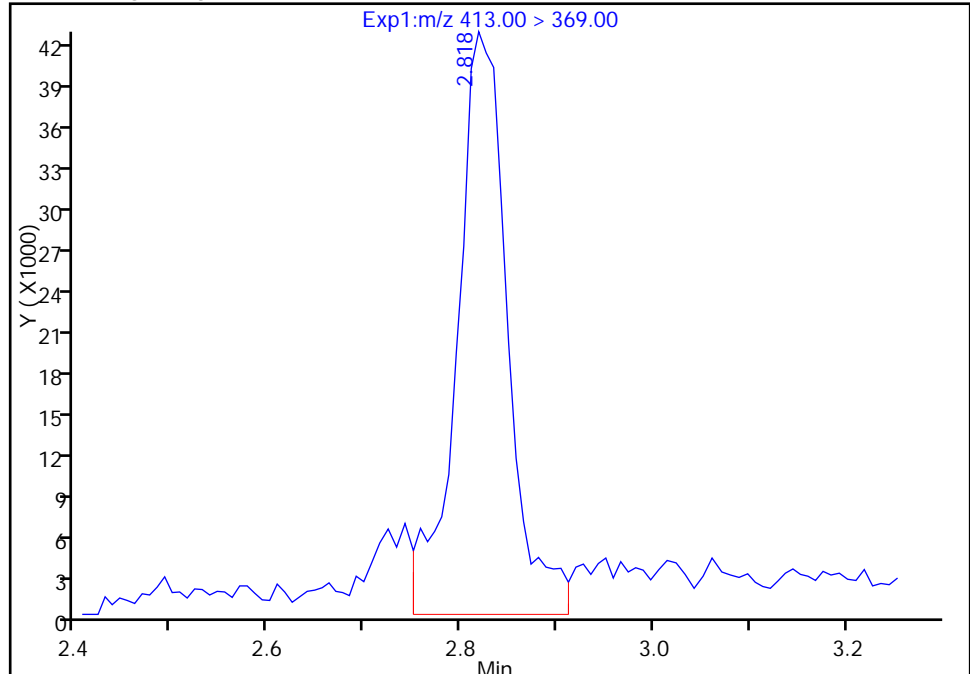
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d		
Injection Date:	13-Mar-2017 16:46:05	Instrument ID:	A8_N
Lims ID:	320-26103-A-9-A	Lab Sample ID:	320-26103-9
Client ID:	MEAFF-FTA2-SB04-0608		
Operator ID:	A8-PC\A8	ALS Bottle#:	28
Injection Vol:	2.0 ul	Dil. Factor:	100.0000
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL
Column:		Detector:	EXP1
		Worklist Smp#:	8

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

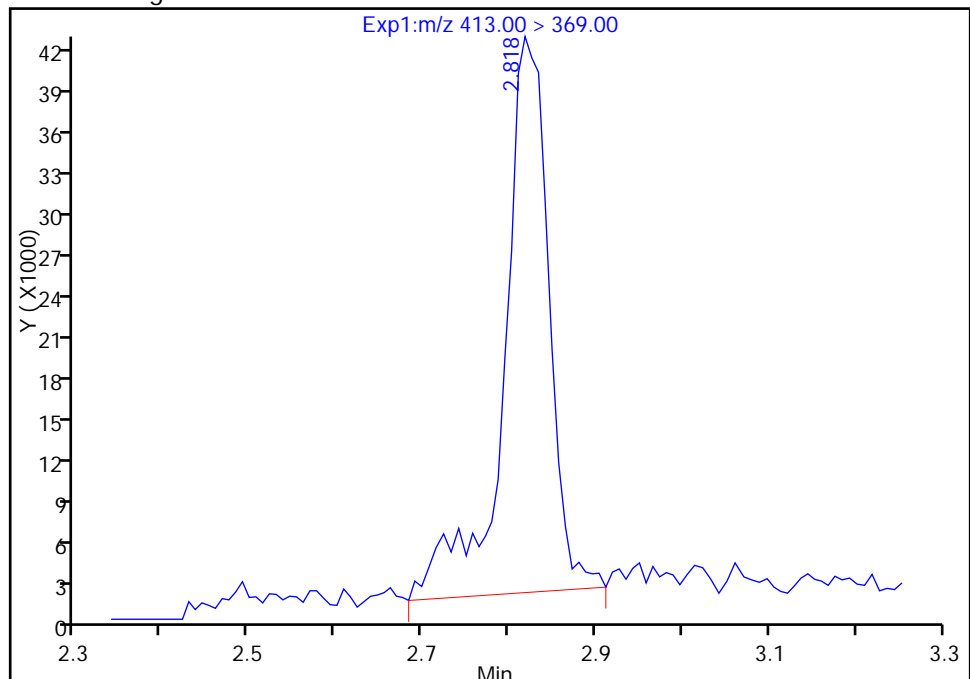
RT: 2.82
Area: 154718
Amount: 0.826916
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 147052
Amount: 0.785944
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:16:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

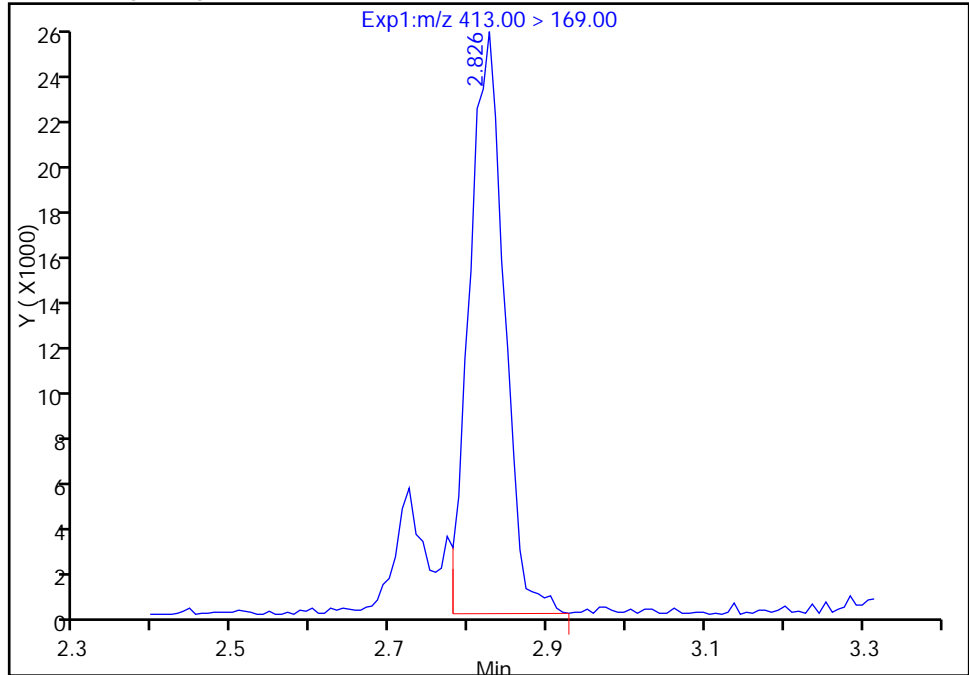
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d
Injection Date: 13-Mar-2017 16:46:05 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 100.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

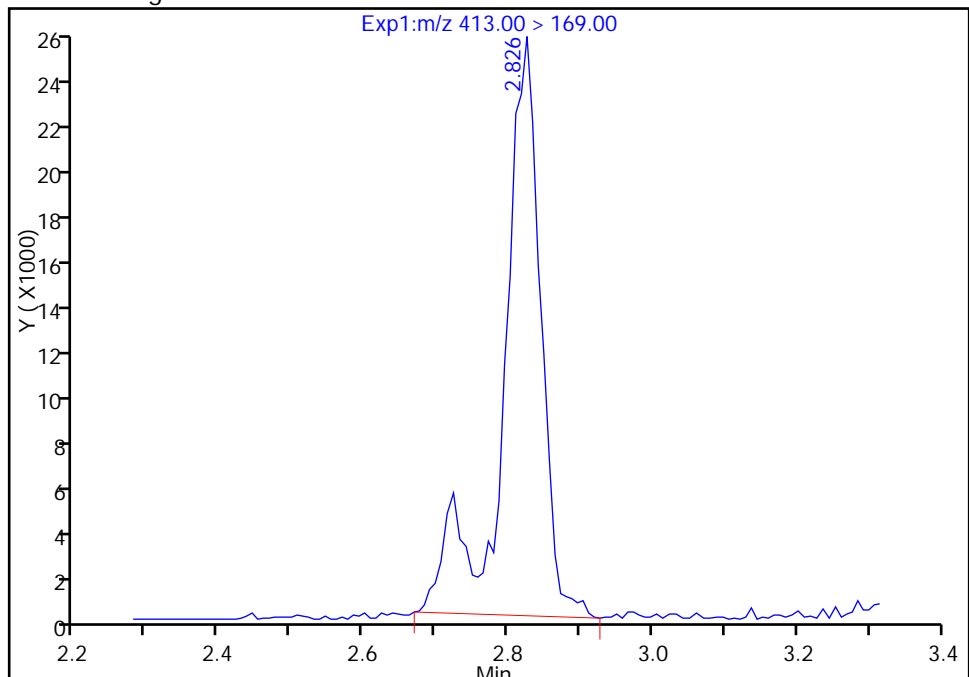
RT: 2.83
Area: 76154
Amount: 0.826916
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 90103
Amount: 0.785944
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:16:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

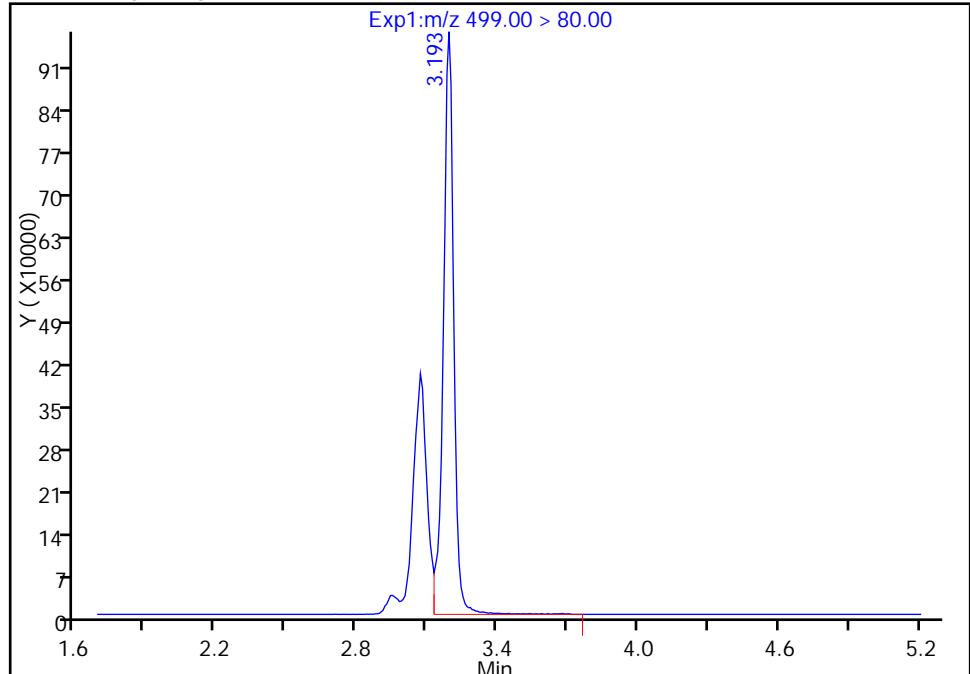
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d
Injection Date: 13-Mar-2017 16:46:05 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 100.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

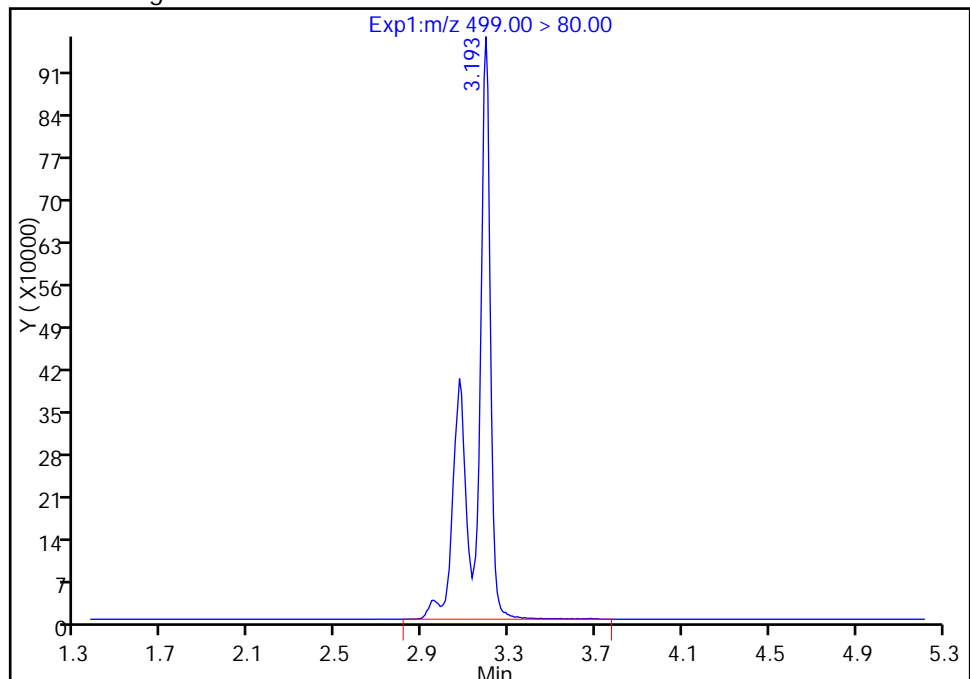
RT: 3.19
Area: 2946127
Amount: 23.125754
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 4631208
Amount: 36.352871
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:16:27

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

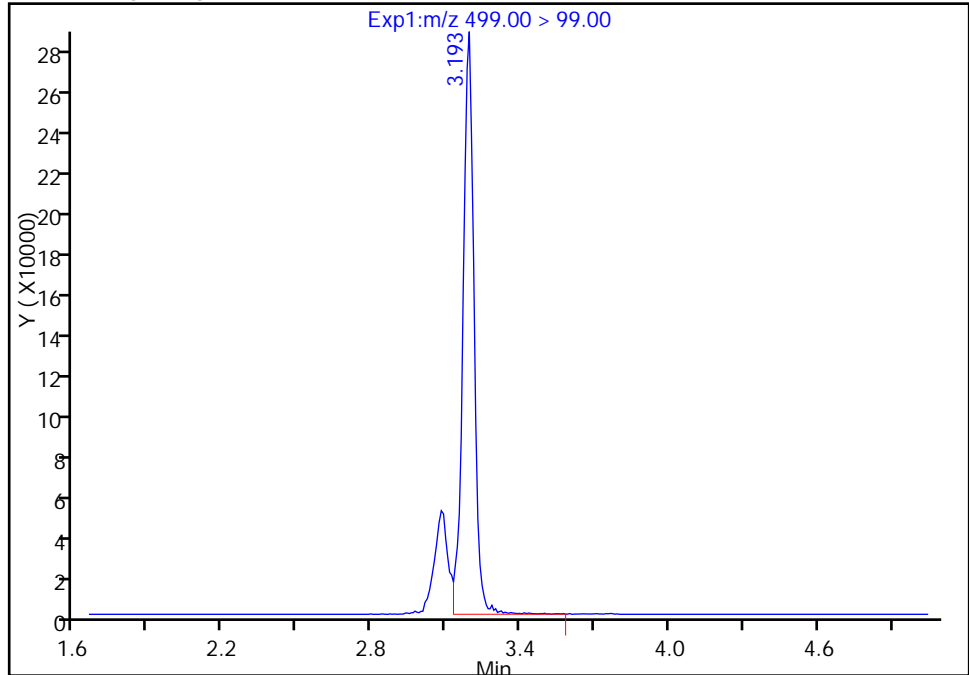
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_044.d
Injection Date: 13-Mar-2017 16:46:05 Instrument ID: A8_N
Lims ID: 320-26103-A-9-A Lab Sample ID: 320-26103-9
Client ID: MEAFF-FTA2-SB04-0608
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 100.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

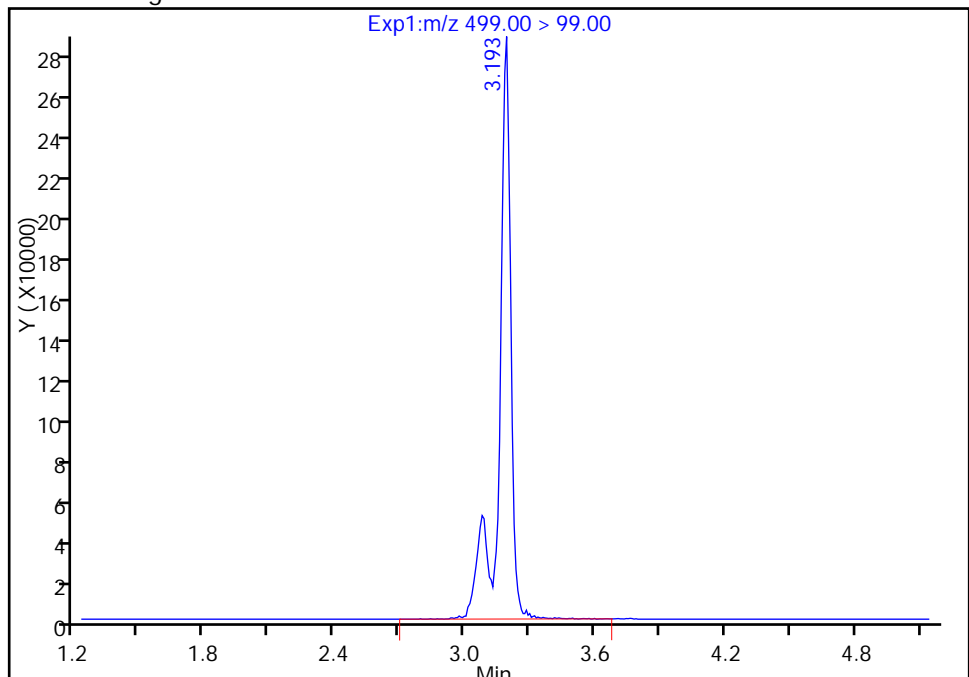
RT: 3.19
Area: 883647
Amount: 23.125754
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1079070
Amount: 36.352871
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:16:27

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-26103-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-FTA2-SB03-0608</u>	Lab Sample ID: <u>320-26103-10</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.03.11C_041.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>02/23/2017 14:55</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>03/02/2017 17:04</u>
Sample wt/vol: <u>5.08(g)</u>	Date Analyzed: <u>03/11/2017 17:12</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>24.1</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>154503</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	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.74	M	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	102		25-150
STL00991	13C4 PFOS	87		25-150
STL00994	18O2 PFHxS	98		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_041.d
 Lims ID: 320-26103-A-10-A
 Client ID: MEAFF-FTA2-SB03-0608
 Sample Type: Client
 Inject. Date: 11-Mar-2017 17:12:36 ALS Bottle#: 32 Worklist Smp#: 38
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-10-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 11:26:17 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: 13-Mar-2017 13:58:30

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	1.853	0.0	1.000	1177225	2.87				M
298.90 > 99.00	1.853	1.853	0.0	1.000	465707		2.53(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.467	-0.004		13546595	46.6		98.5	448390	
D 14 13C4 PFOA										
417.00 > 372.00	2.806	2.809	-0.003		10479759	51.1		102	303174	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.814	2.817	-0.003	1.000	119498	0.5581			426	M
413.00 > 169.00	2.814	2.817	-0.003	1.000	70191		1.70(0.90-1.10)		1600	M
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.188	3.183	0.005	1.000	482645	2.34			3175	M
499.00 > 99.00	3.179	3.183	-0.004	0.997	127400		3.79(0.90-1.10)		1786	M
D 18 13C4 PFOS										
503.00 > 80.00	3.179	3.183	-0.004		10028812	41.5		86.8	106228	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_041.d

Injection Date: 11-Mar-2017 17:12:36

Instrument ID: A8_N

Lims ID: 320-26103-A-10-A

Lab Sample ID: 320-26103-10

Client ID: MEAFF-FTA2-SB03-0608

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 38

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

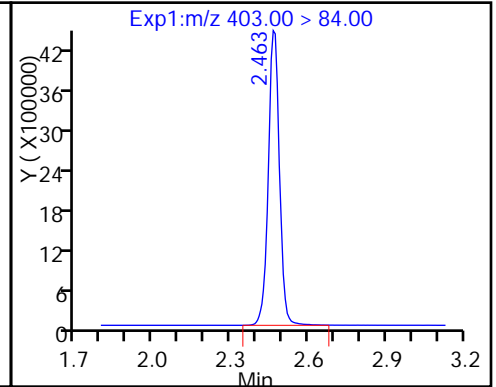
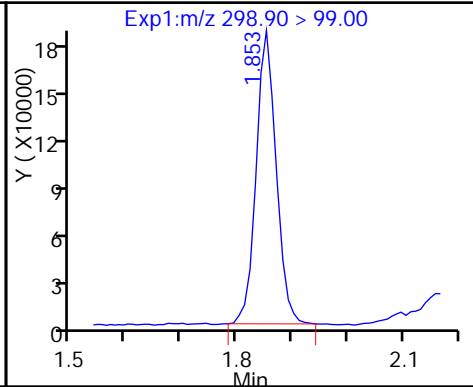
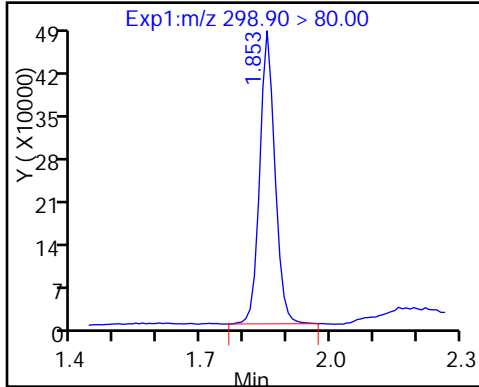
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

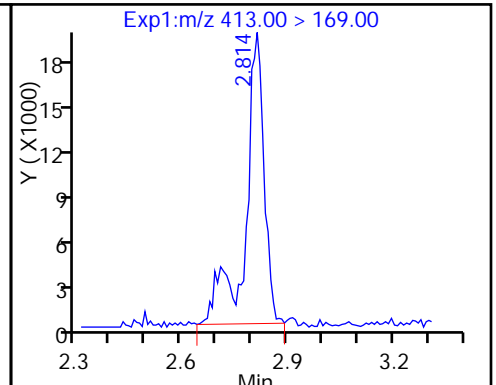
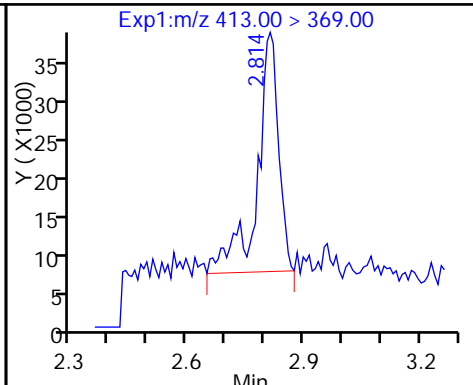
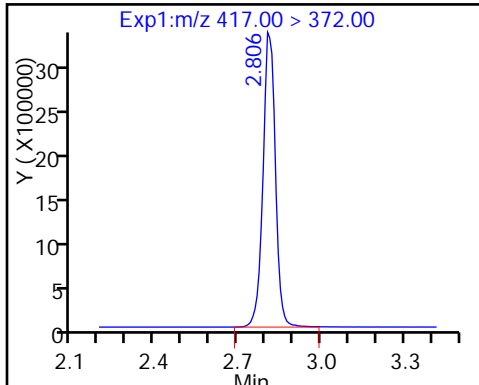
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

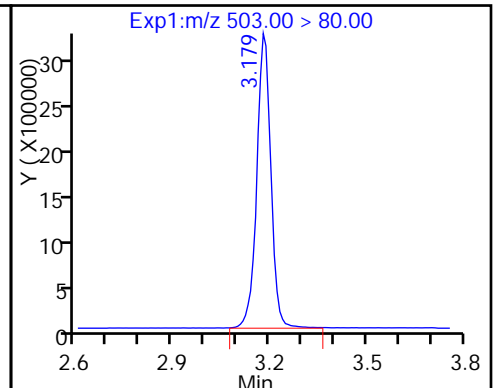
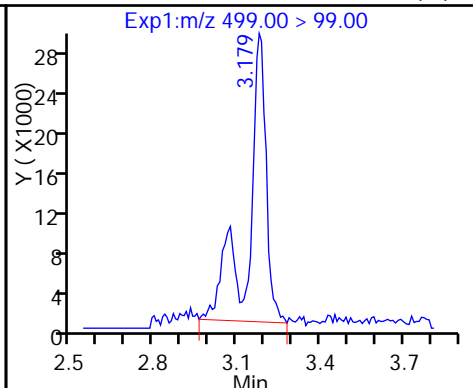
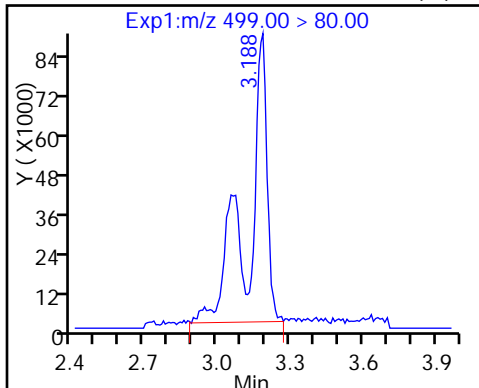
15 Perfluorooctanoic acid (M)



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

D 18 13C4 PFOS



TestAmerica Sacramento

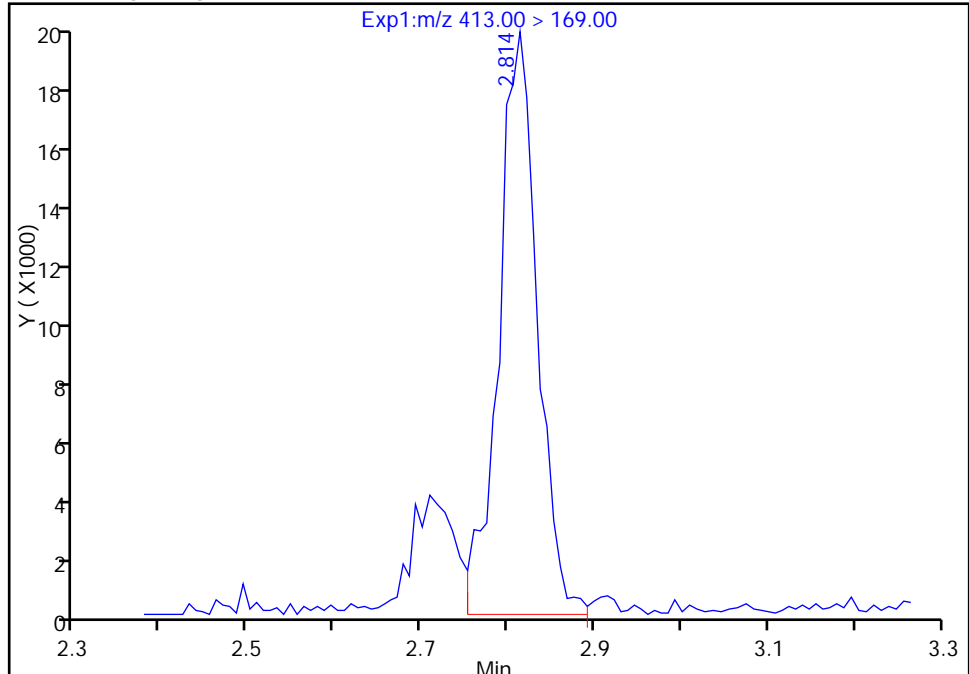
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

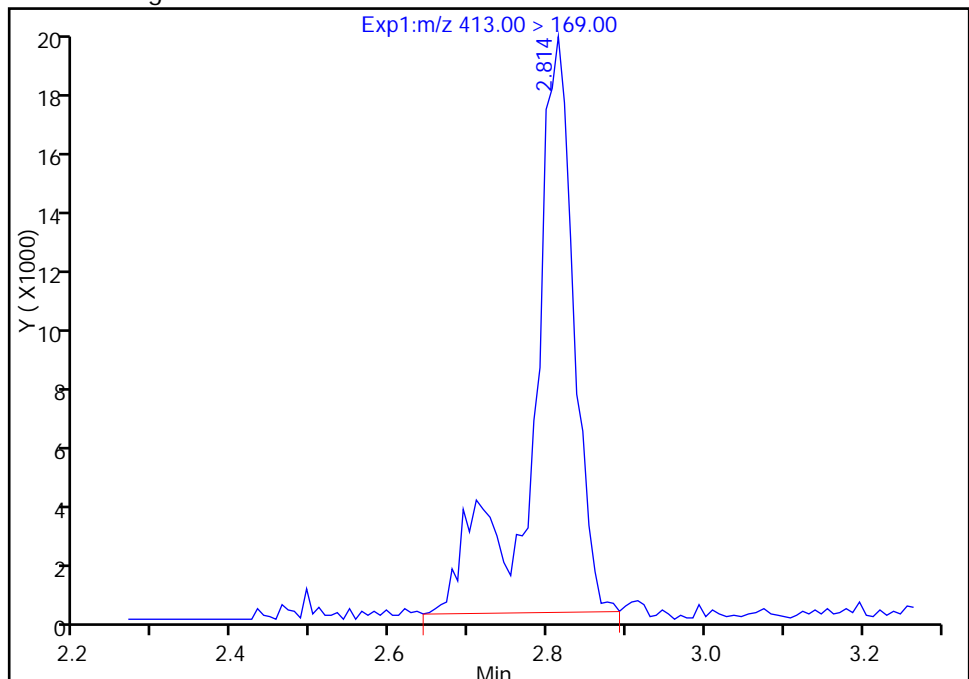
RT: 2.81
Area: 59705
Amount: 0.400528
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 70191
Amount: 0.558051
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:25:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

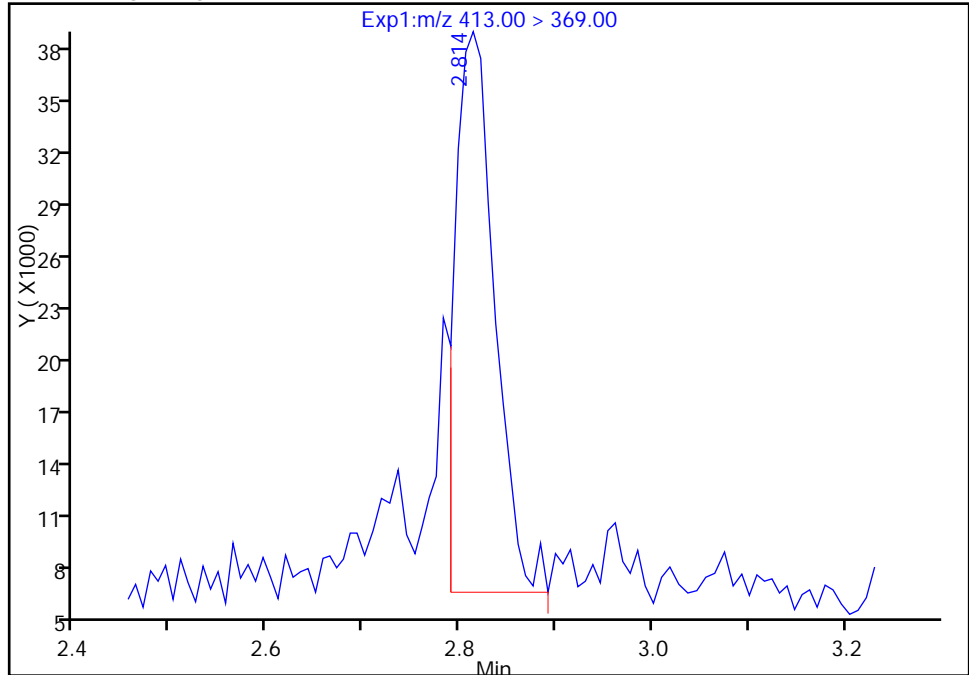
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

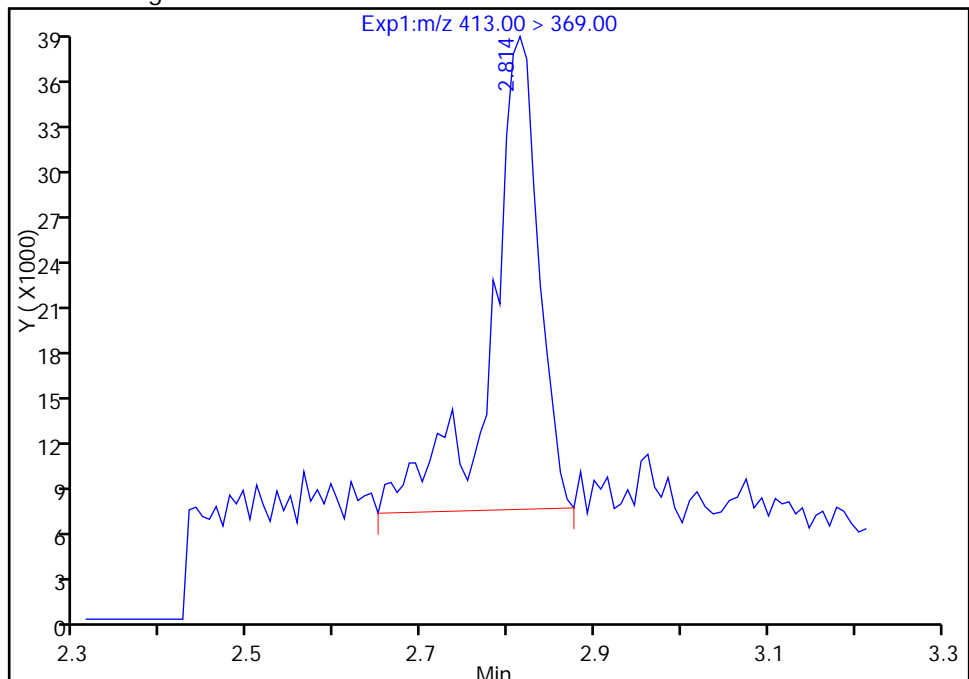
RT: 2.81
Area: 85767
Amount: 0.400528
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 119498
Amount: 0.558051
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:25:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

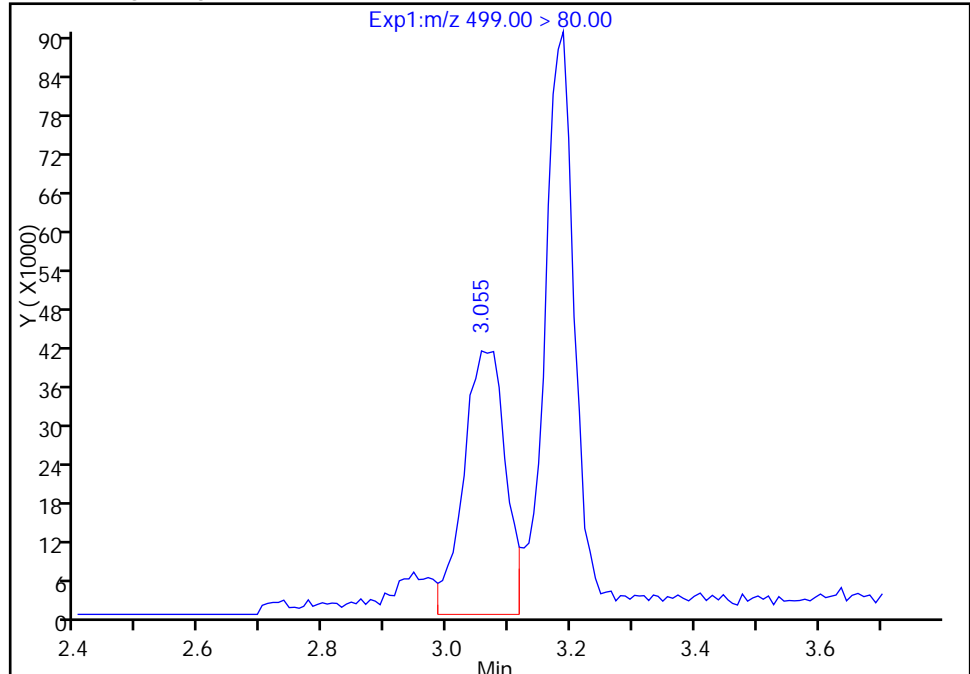
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

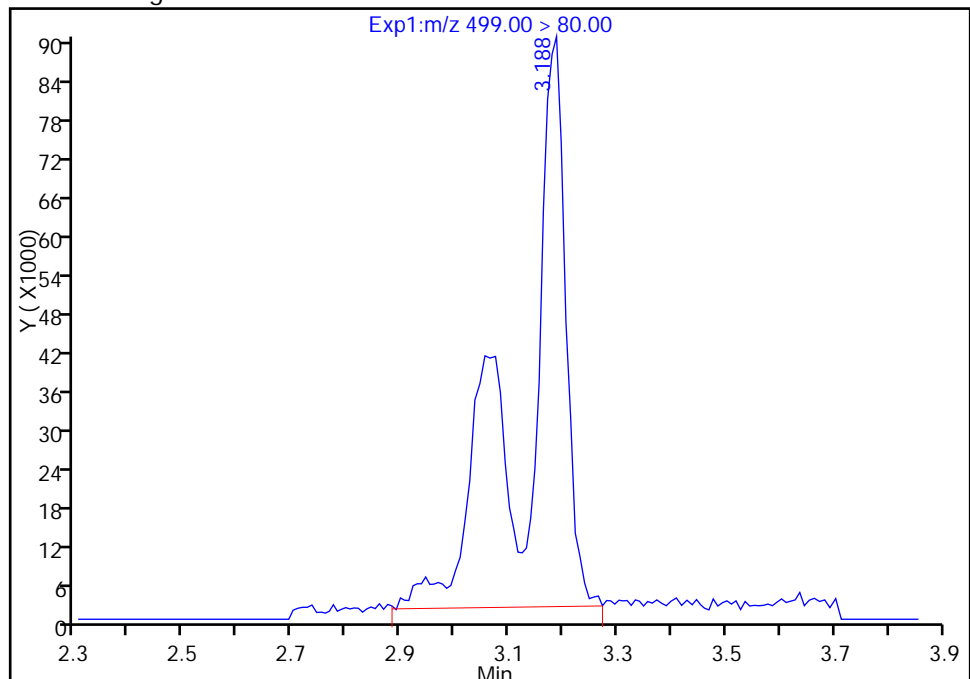
RT: 3.06
Area: 191451
Amount: 0.927832
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 482645
Amount: 2.339051
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 11:25:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

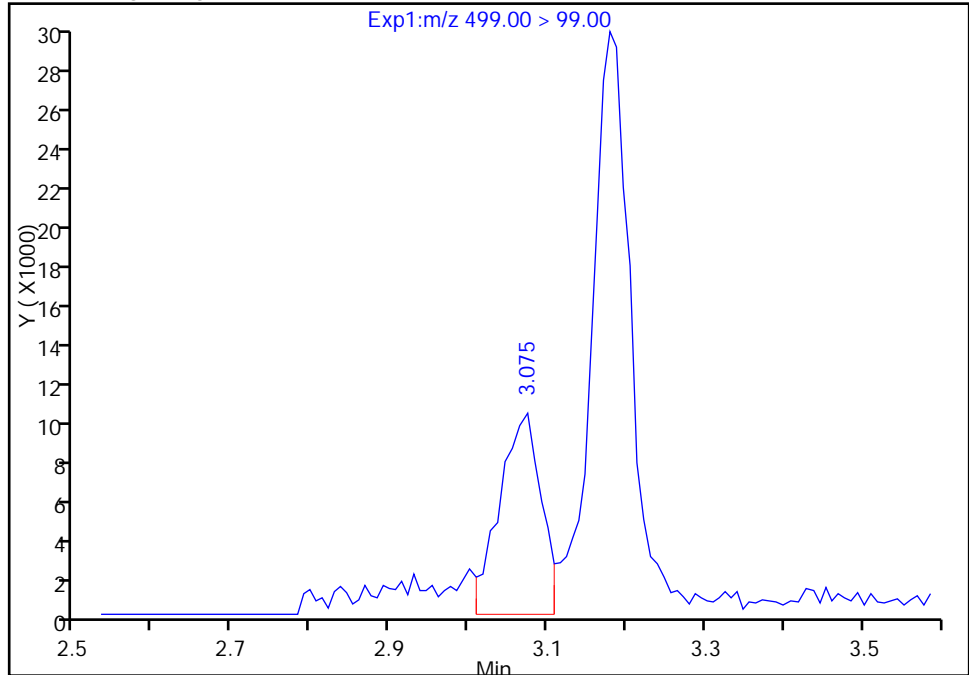
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

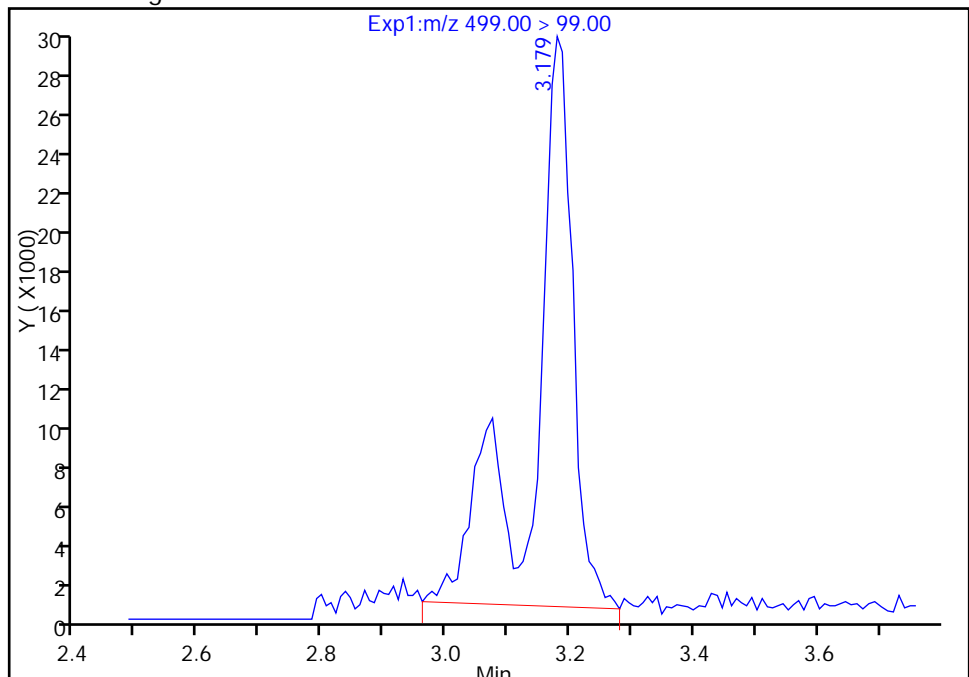
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Area: 36347
Amount: 0.927832
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 127400
Amount: 2.339051
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 11:25:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

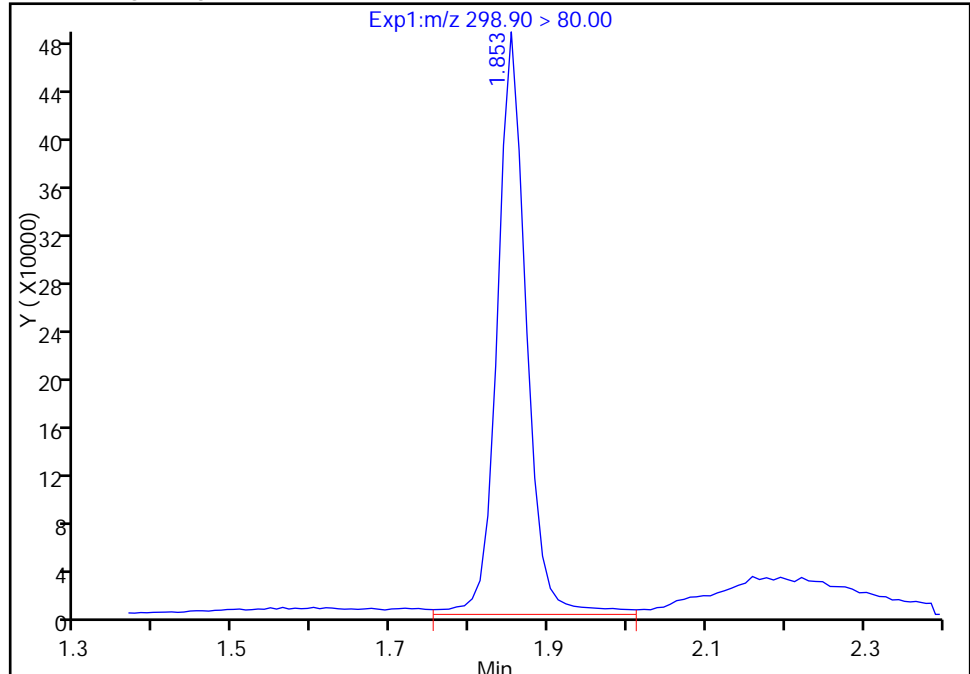
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

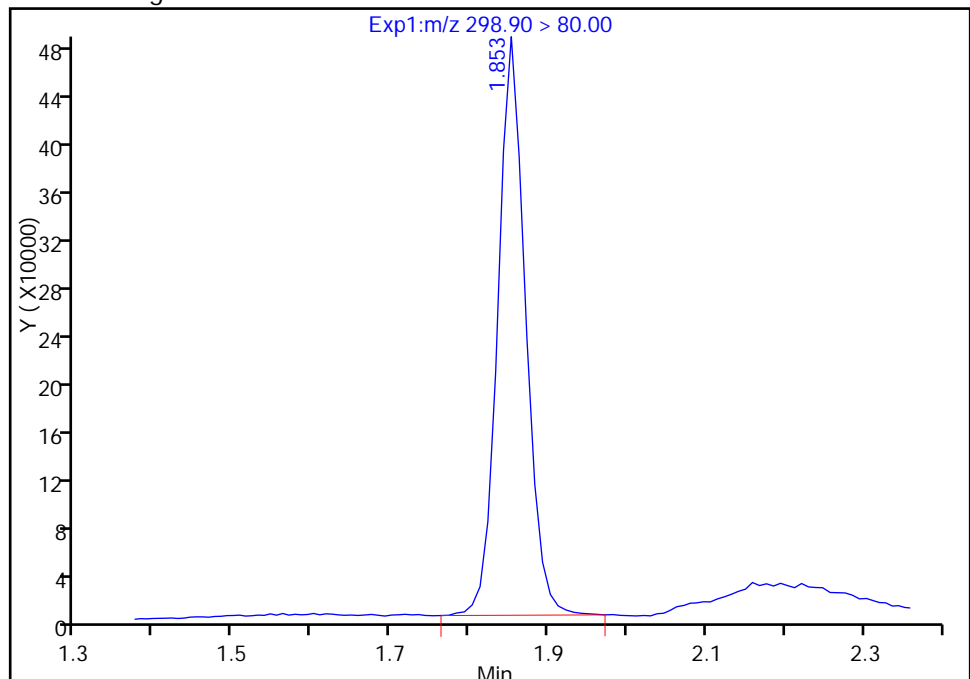
RT: 1.85
Area: 1244625
Amount: 3.033703
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 1177225
Amount: 2.869419
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:26:06

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

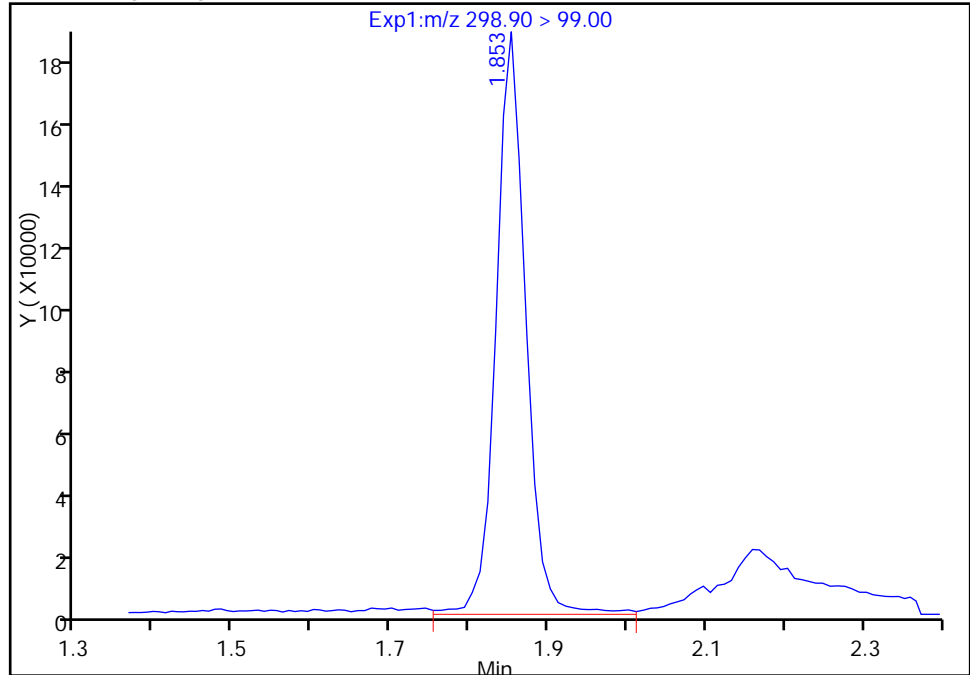
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Injection Date: 11-Mar-2017 17:12:36 Instrument ID: A8_N
Lims ID: 320-26103-A-10-A Lab Sample ID: 320-26103-10
Client ID: MEAFF-FTA2-SB03-0608
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

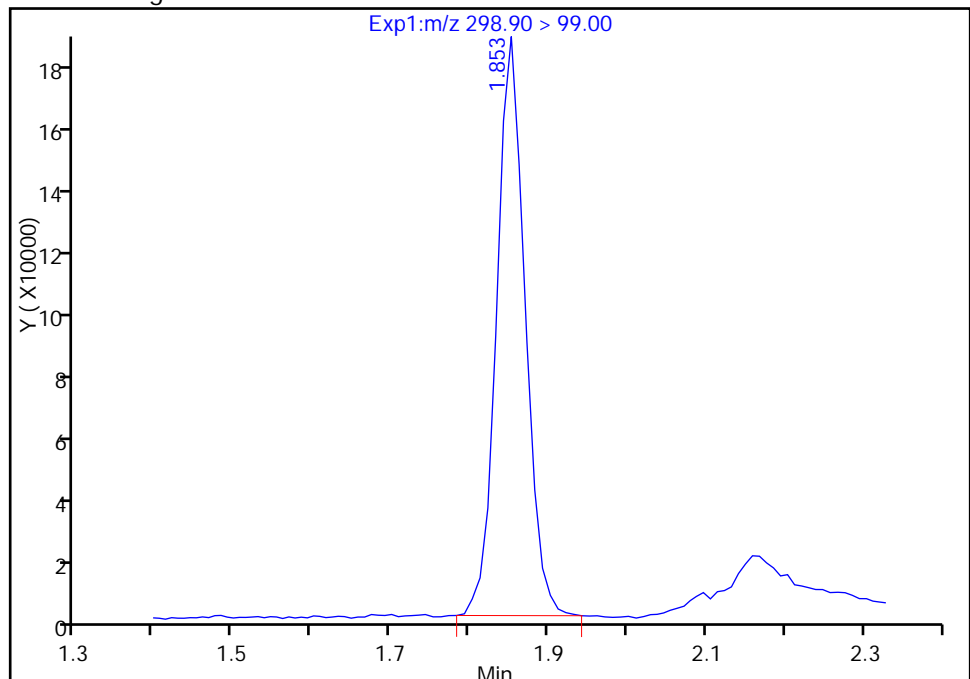
RT: 1.85
Area: 489534
Amount: 3.033703
Amount Units: ng/ml

Processing Integration Results



RT: 1.85
Area: 465707
Amount: 2.869419
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 11:26:12

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0615-0217 Lab Sample ID: 320-26103-12
 Matrix: Water Lab File ID: 2017.03.02A_015.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 16:05
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 293.4 (mL) Date Analyzed: 03/02/2017 11:57
 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)	210		2.1	1.7	0.64
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	46		3.4	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	180		2.1	1.7	0.78

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	133		25-150
STL00994	18O2 PFHxS	117		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_015.d
 Lims ID: 320-26103-A-12-A
 Client ID: MEAFF-MRD-0615-0217
 Sample Type: Client
 Inject. Date: 02-Mar-2017 11:57:48 ALS Bottle#: 11 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-12-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 09:40:26 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: chandrasenas

Date: 02-Mar-2017 12:36:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.860	1.861	-0.001	1.000	51342184	105.2				
298.90 > 99.00	1.860	1.861	-0.001	1.000	27079290		1.90(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.485	2.479	0.006		16112142	55.4		117	72101	
D 14 13C4 PFOA										
417.00 > 372.00	2.835	2.829	0.006		7896890	38.5		77.1	2354173	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.827	2.829	-0.002	1.000	19901025	123.3			524822	
413.00 > 169.00	2.835	2.829	0.006	1.003	13403313		1.48(0.90-1.10)		1525492	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.081	3.084	-0.003	1.000	8453421	26.8			287583	
499.00 > 99.00	3.090	3.084	0.006	1.003	1614870		5.23(0.90-1.10)		41990	
D 18 13C4 PFOS										
503.00 > 80.00	3.194	3.205	-0.011		15308627	63.4		133	4964	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_015.d

Injection Date: 02-Mar-2017 11:57:48

Instrument ID: A8_N

Lims ID: 320-26103-A-12-A

Lab Sample ID: 320-26103-12

Client ID: MEAFF-MRD-0615-0217

Operator ID: A8-PC\A8

ALS Bottle#: 11

Worklist Smp#: 24

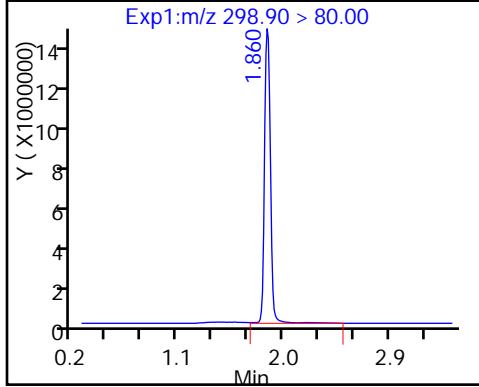
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

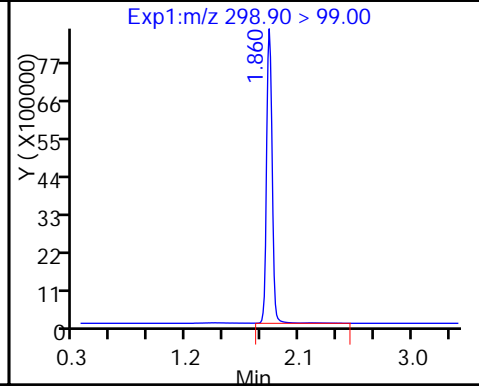
Method: A8_N

Limit Group: LC PFC_DOD ICAL

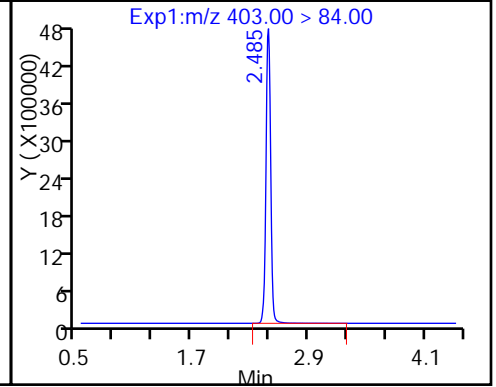
5 Perfluorobutanesulfonic acid



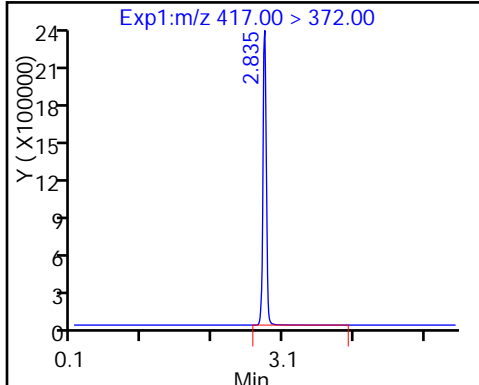
5 Perfluorobutanesulfonic acid



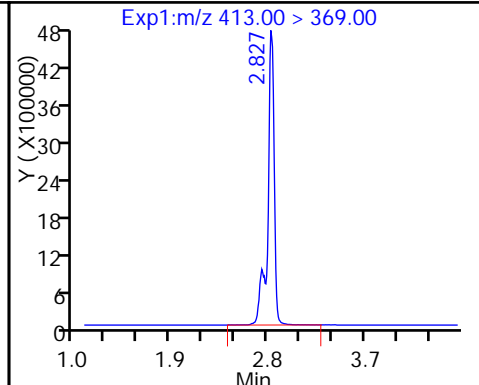
D 11 18O2 PFHxS



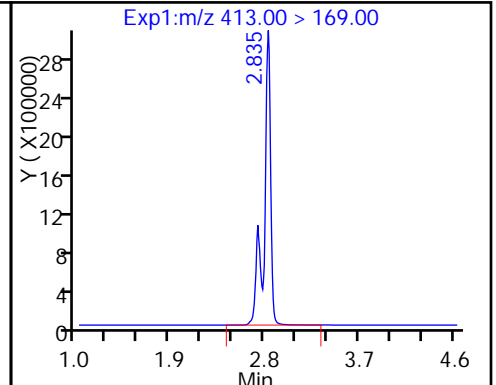
D 14 13C4 PFOA



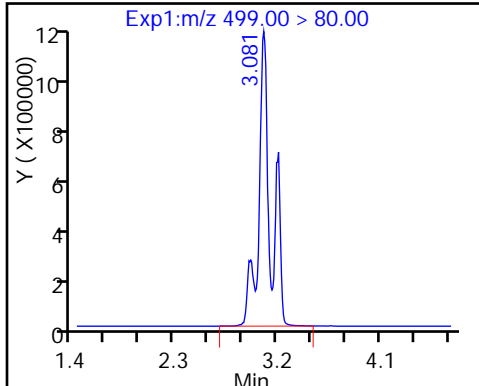
15 Perfluorooctanoic acid



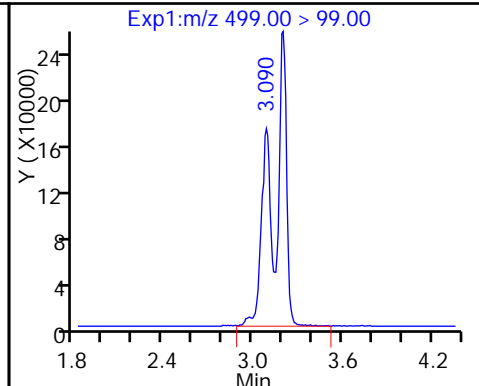
15 Perfluorooctanoic acid



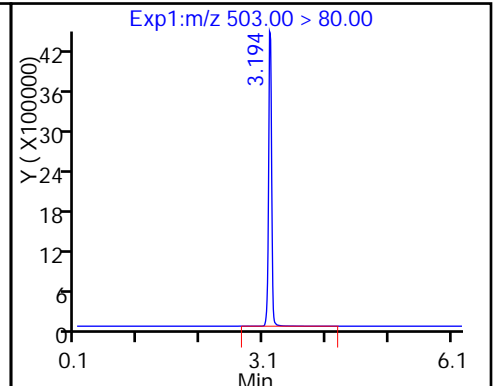
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



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

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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.: 320-26103-1 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

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

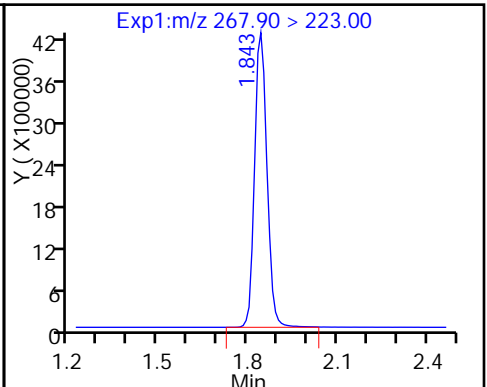
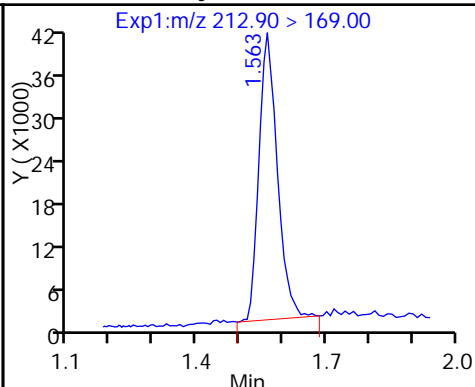
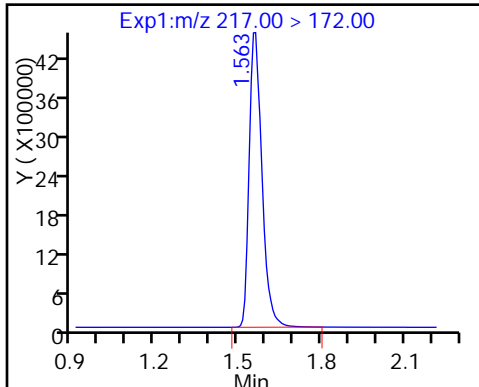
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

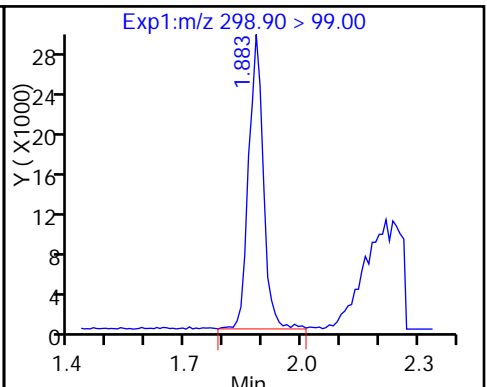
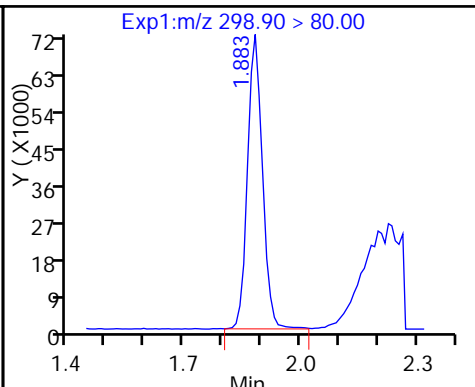
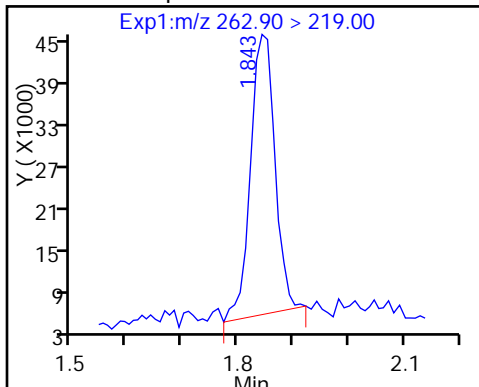
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

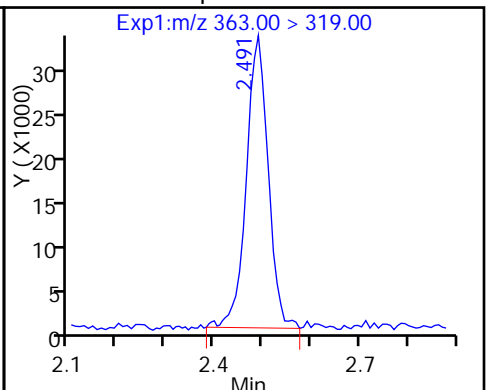
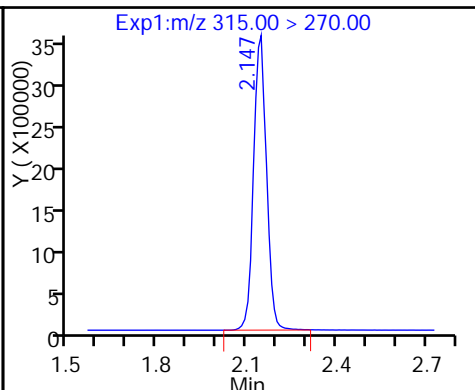
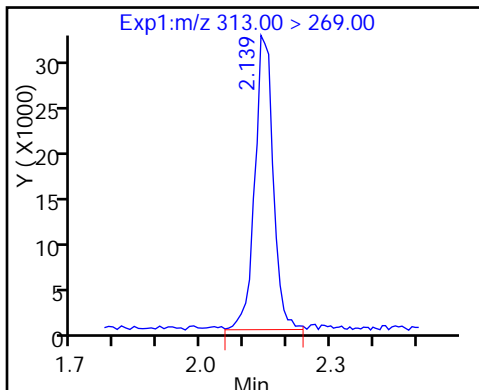
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

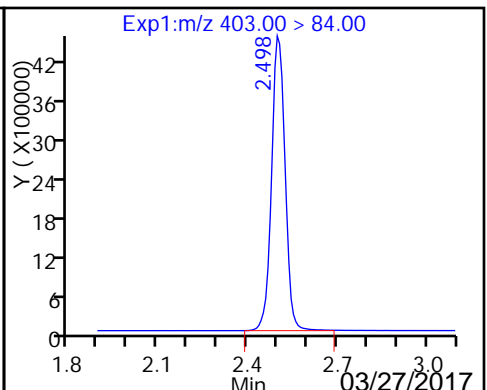
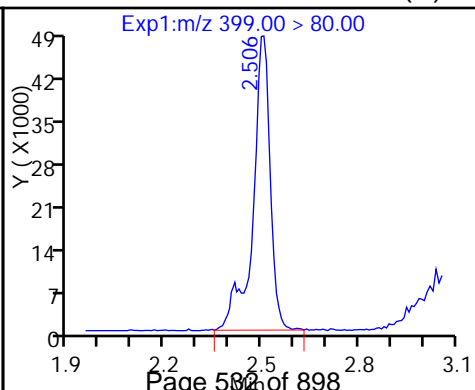
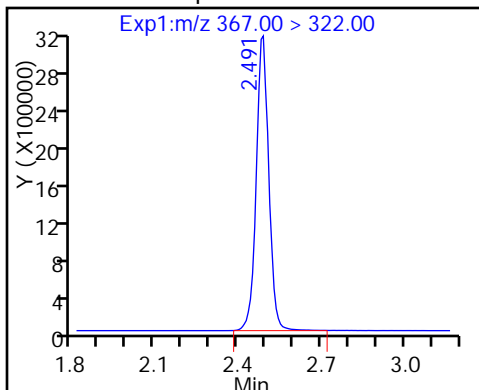
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

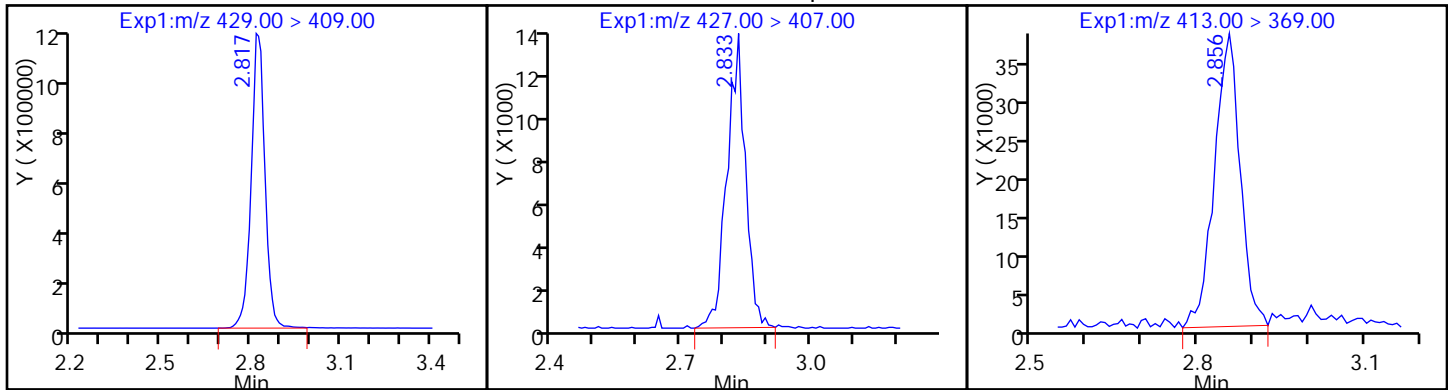
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



D 12 M2-6:2FTS

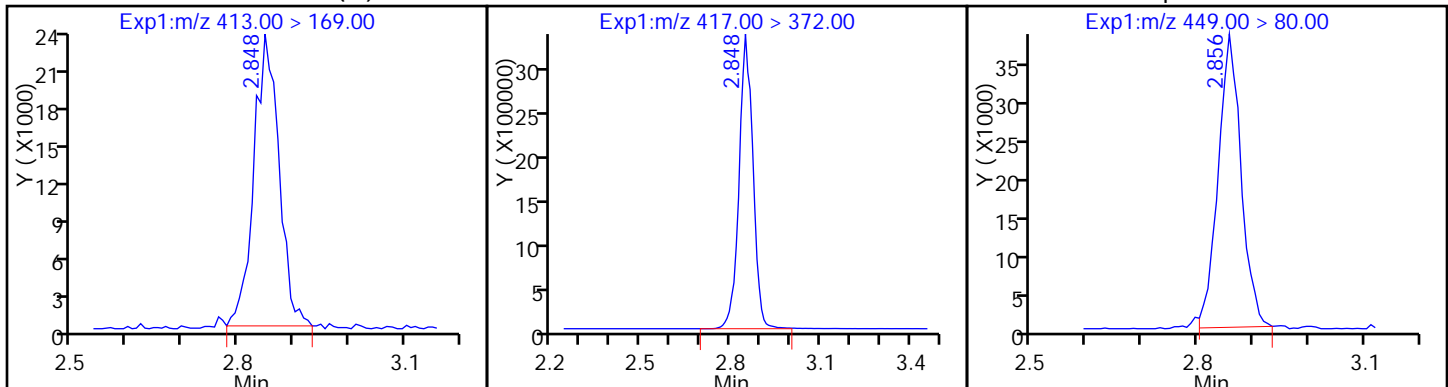
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol 5 Perfluorooctanoic acid



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

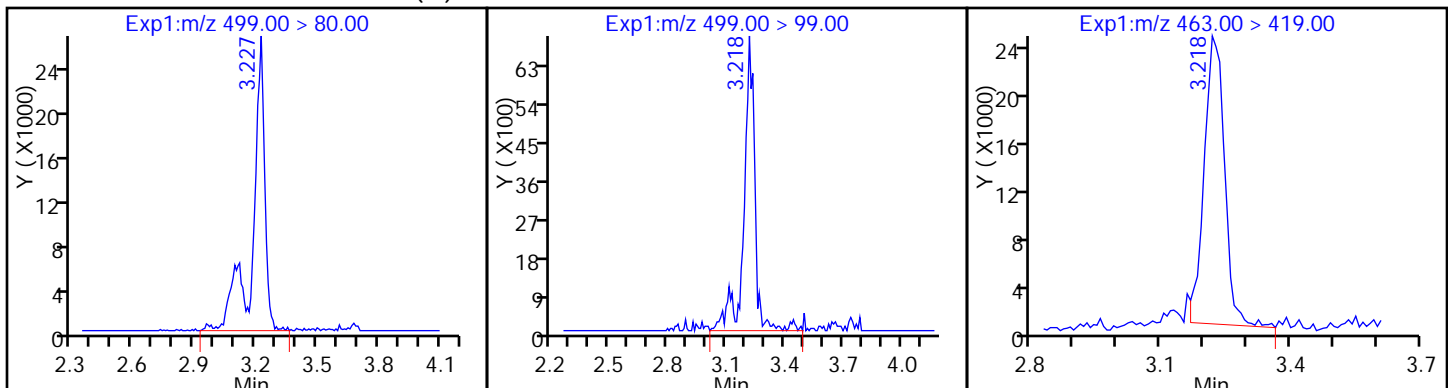
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

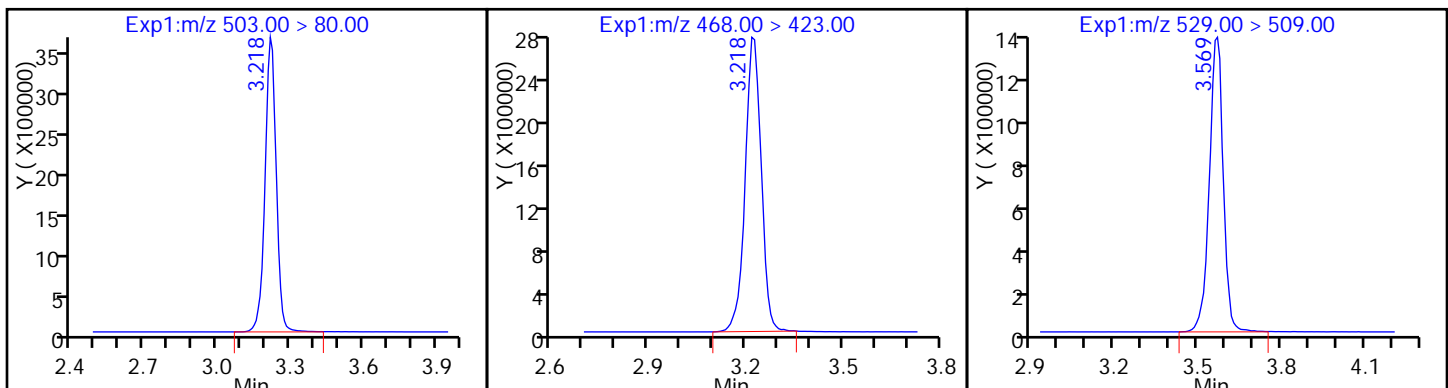
20 Perfluorononanoic acid



D 18 13C4 PFOS

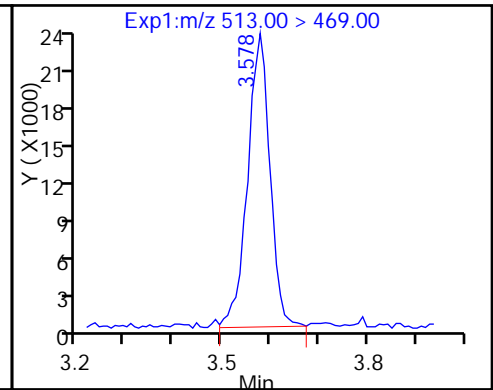
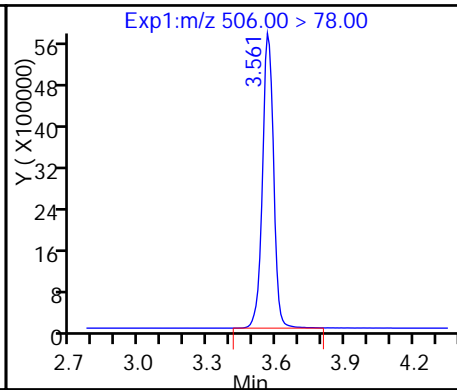
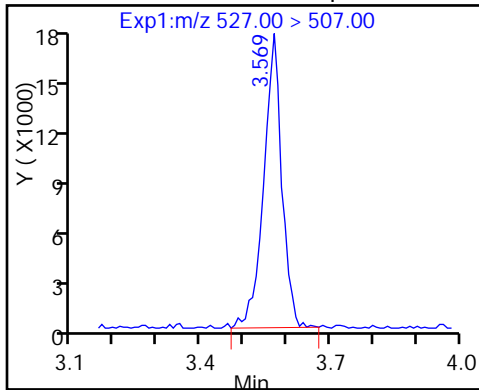
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

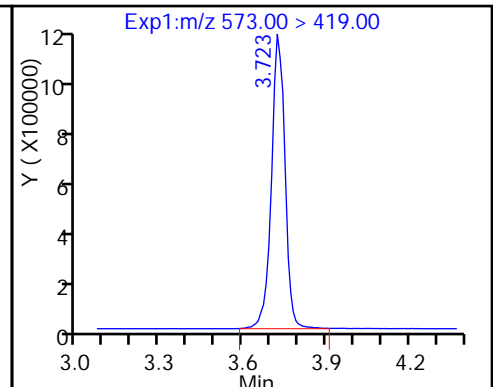
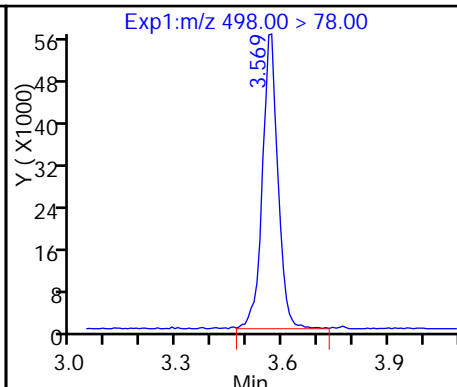
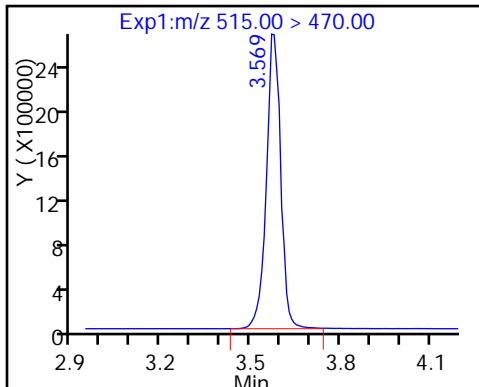
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

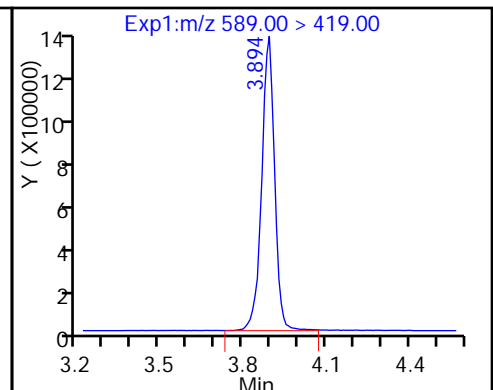
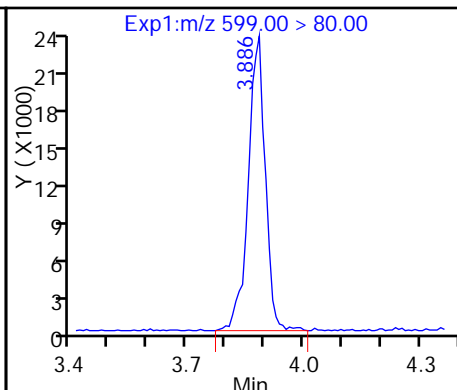
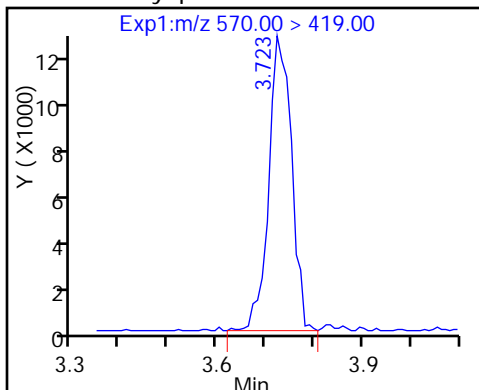
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

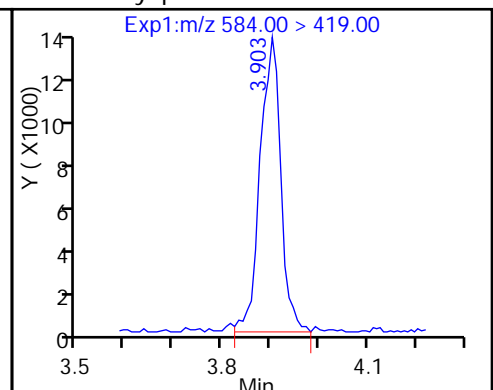
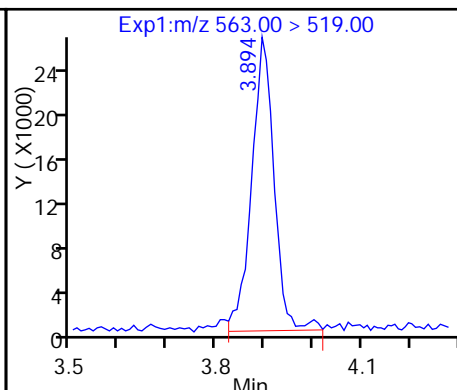
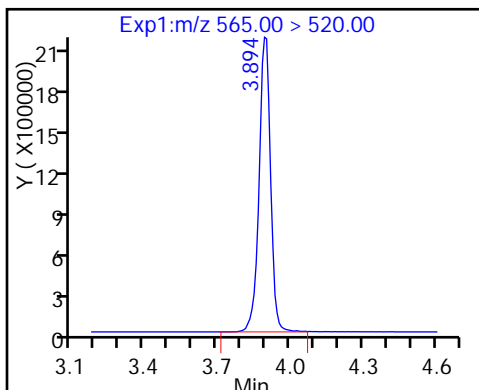
D 32 d5-NEtFOSAA



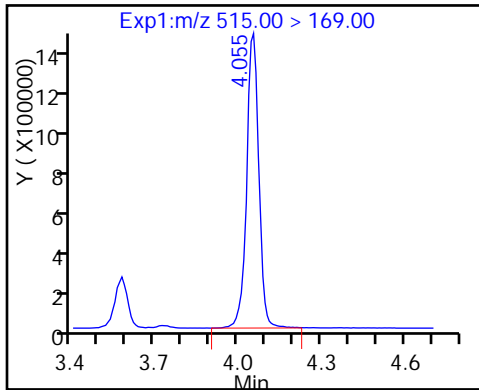
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

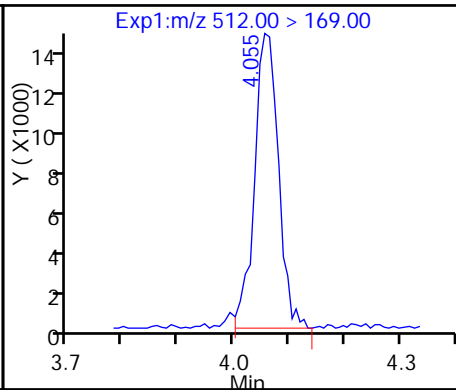
33 N-ethyl perfluorooctane sulfonamid



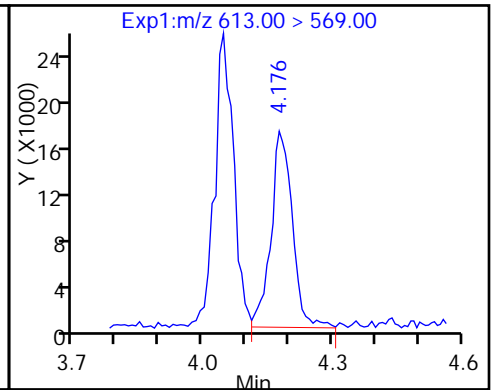
D 34 d-N-MeFOSA-M



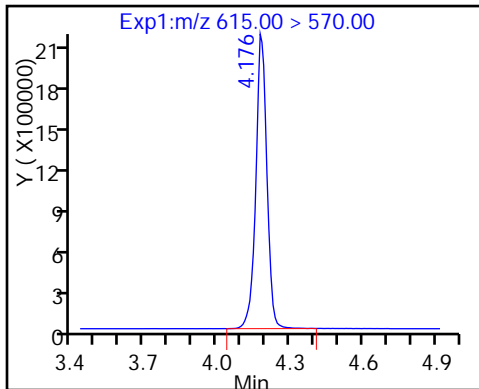
35 MeFOSA



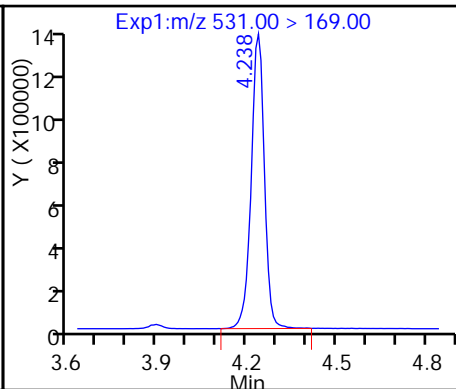
37 Perfluorododecanoic acid



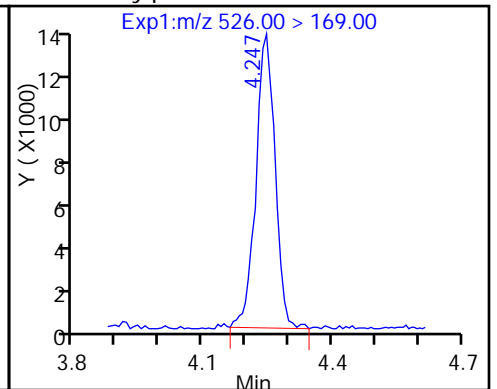
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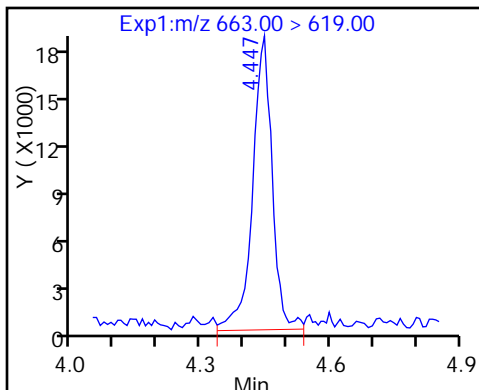
D 38 d-N-EtFOSA-M



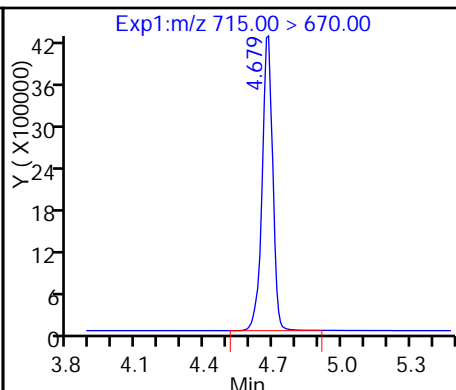
39 N-ethylperfluoro-1-octanesulfonami



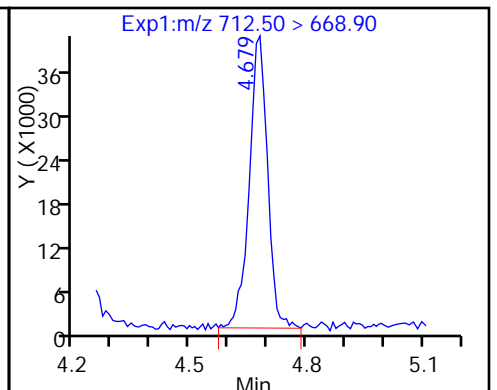
41 Perfluorotridecanoic acid



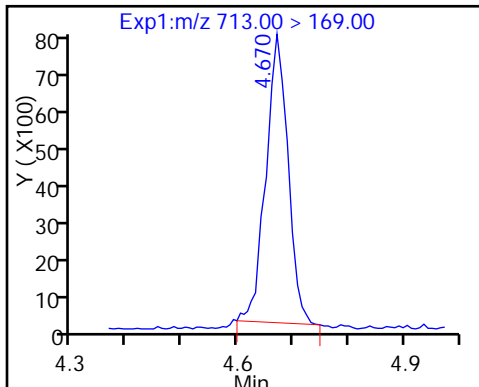
D 43 13C2-PFTeDA



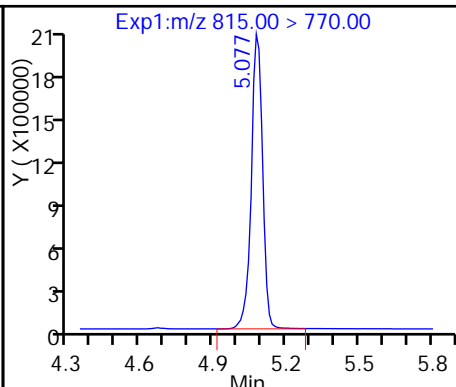
42 Perfluorotetradecanoic acid



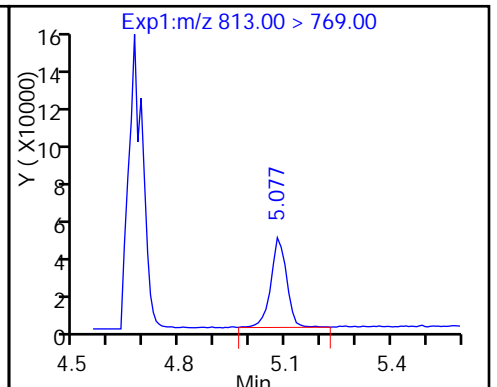
42 Perfluorotetradecanoic acid



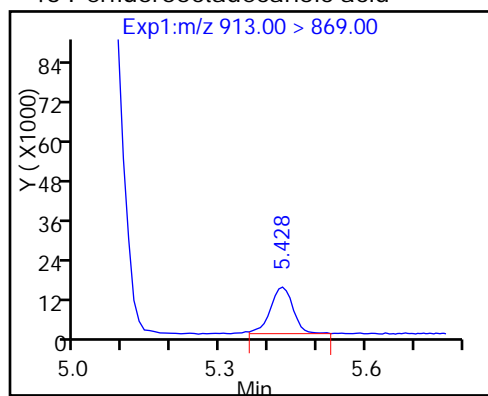
D 44 13C2-PFHxDA



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:

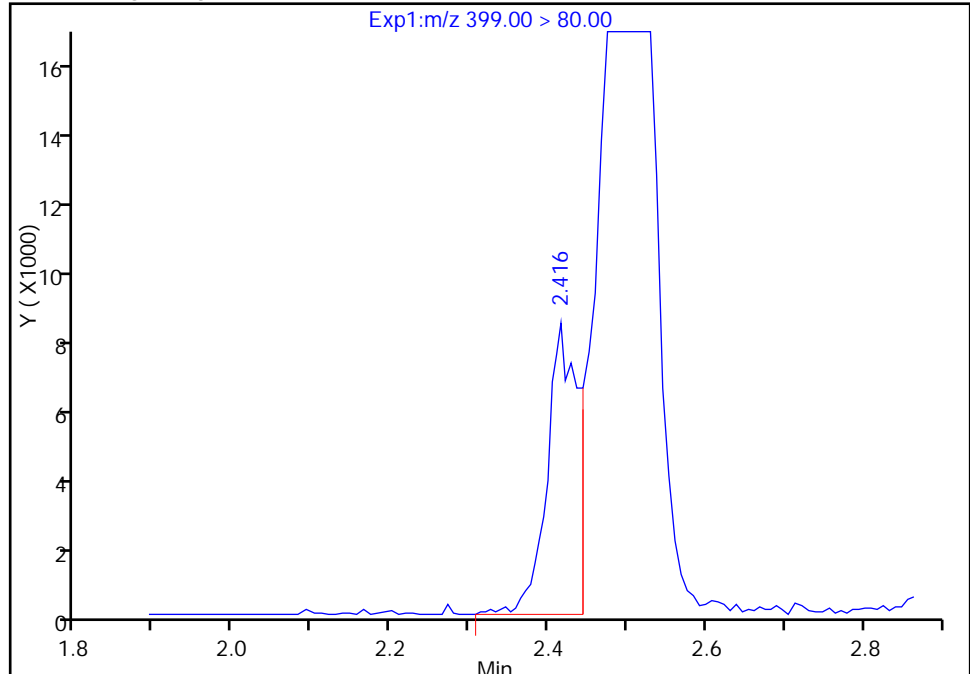
Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

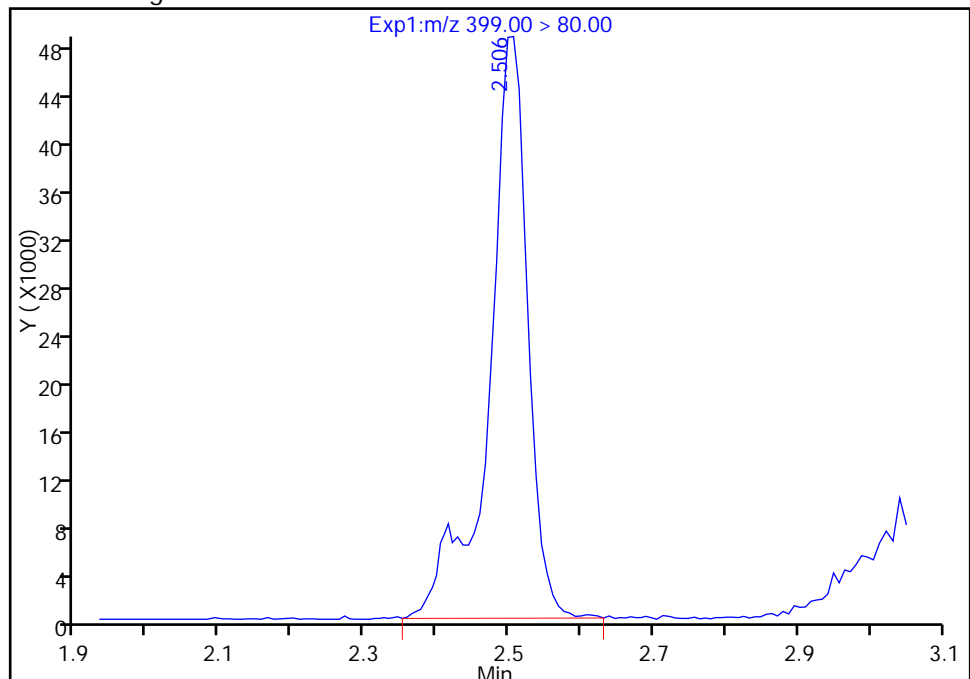
RT: 2.42
Area: 21187
Amount: 0.082505
Amount Units: ng/ml

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:

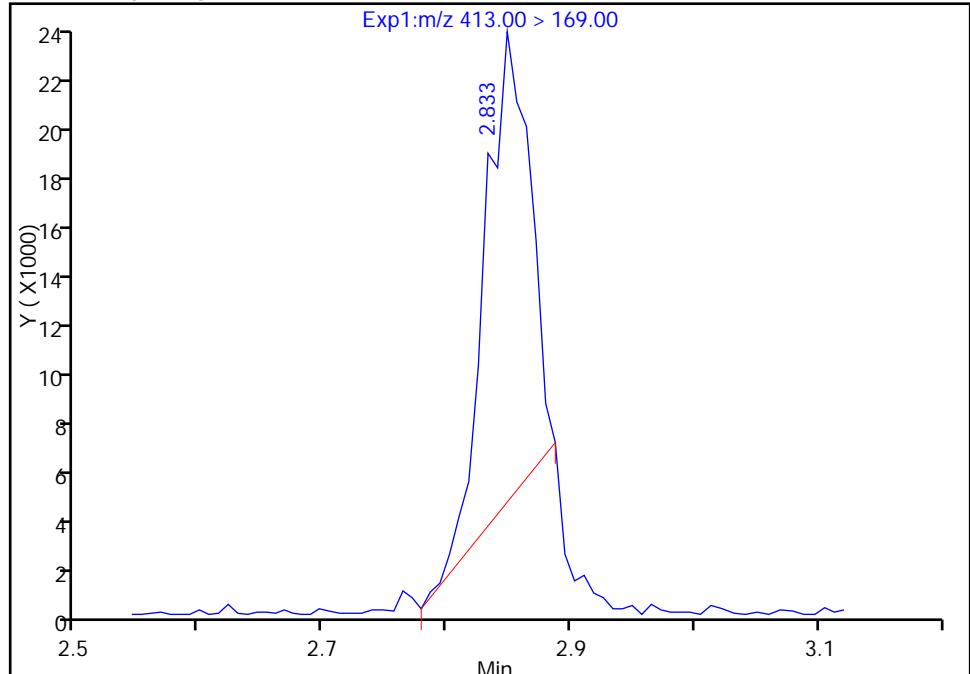
Detector: EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

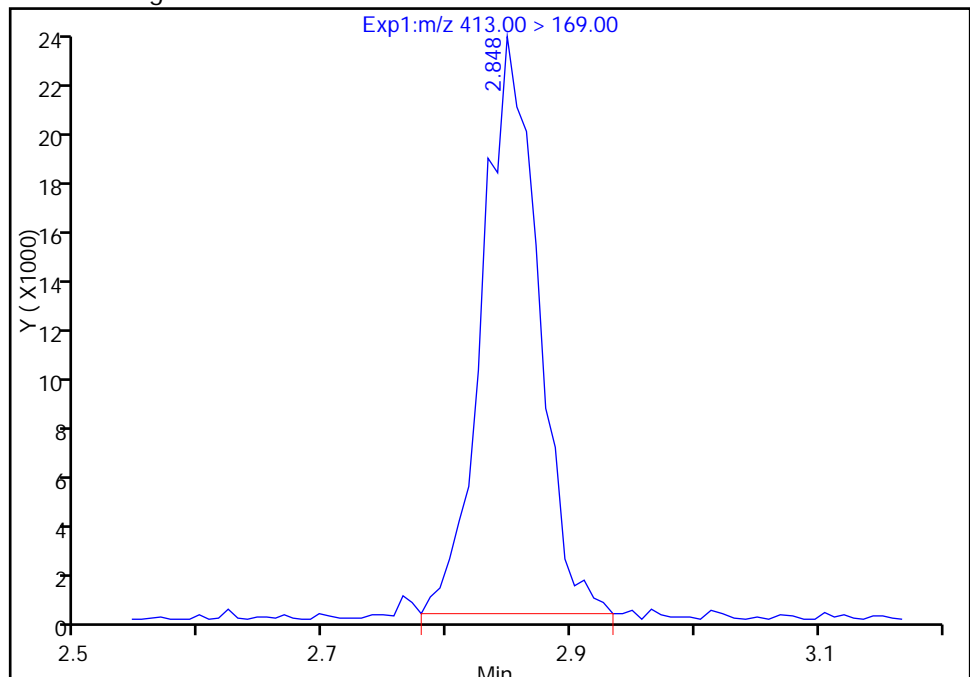
RT: 2.83
Area: 46440
Amount: 0.535520
Amount Units: ng/ml

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:

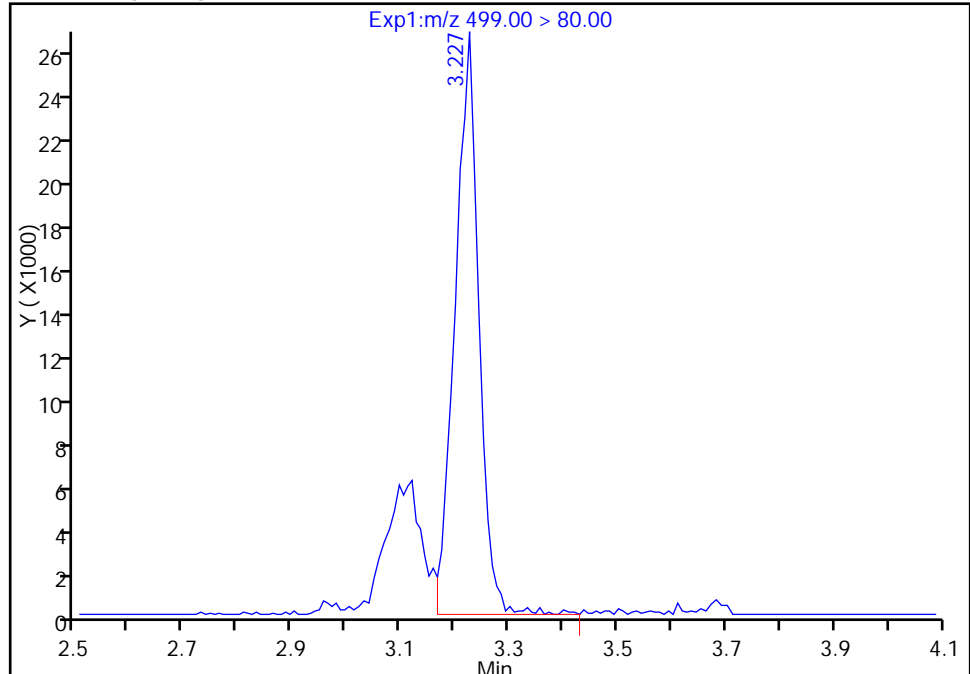
Detector EXP1

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

Signal: 1

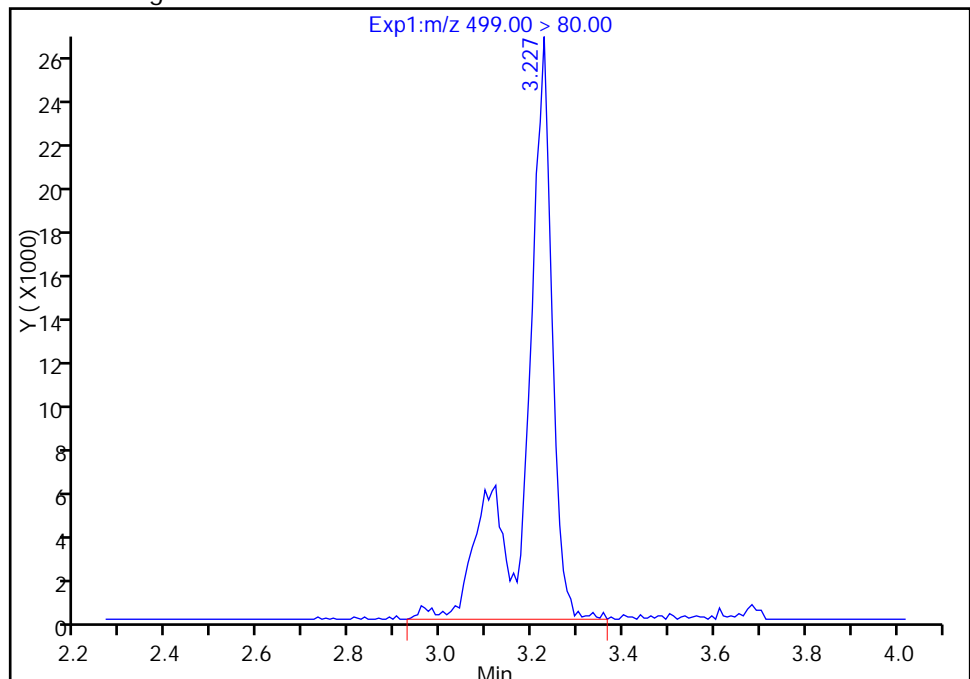
RT: 3.23
Area: 79141
Amount: 0.356104
Amount Units: ng/ml

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

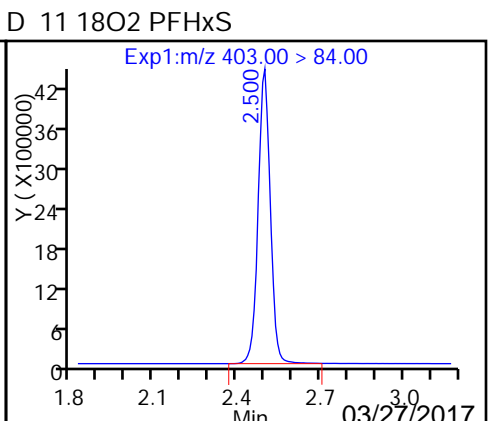
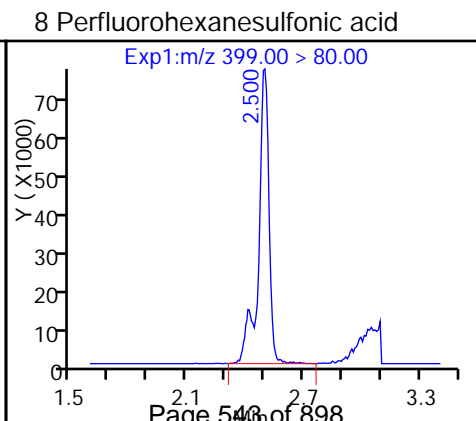
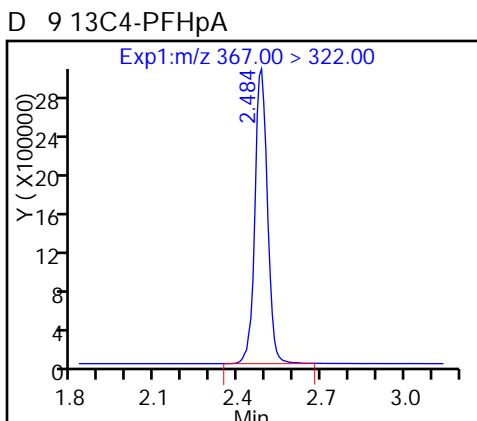
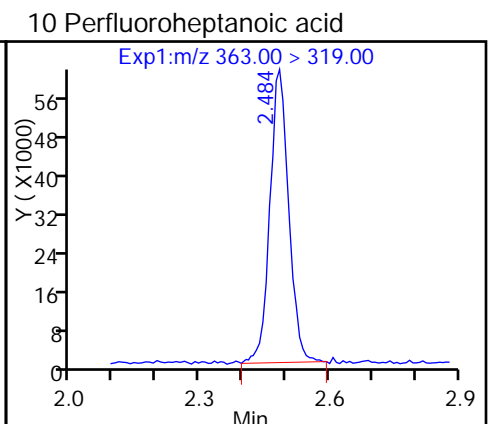
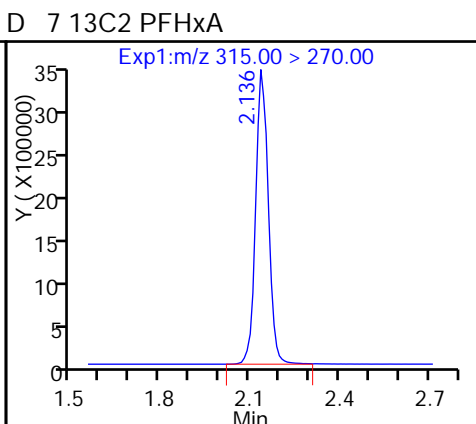
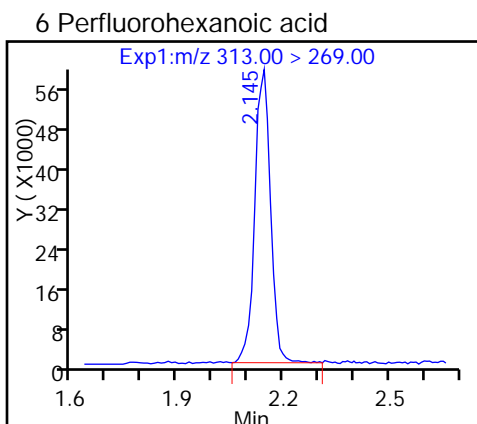
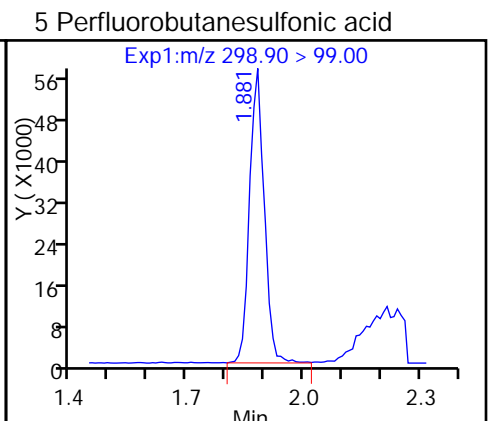
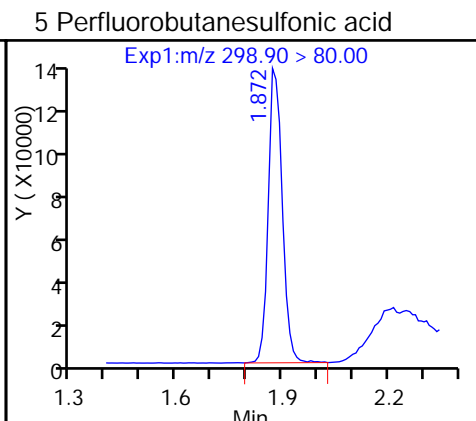
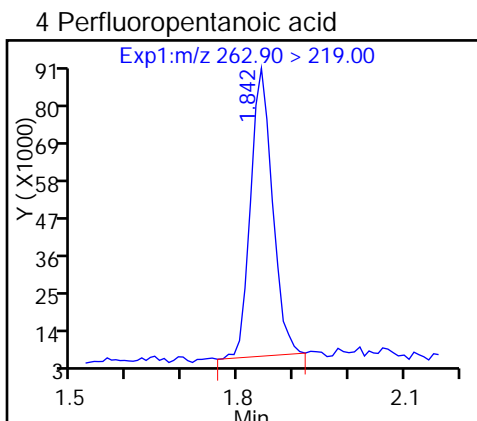
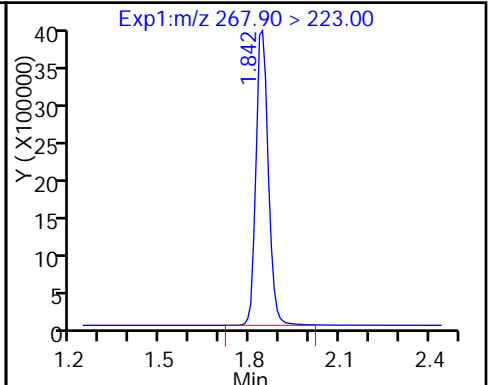
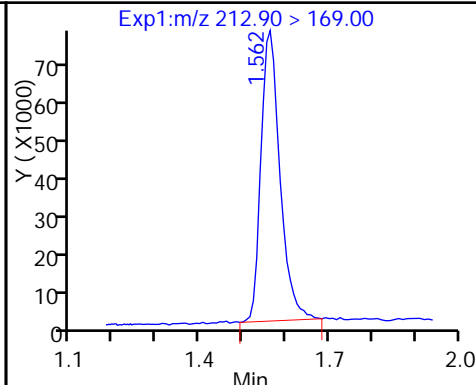
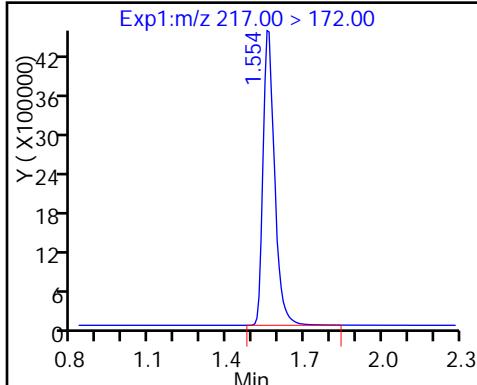
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

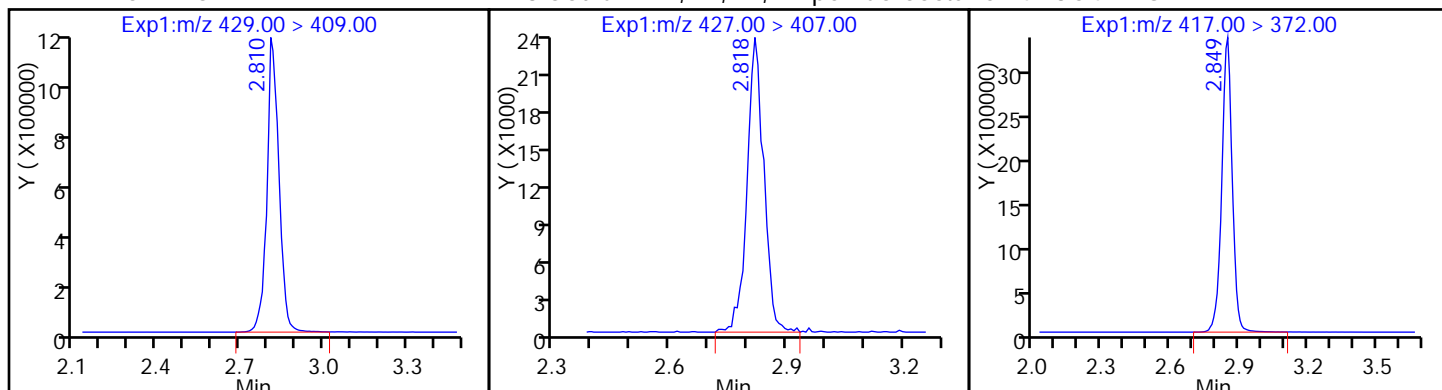
D 3 13C5-PFPeA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadec

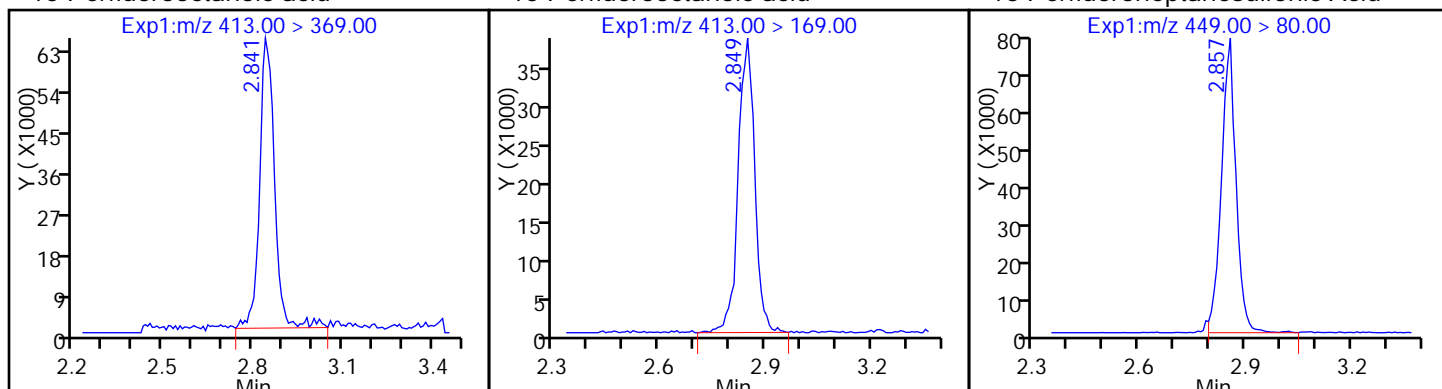
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

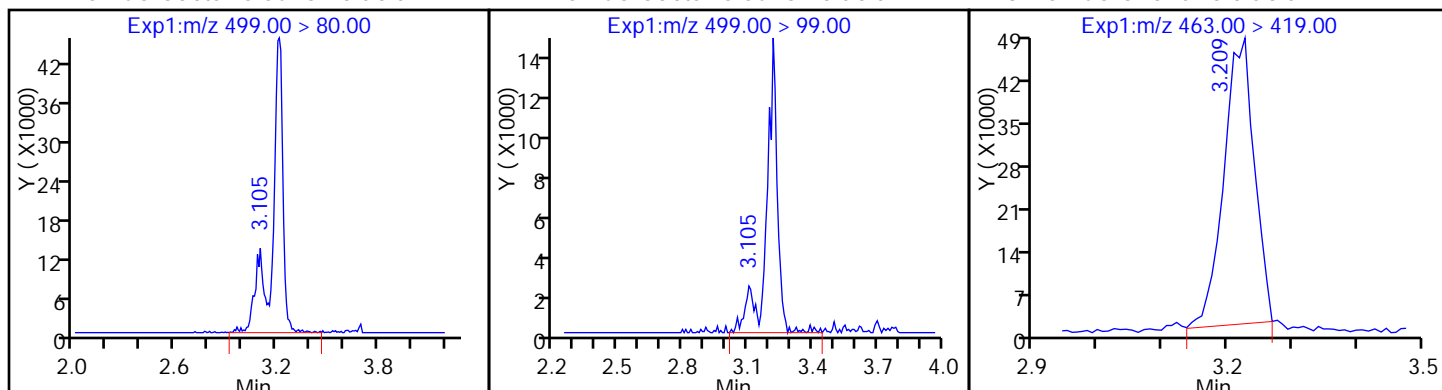
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

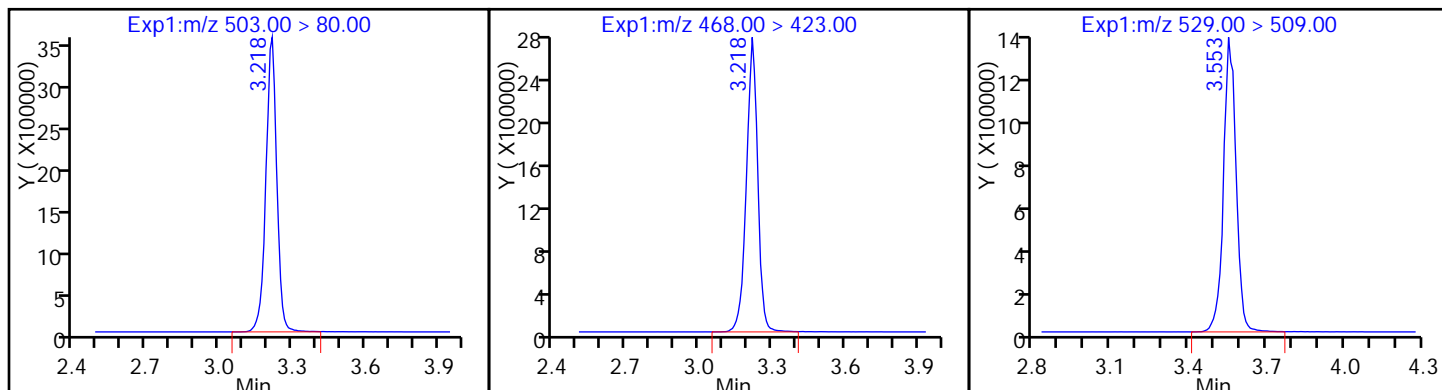
20 Perfluorononanoic acid



D 18 13C4 PFOS

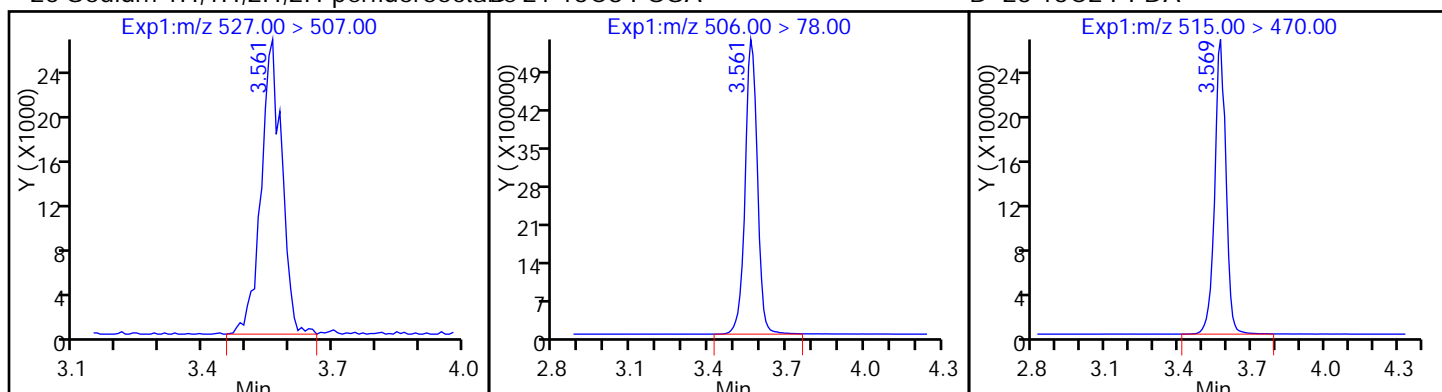
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

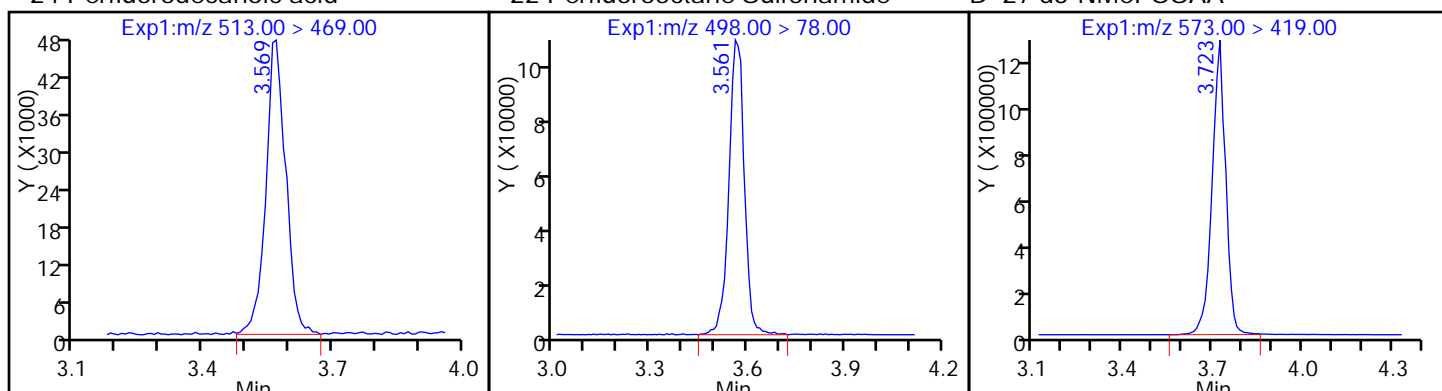
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

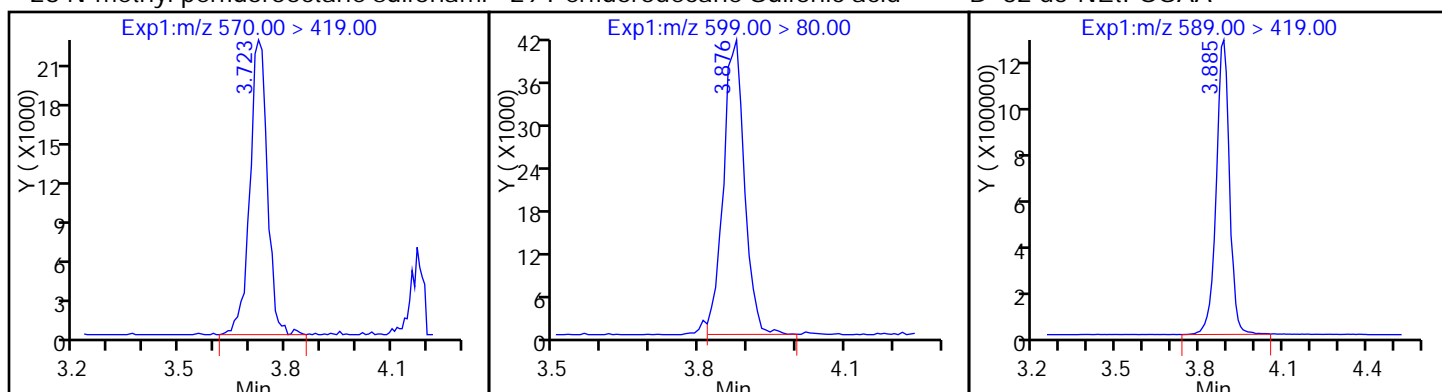
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

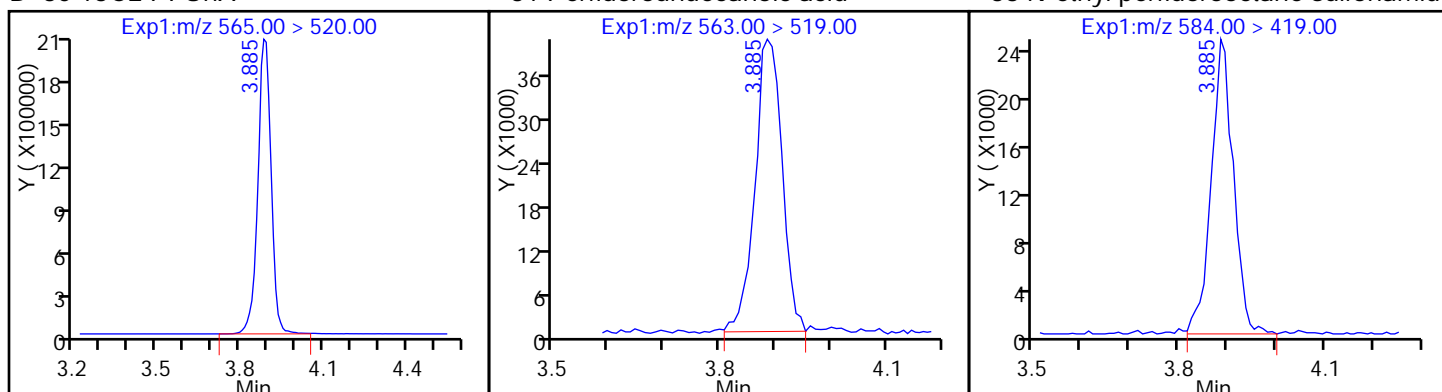
D 32 d5-NEtFOSAA



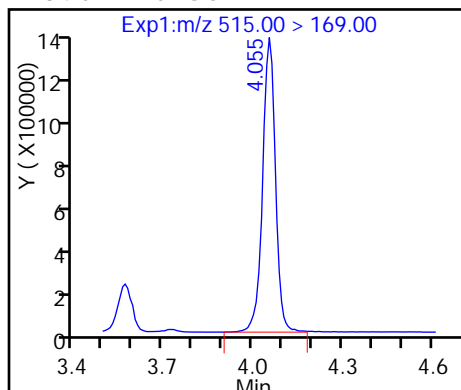
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

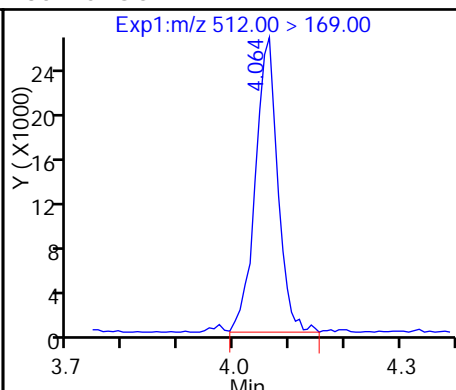
33 N-ethyl perfluorooctane sulfonamid



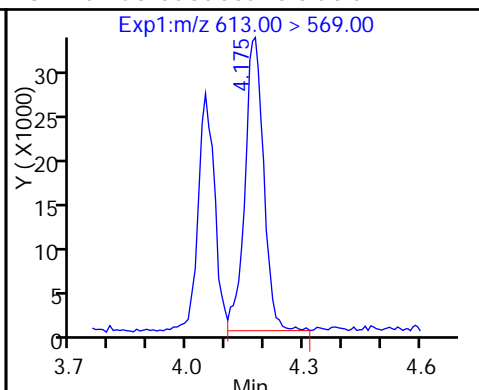
D 34 d-N-MeFOSA-M



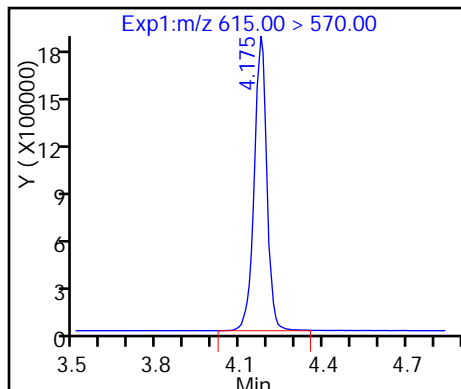
35 MeFOSA



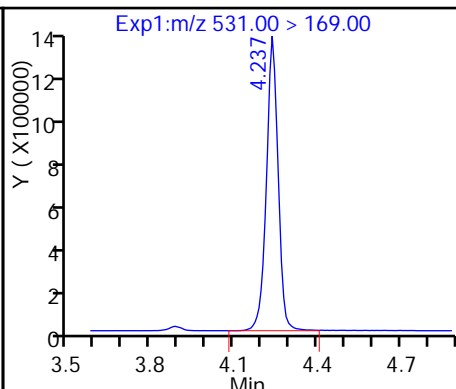
37 Perfluorododecanoic acid



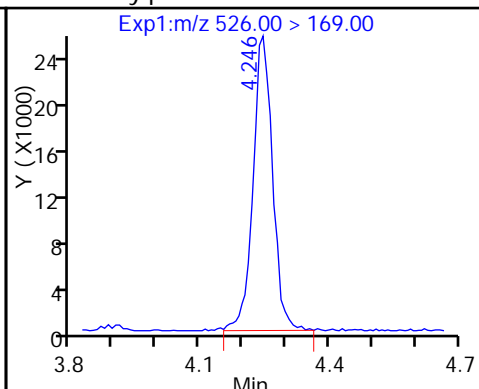
D 36 13C2 PFDa



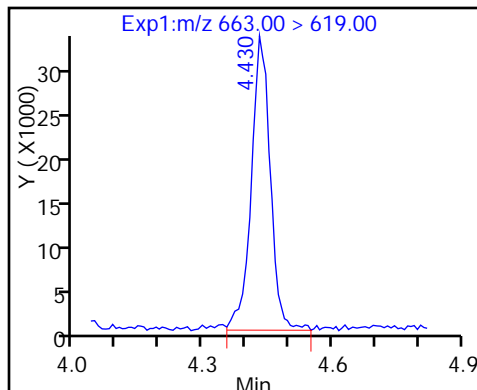
D 38 d-N-EtFOSA-M



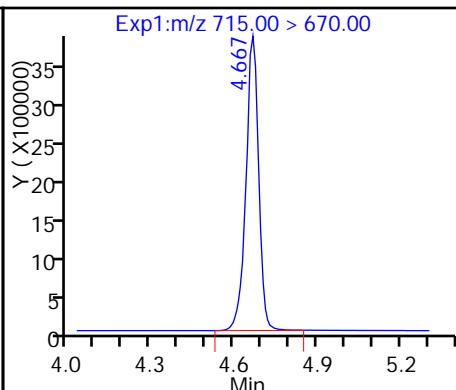
39 N-ethylperfluoro-1-octanesulfonami



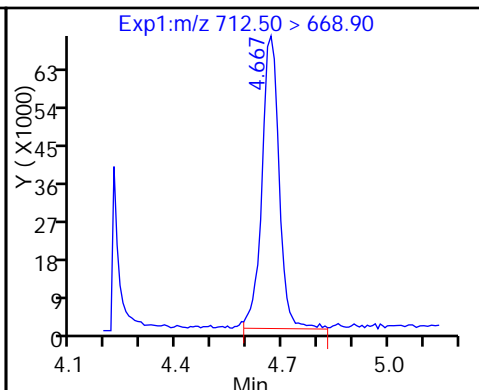
41 Perfluorotridecanoic acid



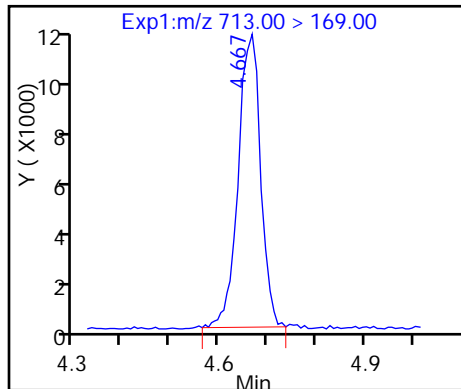
D 43 13C2-PFTeDa



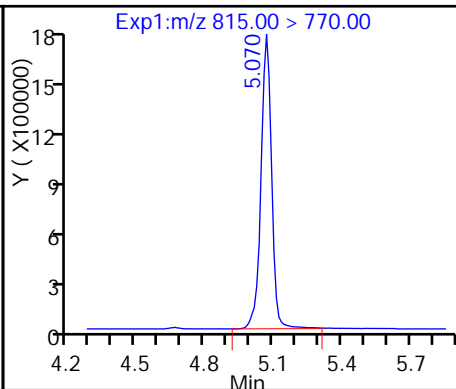
42 Perfluorotetradecanoic acid



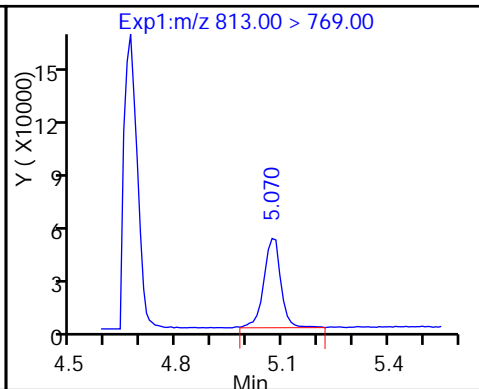
42 Perfluorotetradecanoic acid



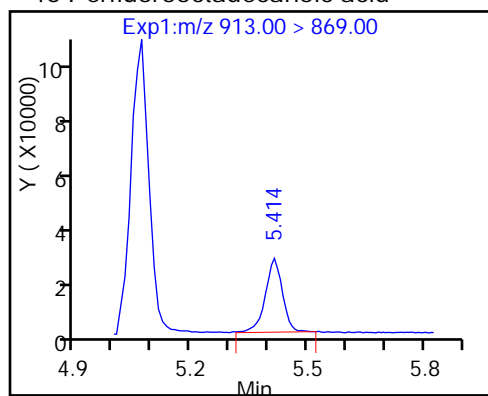
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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

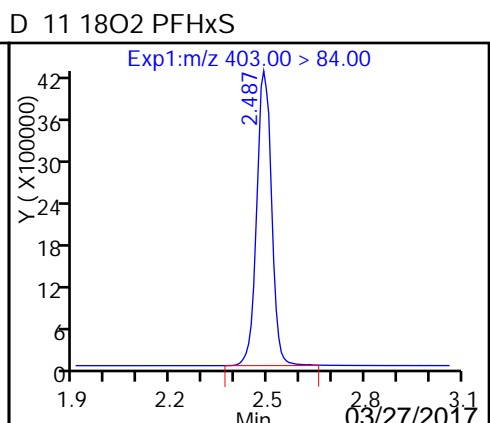
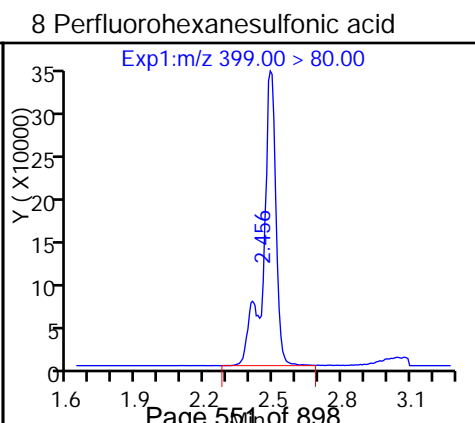
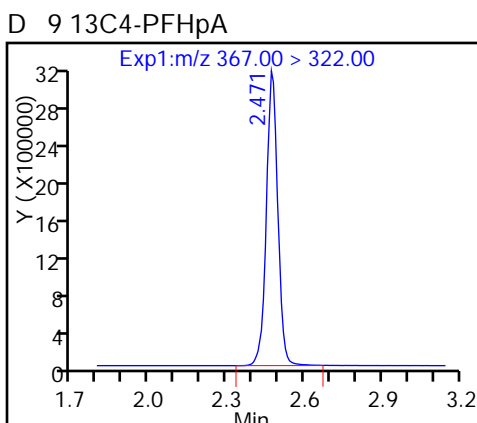
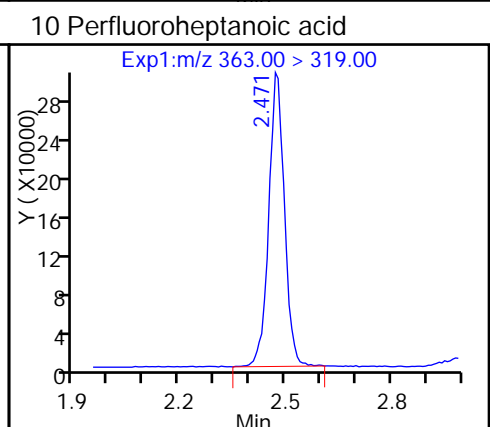
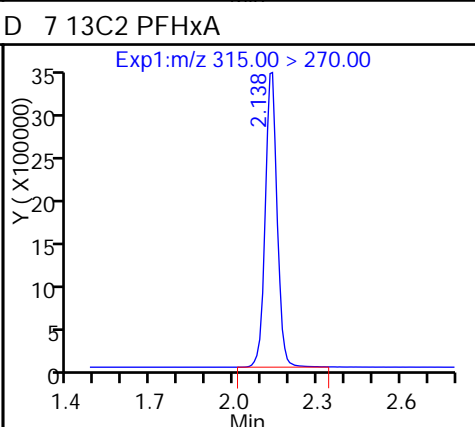
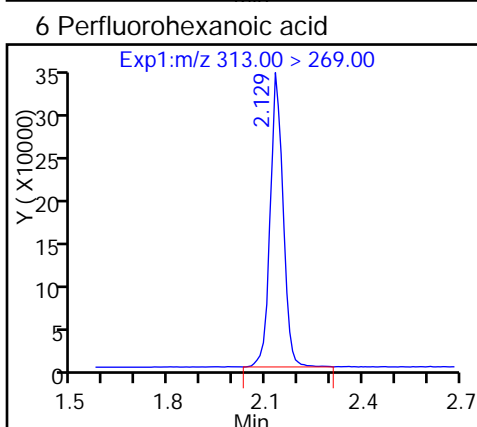
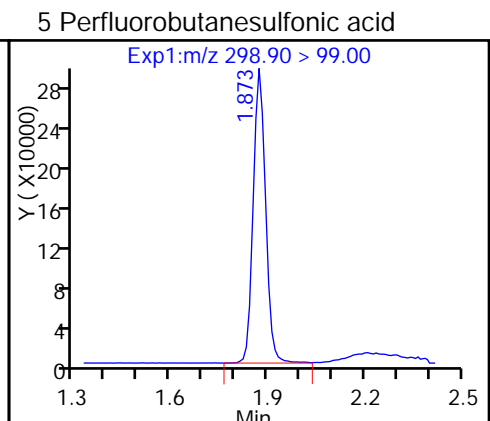
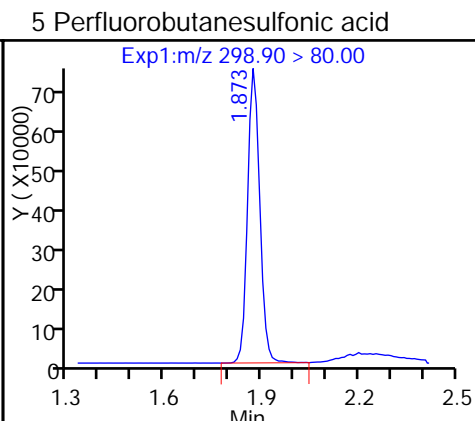
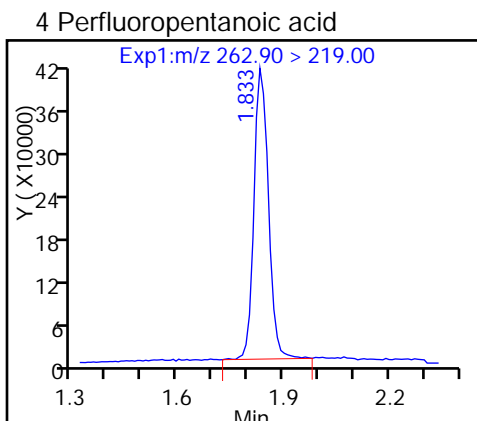
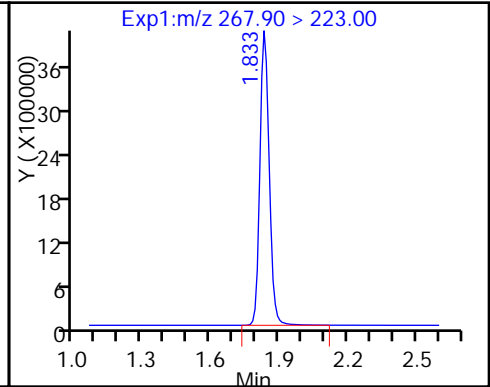
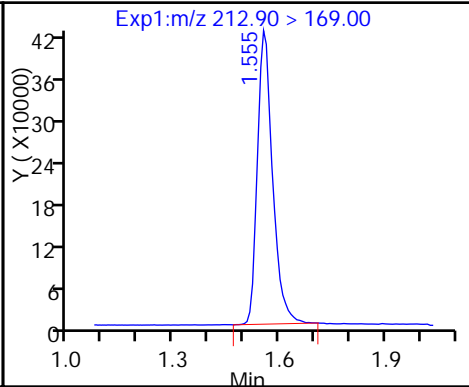
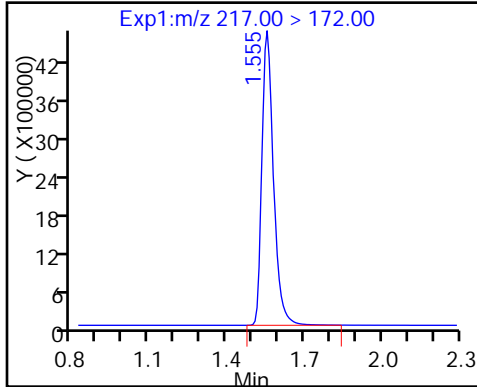
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

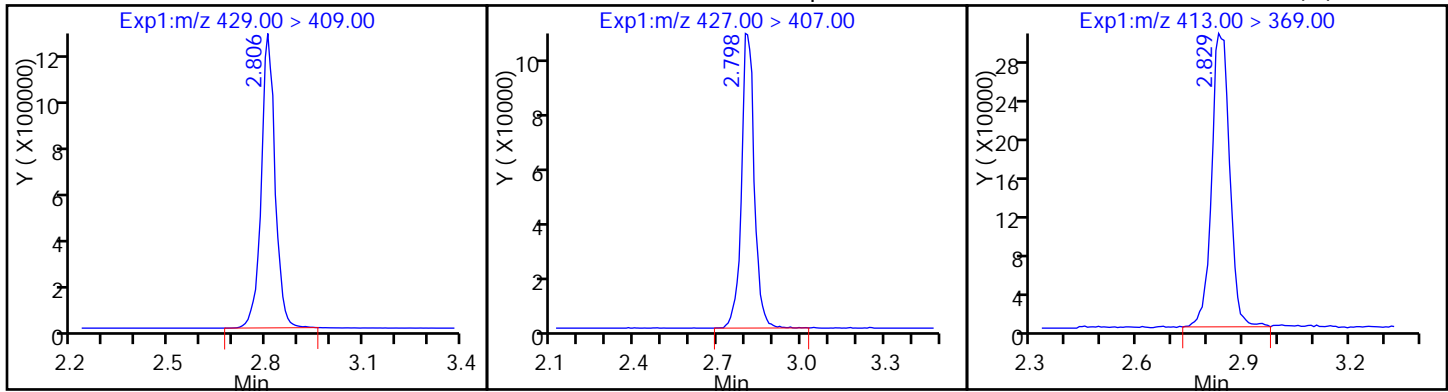
2 Perfluorobutyric acid

D 3 13C5-PFPeA



D 12 M2-6:2FTS

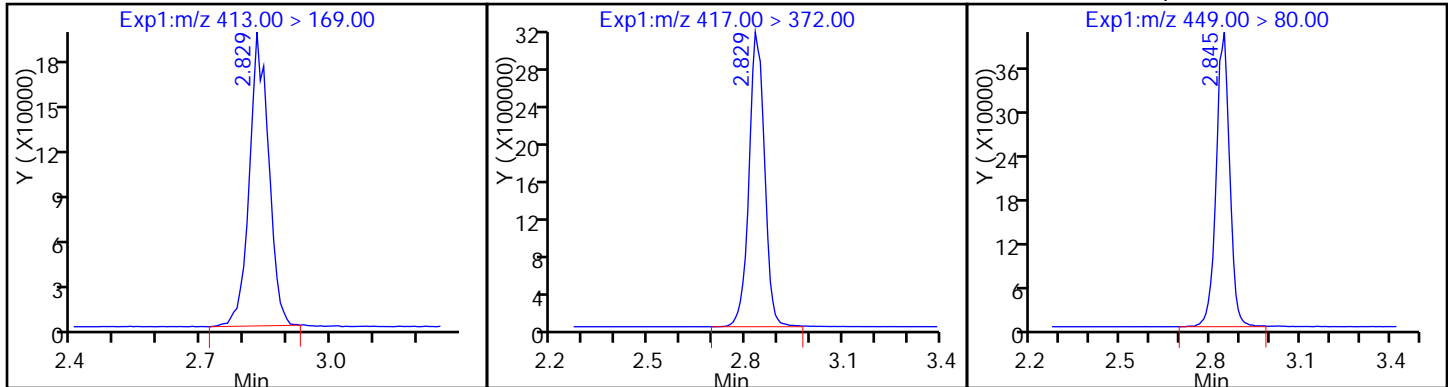
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol 5 Perfluorooctanoic acid (M)



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

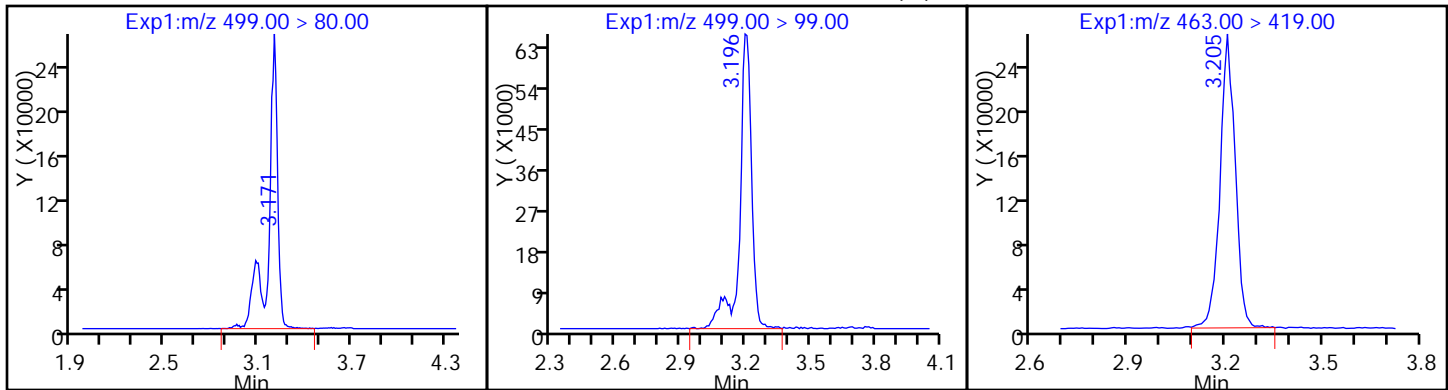
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid (M)

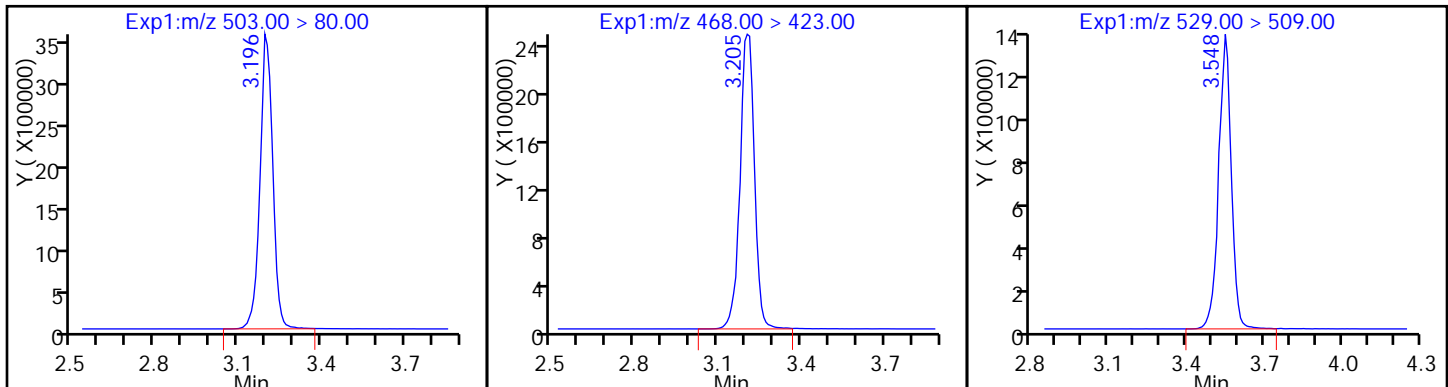
20 Perfluorononanoic acid



D 18 13C4 PFOS

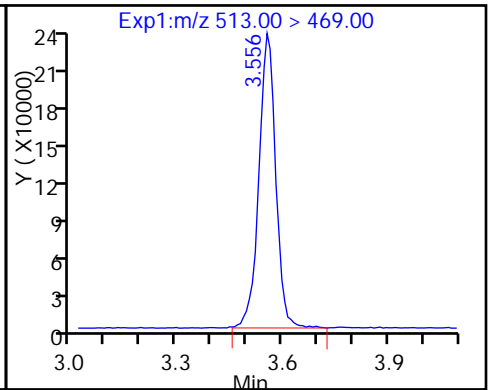
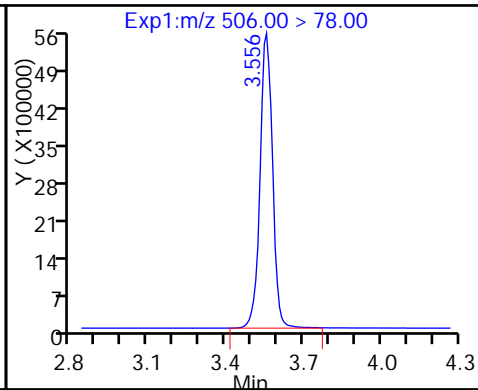
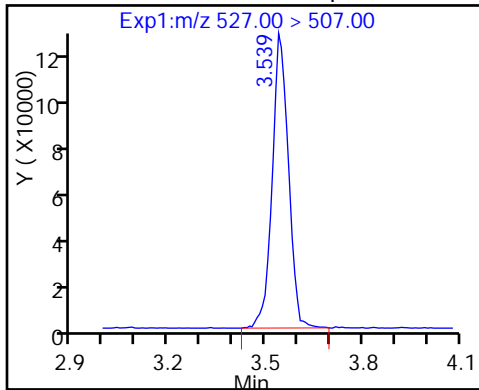
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

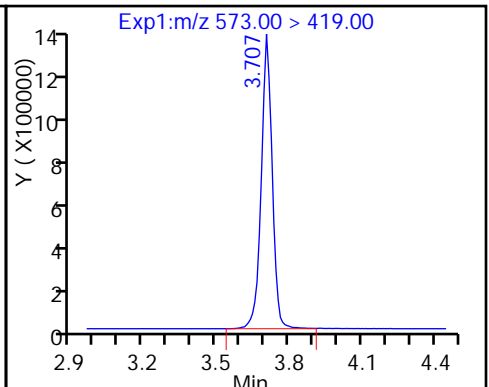
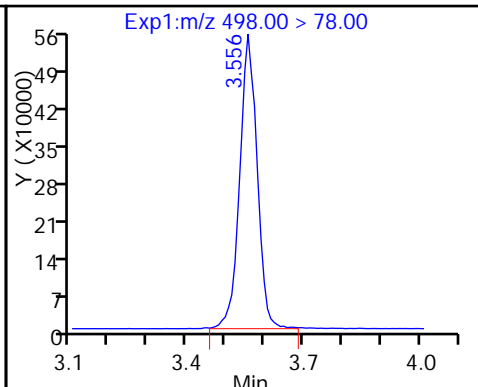
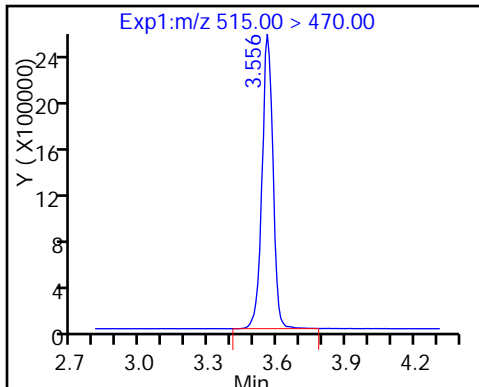
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

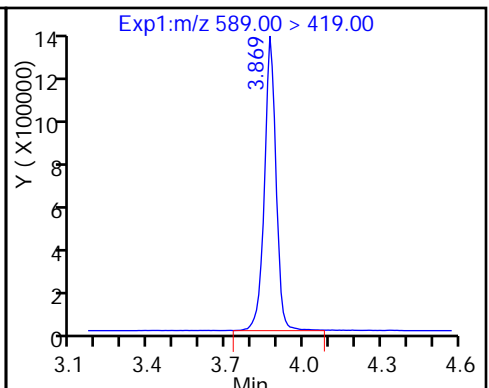
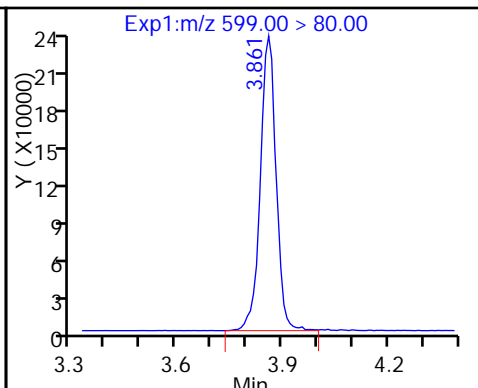
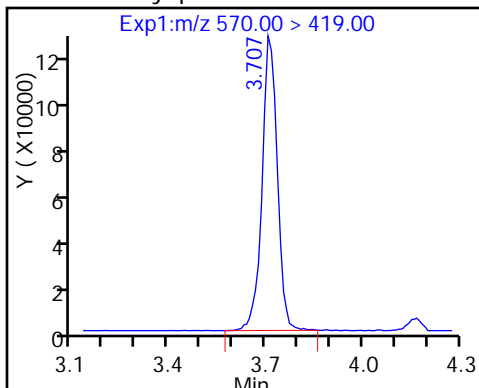
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

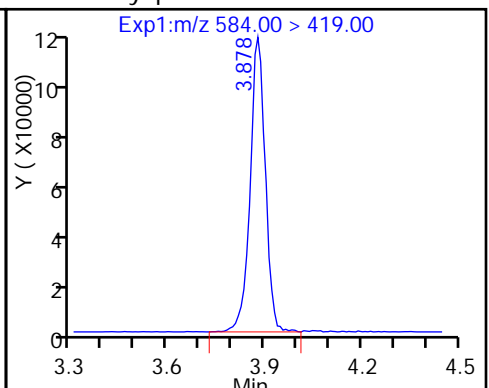
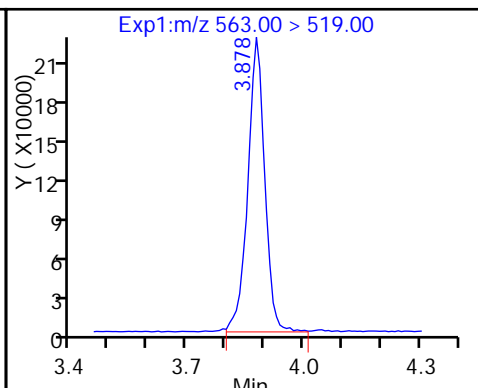
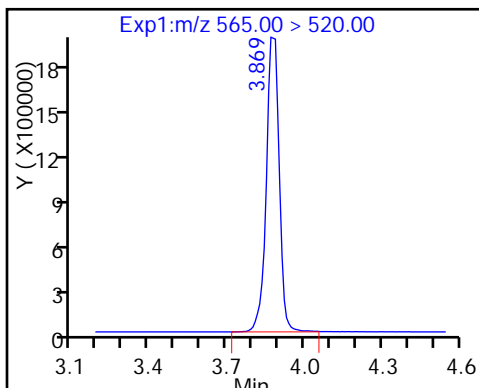
D 32 d5-NEtFOSAA



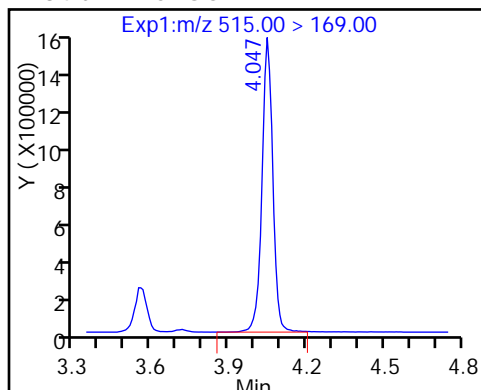
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

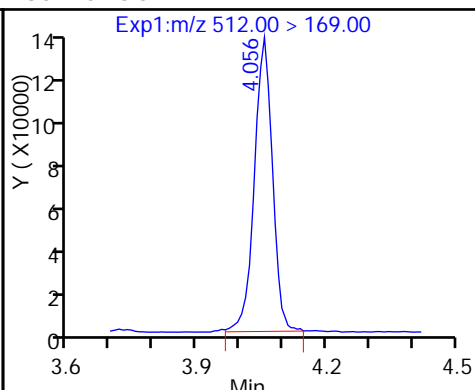
33 N-ethyl perfluorooctane sulfonamid



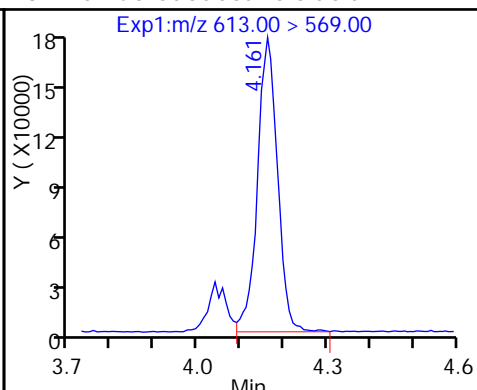
D 34 d-N-MeFOSA-M



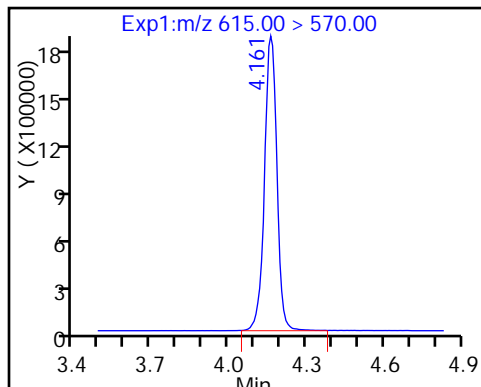
35 MeFOSA



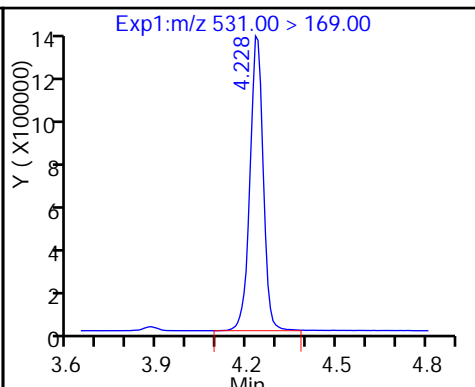
37 Perfluorododecanoic acid



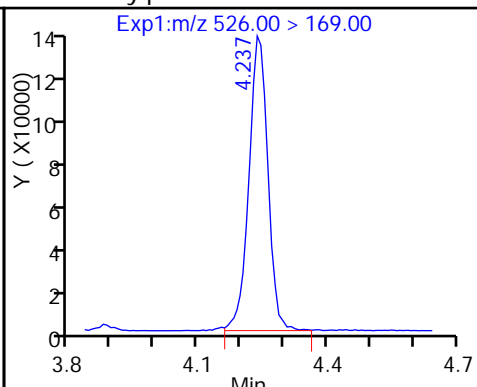
D 36 13C2 PFDaA



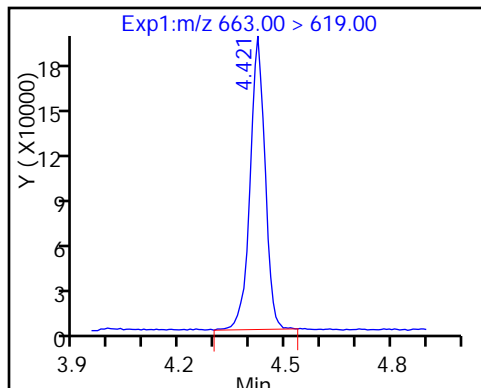
D 38 d-N-EtFOSA-M



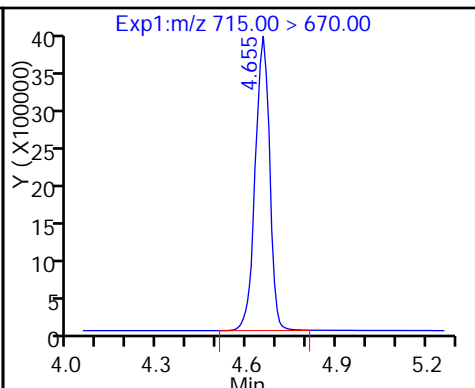
39 N-ethylperfluoro-1-octanesulfonami



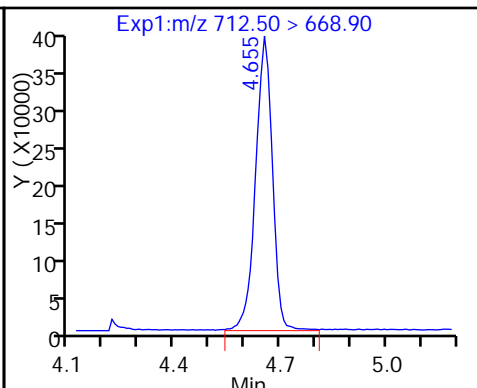
41 Perfluorotridecanoic acid



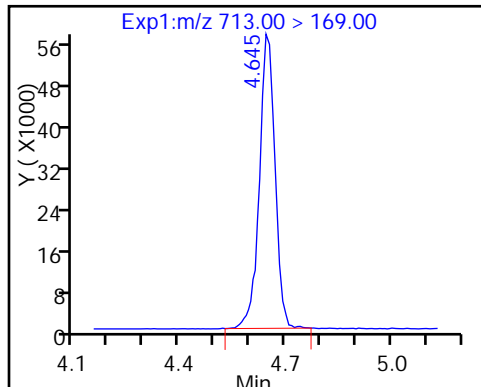
D 43 13C2-PFTeDA



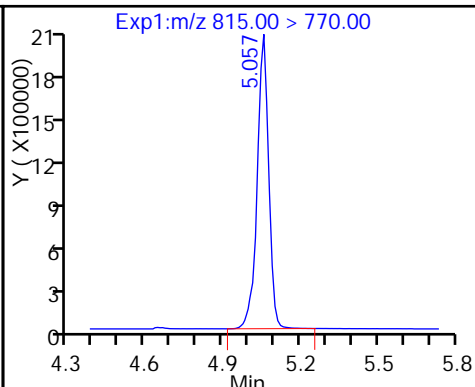
42 Perfluorotetradecanoic acid



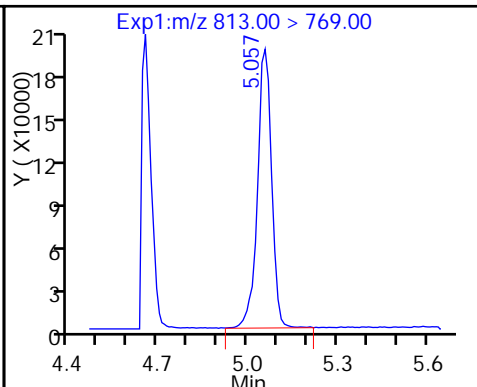
42 Perfluorotetradecanoic acid



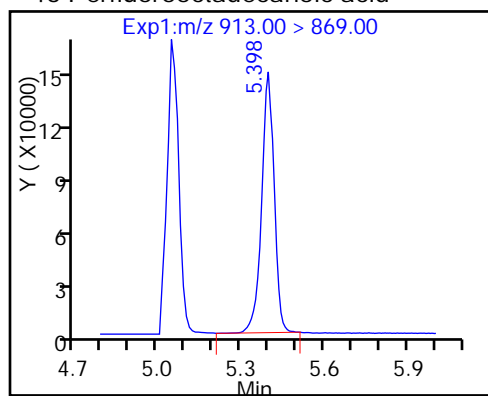
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

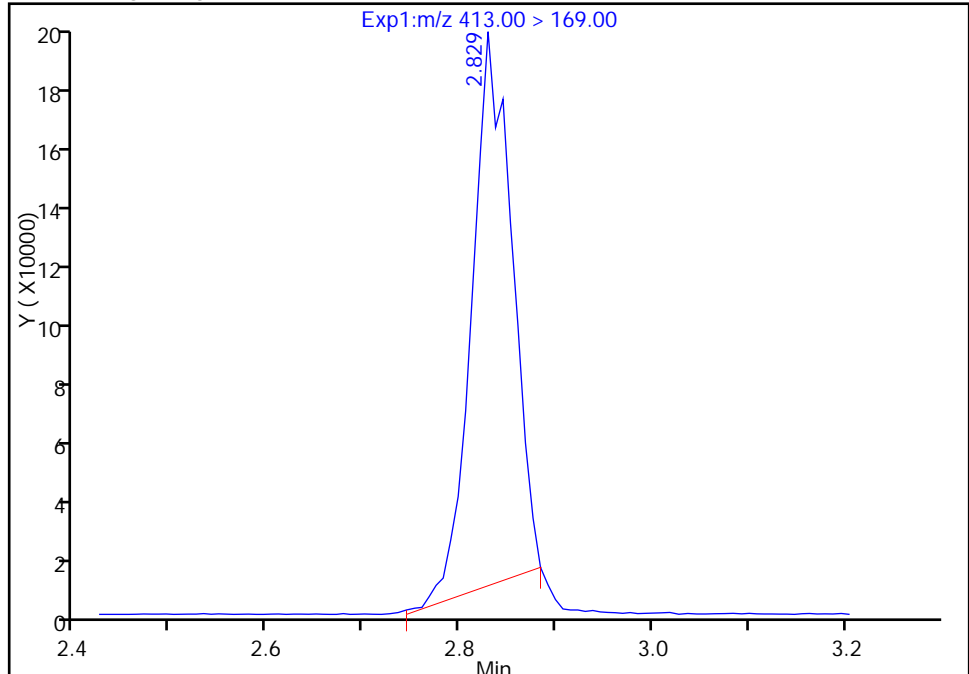
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

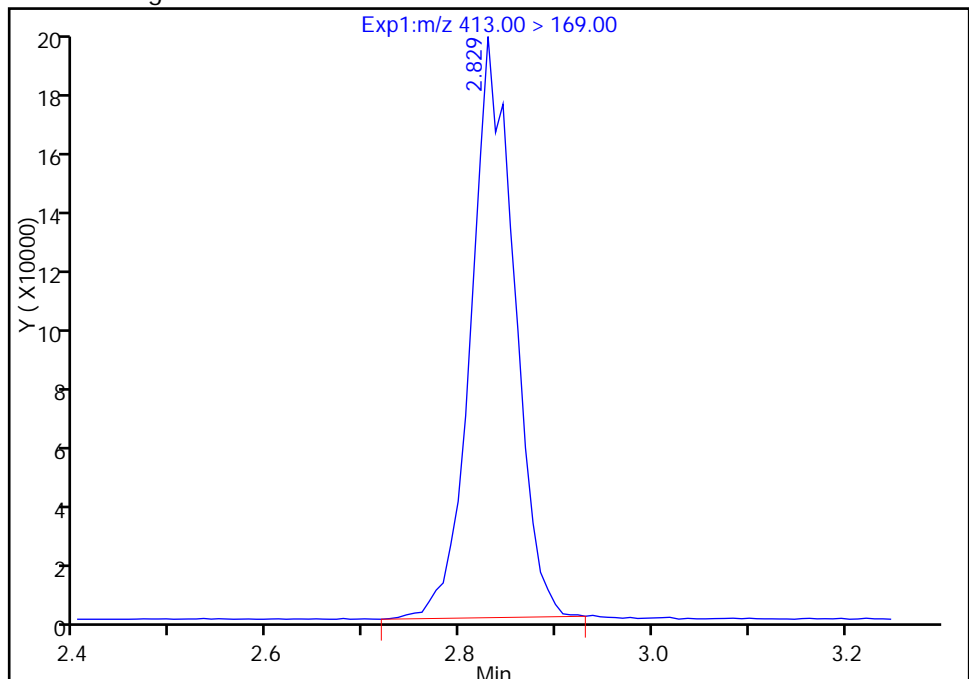
RT: 2.83
Area: 545337
Amount: 5.278222
Amount Units: ng/ml

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-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

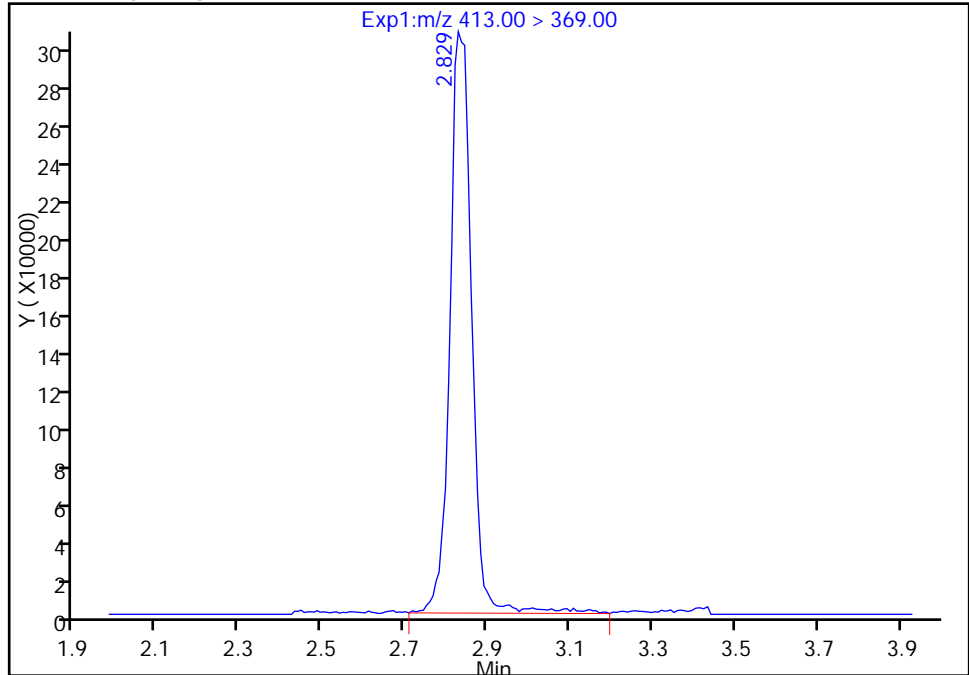
EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

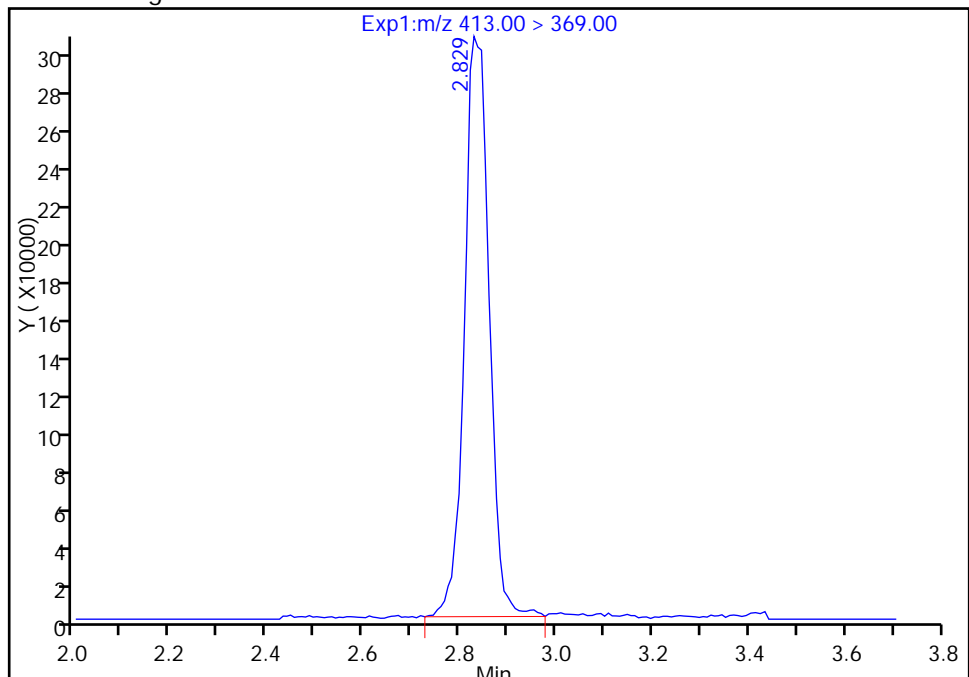
RT: 2.83
Area: 1136820
Amount: 5.278222
Amount Units: ng/ml

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:

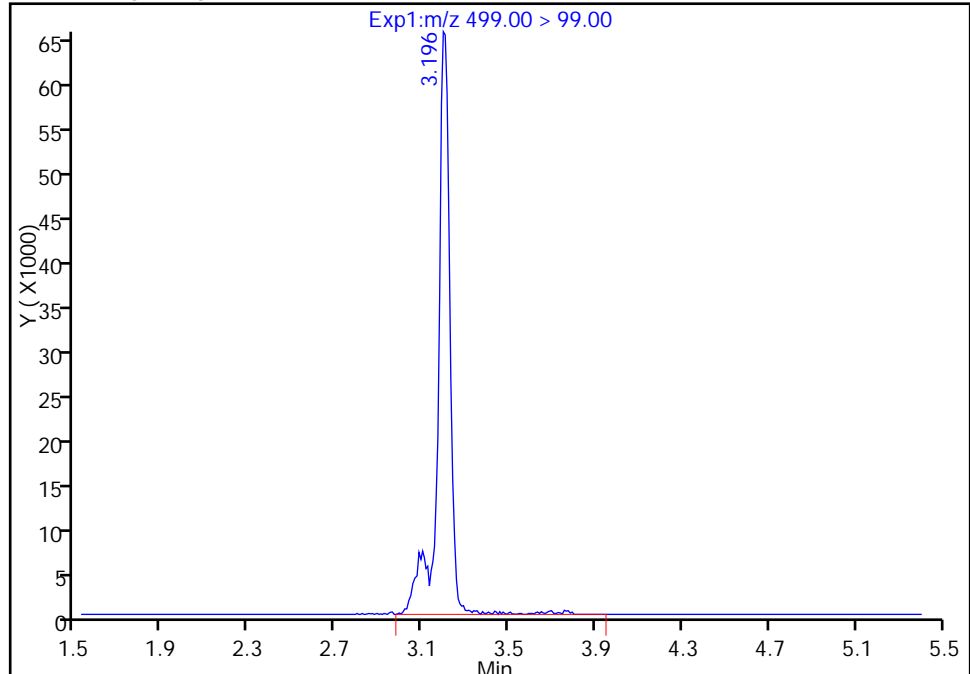
Detector EXP1

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

Signal: 2

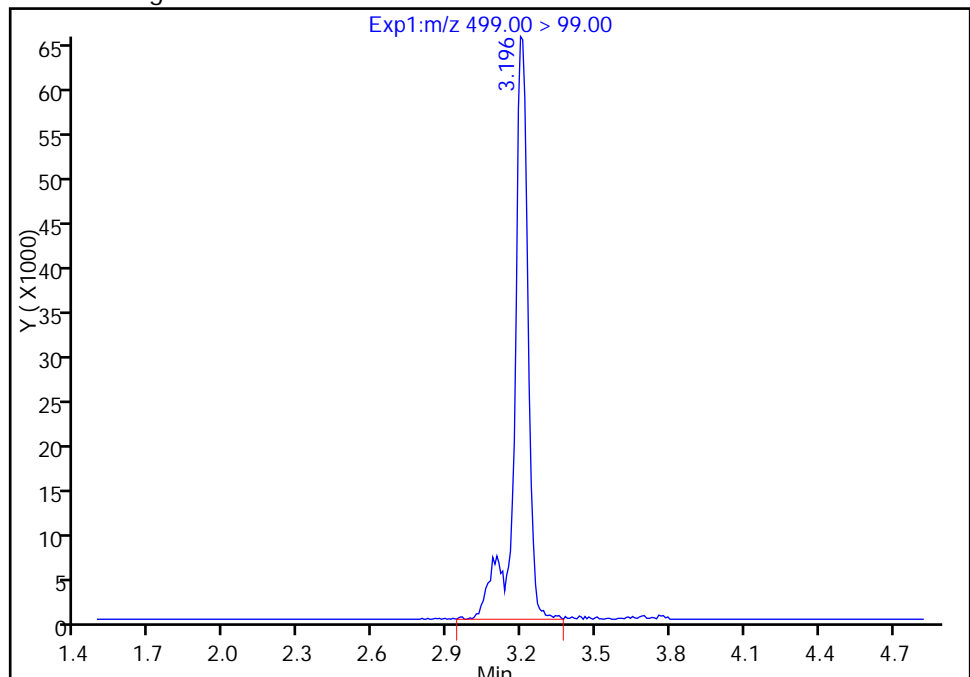
RT: 3.20
Area: 258504
Amount: 4.907745
Amount Units: ng/ml

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
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D 1 13C4 PFBA

217.00 > 172.00	1.554	1.553	0.001		17122661	58.6		117	1074272	
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2 Perfluorobutyric acid

212.90 > 169.00	1.562	1.558	0.004	1.000	5946494	20.5		102	65761	
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D 3 13C5-PFPeA

267.90 > 223.00	1.832	1.832	0.0		13641103	58.7		117	917353	
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4 Perfluoropentanoic acid

262.90 > 219.00	1.841	1.835	0.006	1.000	5283919	19.8		99.0	51812	
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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	
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D 7 13C2 PFHxA

315.00 > 270.00	2.134	2.134	0.0		12244217	58.1		116	400533	
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10 Perfluoroheptanoic acid

363.00 > 319.00	2.471	2.474	-0.003	1.000	4154809	19.6		98.2	36084	
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D 9 13C4-PFHpA

367.00 > 322.00	2.479	2.475	0.004		10934944	56.7		113	304443	
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8 Perfluorohexanesulfonic acid

399.00 > 80.00	2.487	2.485	0.002	1.000	5958886	17.2		94.6		M
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D 11 18O2 PFHxS

403.00 > 84.00	2.487	2.489	-0.002		15910284	54.7		116	422002	
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D 12 M2-6:2FTS

429.00 > 409.00	2.814	2.805	0.009		4091935	53.0		112		
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13 Sodium 1H,1H,2H,2H-perfluorooctane

427.00 > 407.00	2.806	2.807	-0.001	1.000	1476276	19.2		101		
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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

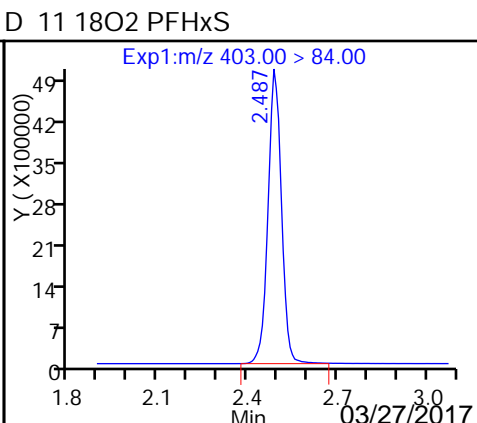
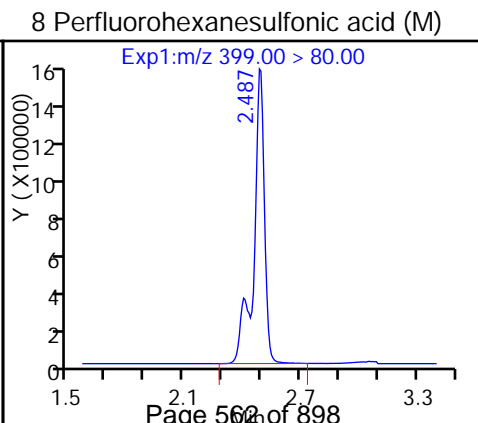
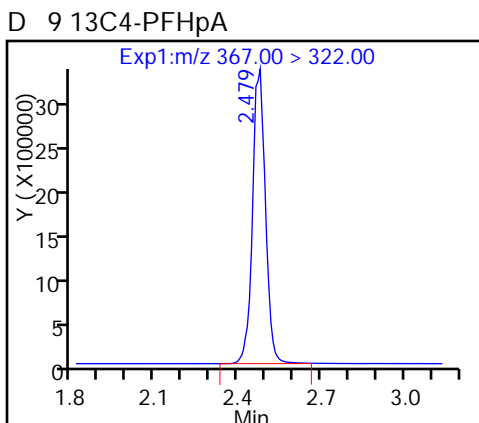
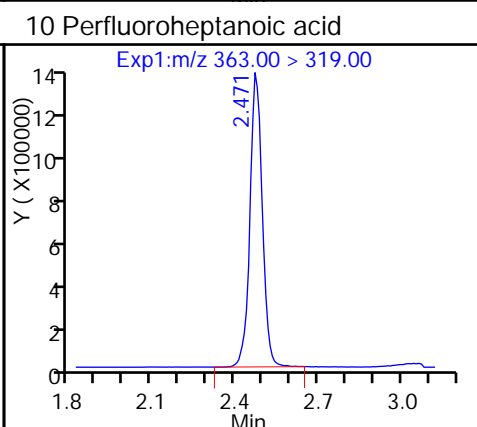
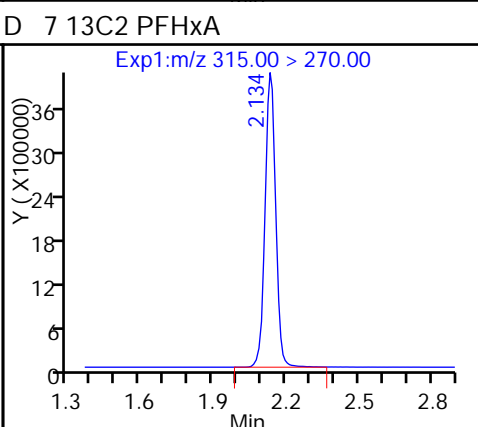
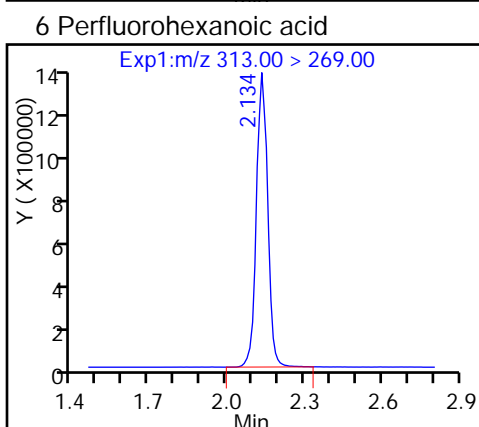
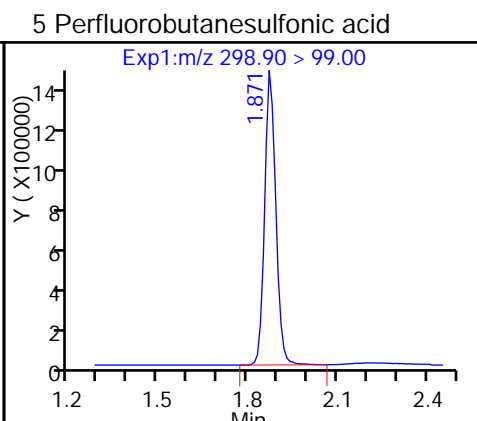
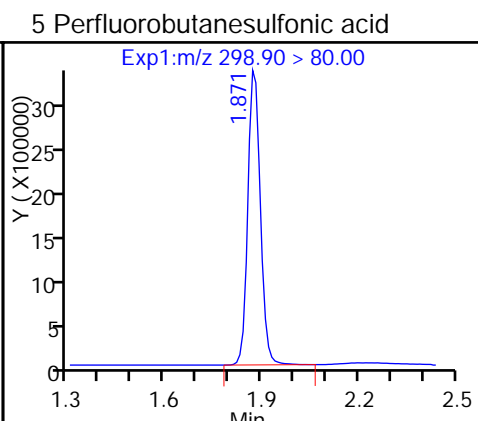
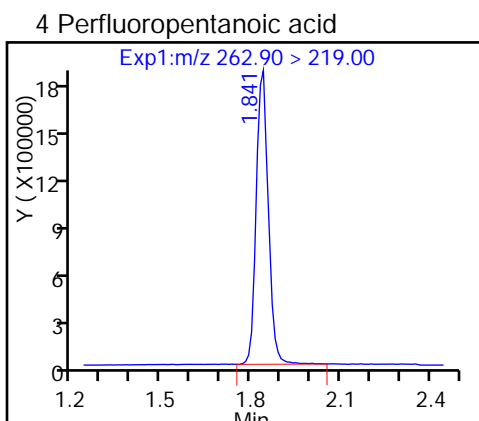
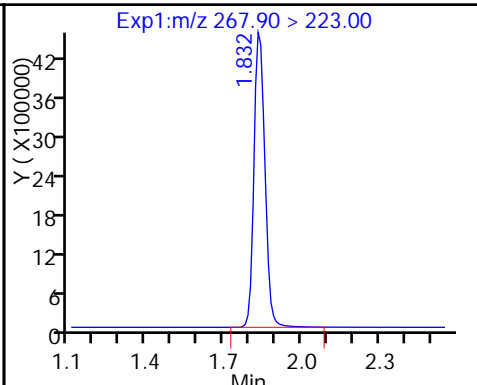
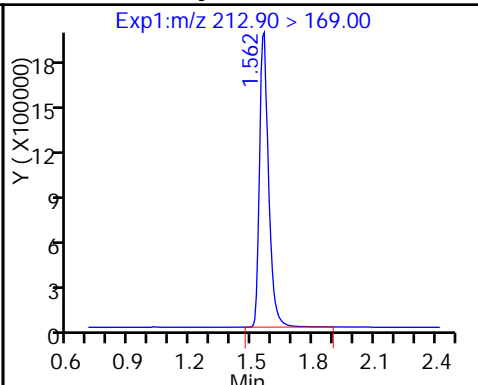
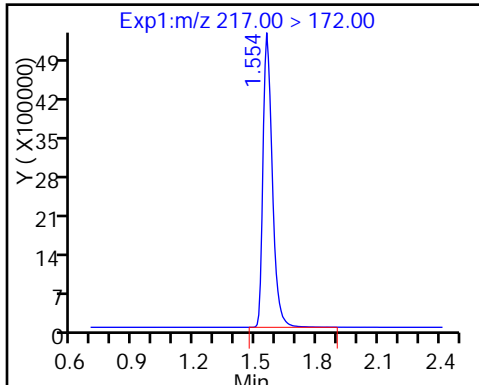
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

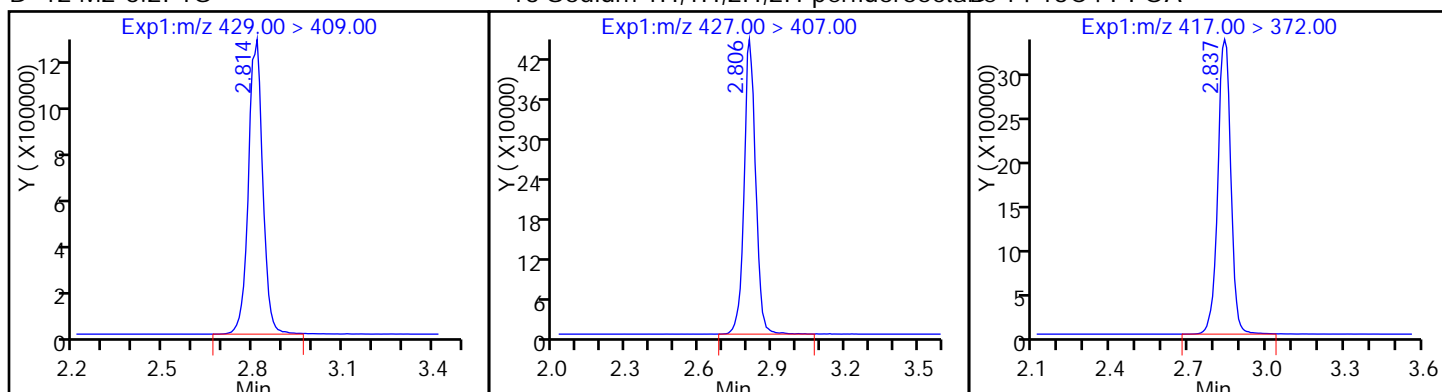
D 3 13C5-PFPeA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadec

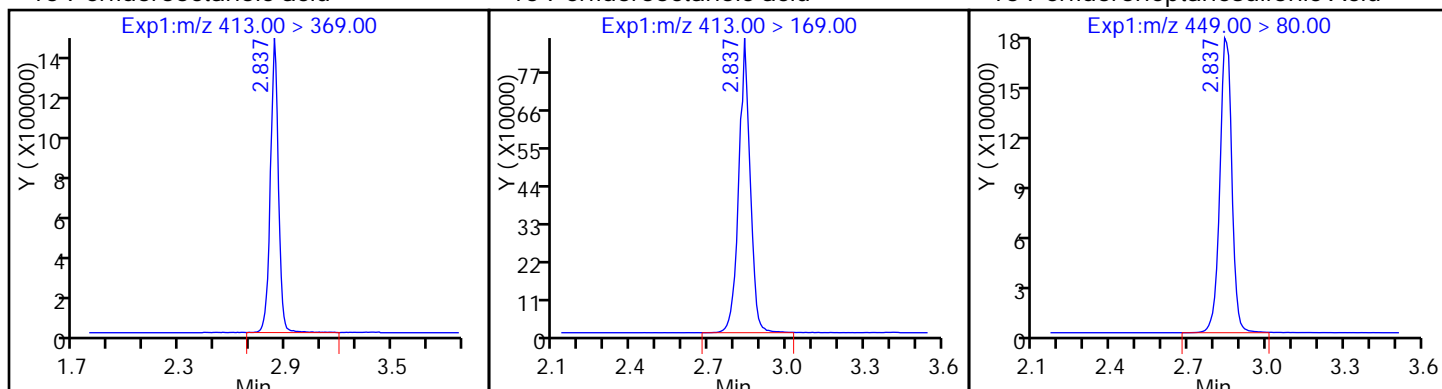
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

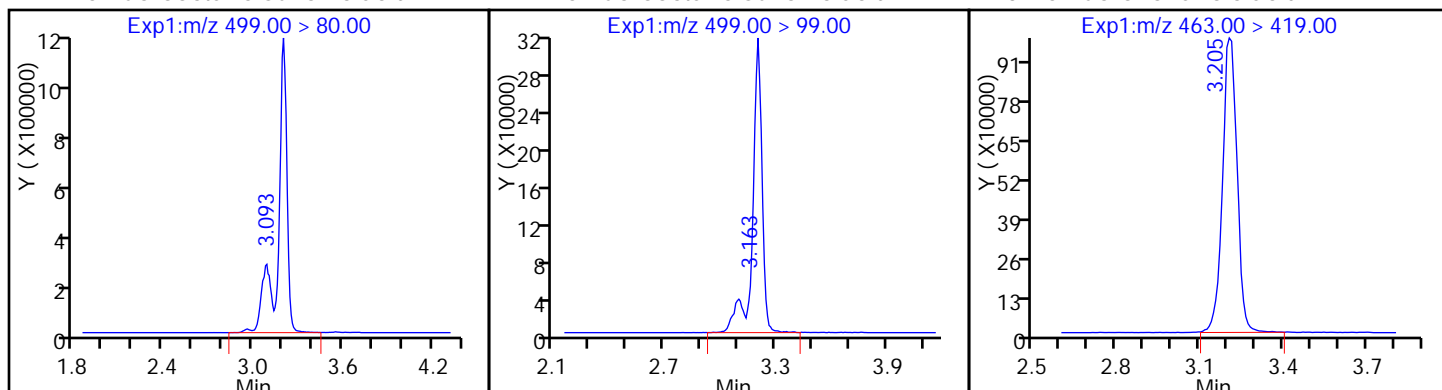
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

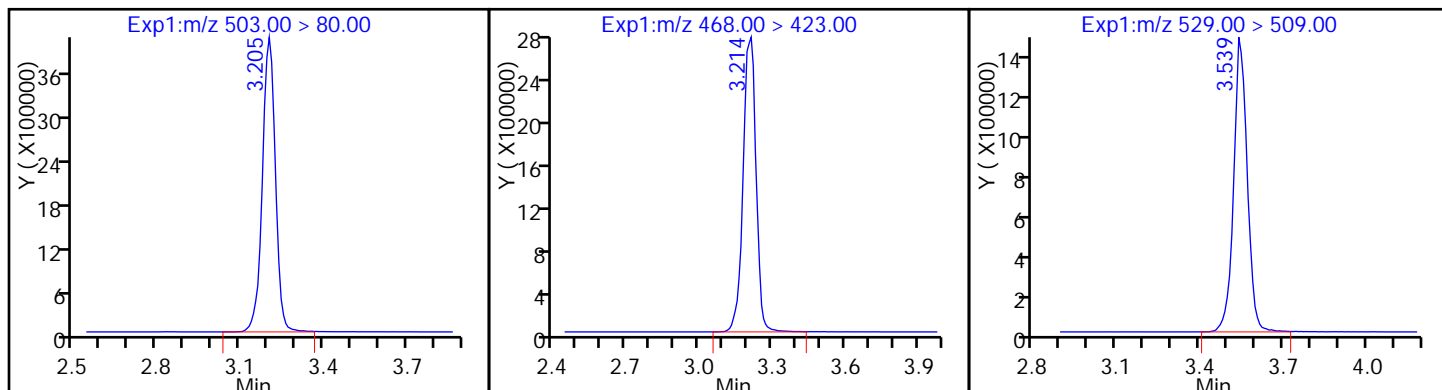
20 Perfluorononanoic acid



D 18 13C4 PFOS

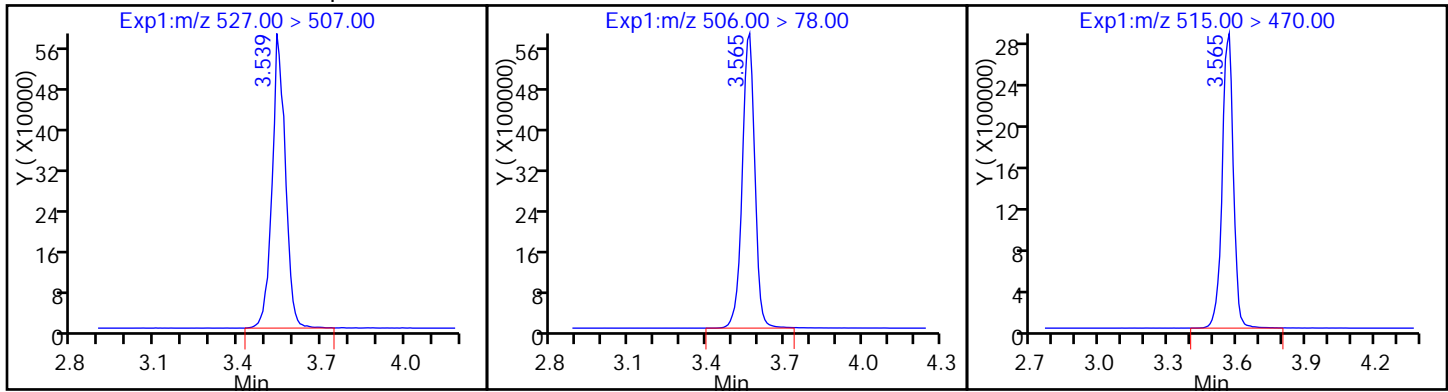
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

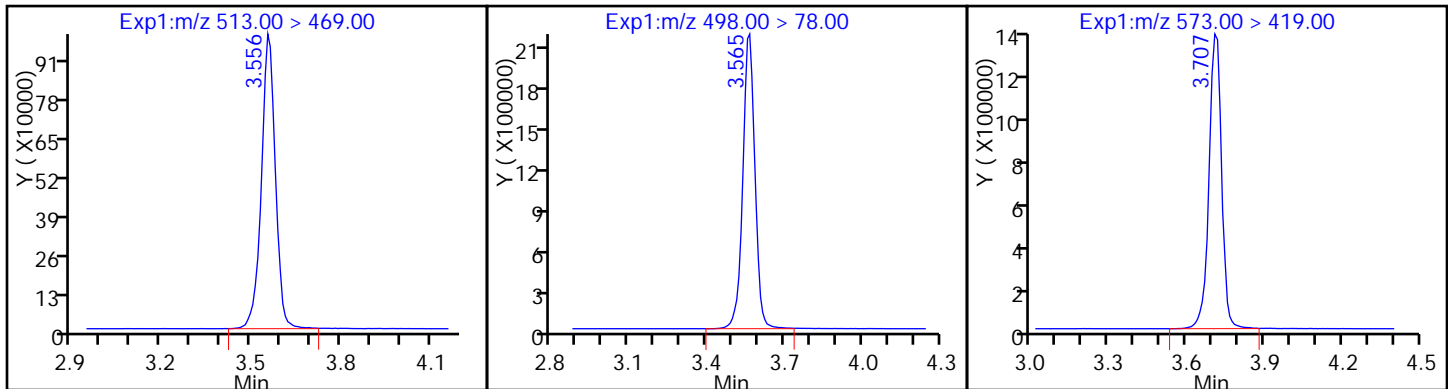
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

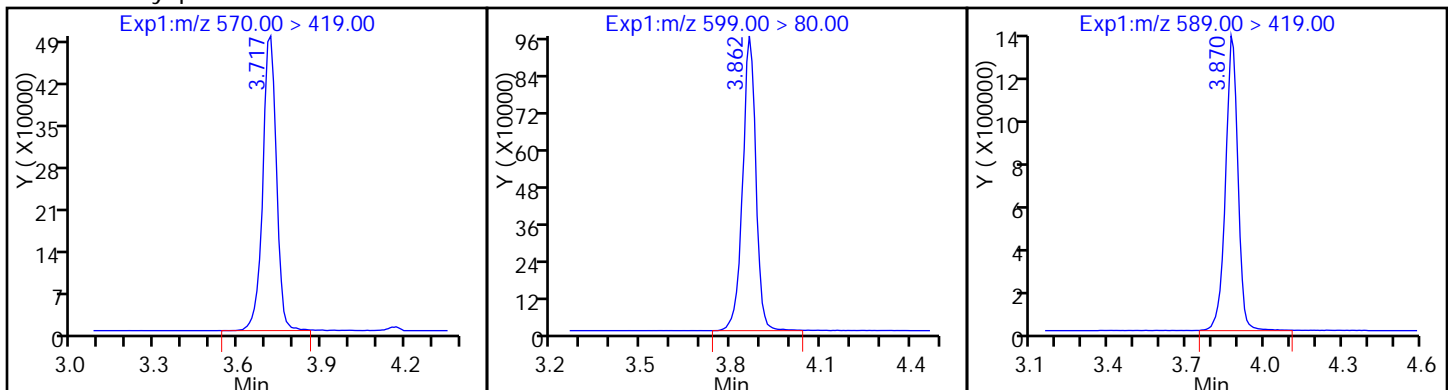
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

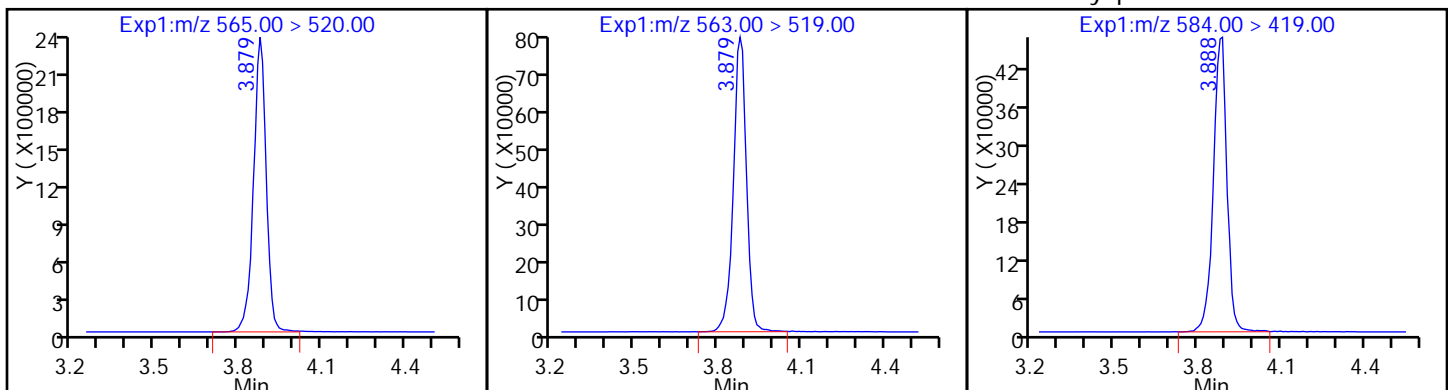
D 32 d5-NEtFOSAA



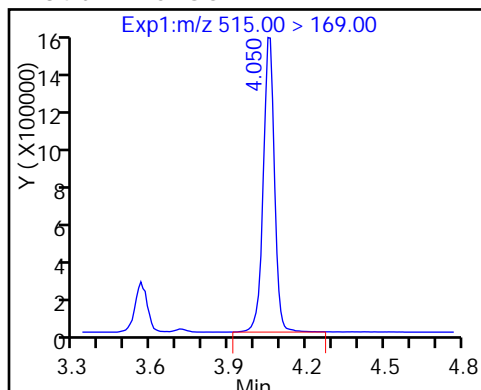
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

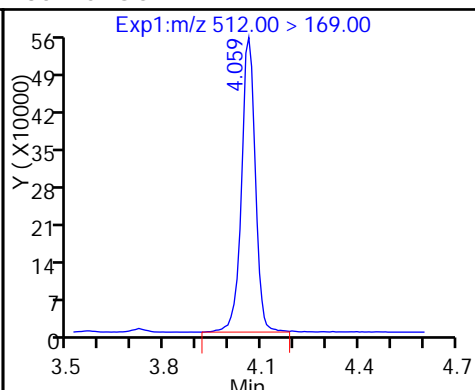
33 N-ethyl perfluorooctane sulfonamid



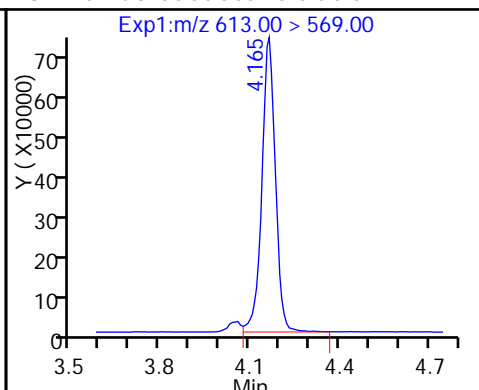
D 34 d-N-MeFOSA-M



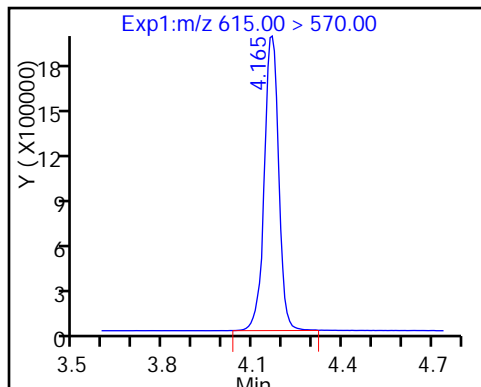
35 MeFOSA



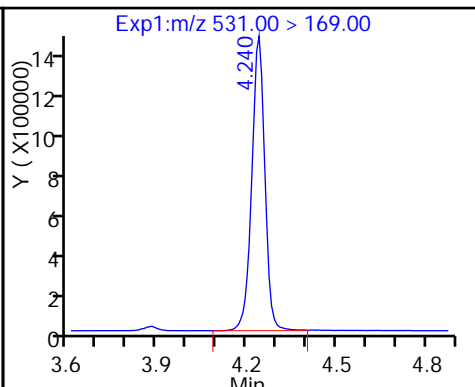
37 Perfluorododecanoic acid



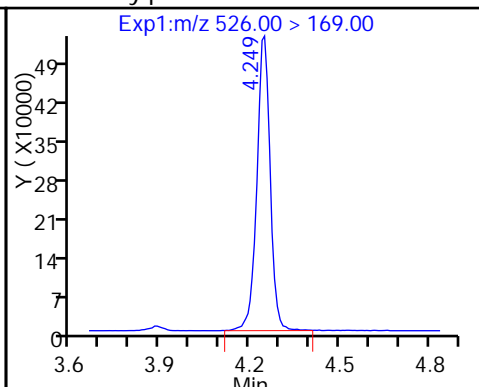
D 36 13C2 PFDa



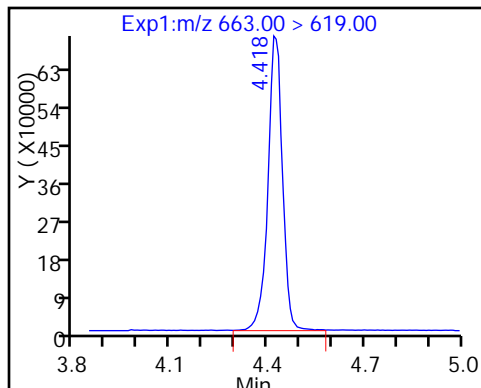
D 38 d-N-EtFOSA-M



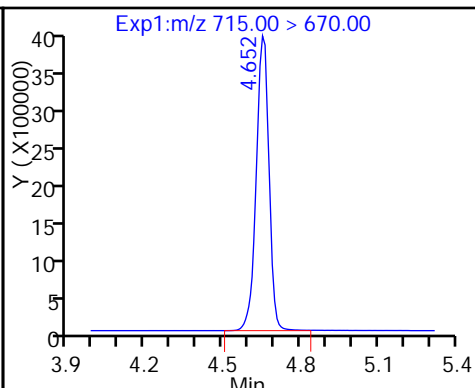
39 N-ethylperfluoro-1-octanesulfonami



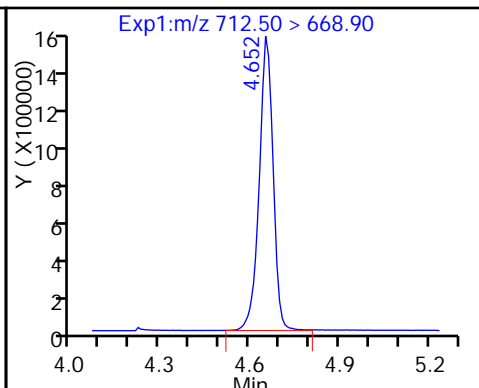
41 Perfluorotridecanoic acid



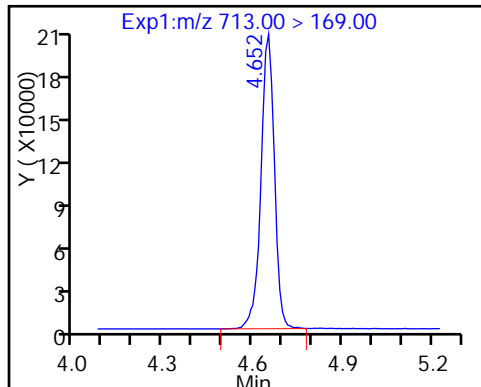
D 43 13C2-PFTeDA



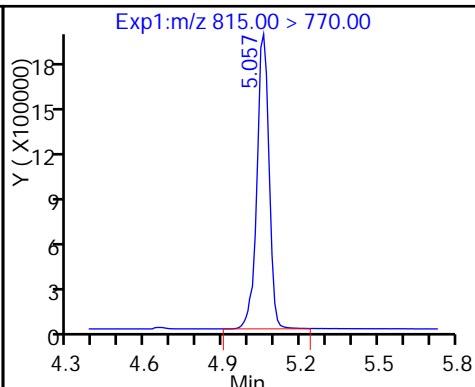
42 Perfluorotetradecanoic acid



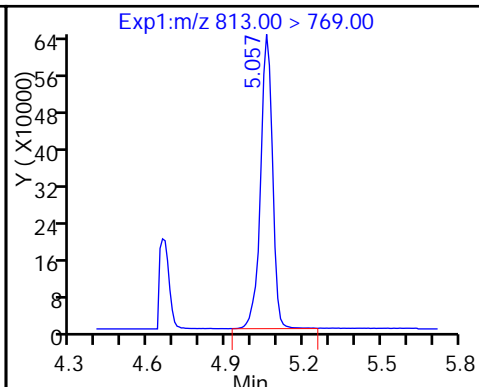
42 Perfluorotetradecanoic acid



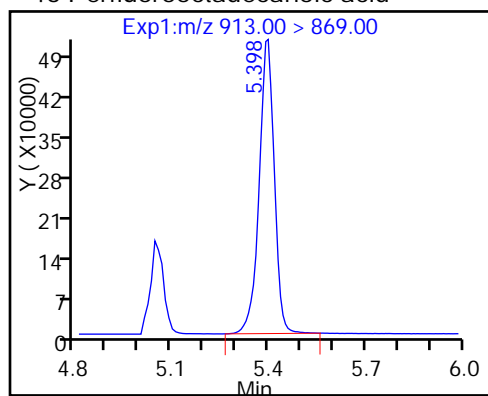
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

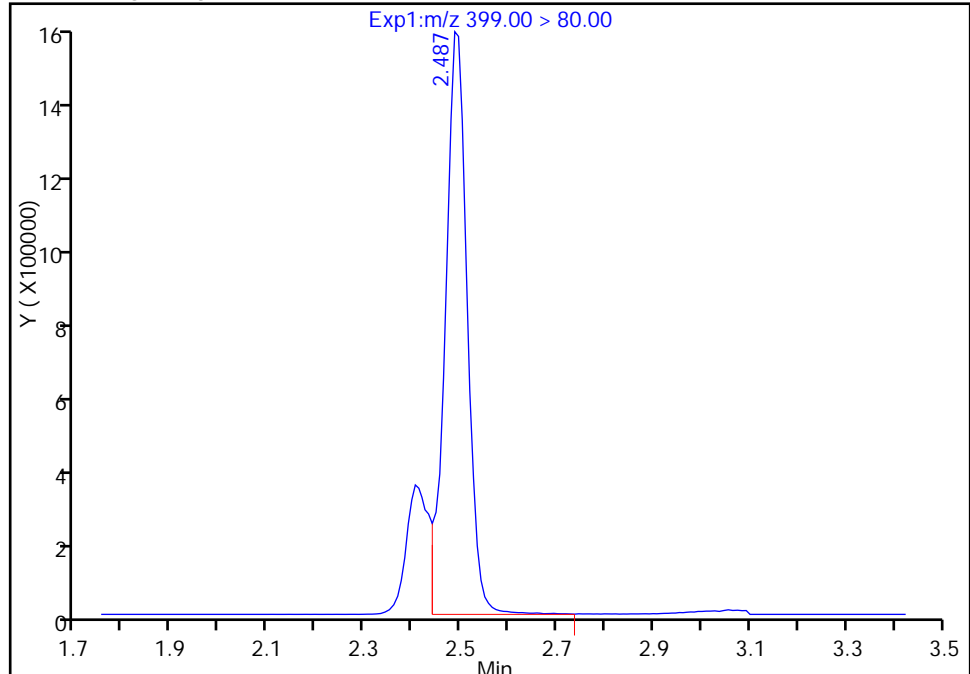
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Injection Date: 01-Mar-2017 11:31:20 Instrument ID: A8_N
Lims ID: IC L4 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

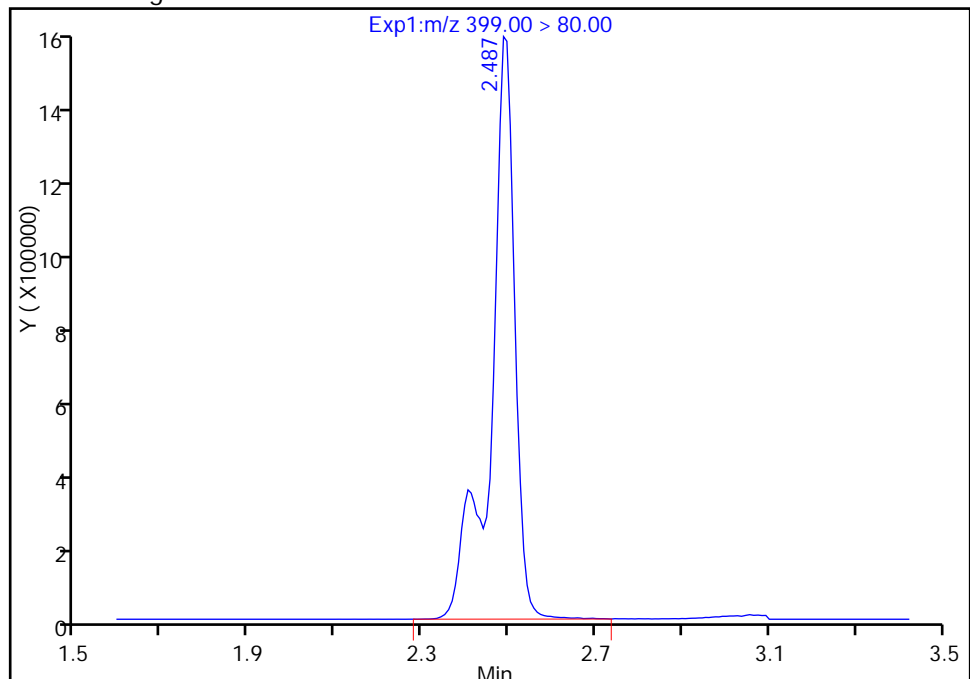
RT: 2.49
Area: 4875110
Amount: 17.771425
Amount Units: ng/ml

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

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

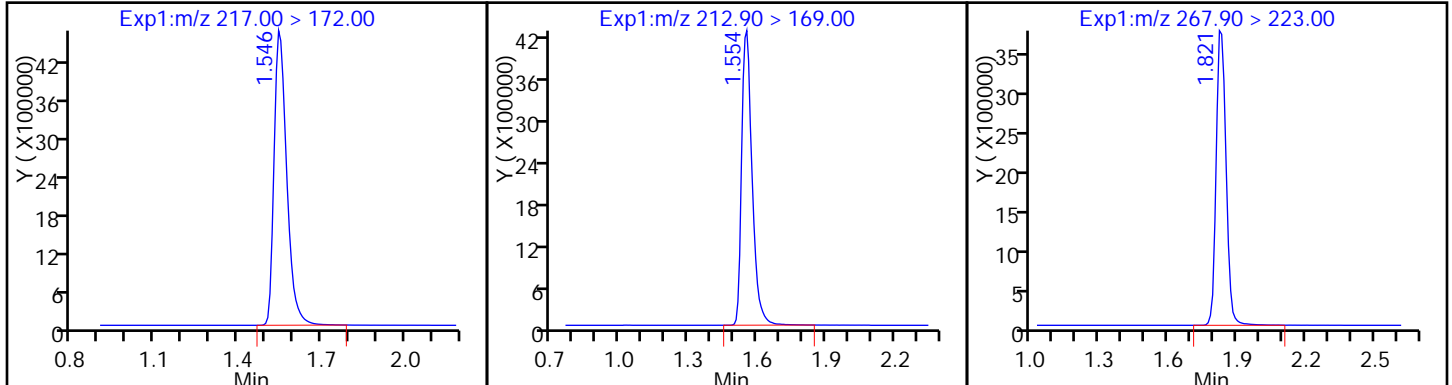
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

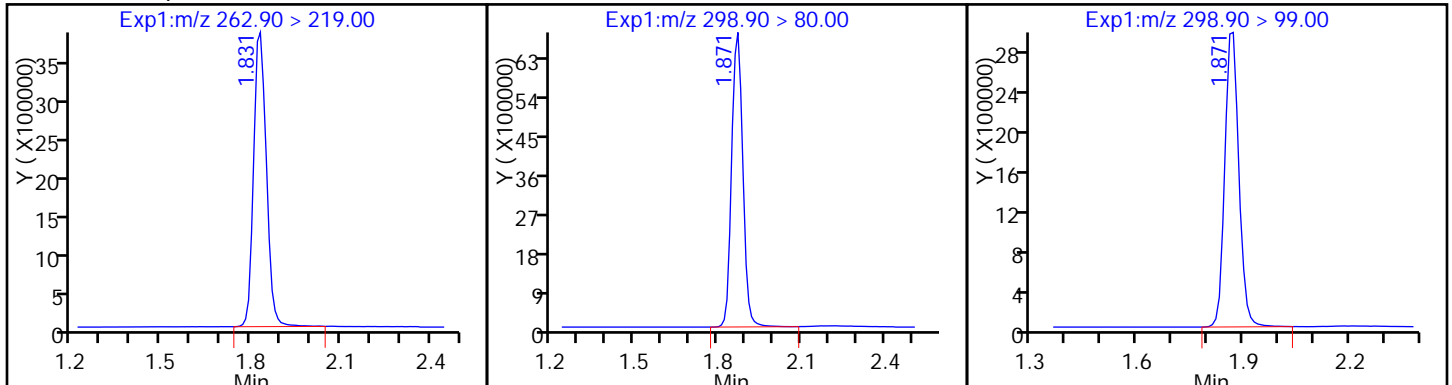
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

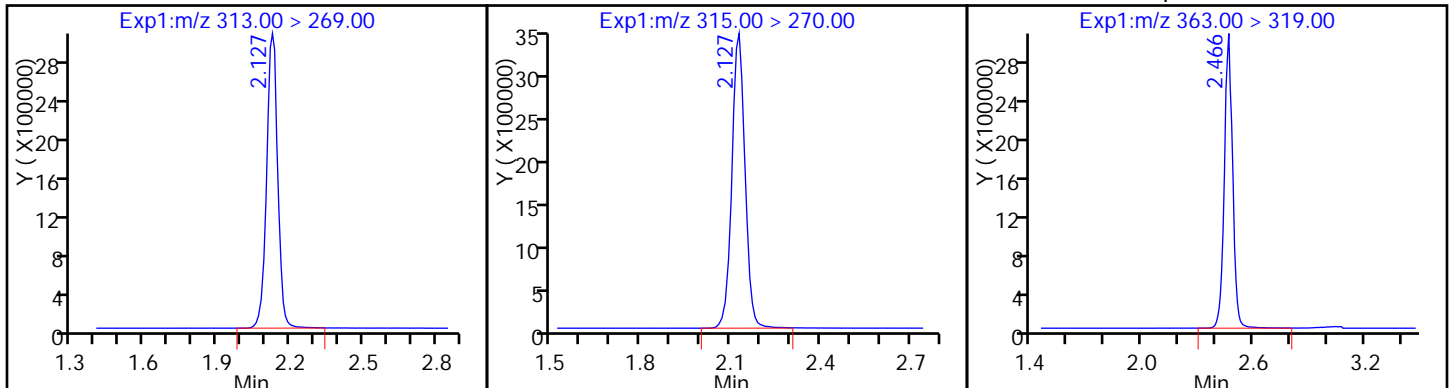
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

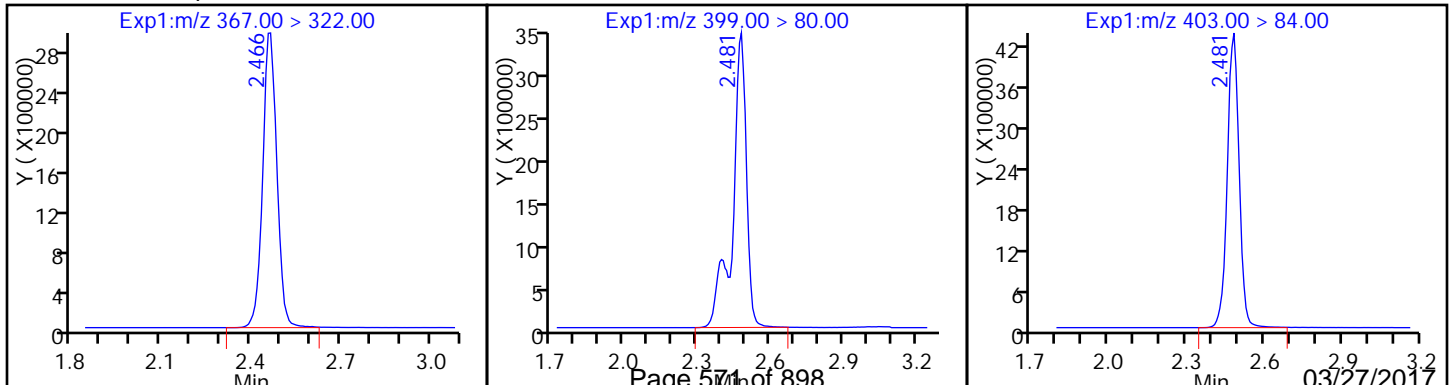
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

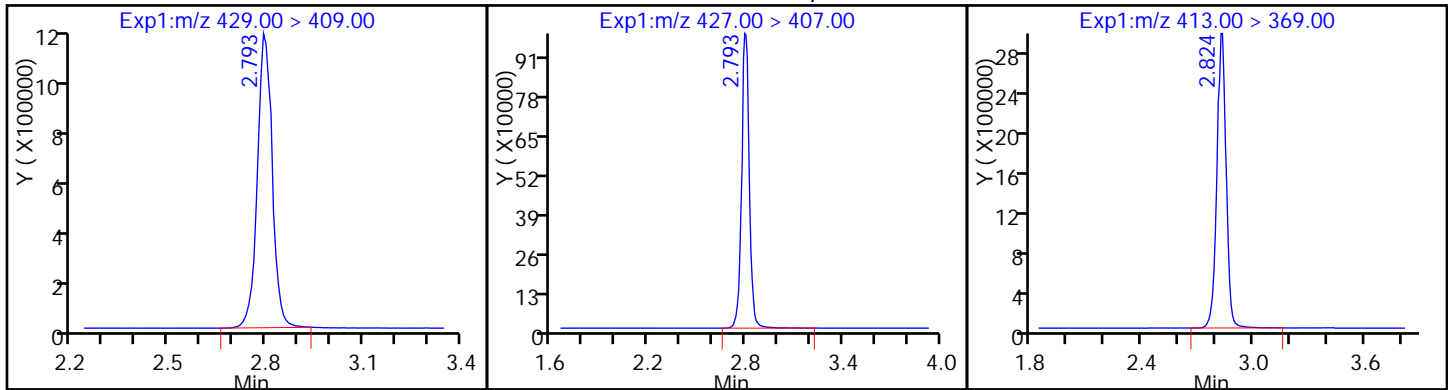
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



D 12 M2-6:2FTS

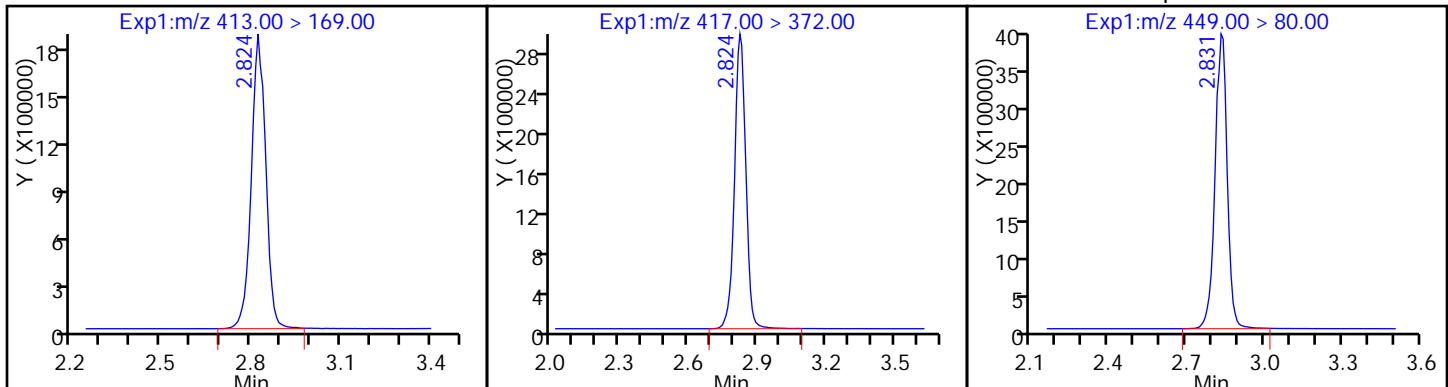
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol 5 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

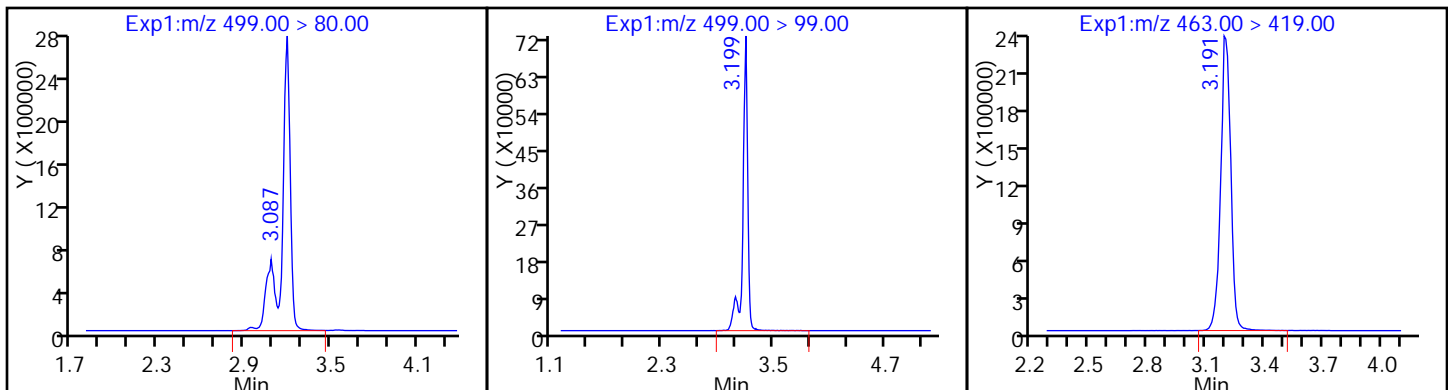
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

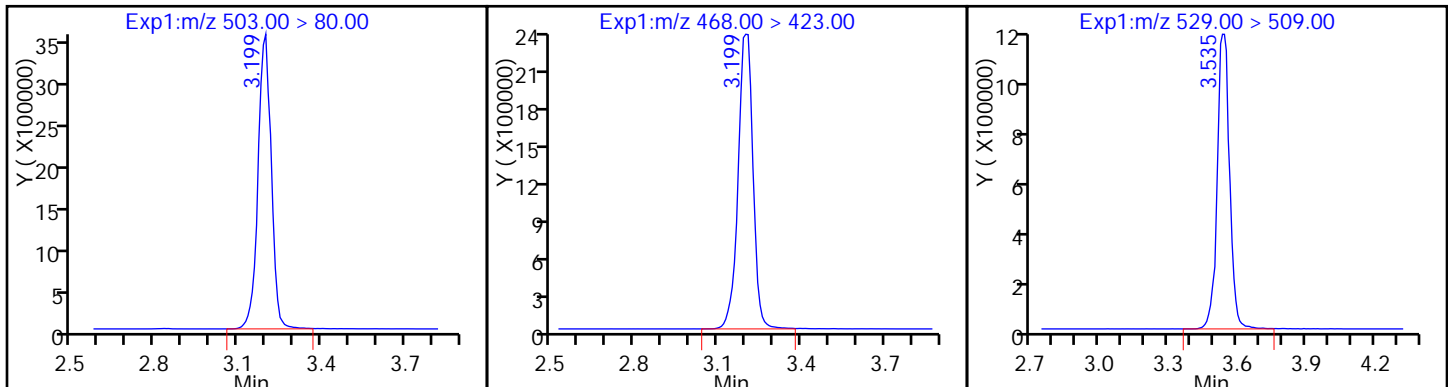
20 Perfluorononanoic acid



D 18 13C4 PFOS

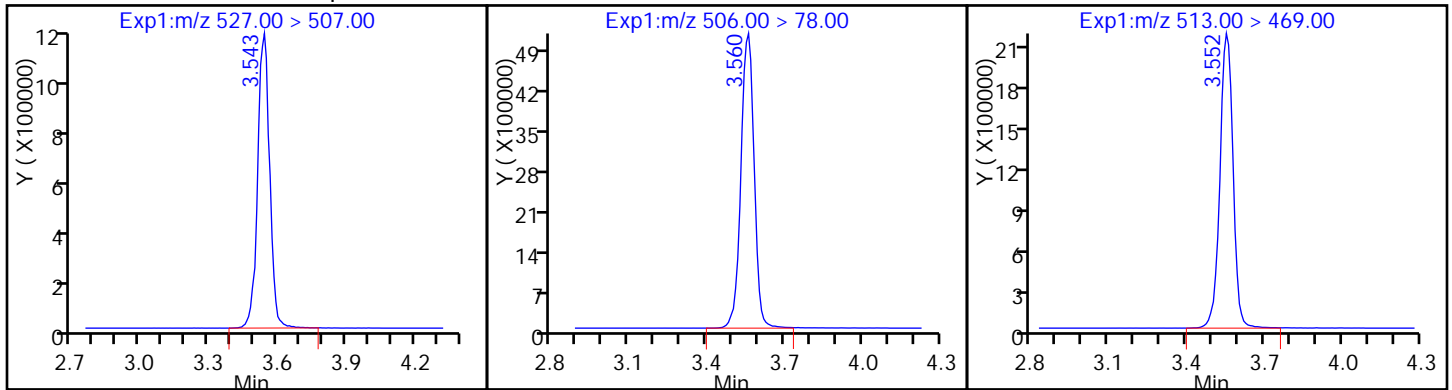
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

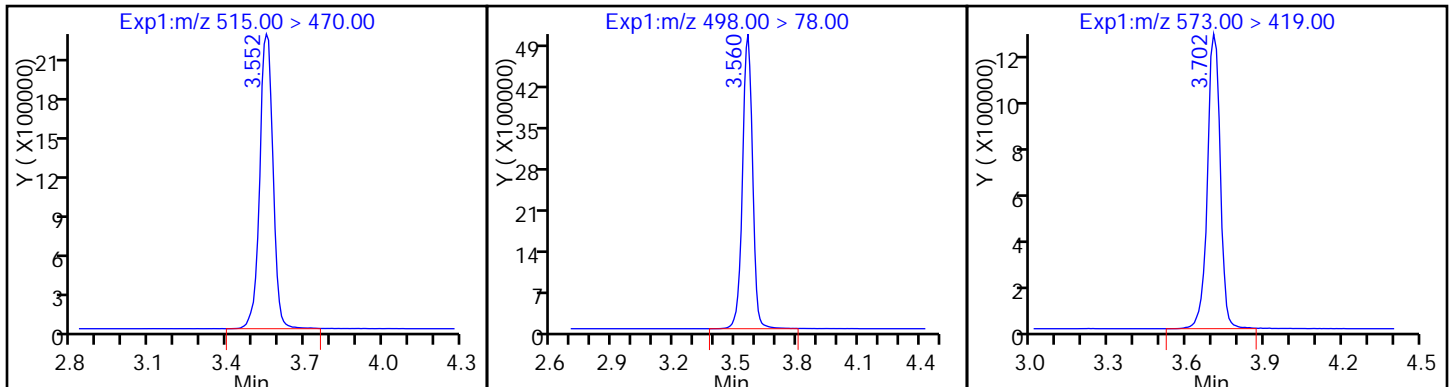
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

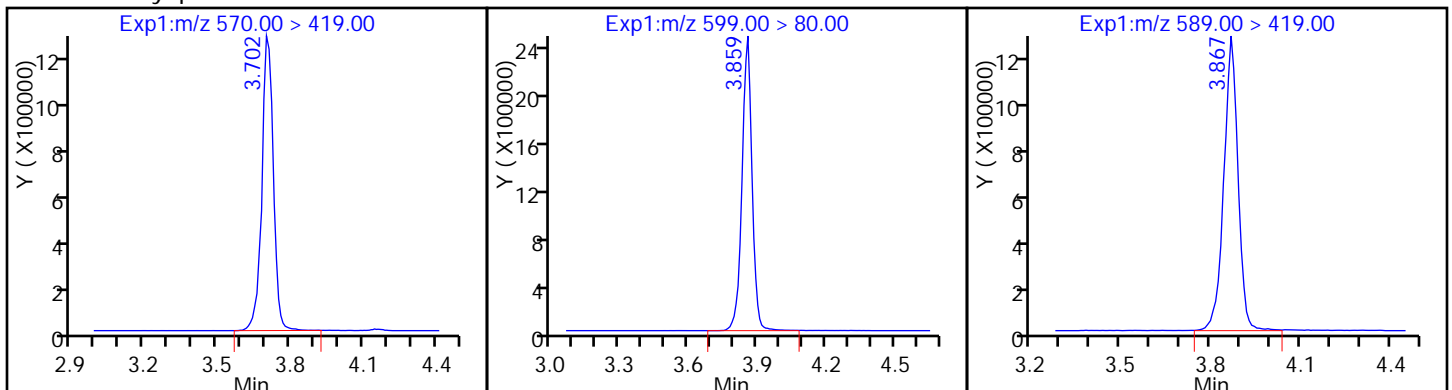
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

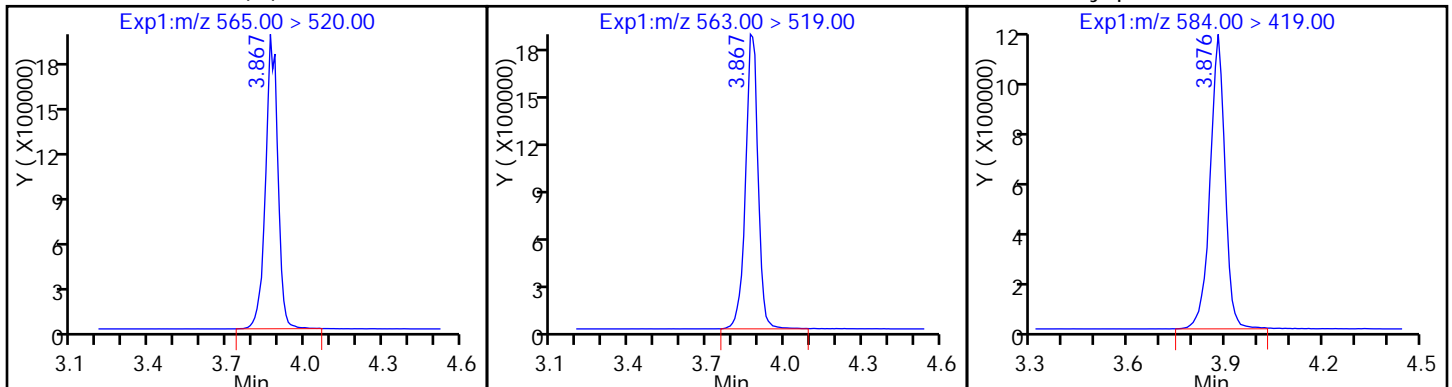
D 32 d5-NEtFOSAA



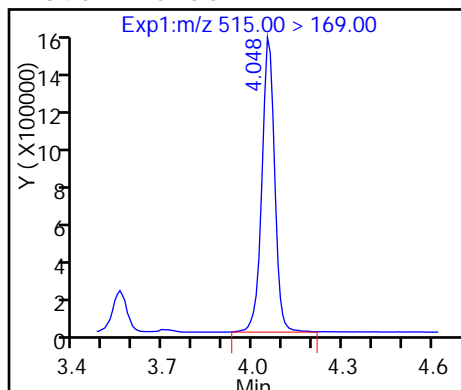
D 30 13C2 PFUnA (M)

31 Perfluoroundecanoic acid

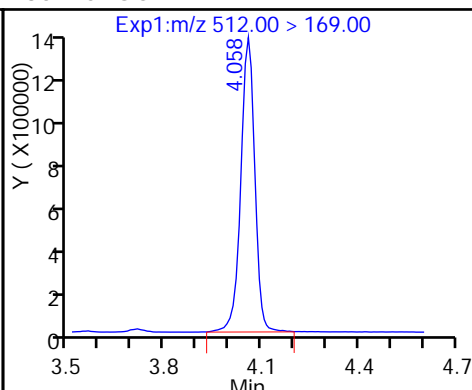
33 N-ethyl perfluorooctane sulfonamid



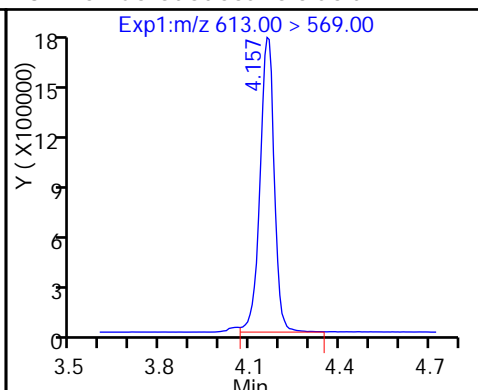
D 34 d-N-MeFOSA-M



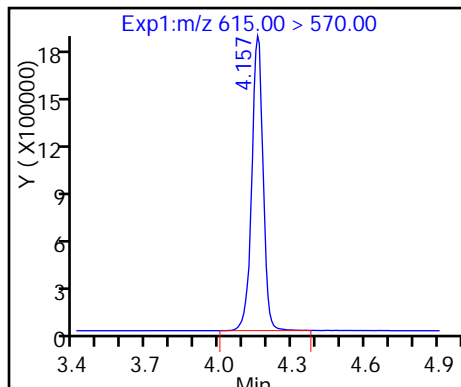
35 MeFOSA



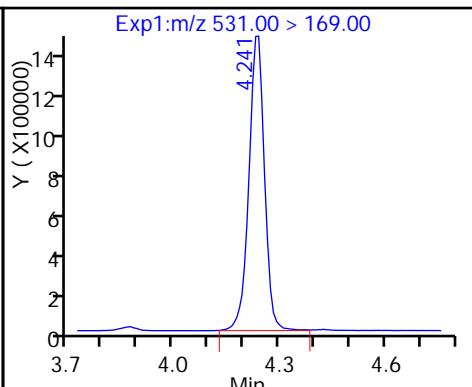
37 Perfluorododecanoic acid



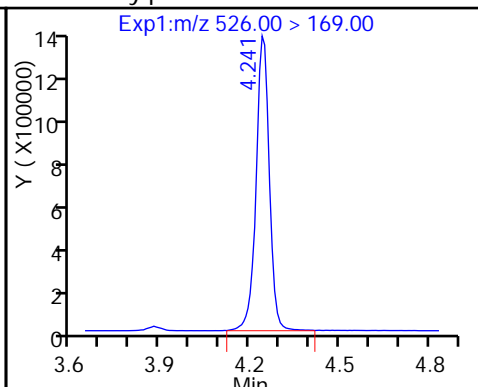
D 36 13C2 PFDa



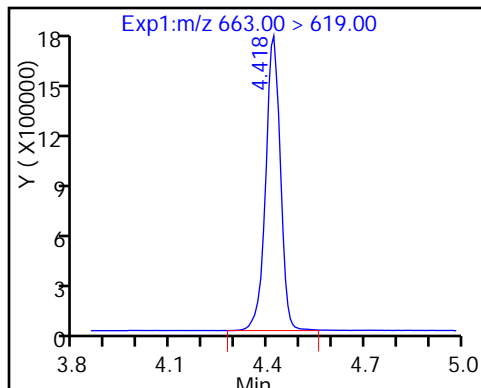
D 38 d-N-EtFOSA-M



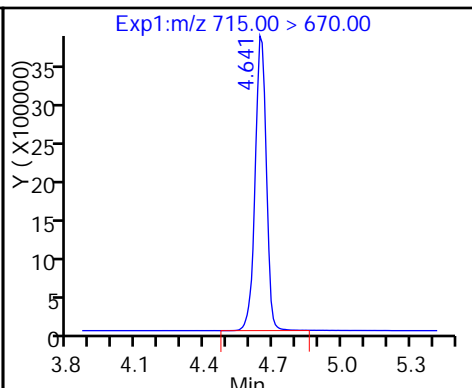
39 N-ethylperfluoro-1-octanesulfonami



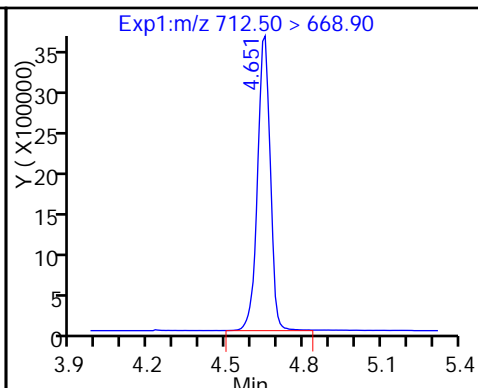
41 Perfluorotridecanoic acid



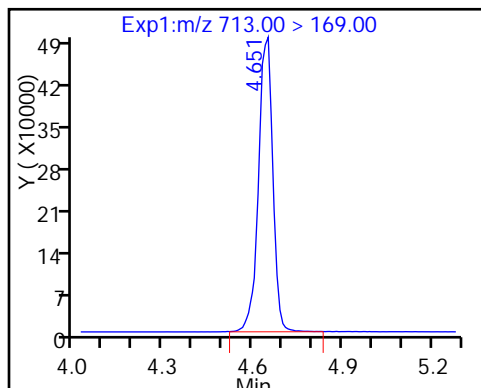
D 43 13C2-PFTeDa



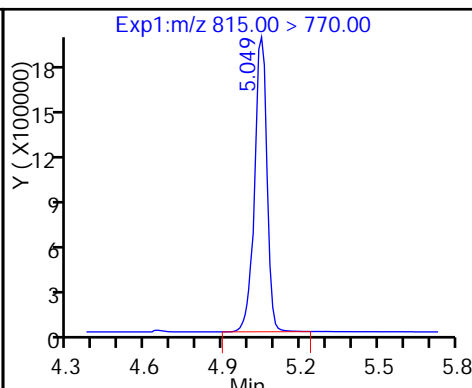
42 Perfluorotetradecanoic acid



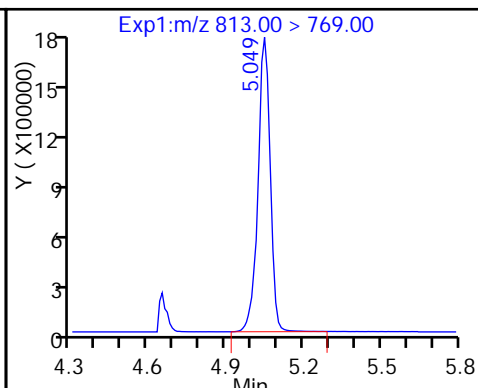
42 Perfluorotetradecanoic acid



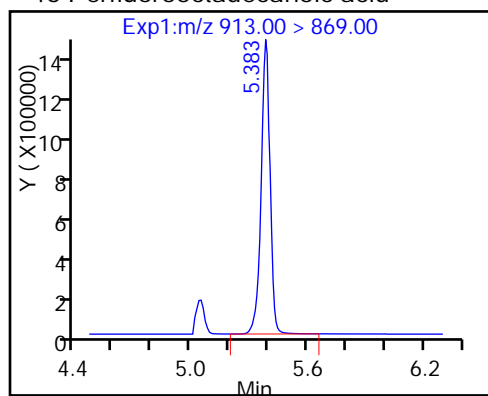
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

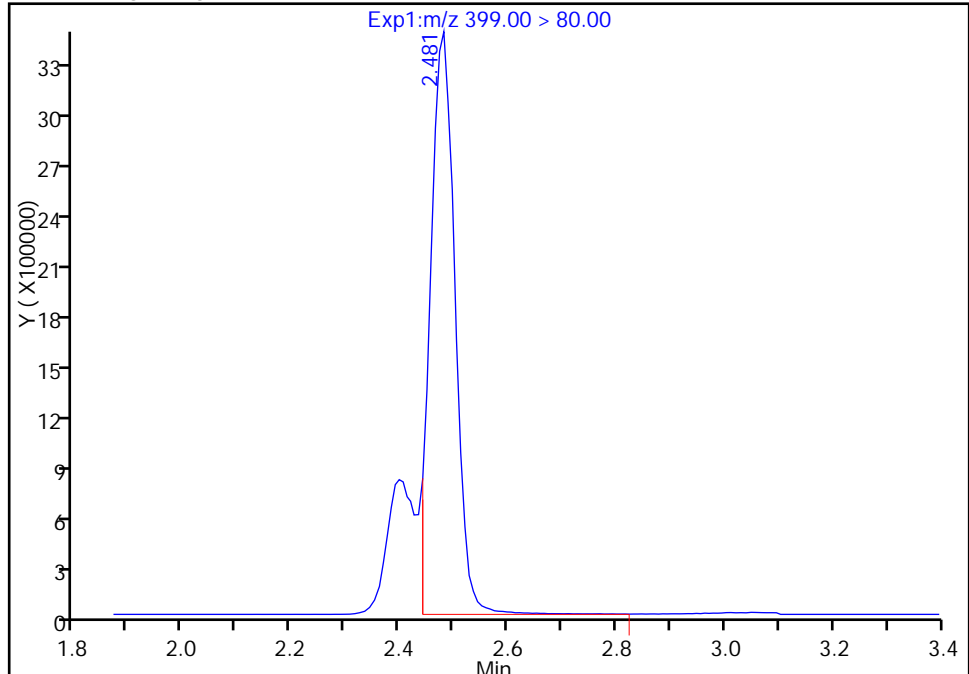
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

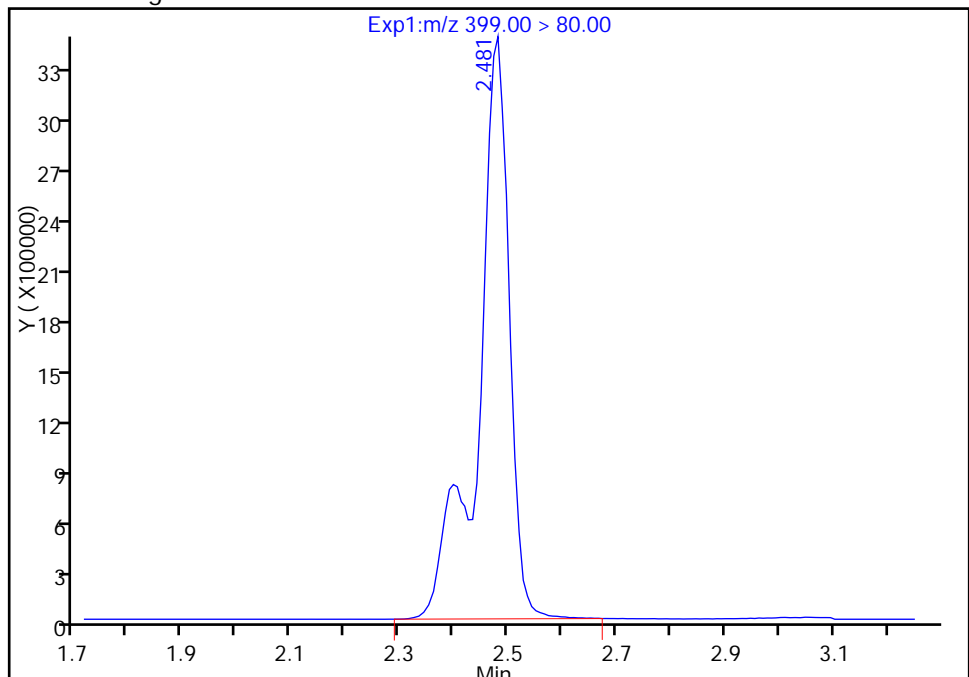
RT: 2.48
Area: 10754320
Amount: 35.081839
Amount Units: ng/ml

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

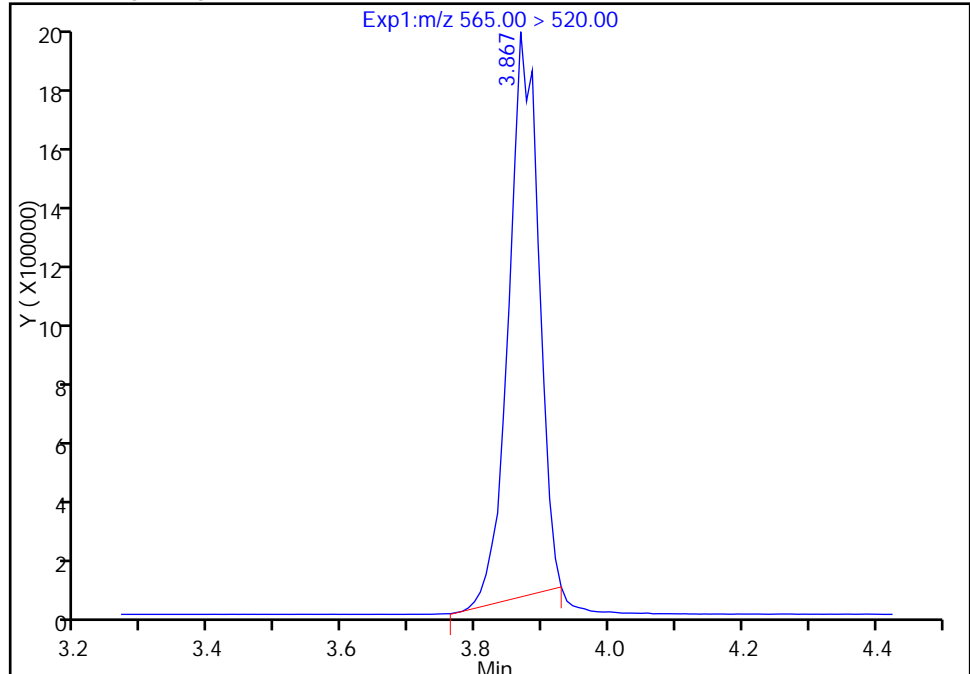
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 30 13C2 PFUnA, CAS: STL00997

Signal: 1

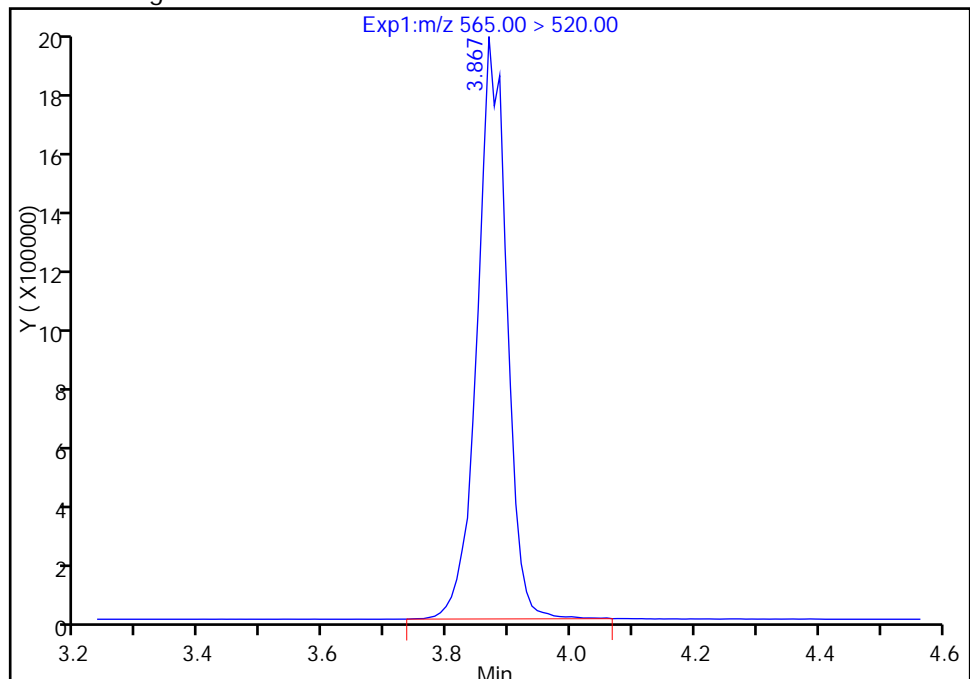
RT: 3.87
Area: 5863845
Amount: 45.473087
Amount Units: ng/ml

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	328427	

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

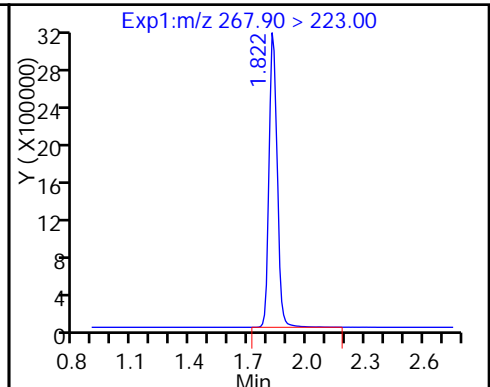
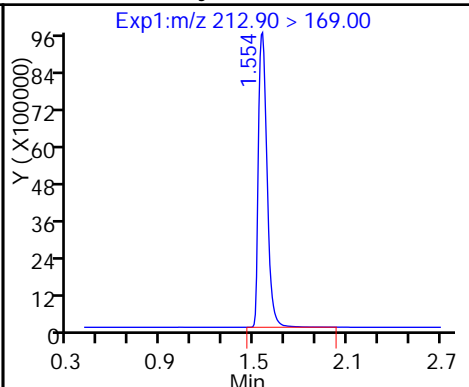
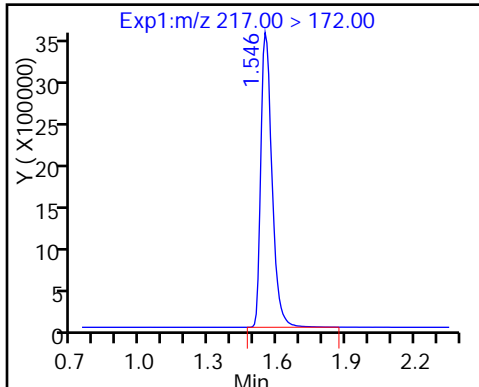
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

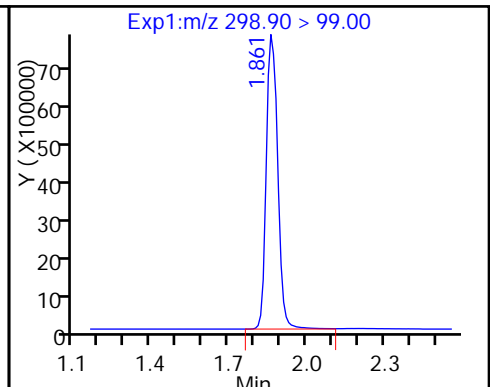
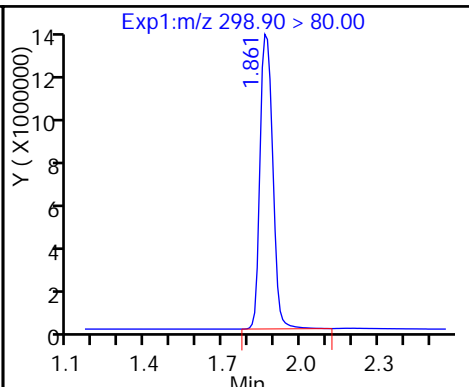
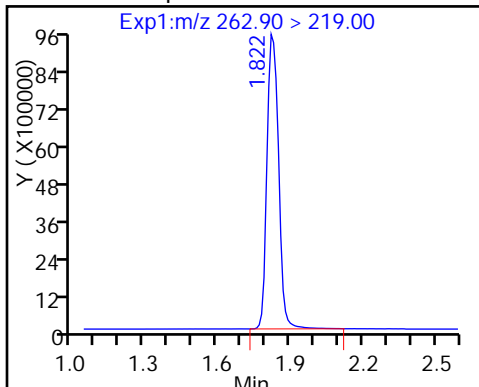
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

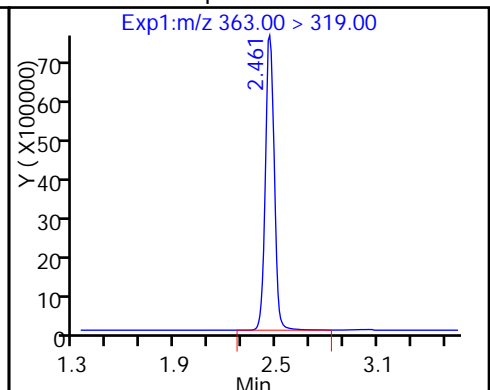
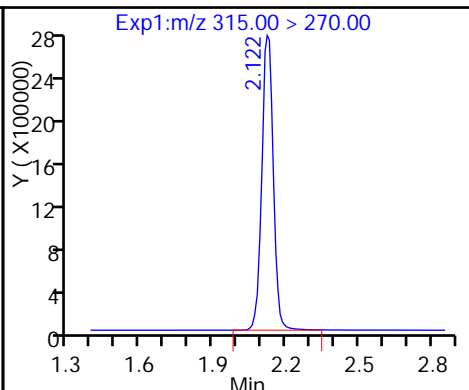
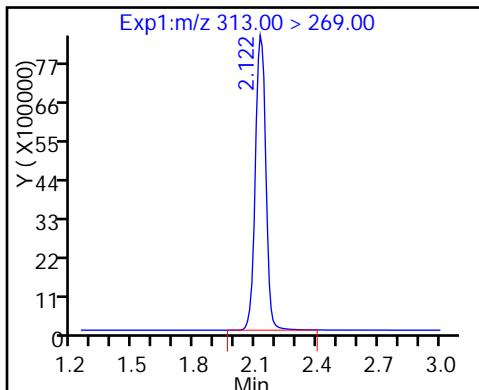
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

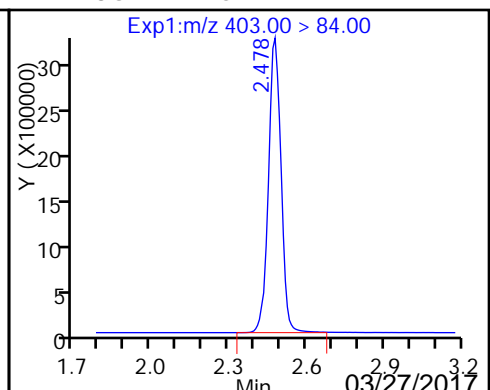
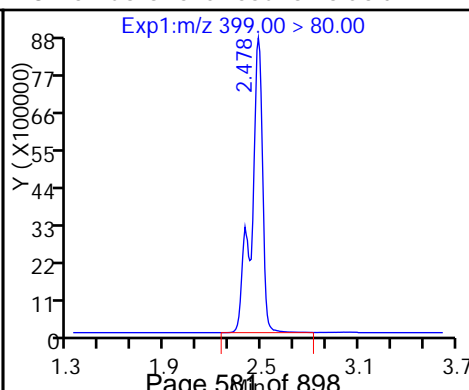
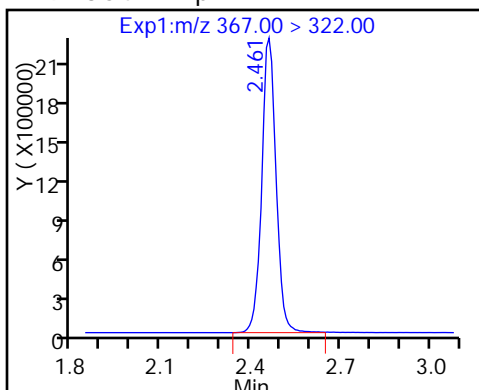
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

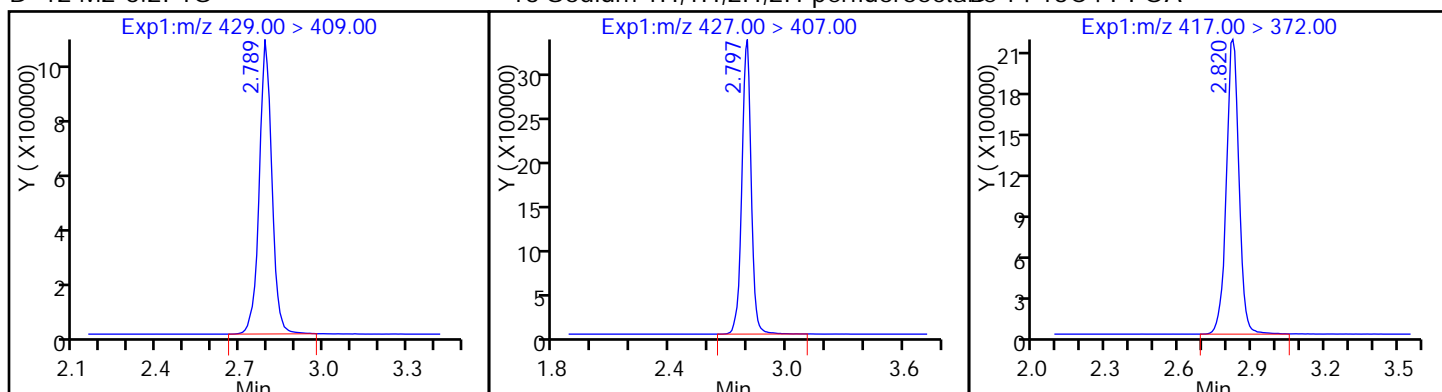
D 11 18O2 PFHxS



D 12 M2-6:2FTS

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

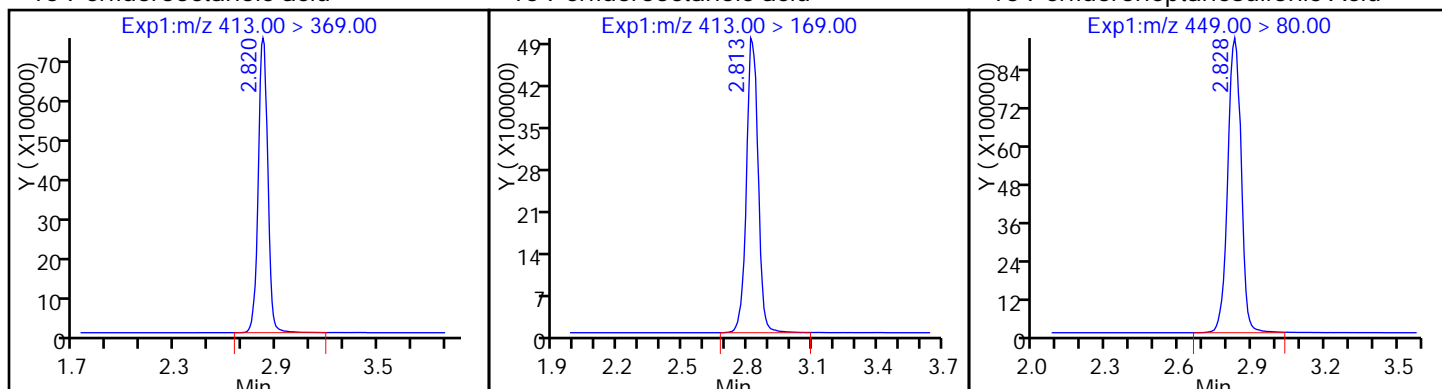
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

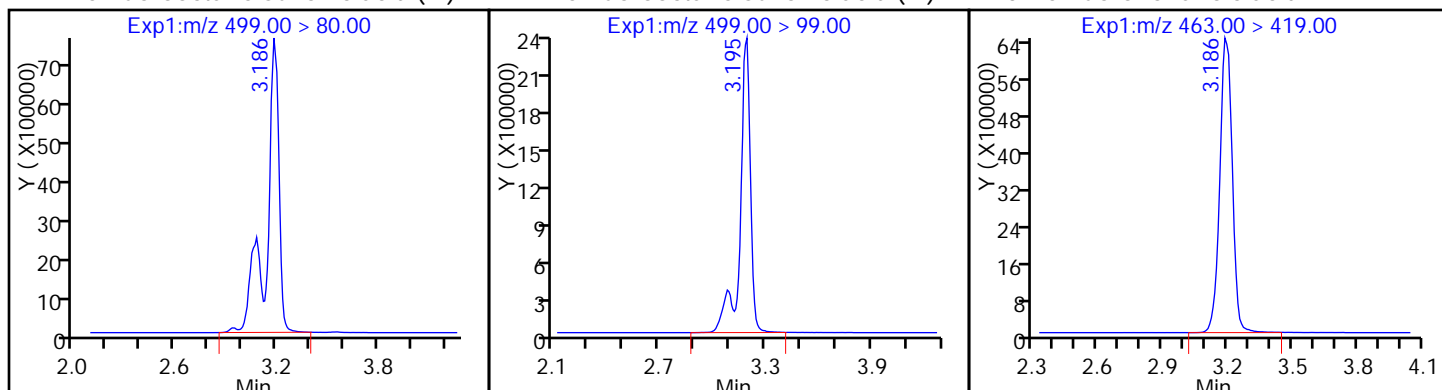
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

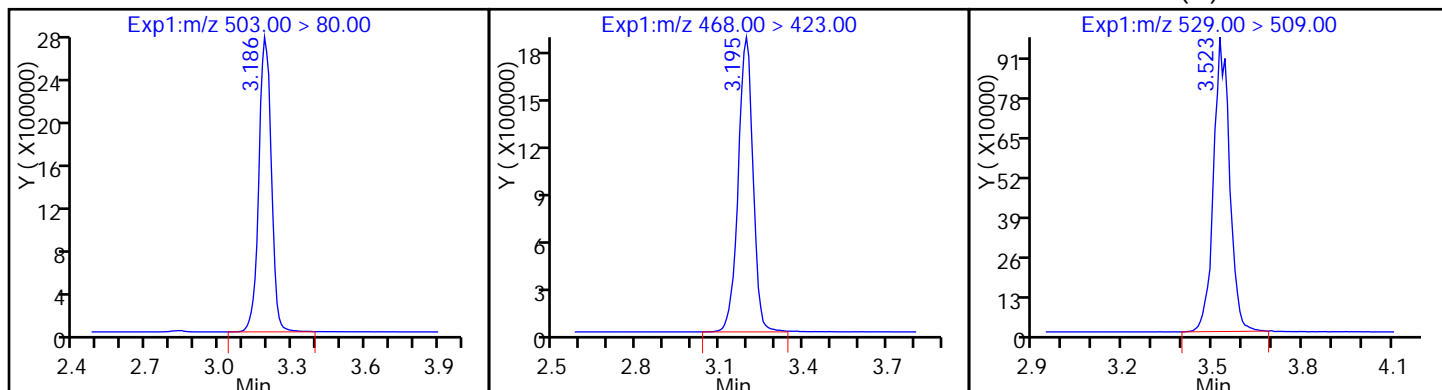
20 Perfluorononanoic acid



D 18 13C4 PFOS

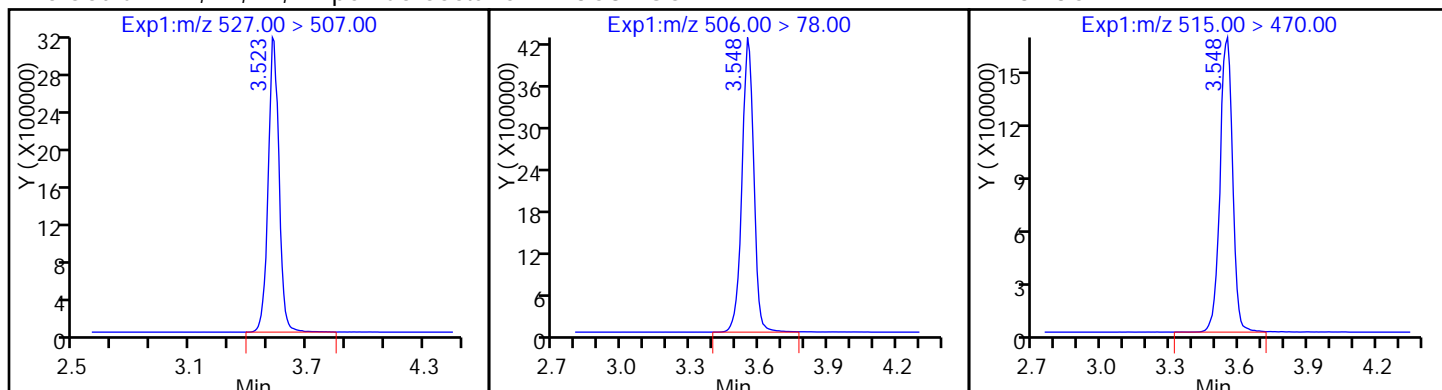
D 19 13C5 PFNA

D 26 M2-8:2FTS (M)



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

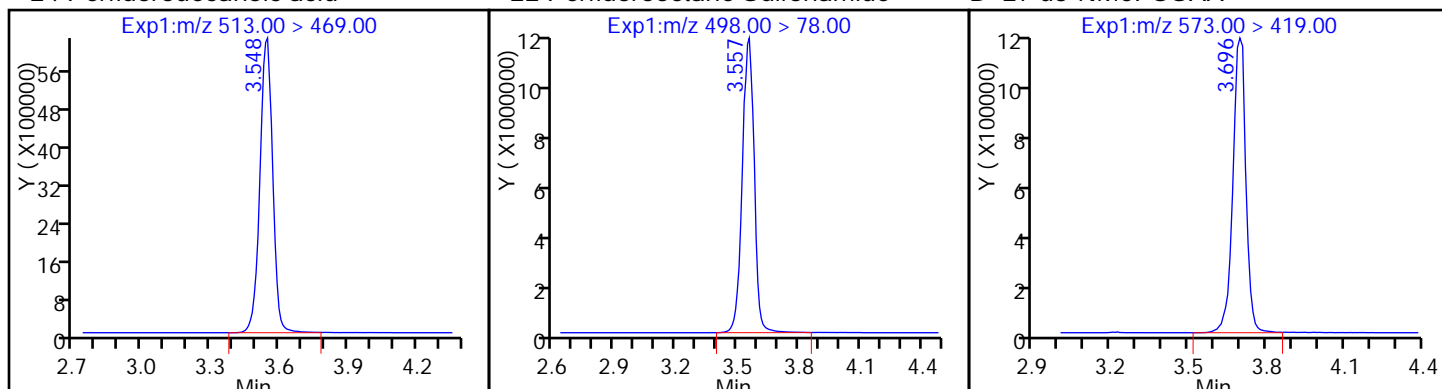
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

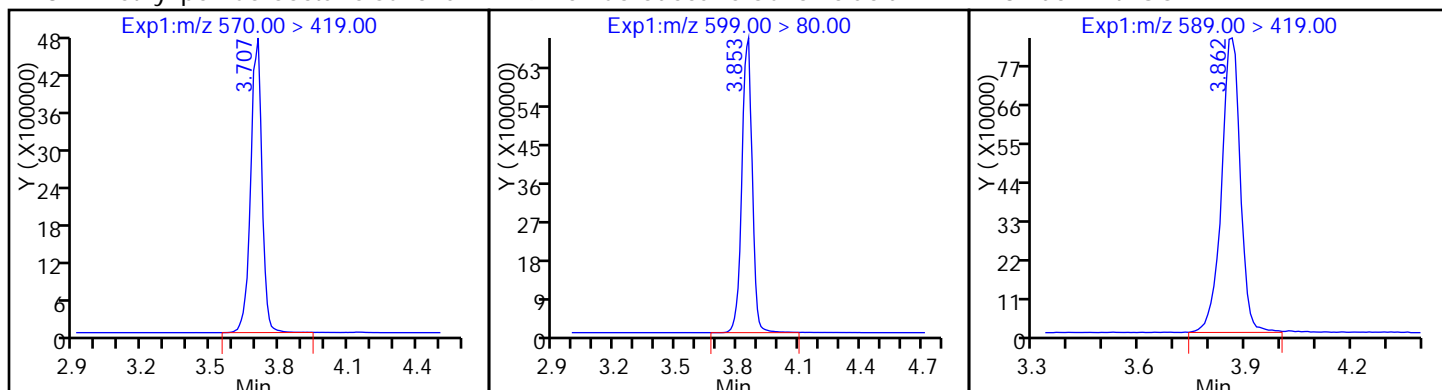
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

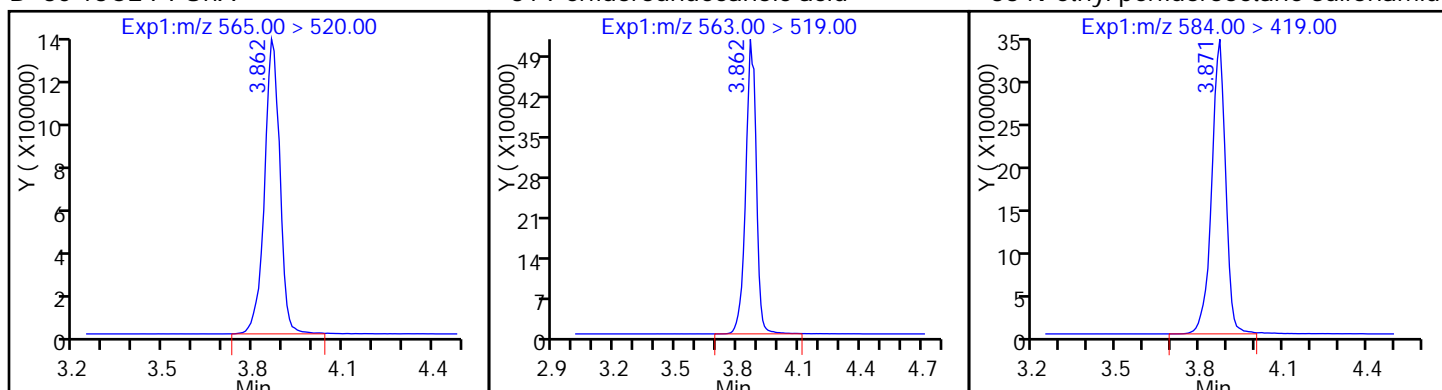
D 32 d5-NEtFOSAA



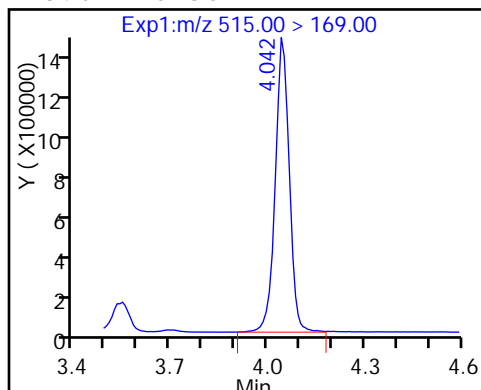
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

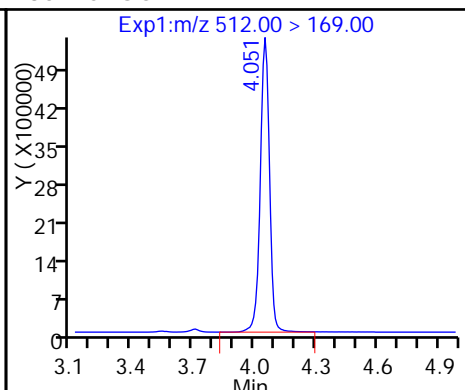
33 N-ethyl perfluorooctane sulfonamid



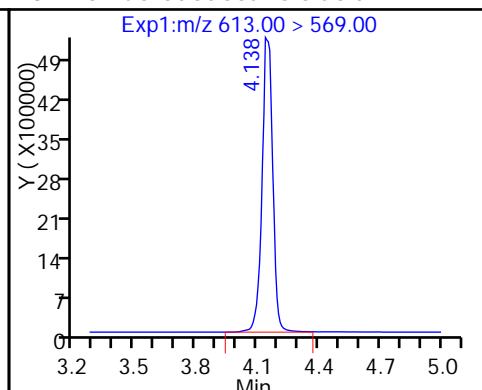
D 34 d-N-MeFOSA-M



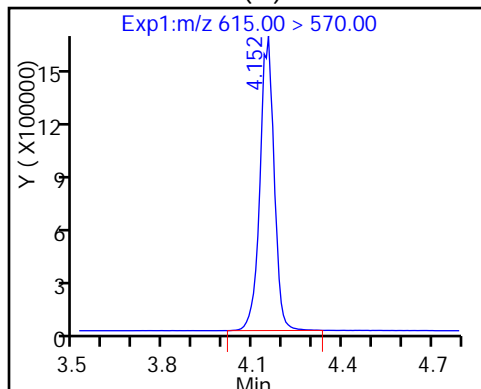
35 MeFOSA



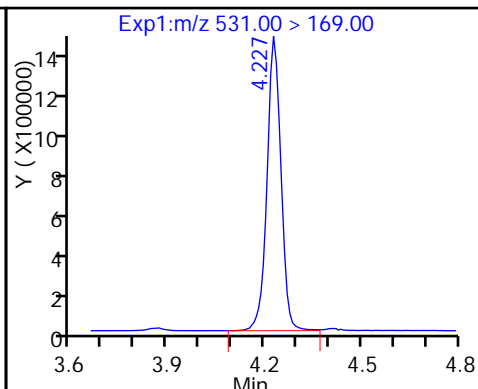
37 Perfluorododecanoic acid



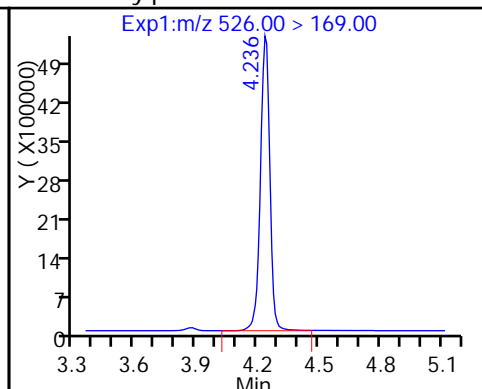
D 36 13C2 PFDa (M)



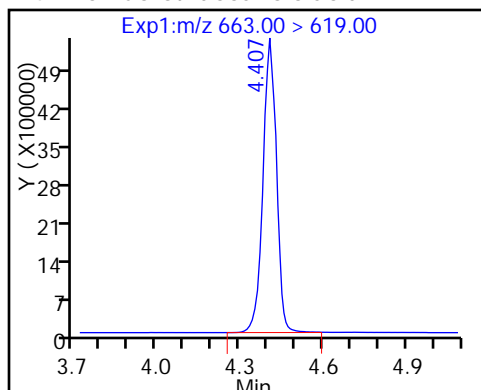
D 38 d-N-EtFOSA-M



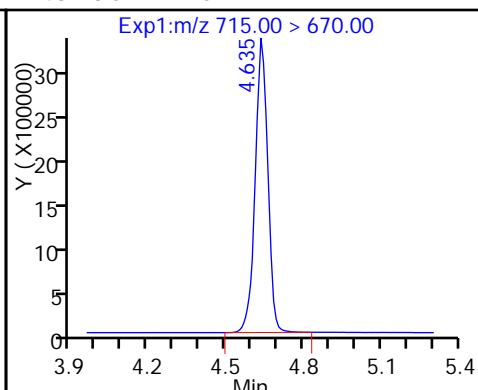
39 N-ethylperfluoro-1-octanesulfonami



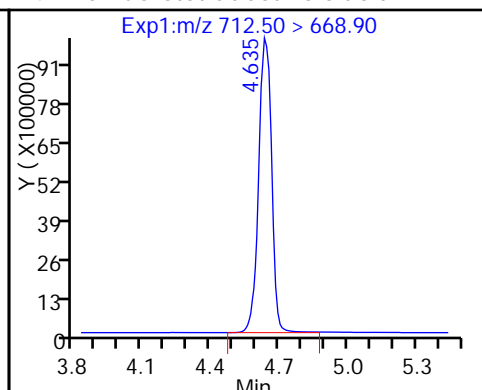
41 Perfluorotridecanoic acid



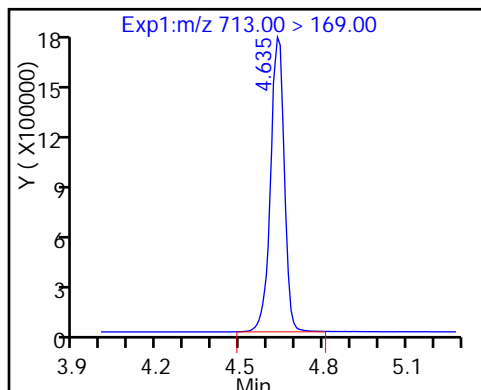
D 43 13C2-PFTeDA



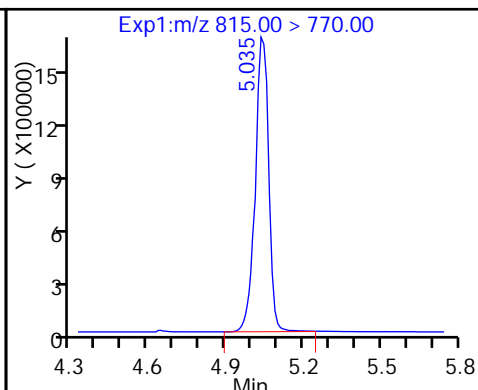
42 Perfluorotetradecanoic acid



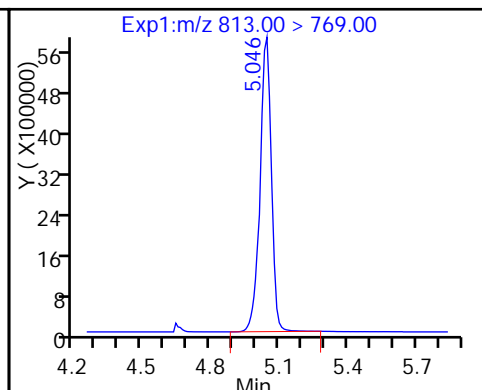
42 Perfluorotetradecanoic acid



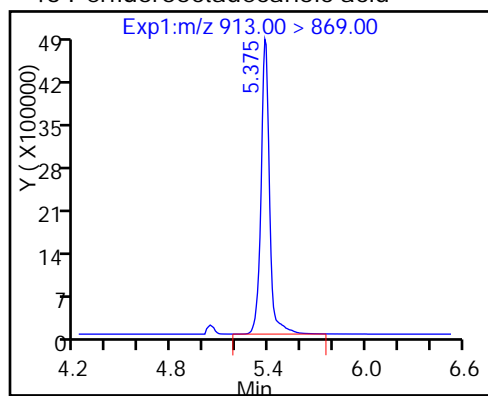
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

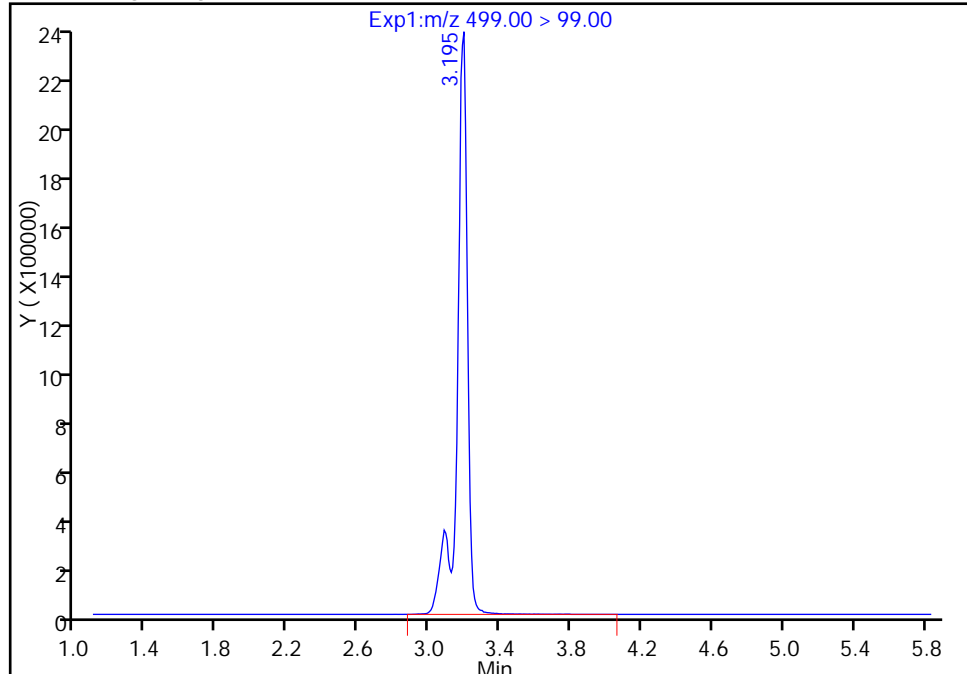
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

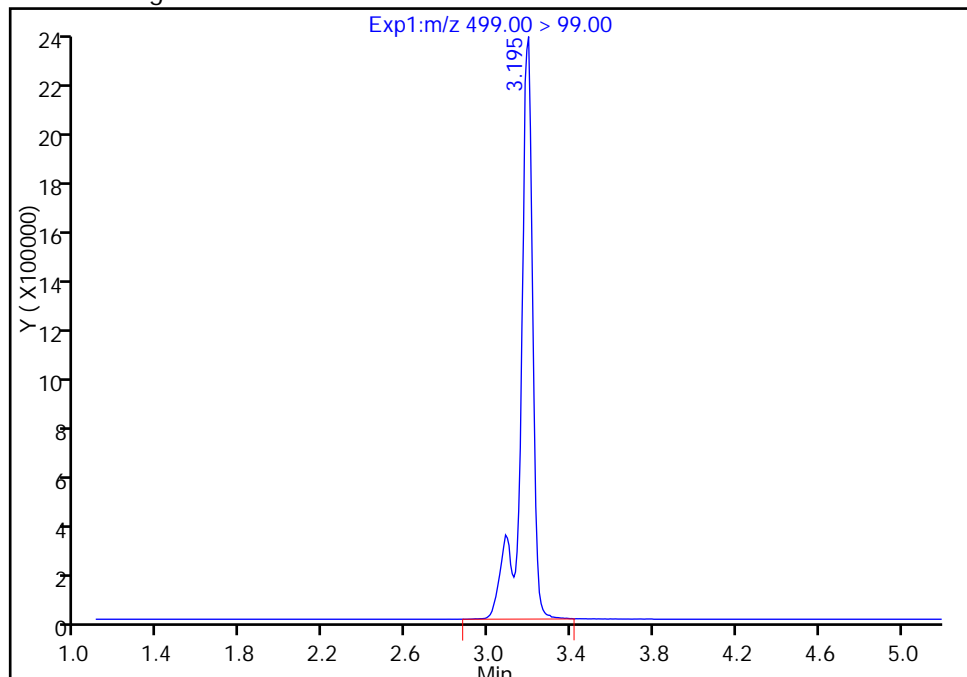
RT: 3.19
Area: 9641533
Amount: 146.9287
Amount Units: ng/ml

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-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:

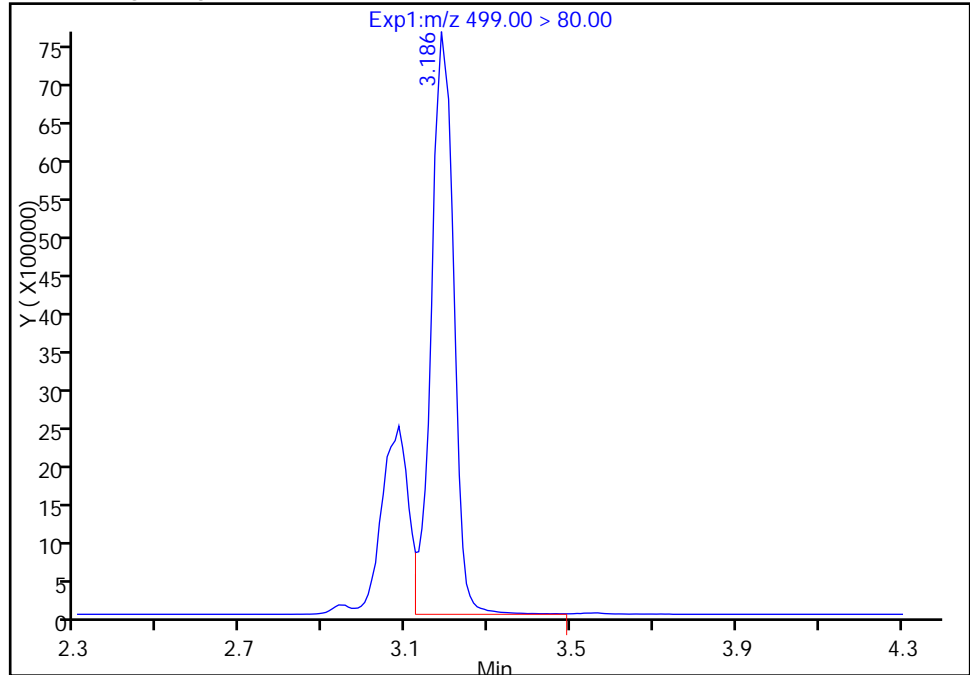
Detector EXP1

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

Signal: 1

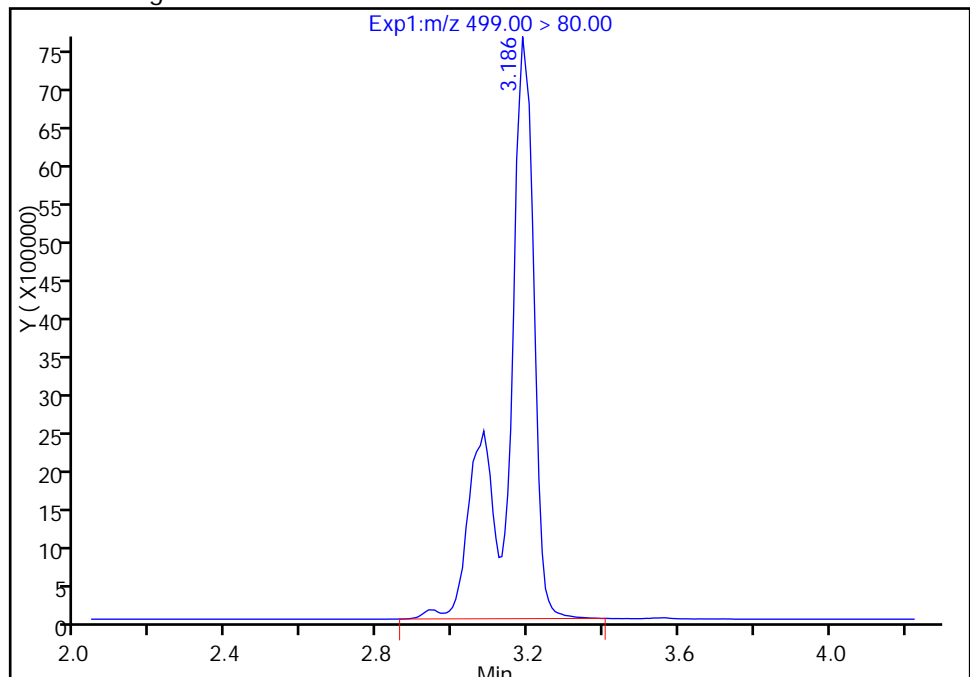
RT: 3.19
Area: 28733218
Amount: 146.9287
Amount Units: ng/ml

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:

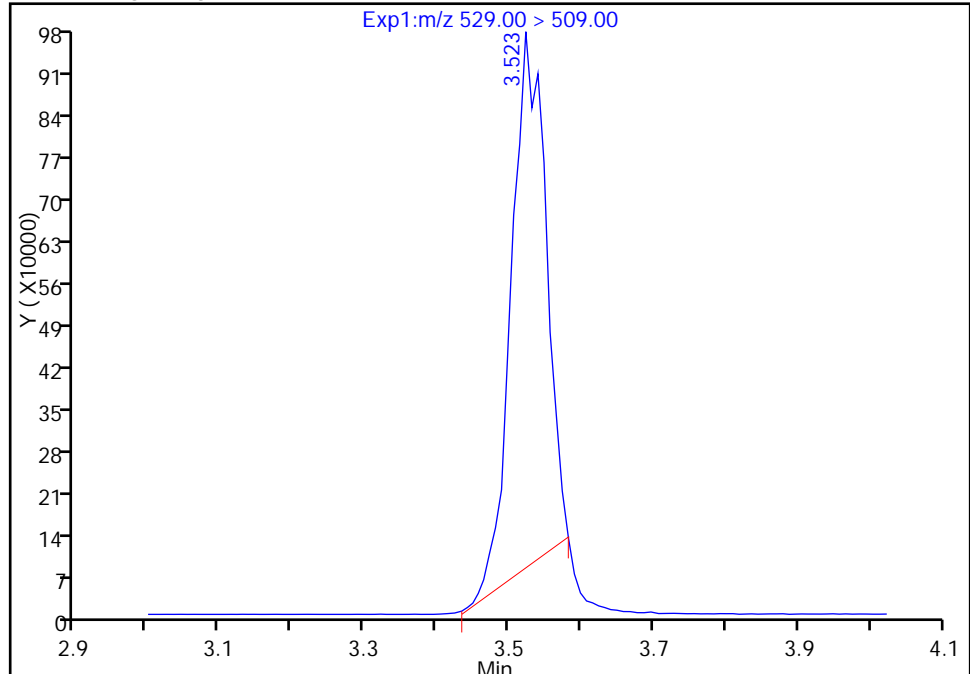
Detector EXP1

D 26 M2-8:2FTS, CAS: STL02280

Signal: 1

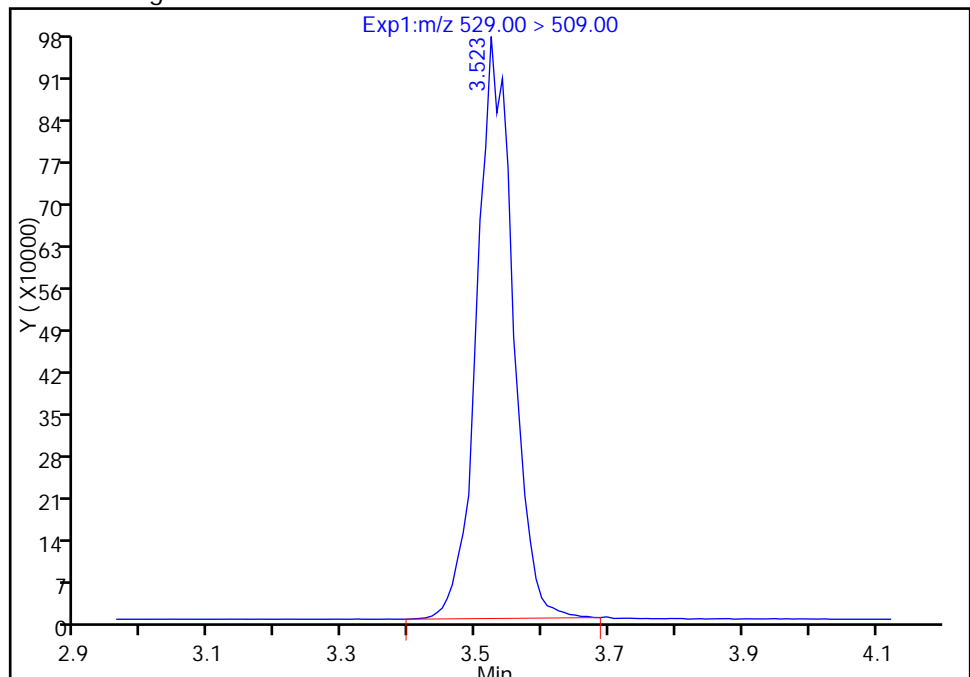
RT: 3.52
Area: 2972144
Amount: 32.946881
Amount Units: ng/ml

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

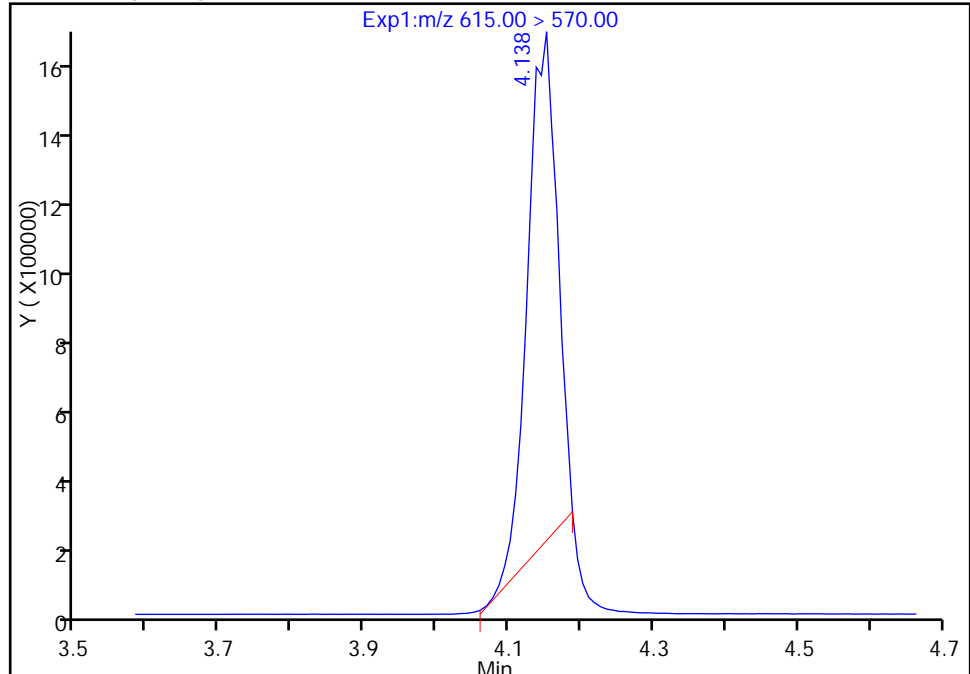
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 36 13C2 PFD_oA, CAS: STL00998

Signal: 1

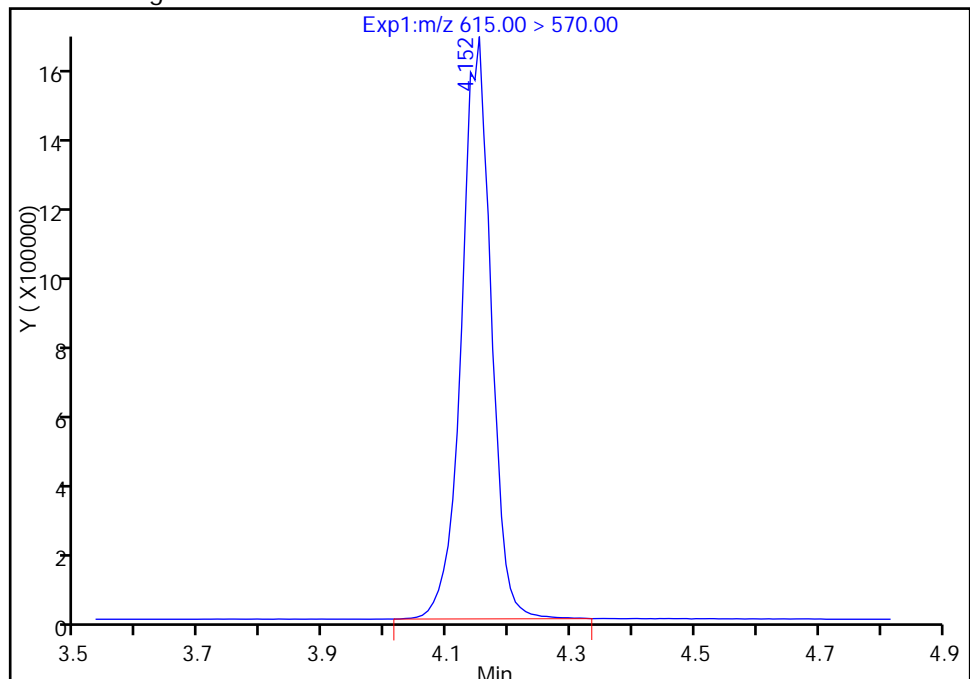
RT: 4.14
Area: 3992056
Amount: 33.402250
Amount Units: ng/ml

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.: 320-26103-1

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.: 320-26103-1
 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-PFTEtDA	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

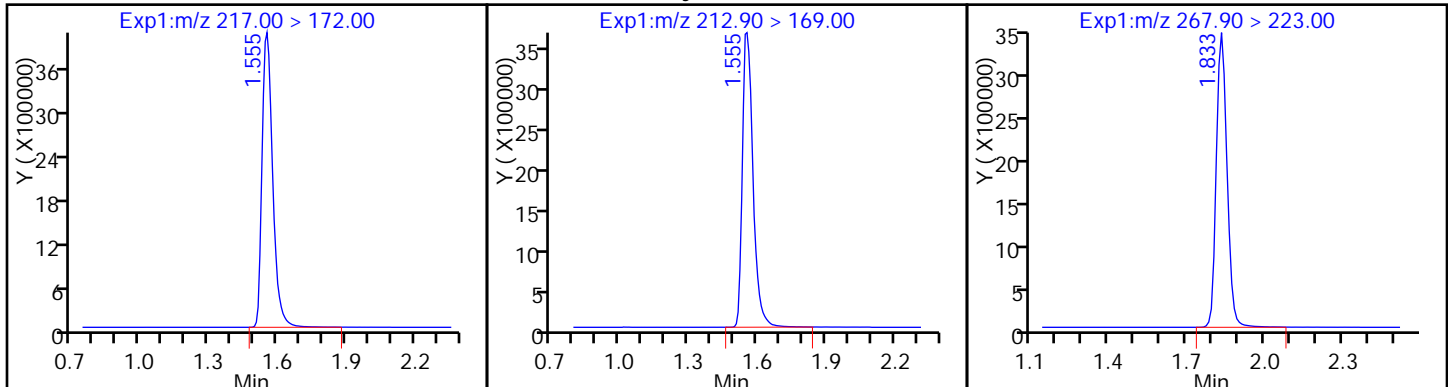
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

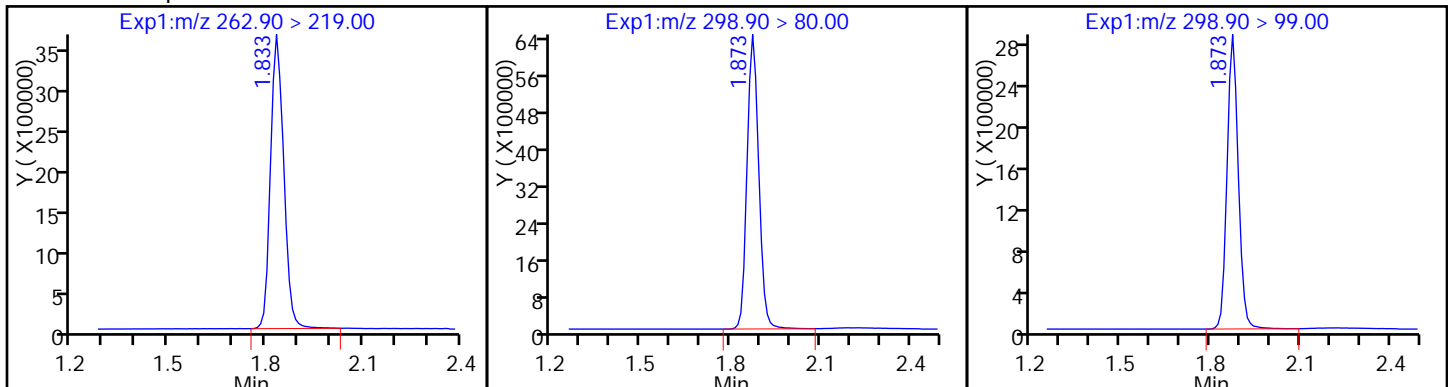
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

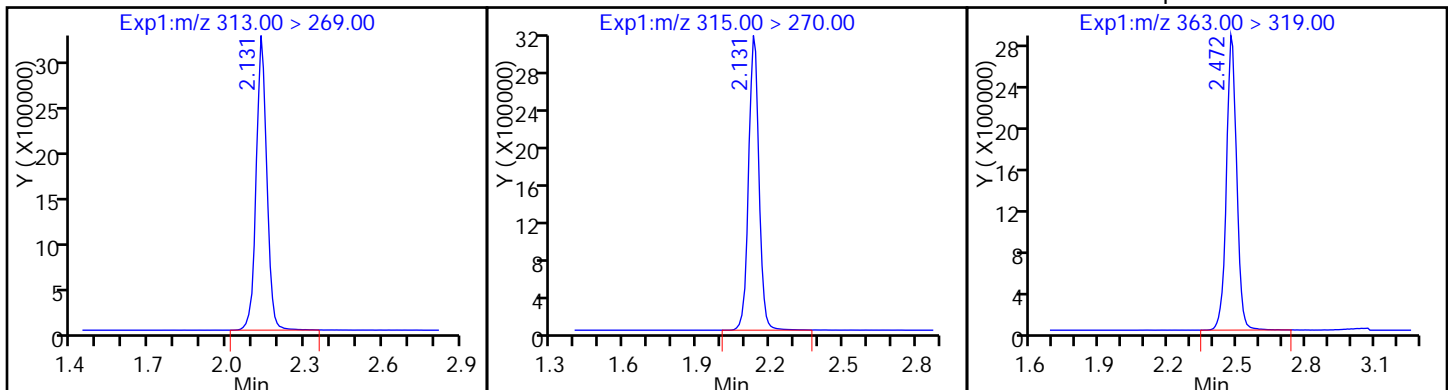
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

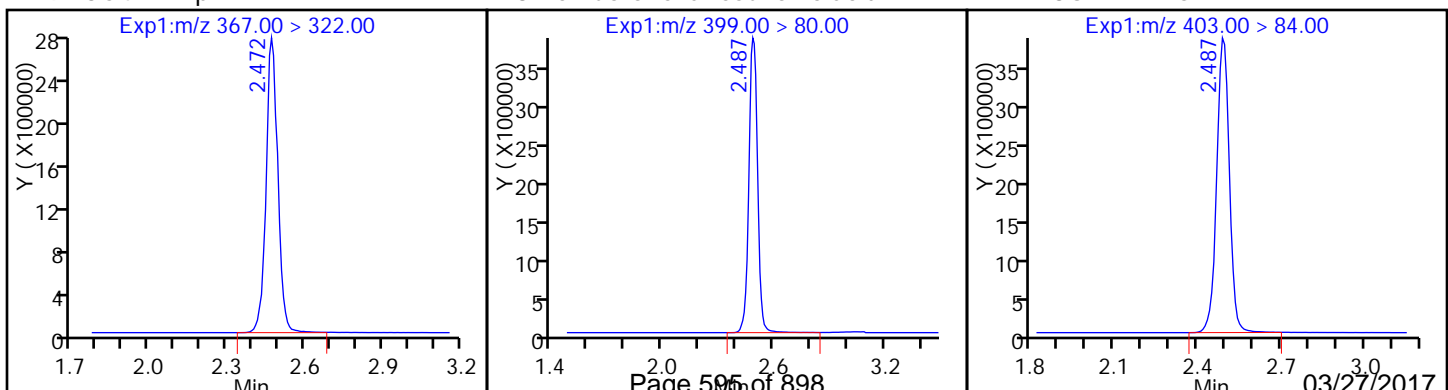
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

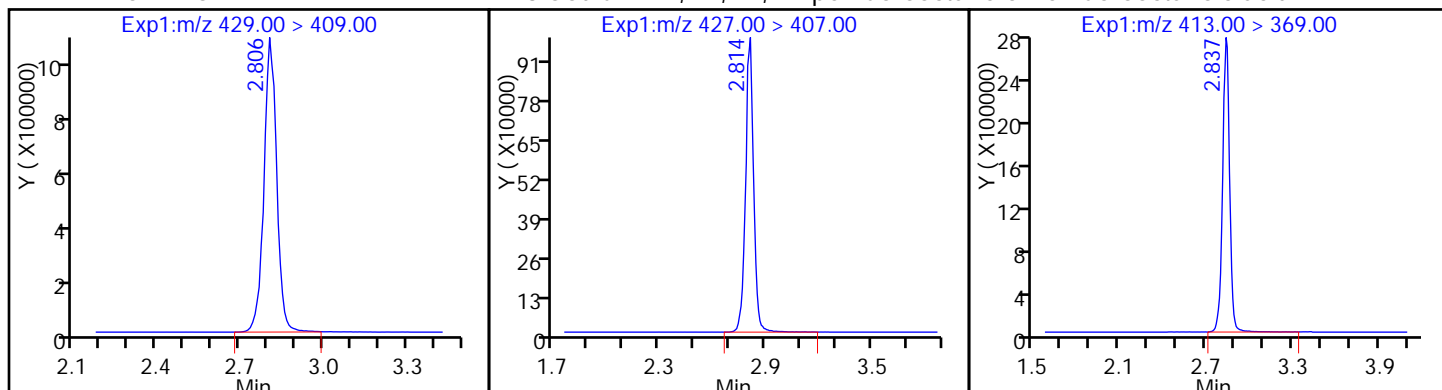
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



D 12 M2-6:2FTS

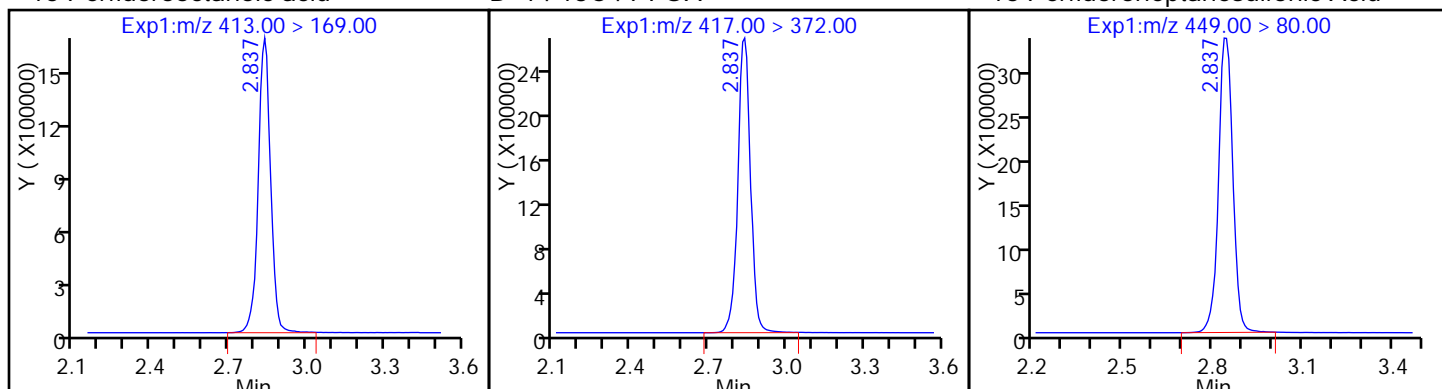
13 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol 5 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

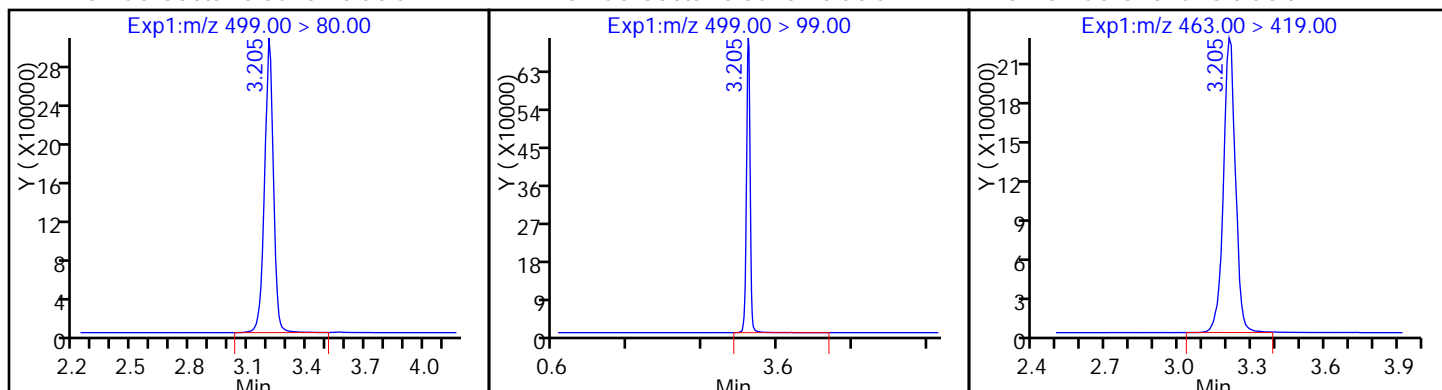
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

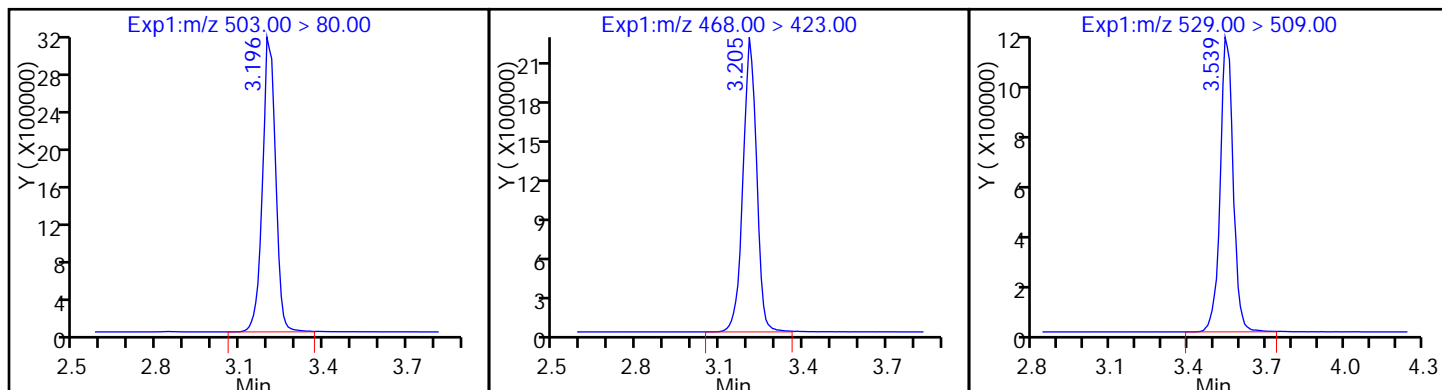
20 Perfluorononanoic acid



D 18 13C4 PFOS

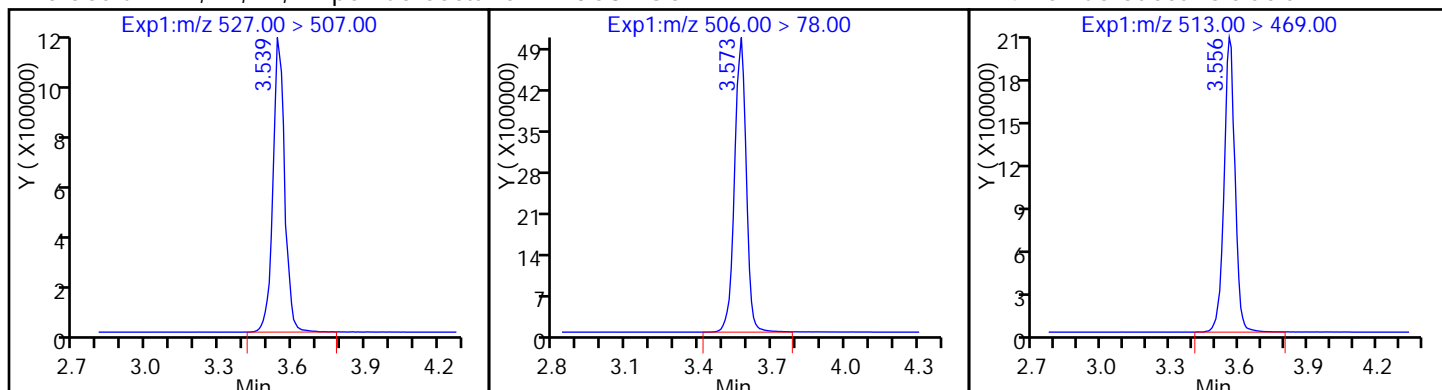
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctadec-21 13C8 FOSA

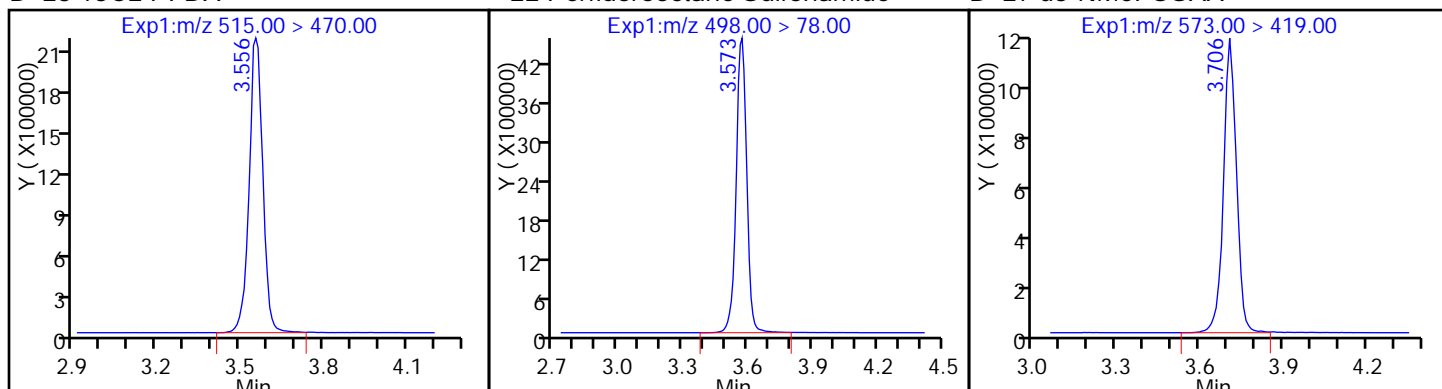
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

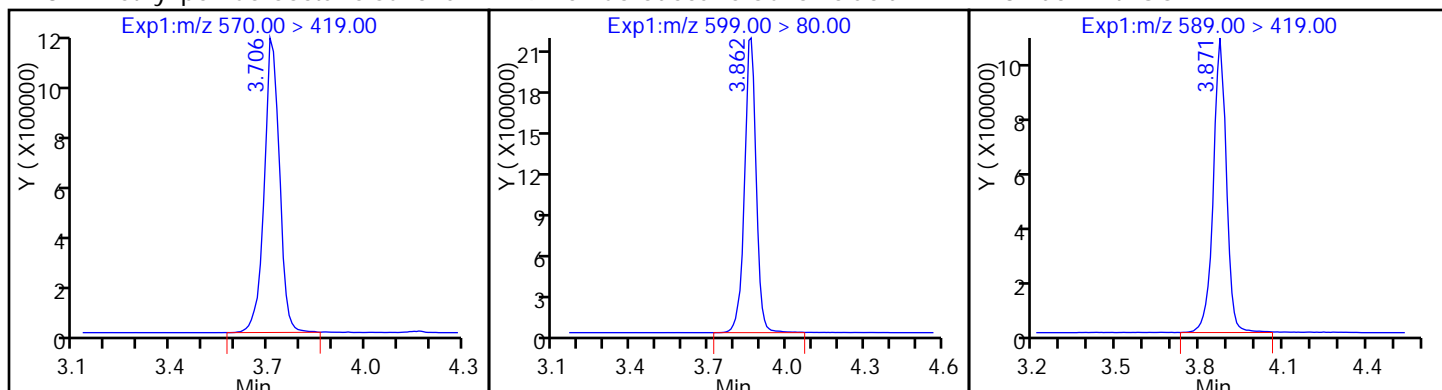
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

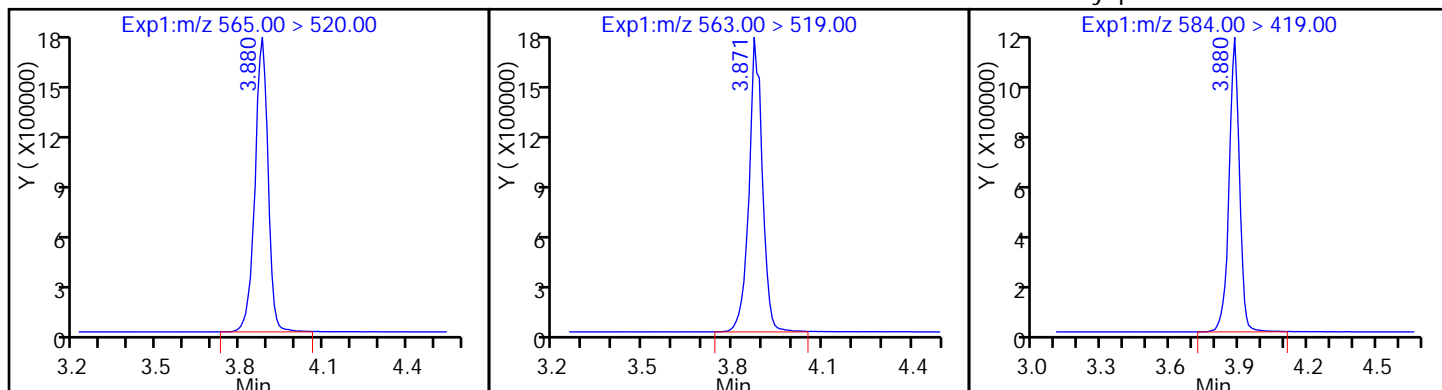
D 32 d5-NEtFOSAA



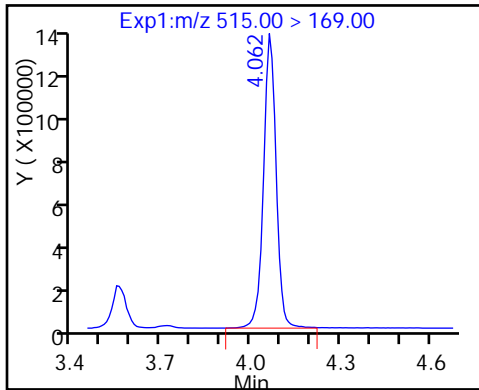
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

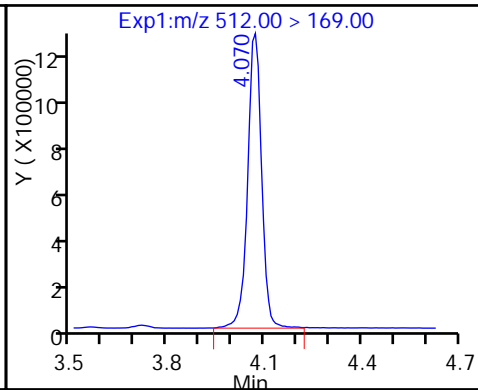
33 N-ethyl perfluorooctane sulfonamid



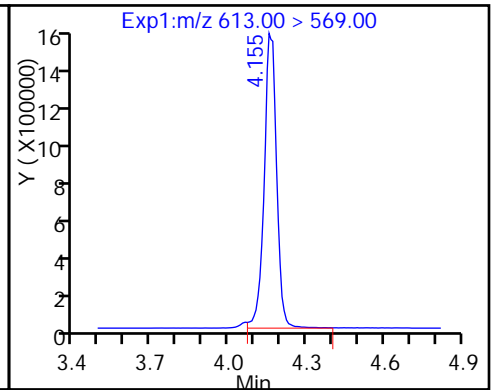
D 34 d-N-MeFOSA-M



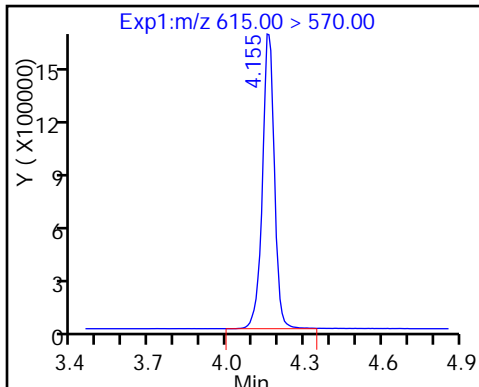
35 MeFOSA



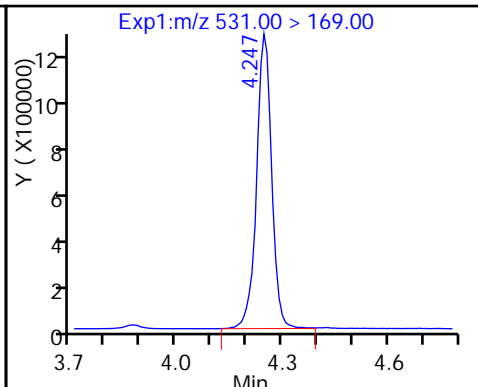
37 Perfluorododecanoic acid



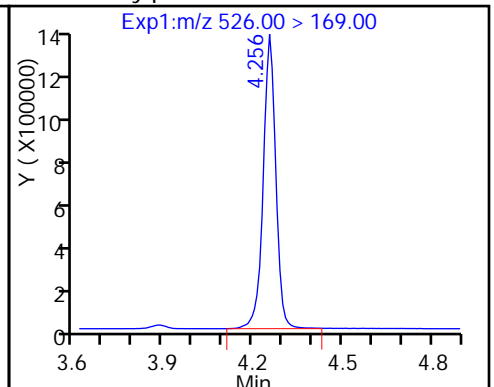
D 36 13C2 PFDa



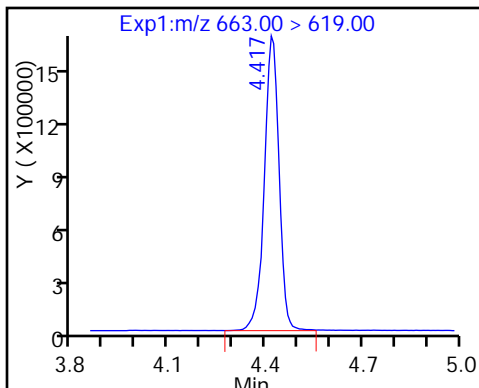
D 38 d-N-EtFOSA-M



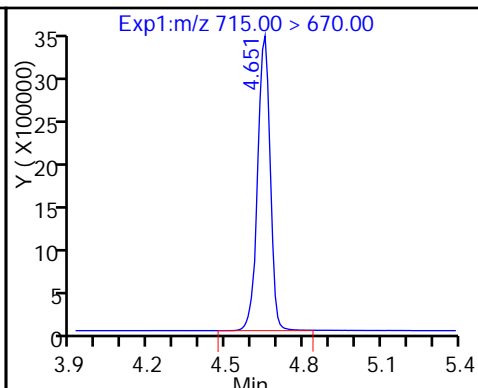
39 N-ethylperfluoro-1-octanesulfonami



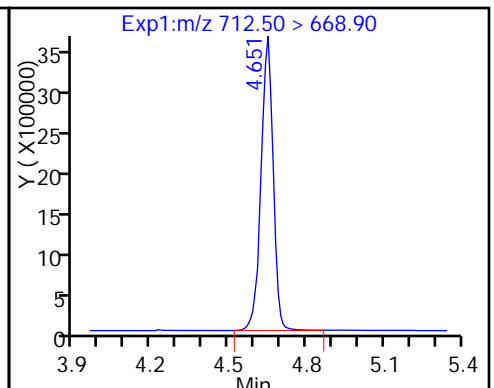
41 Perfluorotridecanoic acid



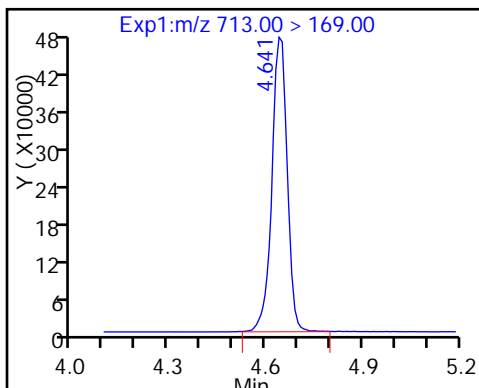
D 43 13C2-PFTeDa



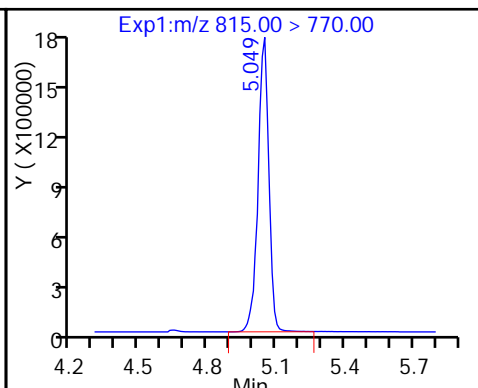
42 Perfluorotetradecanoic acid



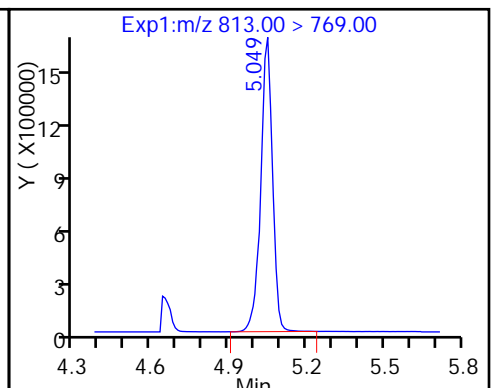
42 Perfluorotetradecanoic acid



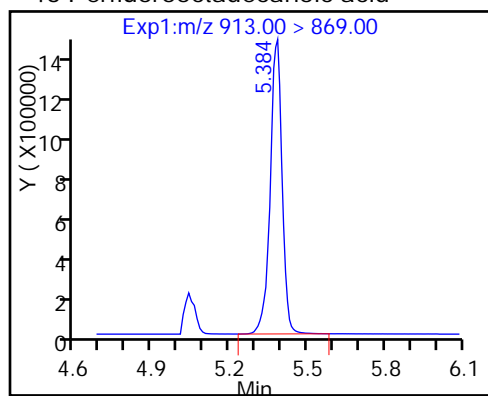
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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.: 320-26103-1
 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

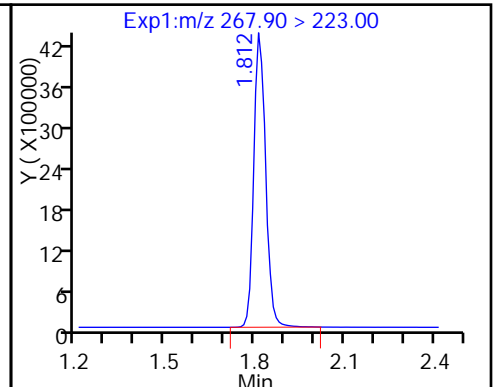
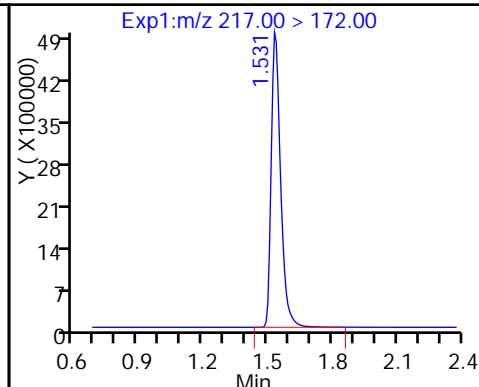
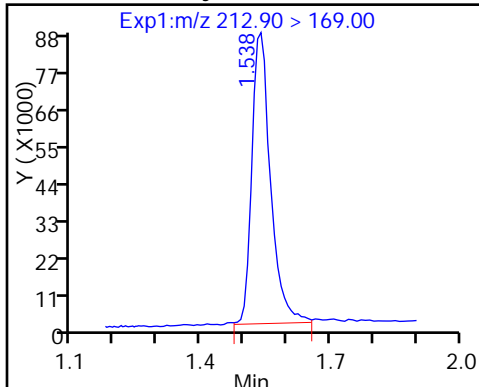
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

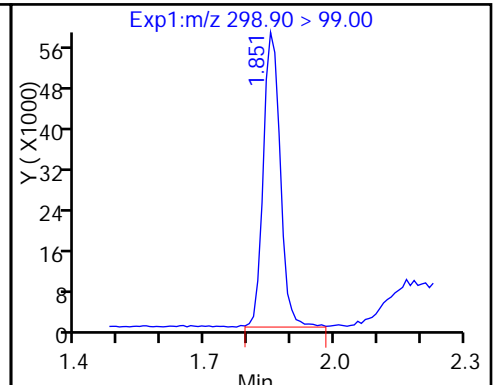
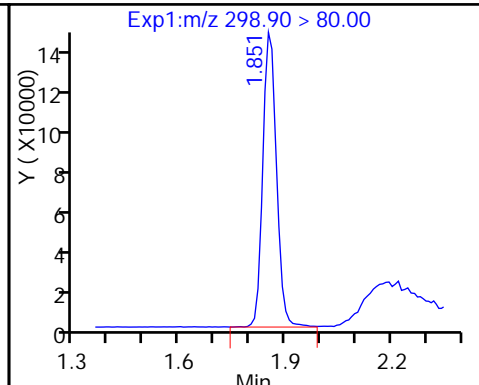
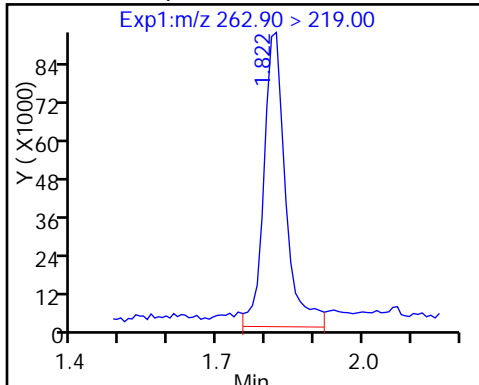
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

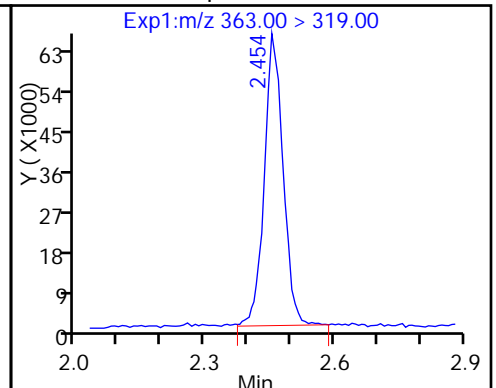
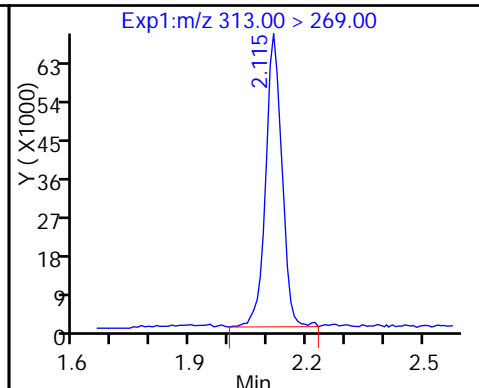
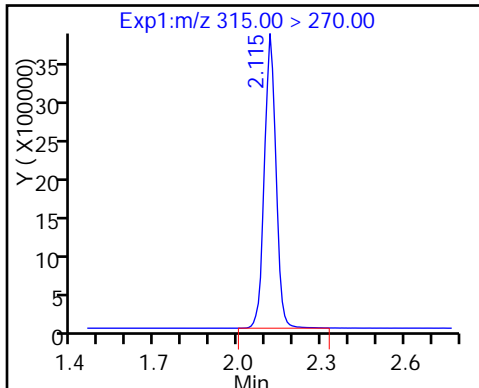
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

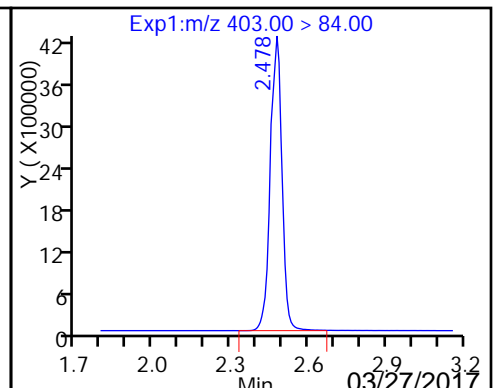
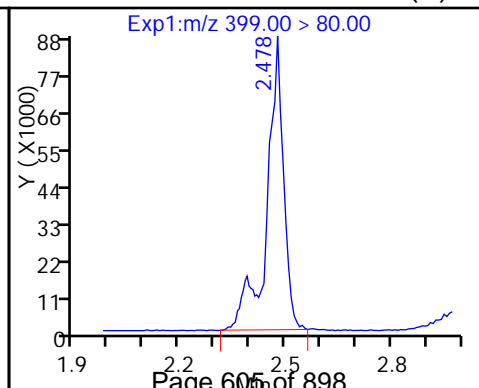
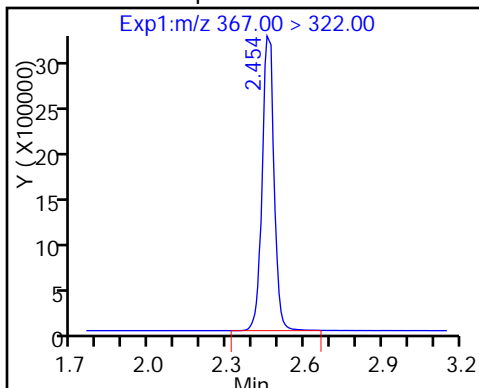
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

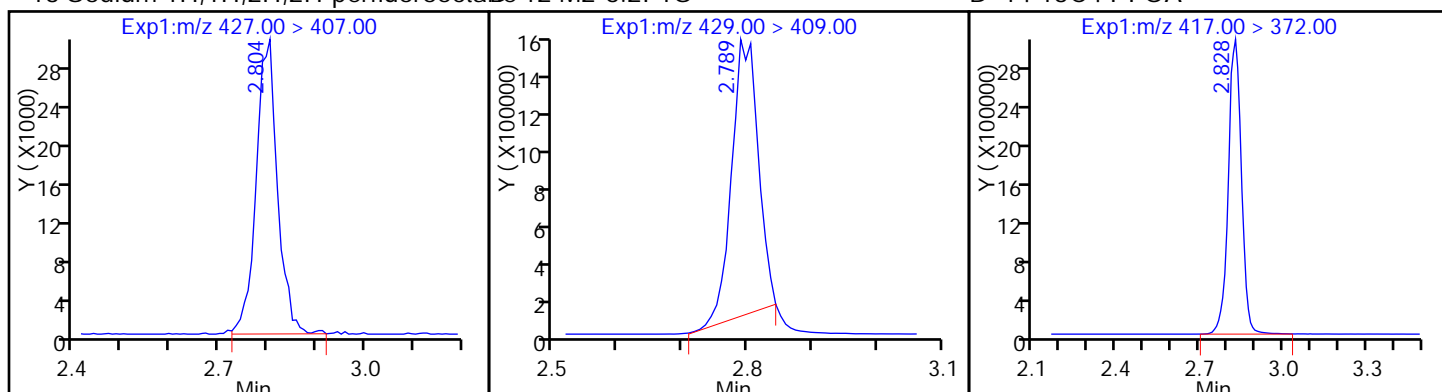
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

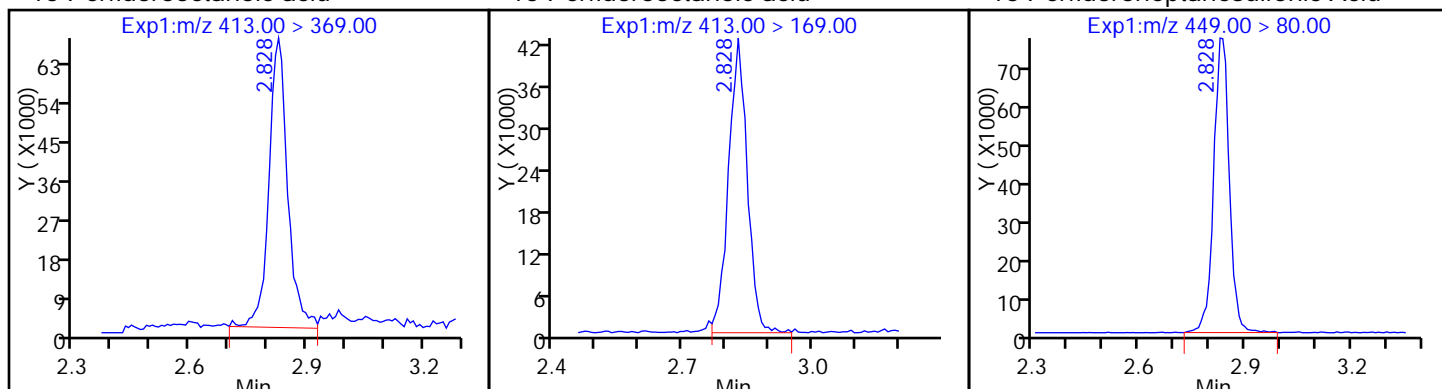
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

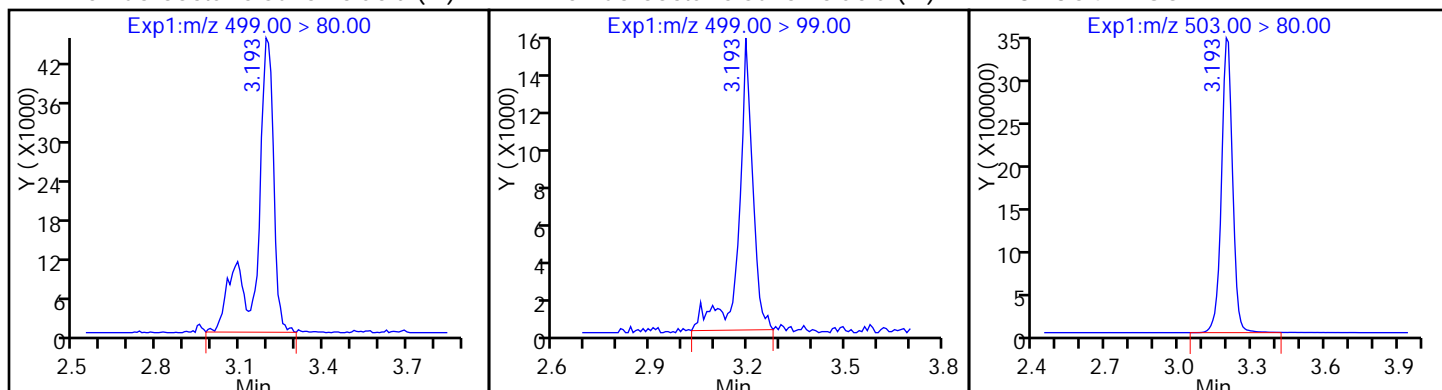
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

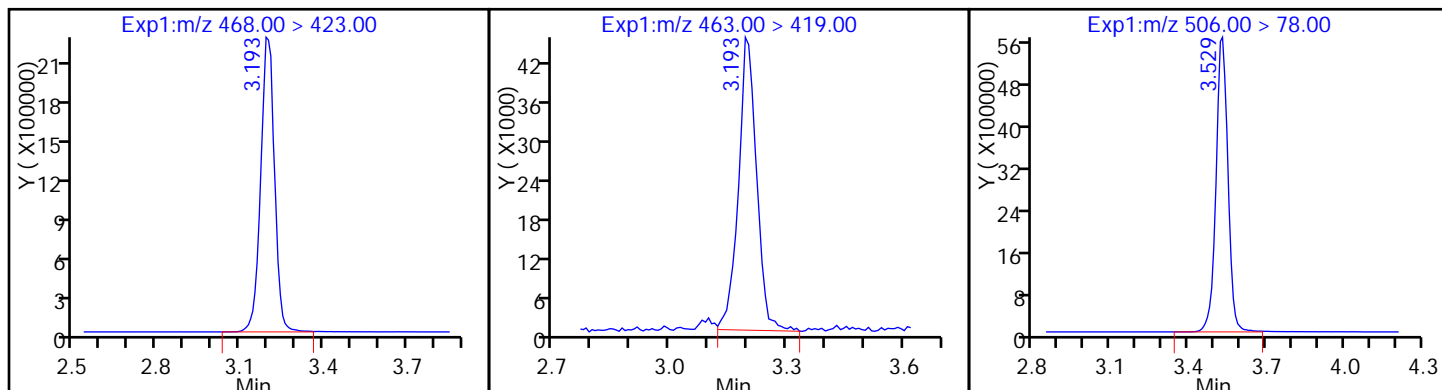
D 18 13C4 PFOS



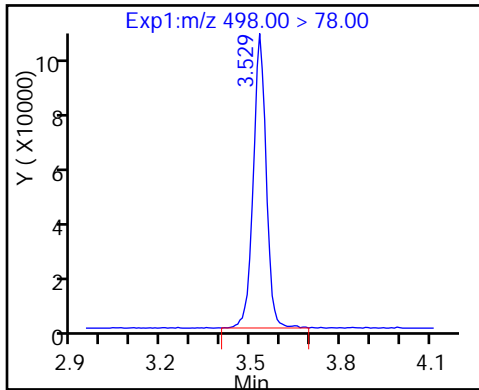
D 19 13C5 PFNA

20 Perfluorononanoic acid

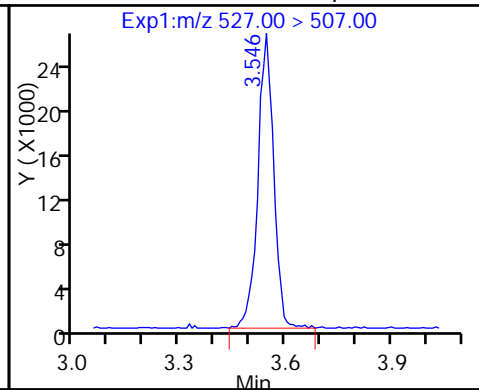
D 21 13C8 FOSA



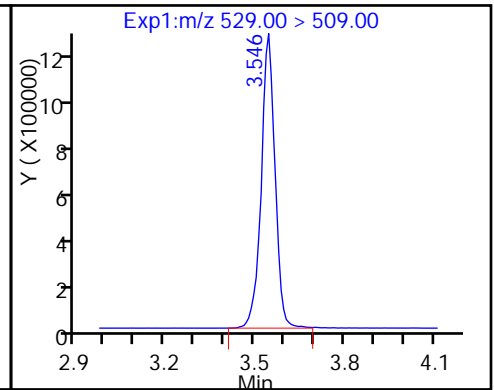
22 Perfluorooctane Sulfonamide



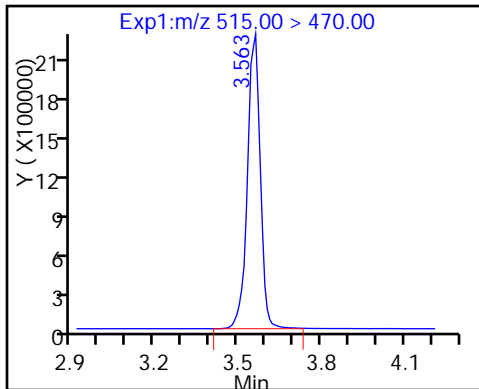
25 Sodium 1H,1H,2H,2H-perfluorooctane



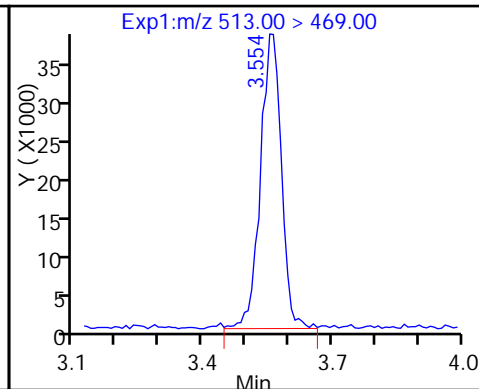
26 M2-8:2FTS



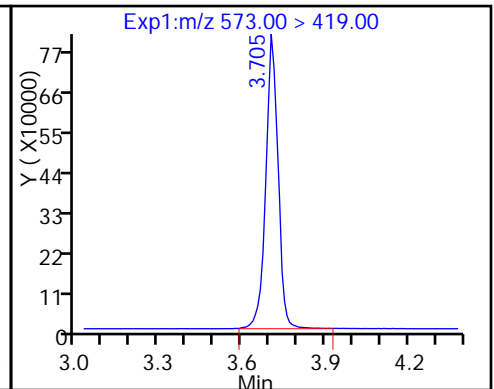
D 23 13C2 PFDA



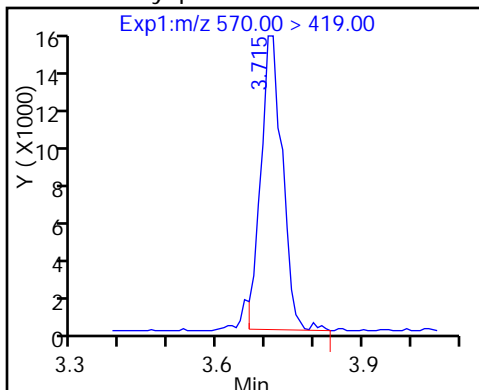
24 Perfluorodecanoic acid



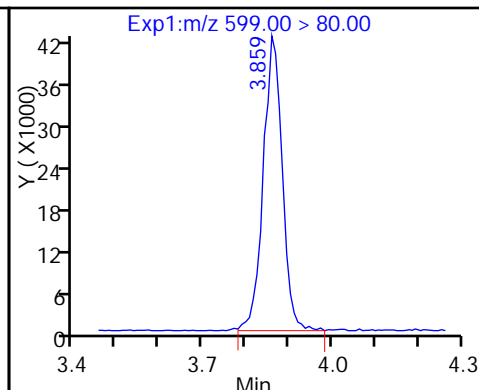
D 27 d3-NMeFOSAA



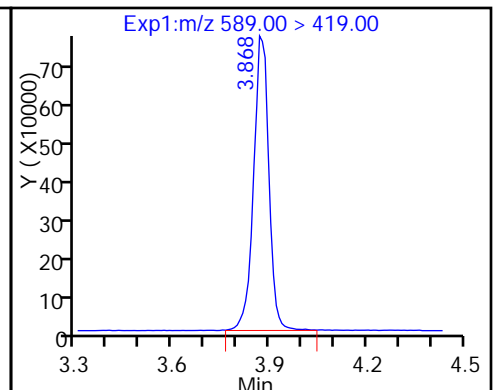
28 N-methyl perfluorooctane sulfonami



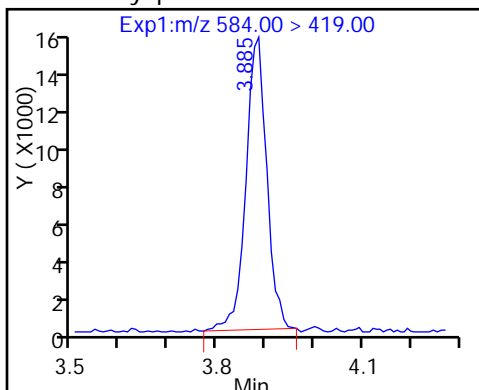
29 Perfluorodecane Sulfonic acid



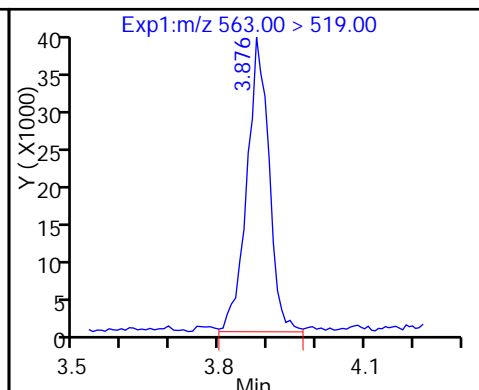
D 32 d5-NEtFOSAA



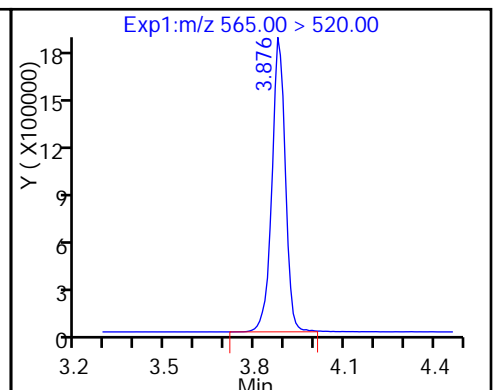
33 N-ethyl perfluorooctane sulfonamid



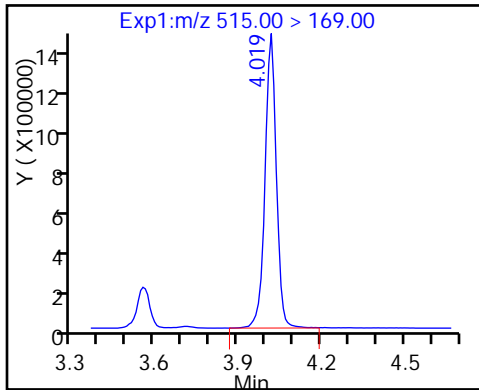
31 Perfluoroundecanoic acid



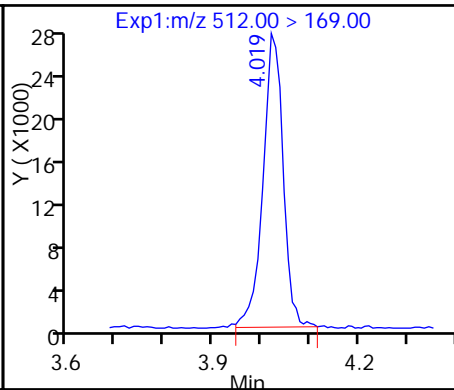
D 30 13C2 PFUnA



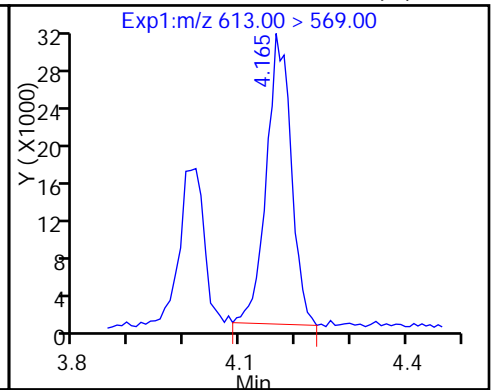
D 34 d-N-MeFOSA-M



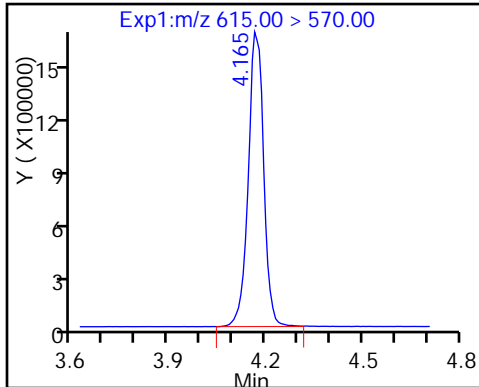
35 MeFOSA



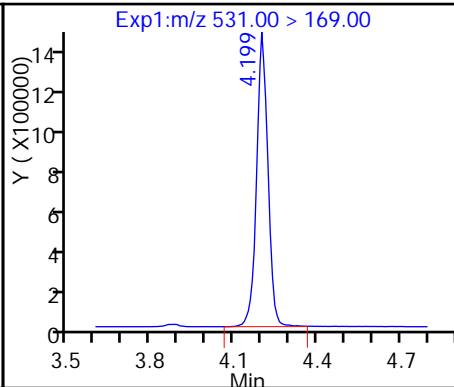
37 Perfluorododecanoic acid (M)



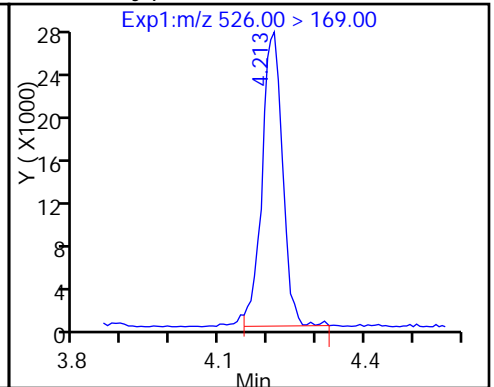
D 36 13C2 PFDa



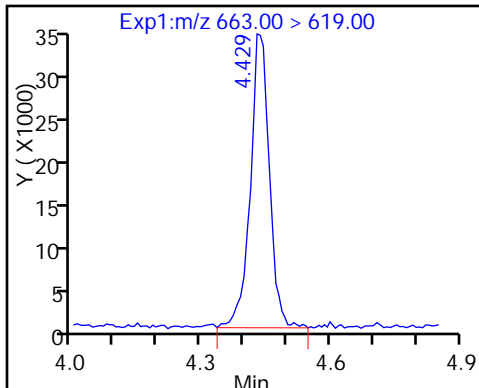
D 38 d-N-EtFOSA-M



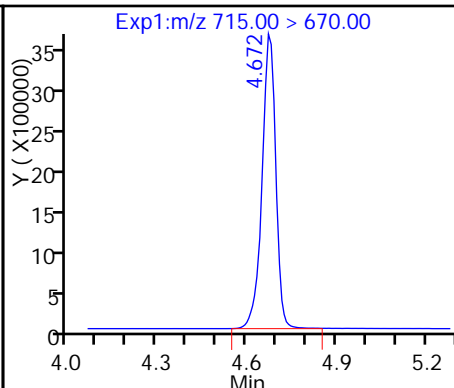
39 N-ethylperfluoro-1-octanesulfonami



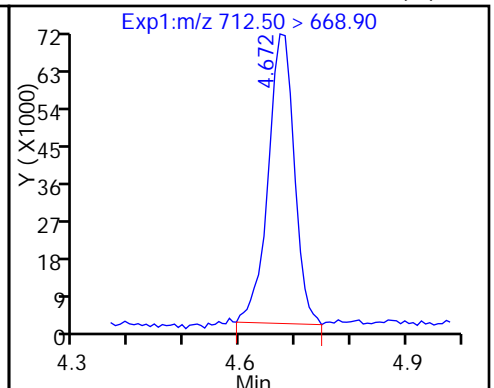
41 Perfluorotridecanoic acid



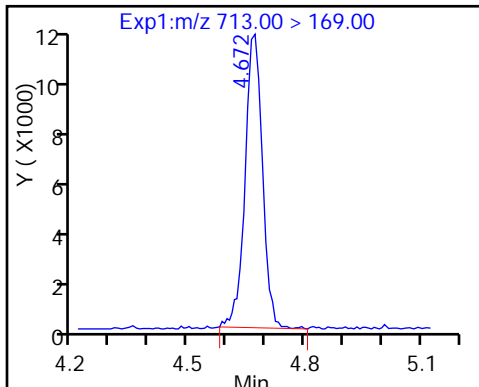
D 43 13C2-PFTeDa



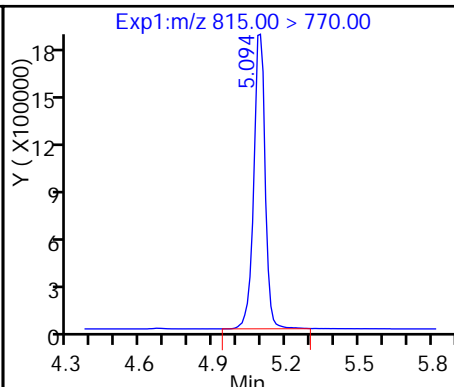
42 Perfluorotetradecanoic acid (M)



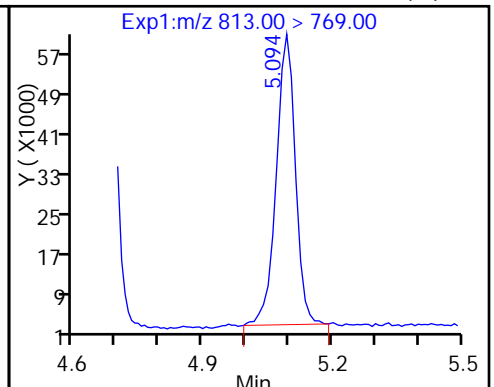
42 Perfluorotetradecanoic acid



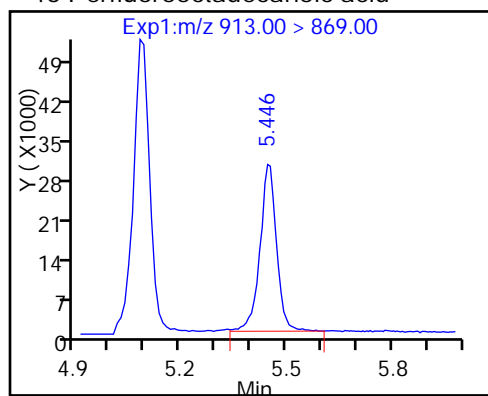
D 44 13C2-PFHxDa



45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid



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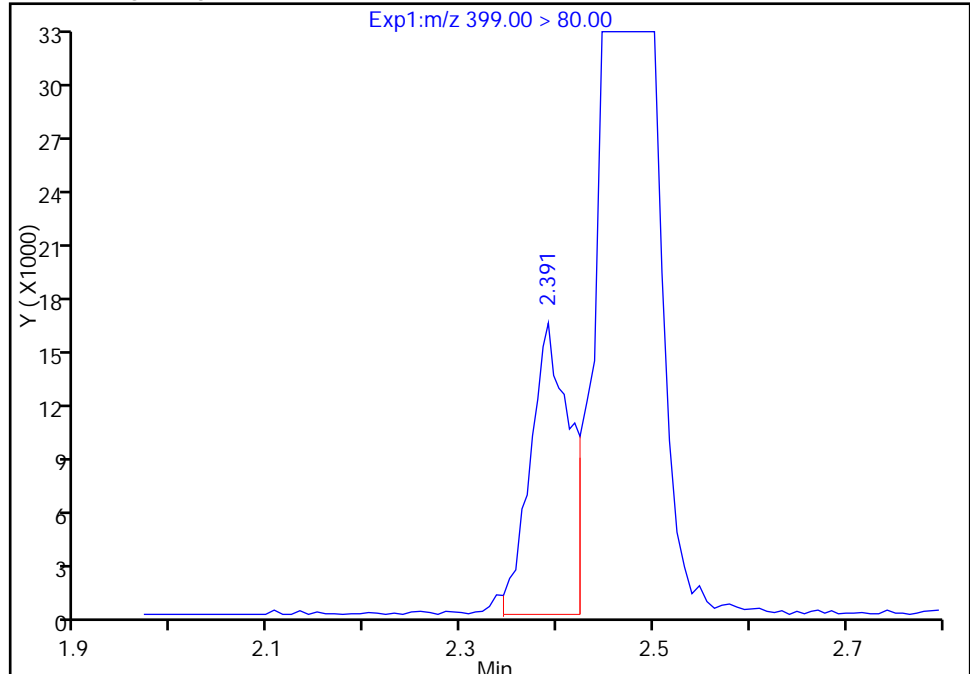
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

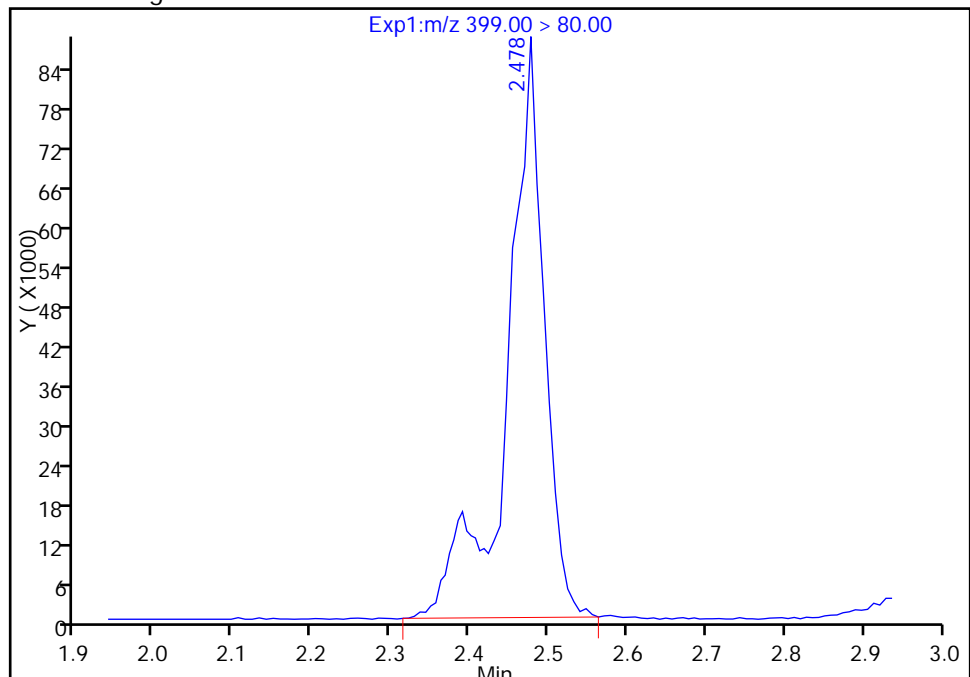
RT: 2.39
Area: 45593
Amount: 0.156564
Amount Units: ng/ml

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

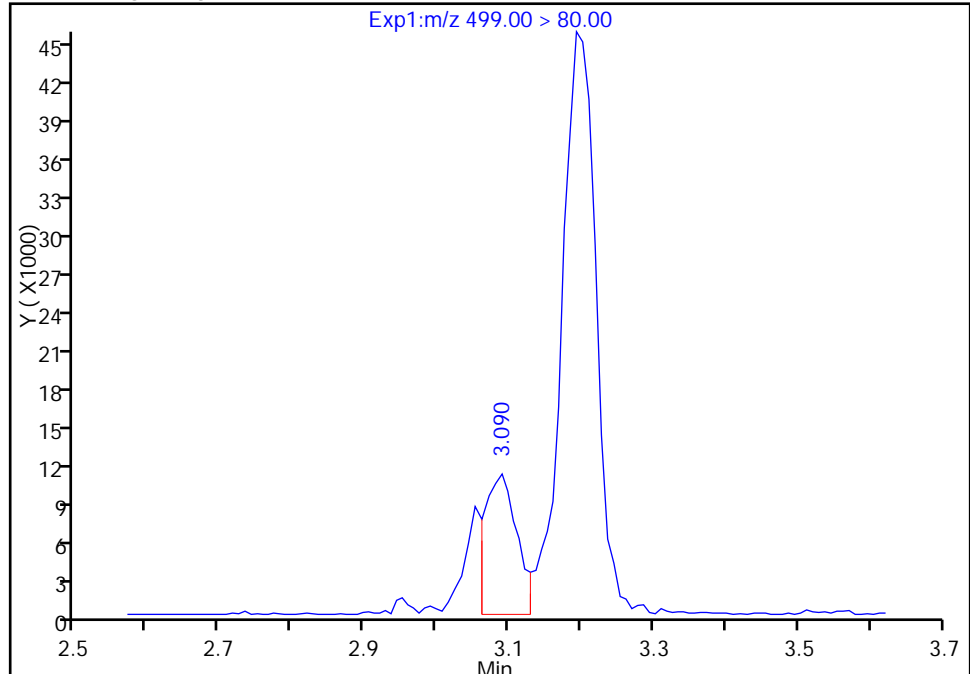
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

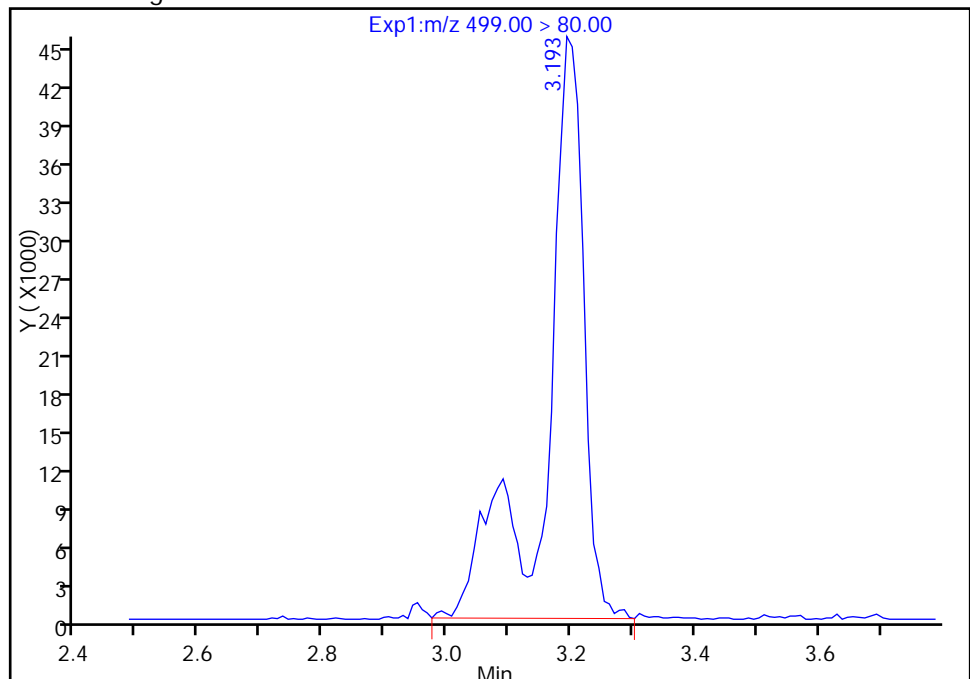
RT: 3.09
Area: 31935
Amount: 0.142042
Amount Units: ng/ml

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

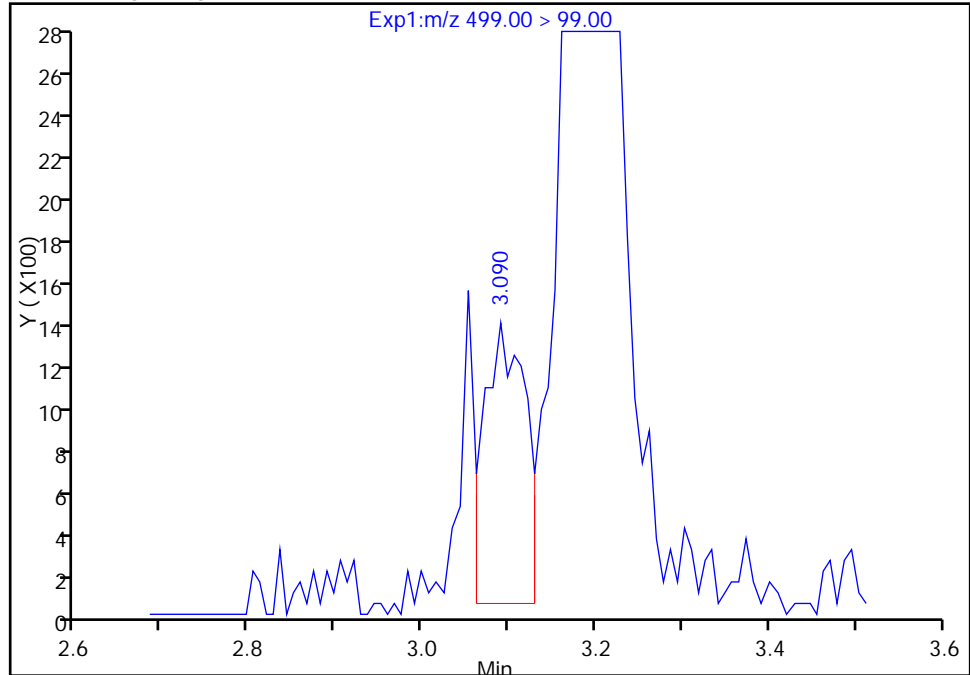
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

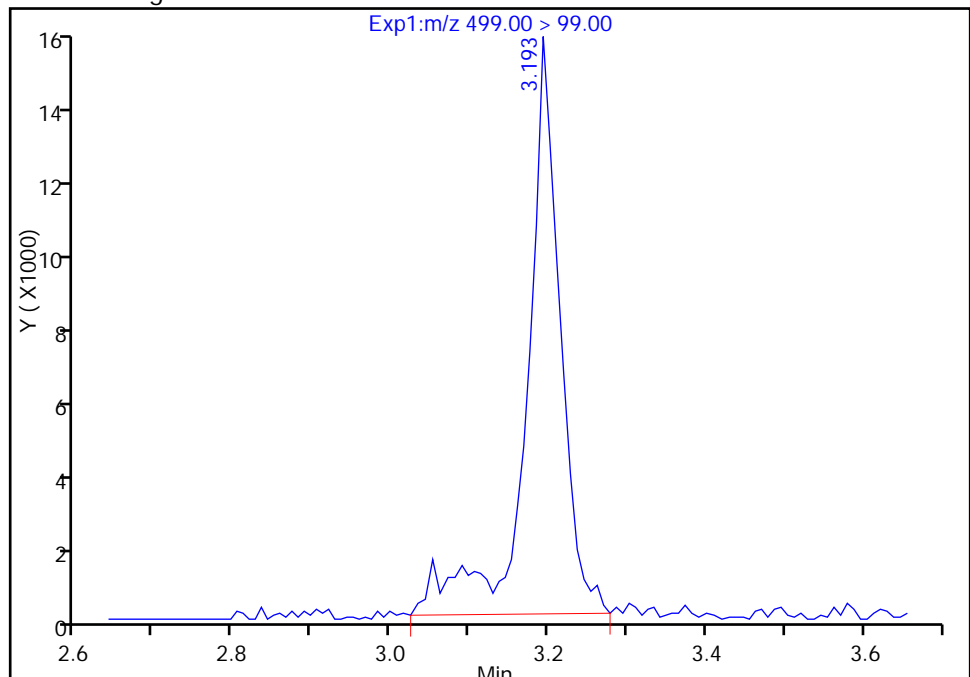
RT: 3.09
Area: 4213
Amount: 0.142042
Amount Units: ng/ml

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

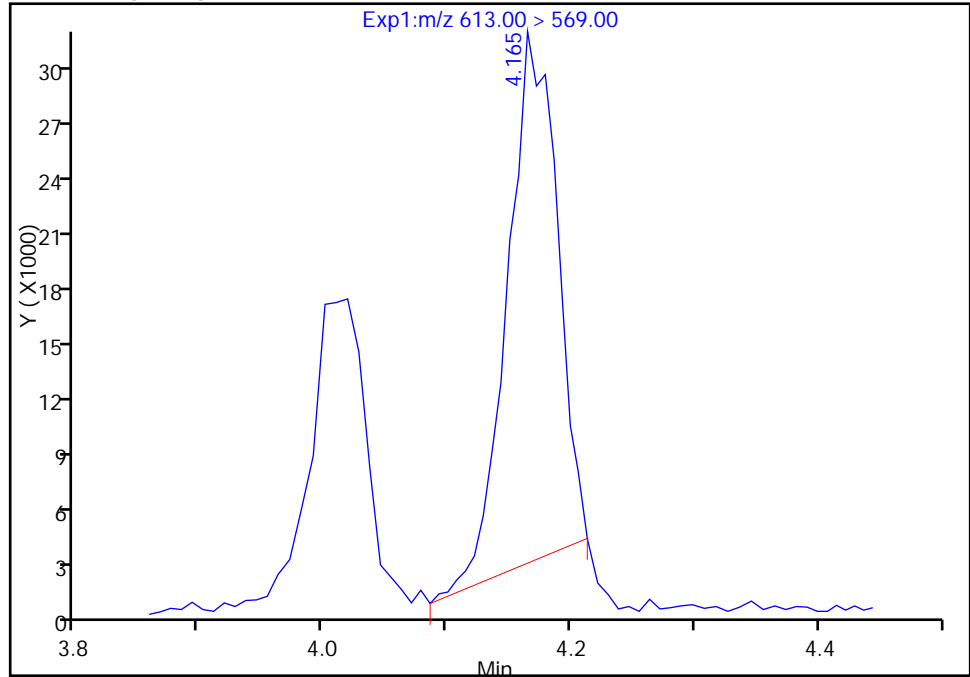
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Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

37 Perfluorododecanoic acid, CAS: 307-55-1

Signal: 1

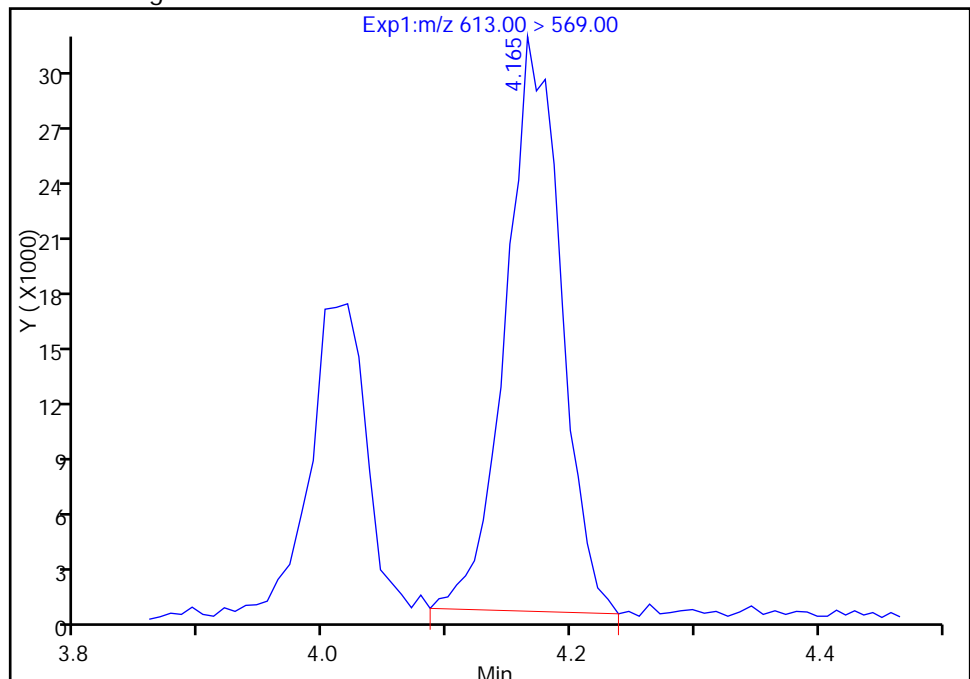
RT: 4.16
Area: 80091
Amount: 0.790618
Amount Units: ng/ml

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

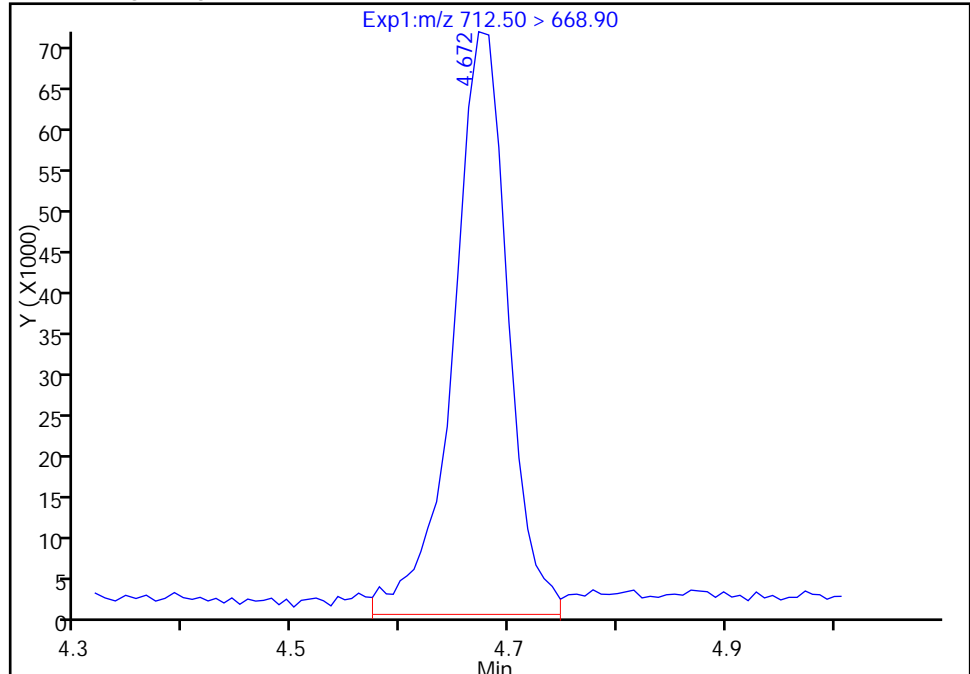
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

42 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 1

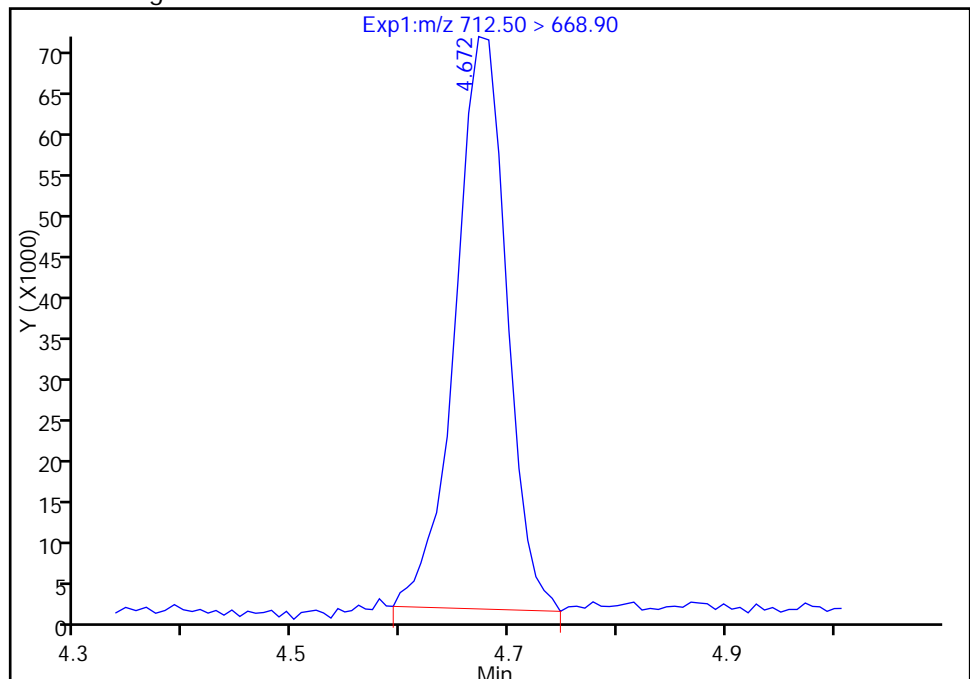
RT: 4.67
Area: 249999
Amount: 1.147659
Amount Units: ng/ml

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

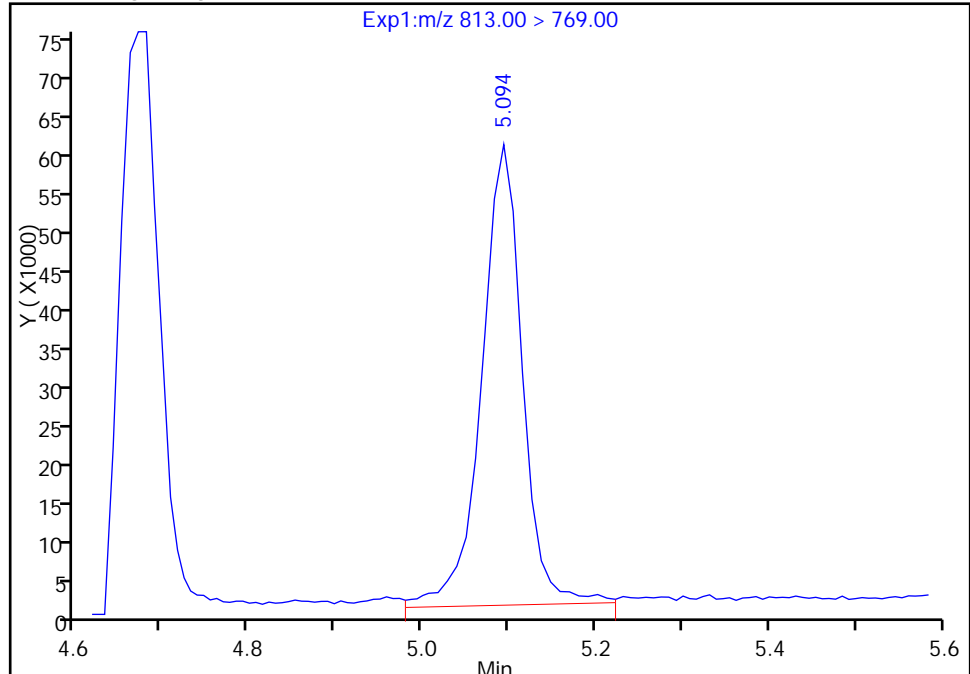
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_001.d
Injection Date: 02-Mar-2017 10:12:44 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

45 Perfluorohexadecanoic acid, CAS: 67905-19-5

Signal: 1

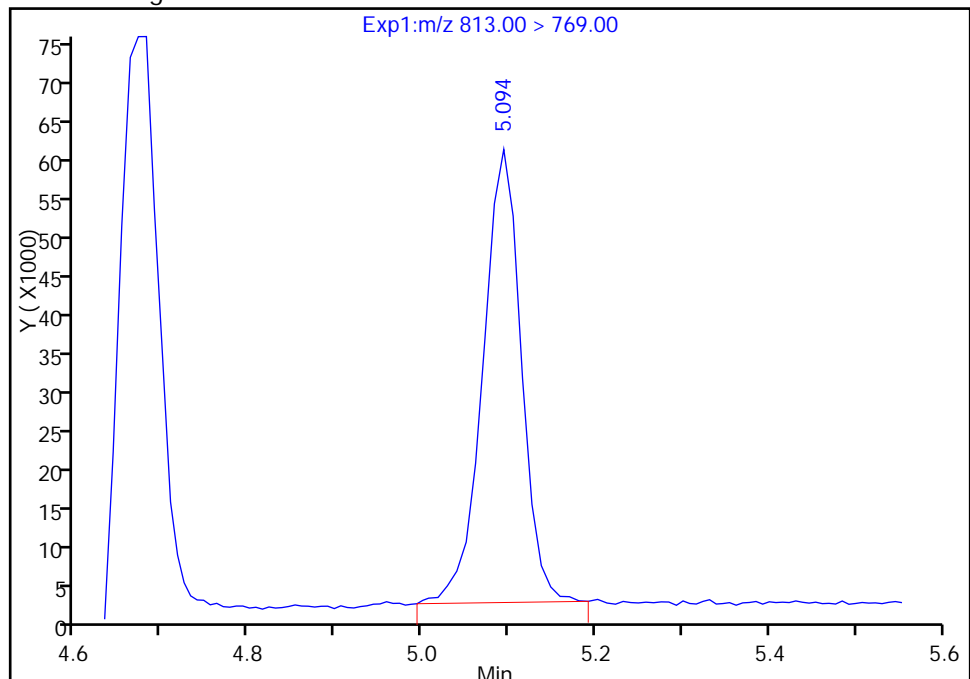
RT: 5.09
Area: 195255
Amount: 1.524963
Amount Units: ng/ml

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.: 320-26103-1

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.: 320-26103-1
 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	

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

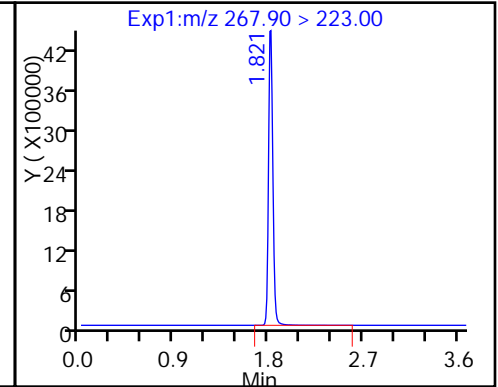
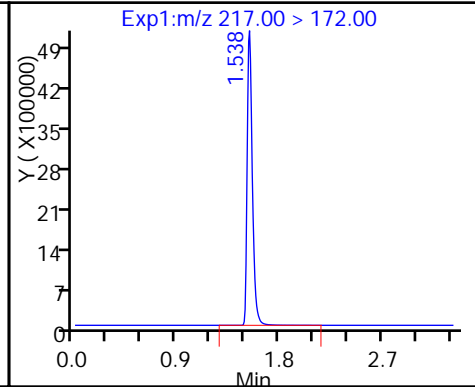
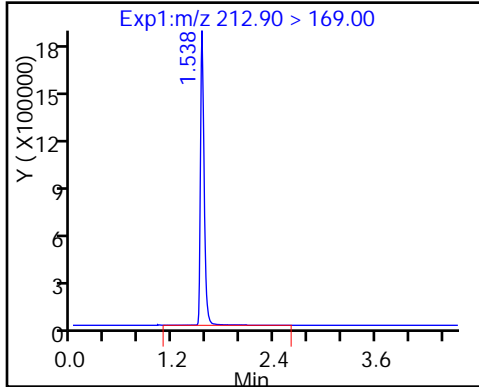
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

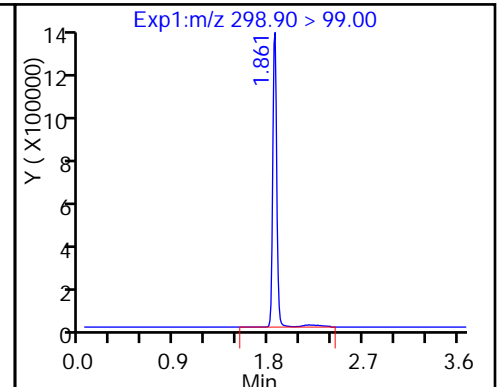
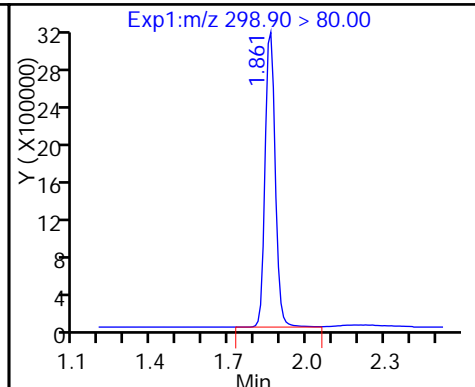
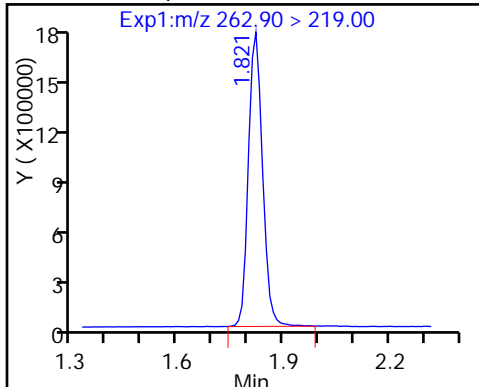
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (M)

5 Perfluorobutanesulfonic acid

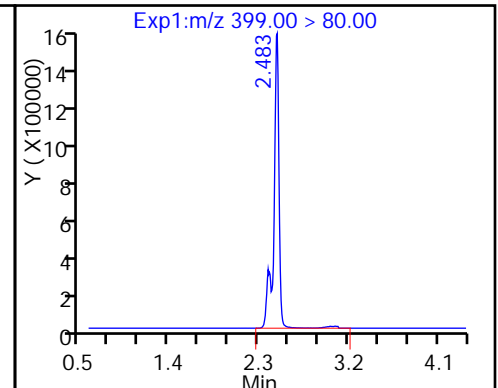
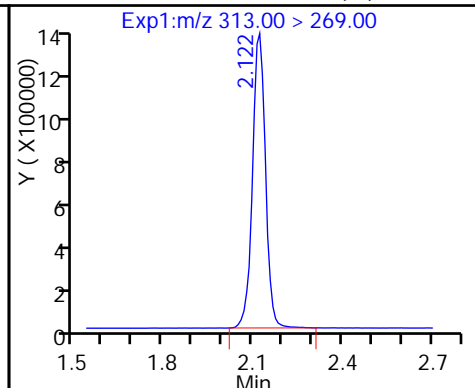
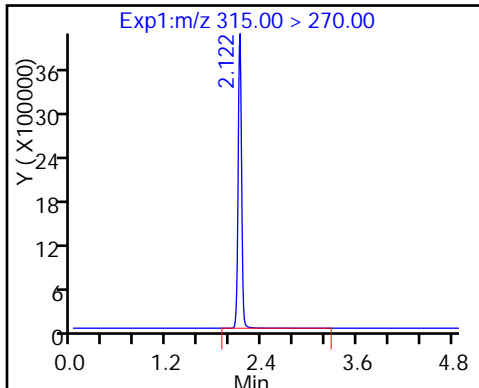
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid (M)

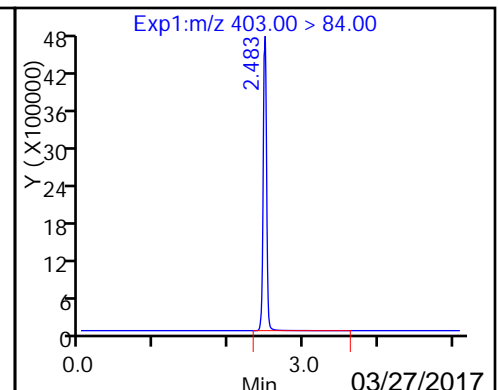
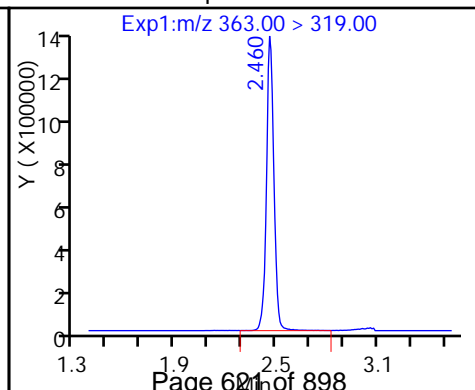
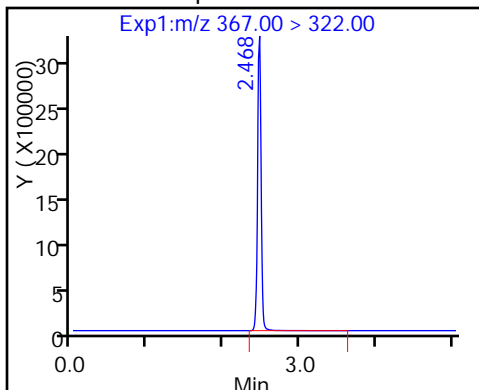
8 Perfluorohexanesulfonic acid



D 9 13C4-PFHpA

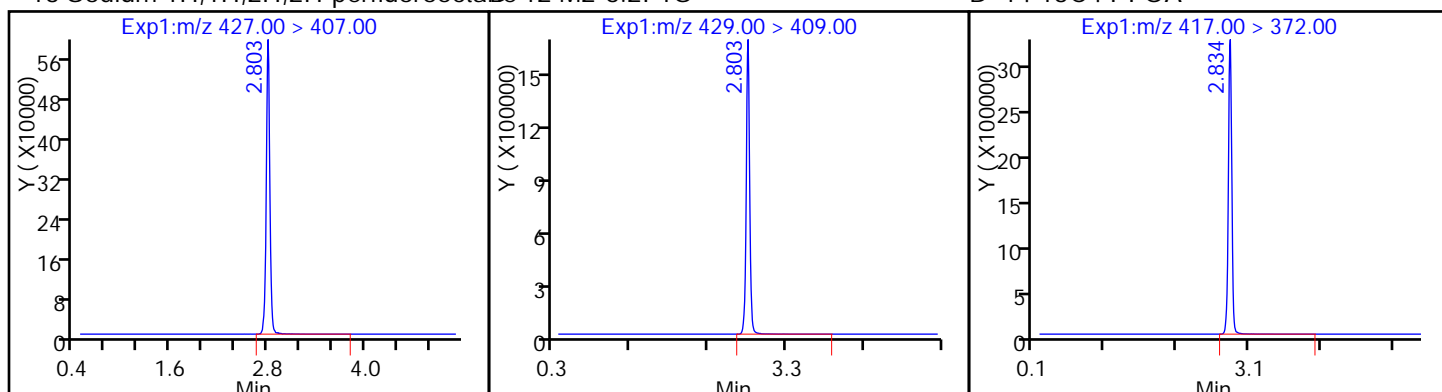
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

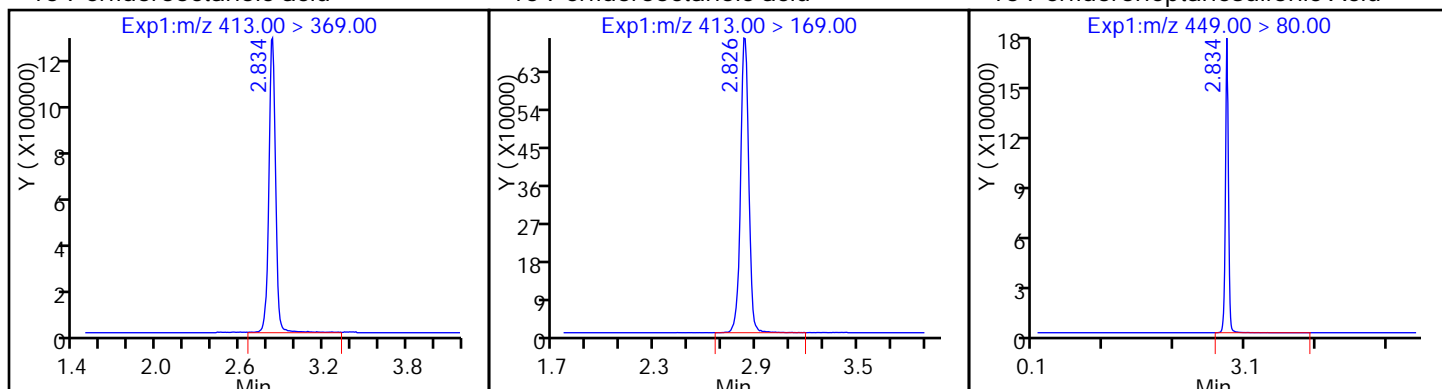
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

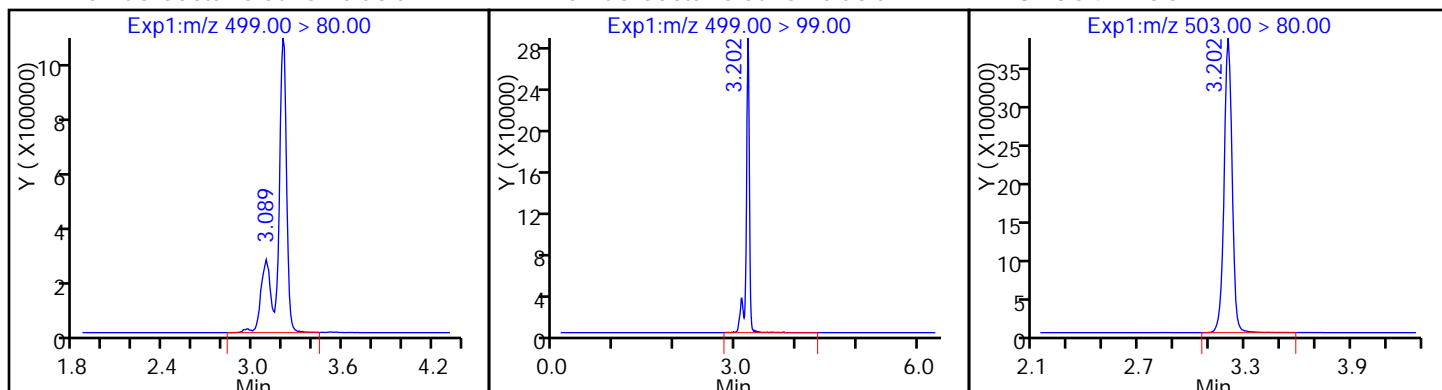
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

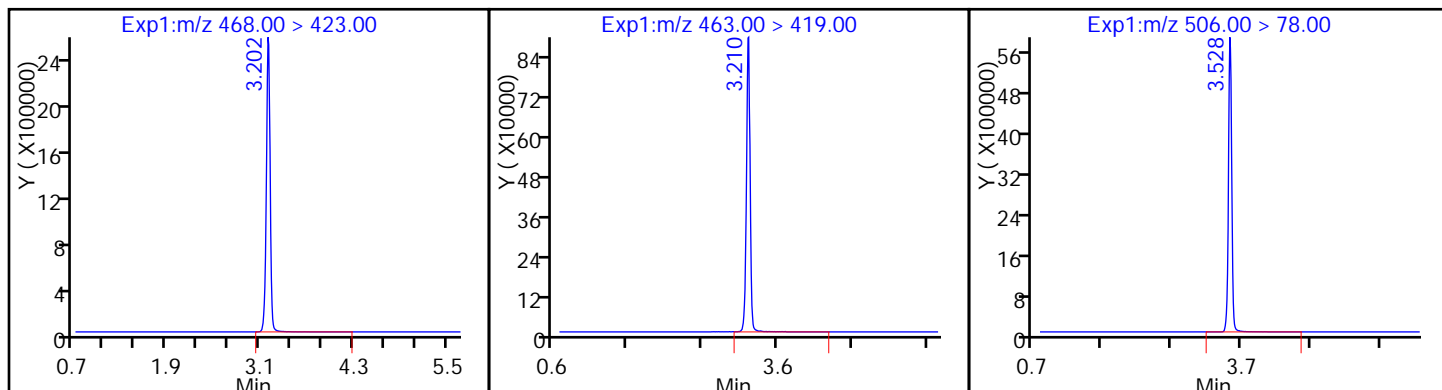
D 18 13C4 PFOS



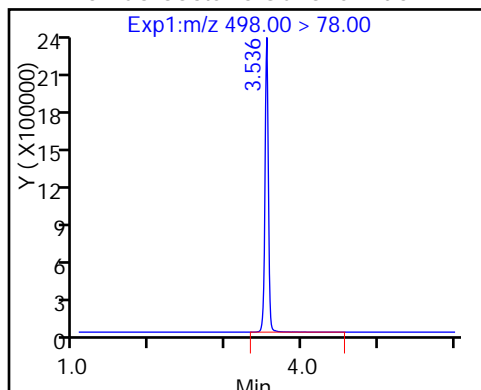
D 19 13C5 PFNA

20 Perfluorononanoic acid

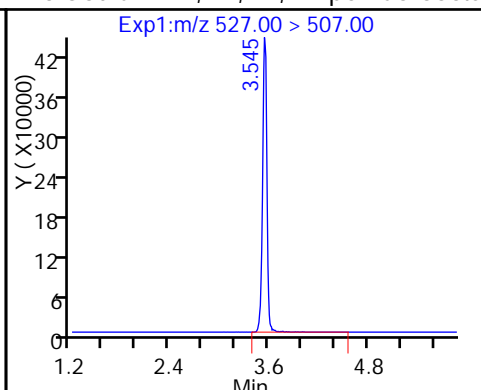
D 21 13C8 FOSA



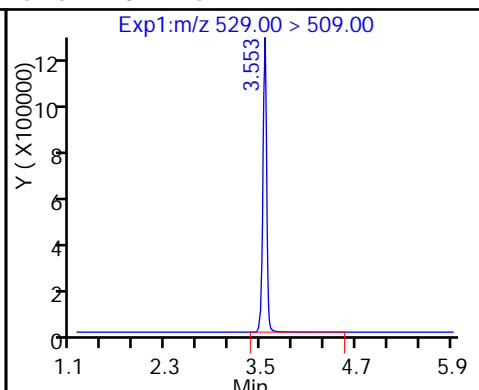
22 Perfluorooctane Sulfonamide



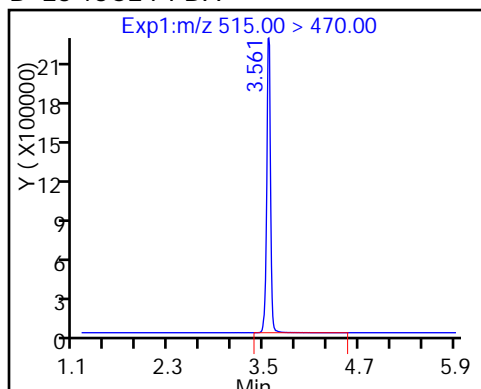
25 Sodium 1H,1H,2H,2H-perfluorooctane



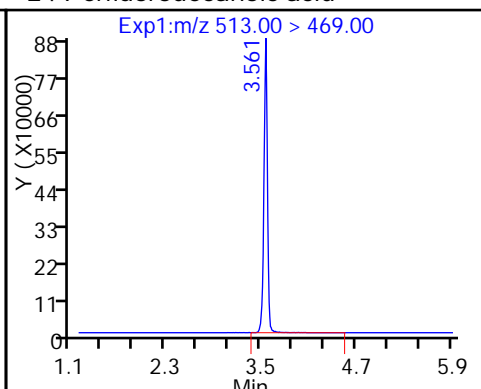
D 26 M2-8:2FTS



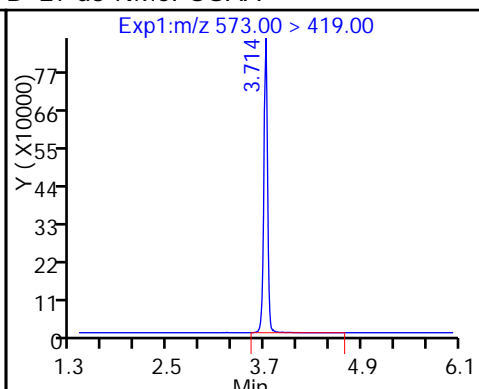
D 23 13C2 PFDA



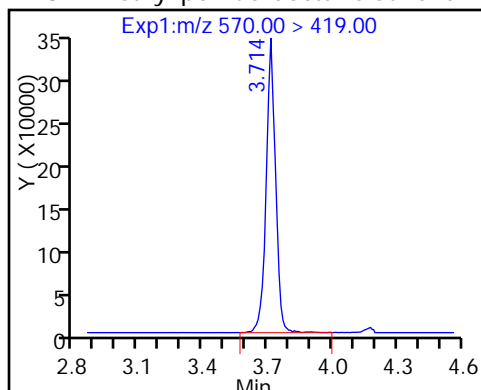
24 Perfluorodecanoic acid



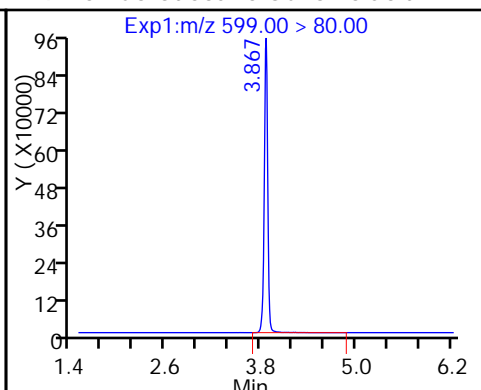
D 27 d3-NMeFOSAA



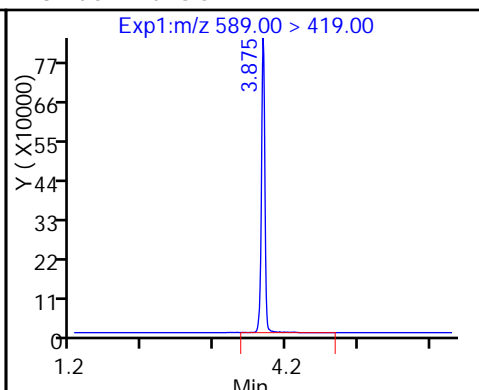
28 N-methyl perfluorooctane sulfonami



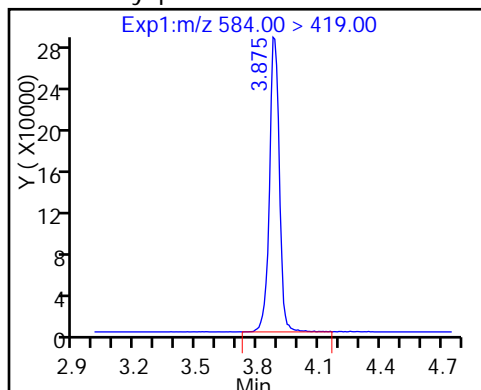
29 Perfluorodecane Sulfonic acid



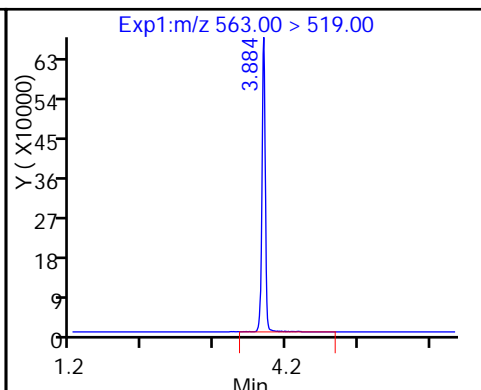
D 32 d5-NEtFOSAA



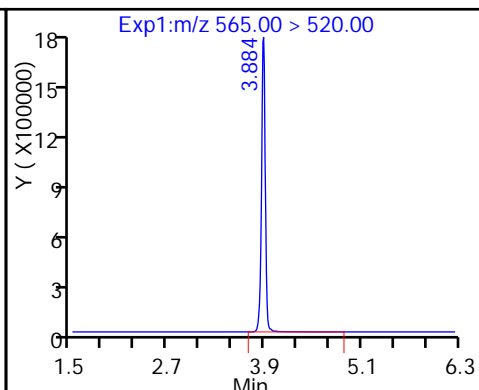
33 N-ethyl perfluorooctane sulfonamid



31 Perfluoroundecanoic acid



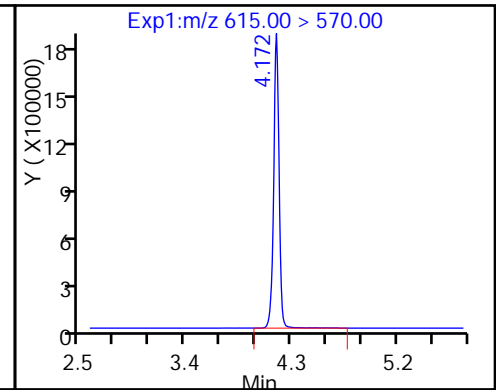
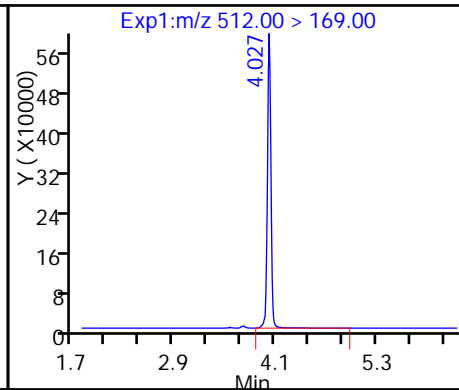
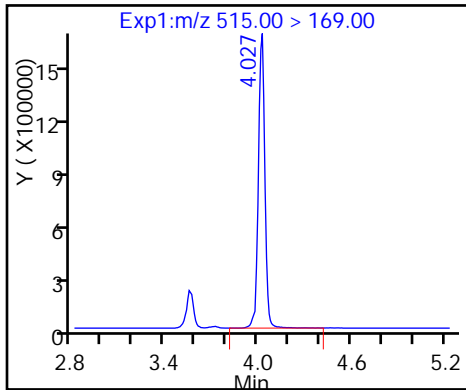
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

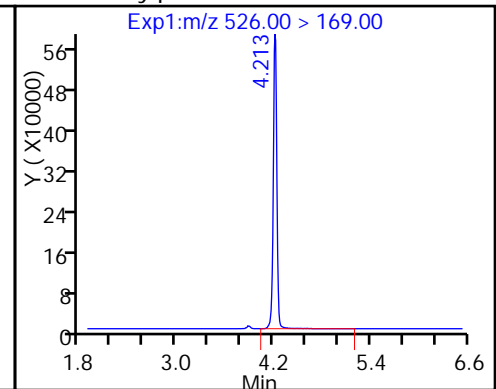
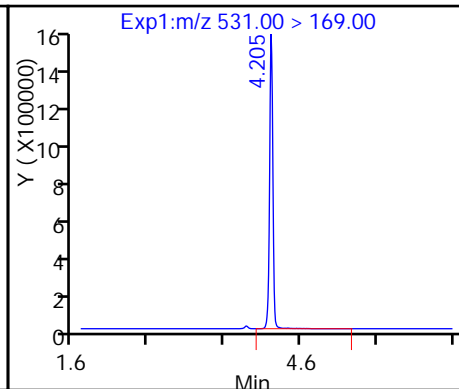
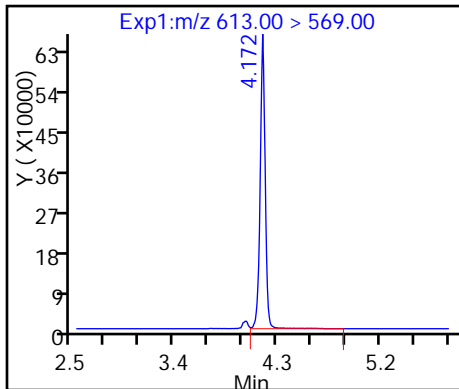
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

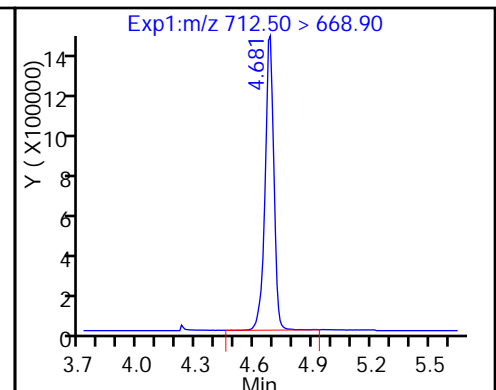
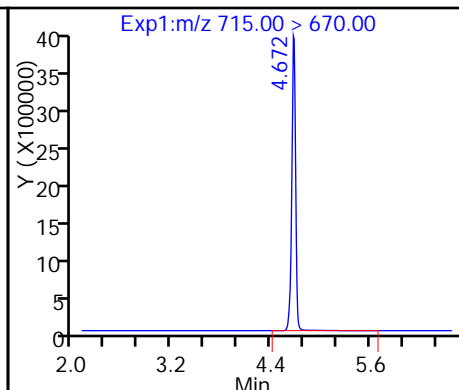
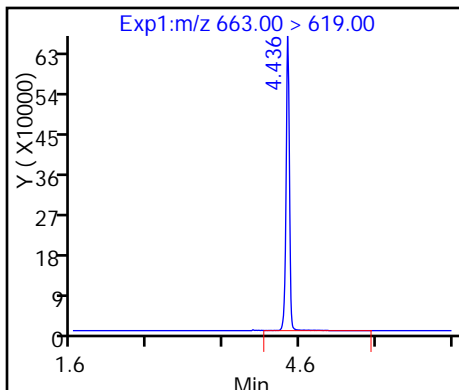
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

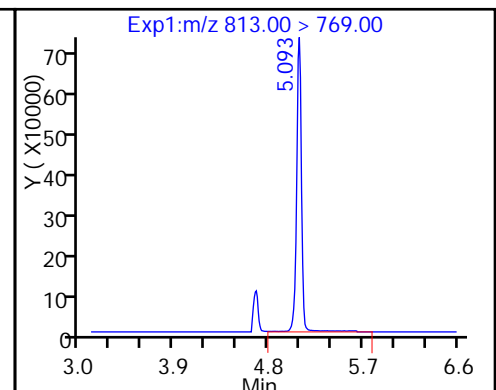
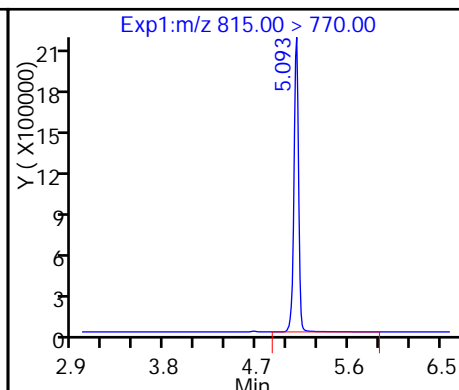
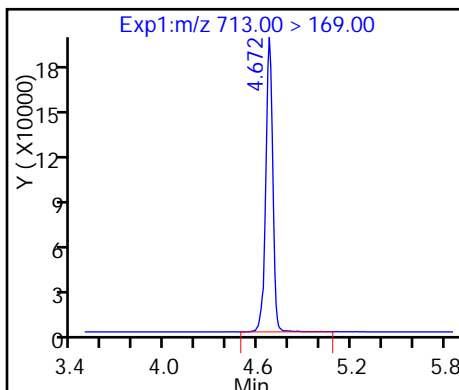
42 Perfluorotetradecanoic acid



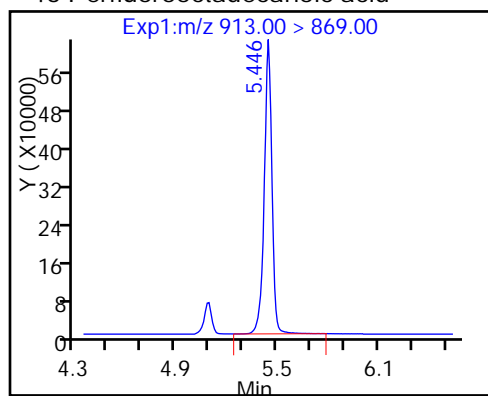
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

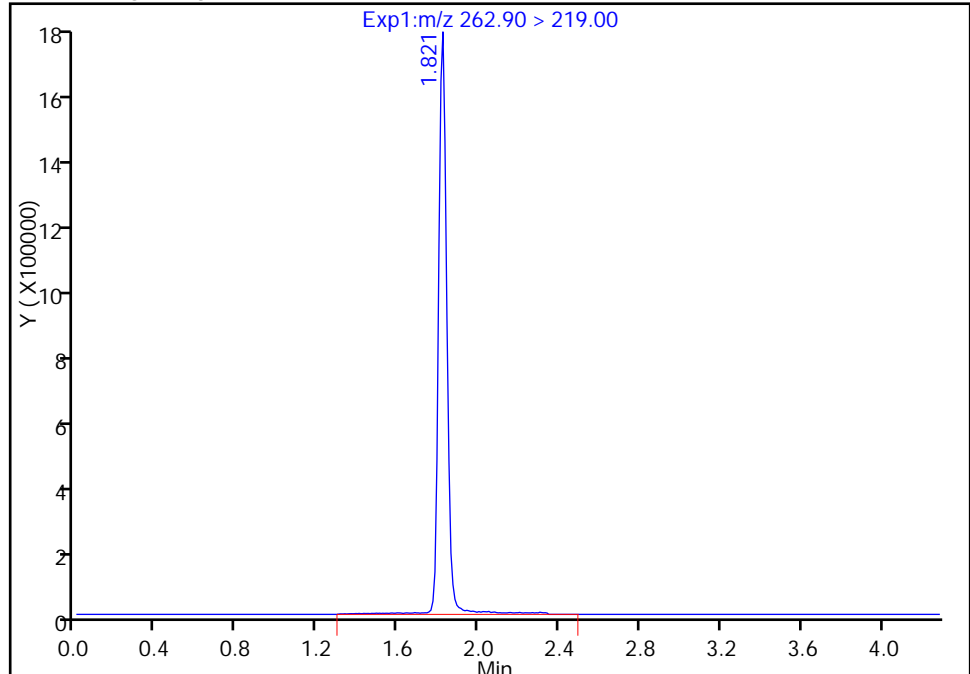
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_002.d
Injection Date: 02-Mar-2017 10:20:15 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

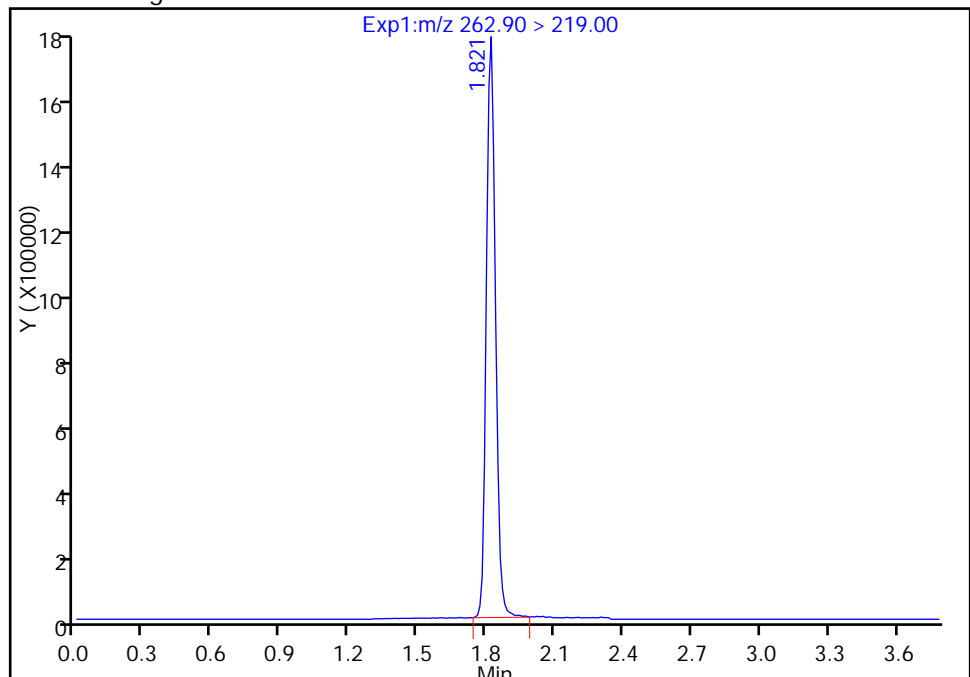
RT: 1.82
Area: 5152486
Amount: 20.305253
Amount Units: ng/ml

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

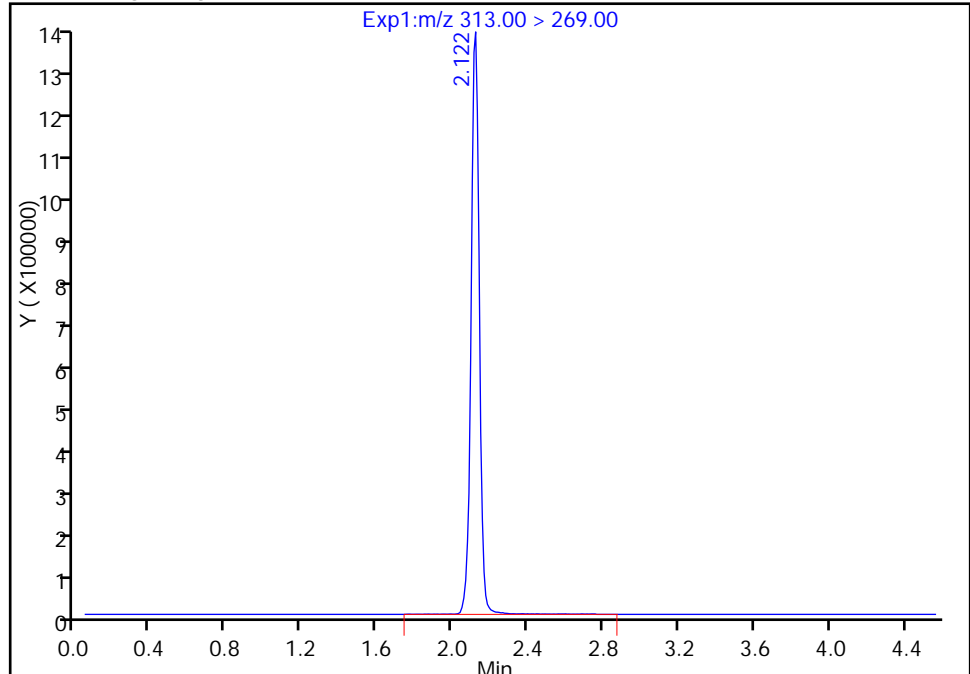
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Injection Date: 02-Mar-2017 10:20:15 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

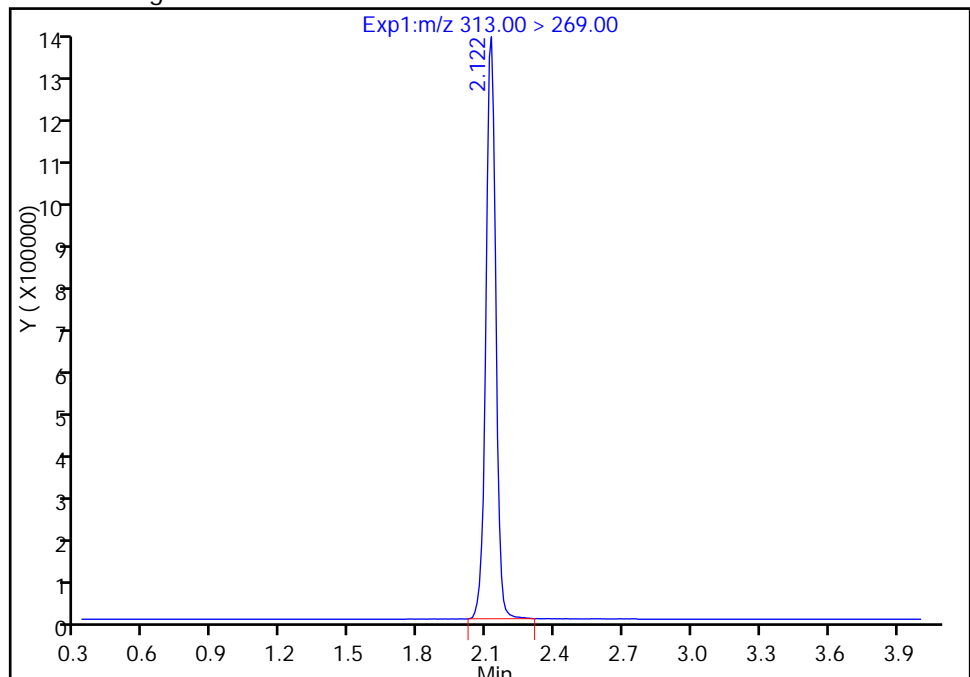
RT: 2.12
Area: 4287198
Amount: 19.299849
Amount Units: ng/ml

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.: 320-26103-1

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.: 320-26103-1
 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

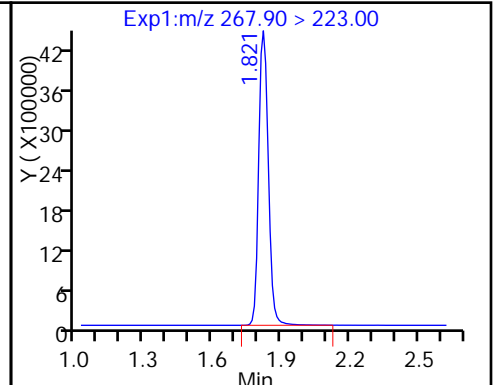
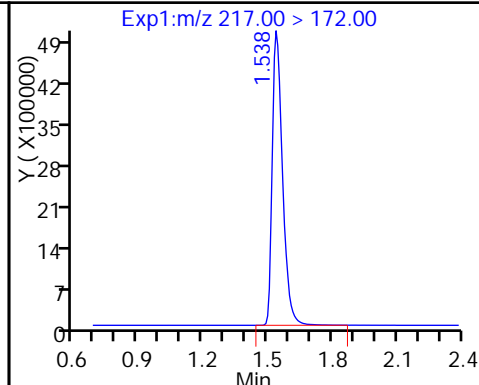
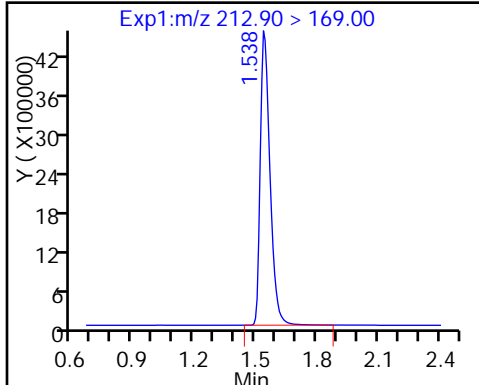
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

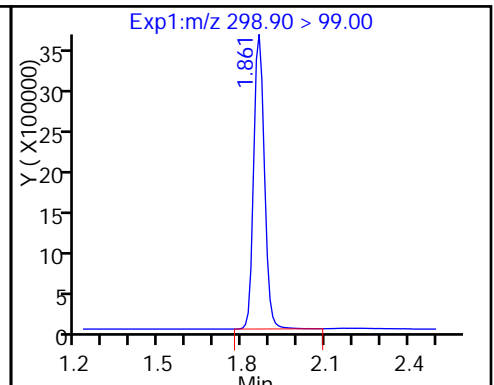
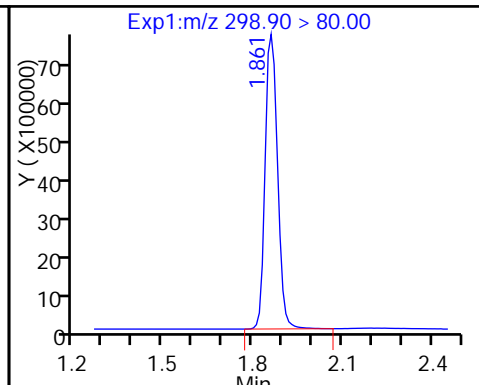
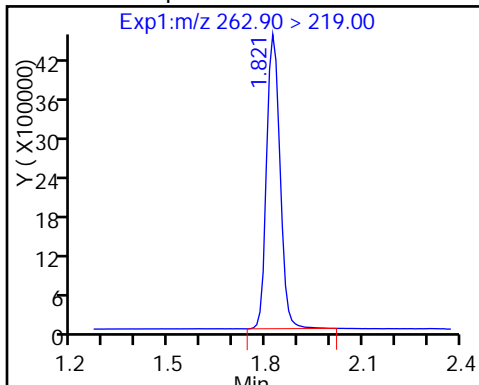
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

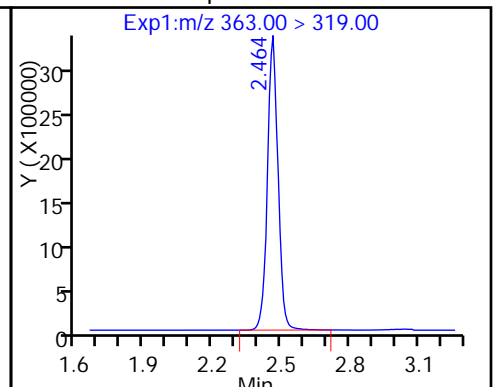
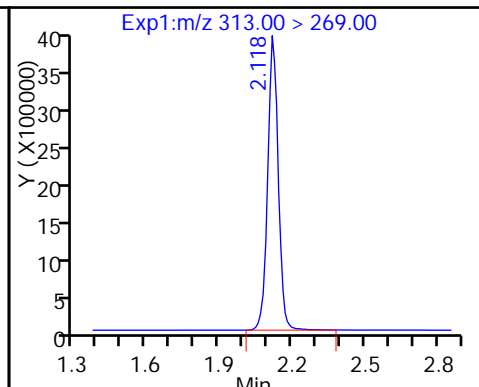
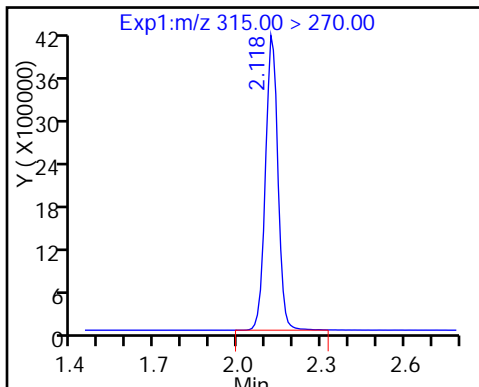
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

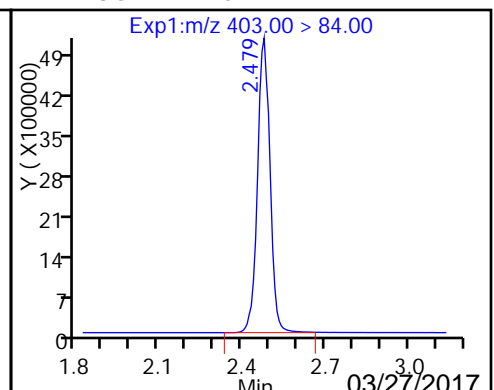
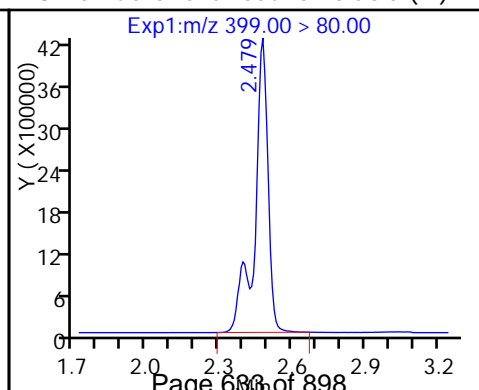
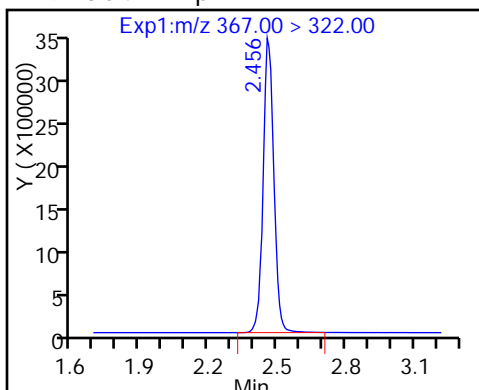
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

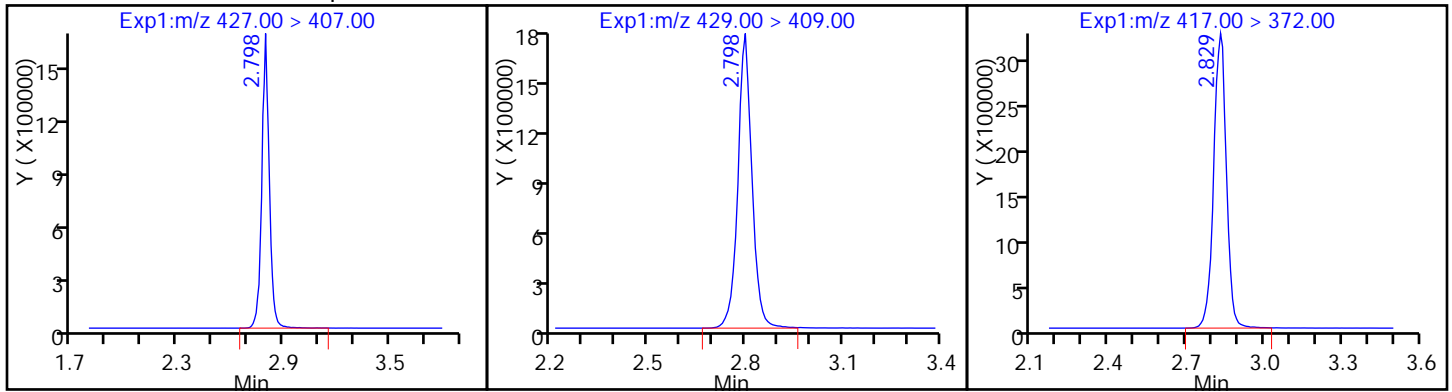
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

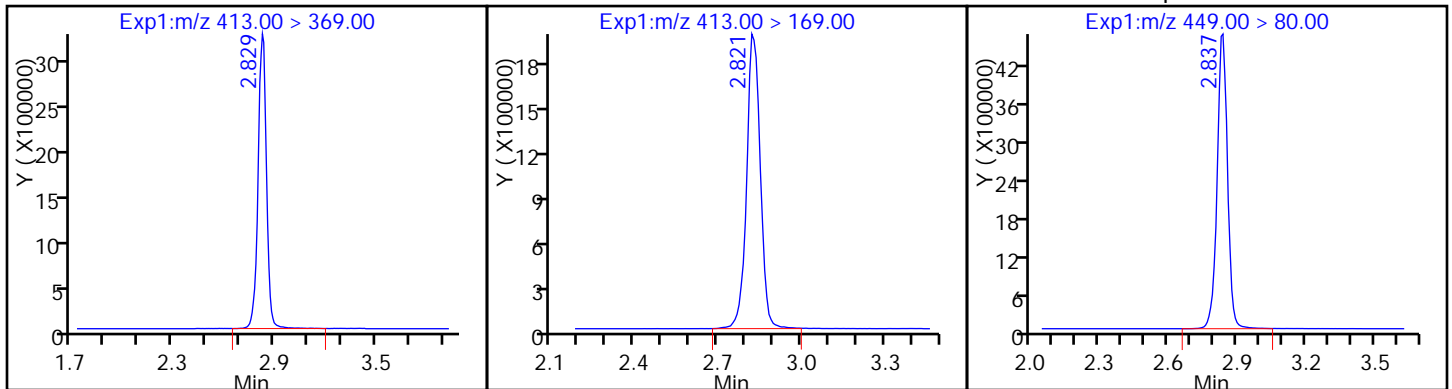
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

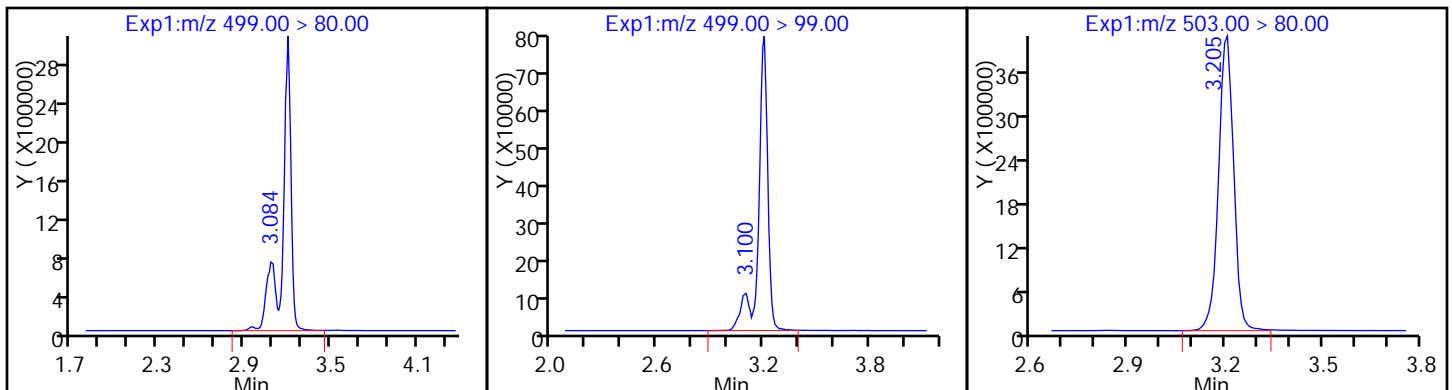
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

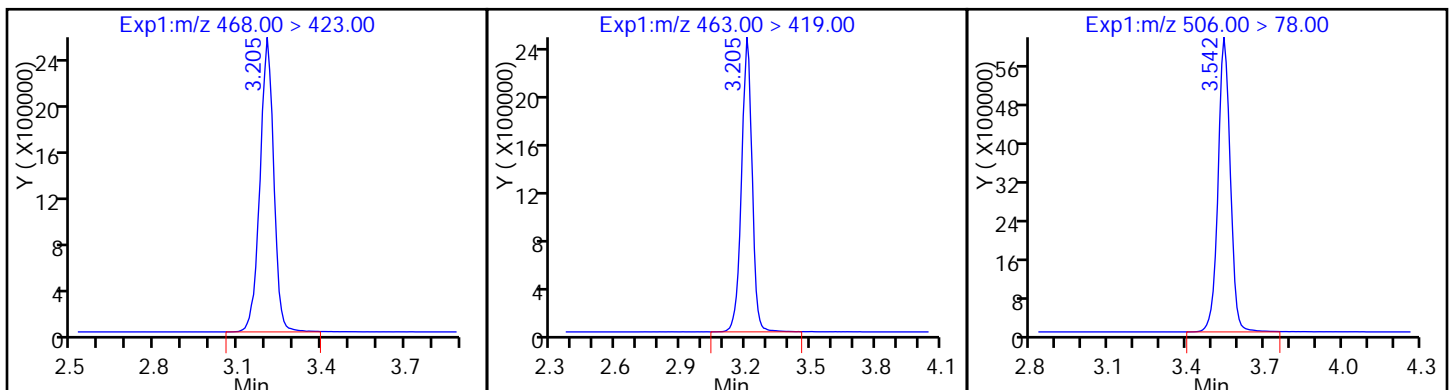
D 18 13C4 PFOS



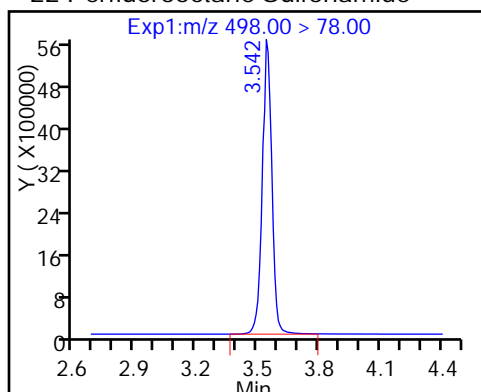
D 19 13C5 PFNA

20 Perfluorononanoic acid

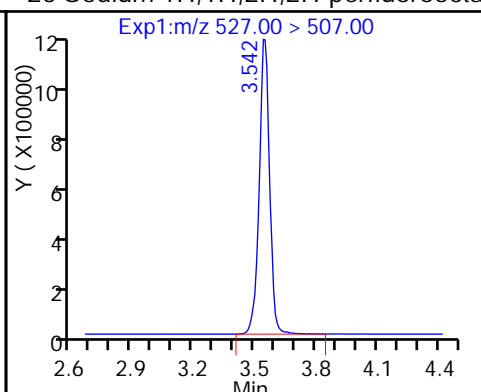
D 21 13C8 FOSA



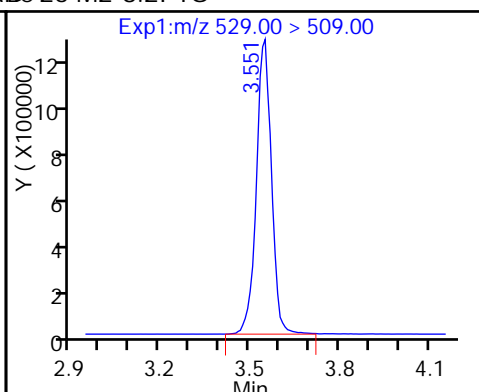
22 Perfluorooctane Sulfonamide



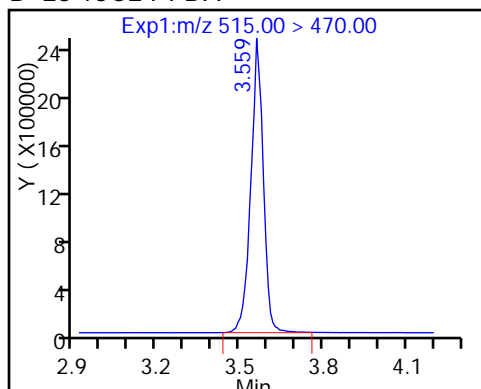
25 Sodium 1H,1H,2H,2H-perfluorooctane



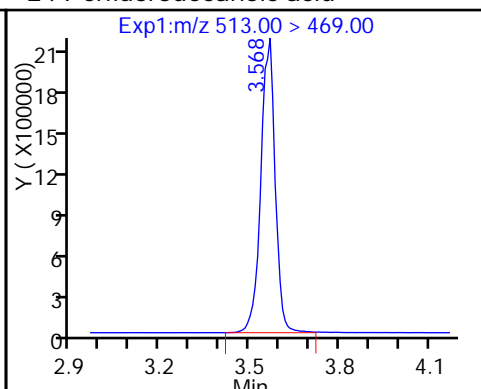
D 26 M2-8:2FTS



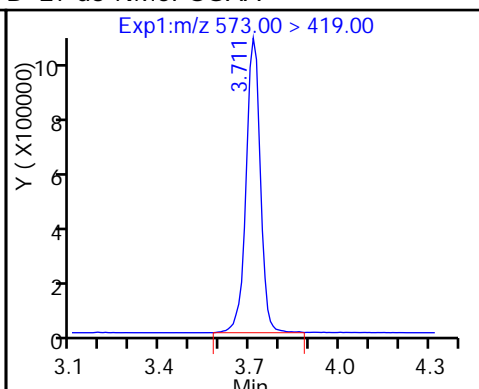
D 23 13C2 PFDA



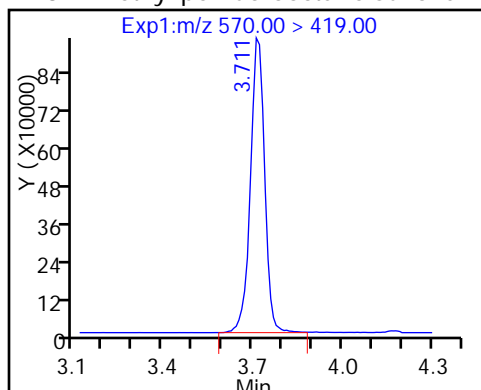
24 Perfluorodecanoic acid



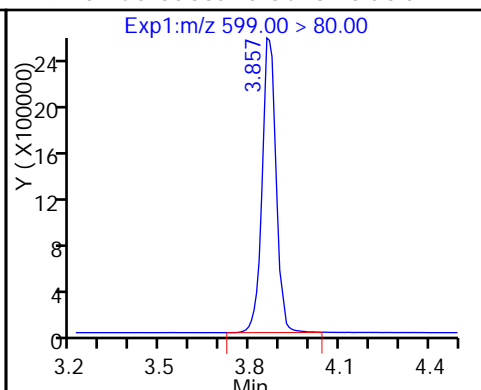
D 27 d3-NMeFOSAA



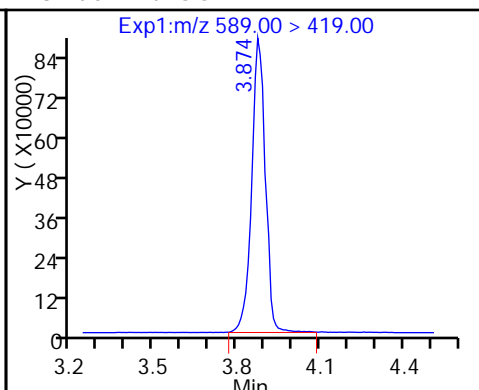
28 N-methyl perfluorooctane sulfonami



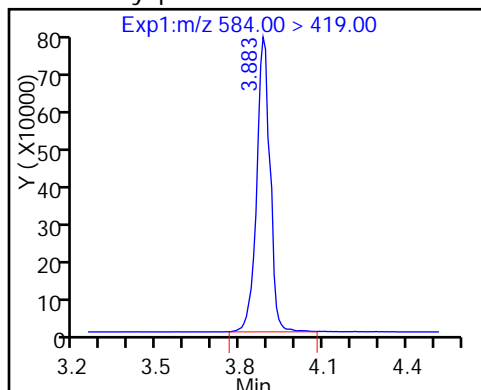
29 Perfluorodecane Sulfonic acid



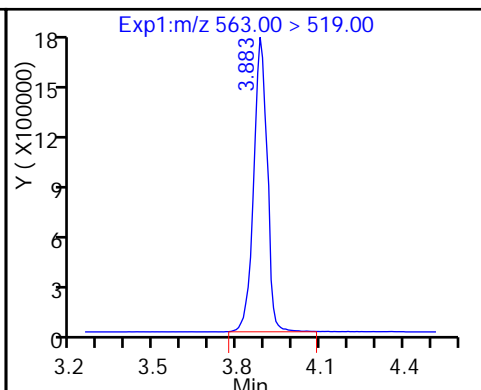
D 32 d5-NEtFOSAA



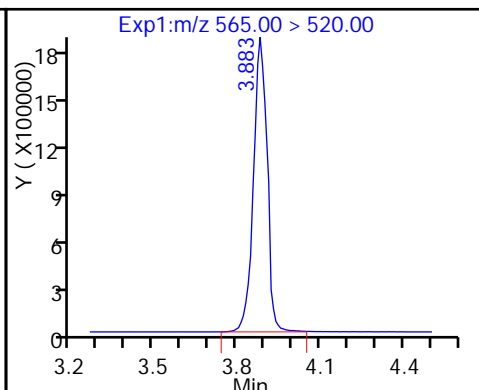
33 N-ethyl perfluorooctane sulfonamid



31 Perfluoroundecanoic acid



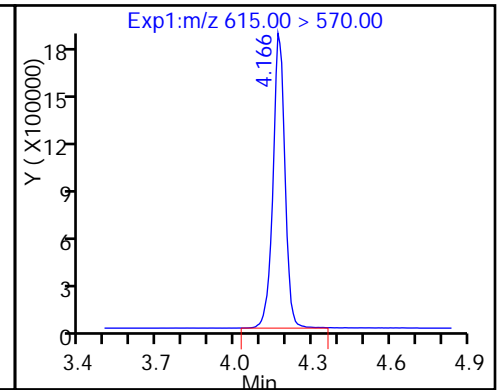
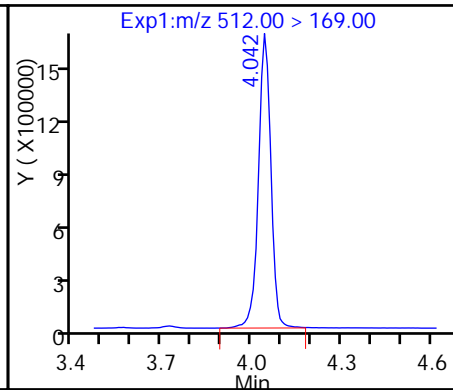
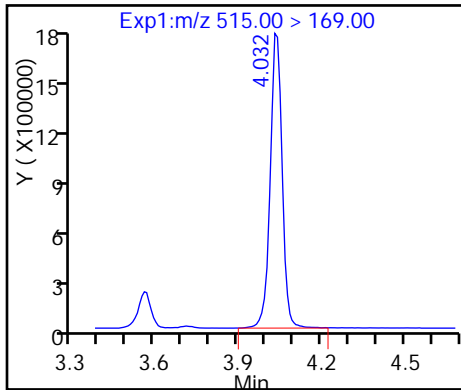
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

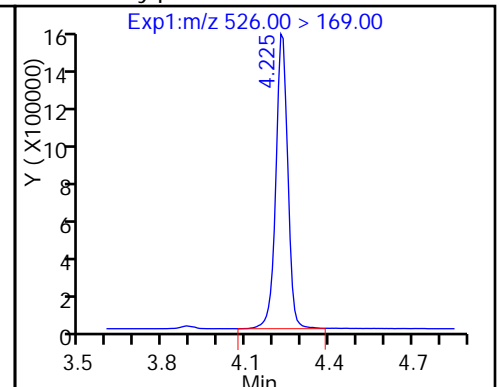
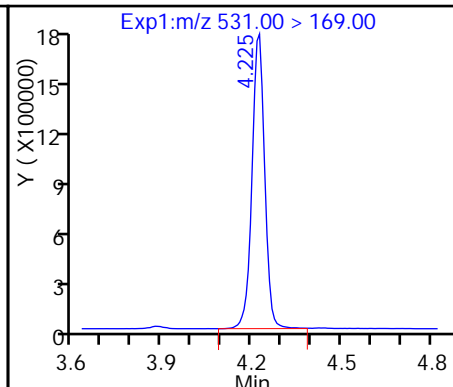
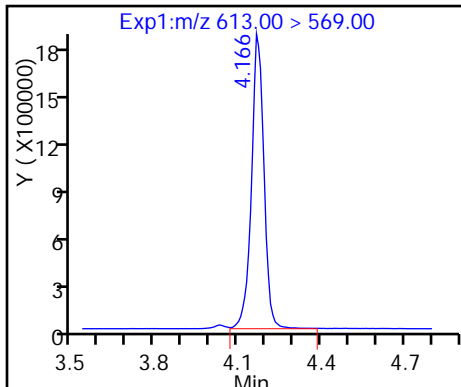
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

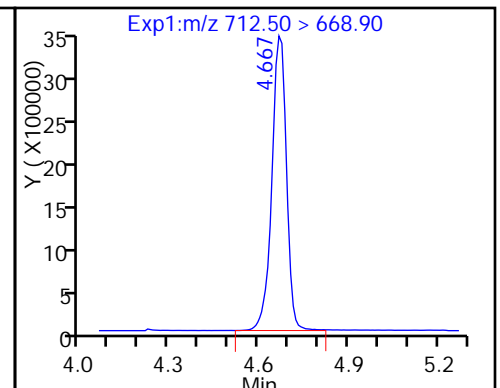
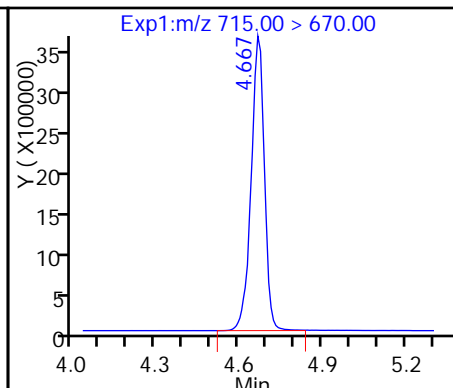
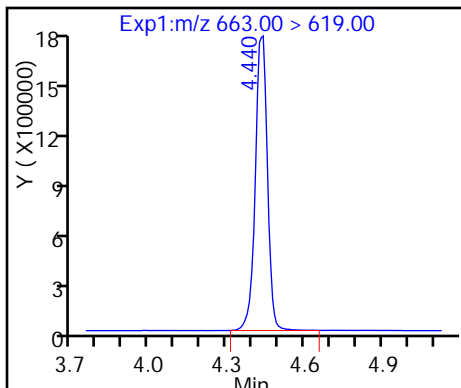
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

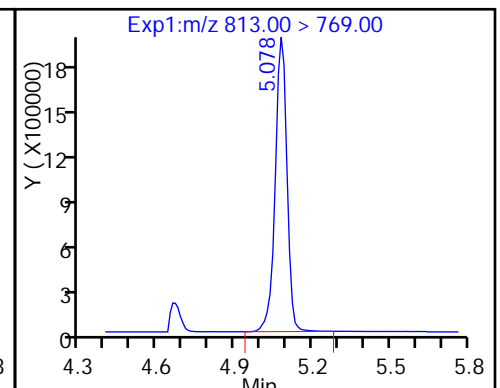
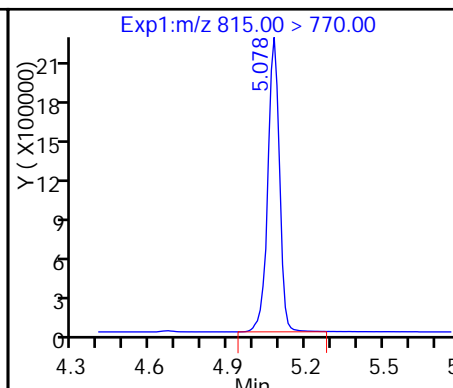
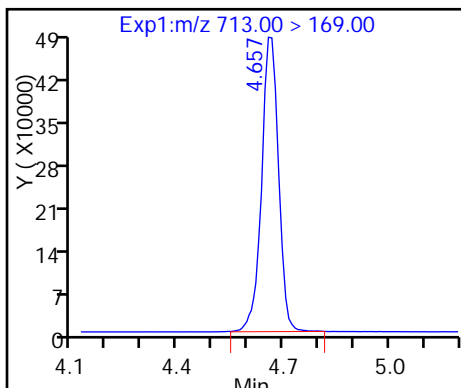
42 Perfluorotetradecanoic acid



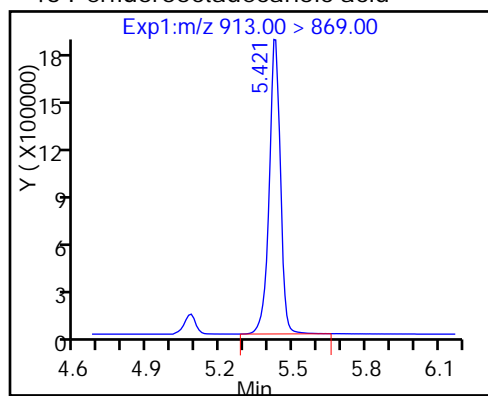
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

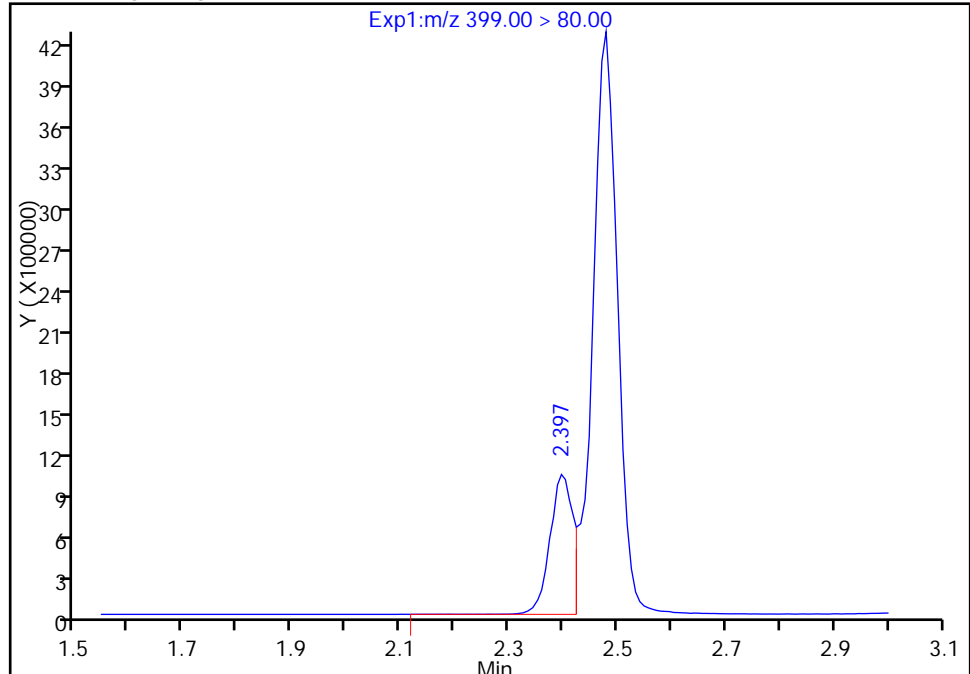
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_014.d
Injection Date: 02-Mar-2017 11:50:19 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

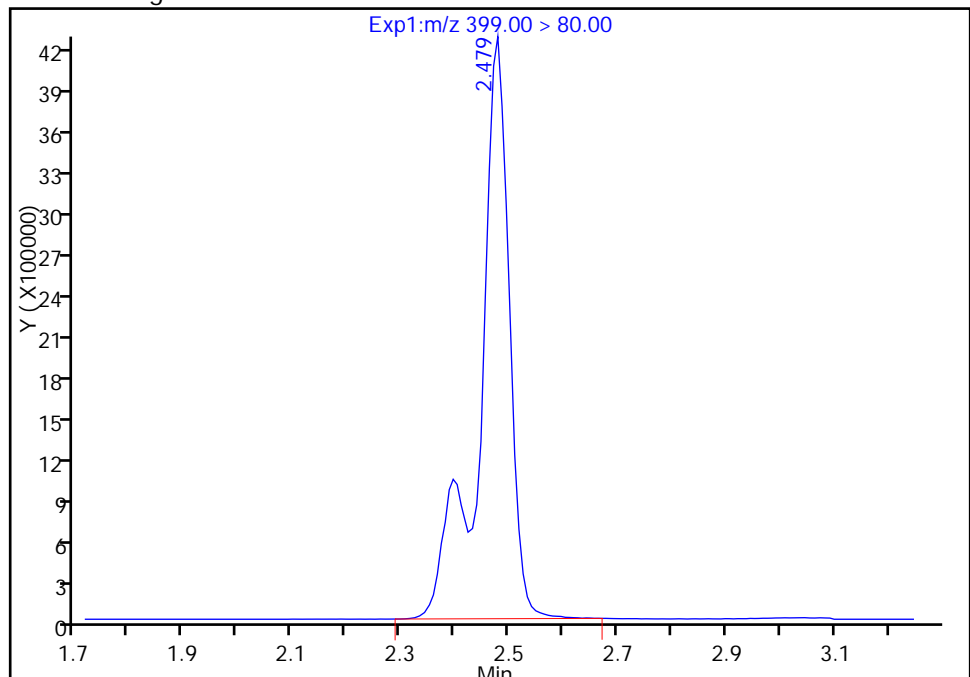
RT: 2.40
Area: 2959842
Amount: 8.354240
Amount Units: ng/ml

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.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-152836/25 Calibration Date: 03/02/2017 12:05

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: 2017.03.02A_016.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	0.8776		20.7	20.0	3.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.018		20.8	20.0	4.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.538		19.0	17.7	7.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8646		19.4	20.0	-2.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9239		19.1	20.0	-4.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9915		17.5	18.2	-3.6	25.0
6:2FTS	L2ID		0.9426		20.0	19.0	5.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.071		19.8	19.0	3.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.009		19.8	20.0	-1.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9312		17.6	18.6	-5.3	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.8911		19.7	20.0	-1.4	25.0
8:2FTS	L2ID		0.9543		19.7	19.2	2.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9011		20.1	20.0	0.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8470		18.7	20.0	-6.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9711		20.0	20.0	0.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5817		18.8	19.3	-2.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8744		19.2	20.0	-3.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9020		17.8	20.0	-11.0	25.0
MeFOSA	AveID	0.9355	0.9044		19.3	20.0	-3.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8313		18.2	20.0	-9.1	25.0
N-EtFOSA-M	AveID	0.9837	0.9325		19.0	20.0	-5.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8243		18.9	20.0	-5.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.790		18.2	20.0	-9.0	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8773		18.6	20.0	-7.2	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7993		22.3	20.0	11.4	25.0
13C4 PFBA	Ave	292242	320407		54.8	50.0	9.6	50.0
13C5-PFPeA	Ave	232192	258463		55.7	50.0	11.3	50.0
13C2 PFHxA	Ave	210884	245440		58.2	50.0	16.4	50.0
13C4-PFHpA	Ave	192959	218405		56.6	50.0	13.2	50.0
18O2 PFHxS	Ave	290899	323774		52.6	47.3	11.3	50.0
M2-6:2FTS	Ave	77178	108463		66.8	47.5	40.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152836/25 Calibration Date: 03/02/2017 12:05
 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: 2017.03.02A_016.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	212403		51.8	50.0	3.6	50.0
13C4 PFOS	Ave	241637	256394		50.7	47.8	6.1	50.0
13C5 PFNA	Ave	177866	172856		48.6	50.0	-2.8	50.0
13C8 FOSA	Ave	366918	374811		51.1	50.0	2.2	50.0
M2-8:2FTS	Ave	92602	87247		45.1	47.9	-5.8	50.0
13C2 PFDA	Ave	166704	151869		45.6	50.0	-8.9	50.0
d3-NMeFOSAA	Ave	85186	60335		35.4	50.0	-29.2	50.0
d5-NEtFOSAA	Ave	81371	59472		36.5	50.0	-26.9	50.0
13C2 PFUnA	Ave	130805	121054		46.3	50.0	-7.5	50.0
d-N-MeFOSA-M	Ave	87983	92921		52.8	50.0	5.6	50.0
13C2 PFDoA	Ave	123944	115618		46.6	50.0	-6.7	50.0
d-N-EtFOSA-M	Ave	85249	90425		53.0	50.0	6.1	50.0
13C2-PFTeDA	Ave	259165	225557		43.5	50.0	-13.0	50.0
13C2-PFHxDA	Ave	125061	117491		47.0	50.0	-6.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_016.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 02-Mar-2017 12:05:19 ALS Bottle#: 31 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: 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 09:41:10 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: XAWRK006

First Level Reviewer: chandrasenas

Date: 02-Mar-2017 12:37:57

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	5623556	20.7		104	45663	
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		16020360	54.8		110	1746851	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		12923155	55.7		111	4432510	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	5262596	20.8		104	0.0	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.860	1.860	0.0	1.000	8803563	19.0		107		
298.90 > 99.00	1.860	1.860	0.0	1.000	3576799		2.46(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.122	2.122	0.0		12272021	58.2		116	56045	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.122	2.122	0.0	1.000	4244343	19.4		97.2	722401	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.463	2.463	0.0	1.000	4035583	19.1		95.5	57769	
D 9 13C4-PFHpA										
367.00 > 322.00	2.463	2.463	0.0		10920234	56.6		113	54267	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.478	2.478	0.0	1.000	5842789	17.5		96.4		
D 11 18O2 PFHxS										
403.00 > 84.00	2.478	2.478	0.0		15314528	52.6		111	84138	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.797	2.797	0.0	1.000	1938453	20.0		106		
D 12 M2-6:2FTS										
429.00 > 409.00	2.797	2.797	0.0		5151992	66.8		141		

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	2.836	2.836	0.0		10620138	51.8		104	3148418	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.836	2.836	0.0	1.000	4286562	19.8		98.8	65700	
413.00 > 169.00	2.836	2.836	0.0	1.000	2452674		1.75(0.90-1.10)		7251	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.836	2.836	0.0	1.000	5229041	19.8		104		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.092	3.092	0.0	1.000	4431043	17.6		94.7	83250	
499.00 > 99.00	3.100	3.092	0.008	1.003	1010467		4.39(0.90-1.10)		10981	
D 18 13C4 PFOS										
503.00 > 80.00	3.212	3.212	0.0		12255639	50.7		106	1299368	
D 19 13C5 PFNA										
468.00 > 423.00	3.212	3.212	0.0		8642804	48.6		97.2	2614390	
20 Perfluorononanoic acid										
463.00 > 419.00	3.212	3.212	0.0	1.000	3080648	19.7		98.6	295639	
D 21 13C8 FOSA										
506.00 > 78.00	3.555	3.555	0.0		18740540	51.1		102	1886917	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.555	3.555	0.0	1.000	6754539	20.1		100	1077723	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.555	3.555	0.0	1.000	1595253	19.7		103		
D 26 M2-8:2FTS										
529.00 > 509.00	3.555	3.555	0.0		4179121	45.1		94.2		
D 23 13C2 PFDA										
515.00 > 470.00	3.572	3.572	0.0		7593452	45.6		91.1	740316	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.572	3.572	0.0	1.000	2572682	18.7		93.5	262819	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.726	3.726	0.0		3016734	35.4		70.8		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.726	3.726	0.0	1.000	1171833	20.0		100		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.878	3.878	0.0	1.000	2875604	18.8		97.7		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.887	3.887	0.0		2973613	36.5		73.1		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.896	3.896	0.0	1.002	1040052	19.2		96.1		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.896	3.896	0.0	1.000	2183760	17.8		89.0	98848	
D 30 13C2 PFUnA										
565.00 > 520.00	3.896	3.896	0.0		6052677	46.3		92.5	1847897	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.049	4.049	0.0		4646064	52.8		106		
35 MeFOSA										
512.00 > 169.00	4.059	4.059	0.0	1.000	1680661	19.3		96.7		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.179	4.179	0.0	1.000	1922171	18.2		90.9	22444	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	4.179	4.179	0.0		5780885	46.6		93.3	6426	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.238	4.238	0.0		4521231	53.0		106		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.247	4.247	0.0	1.000	1686404	19.0		94.8		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.444	4.444	0.0	1.000	1906133	18.9		94.4	88476	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.676	4.676	0.0		11277864	43.5		87.0	3332991	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.676	4.676	0.0	1.000	4138306	18.2		91.0	11967	
713.00 > 169.00	4.676	4.676	0.0	1.000	554228		7.47(0.00-0.00)		2335	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.081	5.081	0.0		5874568	47.0		93.9	137172	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.081	5.081	0.0	1.000	2028672	18.6		92.8	2452	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.429	5.429	0.0	1.000	1848172	22.3		111	3365	

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_016.d

Injection Date: 02-Mar-2017 12:05:19

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

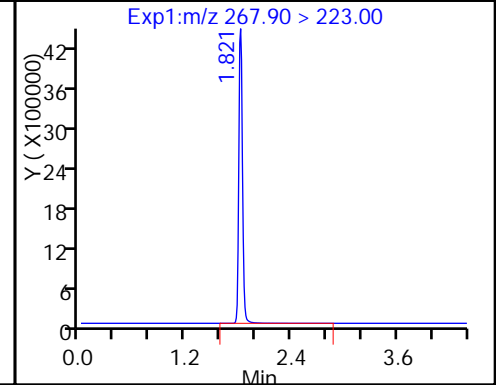
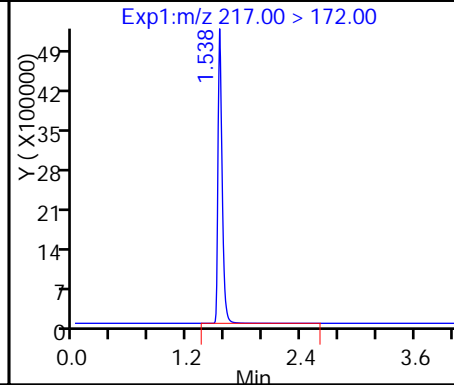
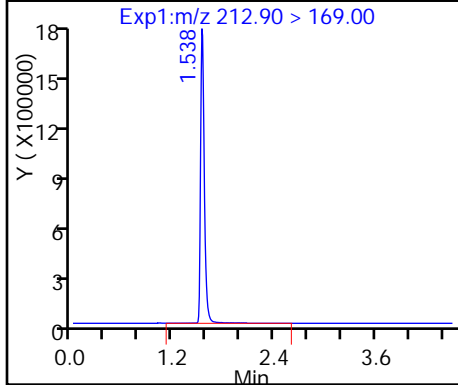
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

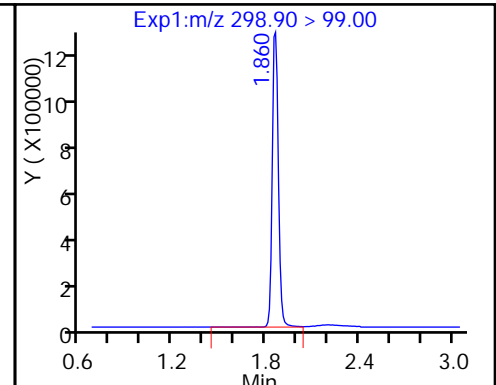
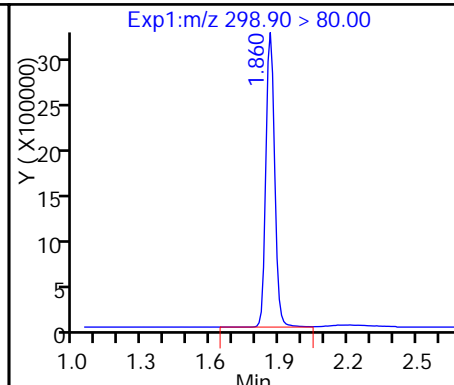
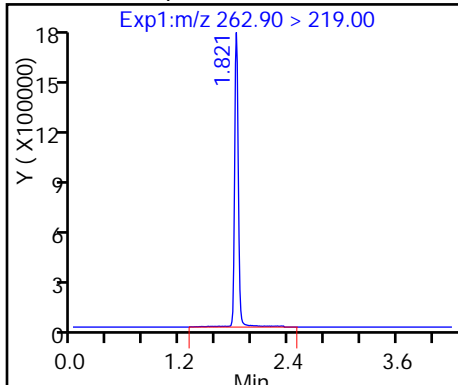
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

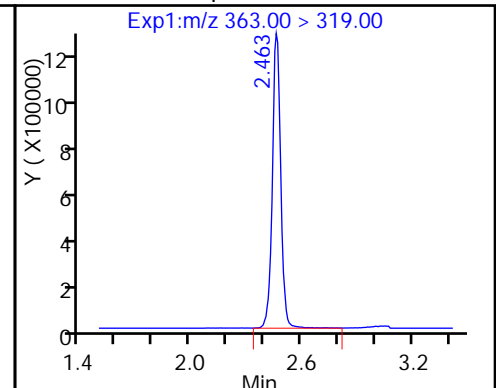
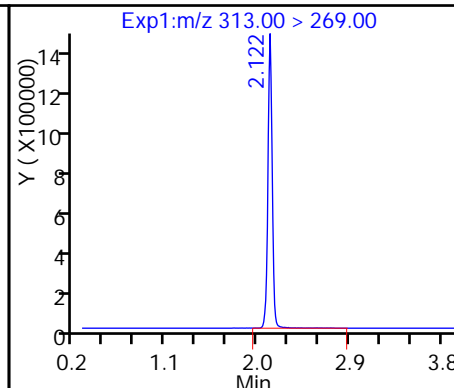
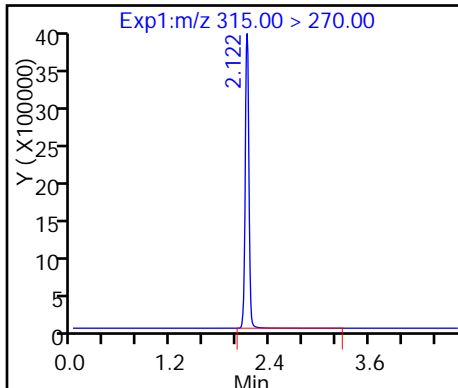
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

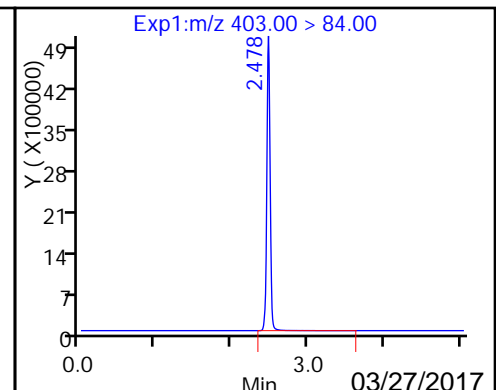
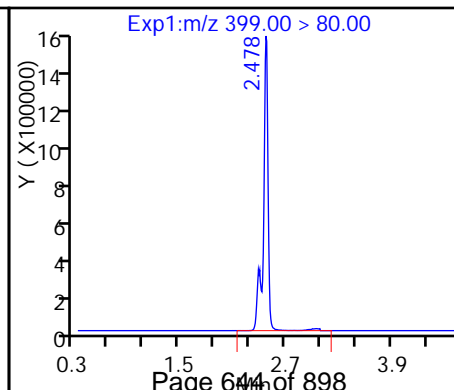
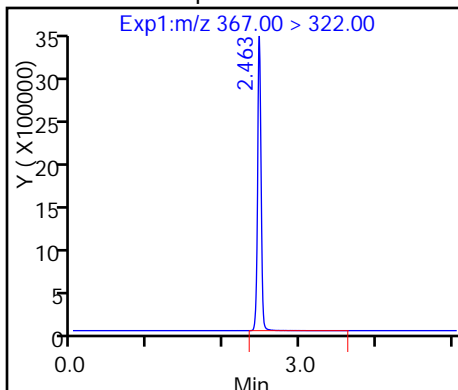
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

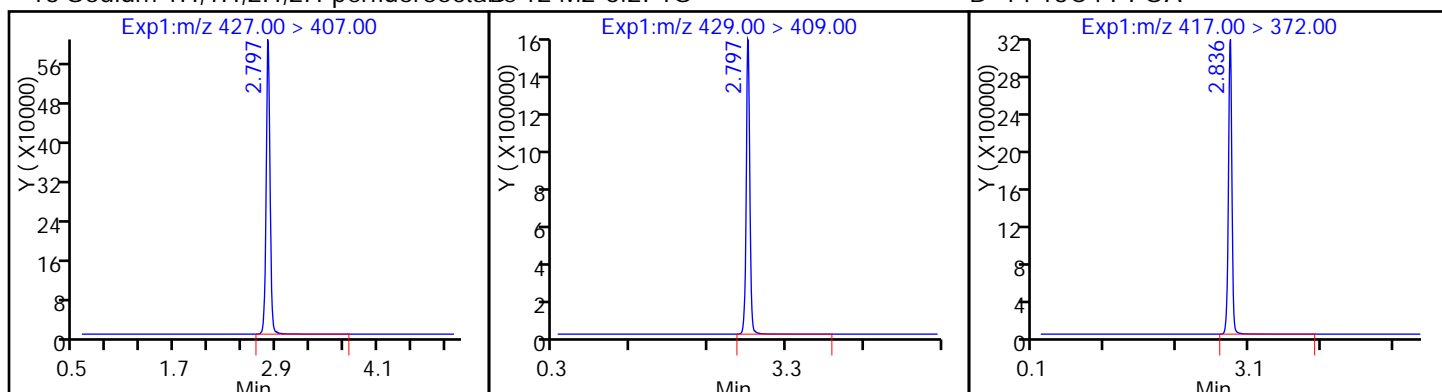
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

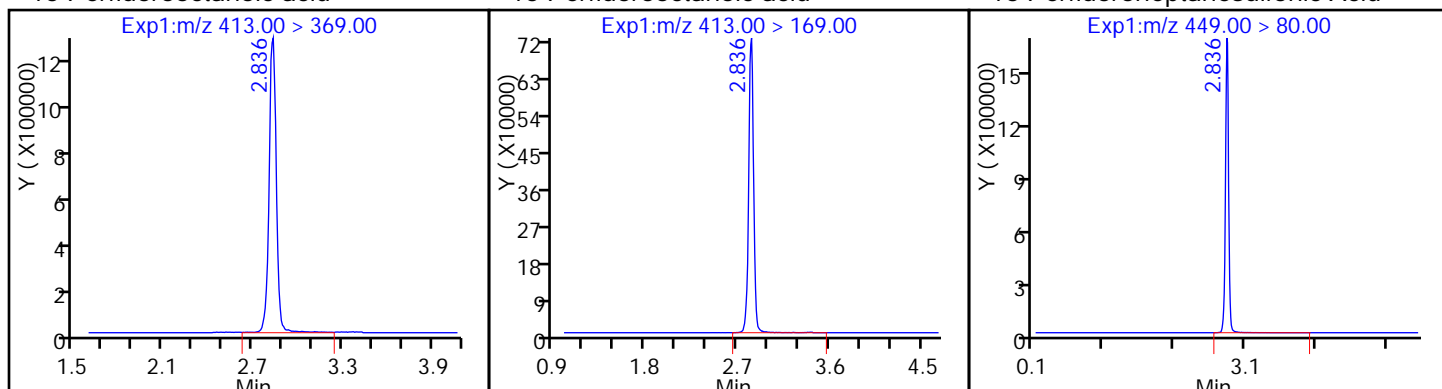
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

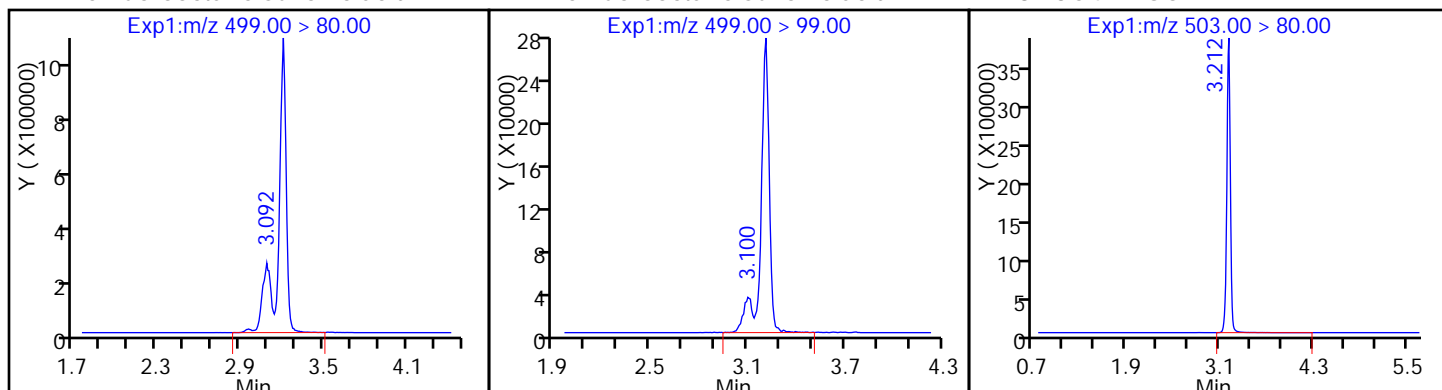
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

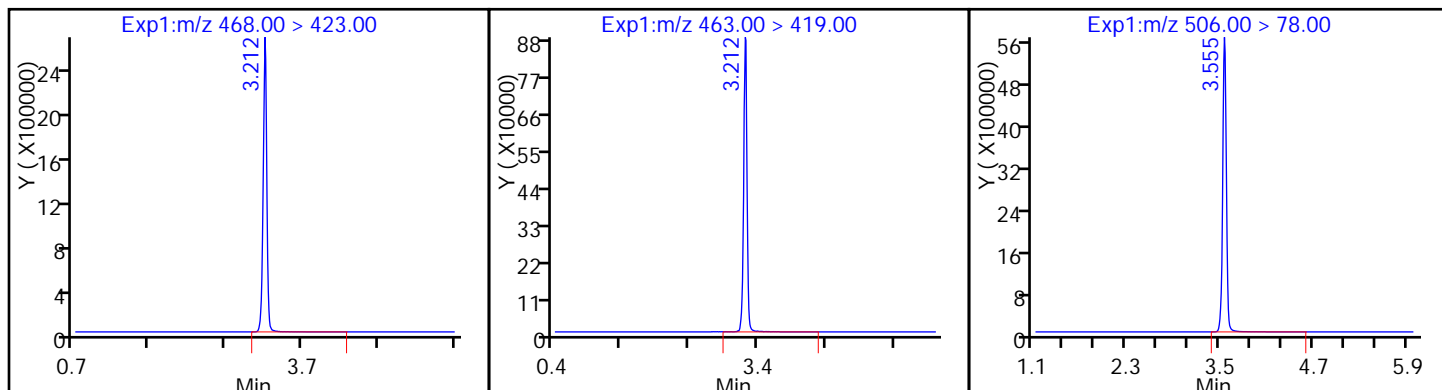
D 18 13C4 PFOS



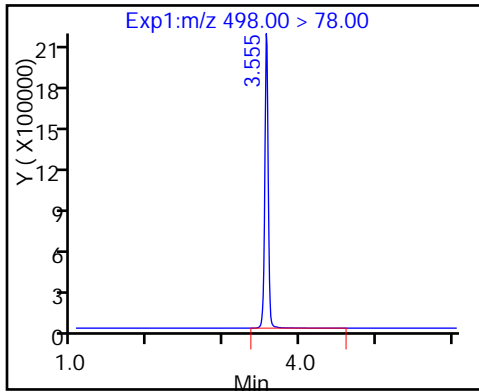
D 19 13C5 PFNA

20 Perfluorononanoic acid

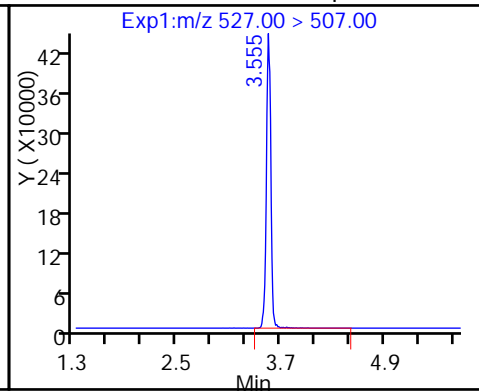
D 21 13C8 FOSA



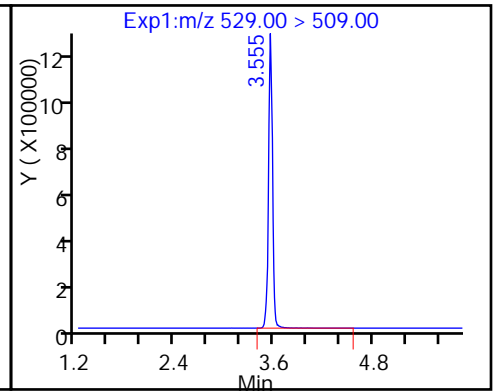
22 Perfluorooctane Sulfonamide



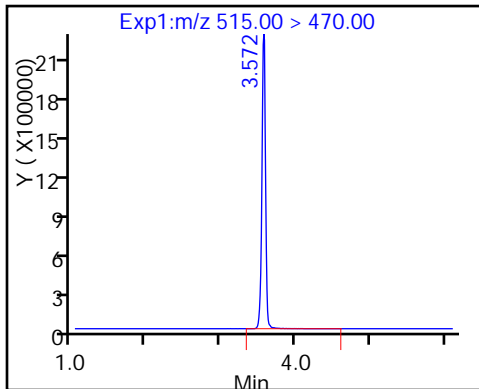
25 Sodium 1H,1H,2H,2H-perfluorooctane



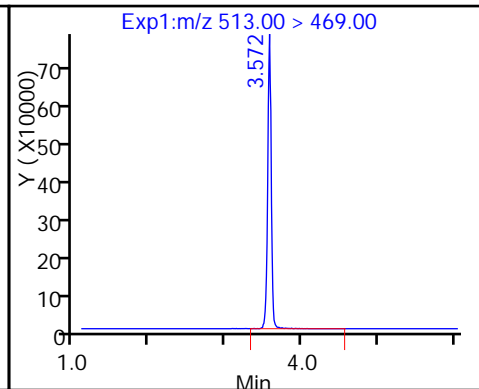
D 26 M2-8:2FTS



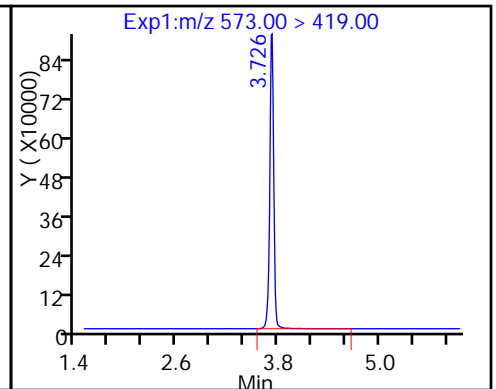
D 23 13C2 PFDA



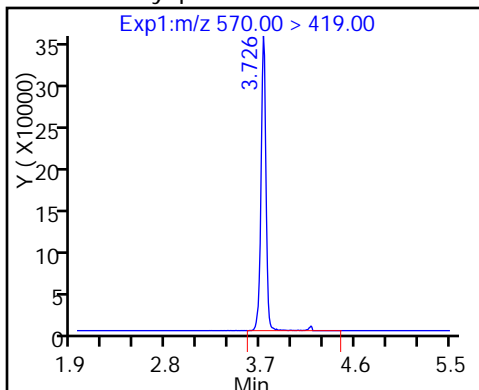
24 Perfluorodecanoic acid



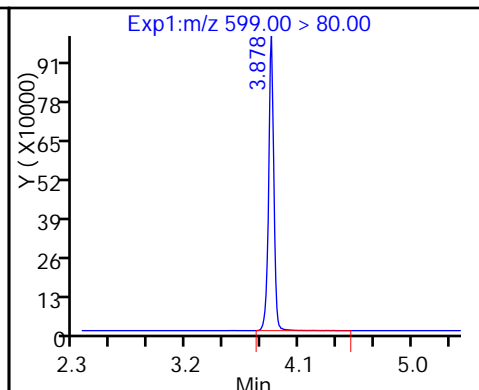
D 27 d3-NMeFOSAA



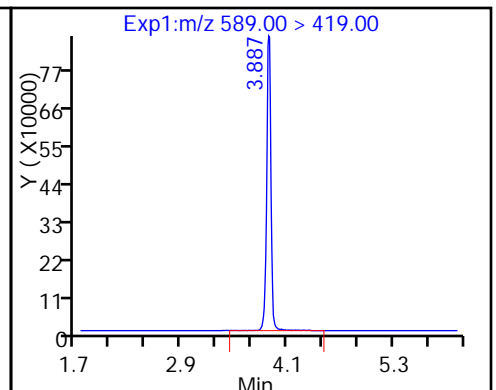
28 N-methyl perfluorooctane sulfonami



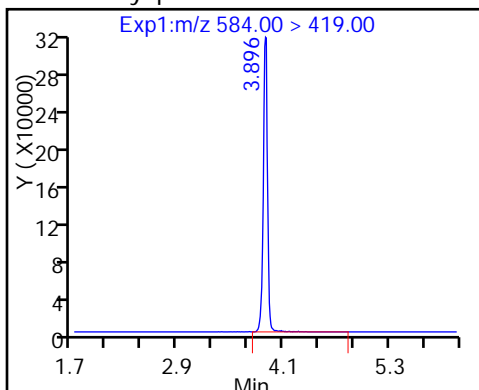
29 Perfluorodecane Sulfonic acid



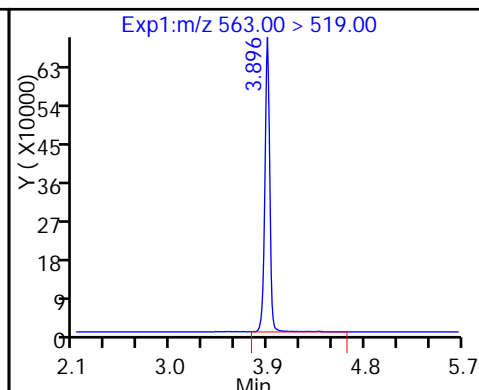
D 32 d5-NEtFOSAA



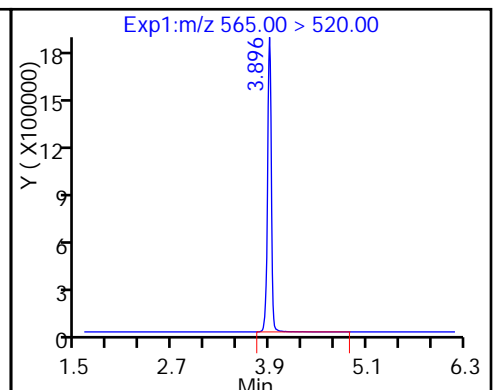
33 N-ethyl perfluorooctane sulfonamid



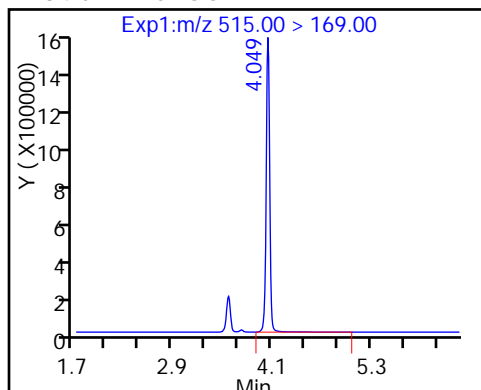
31 Perfluoroundecanoic acid



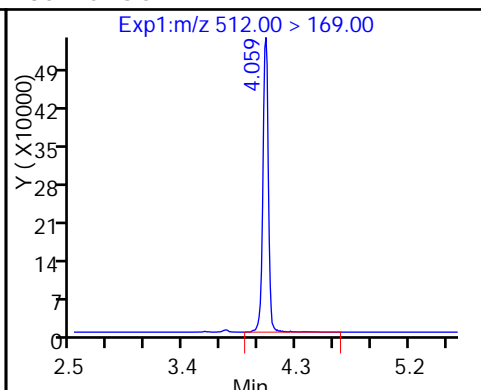
D 30 13C2 PFUnA



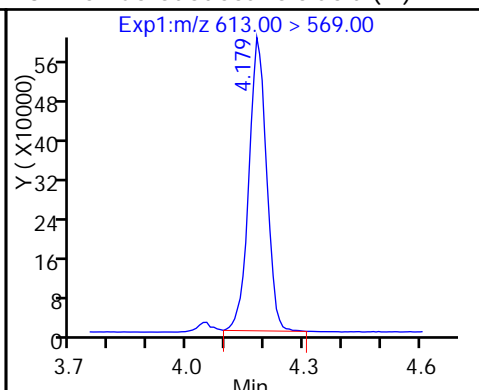
D 34 d-N-MeFOSA-M



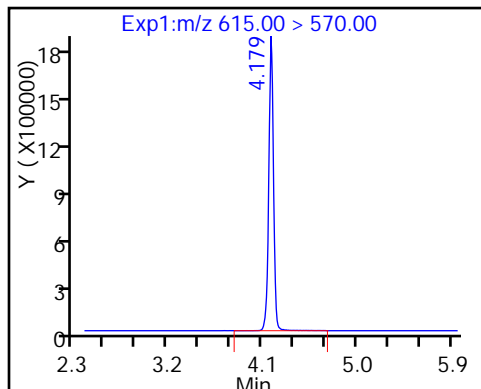
35 MeFOSA



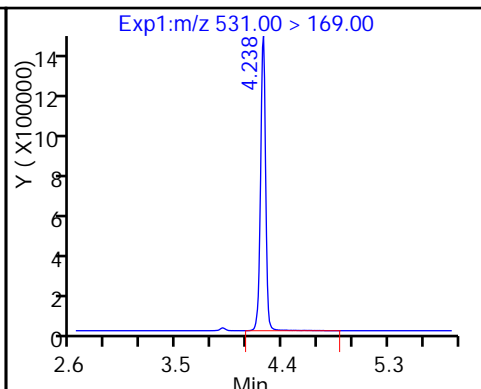
37 Perfluorododecanoic acid (M)



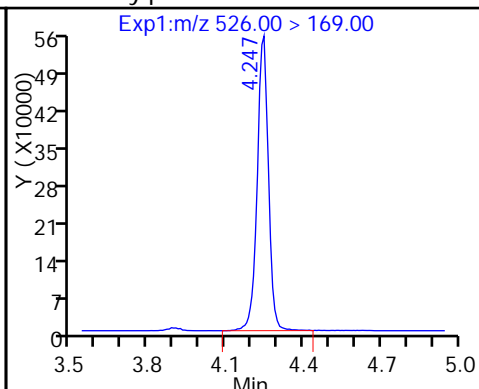
D 36 13C2 PFDaA



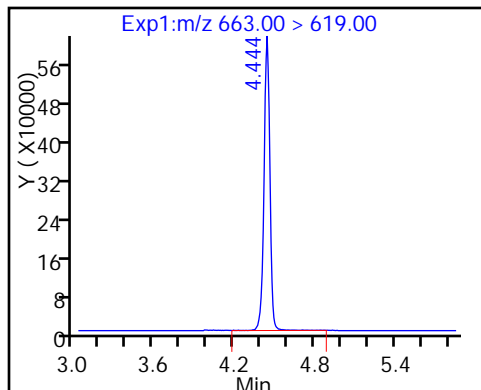
D 38 d-N-EtFOSA-M



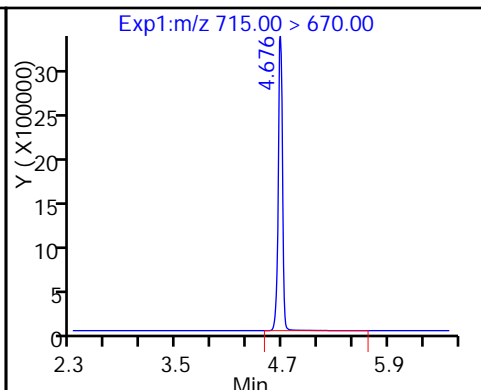
39 N-ethylperfluoro-1-octanesulfonami



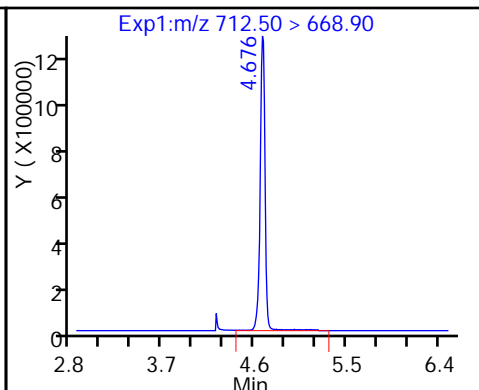
41 Perfluorotridecanoic acid



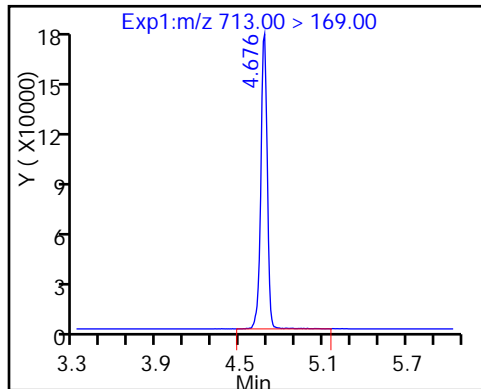
D 43 13C2-PFTeDA



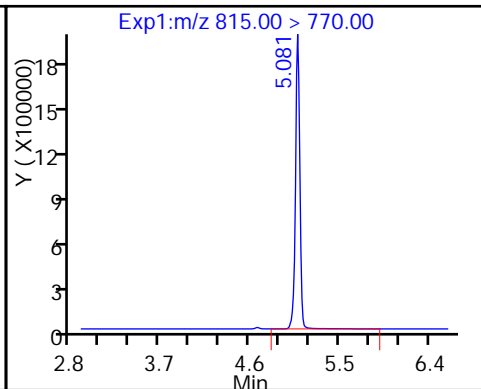
42 Perfluorotetradecanoic acid



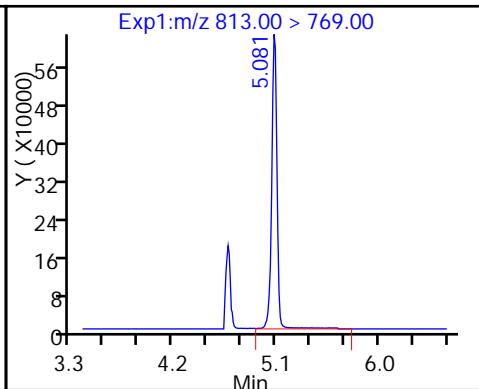
42 Perfluorotetradecanoic acid



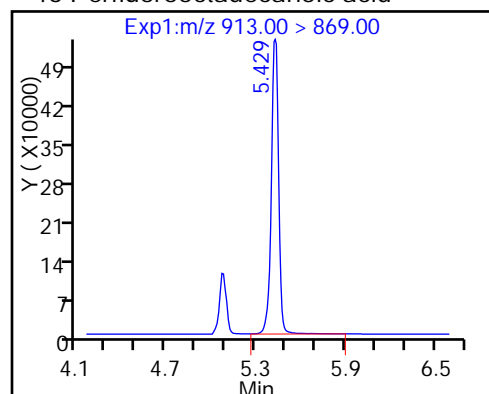
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

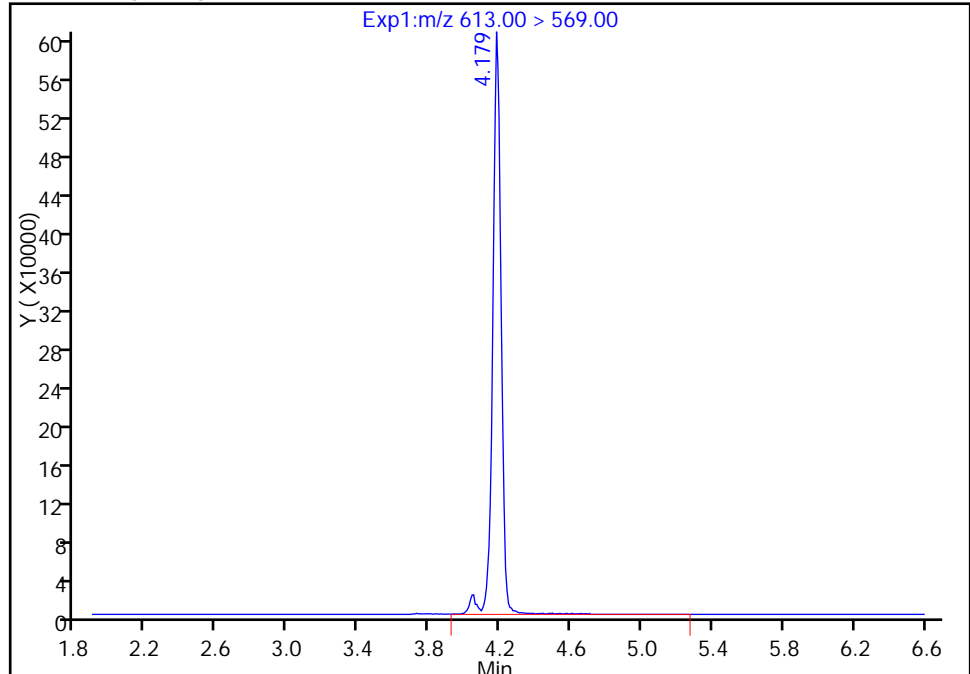
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_016.d
Injection Date: 02-Mar-2017 12:05:19 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

37 Perfluorododecanoic acid, CAS: 307-55-1

Signal: 1

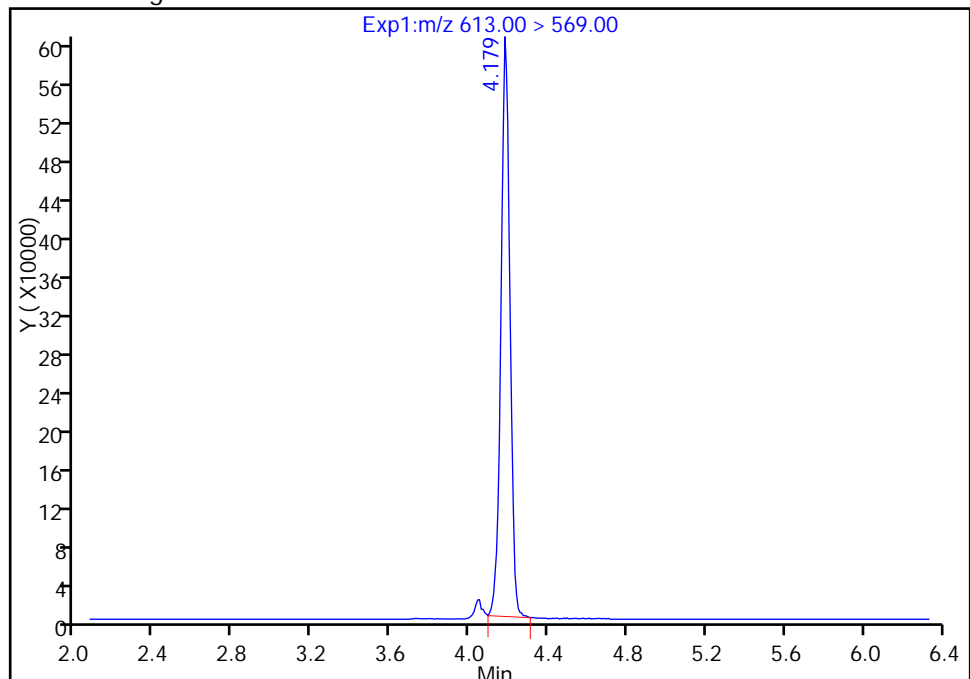
RT: 4.18
Area: 2037030
Amount: 19.265901
Amount Units: ng/ml

Processing Integration Results



RT: 4.18
Area: 1922171
Amount: 18.179583
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 09:40:54

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-153020/4 Calibration Date: 03/03/2017 09:22

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: 2017.03.03A_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	0.8577		20.2	20.0	1.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9653		19.7	20.0	-1.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.500		18.5	17.7	4.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8771		19.7	20.0	-1.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9421		19.5	20.0	-2.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9878		17.5	18.2	-4.0	25.0
6:2FTS	L2ID		0.9157		19.5	19.0	2.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.078		19.9	19.0	4.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9435		18.5	20.0	-7.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9518		18.0	18.6	-3.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9024		20.0	20.0	-0.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9291		20.7	20.0	3.4	25.0
8:2FTS	L2ID		0.9598		19.8	19.2	3.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8727		19.3	20.0	-3.6	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9223		19.0	20.0	-5.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6068		19.6	19.3	1.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8760		19.2	20.0	-3.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.8823		17.4	20.0	-13.0	25.0
MeFOSA	AveID	0.9355	0.9141		19.5	20.0	-2.3	25.0
N-EtFOSA-M	AveID	0.9837	0.9780		19.9	20.0	-0.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8731		19.1	20.0	-4.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8214		18.8	20.0	-6.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.709		17.4	20.0	-13.1	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.7955		16.8	20.0	-16.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7658		21.3	20.0	6.7	25.0
13C4 PFBA	Ave	292242	325898		55.8	50.0	11.5	50.0
13C5-PFPeA	Ave	232192	255368		55.0	50.0	10.0	50.0
13C2 PFHxA	Ave	210884	227520		53.9	50.0	7.9	50.0
13C4-PFHpA	Ave	192959	206066		53.4	50.0	6.8	50.0
18O2 PFHxS	Ave	290899	314366		51.1	47.3	8.1	50.0
M2-6:2FTS	Ave	77178	82506		50.8	47.5	6.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-153020/4 Calibration Date: 03/03/2017 09:22
 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: 2017.03.03A_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	224507		54.8	50.0	9.5	50.0
13C4 PFOS	Ave	241637	255045		50.5	47.8	5.5	50.0
13C5 PFNA	Ave	177866	192378		54.1	50.0	8.2	50.0
13C8 FOSA	Ave	366918	399329		54.4	50.0	8.8	50.0
M2-8:2FTS	Ave	92602	95658		49.5	47.9	3.3	50.0
13C2 PFDA	Ave	166704	186660		56.0	50.0	12.0	50.0
d3-NMeFOSAA	Ave	85186	88306		51.8	50.0	3.7	50.0
d5-NEtFOSAA	Ave	81371	90768		55.8	50.0	11.5	50.0
13C2 PFUnA	Ave	130805	141270		54.0	50.0	8.0	50.0
d-N-MeFOSA-M	Ave	87983	94174		53.5	50.0	7.0	50.0
d-N-EtFOSA-M	Ave	85249	88457		51.9	50.0	3.8	50.0
13C2 PFDoA	Ave	123944	134098		54.1	50.0	8.2	50.0
13C2-PFTEtDA	Ave	259165	264401		51.0	50.0	2.0	50.0
13C2-PFHxDA	Ave	125061	133297		53.3	50.0	6.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_004.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 03-Mar-2017 09:22:57 ALS Bottle#: 31 Worklist Smp#: 4
 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\20170303-40441.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:05:43 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: chandrasenas Date: 03-Mar-2017 09:42:14

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		16294891	55.8		112	636635	
2 Perfluorobutyric acid										
212.90 > 169.00	1.547	1.547	0.0	1.000	5590647	20.2		101	26825	
D 3 13C5-PFPeA										
267.90 > 223.00	1.823	1.823	0.0		12768396	55.0		110	1091200	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.823	1.823	0.0	1.000	4930038	19.7		98.6	49332	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.863	1.863	0.0	1.000	8336054	18.5		105		
298.90 > 99.00	1.863	1.863	0.0	1.000	3367351		2.48(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.135	2.135	0.0		11376023	53.9		108	538791	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.135	2.135	0.0	1.000	3991250	19.7		98.6	232543	
D 9 13C4-PFHpA										
367.00 > 322.00	2.476	2.476	0.0		10303301	53.4		107	420688	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.476	2.476	0.0	1.000	3882625	19.5		97.4	47359	
D 11 18O2 PFHxS										
403.00 > 84.00	2.492	2.492	0.0		14869492	51.1		108	326683	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.492	2.492	0.0	1.000	5651345	17.5		96.0		
D 12 M2-6:2FTS										
429.00 > 409.00	2.819	2.819	0.0		3919026	50.8		107		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.819	2.819	0.0	1.000	1432499	19.5		103		

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	2.850	2.850	0.0		11225342	54.8		110	417952	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.850	2.850	0.0	1.000	4236625	18.5		92.4	47867	
413.00 > 169.00	2.850	2.850	0.0	1.000	2468177		1.72(0.90-1.10)		109307	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.850	2.850	0.0	1.000	5232384	19.9		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.106	3.106	0.0	1.000	4505300	18.0		96.8	45398	
499.00 > 99.00	3.228	3.106	0.122	1.039	1035389		4.35(0.90-1.10)		293849	
D 18 13C4 PFOS										
503.00 > 80.00	3.228	3.228	0.0		12191155	50.5		106	294973	
D 19 13C5 PFNA										
468.00 > 423.00	3.228	3.228	0.0		9618889	54.1		108	306026	
20 Perfluorononanoic acid										
463.00 > 419.00	3.228	3.228	0.0	1.000	3471852	20.0		99.8	62233	
D 21 13C8 FOSA										
506.00 > 78.00	3.536	3.536	0.0		19966460	54.4		109	429201	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.536	3.536	0.0	1.000	7420266	20.7		103	185417	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.578	3.578	0.0	1.000	1759111	19.8		103		
D 26 M2-8:2FTS										
529.00 > 509.00	3.578	3.578	0.0		4582021	49.5		103		
D 23 13C2 PFDA										
515.00 > 470.00	3.586	3.586	0.0		9333013	56.0		112	175517	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.586	3.586	0.0	1.000	3258058	19.3		96.4	115940	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.745	3.745	0.0		4415291	51.8		104		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.754	3.754	0.0	1.003	1628937	19.0		95.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.895	3.895	0.0	1.000	2983745	19.6		102		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.904	3.904	0.0		4538380	55.8		112		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.912	3.912	0.0	1.000	2492771	17.4		87.0	58852	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.912	3.912	0.0	1.002	1590161	19.2		96.2		
D 30 13C2 PFUnA										
565.00 > 520.00	3.921	3.921	0.0		7063475	54.0		108	165131	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.012	4.012	0.0		4708700	53.5		107		
35 MeFOSA										
512.00 > 169.00	4.021	4.021	0.0	1.000	1721685	19.5		97.7		
D 36 13C2 PFDaA										
615.00 > 570.00	4.209	4.209	0.0		6704894	54.1		108	146089	

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	4.201	4.201	0.0	1.000	2341476	19.1	95.5	14800	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.201	4.201	0.0		4422856	51.9	104		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.201	4.201	0.0	1.000	1730246	19.9	99.4		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.476	4.476	0.0	1.000	2202904	18.8	94.0	45088	
D 43 13C2-PFTeDA	715.00 > 670.00	4.711	4.711	0.0		13220040	51.0	102	2019424	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.711	4.711	0.0	1.000	4582925	17.4	86.9	2933	
	713.00 > 169.00	4.711	4.711	0.0	1.000	650903	7.04(0.00-0.00)		68021	
D 44 13C2-PFHxDA	815.00 > 770.00	5.144	5.144	0.0		6664867	53.3	107	100048	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.144	5.144	0.0	1.000	2133356	16.8	83.9	2130	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.518	5.518	0.0	1.000	2053722	21.3	107	2538	

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_004.d

Injection Date: 03-Mar-2017 09:22:57

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

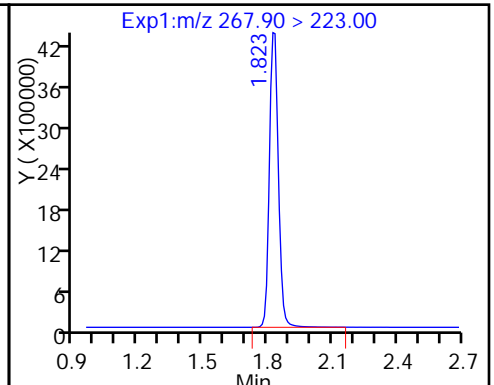
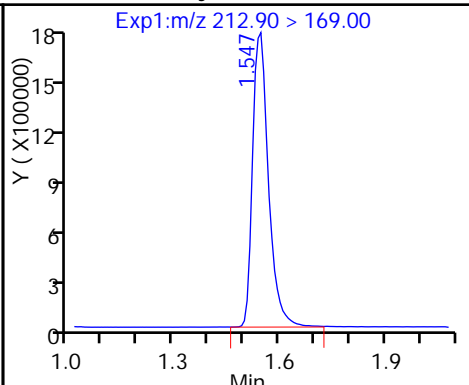
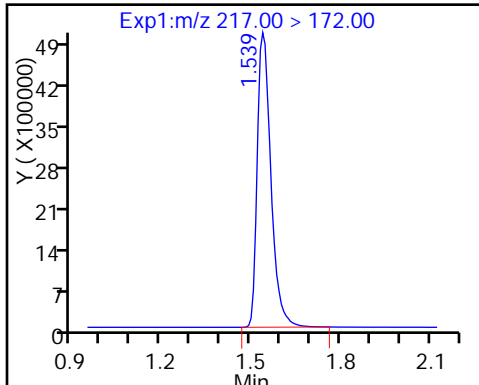
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

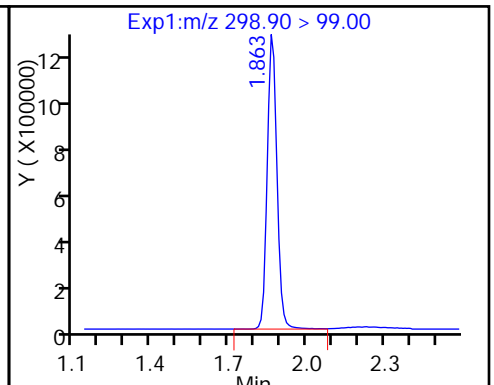
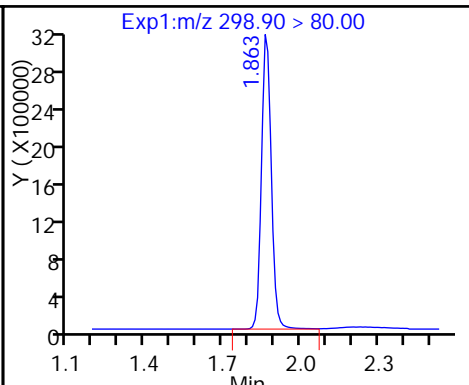
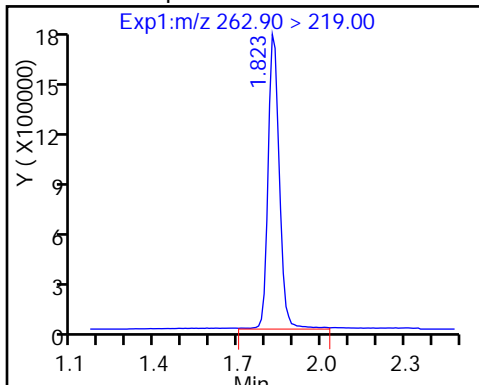
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

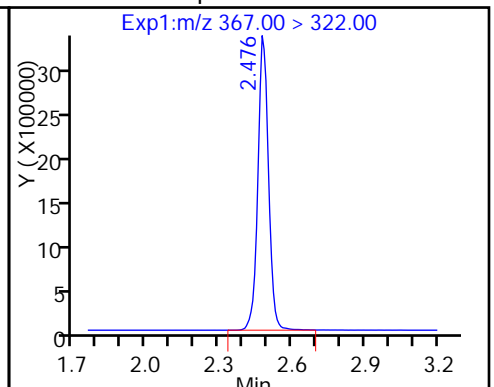
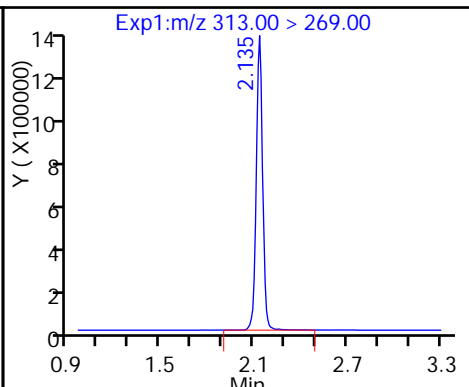
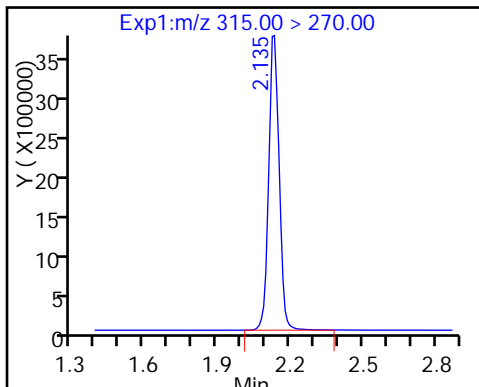
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

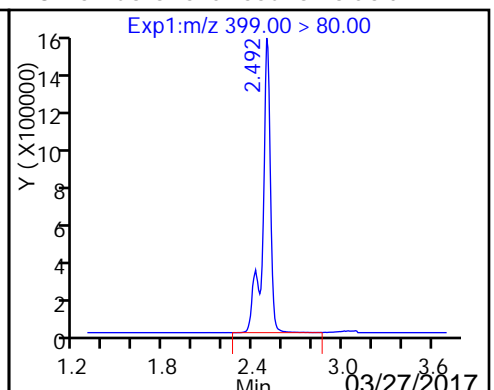
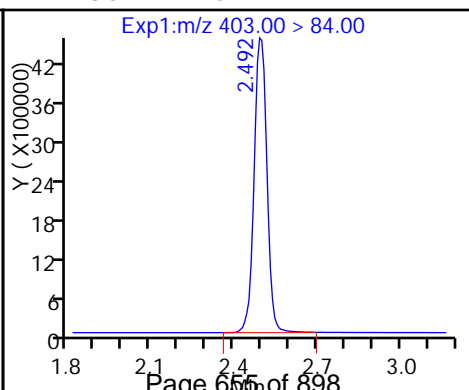
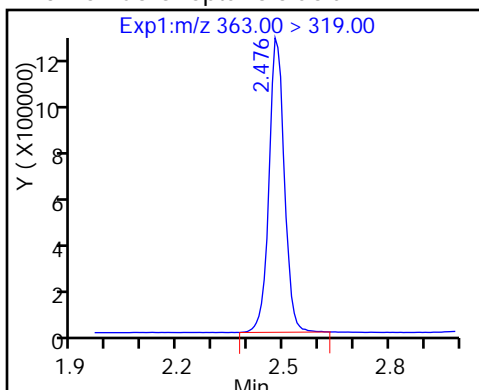
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

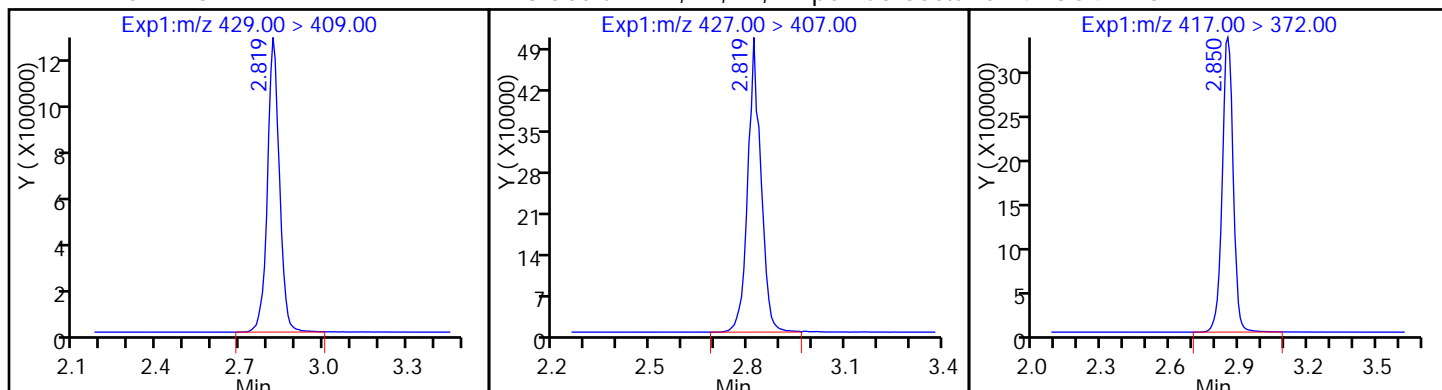
8 Perfluorohexanesulfonic acid



D 12 M2-6:2FTS

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

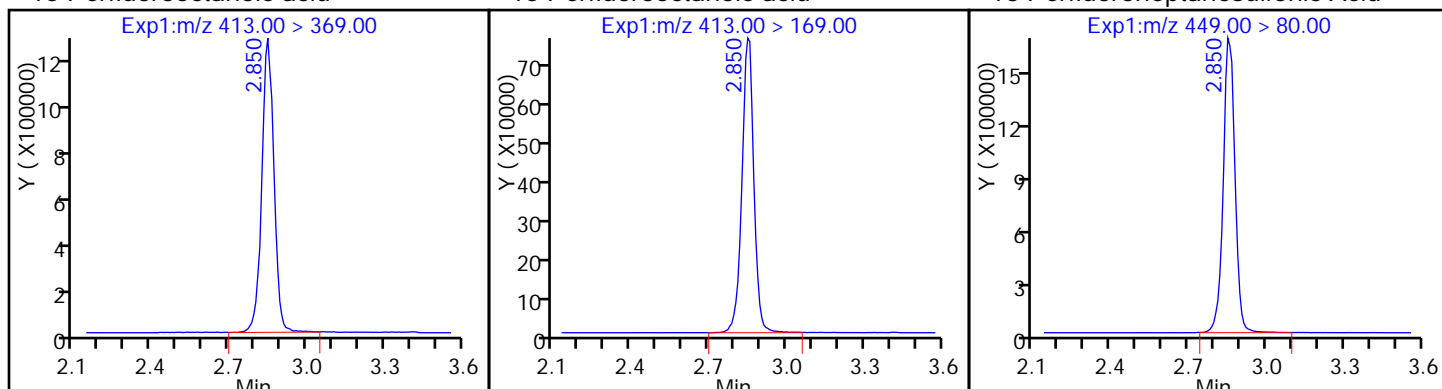
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

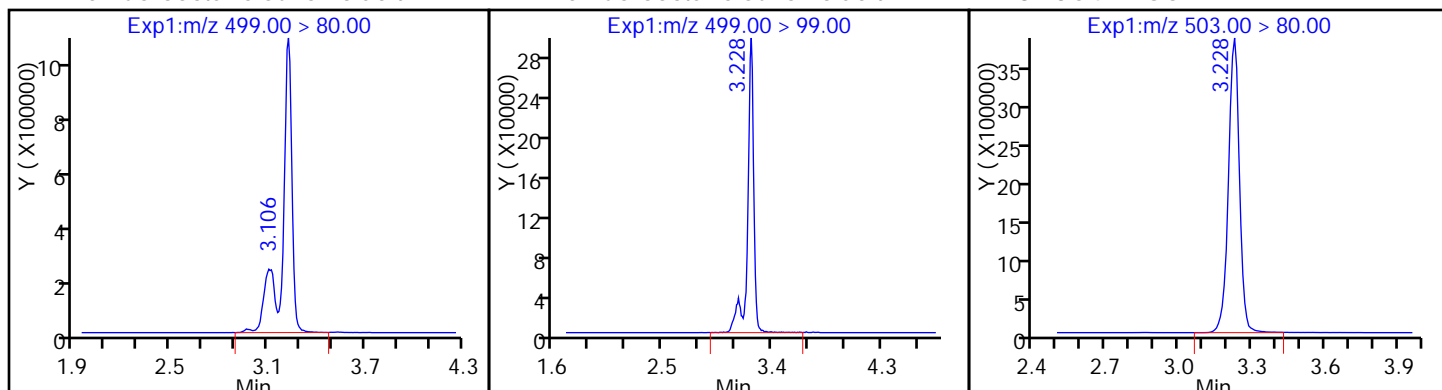
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

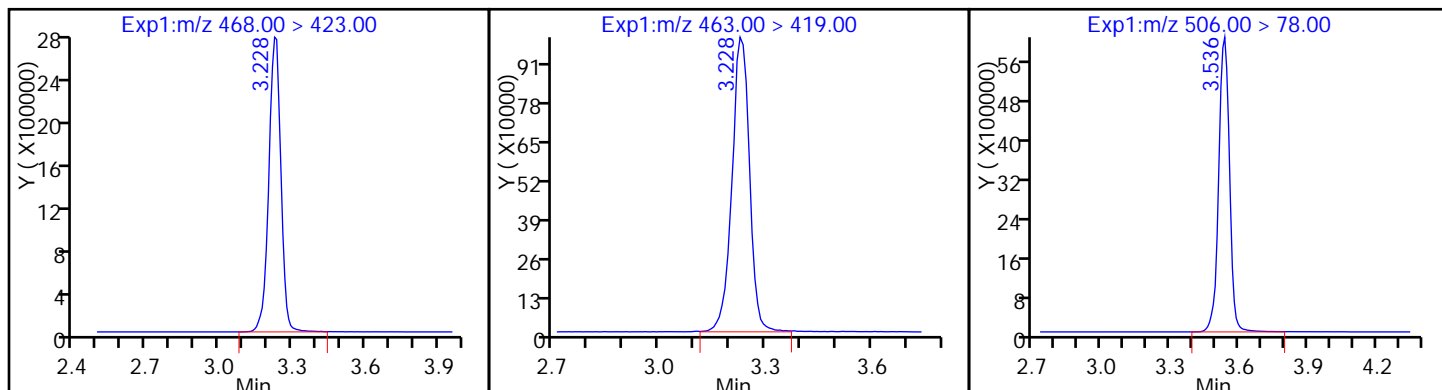
D 18 13C4 PFOS



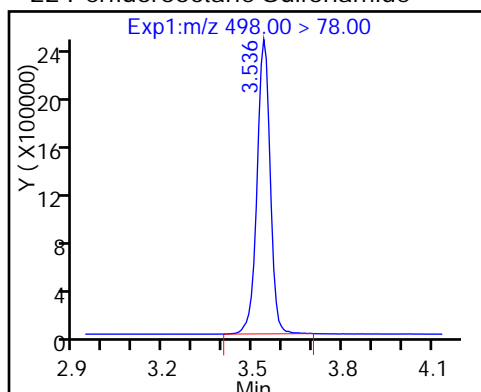
D 19 13C5 PFNA

20 Perfluorononanoic acid

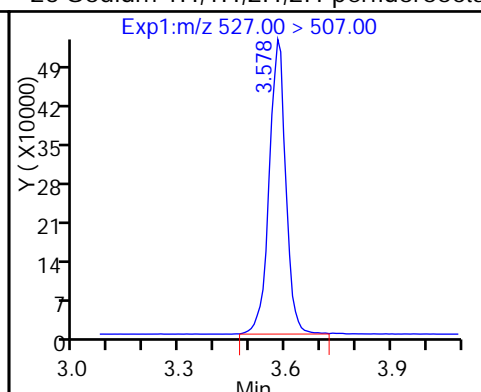
D 21 13C8 FOSA



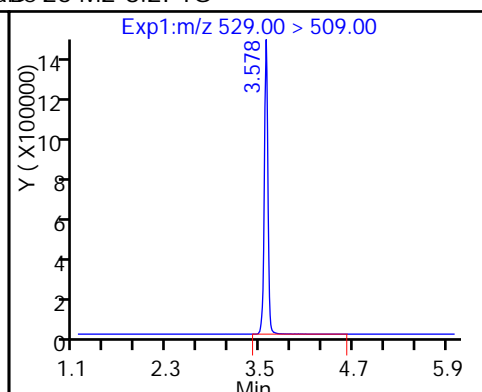
22 Perfluorooctane Sulfonamide



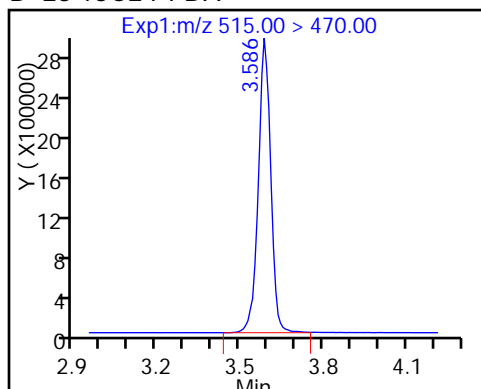
25 Sodium 1H,1H,2H,2H-perfluorooctane



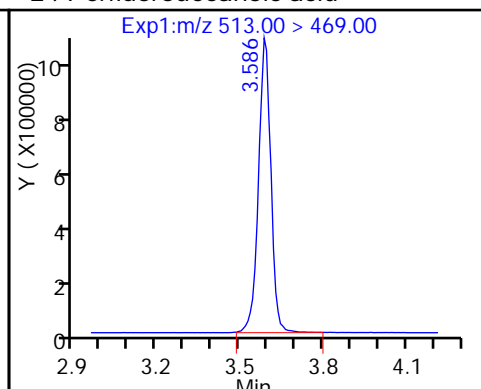
D 26 M2-8:2FTS



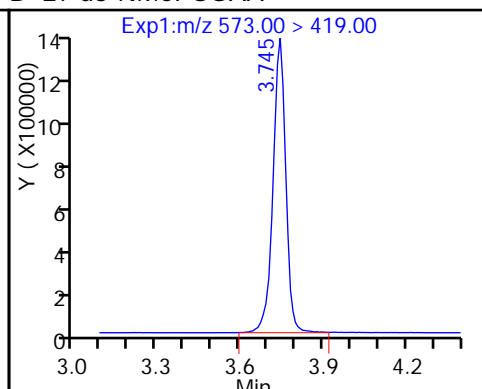
D 23 13C2 PFDA



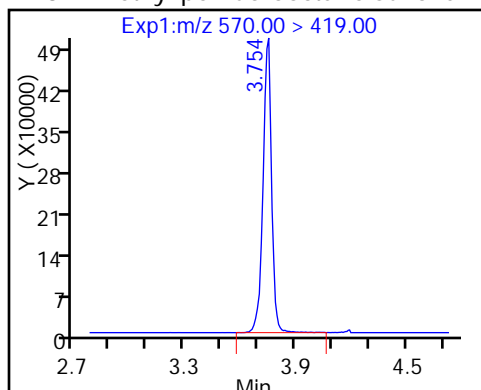
24 Perfluorodecanoic acid



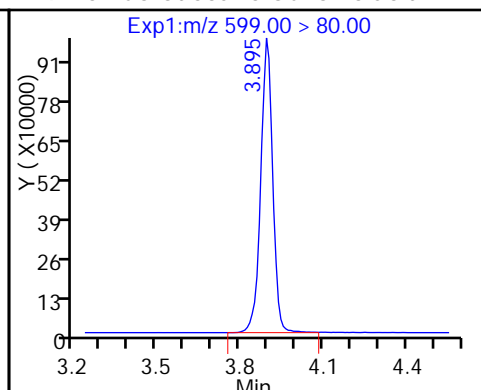
D 27 d3-NMeFOSAA



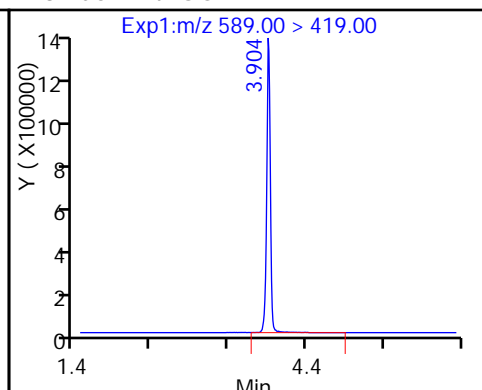
28 N-methyl perfluorooctane sulfonami



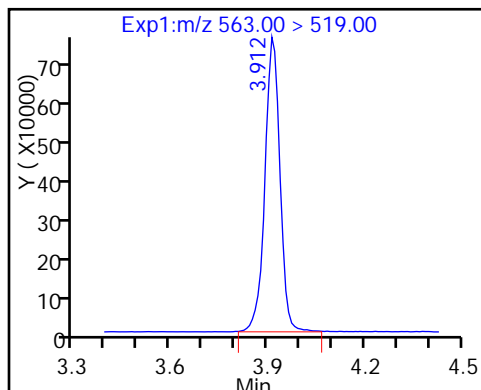
29 Perfluorodecane Sulfonic acid



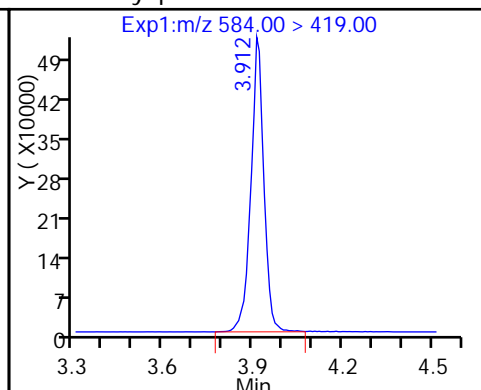
D 32 d5-NEtFOSAA



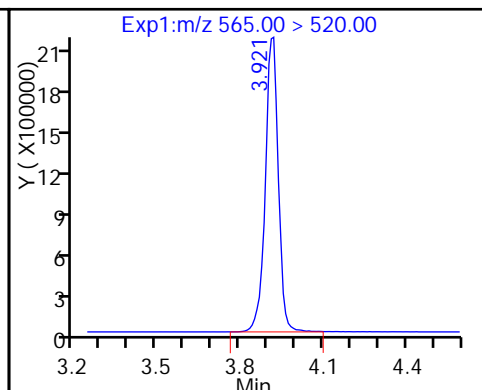
31 Perfluoroundecanoic acid



33 N-ethyl perfluorooctane sulfonamid



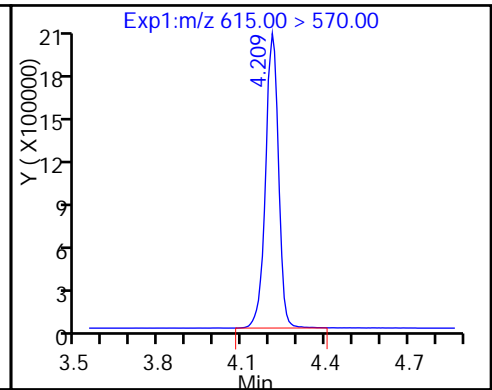
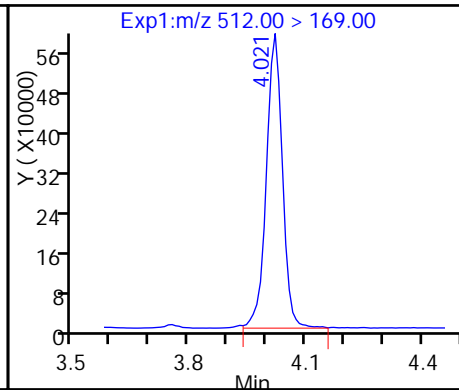
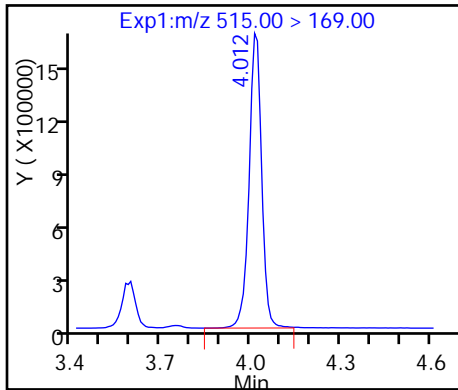
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

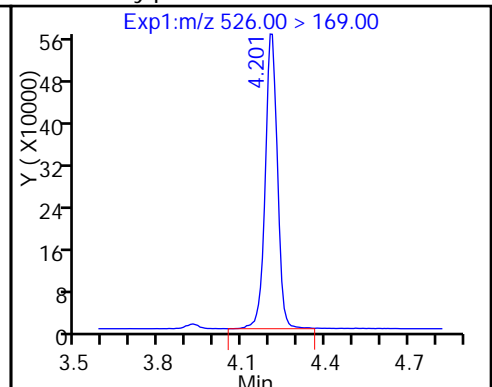
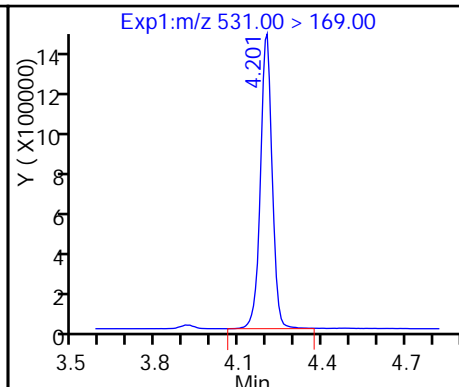
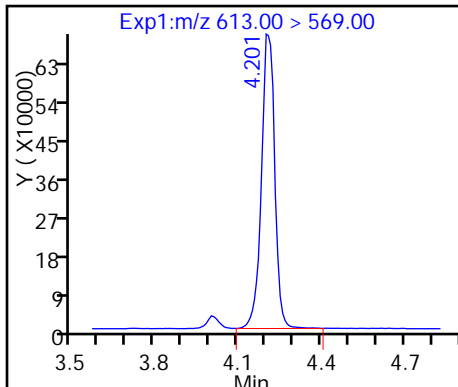
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

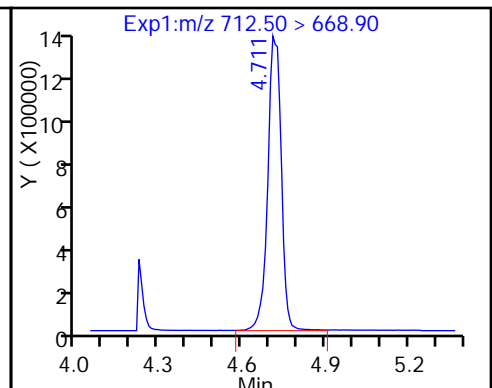
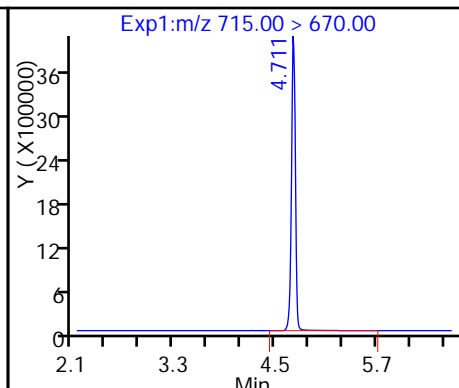
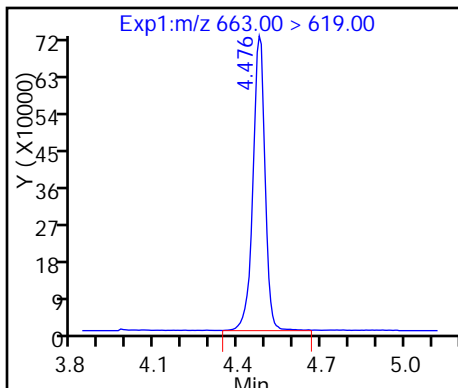
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

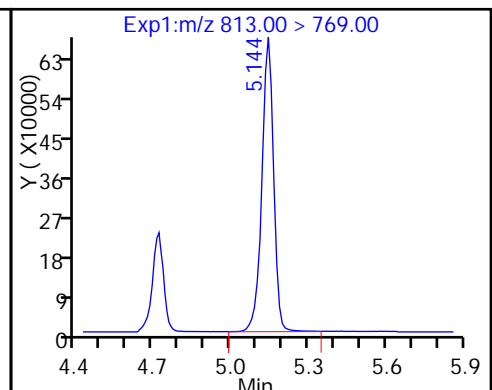
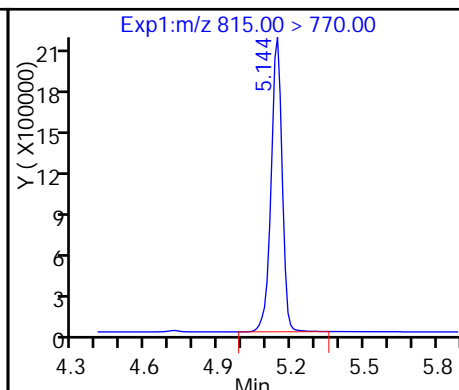
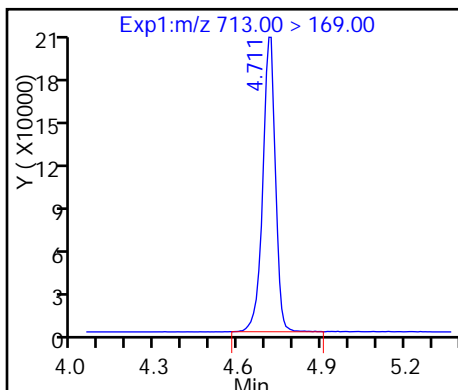
42 Perfluorotetradecanoic acid



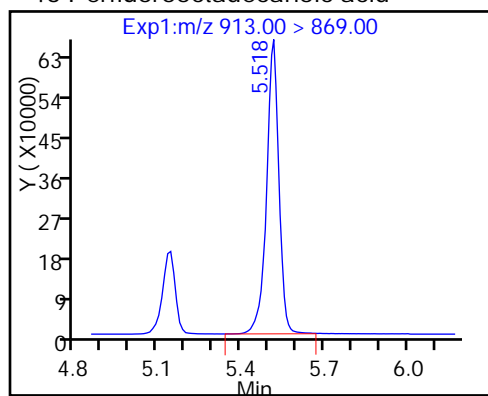
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-153020/9 Calibration Date: 03/03/2017 10:00

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: 2017.03.03A_009.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	0.8971		52.9	50.0	5.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.006		51.4	50.0	2.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.479		45.6	44.2	3.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9081		51.0	50.0	2.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9717		50.2	50.0	0.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.049		46.4	45.5	2.0	25.0
6:2FTS	L2ID		0.8824		47.1	47.4	-0.7	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.998		48.8	50.0	-2.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.096		50.6	47.6	6.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.010		47.7	46.4	2.7	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9545		52.8	50.0	5.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9290		51.7	50.0	3.4	25.0
8:2FTS	L2ID		0.9201		47.6	47.9	-0.6	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9492		52.4	50.0	4.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9285		47.8	50.0	-4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6381		51.6	48.2	7.1	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8577		47.1	50.0	-5.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9870		48.7	50.0	-2.6	25.0
MeFOSA	AveID	0.9355	0.9080		48.5	50.0	-2.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9196		50.3	50.0	0.6	25.0
N-EtFOSA-M	AveID	0.9837	0.9415		47.9	50.0	-4.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9034		51.7	50.0	3.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.836		46.7	50.0	-6.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9628		51.6	50.0	3.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.6843		47.7	50.0	-4.6	25.0
13C4 PFBA	Ave	292242	334153		57.2	50.0	14.3	50.0
13C5-PFPeA	Ave	232192	252574		54.4	50.0	8.8	50.0
13C2 PFHxA	Ave	210884	234974		55.7	50.0	11.4	50.0
13C4-PFHpA	Ave	192959	212838		55.2	50.0	10.3	50.0
18O2 PFHxS	Ave	290899	314086		51.1	47.3	8.0	50.0
M2-6:2FTS	Ave	77178	82674		50.9	47.5	7.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-153020/9 Calibration Date: 03/03/2017 10:00
 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: 2017.03.03A_009.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	217563		53.1	50.0	6.2	50.0
13C4 PFOS	Ave	241637	268234		53.1	47.8	11.0	50.0
13C5 PFNA	Ave	177866	185773		52.2	50.0	4.4	50.0
13C8 FOSA	Ave	366918	407291		55.5	50.0	11.0	50.0
M2-8:2FTS	Ave	92602	90188		46.7	47.9	-2.6	50.0
13C2 PFDA	Ave	166704	176887		53.1	50.0	6.1	50.0
d3-NMeFOSAA	Ave	85186	92495		54.3	50.0	8.6	50.0
d5-NEtFOSAA	Ave	81371	89341		54.9	50.0	9.8	50.0
13C2 PFUnA	Ave	130805	136205		52.1	50.0	4.1	50.0
d-N-MeFOSA-M	Ave	87983	96274		54.7	50.0	9.4	50.0
13C2 PFDoA	Ave	123944	134705		54.3	50.0	8.7	50.0
d-N-EtFOSA-M	Ave	85249	91226		53.5	50.0	7.0	50.0
13C2-PFTeDA	Ave	259165	271896		52.5	50.0	4.9	50.0
13C2-PFHxDA	Ave	125061	146486		58.6	50.0	17.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170303-40441.b\2017.03.03A_009.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 03-Mar-2017 10:00:31 ALS Bottle#: 32 Worklist Smp#: 9
 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\20170303-40441.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 27-Mar-2017 10:05:38 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: 03-Mar-2017 10:15:52

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

D 1 13C4 PFBA
 217.00 > 172.00 1.539 1.539 0.0 16707649 57.2 114 644238

2 Perfluorobutyric acid
 212.90 > 169.00 1.539 1.539 0.0 1.000 14989120 52.9 106 70389

D 3 13C5-PFPeA
 267.90 > 223.00 1.823 1.823 0.0 12628683 54.4 109 635022

4 Perfluoropentanoic acid
 262.90 > 219.00 1.823 1.823 0.0 1.000 12704773 51.4 103 112227

5 Perfluorobutanesulfonic acid
 298.90 > 80.00 1.863 1.863 0.0 1.000 20531744 45.6 103
 298.90 > 99.00 1.863 1.863 0.0 1.000 8914114 2.30(0.00-0.00)

D 7 13C2 PFHxA
 315.00 > 270.00 2.119 2.119 0.0 11748698 55.7 111 446049

6 Perfluorohexanoic acid
 313.00 > 269.00 2.128 2.128 0.0 1.000 10668527 51.0 102 286436

D 9 13C4-PFHpA
 367.00 > 322.00 2.464 2.464 0.0 10641918 55.2 110 487581

10 Perfluoroheptanoic acid
 363.00 > 319.00 2.464 2.464 0.0 1.000 10340390 50.2 100 116847

D 11 18O2 PFHxS
 403.00 > 84.00 2.480 2.480 0.0 14856249 51.1 108 528041

8 Perfluorohexanesulfonic acid
 399.00 > 80.00 2.480 2.480 0.0 1.000 14984106 46.4 102 M
 M

D 12 M2-6:2FTS
 429.00 > 409.00 2.807 2.807 0.0 3926998 50.9 107

13 Sodium 1H,1H,2H,2H-perfluorooctane
 427.00 > 407.00 2.807 2.807 0.0 1.000 3457938 47.1 99.3

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	2.830	2.830	0.0		10878151	53.1		106	289993	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.830	2.830	0.0	1.000	10857092	48.8		97.7	106005	
413.00 > 169.00	2.830	2.830	0.0	1.000	6542056		1.66(0.90-1.10)		324513	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.838	2.838	0.0	1.000	13989420	50.6		106		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.093	3.093	0.0	1.000	12573450	47.7		103	70870	
499.00 > 99.00	3.093	3.093	0.0	1.000	2835983		4.43(0.90-1.10)		13657	
D 18 13C4 PFOS										
503.00 > 80.00	3.206	3.206	0.0		12821590	53.1		111	192615	
D 19 13C5 PFNA										
468.00 > 423.00	3.214	3.214	0.0		9288651	52.2		104	270640	
20 Perfluorononanoic acid										
463.00 > 419.00	3.214	3.214	0.0	1.000	8865617	52.8		106	156573	
D 21 13C8 FOSA										
506.00 > 78.00	3.527	3.527	0.0		20364538	55.5		111	441702	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.536	3.536	0.0	1.000	18917564	51.7		103	456713	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.553	3.553	0.0	1.000	3974940	47.6		99.4		
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.553	0.0		4319986	46.7		97.4		
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.569	0.0		8844351	53.1		106	245259	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.569	3.569	0.0	1.000	8395012	52.4		105	189111	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.725	3.725	0.0		4624753	54.3		109		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.725	3.725	0.0	1.000	4294236	47.8		95.6		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.878	3.878	0.0	1.000	8249754	51.6		107		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.887	3.887	0.0		4467038	54.9		110		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.895	3.895	0.0	1.000	6721841	48.7		97.4	203837	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.895	3.895	0.0	1.002	3831483	47.1		94.2		
D 30 13C2 PFUnA										
565.00 > 520.00	3.895	3.895	0.0		6810244	52.1		104	240147	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.022	4.022	0.0		4813722	54.7		109		
35 MeFOSA										
512.00 > 169.00	4.022	4.022	0.0	1.000	4370849	48.5		97.1		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.188	4.188	0.0	1.000	6193702	50.3		101	46716	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.211	4.211	0.0	1.000	4294446	47.9	95.7		
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.202	4.202	0.0		4561298	53.5	107		
D 36 13C2 PFDaA	615.00 > 570.00	4.181	4.181	0.0		6735249	54.3	109	215881	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.448	4.448	0.0	1.000	6084594	51.7	103	140214	
D 43 13C2-PFTeDA	715.00 > 670.00	4.684	4.684	0.0		13594795	52.5	105	412666	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.684	4.684	0.0	1.000	12368125	46.7	93.4	42501	
	713.00 > 169.00	4.684	4.684	0.0	1.000	1789045	6.91(0.00-0.00)		181457	
D 44 13C2-PFHxDA	815.00 > 770.00	5.102	5.102	0.0		7324314	58.6	117	116120	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.102	5.102	0.0	1.000	6484396	51.6	103	6380	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.470	5.470	0.0	1.000	4608829	47.7	95.4	4830	

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\20170303-40441.b\2017.03.03A_009.d

Injection Date: 03-Mar-2017 10:00:31

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

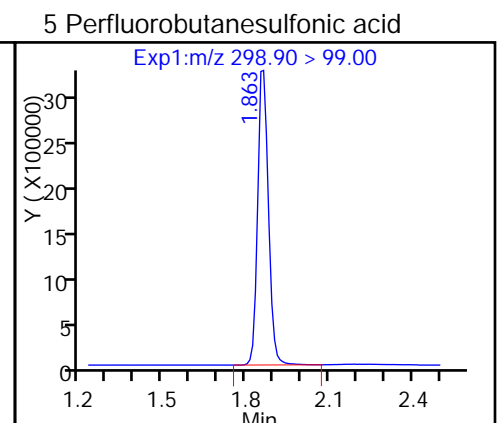
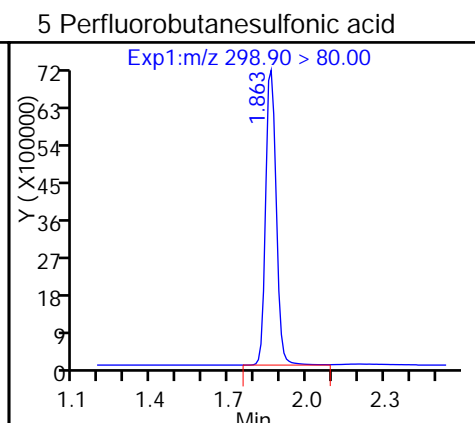
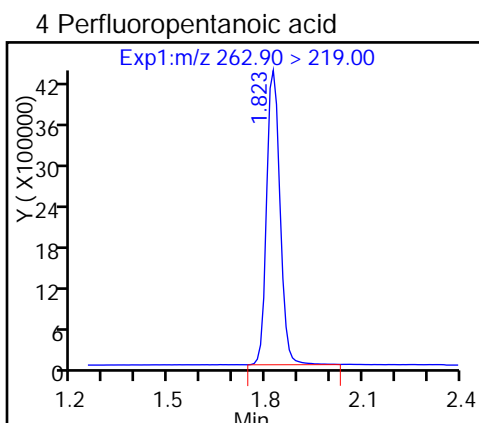
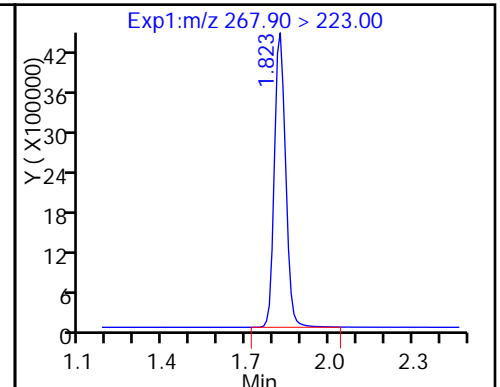
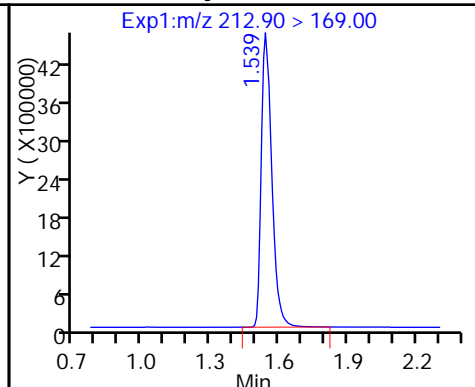
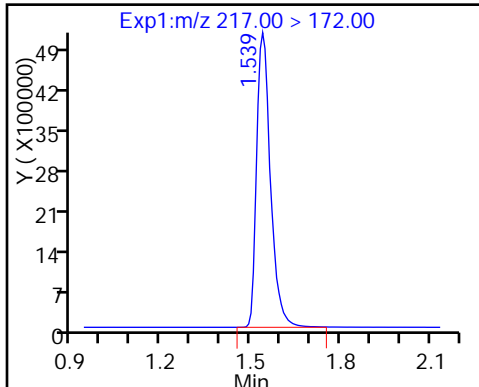
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

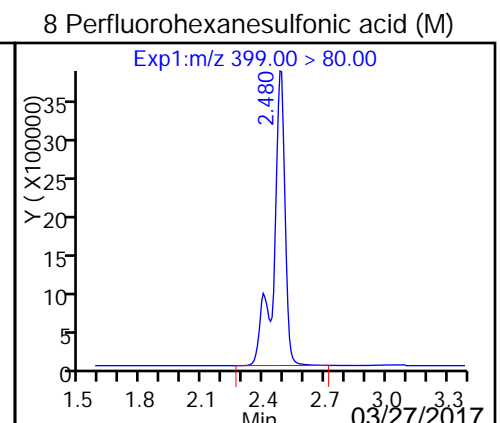
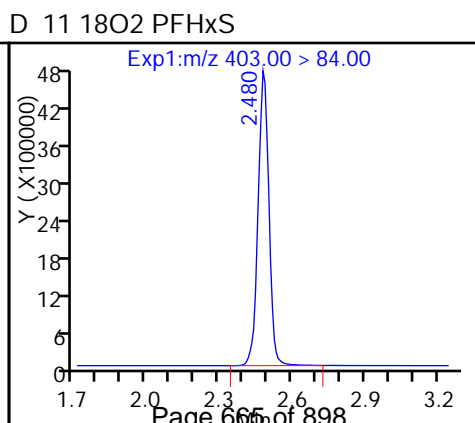
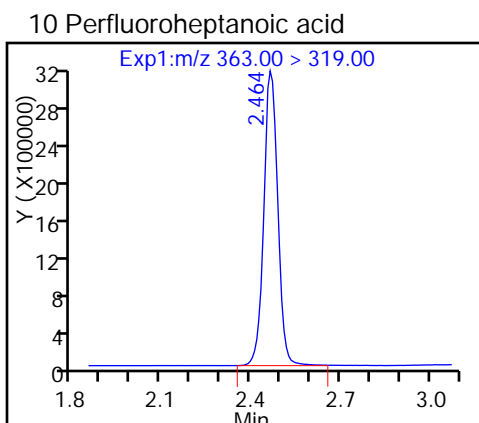
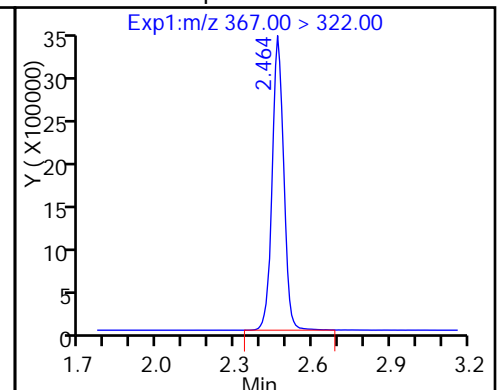
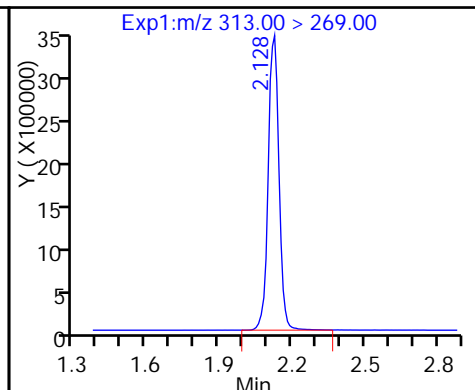
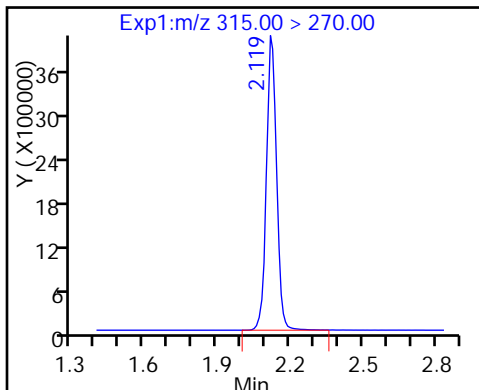
D 3 13C5-PFPeA



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

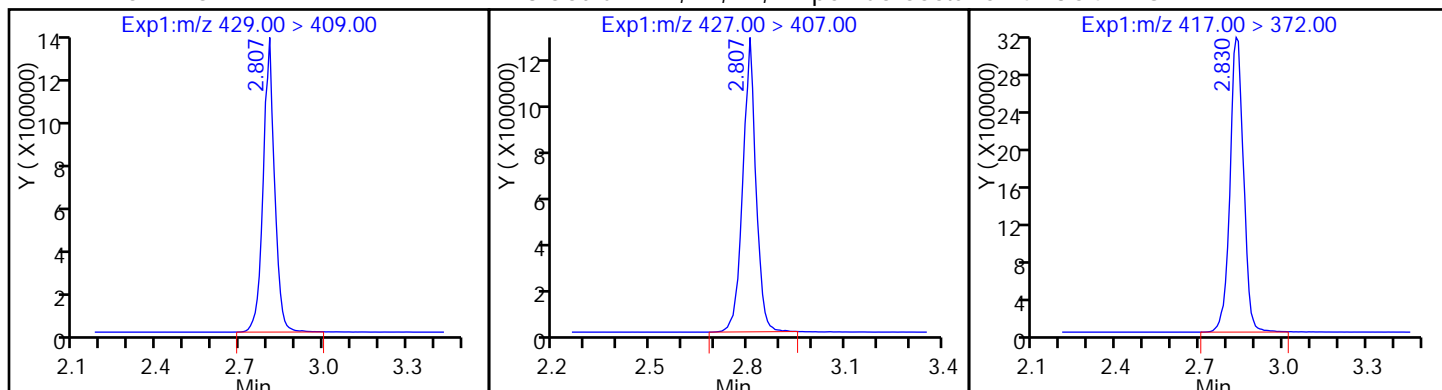
D 9 13C4-PFHpA



D 12 M2-6:2FTS

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

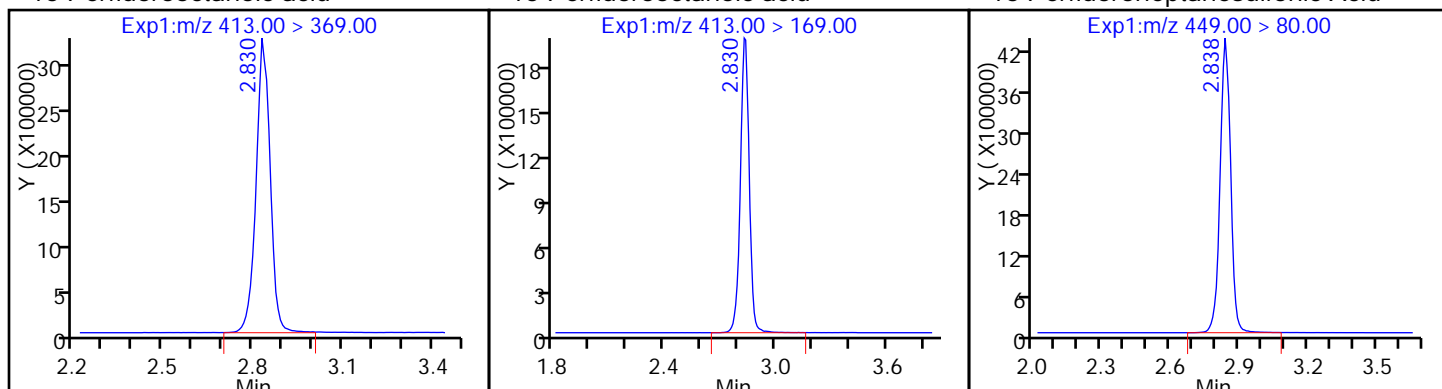
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

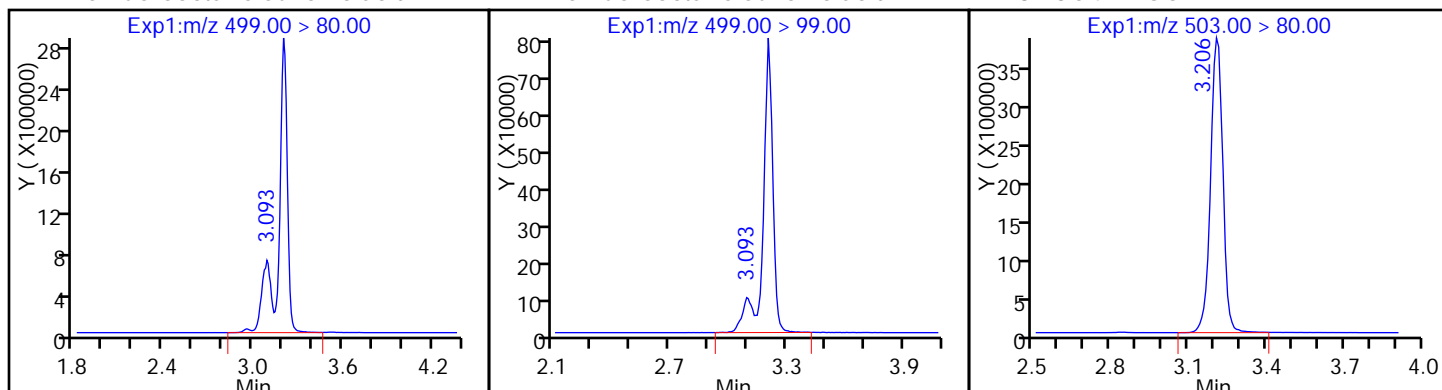
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

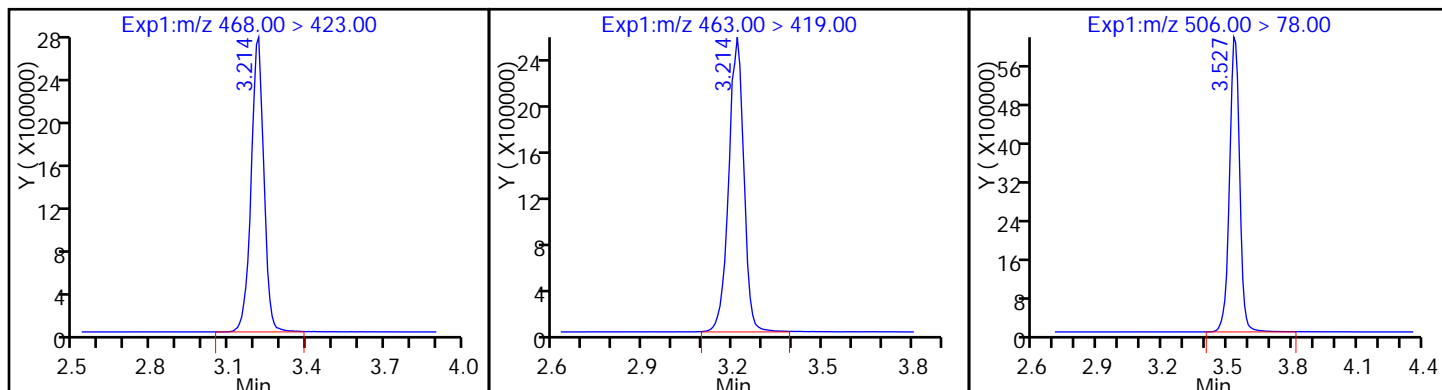
D 18 13C4 PFOS



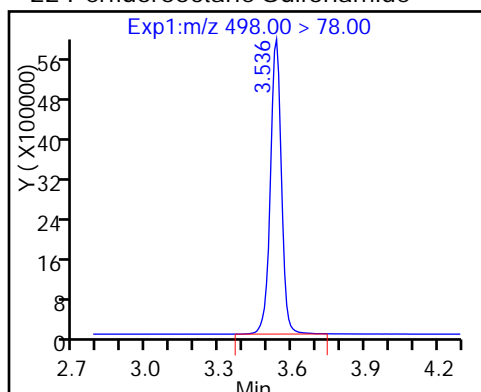
D 19 13C5 PFNA

20 Perfluorononanoic acid

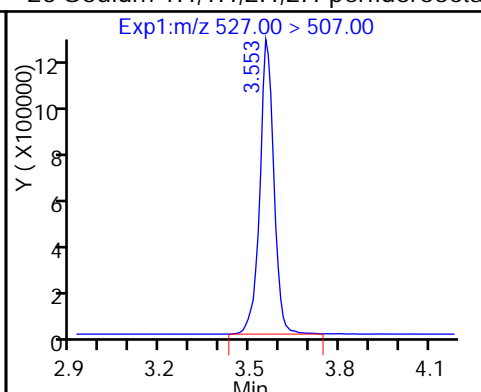
D 21 13C8 FOSA



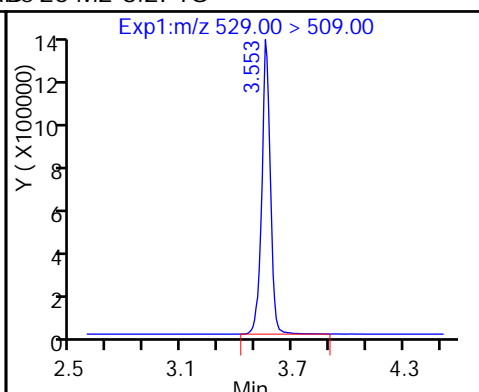
22 Perfluorooctane Sulfonamide



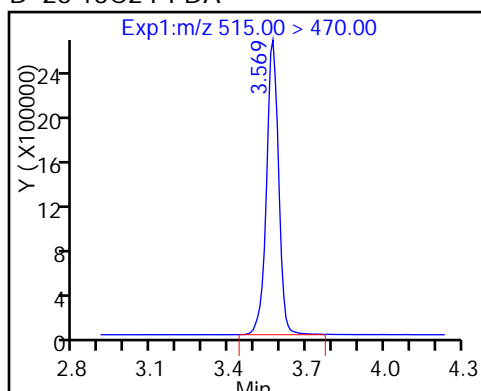
25 Sodium 1H,1H,2H,2H-perfluorooctane



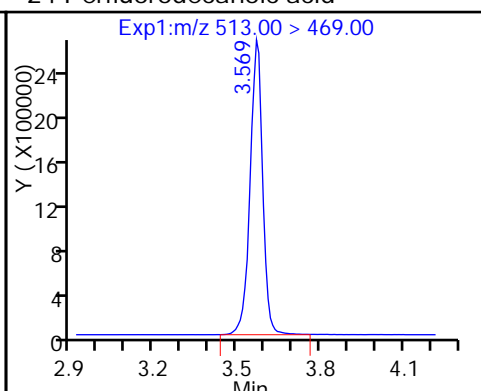
26 M2-8:2FTS



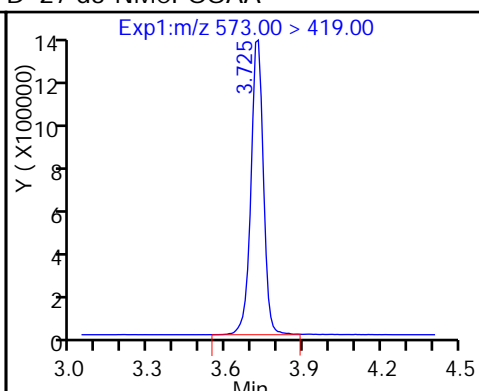
D 23 13C2 PFDA



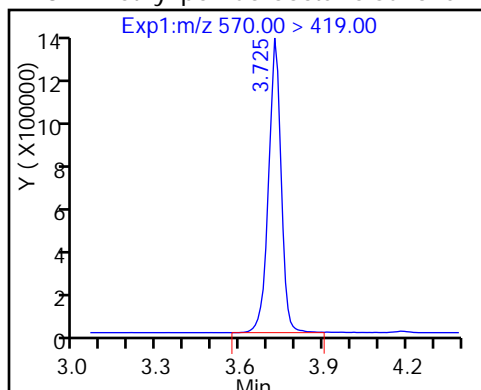
24 Perfluorodecanoic acid



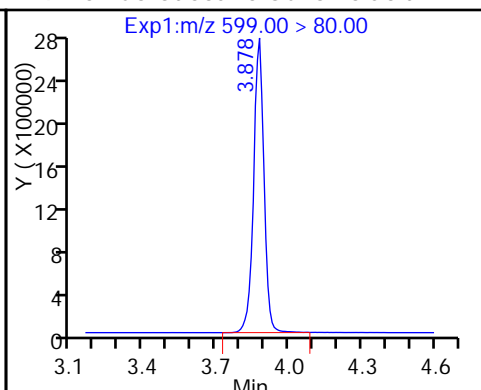
D 27 d3-NMeFOSAA



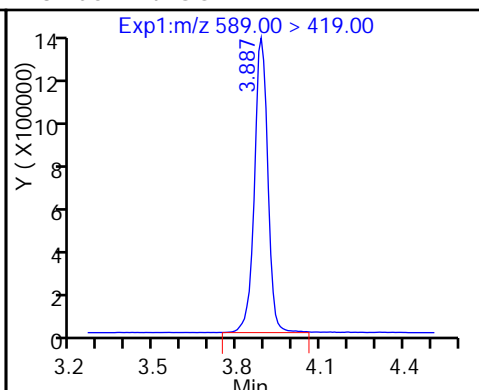
28 N-methyl perfluorooctane sulfonami



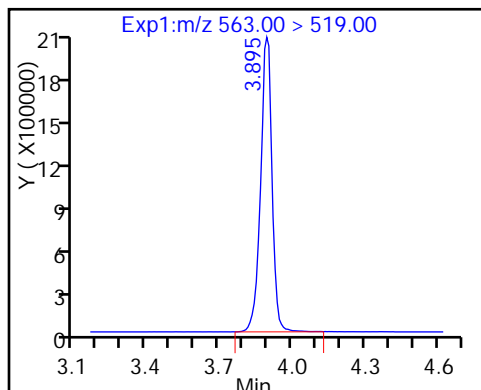
29 Perfluorodecane Sulfonic acid



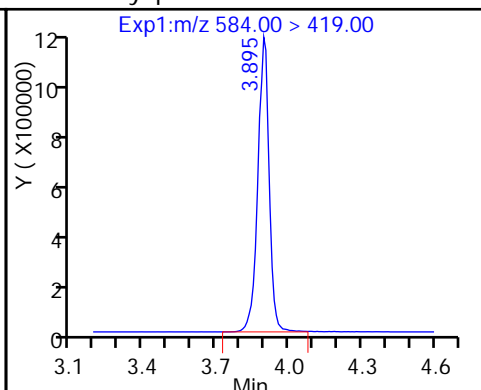
D 32 d5-NEtFOSAA



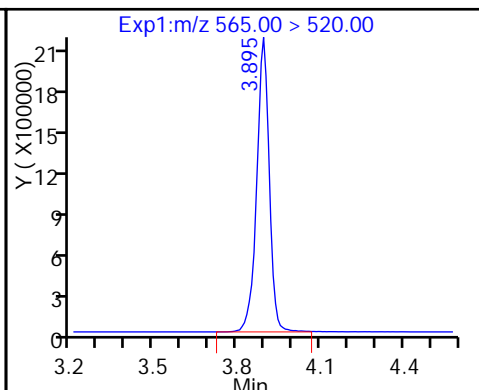
31 Perfluoroundecanoic acid



33 N-ethyl perfluorooctane sulfonamid



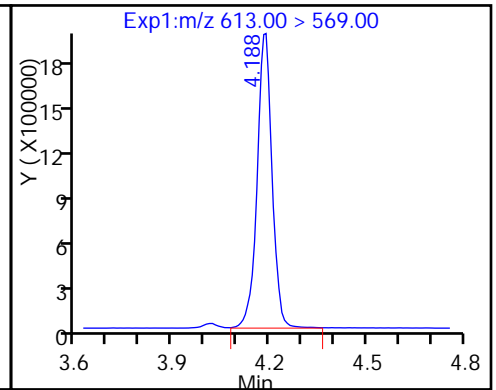
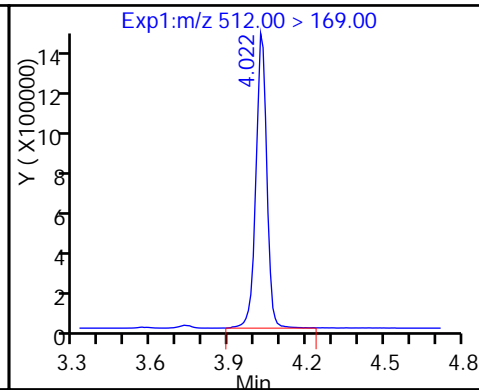
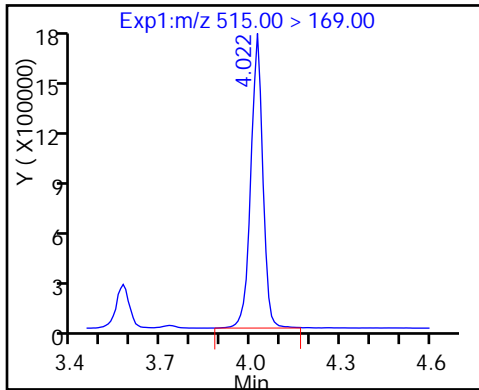
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

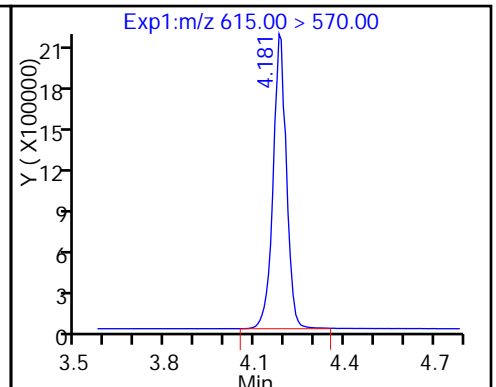
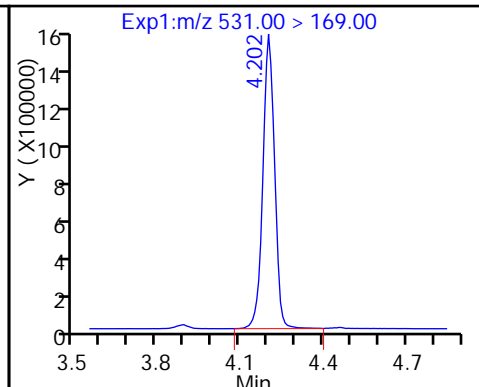
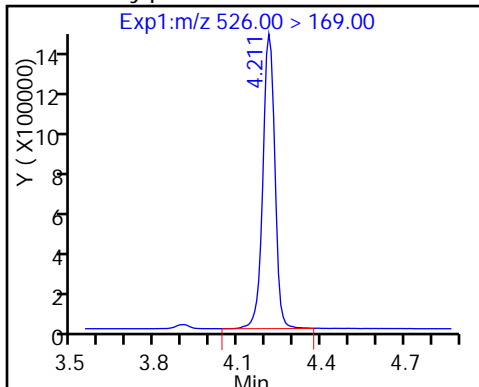
37 Perfluorododecanoic acid



39 N-ethylperfluoro-1-octanesulfonami

D 38 d-N-EtFOSA-M

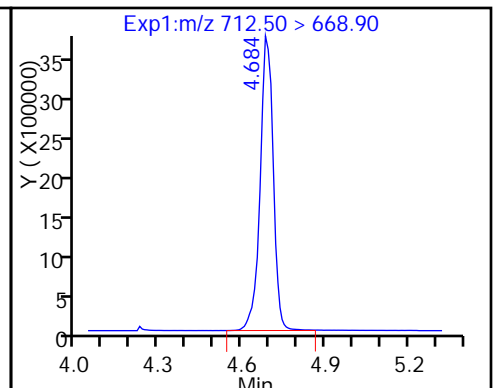
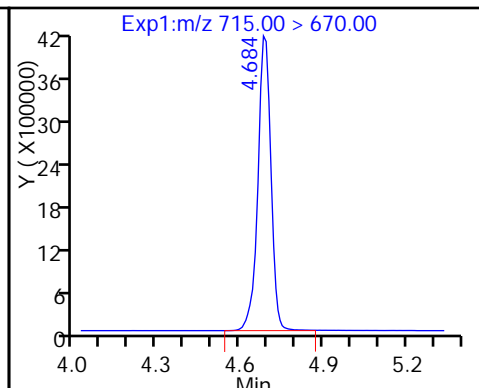
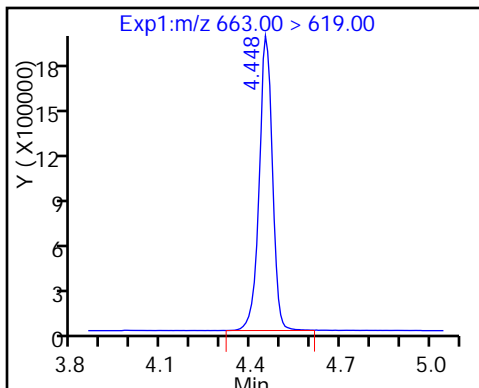
D 36 13C2 PFDa



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDa

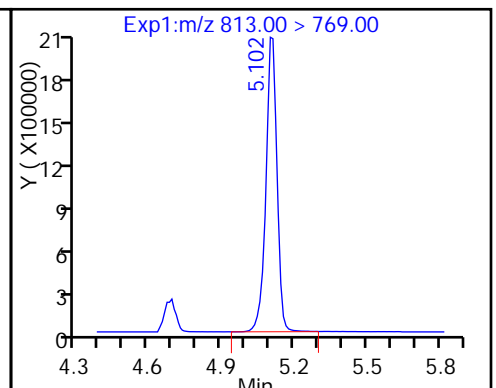
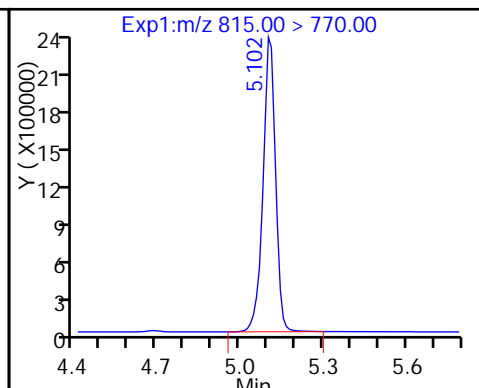
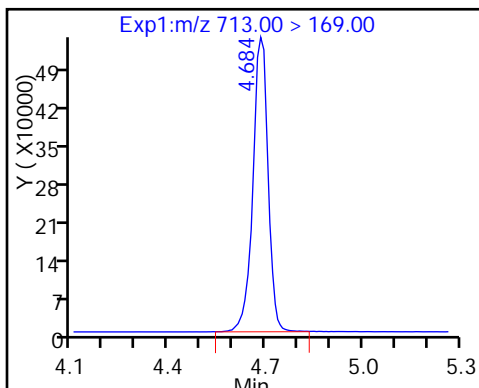
42 Perfluorotetradecanoic acid



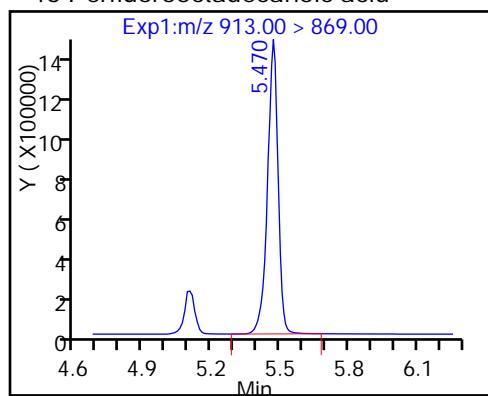
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDa

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

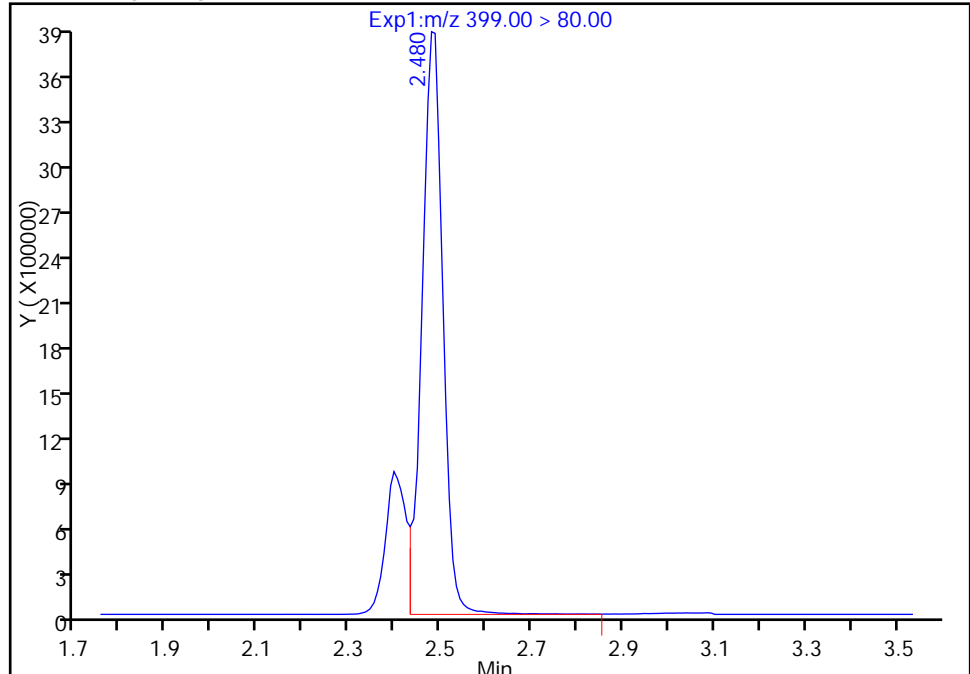
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Injection Date: 03-Mar-2017 10:00:31 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

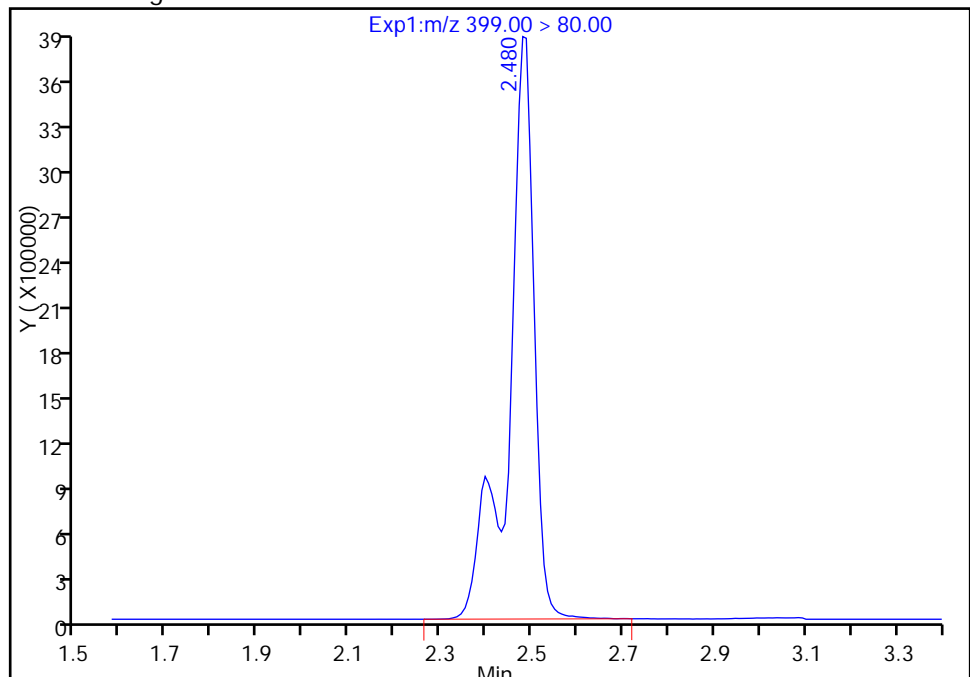
RT: 2.48
Area: 12130753
Amount: 37.554269
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 14984106
Amount: 46.387652
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 10:05:38

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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.: 320-26103-1
 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										M
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

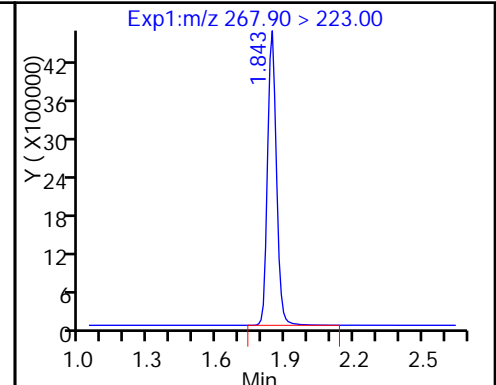
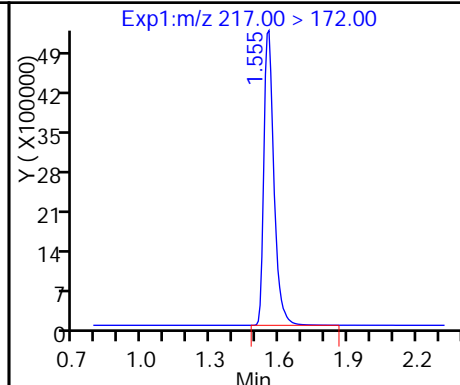
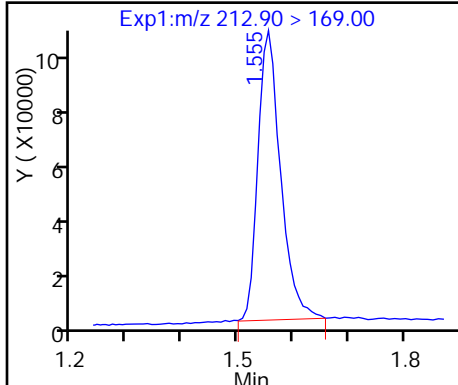
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

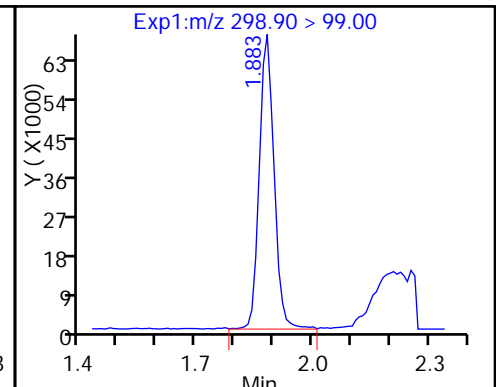
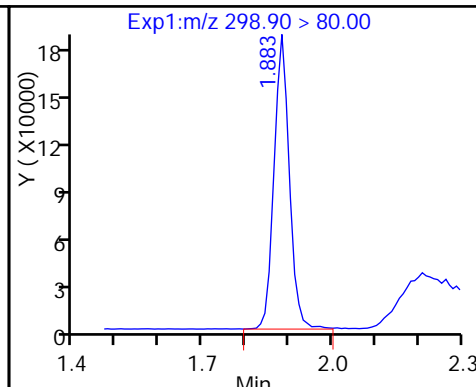
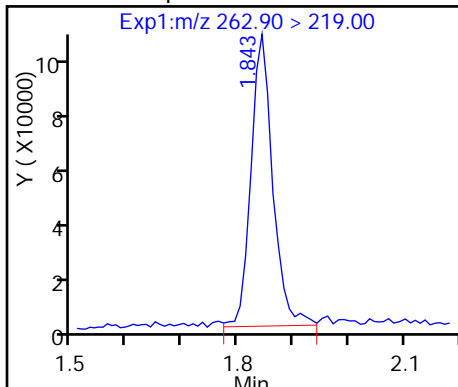
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

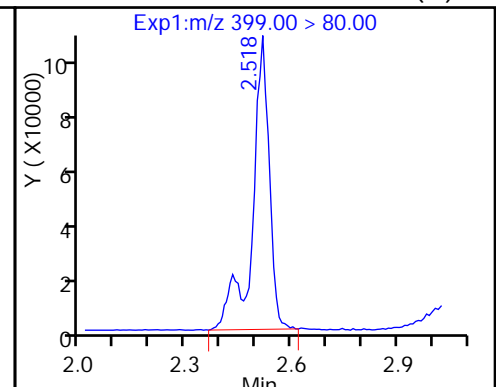
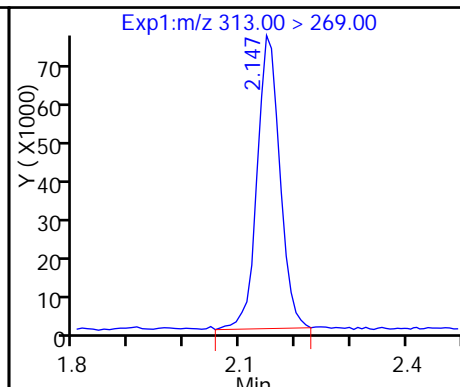
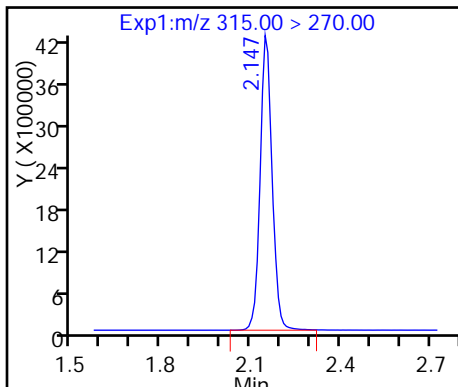
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

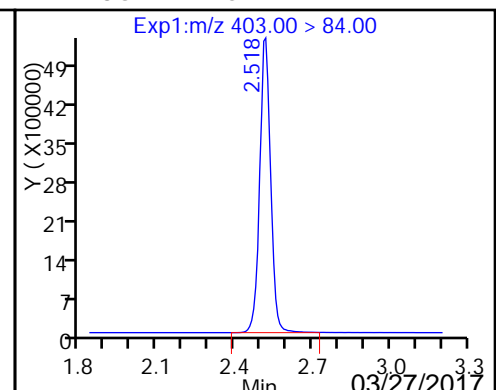
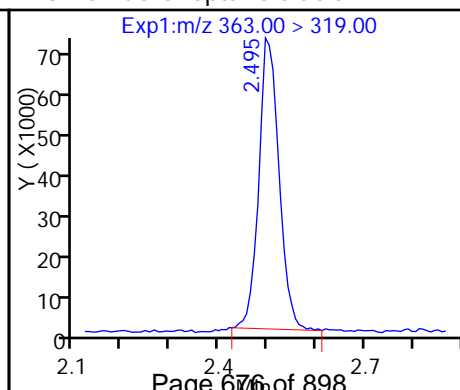
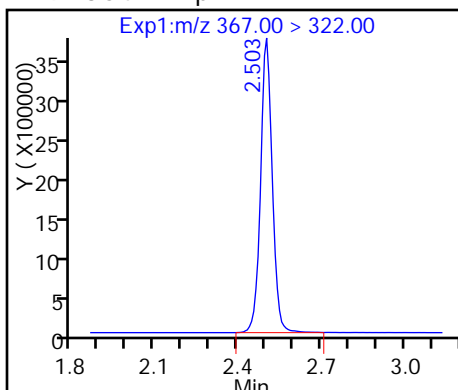
8 Perfluorohexanesulfonic acid (M)

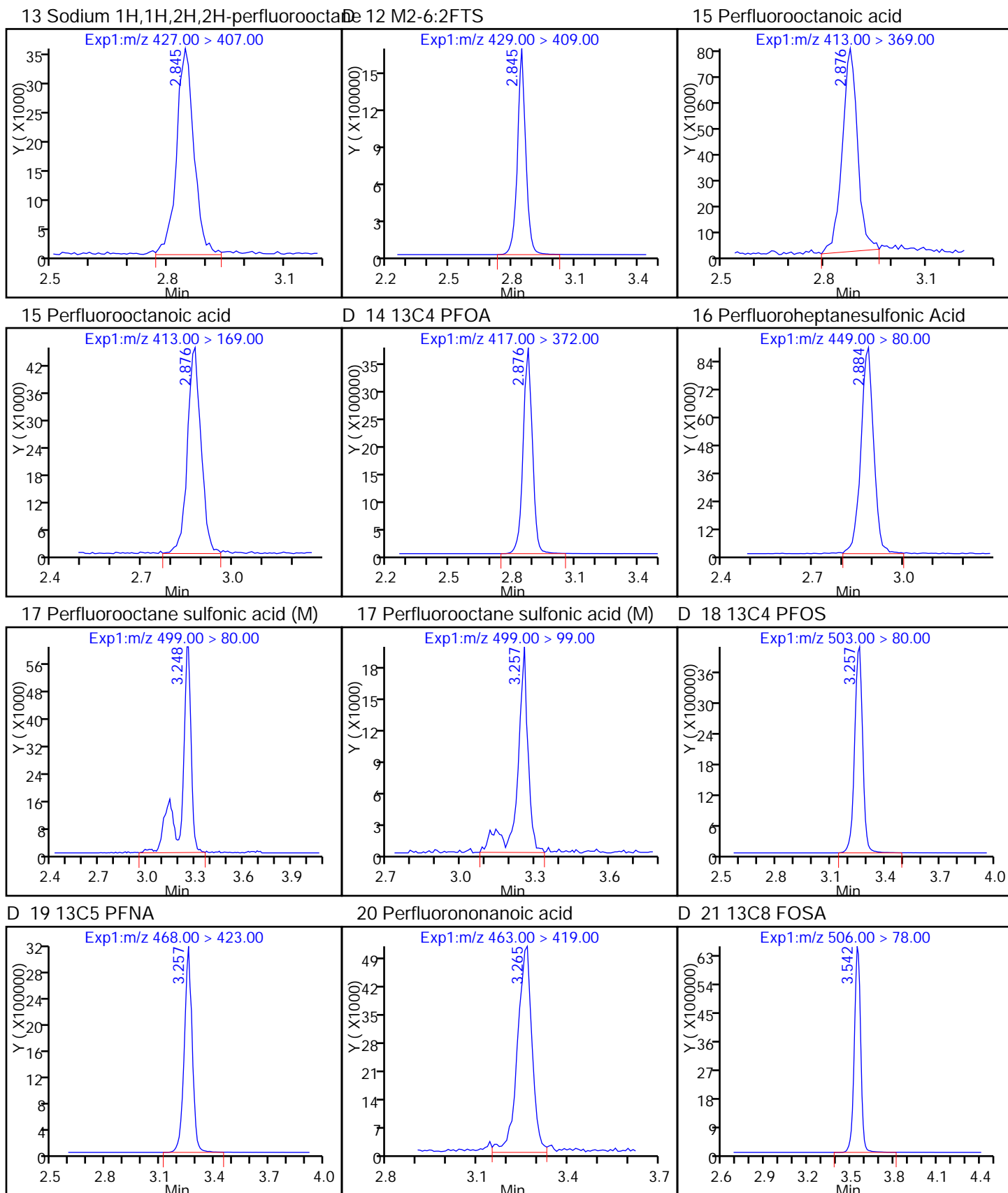


D 9 13C4-PFHpA

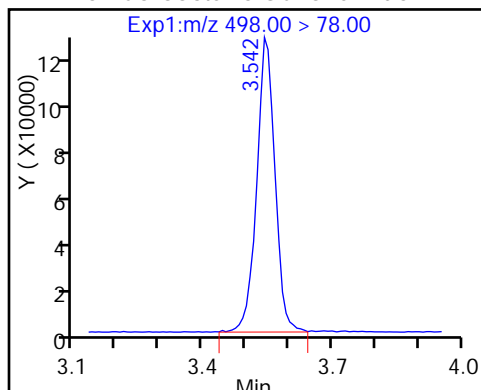
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

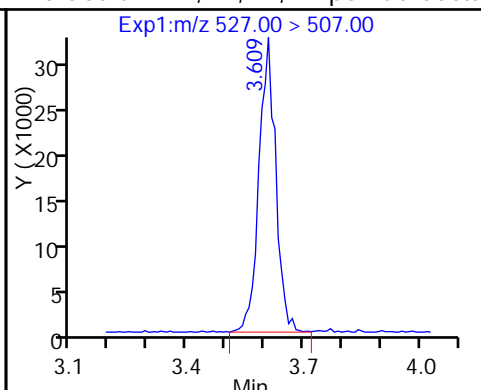




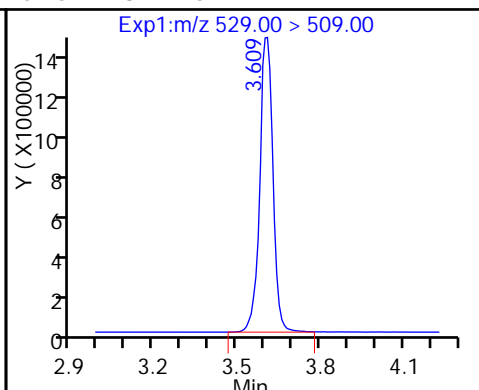
22 Perfluorooctane Sulfonamide



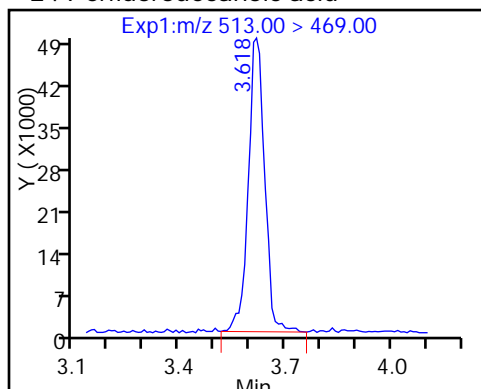
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



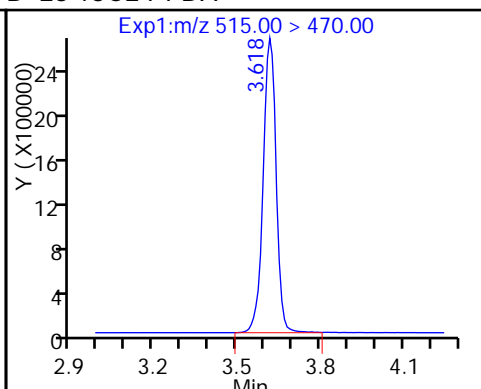
26 M2-8:2FTS



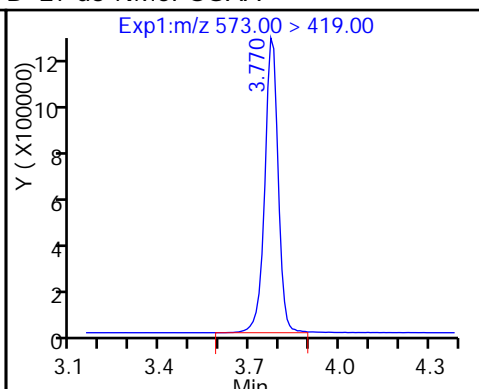
24 Perfluorodecanoic acid



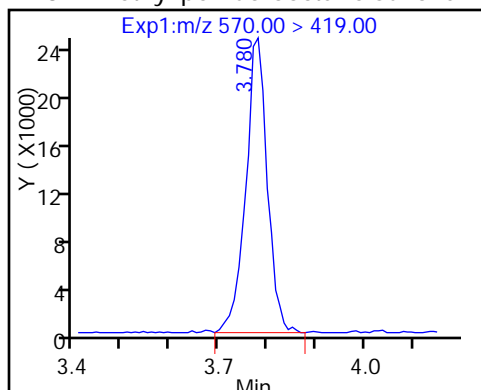
D 23 13C2 PFDA



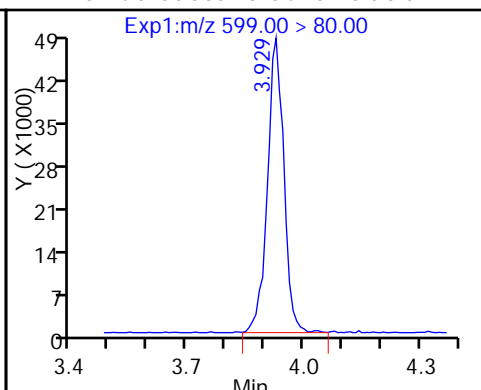
D 27 d3-NMeFOSAA



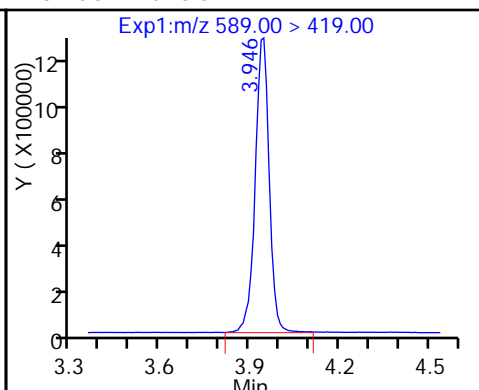
28 N-methyl perfluorooctane sulfonamide



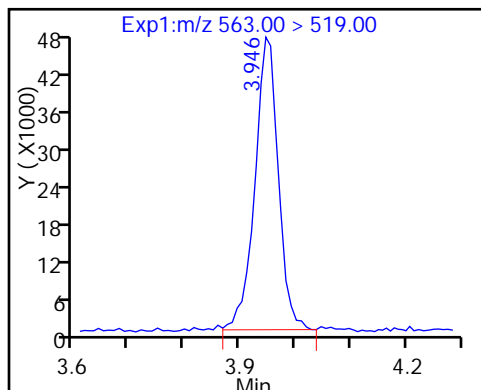
29 Perfluorodecane Sulfonic acid



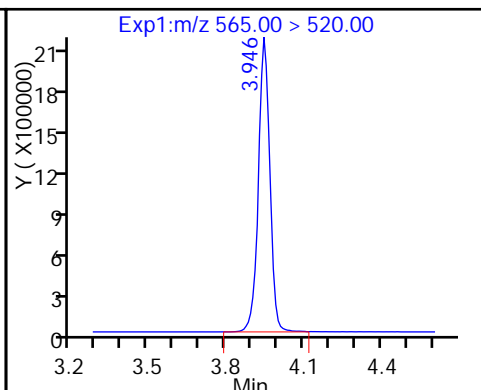
D 32 d5-NEtFOSAA



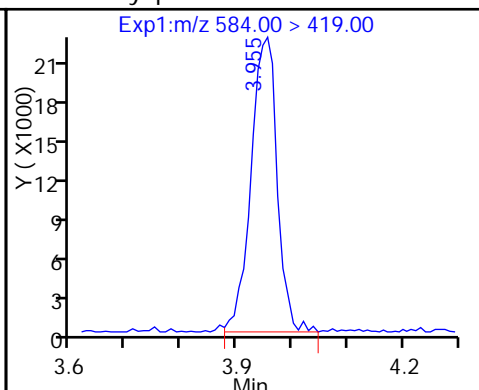
31 Perfluoroundecanoic acid



D 30 13C2 PFUnA



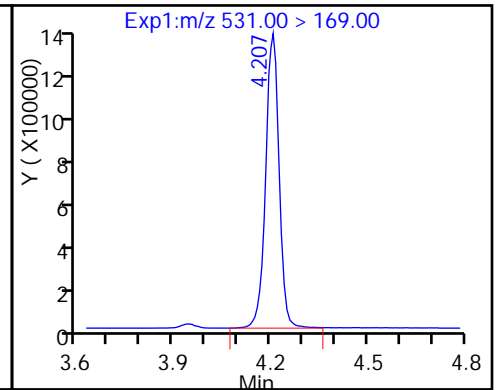
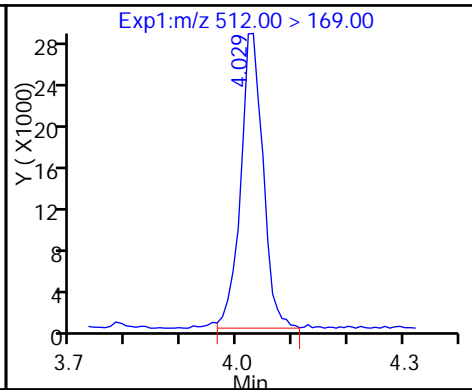
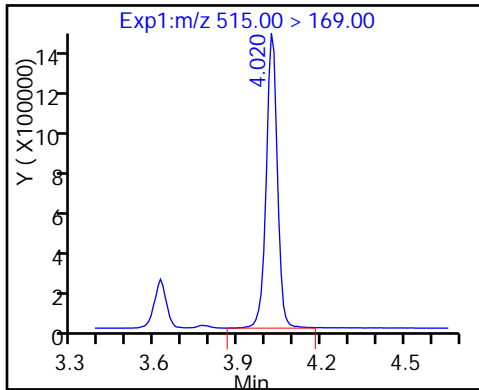
33 N-ethyl perfluorooctane sulfonamide



D 34 d-N-MeFOSA-M

35 MeFOSA

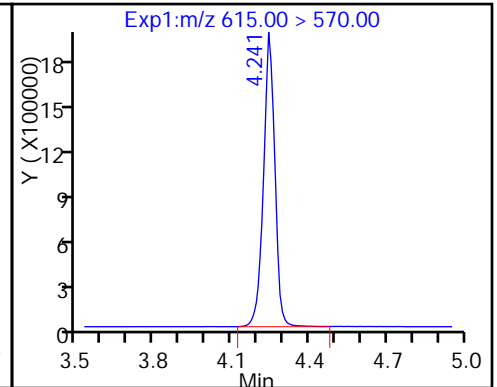
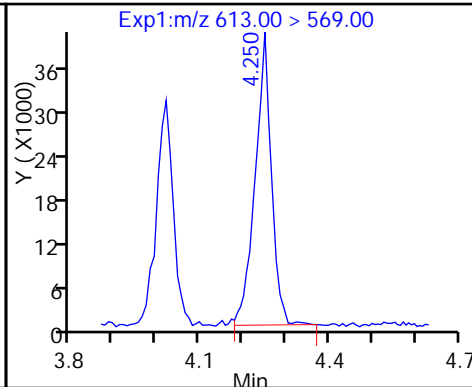
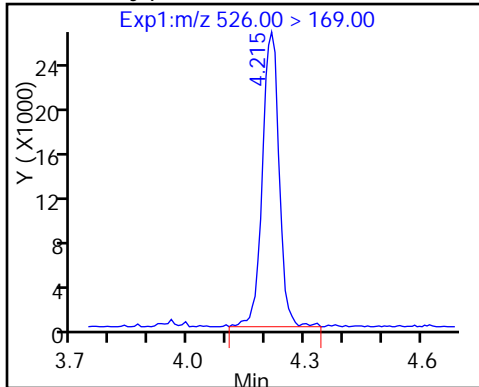
D 38 d-N-EtFOSA-M



39 N-ethylperfluoro-1-octanesulfonami

37 Perfluorododecanoic acid

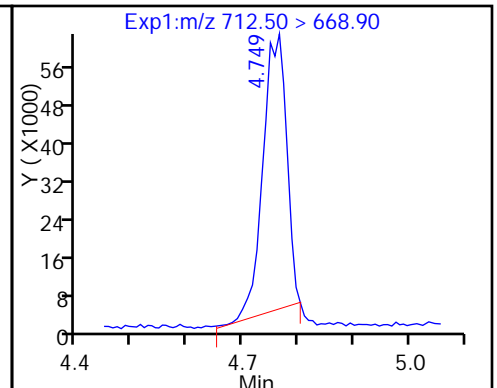
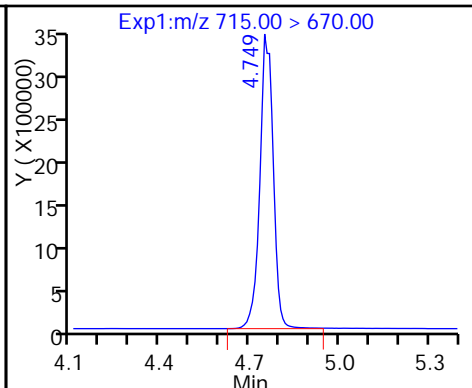
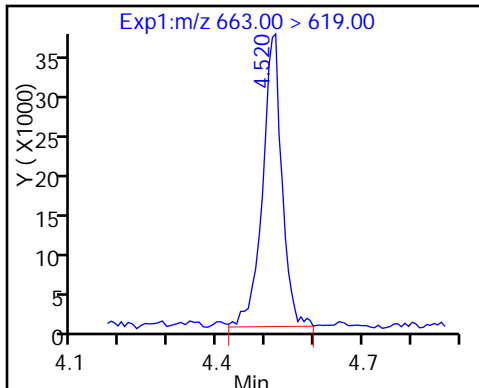
D 36 13C2 PFDaA



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

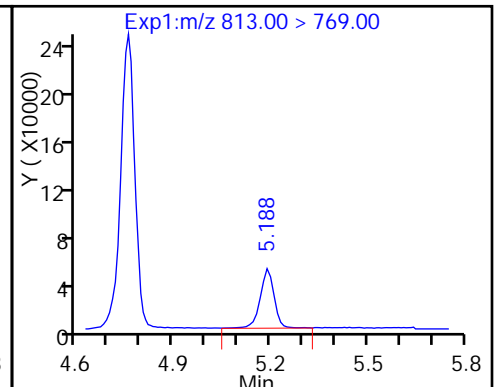
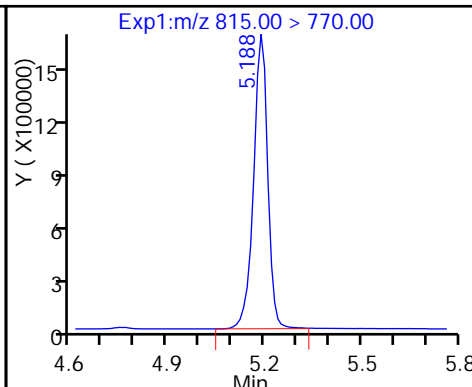
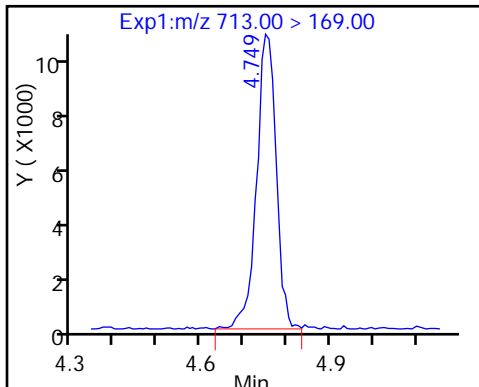
42 Perfluorotetradecanoic acid



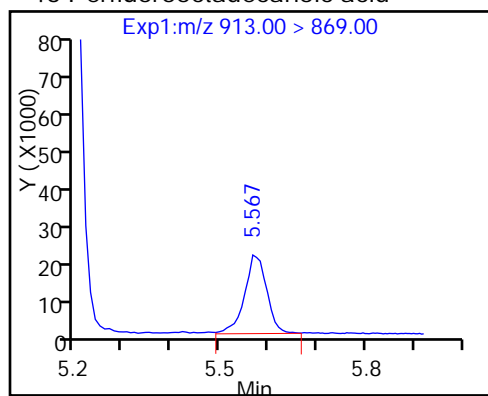
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

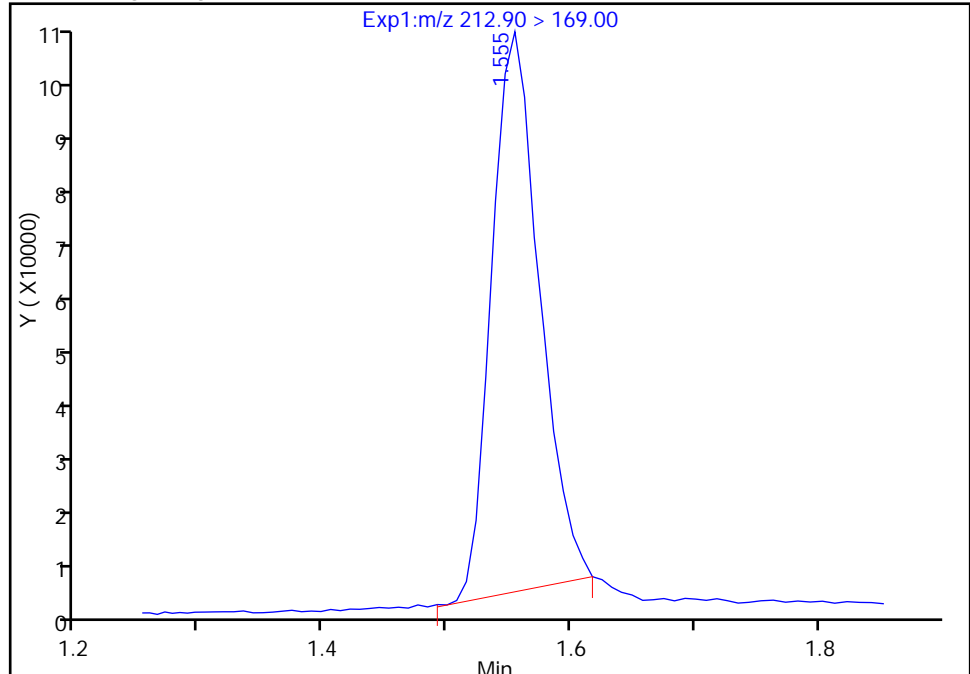
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

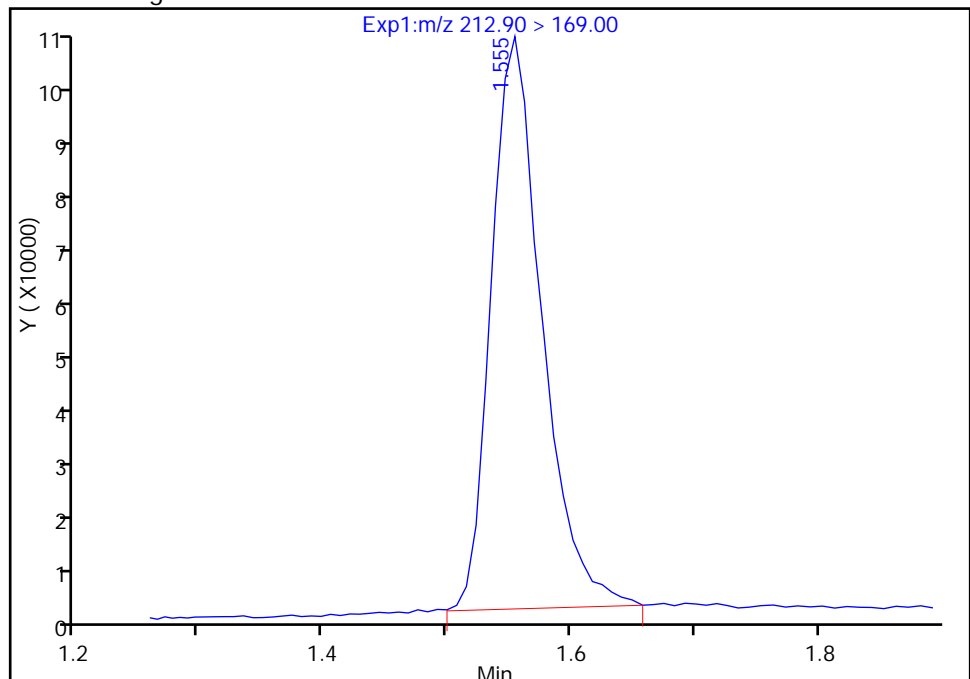
RT: 1.55
Area: 258682
Amount: 0.939601
Amount Units: ng/ml

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

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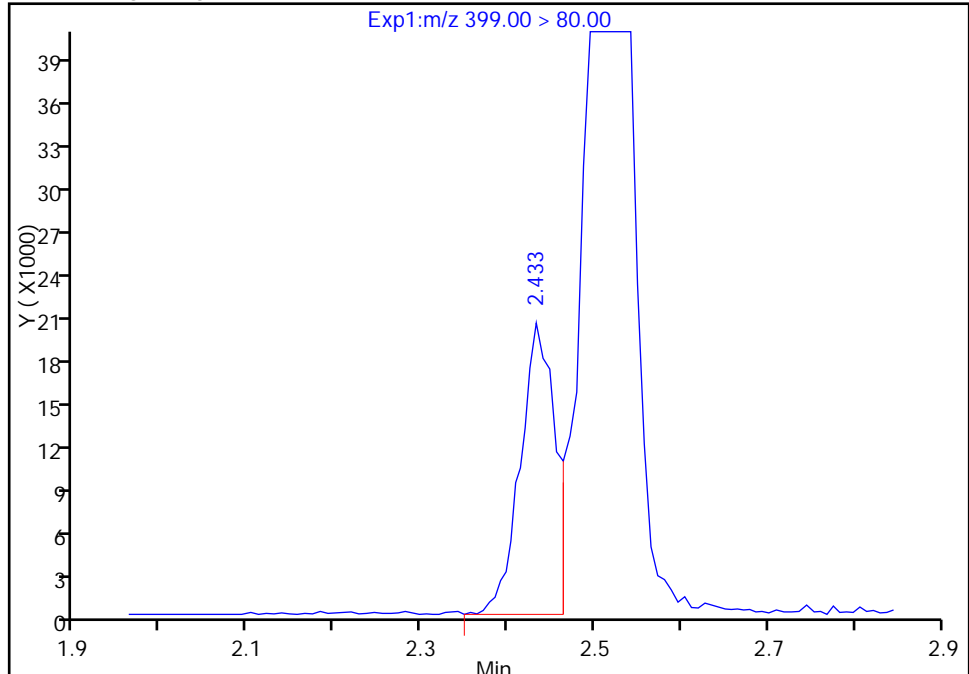
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

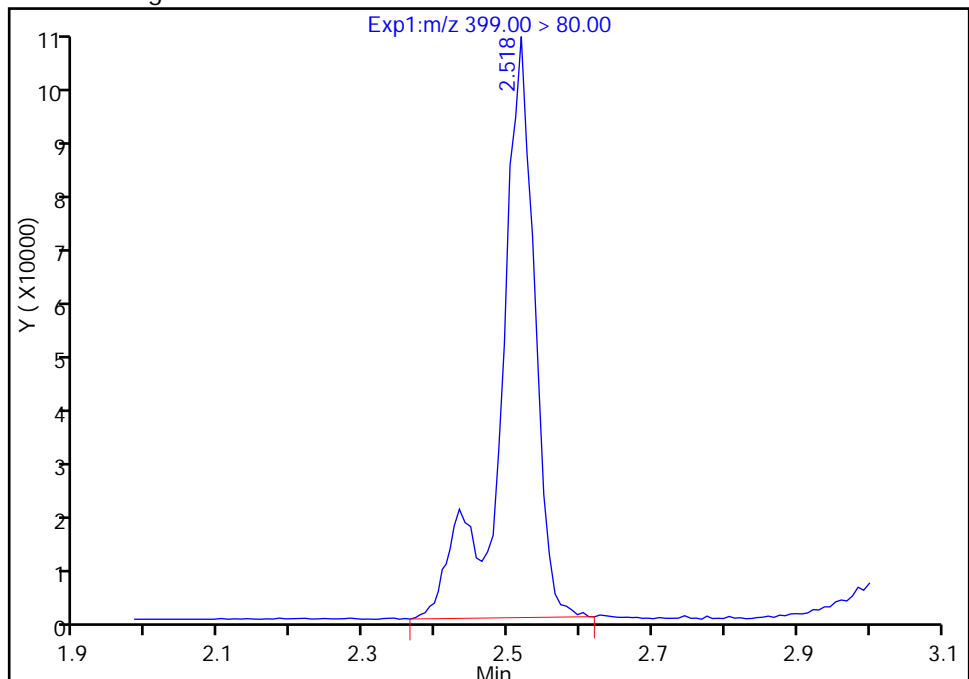
RT: 2.43
Area: 55666
Amount: 0.163409
Amount Units: ng/ml

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

TestAmerica Sacramento

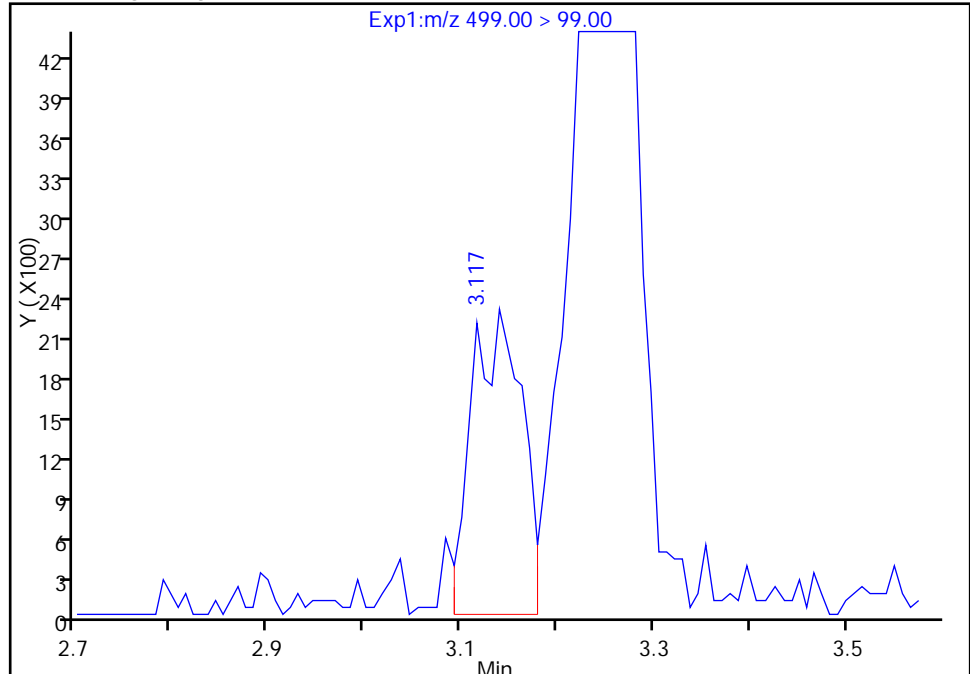
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

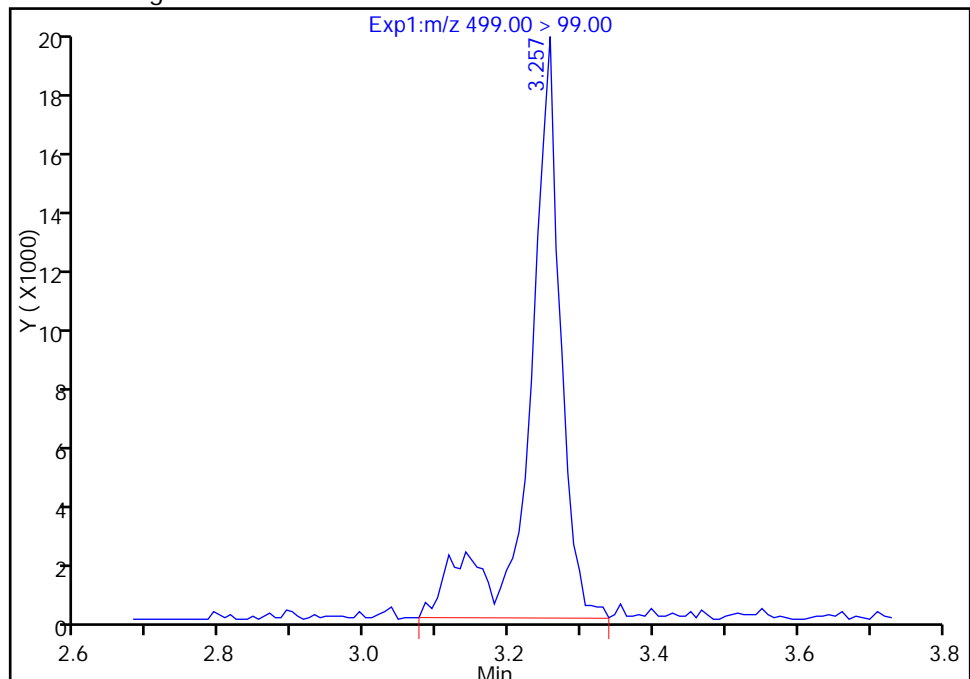
RT: 3.12
Area: 8120
Amount: 4980.4771
Amount Units: ng/ml

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

TestAmerica Sacramento

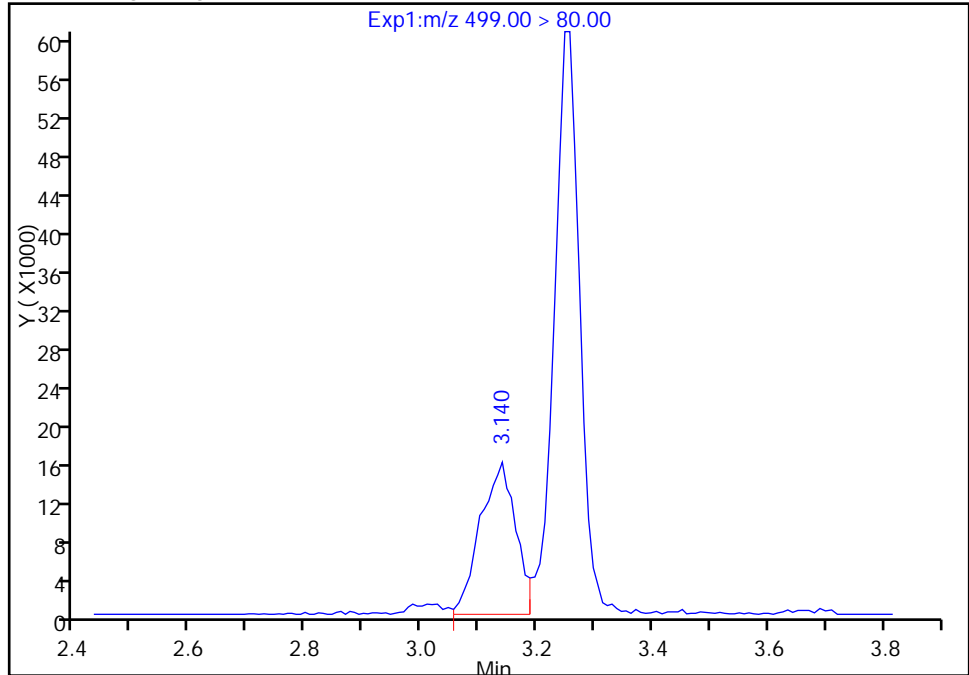
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_004.d
Injection Date: 11-Mar-2017 12:34:59 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

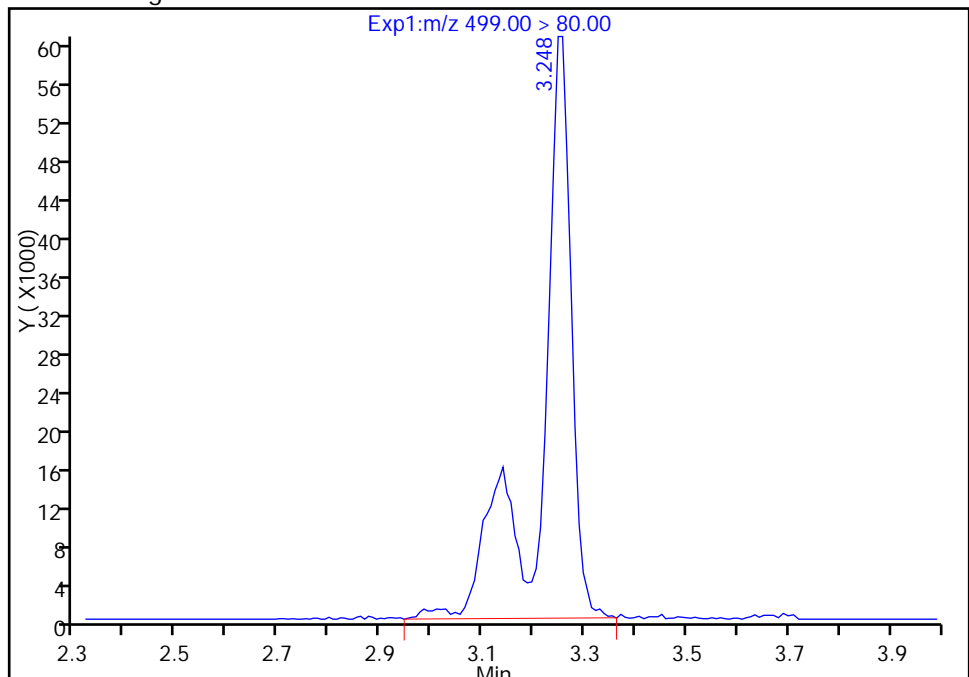
RT: 3.14
Area: 66505
Amount: 4980.4771
Amount Units: ng/ml

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.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154503/24 Calibration Date: 03/11/2017 15:27

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_027.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	0.8910		52.6	50.0	5.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9831		50.2	50.0	0.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.458		45.0	44.2	1.8	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9283		52.2	50.0	4.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9855		50.9	50.0	1.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.031		45.6	45.5	0.3	25.0
6:2FTS	L2ID		0.8797		46.9	47.4	-1.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.023		50.1	50.0	0.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.092		50.4	47.6	5.9	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9656		53.4	50.0	6.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.016		47.9	46.4	3.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9348		52.0	50.0	4.0	25.0
8:2FTS	L2ID		0.9598		49.7	47.9	3.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9098		50.2	50.0	0.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9259		47.7	50.0	-4.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6122		49.5	48.2	2.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9702		47.9	50.0	-4.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8748		48.0	50.0	-3.9	25.0
MeFOSA	AveID	0.9355	0.9018		48.2	50.0	-3.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9134		49.9	50.0	-0.1	25.0
N-EtFOSA-M	AveID	0.9837	0.9497		48.3	50.0	-3.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8945		51.2	50.0	2.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.797		45.7	50.0	-8.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9372		50.2	50.0	0.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.6281		43.8	50.0	-12.5	25.0
13C4 PFBA	Ave	292242	334698		57.3	50.0	14.5	50.0
13C5-PFPeA	Ave	232192	249419		53.7	50.0	7.4	50.0
13C2 PFHxA	Ave	210884	231983		55.0	50.0	10.0	50.0
13C4-PFHpA	Ave	192959	211349		54.8	50.0	9.5	50.0
18O2 PFHxS	Ave	290899	323365		52.6	47.3	11.2	50.0
M2-6:2FTS	Ave	77178	94670		58.3	47.5	22.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154503/24 Calibration Date: 03/11/2017 15:27
 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_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	212565		51.9	50.0	3.7	50.0
13C4 PFOS	Ave	241637	266622		52.7	47.8	10.3	50.0
13C5 PFNA	Ave	177866	180487		50.7	50.0	1.5	50.0
13C8 FOSA	Ave	366918	385459		52.5	50.0	5.1	50.0
M2-8:2FTS	Ave	92602	96840		50.1	47.9	4.6	50.0
13C2 PFDA	Ave	166704	163722		49.1	50.0	-1.8	50.0
d3-NMeFOSAA	Ave	85186	79926		46.9	50.0	-6.2	50.0
d5-NEtFOSAA	Ave	81371	77027		47.3	50.0	-5.3	50.0
13C2 PFUnA	Ave	130805	121858		46.6	50.0	-6.8	50.0
d-N-MeFOSA-M	Ave	87983	86591		49.2	50.0	-1.6	50.0
13C2 PFDoA	Ave	123944	117490		47.4	50.0	-5.2	50.0
d-N-EtFOSA-M	Ave	85249	77951		45.7	50.0	-8.6	50.0
13C2-PFTeDA	Ave	259165	239018		46.1	50.0	-7.8	50.0
13C2-PFHxDA	Ave	125061	127195		50.9	50.0	1.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_027.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 11-Mar-2017 15:27:39 ALS Bottle#: 32 Worklist Smp#: 24
 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\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:04:38 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:35:41

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	1.539	1.539	0.0	1.000	14910369	52.6		105	78397	
D 1 13C4 PFBA										
217.00 > 172.00	1.539	1.539	0.0		16734916	57.3		115	892635	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.822	0.0		12470956	53.7		107	866114	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	12260206	50.2		100	116415	
D 47 13C3-PFBS										
301.90 > 83.00	1.852	1.852	0.0		328436	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.862	1.862	0.0	1.000	20833423	45.0		102		
298.90 > 99.00	1.852	1.862	-0.010	0.995	9226149		2.26(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.117	2.117	0.0		11599146	55.0		110	470674	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.117	2.117	0.0	1.000	10767973	52.2		104	218759	
D 9 13C4-PFHpA										
367.00 > 322.00	2.452	2.452	0.0		10567439	54.8		110	351287	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.452	2.452	0.0	1.000	10414373	50.9		102	88885	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.476	2.476	0.0	1.000	15176061	45.6		100		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.468	2.468	0.0		15295148	52.6		111	543488	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.787	2.787	0.0	1.000	3947461	46.9		99.0		

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	2.787	2.787	0.0		4496802	58.3		123		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.818	2.818	0.0	1.000	10869724	50.1		100	96631	
413.00 > 169.00	2.826	2.818	0.008	1.003	6616902		1.64(0.90-1.10)		168818	
D 14 13C4 PFOA										
417.00 > 372.00	2.818	2.818	0.0		10628251	51.9		104	297403	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.826	2.826	0.0	1.000	13862444	50.4		106		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.192	3.184	0.008	1.000	12569351	47.9		103	248549	M
499.00 > 99.00	3.192	3.184	0.008	1.000	2860282		4.39(0.90-1.10)		396474	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.192	3.192	0.0	1.000	8713468	53.4		107	126453	
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.192	0.0		12744553	52.7		110	217816	
D 19 13C5 PFNA										
468.00 > 423.00	3.201	3.201	0.0		9024341	50.7		101	224794	
D 21 13C8 FOSA										
506.00 > 78.00	3.519	3.519	0.0		19272931	52.5		105	405597	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.519	3.519	0.0	1.000	18016154	52.0		104	446101	
D 26 M2-8:2FTS										
529.00 > 509.00	3.536	3.536	0.0		4638616	50.1		105		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.536	3.536	0.0	1.000	4451926	49.7		104		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.544	3.544	0.0	1.000	7447723	50.2		100	231581	
D 23 13C2 PFDA										
515.00 > 470.00	3.544	3.544	0.0		8186090	49.1		98.2	190868	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.693	3.693	0.0		3996301	46.9		93.8		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.703	3.703	0.0	1.003	3700350	47.7		95.4		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.858	3.858	0.0	1.000	7867360	49.5		103		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.867	3.867	0.0		3851350	47.3		94.7		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.867	3.867	0.0	1.000	5911422	47.9		95.7	123992	
D 30 13C2 PFUnA										
565.00 > 520.00	3.876	3.876	0.0		6092903	46.6		93.2	238425	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.876	3.874	0.002	1.002	3369048	48.0		96.1		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.010	4.010	0.0		4329544	49.2		98.4		
35 MeFOSA										
512.00 > 169.00	4.010	4.010	0.0	1.000	3904554	48.2		96.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00 > 569.00	4.159	4.159	0.0	1.000	5365867	49.9	99.9	47002	
D 36 13C2 PFDaA	615.00 > 570.00	4.159	4.163	-0.004		5874480	47.4	94.8	124355	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.195	4.195	0.0		3897527	45.7	91.4		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.202	4.202	0.0	1.000	3701599	48.3	96.6		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.428	4.428	0.0	1.000	5254526	51.2	102	114316	
D 43 13C2-PFTeDA	715.00 > 670.00	4.663	4.663	0.0		11950896	46.1	92.2	319497	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.663	4.663	0.0	1.000	10556187	45.7	91.4	101616	
	713.00 > 169.00	4.663	4.663	0.0	1.000	1586698	6.65(0.00-0.00)		103194	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.078	5.082	-0.004	1.000	5505697	50.2	100	5035	
D 44 13C2-PFHxDA	815.00 > 770.00	5.078	5.078	0.0		6359746	50.9	102	94786	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.429	5.438	-0.009	1.000	3689915	43.8	87.5	4021	

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\20170311-40737.b\2017.03.11C_027.d

Injection Date: 11-Mar-2017 15:27:39

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

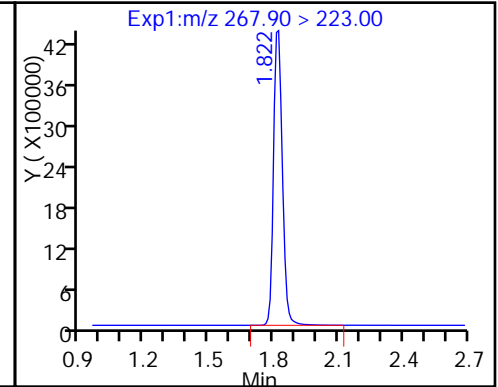
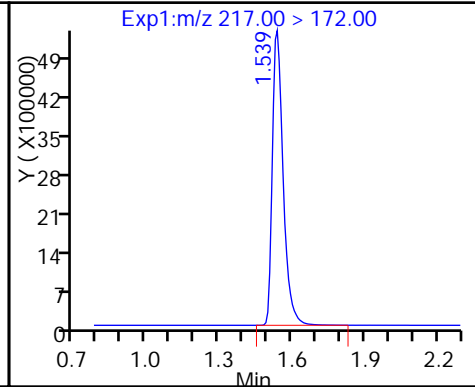
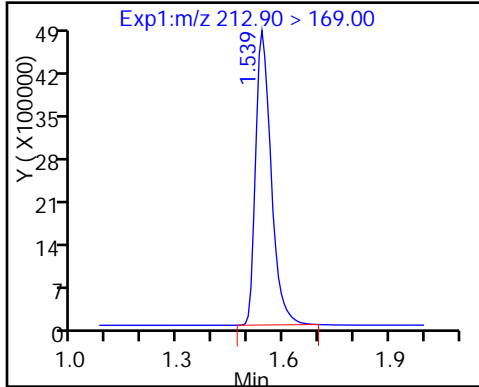
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

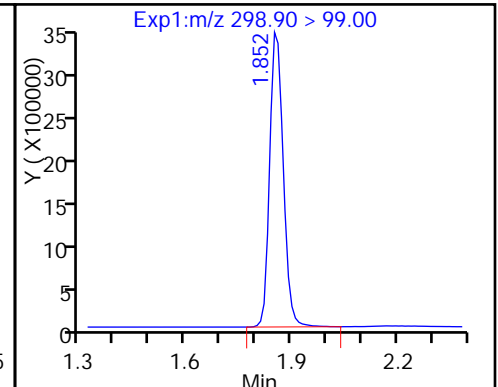
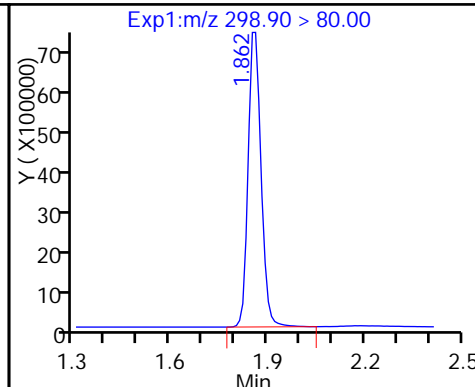
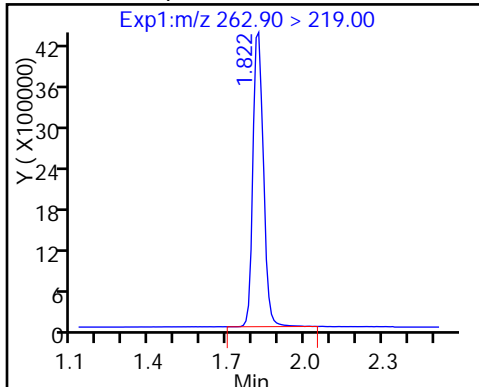
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

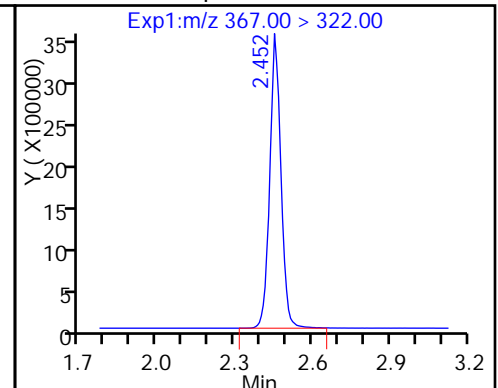
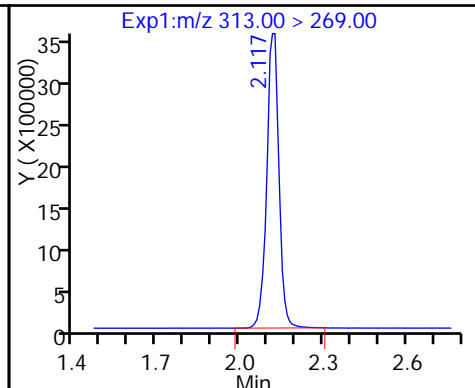
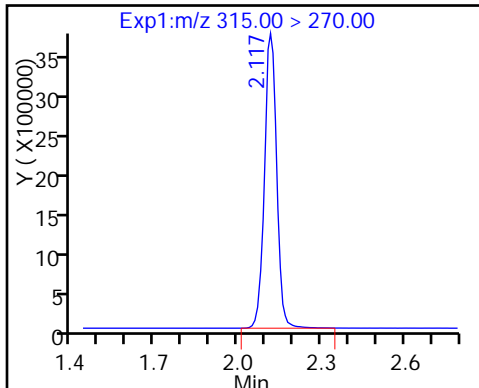
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

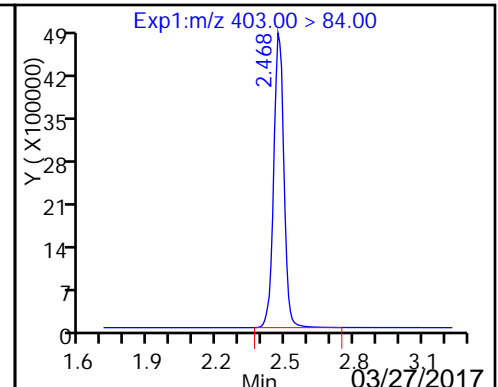
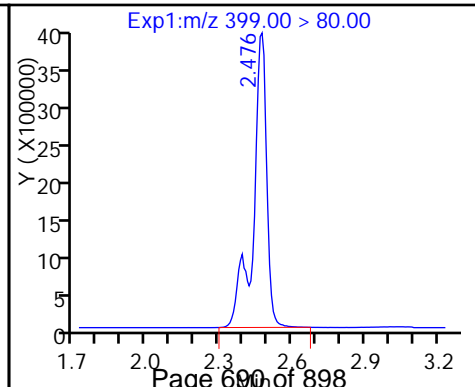
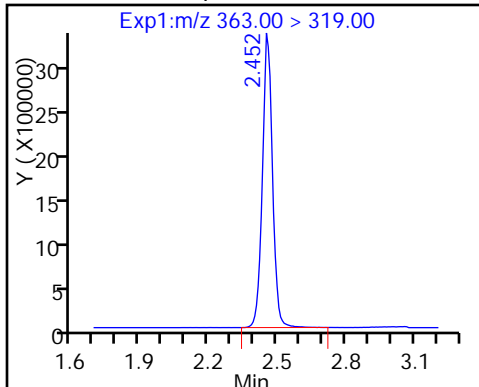
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

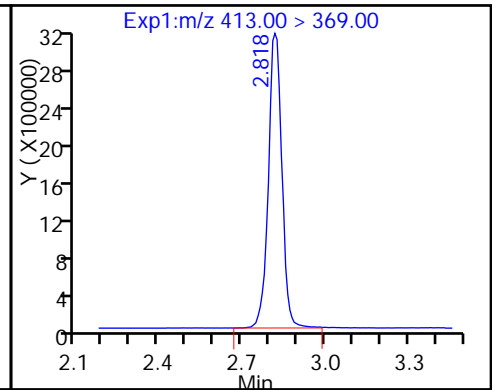
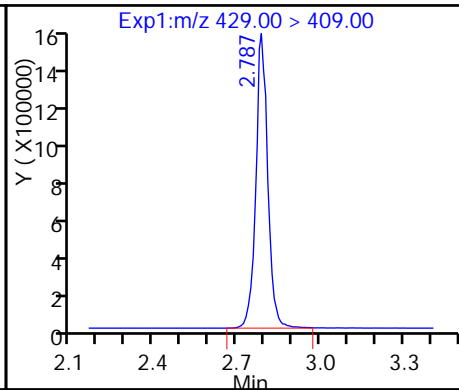
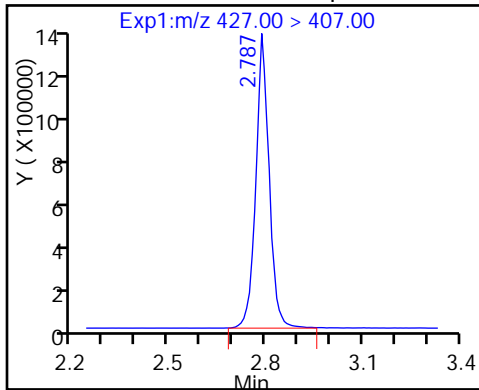
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

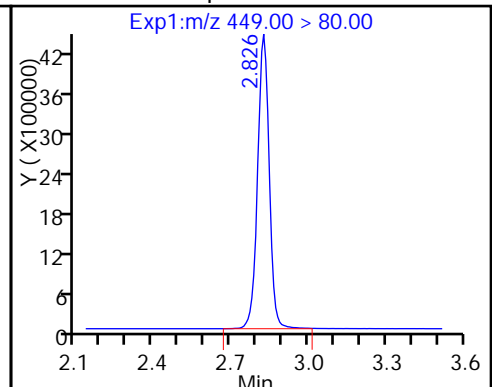
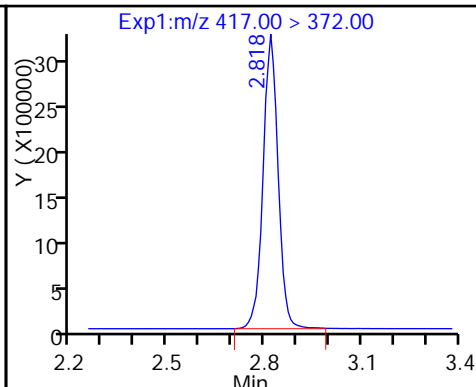
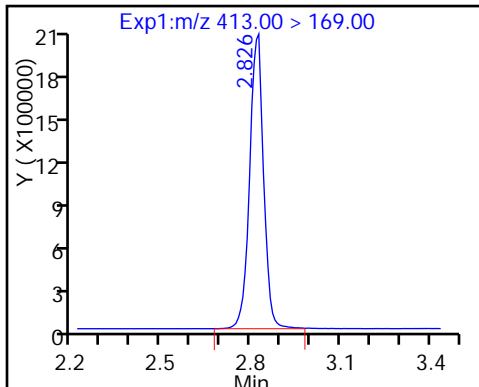
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

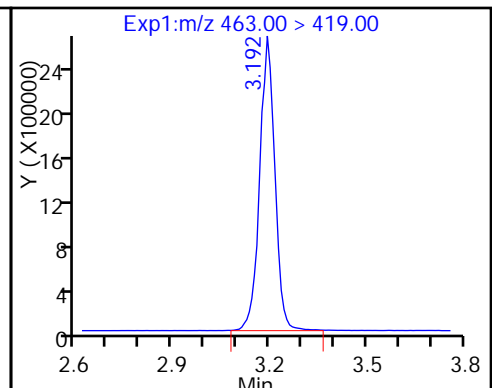
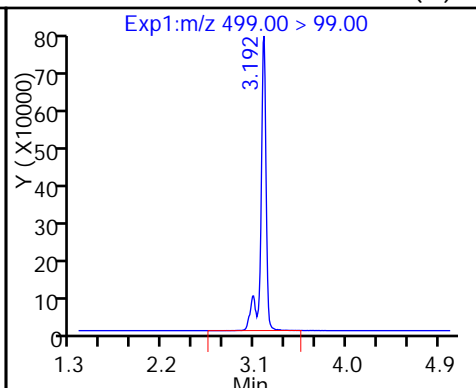
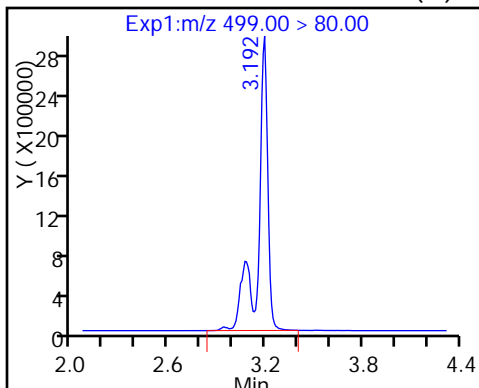
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

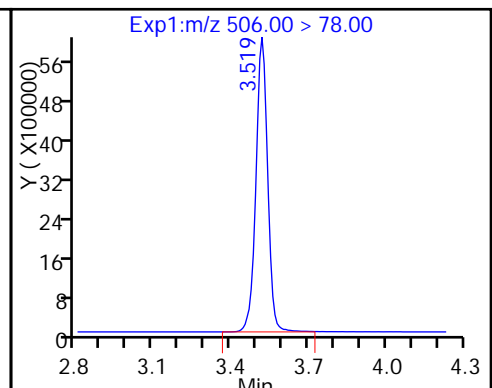
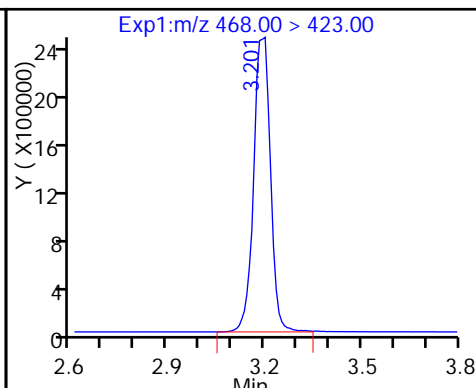
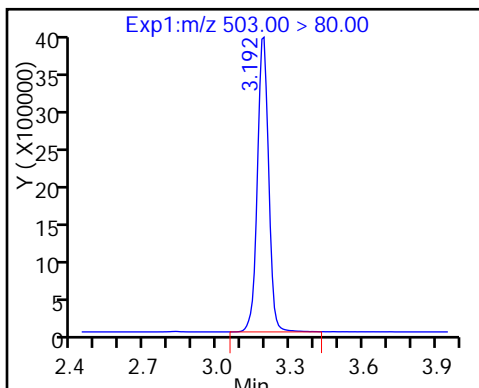
20 Perfluorononanoic acid

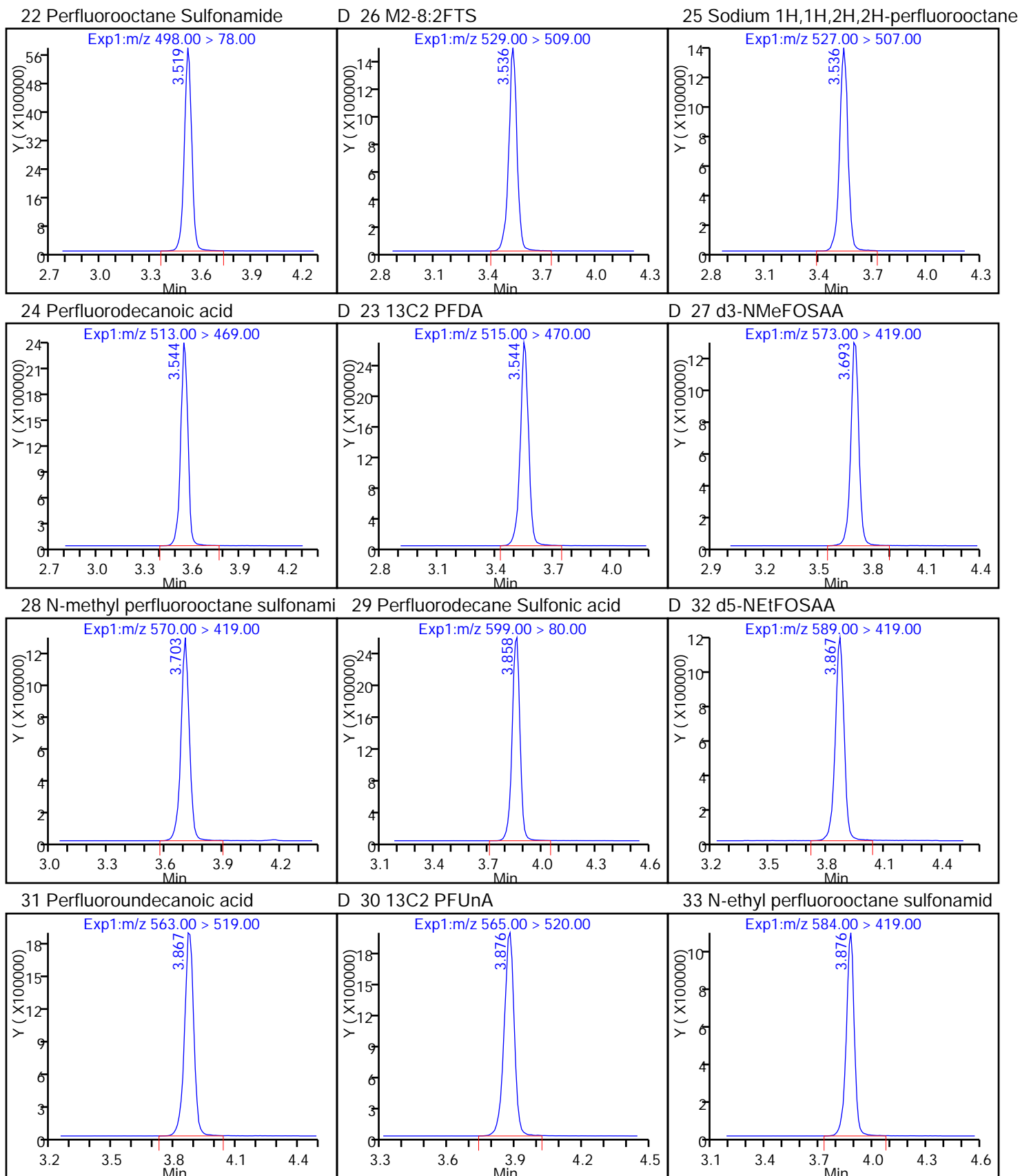


D 18 13C4 PFOS

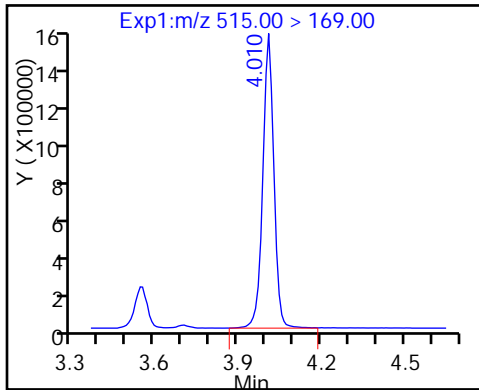
D 19 13C5 PFNA

D 21 13C8 FOSA

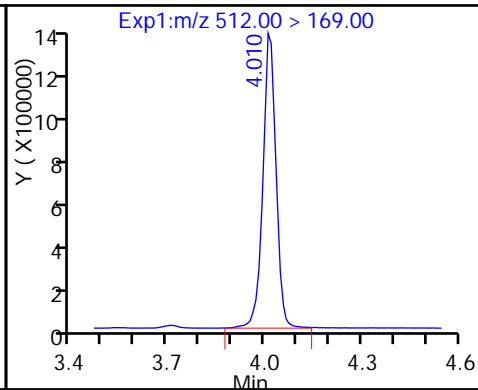




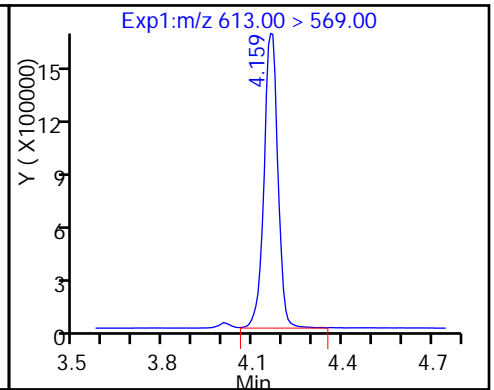
D 34 d-N-MeFOSA-M



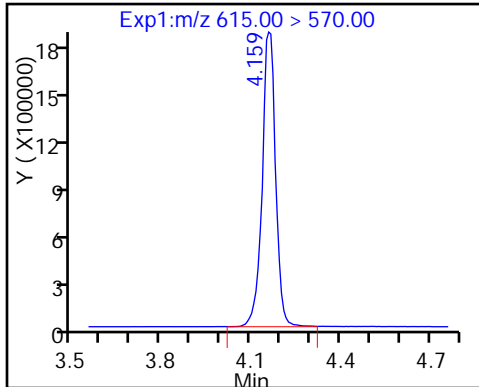
35 MeFOSA



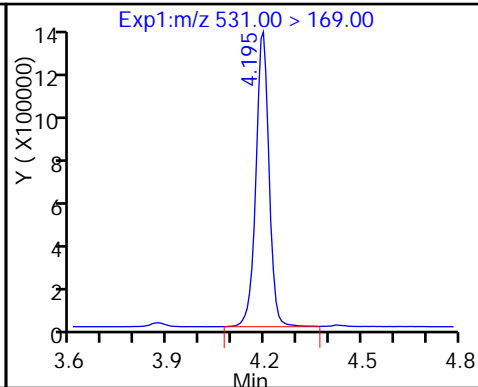
37 Perfluorododecanoic acid



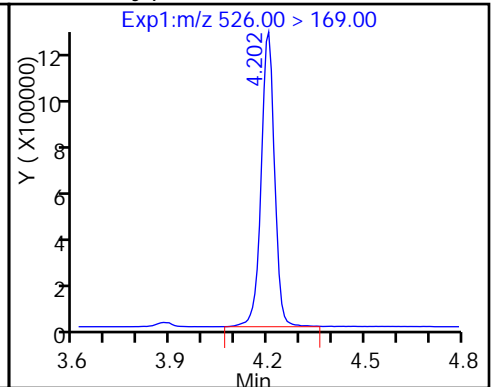
D 36 13C2 PFDa



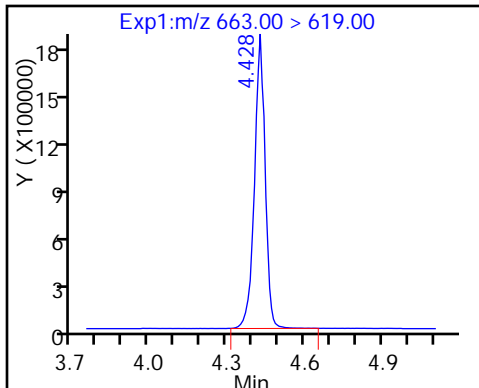
D 38 d-N-EtFOSA-M



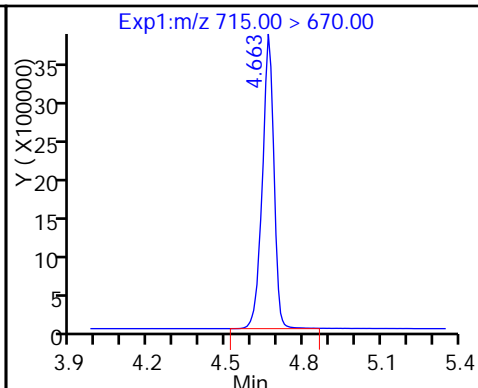
39 N-ethylperfluoro-1-octanesulfonami



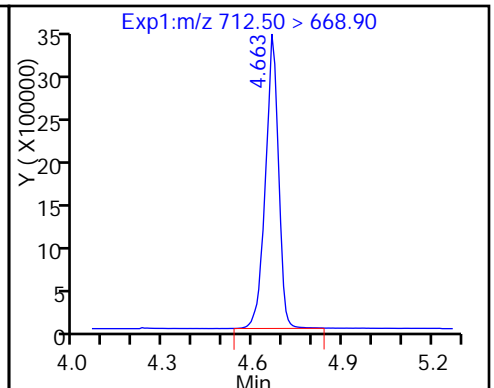
41 Perfluorotridecanoic acid



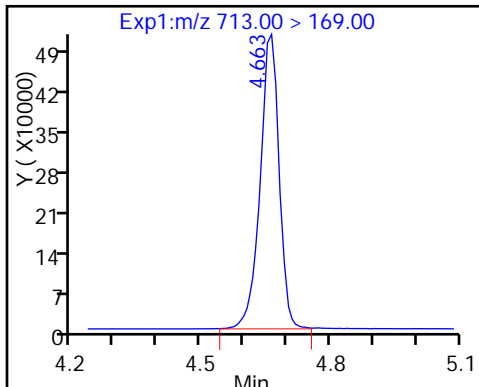
D 43 13C2-PFTeDa



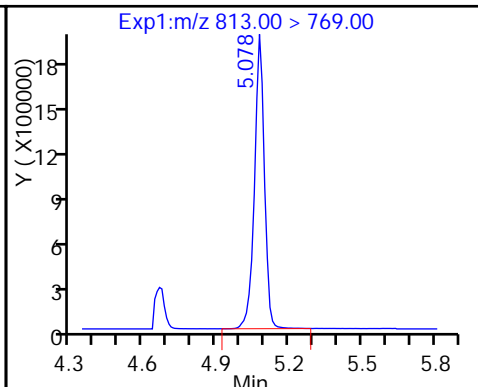
42 Perfluorotetradecanoic acid



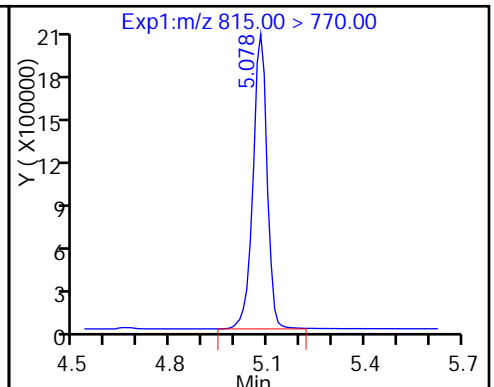
42 Perfluorotetradecanoic acid



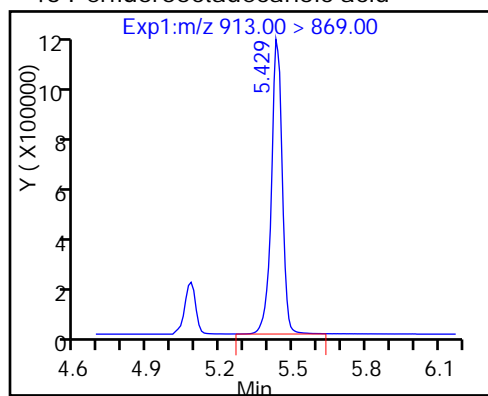
45 Perfluorohexadecanoic acid



D 44 13C2-PFHxDa



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

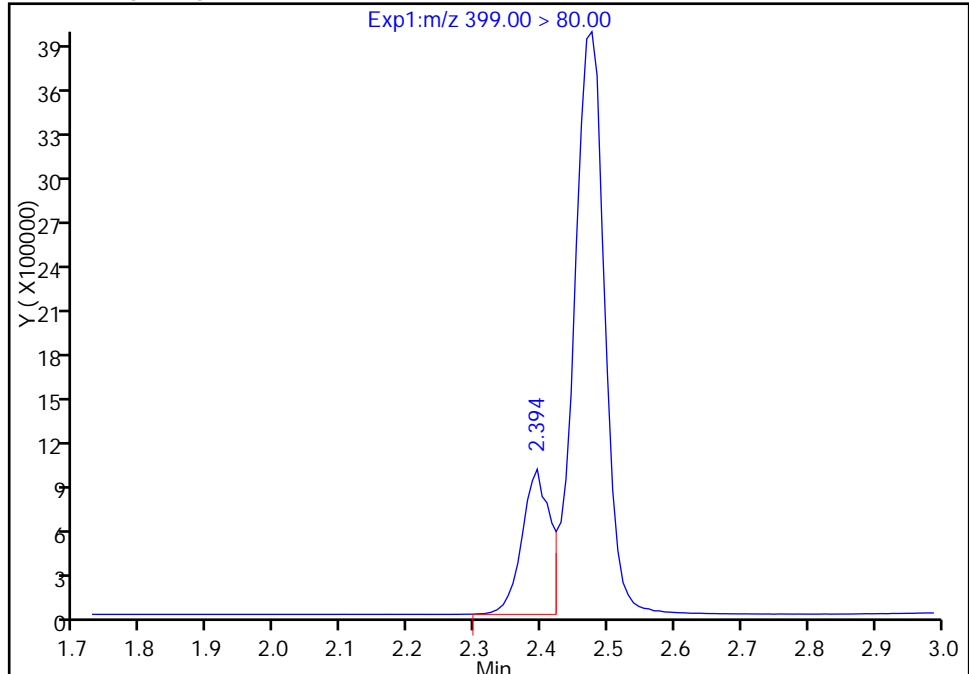
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_027.d
Injection Date: 11-Mar-2017 15:27:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

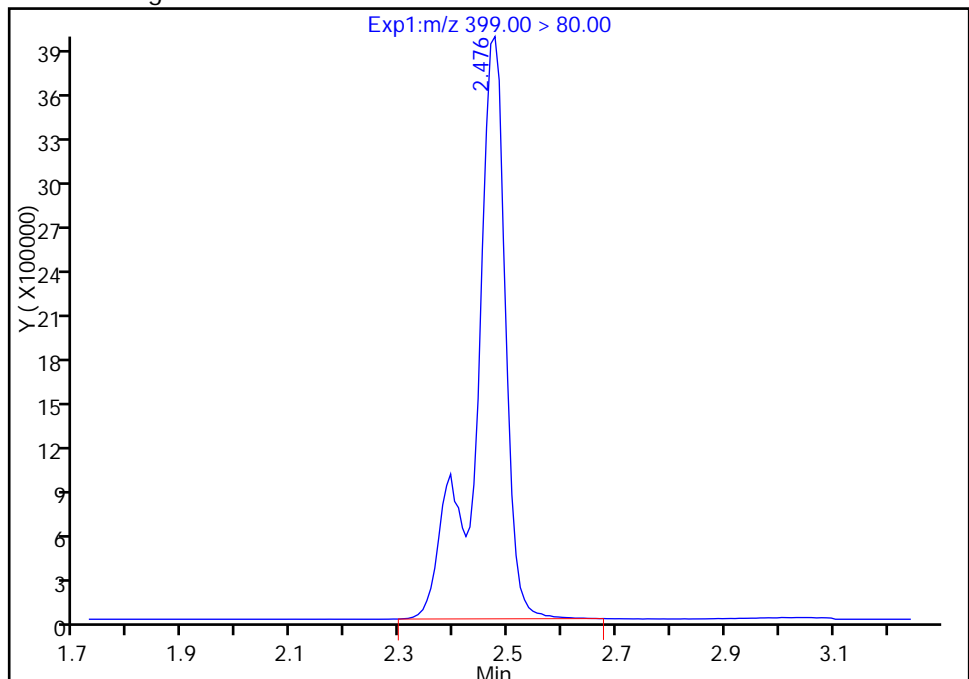
RT: 2.39
Area: 2808826
Amount: 8.446016
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 15176061
Amount: 45.633744
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:04:01

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

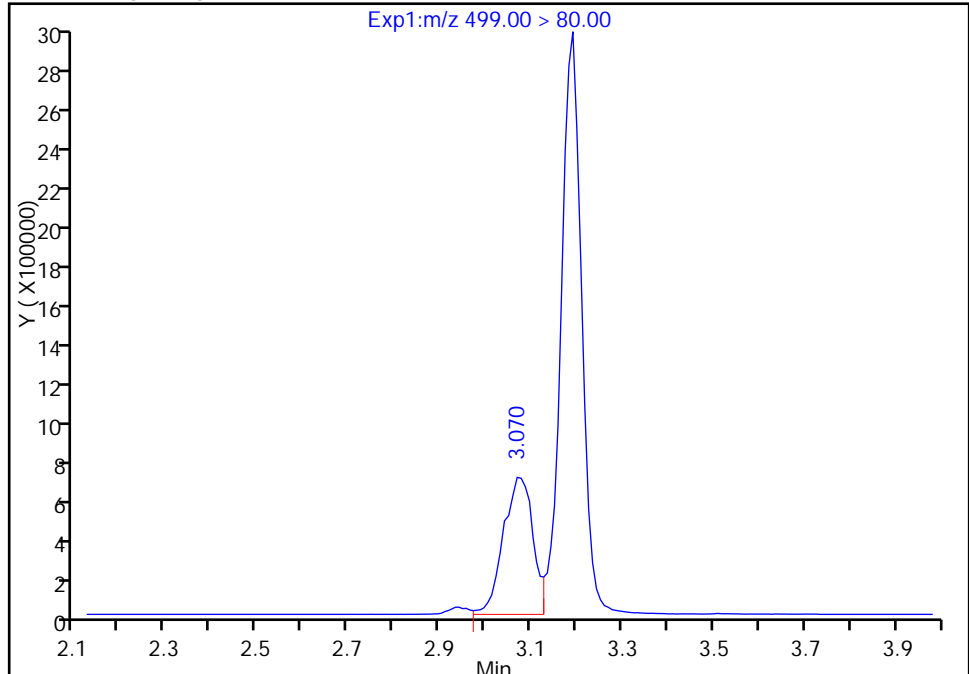
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_027.d
Injection Date: 11-Mar-2017 15:27:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

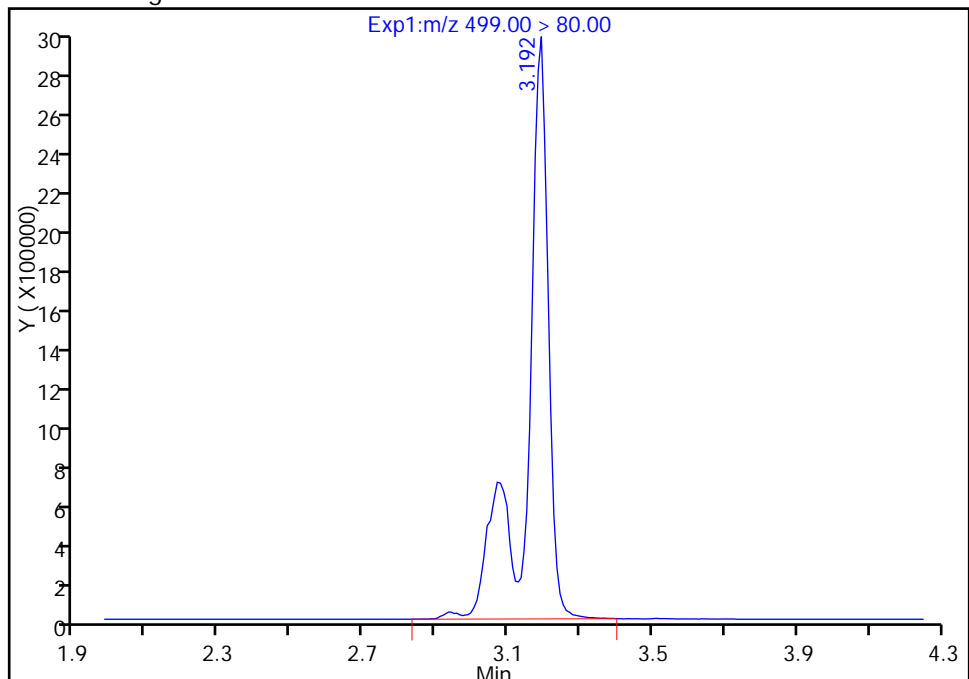
RT: 3.07
Area: 3154491
Amount: 12.030011
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 12569351
Amount: 47.934654
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:04:01

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

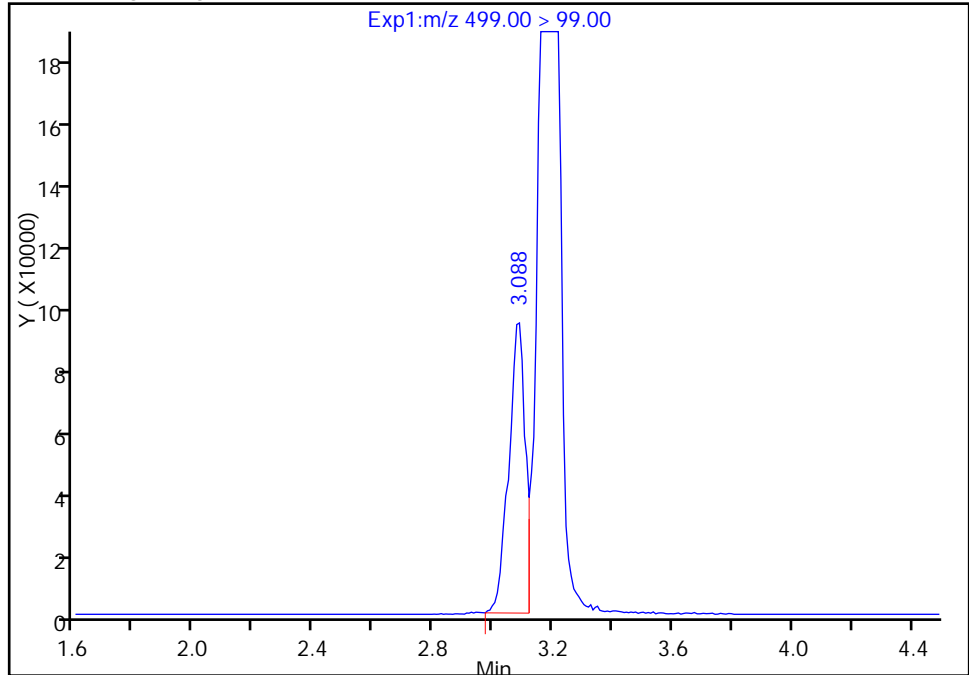
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_027.d
Injection Date: 11-Mar-2017 15:27:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

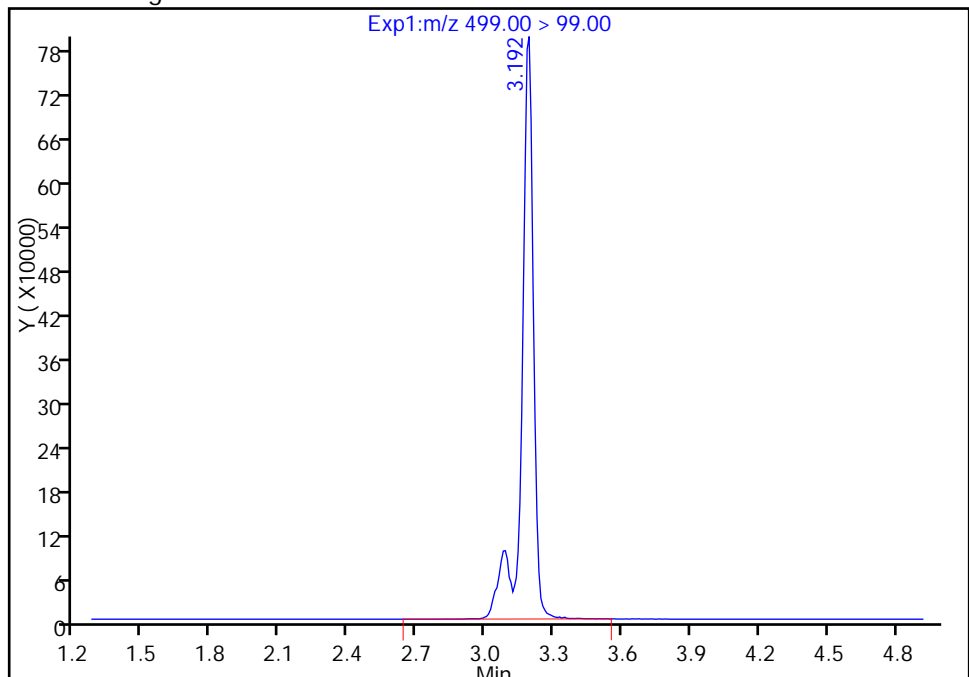
RT: 3.09
Area: 349225
Amount: 12.030011
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2860282
Amount: 47.934654
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:04:12

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154503/35 Calibration Date: 03/11/2017 16:50

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: 2017.03.11C_038.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	0.8480		20.0	20.0	0.0	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9552		19.5	20.0	-2.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.458		18.0	17.7	1.8	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8725		19.6	20.0	-1.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9131		18.9	20.0	-5.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9642		17.1	18.2	-6.2	25.0
6:2FTS	L2ID		0.9483		20.2	19.0	6.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.063		19.6	19.0	3.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9562		18.7	20.0	-6.4	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9060		20.0	20.0	0.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9390		17.7	18.6	-4.5	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9217		20.5	20.0	2.6	25.0
8:2FTS	L2ID		0.9740		20.1	19.2	5.0	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8995		19.9	20.0	-0.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9425		19.4	20.0	-2.9	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5851		18.9	19.3	-1.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8768		19.3	20.0	-3.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9142		18.0	20.0	-9.8	25.0
MeFOSA	AveID	0.9355	0.9199		19.7	20.0	-1.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8583		18.8	20.0	-6.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9729		19.8	20.0	-1.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8644		19.8	20.0	-1.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.594		16.2	20.0	-18.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.7046		14.8	20.0	-25.9*	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5409		15.1	20.0	-24.6	25.0
13C4 PFBA	Ave	292242	330501		56.5	50.0	13.1	50.0
13C5-PFPeA	Ave	232192	252592		54.4	50.0	8.8	50.0
13C2 PFHxA	Ave	210884	239334		56.7	50.0	13.5	50.0
13C4-PFHpA	Ave	192959	226035		58.6	50.0	17.1	50.0
18O2 PFHxS	Ave	290899	331249		53.9	47.3	13.9	50.0
M2-6:2FTS	Ave	77178	98651		60.7	47.5	27.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154503/35 Calibration Date: 03/11/2017 16:50
 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: 2017.03.11C_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	231953		56.6	50.0	13.2	50.0
13C4 PFOS	Ave	241637	262788		52.0	47.8	8.8	50.0
13C5 PFNA	Ave	177866	194643		54.7	50.0	9.4	50.0
13C8 FOSA	Ave	366918	388660		53.0	50.0	5.9	50.0
M2-8:2FTS	Ave	92602	114765		59.4	47.9	23.9	50.0
13C2 PFDA	Ave	166704	172934		51.9	50.0	3.7	50.0
d3-NMeFOSAA	Ave	85186	83348		48.9	50.0	-2.2	50.0
d5-NEtFOSAA	Ave	81371	83814		51.5	50.0	3.0	50.0
13C2 PFUnA	Ave	130805	131883		50.4	50.0	0.8	50.0
d-N-MeFOSA-M	Ave	87983	84768		48.2	50.0	-3.7	50.0
13C2 PFDoA	Ave	123944	126158		50.9	50.0	1.8	50.0
d-N-EtFOSA-M	Ave	85249	77750		45.6	50.0	-8.8	50.0
13C2-PFTEtDA	Ave	259165	255750		49.3	50.0	-1.3	50.0
13C2-PFHxDA	Ave	125061	108462		43.4	50.0	-13.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_038.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 11-Mar-2017 16:50:07 ALS Bottle#: 31 Worklist Smp#: 35
 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\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:12:14 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:56:00

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	1.531	1.531	0.0	1.000	5605330	20.0		100	38388	
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.531	0.0		16525036	56.5		113	1095302	
D 3 13C5-PFPeA										
267.90 > 223.00	1.813	1.813	0.0		12629612	54.4		109	763869	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.813	1.813	0.0	1.000	4825402	19.5		97.6	56009	
D 47 13C3-PFBS										
301.90 > 83.00	1.843	1.843	0.0		322394	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.853	1.853	0.0	1.000	8538899	18.0		102		
298.90 > 99.00	1.853	1.853	0.0	1.000	3418951		2.50(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.113	2.113	0.0		11966695	56.7		113	334737	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.113	2.113	0.0	1.000	4176253	19.6		98.1	100301	
D 9 13C4-PFHpA										
367.00 > 322.00	2.451	2.451	0.0		11301748	58.6		117	420262	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.451	2.451	0.0	1.000	4128002	18.9		94.4	43806	
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.467	0.0		15668075	53.9		114	474307	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.459	2.459	0.0	1.000	5812875	17.1		93.8		M
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.786	2.786	0.0	1.000	1773657	20.2		106		

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	2.786	2.786	0.0		4685944	60.7		128		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.817	2.817	0.0	1.000	4435886	18.7		93.6	46415	
413.00 > 169.00	2.809	2.817	-0.008	0.997	2576148		1.72(0.90-1.10)		57064	
D 14 13C4 PFOA										
417.00 > 372.00	2.809	2.809	0.0		11597637	56.6		113	394697	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.817	2.817	0.0	1.000	5318756	19.6		103		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.183	3.183	0.0	1.000	4579580	17.7		95.5	140172	M
499.00 > 99.00	3.175	3.183	-0.008	0.997	1020527		4.49(0.90-1.10)		70930	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.183	3.183	0.0	1.000	3526978	20.0		100	63630	
D 18 13C4 PFOS										
503.00 > 80.00	3.183	3.183	0.0		12561288	52.0		109	309068	
D 19 13C5 PFNA										
468.00 > 423.00	3.183	3.183	0.0		9732141	54.7		109	353270	
D 21 13C8 FOSA										
506.00 > 78.00	3.517	3.517	0.0		19432977	53.0		106	324855	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.517	3.517	0.0	1.000	7164335	20.5		103	223185	
D 26 M2-8:2FTS										
529.00 > 509.00	3.525	3.525	0.0		5497244	59.4		124		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.533	3.533	0.0	1.002	2141795	20.1		105		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.542	3.542	0.0	1.000	3111008	19.9		99.3	54981	
D 23 13C2 PFDA										
515.00 > 470.00	3.542	3.542	0.0		8646698	51.9		104	206130	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.690	3.690	0.0		4167379	48.9		97.8		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.699	3.699	0.0	1.003	1571046	19.4		97.1		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.844	3.844	0.0	1.000	2964645	18.9		98.2		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.853	3.853	0.0		4190722	51.5		103		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.861	3.861	0.0	1.000	2411346	18.0		90.2	46116	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.861	3.876	-0.015	1.002	1469744	19.3		96.3		
D 30 13C2 PFUnA										
565.00 > 520.00	3.861	3.861	0.0		6594158	50.4		101	151194	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.004	4.004	0.0		4238405	48.2		96.3		
35 MeFOSA										
512.00 > 169.00	4.013	4.013	0.0	1.000	1559574	19.7		98.3		

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	4.153	4.153	0.0	1.000	2165514	18.8		93.8	19586	
D 36 13C2 PFDaA										
615.00 > 570.00	4.153	4.153	0.0		6307880	50.9		102	178064	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.188	4.188	0.0		3887482	45.6		91.2		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.195	4.195	0.0	1.000	1512799	19.8		98.9		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.419	4.419	0.0	1.000	2180983	19.8		99.0	41085	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.657	4.657	0.0		12787501	49.3		98.7	425012	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.657	4.657	0.0	1.000	4022026	16.2		81.1	52360	
713.00 > 169.00	4.657	4.657	0.0	1.000	618186		6.51(0.00-0.00)		67782	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.068	5.068	0.0		5423093	43.4		86.7	93424	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.068	5.068	0.0	1.000	1777868	14.8		74.1	1979	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.429	5.429	0.0	1.000	1364844	15.1		75.4	2027	

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\20170311-40737.b\2017.03.11C_038.d

Injection Date: 11-Mar-2017 16:50:07

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 35

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

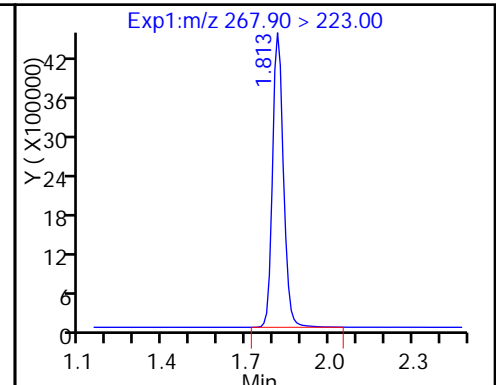
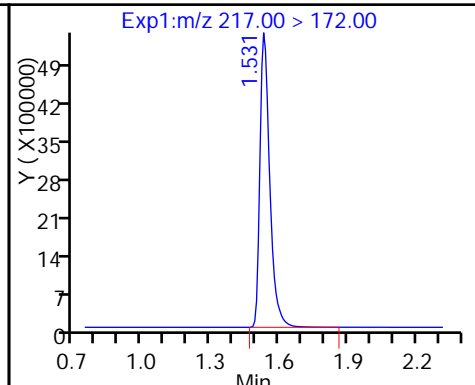
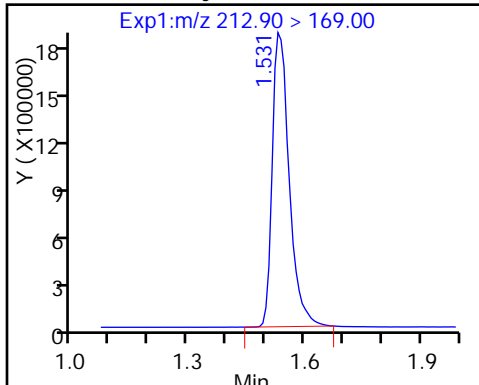
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

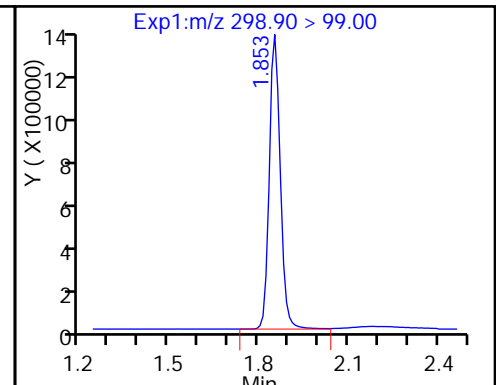
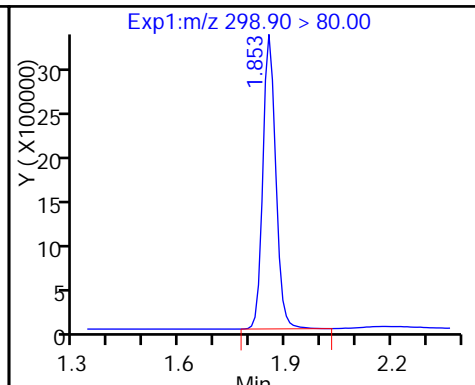
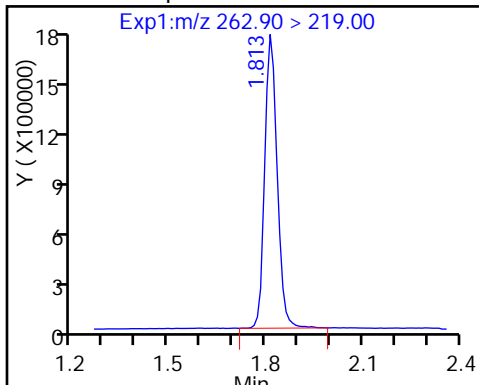
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

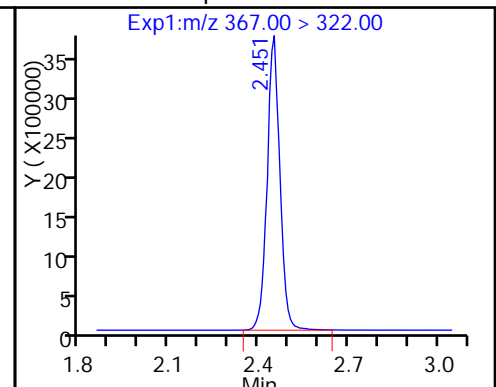
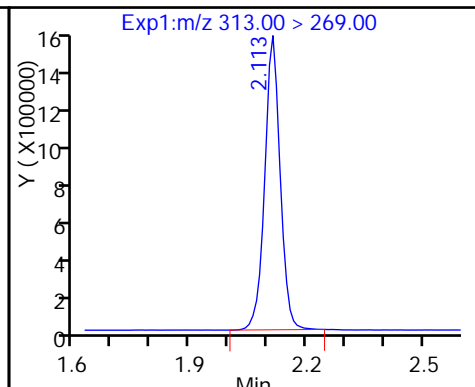
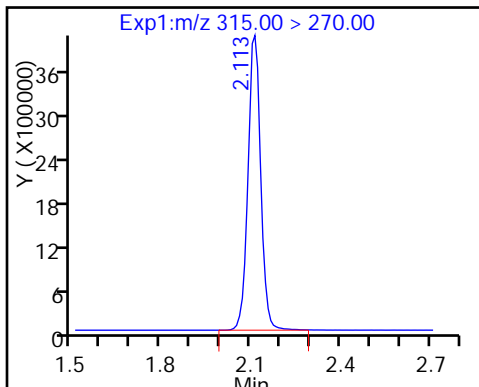
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

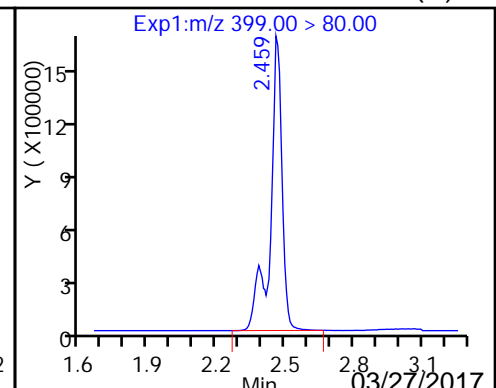
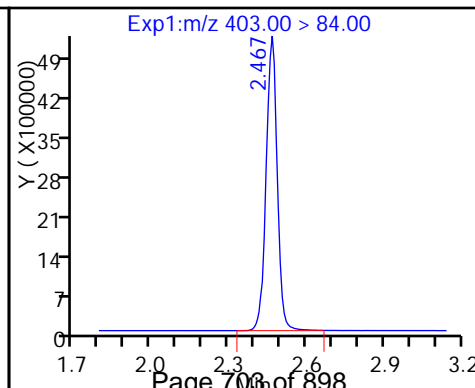
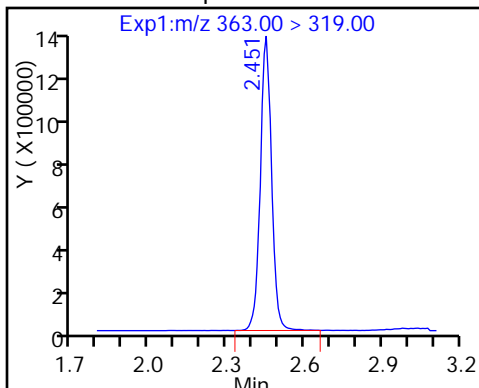
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

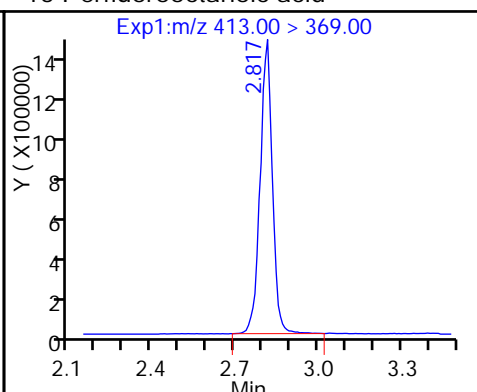
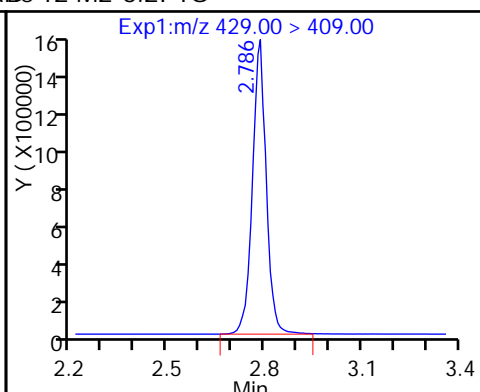
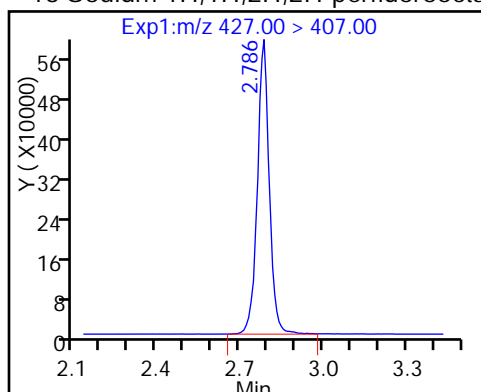
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

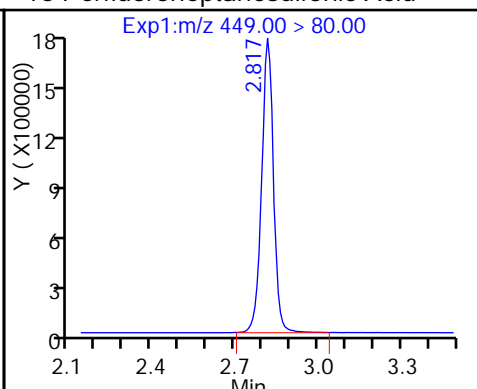
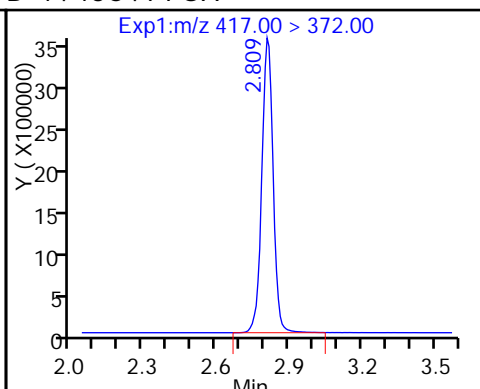
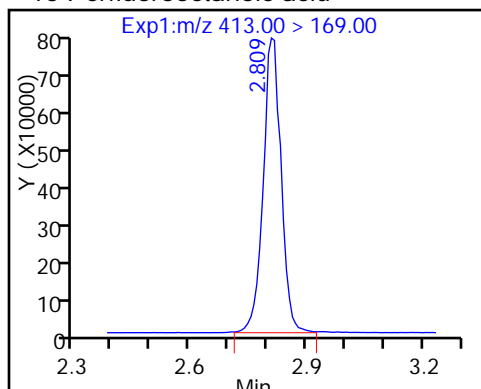
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

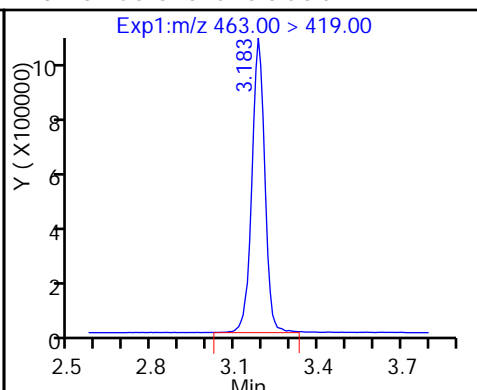
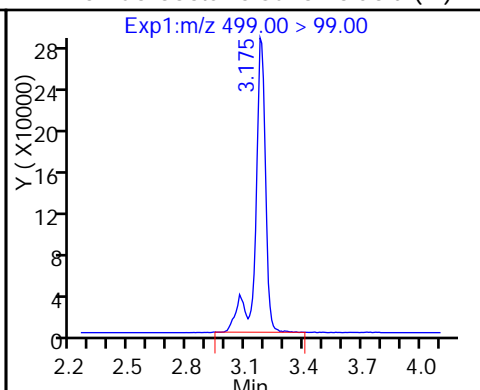
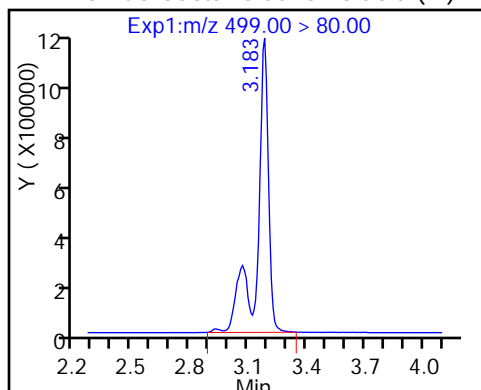
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

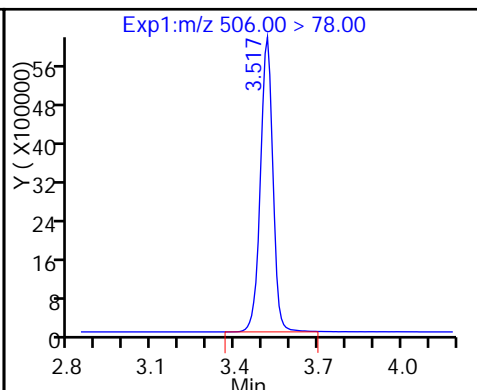
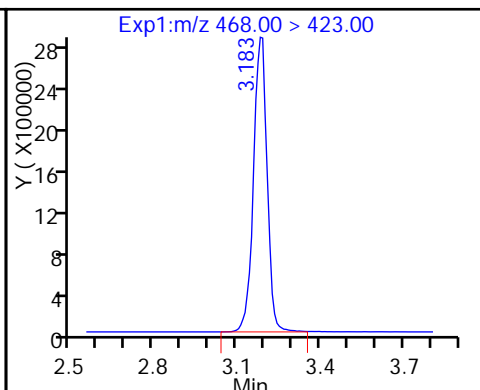
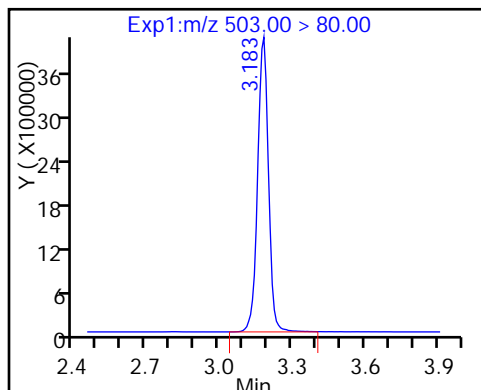
20 Perfluorononanoic acid



D 18 13C4 PFOS

D 19 13C5 PFNA

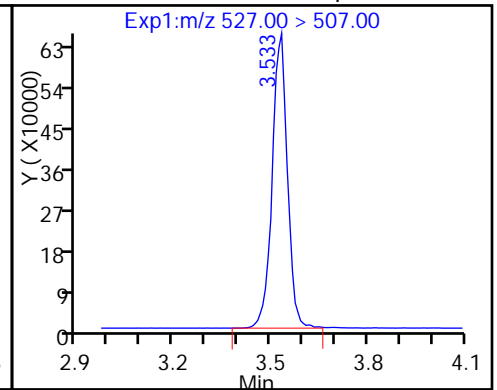
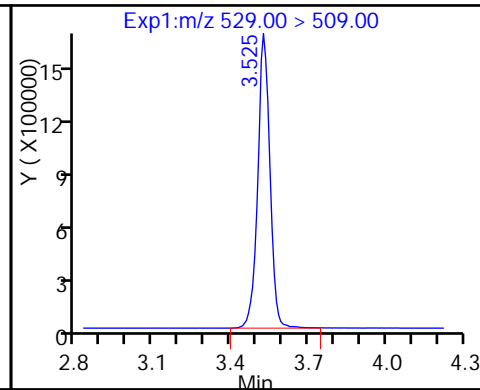
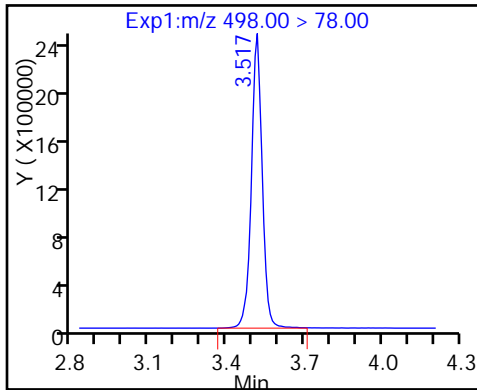
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

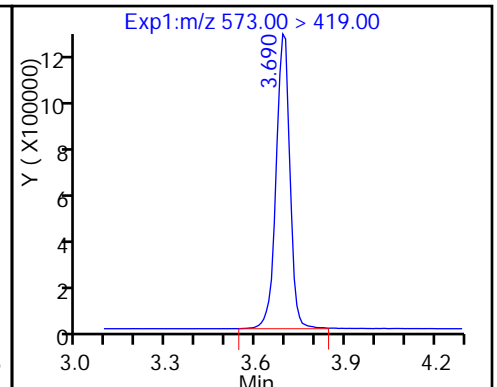
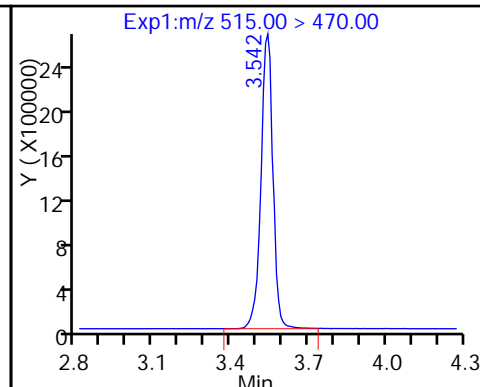
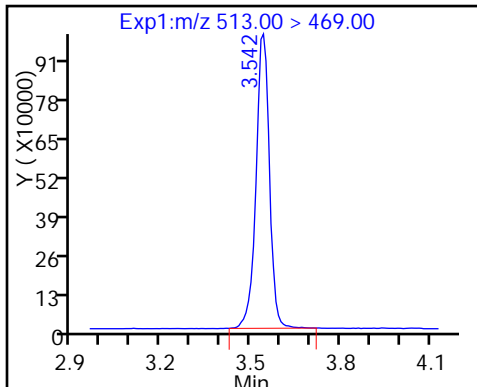
25 Sodium 1H,1H,2H,2H-perfluorooctane



24 Perfluorodecanoic acid

D 23 13C2 PFDA

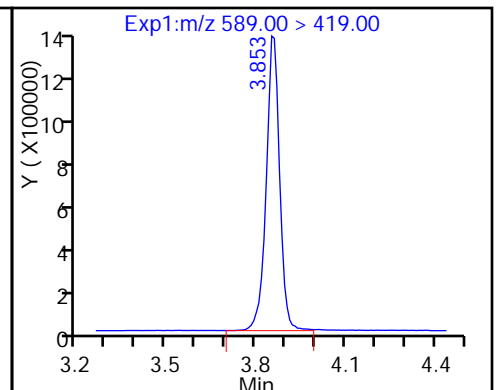
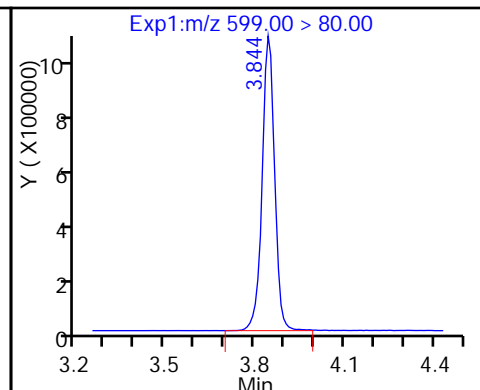
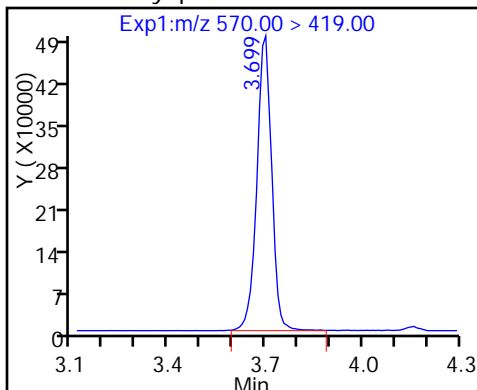
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonamid

29 Perfluorodecane Sulfonic acid

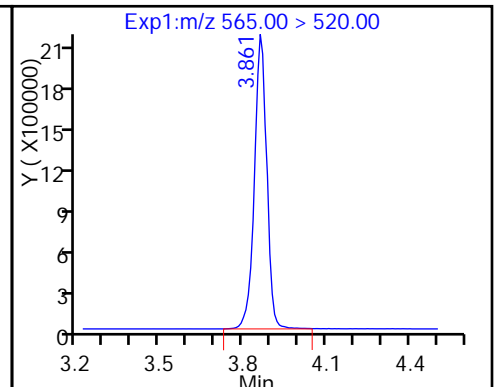
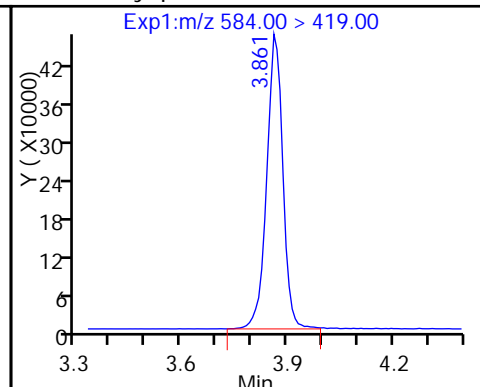
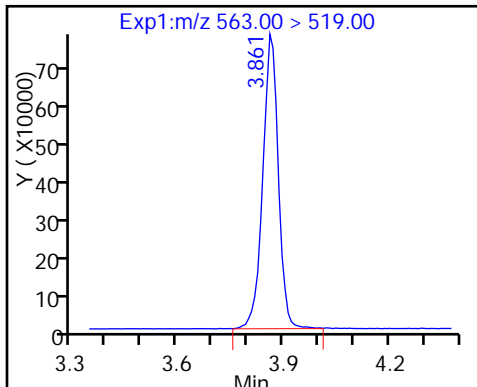
D 32 d5-NEtFOSAA



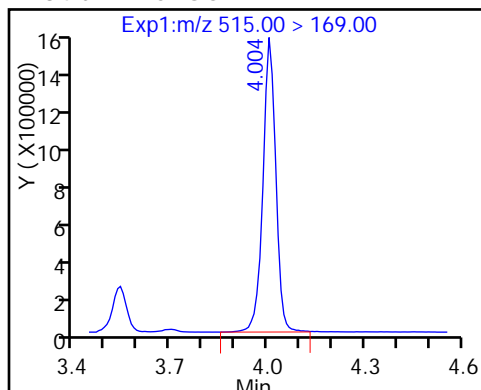
31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid

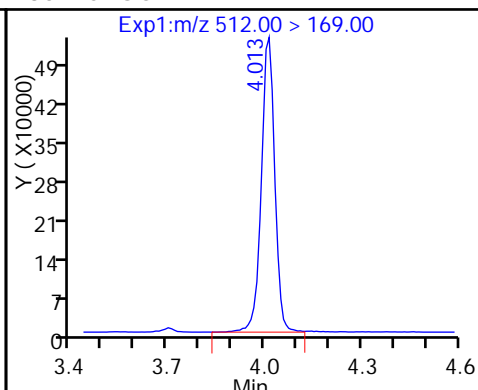
D 30 13C2 PFUnA



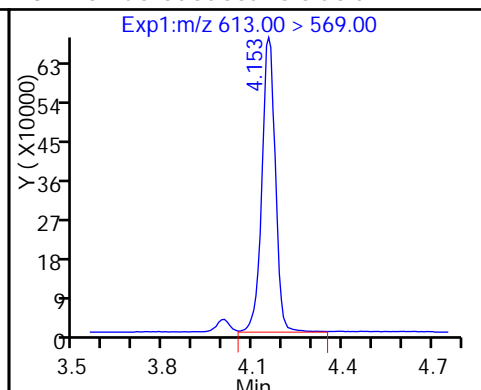
D 34 d-N-MeFOSA-M



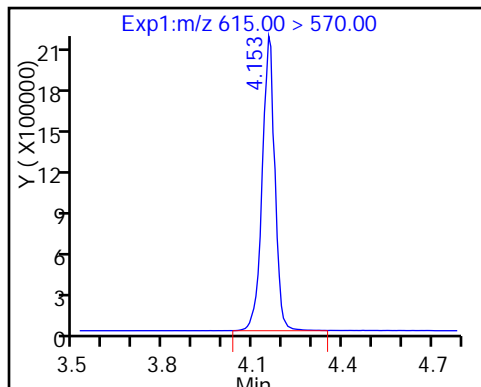
35 MeFOSA



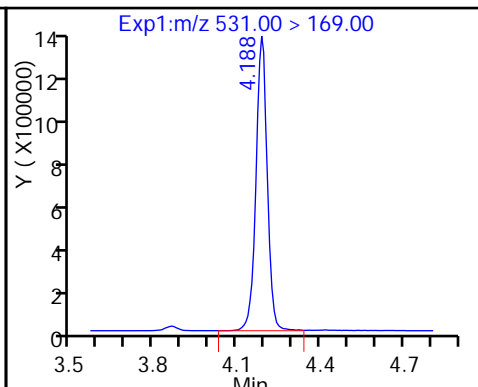
37 Perfluorododecanoic acid



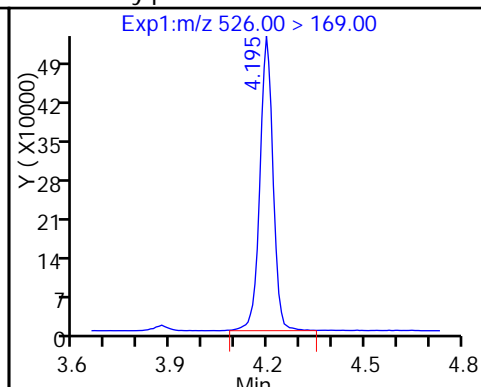
D 36 13C2 PFDa



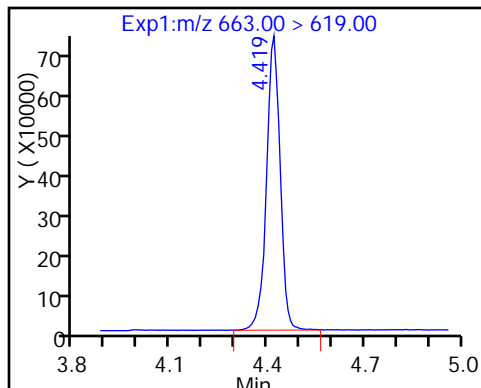
D 38 d-N-EtFOSA-M



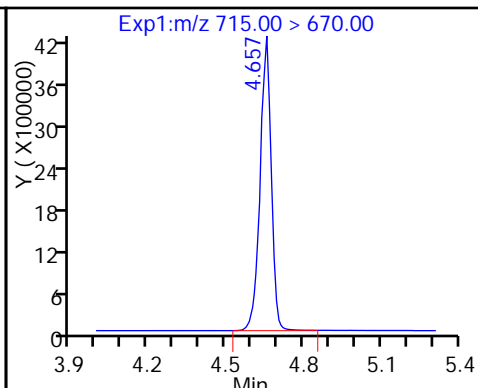
39 N-ethylperfluoro-1-octanesulfonami



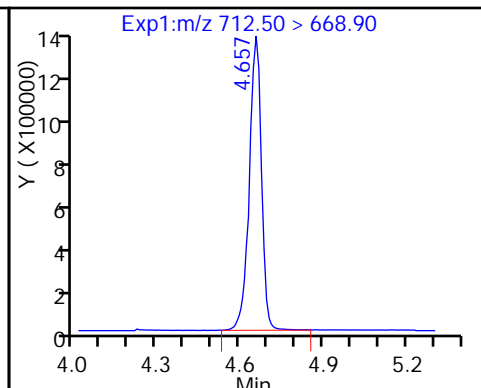
41 Perfluorotridecanoic acid



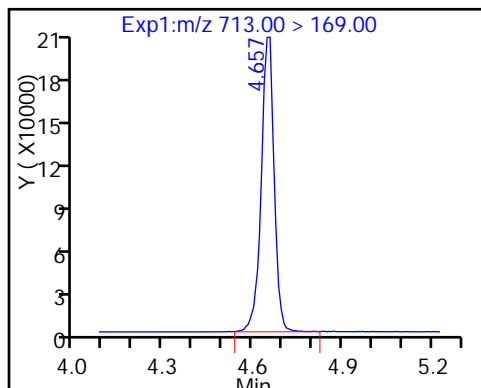
D 43 13C2-PFTeDa



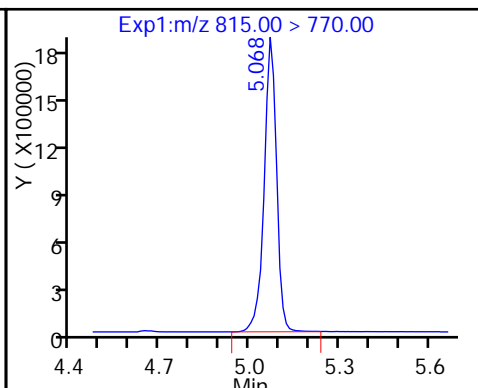
42 Perfluorotetradecanoic acid



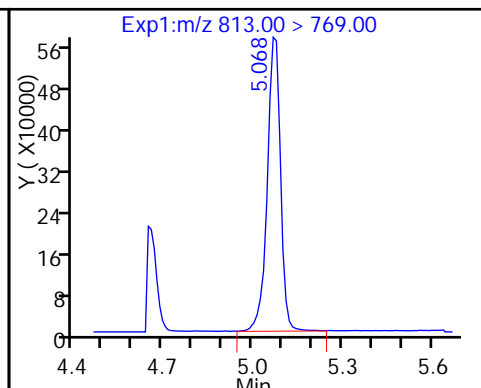
42 Perfluorotetradecanoic acid



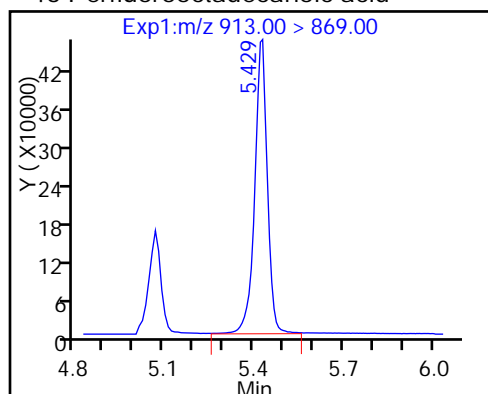
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

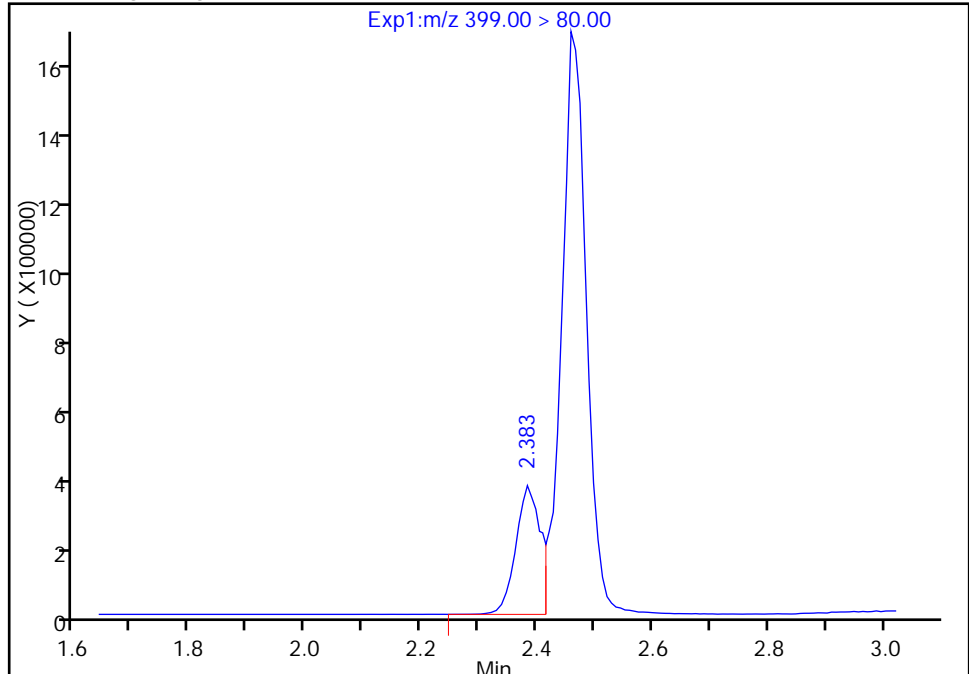
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_038.d
Injection Date: 11-Mar-2017 16:50:07 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

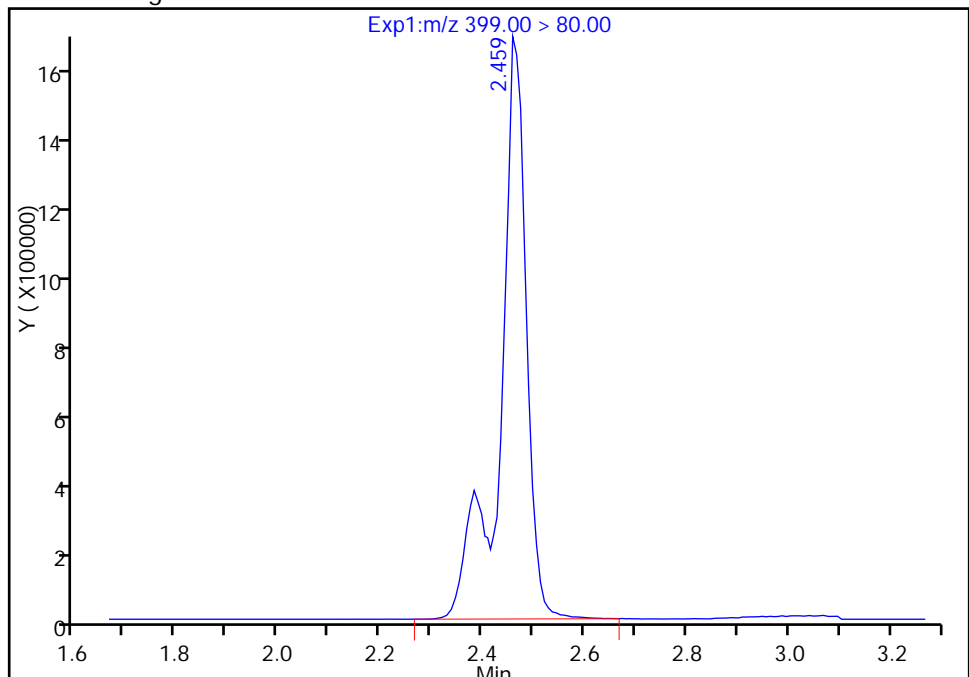
RT: 2.38
Area: 1036246
Amount: 3.041781
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 5812875
Amount: 17.063027
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:12:03

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

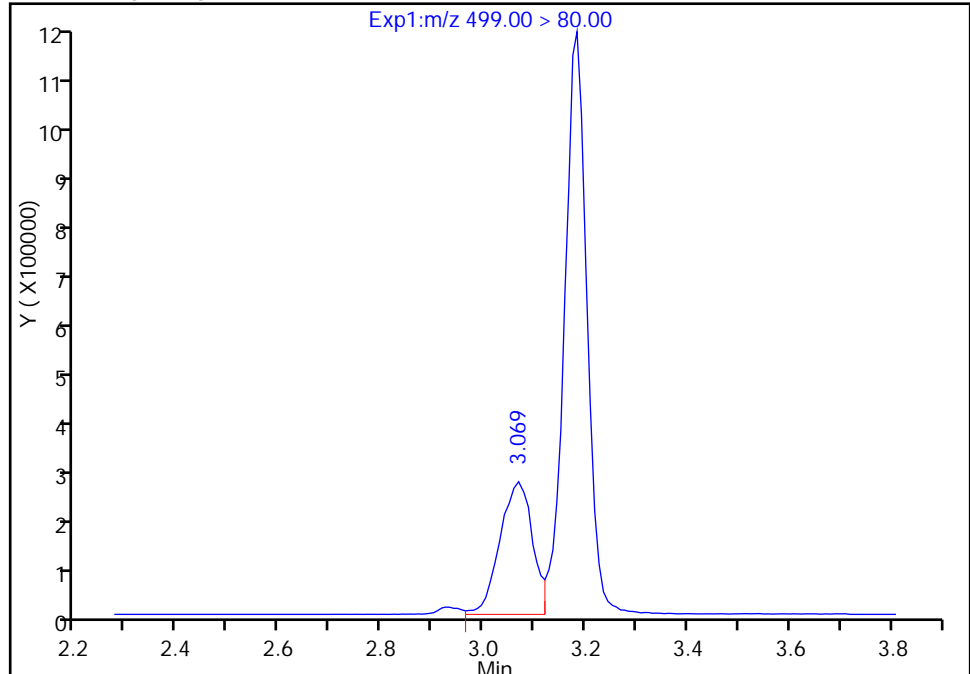
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Injection Date: 11-Mar-2017 16:50:07 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

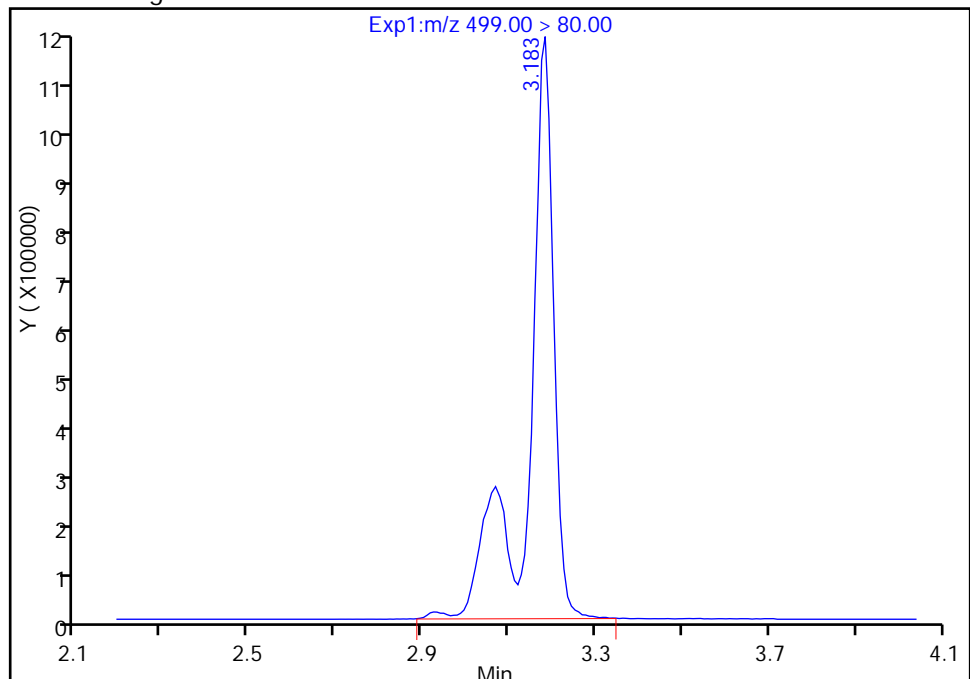
RT: 3.07
Area: 1130152
Amount: 4.372845
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 4579580
Amount: 17.719556
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:12:03

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

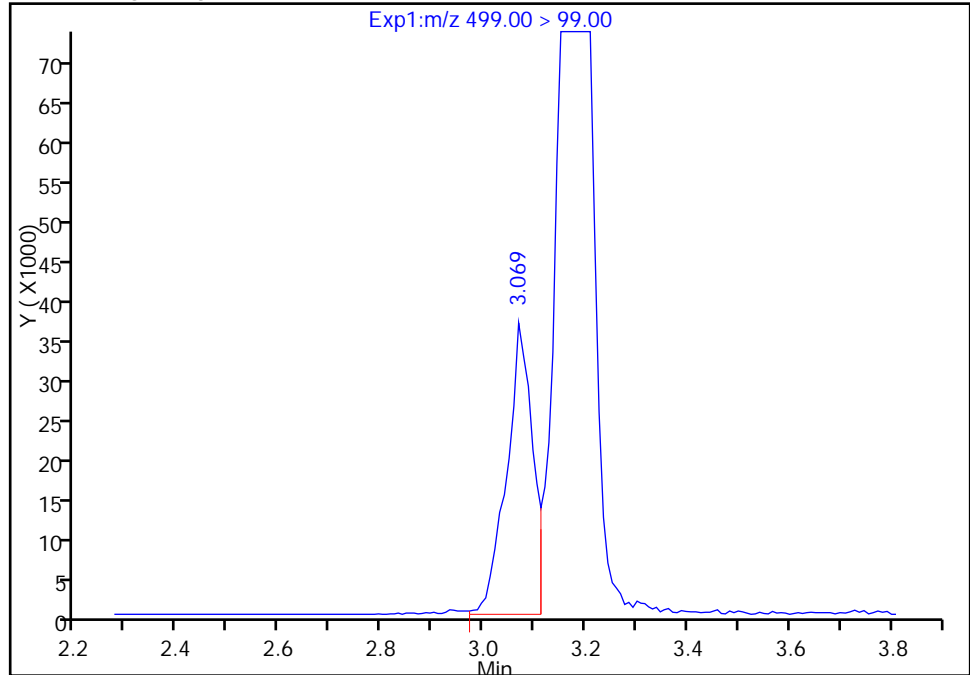
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Injection Date: 11-Mar-2017 16:50:07 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

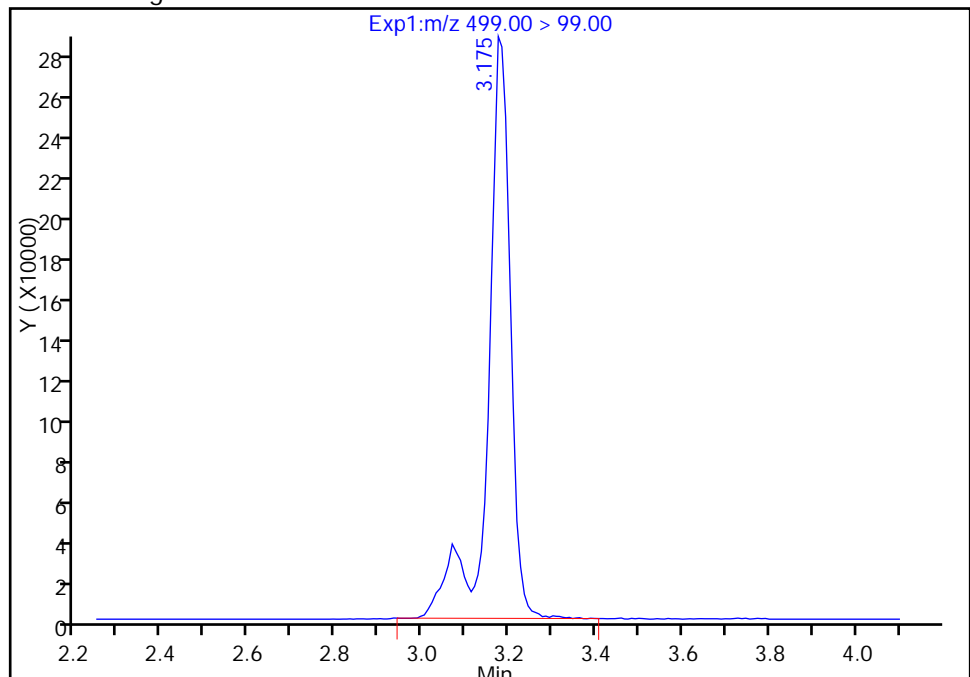
RT: 3.07
Area: 127361
Amount: 4.372845
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1020527
Amount: 17.719556
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:12:10

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154503/46 Calibration Date: 03/11/2017 18:12

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: 2017.03.11C_049.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	0.8950		52.8	50.0	5.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9933		50.8	50.0	1.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.467		45.3	44.2	2.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9047		50.9	50.0	1.7	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9903		51.2	50.0	2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.045		46.2	45.5	1.6	25.0
6:2FTS	L2ID		0.8794		46.9	47.4	-1.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.022		50.0	50.0	0.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.113		51.4	47.6	7.9	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9538		52.8	50.0	5.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.014		47.8	46.4	3.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9240		51.4	50.0	2.8	25.0
8:2FTS	L2ID		0.9201		47.6	47.9	-0.6	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9315		51.4	50.0	2.9	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9425		48.5	50.0	-2.9	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6164		49.9	48.2	3.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9560		47.2	50.0	-5.7	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8753		48.1	50.0	-3.8	25.0
MeFOSA	AveID	0.9355	0.8983		48.0	50.0	-4.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9256		50.6	50.0	1.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9613		48.9	50.0	-2.3	25.0
Perfluorotridecanoic Acid (PFTrIA)	AveID	0.8734	0.9068		51.9	50.0	3.8	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.705		43.3	50.0	-13.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8895		47.6	50.0	-4.8	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5940		41.4	50.0	-17.2	25.0
13C4 PFBA	Ave	292242	323579		55.4	50.0	10.7	50.0
13C5-PFPeA	Ave	232192	250487		53.9	50.0	7.9	50.0
13C2 PFHxA	Ave	210884	235375		55.8	50.0	11.6	50.0
13C4-PFHpA	Ave	192959	209699		54.3	50.0	8.7	50.0
18O2 PFHxS	Ave	290899	318974		51.9	47.3	9.7	50.0
M2-6:2FTS	Ave	77178	97253		59.9	47.5	26.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154503/46 Calibration Date: 03/11/2017 18:12
 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: 2017.03.11C_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	215734		52.6	50.0	5.3	50.0
13C4 PFOS	Ave	241637	261638		51.8	47.8	8.3	50.0
13C5 PFNA	Ave	177866	181142		50.9	50.0	1.8	50.0
13C8 FOSA	Ave	366918	381351		52.0	50.0	3.9	50.0
M2-8:2FTS	Ave	92602	102385		53.0	47.9	10.6	50.0
13C2 PFDA	Ave	166704	167134		50.1	50.0	0.3	50.0
d3-NMeFOSAA	Ave	85186	81303		47.7	50.0	-4.6	50.0
d5-NEtFOSAA	Ave	81371	77220		47.4	50.0	-5.1	50.0
13C2 PFUnA	Ave	130805	124389		47.5	50.0	-4.9	50.0
d-N-MeFOSA-M	Ave	87983	85967		48.9	50.0	-2.3	50.0
13C2 PFDoA	Ave	123944	120887		48.8	50.0	-2.5	50.0
d-N-EtFOSA-M	Ave	85249	78766		46.2	50.0	-7.6	50.0
13C2-PFTEdA	Ave	259165	239540		46.2	50.0	-7.6	50.0
13C2-PFHxDA	Ave	125061	127116		50.8	50.0	1.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_049.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 11-Mar-2017 18:12:36 ALS Bottle#: 32 Worklist Smp#: 46
 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\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:15:06 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 14:06:44

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	14480082	52.8		106	98974	
D 1 13C4 PFBA										
217.00 > 172.00	1.530	1.530	0.0		16178930	55.4		111	716813	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		12524332	53.9		108	882720	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	12440697	50.8		102	108144	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		320506	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	20685205	45.3		102		
298.90 > 99.00	1.851	1.861	-0.010	0.995	9034478		2.29(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.124	2.124	0.0		11768761	55.8		112	383206	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.124	2.124	0.0	1.000	10647225	50.9		102	394334	
D 9 13C4-PFHpA										
367.00 > 322.00	2.455	2.455	0.0		10484957	54.3		109	371138	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.455	2.455	0.0	1.000	10383147	51.2		102	129092	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.478	2.478	0.0	1.000	15165760	46.2		102		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.471	2.471	0.0		15087465	51.9		110	538634	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.790	2.790	0.0	1.000	4053755	46.9		99.0		

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	2.790	2.790	0.0		4619527	59.9		126		
D 14 13C4 PFOA										
417.00 > 372.00	2.813	2.813	0.0		10786676	52.6		105	309055	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.821	2.821	0.0	1.000	11023103	50.0		100	109447	
413.00 > 169.00	2.821	2.821	0.0	1.000	6536018		1.69(0.90-1.10)		218890	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.828	2.828	0.0	1.000	13856715	51.4		108		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.195	3.195	0.0	1.000	12309827	47.8		103	228883	M
499.00 > 99.00	3.195	3.195	0.0	1.000	2761246		4.46(0.90-1.10)		184739	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.195	3.195	0.0	1.000	8638324	52.8		106	155349	
D 18 13C4 PFOS										
503.00 > 80.00	3.195	3.195	0.0		12506303	51.8		108	233709	
D 19 13C5 PFNA										
468.00 > 423.00	3.203	3.203	0.0		9057093	50.9		102	264161	
D 21 13C8 FOSA										
506.00 > 78.00	3.523	3.523	0.0		19067547	52.0		104	493463	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.532	3.532	0.0	1.000	17619043	51.4		103	443227	
D 26 M2-8:2FTS										
529.00 > 509.00	3.549	3.549	0.0		4904239	53.0		111		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.540	3.540	0.0	0.998	4512198	47.6		99.4		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.557	3.557	0.0	1.000	7784008	51.4		103	178451	
D 23 13C2 PFDA										
515.00 > 470.00	3.557	3.557	0.0		8356702	50.1		100	152231	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.697	3.697	0.0		4065137	47.7		95.4		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.708	3.708	0.0	1.003	3831261	48.5		97.1		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.854	3.854	0.0	1.000	7772939	49.9		103		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.871	3.871	0.0		3860981	47.4		94.9		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.871	3.871	0.0	1.000	5945620	47.2		94.3	100547	
D 30 13C2 PFUnA										
565.00 > 520.00	3.880	3.880	0.0		6219436	47.5		95.1	397245	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.880	3.880	0.0	1.002	3379522	48.1		96.2		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.024	4.024	0.0		4298327	48.9		97.7		
35 MeFOSA										
512.00 > 169.00	4.024	4.024	0.0	1.000	3861027	48.0		96.0		

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	4.164	4.164	0.0	1.000	5594923	50.6	101	55678	
D 36 13C2 PFDaA	615.00 > 570.00	4.164	4.164	0.0		6044358	48.8	97.5	157355	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.200	4.200	0.0		3938306	46.2	92.4		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.207	4.207	0.0	1.000	3785993	48.9	97.7		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.426	4.426	0.0	1.000	5480980	51.9	104	117522	
D 43 13C2-PFTeDA	715.00 > 670.00	4.663	4.663	0.0		11977002	46.2	92.4	311448	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.673	4.673	0.0	1.000	10303863	43.3	86.7	83254	
	713.00 > 169.00	4.663	4.673	-0.010	0.998	1527209	6.75(0.00-0.00)		128796	
D 44 13C2-PFHxDA	815.00 > 770.00	5.079	5.079	0.0		6355789	50.8	102	104467	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.079	5.079	0.0	1.000	5376384	47.6	95.2	4879	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.428	5.428	0.0	1.000	3590438	41.4	82.8	4716	

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\20170311-40737.b\2017.03.11C_049.d

Injection Date: 11-Mar-2017 18:12:36

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 46

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

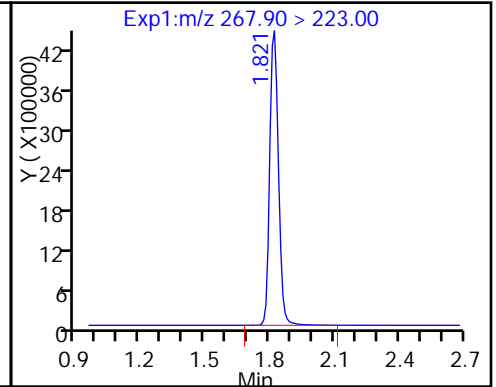
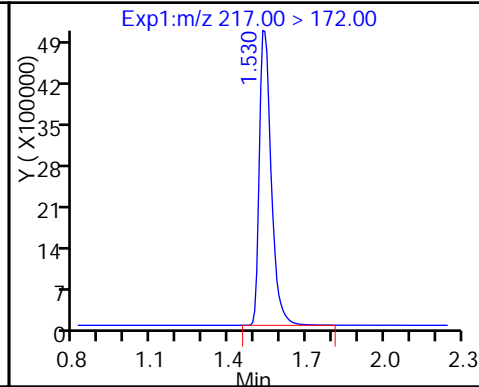
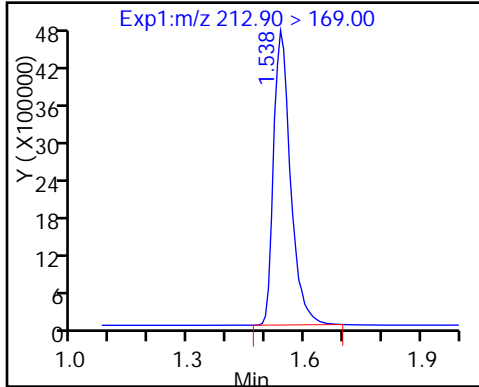
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

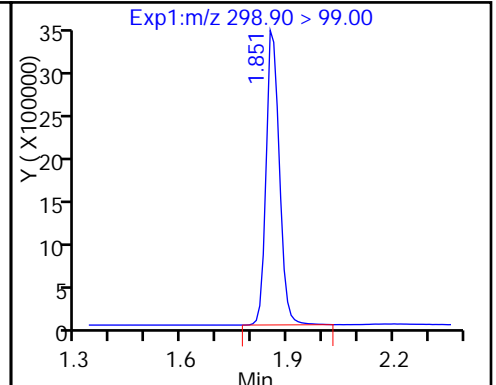
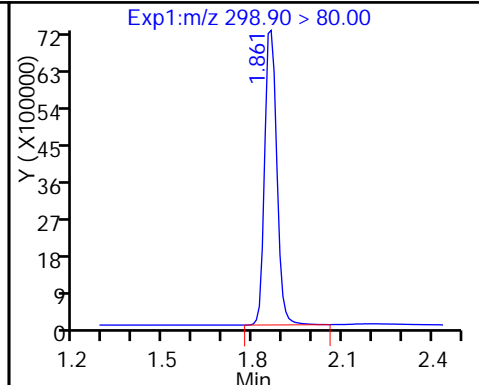
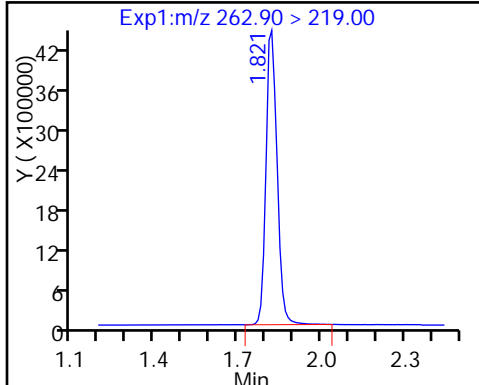
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

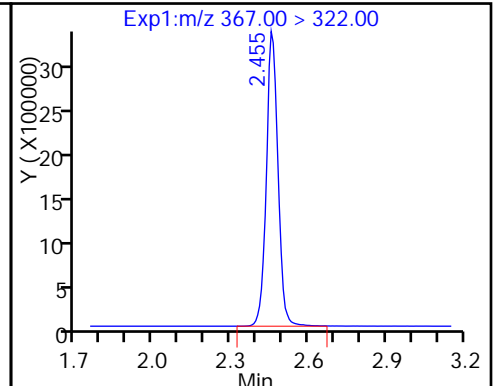
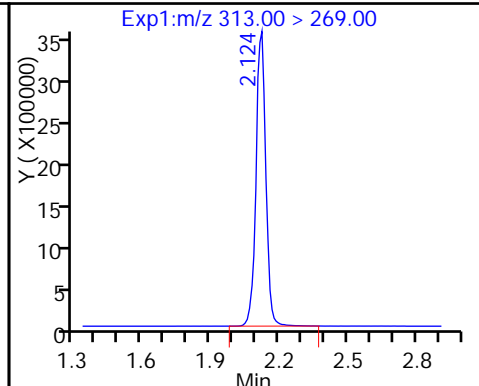
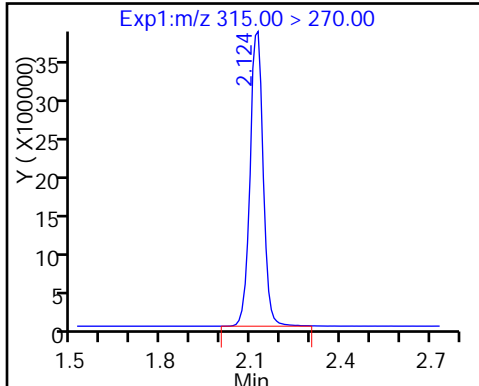
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

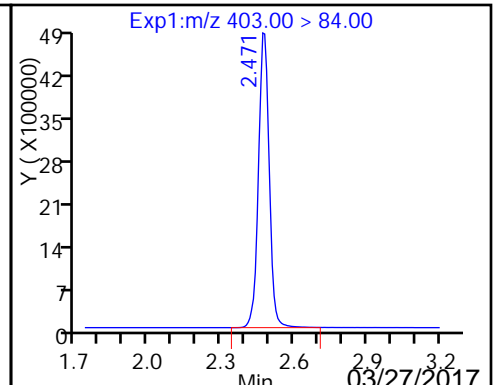
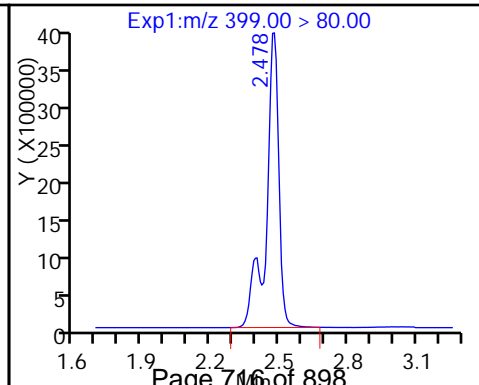
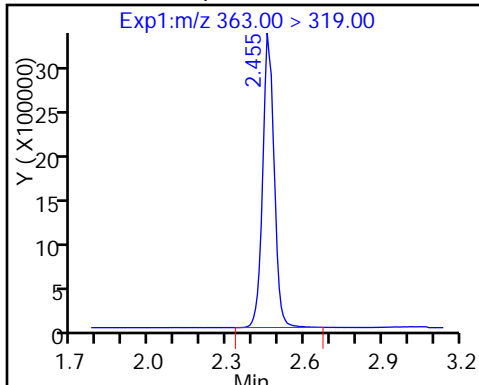
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

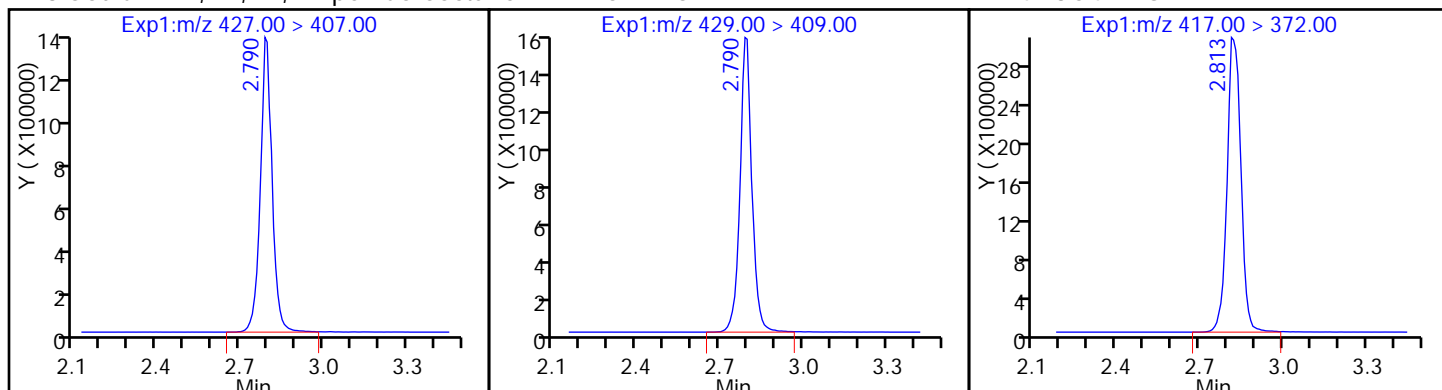
8 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

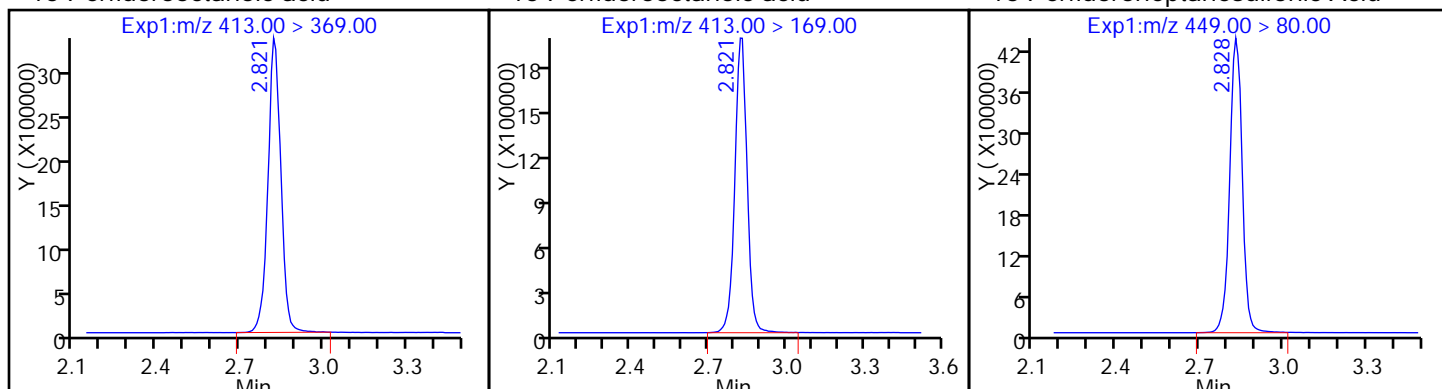
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

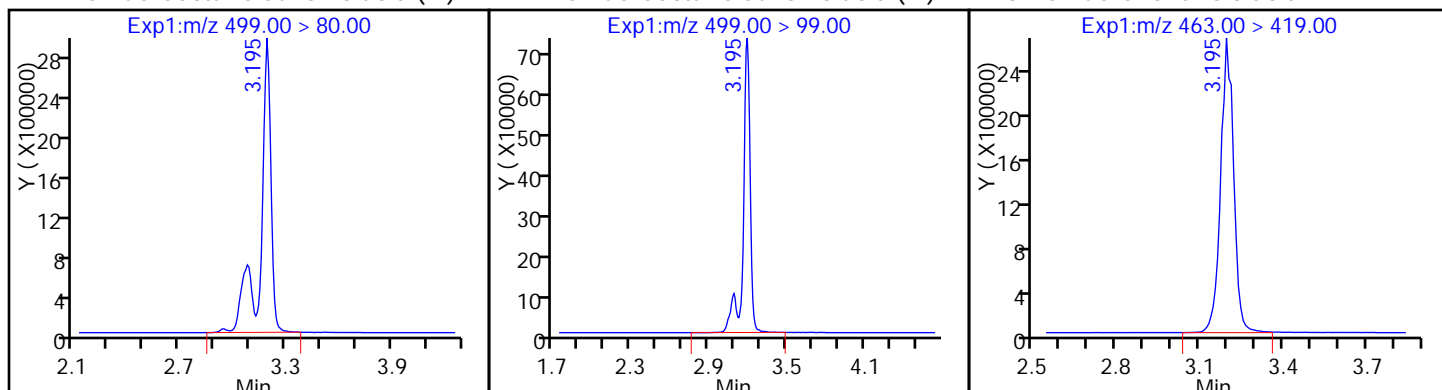
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

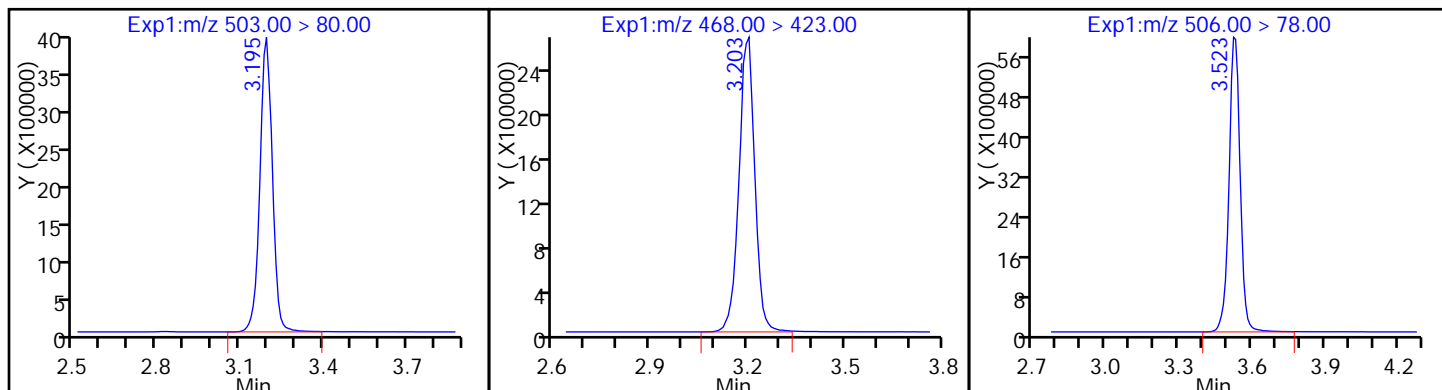
20 Perfluorononanoic acid



D 18 13C4 PFOS

D 19 13C5 PFNA

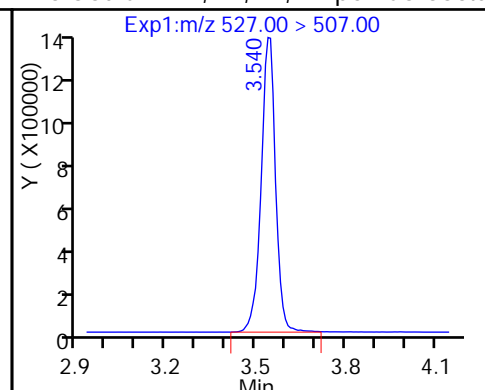
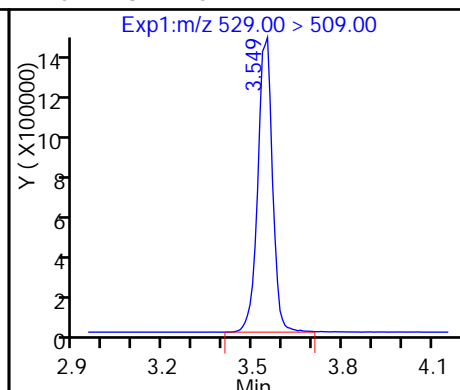
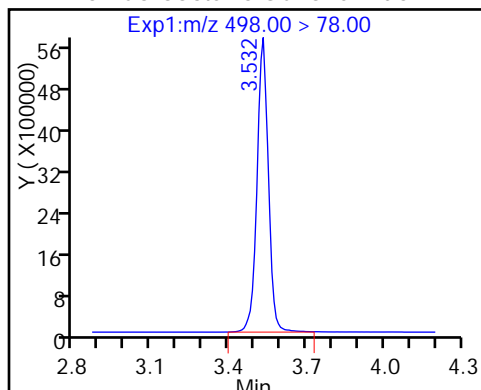
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

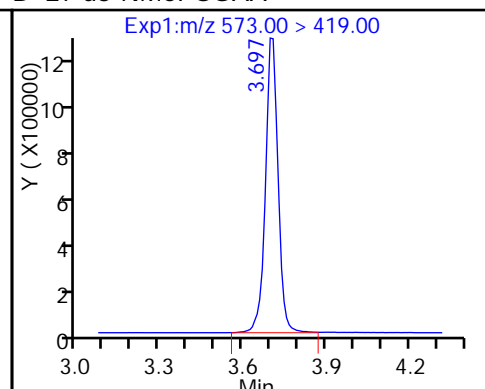
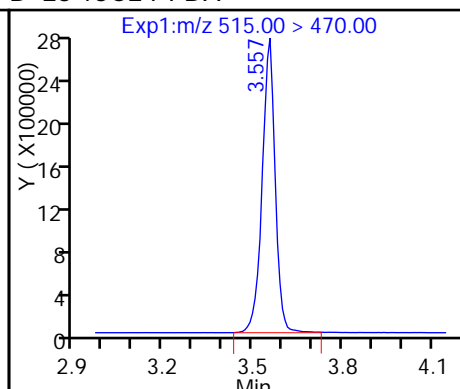
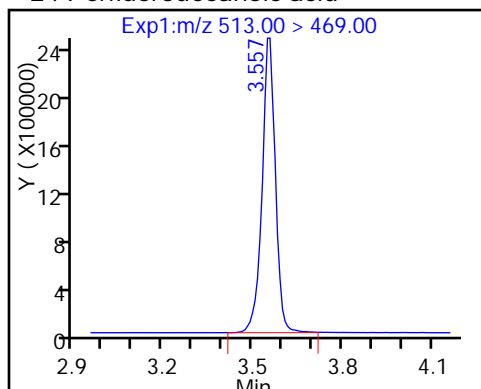
25 Sodium 1H,1H,2H,2H-perfluorooctane



24 Perfluorodecanoic acid

D 23 13C2 PFDA

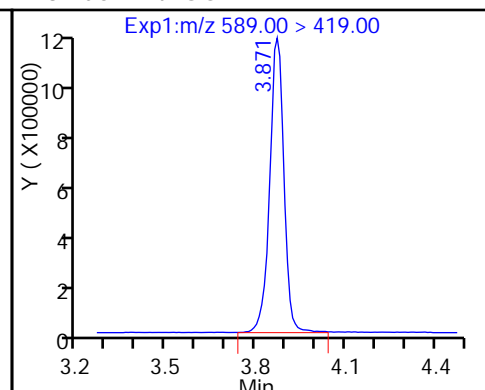
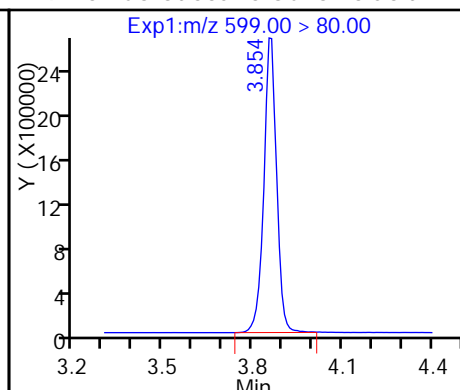
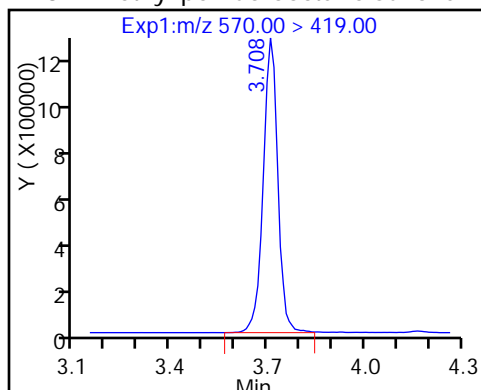
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

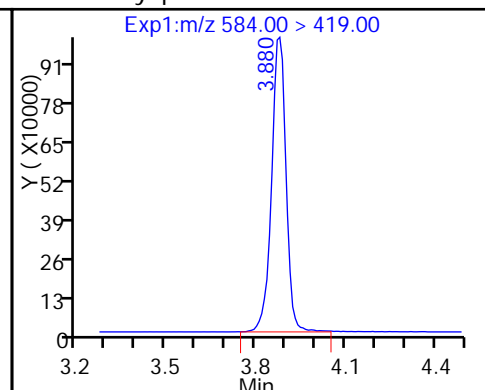
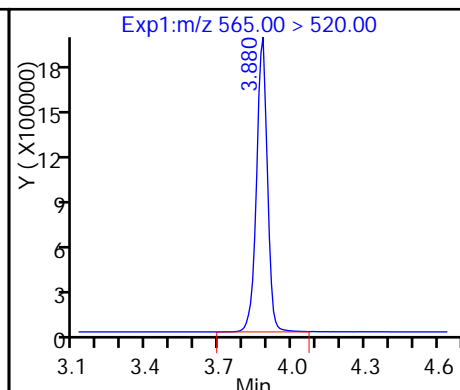
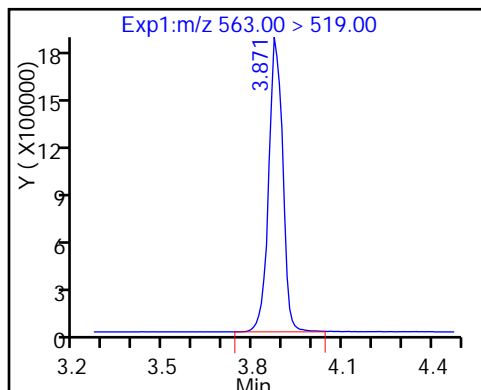
D 32 d5-NEtFOSAA



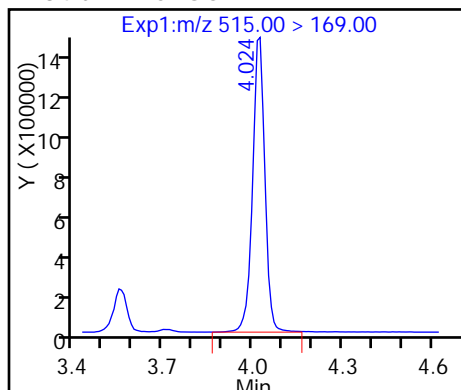
31 Perfluoroundecanoic acid

D 30 13C2 PFUnA

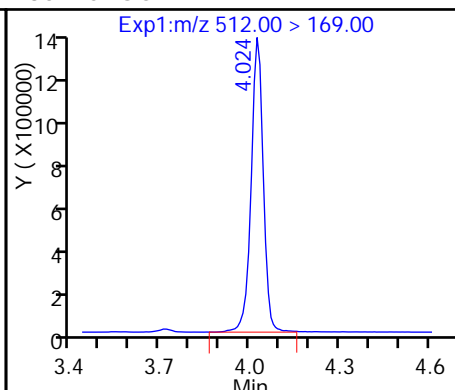
33 N-ethyl perfluorooctane sulfonamid



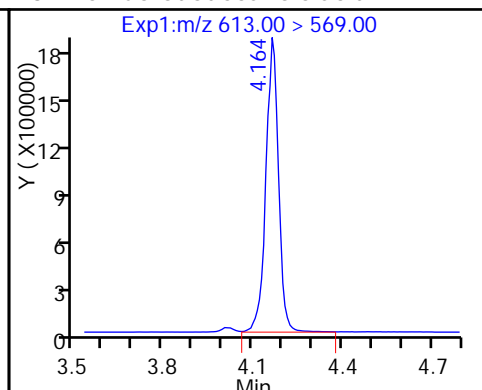
D 34 d-N-MeFOSA-M



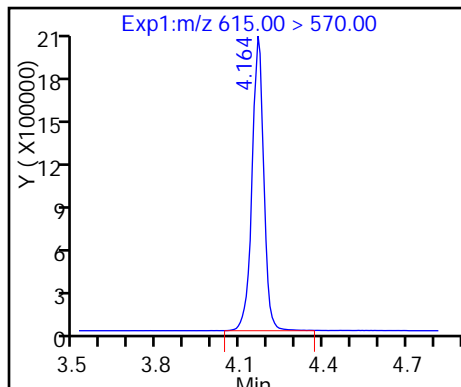
35 MeFOSA



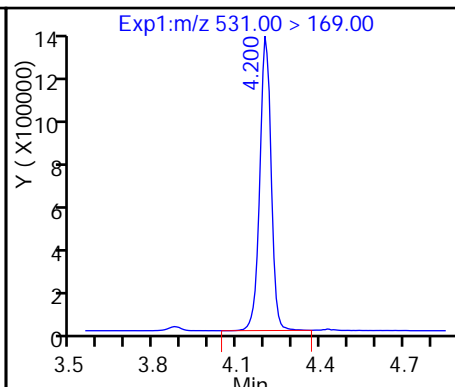
37 Perfluorododecanoic acid



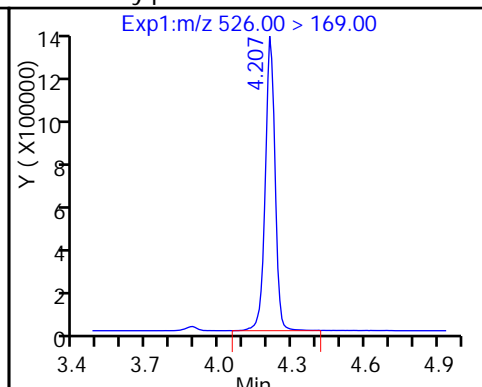
D 36 13C2 PFDaA



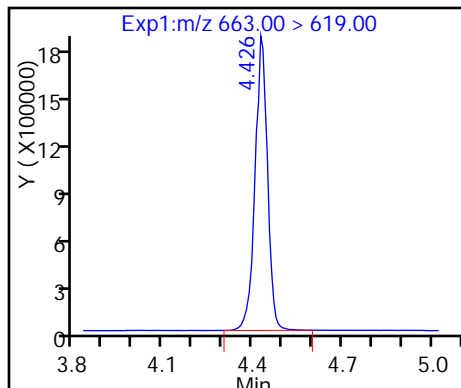
D 38 d-N-EtFOSA-M



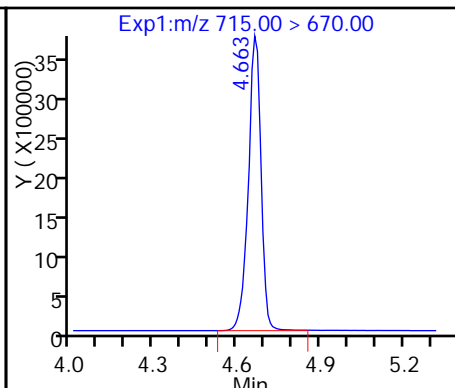
39 N-ethylperfluoro-1-octanesulfonami



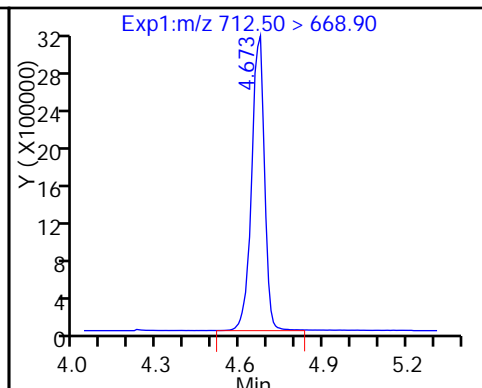
41 Perfluorotridecanoic acid



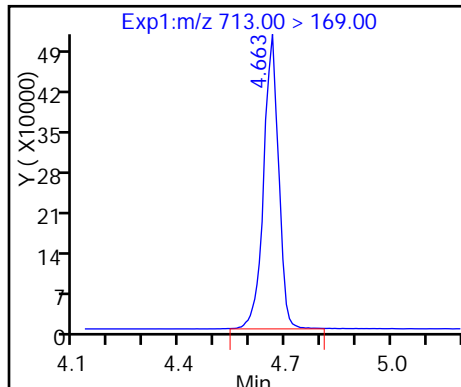
D 43 13C2-PFTeDA



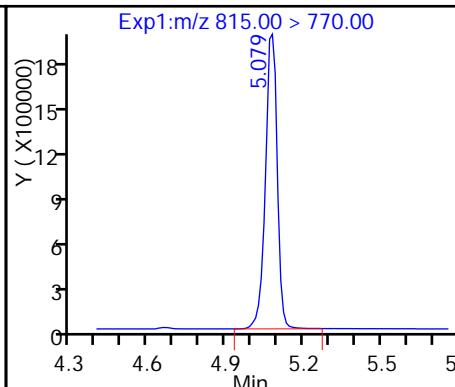
42 Perfluorotetradecanoic acid



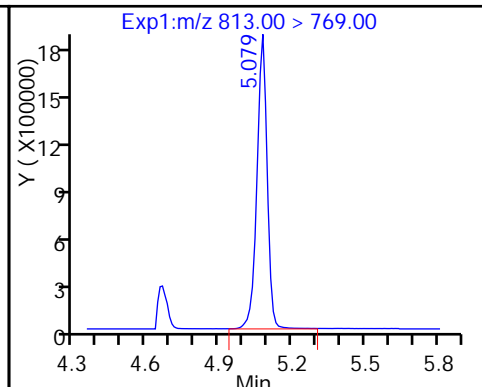
42 Perfluorotetradecanoic acid



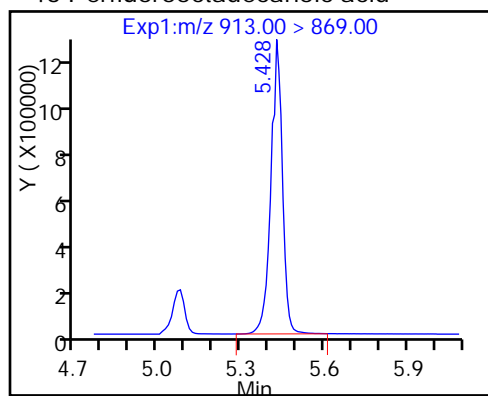
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

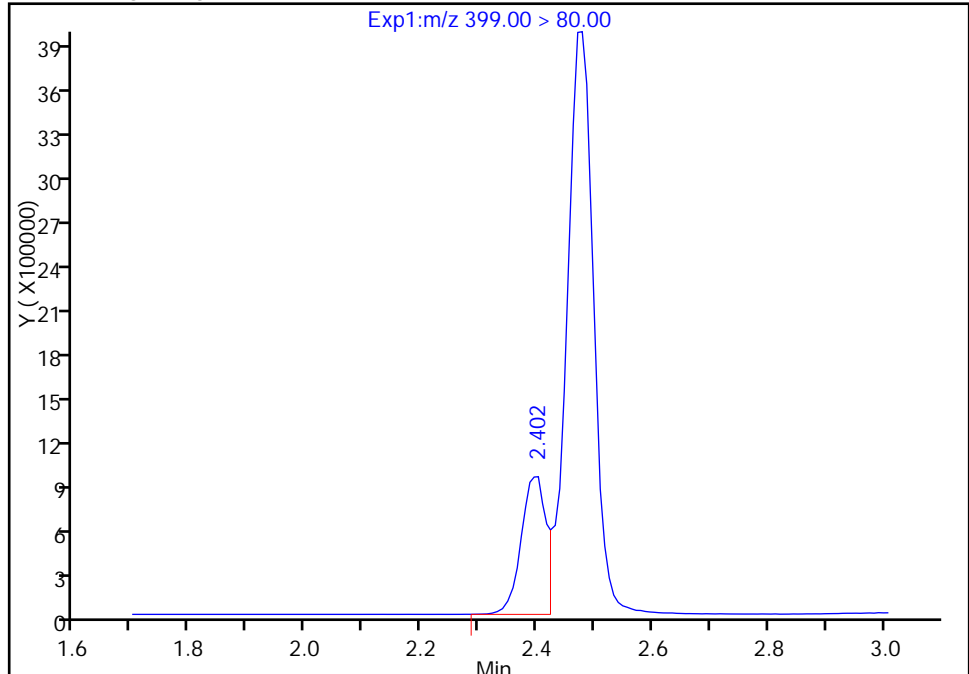
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_049.d
Injection Date: 11-Mar-2017 18:12:36 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 46
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

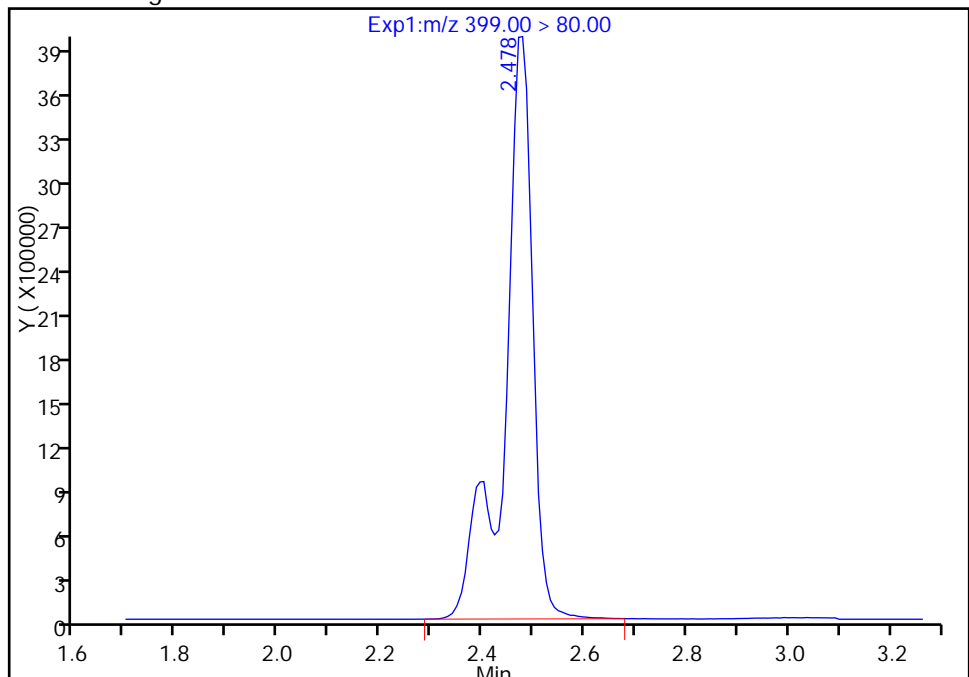
RT: 2.40
Area: 2752655
Amount: 8.391049
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 15165760
Amount: 46.230504
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:14:49
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 721 of 898

03/27/2017

TestAmerica Sacramento

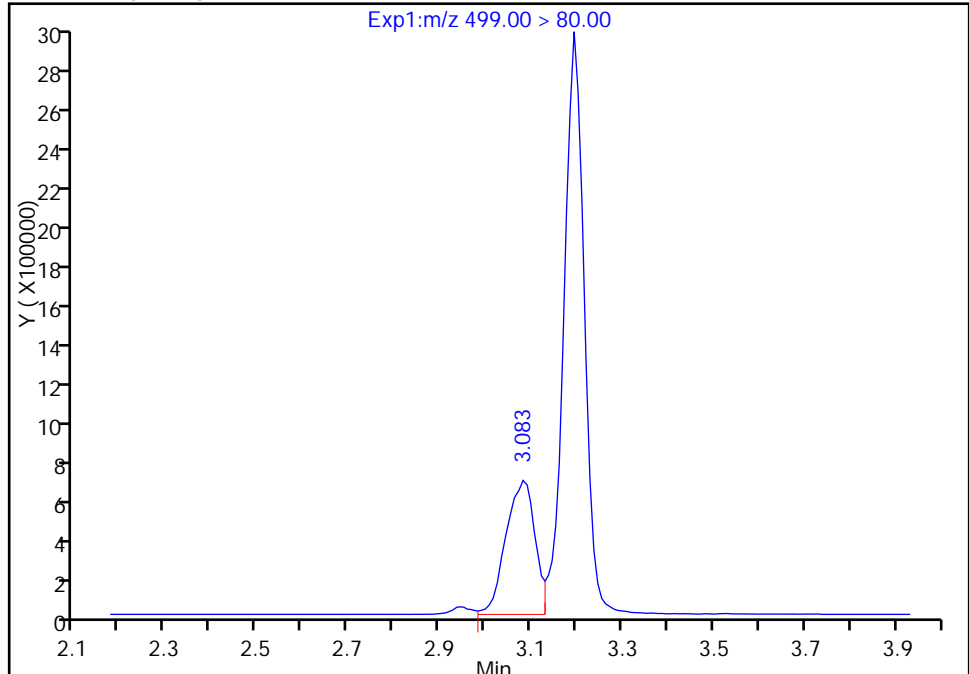
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_049.d
Injection Date: 11-Mar-2017 18:12:36 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 46
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

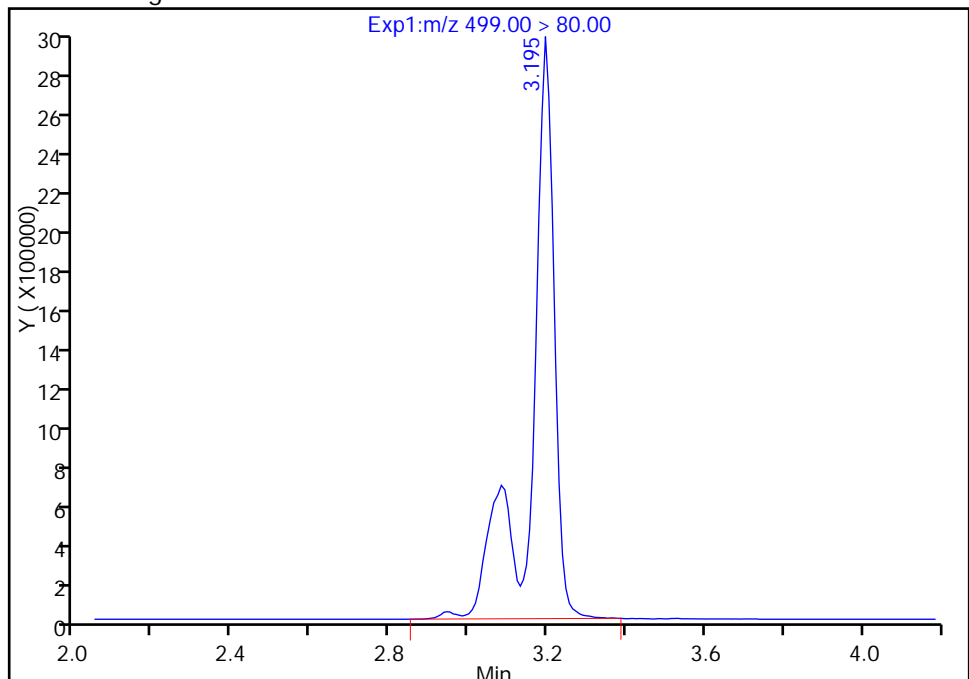
RT: 3.08
Area: 3018693
Amount: 11.731441
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 12309827
Amount: 47.839249
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:14:49

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

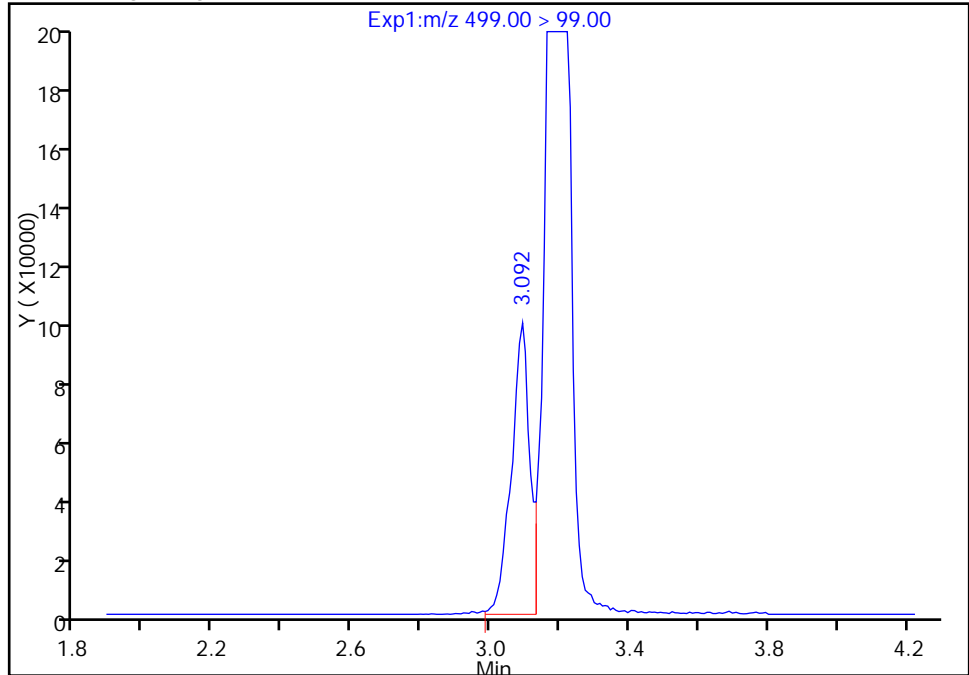
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_049.d
Injection Date: 11-Mar-2017 18:12:36 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 46
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

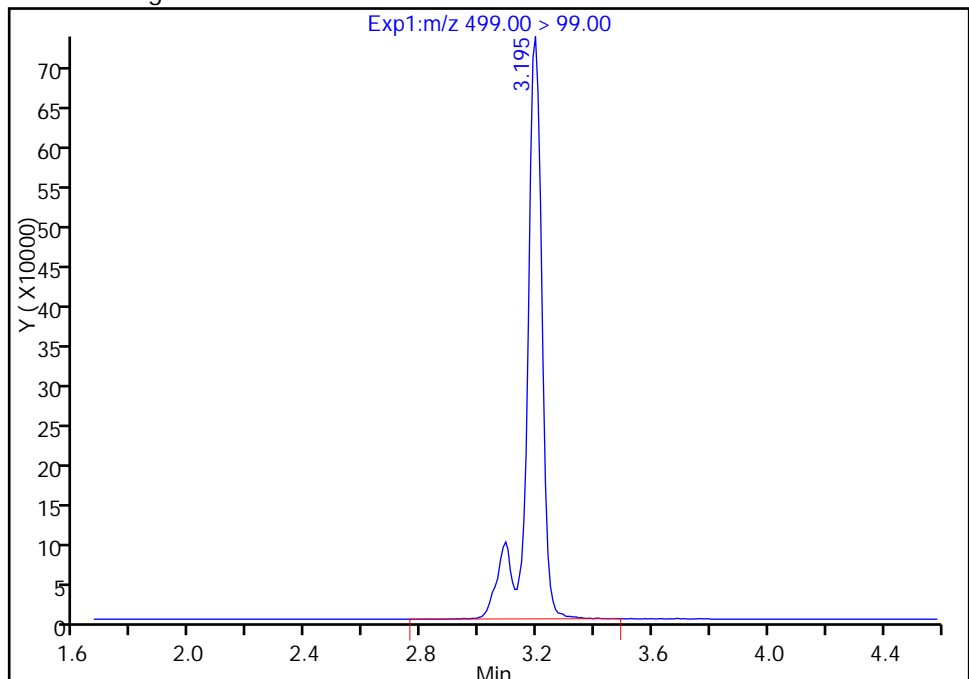
RT: 3.09
Area: 358091
Amount: 11.731441
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2761246
Amount: 47.839249
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:15:02

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154721/1 Calibration Date: 03/13/2017 11:39

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: 2017.03.13A_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	0.8548		1.01	1.00	0.9	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9878		1.01	1.00	0.9	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.428		0.881	0.884	-0.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8835		0.993	1.00	-0.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.139		1.01	0.910	10.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9326		0.964	1.00	-3.6	50.0
6:2FTS	L2ID		1.110		1.05	0.948	10.9	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.080		0.997	0.952	4.7	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.060		1.04	1.00	3.8	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9680		0.913	0.928	-1.6	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9701		1.07	1.00	7.3	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9296		1.03	1.00	3.5	50.0
8:2FTS	L2ID		0.995		0.947	0.958	-1.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8631		0.953	1.00	-4.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9686		0.997	1.00	-0.3	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5616		0.909	0.964	-5.7	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8721		0.958	1.00	-4.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.013		0.999	1.00	-0.0	50.0
MeFOSA	AveID	0.9355	0.9062		0.969	1.00	-3.1	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9118		0.997	1.00	-0.3	50.0
N-EtFOSA-M	AveID	0.9837	1.007		1.02	1.00	2.4	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8365		0.958	1.00	-4.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.570		0.799	1.00	-20.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.210		0.929	1.00	-7.1	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5659		0.789	1.00	-21.1	50.0
13C4 PFBA	Ave	292242	326619		55.9	50.0	11.8	50.0
13C5-PFPeA	Ave	232192	251482		54.2	50.0	8.3	50.0
13C2 PFHxA	Ave	210884	231453		54.9	50.0	9.8	50.0
13C4-PFHpA	Ave	192959	218978		56.7	50.0	13.5	50.0
18O2 PFHxS	Ave	290899	323162		52.5	47.3	11.1	50.0
M2-6:2FTS	Ave	77178	81021		49.9	47.5	5.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154721/1 Calibration Date: 03/13/2017 11:39
 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: 2017.03.13A_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	226607		55.3	50.0	10.6	50.0
13C4 PFOS	Ave	241637	255512		50.5	47.8	5.7	50.0
13C5 PFNA	Ave	177866	189926		53.4	50.0	6.8	50.0
13C8 FOSA	Ave	366918	394670		53.8	50.0	7.6	50.0
M2-8:2FTS	Ave	92602	98350		50.9	47.9	6.2	50.0
13C2 PFDA	Ave	166704	181034		54.3	50.0	8.6	50.0
d3-NMeFOSAA	Ave	85186	83564		49.0	50.0	-1.9	50.0
13C2 PFUnA	Ave	130805	135858		51.9	50.0	3.9	50.0
d5-NEtFOSAA	Ave	81371	89142		54.8	50.0	9.5	50.0
d-N-MeFOSA-M	Ave	87983	80229		45.6	50.0	-8.8	50.0
13C2 PFDoA	Ave	123944	123129		49.7	50.0	-0.7	50.0
d-N-EtFOSA-M	Ave	85249	77508		45.5	50.0	-9.1	50.0
13C2-PFTEdA	Ave	259165	218064		42.1	50.0	-15.9	50.0
13C2-PFHxDA	Ave	125061	99184		39.7	50.0	-20.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d
 Lims ID: CCV L2
 Client ID:
 Sample Type: CCVL
 Inject. Date: 13-Mar-2017 11:39:35 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\20170313-40786.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 11:32:00 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 11:31:59

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	1.547	1.547	0.0	1.000	279192	1.01		101	2099	M
D 1 13C4 PFBA										
217.00 > 172.00	1.547	1.547	0.0		16330941	55.9		112	1082790	
D 3 13C5-PFPeA										
267.90 > 223.00	1.832	1.832	0.0		12574084	54.2		108	657450	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.832	1.832	0.0	1.000	248420	1.01		101	2075	
D 47 13C3-PFBS										
301.90 > 83.00	1.862	1.862	0.0		305623	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.872	1.872	0.0	1.000	407930	0.8812		99.7		
298.90 > 99.00	1.872	1.872	0.0	1.000	162983		2.50(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.130	2.130	0.0		11572666	54.9		110	425565	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.130	2.130	0.0	1.000	204483	0.99		99.3	6524	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.459	2.459	0.0	1.000	335008	1.01		111		
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.475	2.475	0.0	1.000	204210	0.9641		96.4	2318	
D 9 13C4-PFHpA										
367.00 > 322.00	2.475	2.475	0.0		10948919	56.7		113	415467	
D 11 18O2 PFHxS										
403.00 > 84.00	2.491	2.491	0.0		15285545	52.5		111	389699	
D 12 M2-6:2FTS										
429.00 > 409.00	2.809	2.809	0.0		3848509	49.9		105		

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	2.817	2.817	0.0	1.000	85220	1.05	111		
D 14 13C4 PFOA	417.00 > 372.00	2.833	2.833	0.0		11330340	55.3	111	357830	
15 Perfluorooctanoic acid	413.00 > 369.00	2.848	2.848	0.0	1.000	240252	1.04	104	2533	
	413.00 > 169.00	2.841	2.848	-0.007	0.997	137909	1.74(0.90-1.10)		5302	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	2.848	2.848	0.0	1.000	262614	1.00	105		
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.097	3.097	0.0	1.000	229521	0.9134	98.4	4073	
	499.00 > 99.00	3.175	3.097	0.078	1.025	52265	4.39(0.90-1.10)		724	
D 18 13C4 PFOS	503.00 > 80.00	3.218	3.218	0.0		12213466	50.5	106	552911	
20 Perfluorononanoic acid	463.00 > 419.00	3.218	3.218	0.0	1.000	184245	1.07	107	3213	
D 19 13C5 PFNA	468.00 > 423.00	3.218	3.218	0.0		9496306	53.4	107	314093	
D 21 13C8 FOSA	506.00 > 78.00	3.536	3.536	0.0		19733497	53.8	108	495915	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.536	3.536	0.0	1.000	366901	1.03	103	32339	
D 26 M2-8:2FTS	529.00 > 509.00	3.570	3.570	0.0		4710980	50.9	106		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00 > 507.00	3.561	3.561	0.0	0.998	93765	0.9472	98.9		
D 23 13C2 PFDA	515.00 > 470.00	3.578	3.578	0.0		9051703	54.3	109	178590	
24 Perfluorodecanoic acid	513.00 > 469.00	3.570	3.570	0.0	1.000	156257	0.9531	95.3	4666	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.734	3.734	0.0		4178185	49.0	98.1		
28 N-methyl perfluorooctane sulfonami	570.00 > 419.00	3.734	3.734	0.0	1.000	80943	1.00	99.7		
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.886	3.886	0.0	1.000	138317	0.9088	94.3		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.903	3.903	0.0		4457105	54.8	110		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.903	3.903	0.0	1.000	137580	1.00	99.9	4518	
D 30 13C2 PFUnA	565.00 > 520.00	3.903	3.903	0.0		6792880	51.9	104	173802	
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.020	4.020	0.0		4011460	45.6	91.2		
35 MeFOSA	512.00 > 169.00	4.029	4.029	0.0	1.000	72701	0.9686	96.9		
33 N-ethyl perfluorooctane sulfonamid	584.00 > 419.00	3.903	3.903	0.0	1.000	77738	0.9580	95.8		

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	4.197	4.197	0.0		6156425	49.7		99.3	149202	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.197	4.197	0.0	1.000	112273	1.00		99.7	679	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.203	4.203	0.0		3875386	45.5		90.9		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.211	4.211	0.0	1.000	78075	1.02		102		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.469	4.469	0.0	1.000	103001	0.9578		95.8	1595	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.713	4.713	0.0		10903199	42.1		84.1	268289	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.713	4.713	0.0	1.000	193351	0.7985		79.9	134	
713.00 > 169.00	4.713	4.713	-0.008	0.998	31882		6.06(0.00-0.00)		10983	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.134	5.134	0.0		4959213	39.7		79.3	83565	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.134	5.134	0.0	1.000	149004	0.9289		92.9	152	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.500	5.500	0.0	1.000	69680	0.7887		78.9	80.0	

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\20170313-40786.b\2017.03.13A_004.d

Injection Date: 13-Mar-2017 11:39:35

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

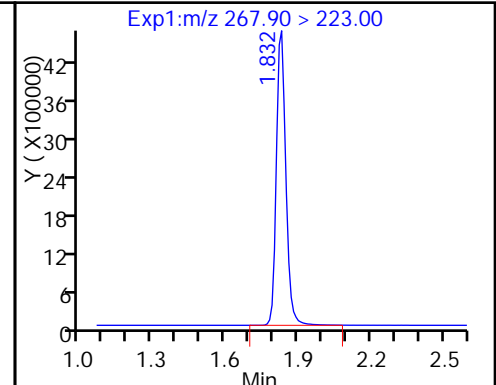
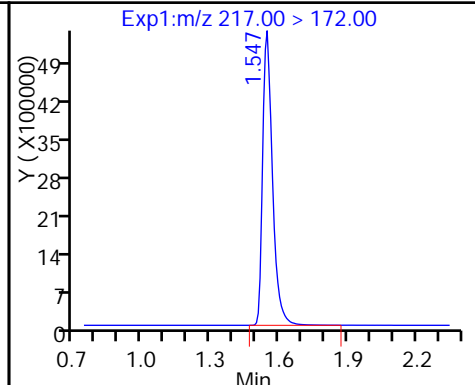
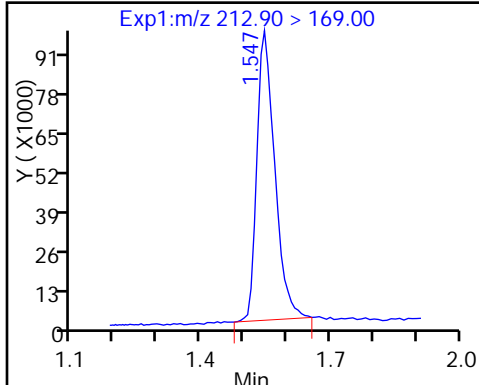
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

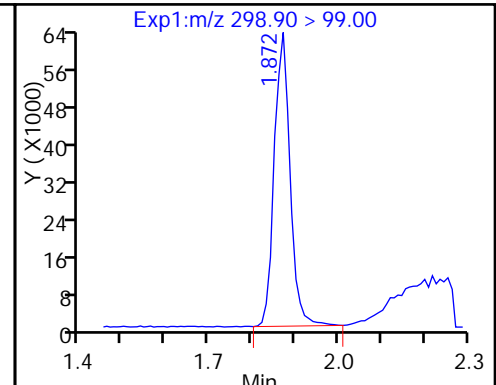
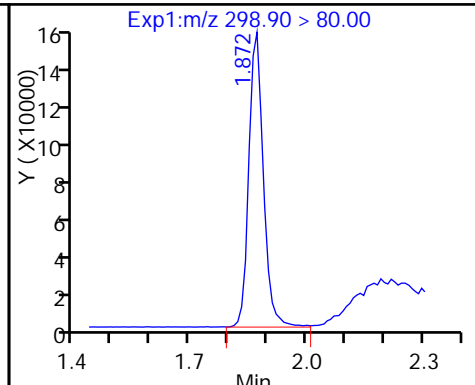
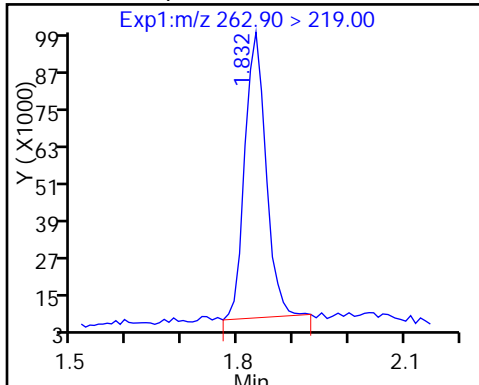
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

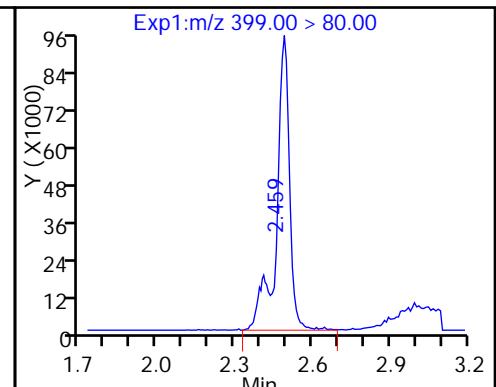
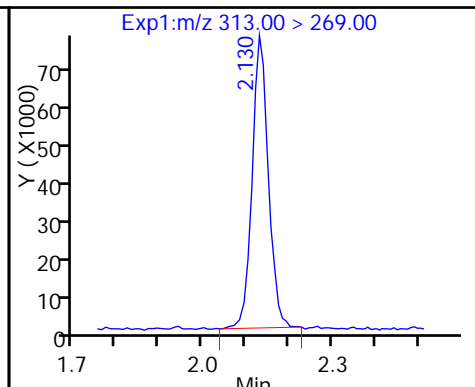
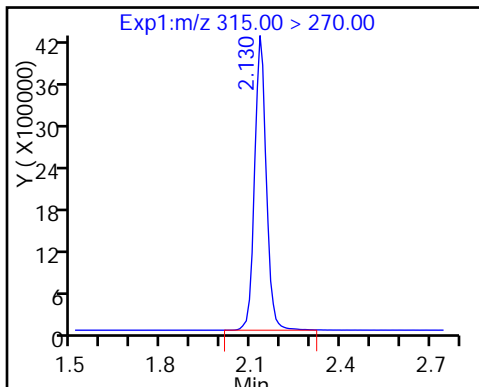
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

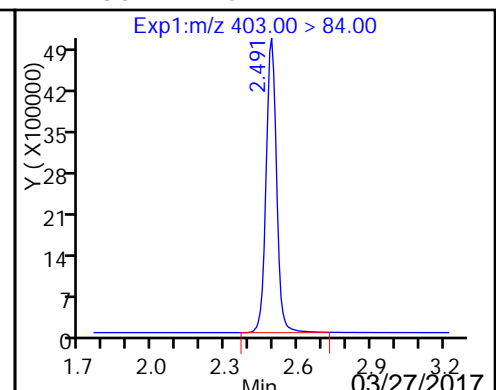
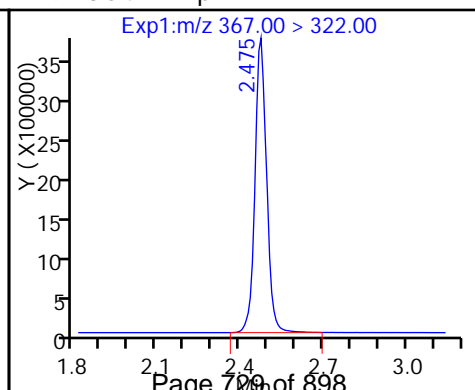
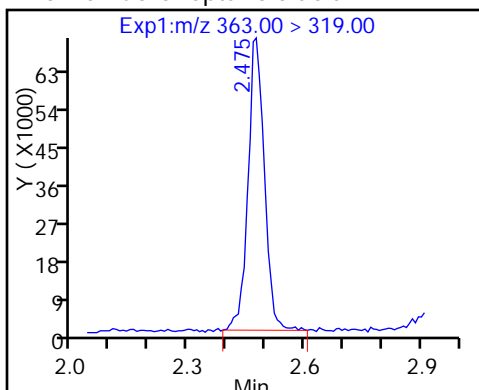
8 Perfluorohexanesulfonic acid



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

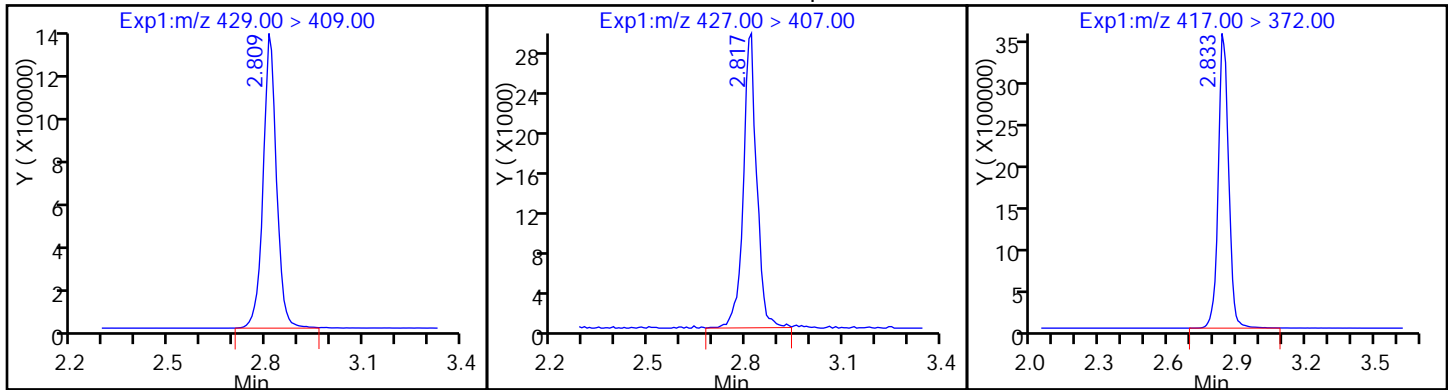
D 11 18O2 PFHxS



D 12 M2-6:2FTS

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

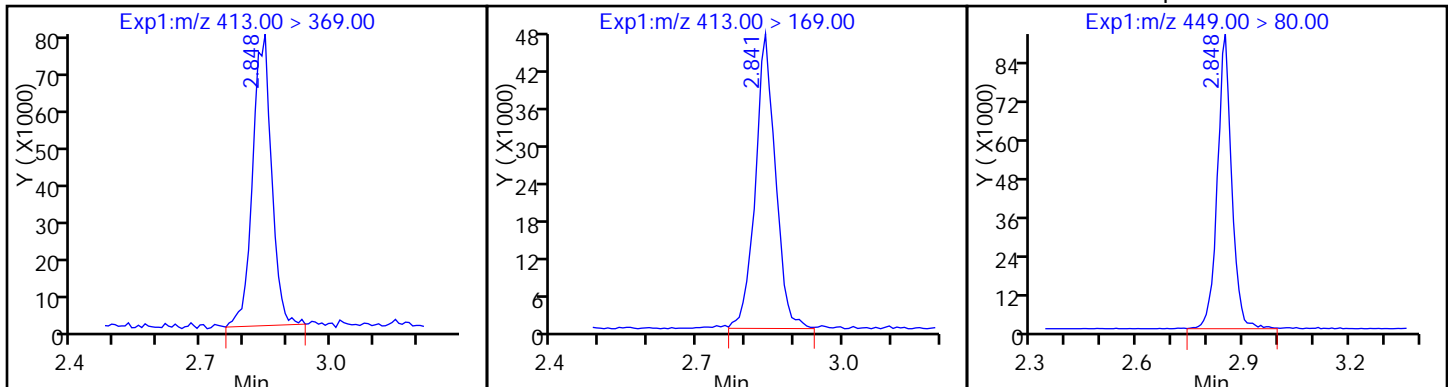
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

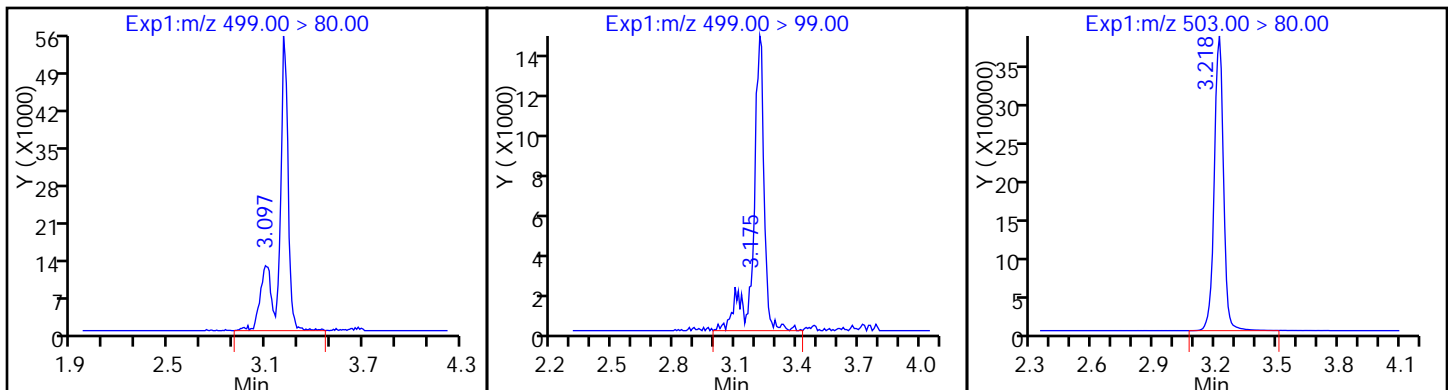
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

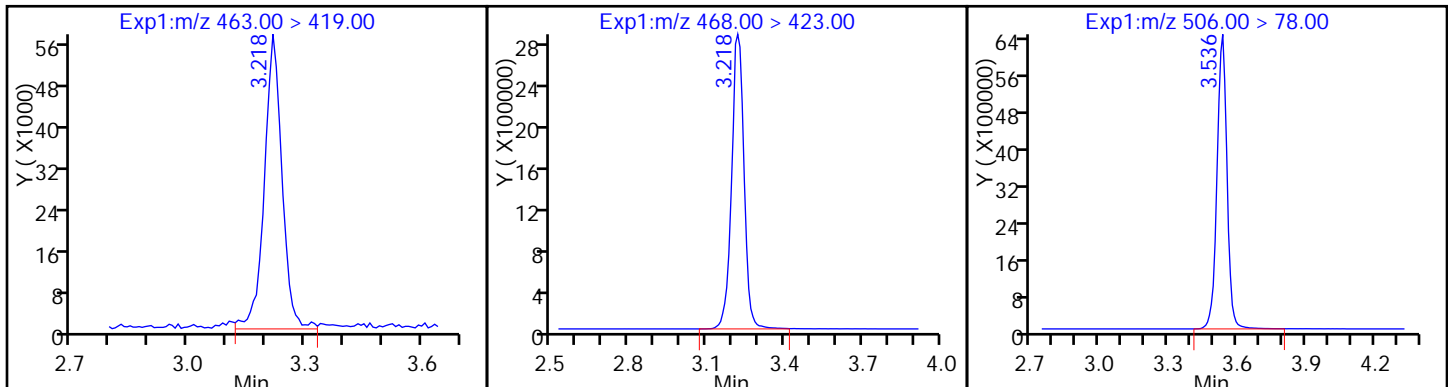
D 18 13C4 PFOS

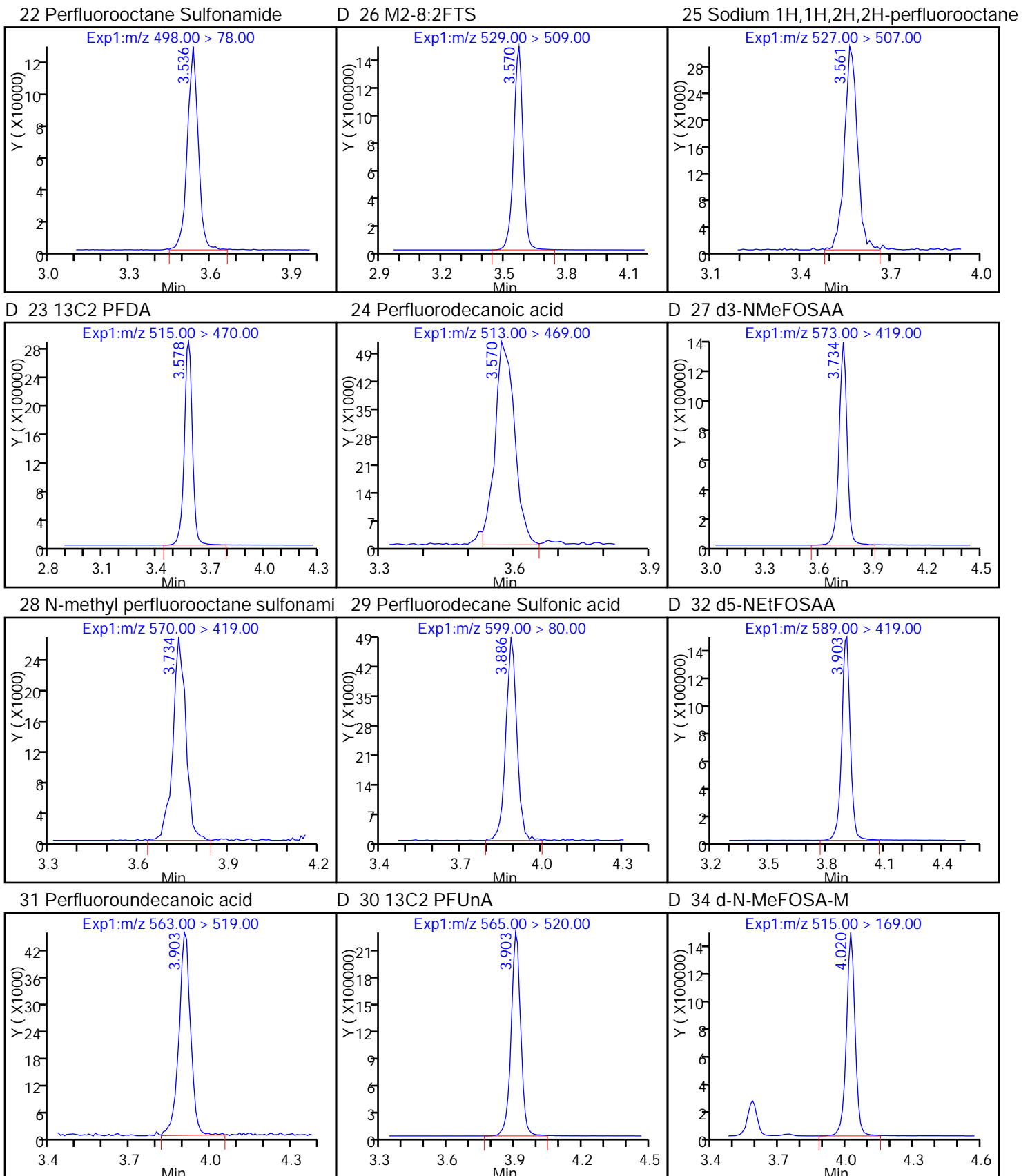


20 Perfluorononanoic acid

D 19 13C5 PFNA

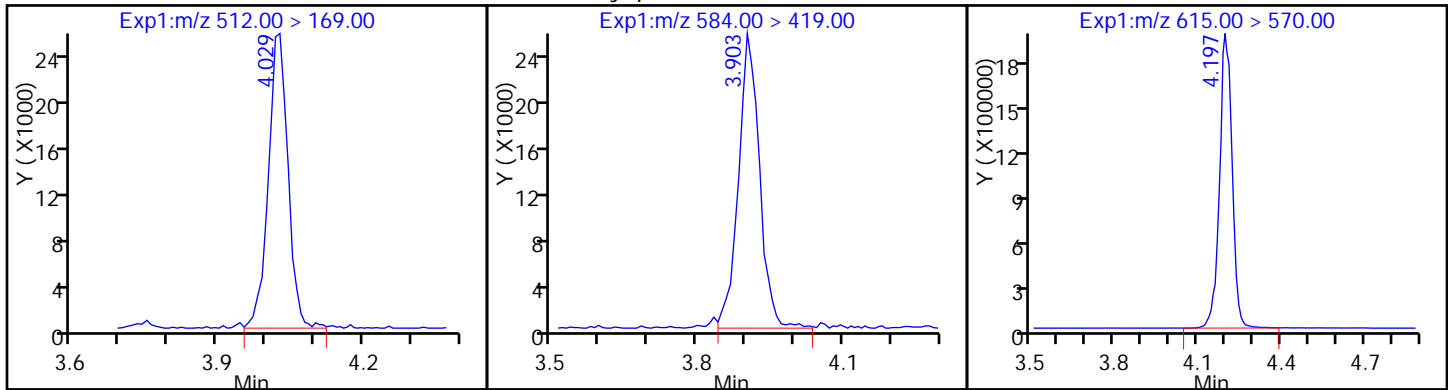
D 21 13C8 FOSA





35 MeFOSA

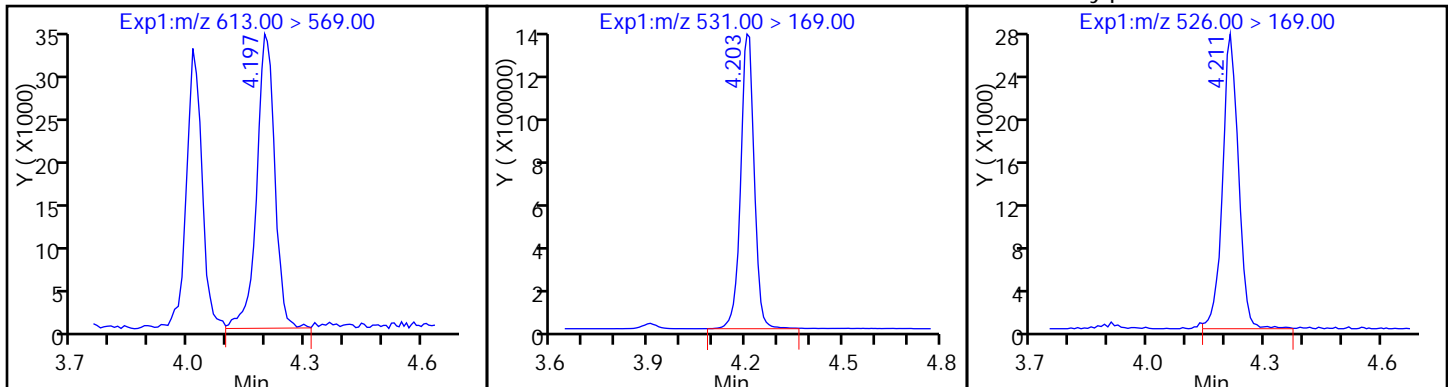
33 N-ethyl perfluorooctane sulfonamid D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

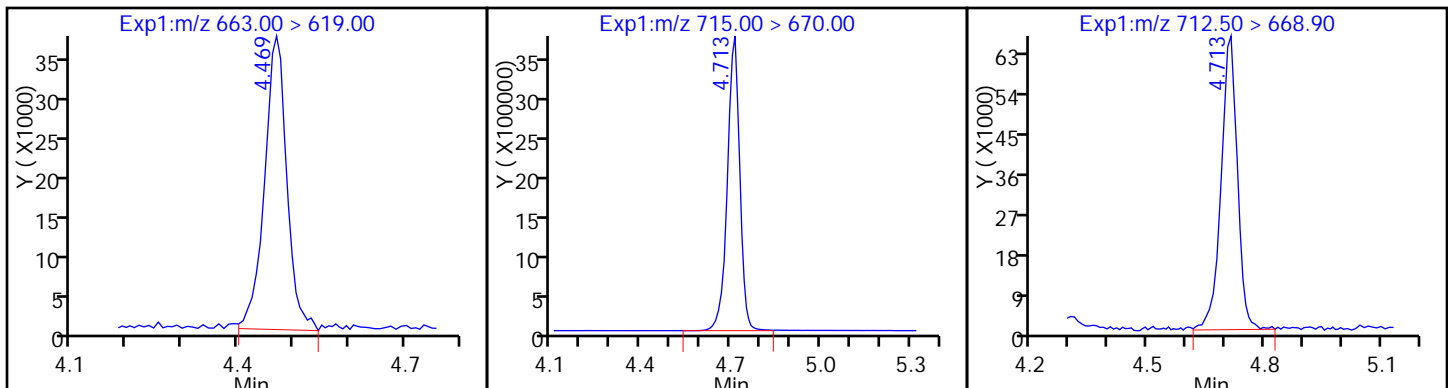
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

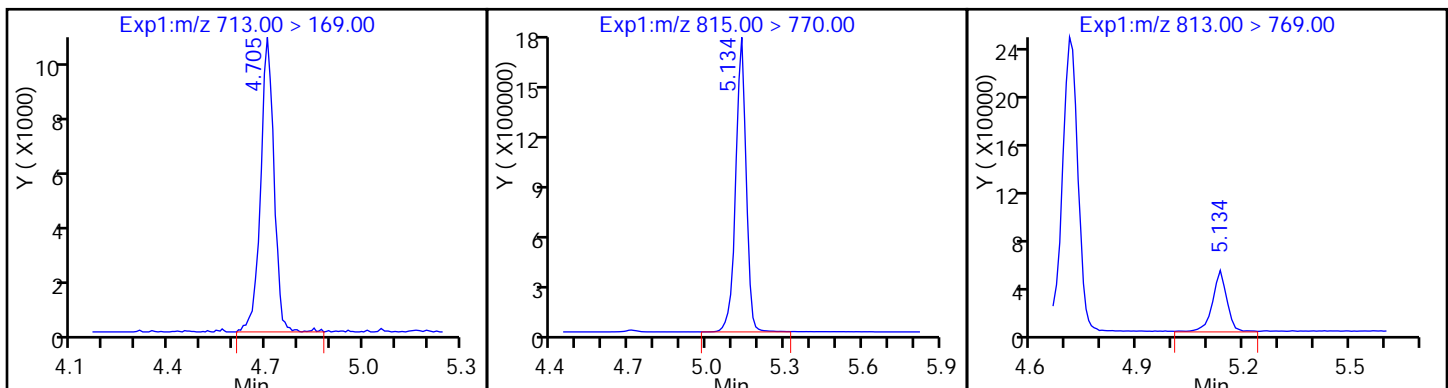
42 Perfluorotetradecanoic acid



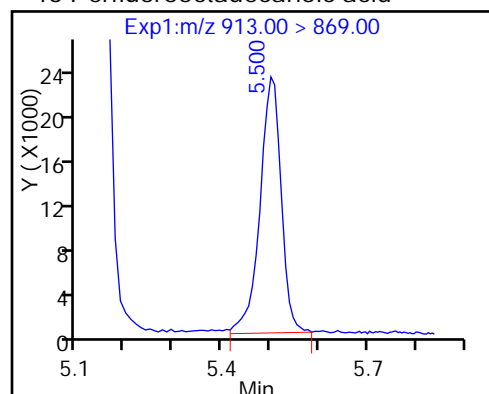
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

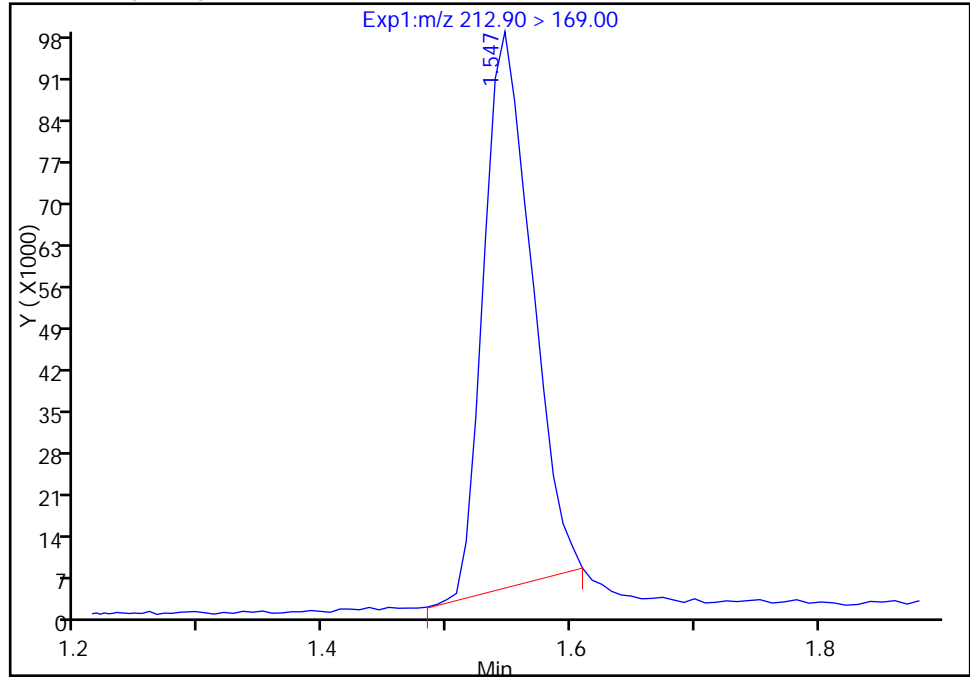
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d
Injection Date: 13-Mar-2017 11:39:35 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

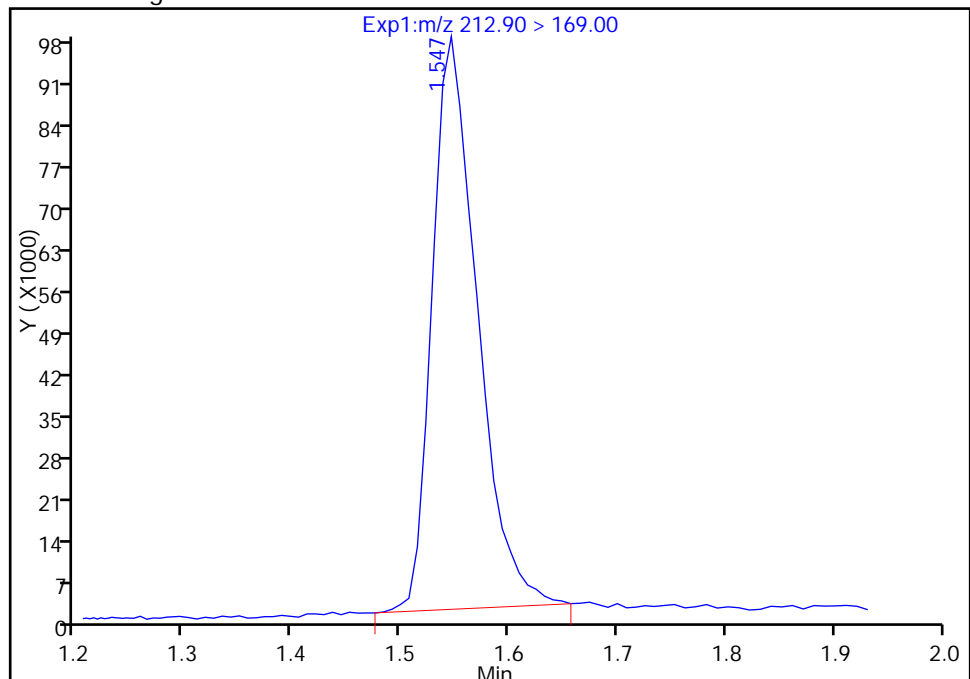
RT: 1.55
Area: 252857
Amount: 0.913725
Amount Units: ng/ml

Processing Integration Results



RT: 1.55
Area: 279192
Amount: 1.008889
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 11:30:33

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154808/1 Calibration Date: 03/13/2017 15:52

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: 2017.03.13A_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	0.8573		20.2	20.0	1.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9223		18.9	20.0	-5.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.452		17.9	17.7	1.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8593		19.3	20.0	-3.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9153		18.9	20.0	-5.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9848		17.4	18.2	-4.2	25.0
6:2FTS	L2ID		0.9178		19.5	19.0	2.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9625		18.8	20.0	-5.8	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.054		19.5	19.0	2.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.8881		19.6	20.0	-1.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9457		17.8	18.6	-3.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8895		19.8	20.0	-1.0	25.0
8:2FTS	L2ID		0.9690		20.0	19.2	4.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8672		19.2	20.0	-4.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9596		19.8	20.0	-1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5634		18.2	19.3	-5.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8917		19.6	20.0	-2.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.8939		17.6	20.0	-11.8	25.0
MeFOSA	AveID	0.9355	0.9131		19.5	20.0	-2.4	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8853		19.4	20.0	-3.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9685		19.7	20.0	-1.5	25.0
Perfluorotridecanoic Acid (PFTrIA)	AveID	0.8734	0.8280		19.0	20.0	-5.2	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.728		17.6	20.0	-12.1	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8497		18.0	20.0	-10.2	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7396		20.6	20.0	3.1	25.0
13C4 PFBA	Ave	292242	299687		51.3	50.0	2.5	50.0
13C5-PFPeA	Ave	232192	240425		51.8	50.0	3.5	50.0
13C2 PFHxA	Ave	210884	216109		51.2	50.0	2.5	50.0
13C4-PFHpA	Ave	192959	197698		51.2	50.0	2.5	50.0
18O2 PFHxS	Ave	290899	292253		47.5	47.3	0.5	50.0
M2-6:2FTS	Ave	77178	77787		47.9	47.5	0.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154808/1 Calibration Date: 03/13/2017 15:52
 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: 2017.03.13A_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	205731		50.2	50.0	0.4	50.0
13C4 PFOS	Ave	241637	241999		47.9	47.8	0.1	50.0
13C5 PFNA	Ave	177866	181174		50.9	50.0	1.9	50.0
13C8 FOSA	Ave	366918	371236		50.6	50.0	1.2	50.0
M2-8:2FTS	Ave	92602	90448		46.8	47.9	-2.3	50.0
13C2 PFDA	Ave	166704	159218		47.8	50.0	-4.5	50.0
d3-NMeFOSAA	Ave	85186	81856		48.0	50.0	-3.9	50.0
d5-NEtFOSAA	Ave	81371	81460		50.1	50.0	0.1	50.0
13C2 PFUnA	Ave	130805	124332		47.5	50.0	-4.9	50.0
d-N-MeFOSA-M	Ave	87983	83339		47.4	50.0	-5.3	50.0
13C2 PFDoA	Ave	123944	112461		45.4	50.0	-9.3	50.0
d-N-EtFOSA-M	Ave	85249	77687		45.6	50.0	-8.9	50.0
13C2-PFTeDA	Ave	259165	232504		44.9	50.0	-10.3	50.0
13C2-PFHxDA	Ave	125061	116691		46.7	50.0	-6.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_037.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 13-Mar-2017 15:52:37 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\20170314-40808.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 13:29:30 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: XAWRK019

First Level Reviewer: westendorfc

Date: 14-Mar-2017 12:54:08

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	1.538	1.538	0.0		14984351	51.3		103	958224	
2 Perfluorobutyric acid										
212.90 > 169.00	1.538	1.538	0.0	1.000	5138270	20.2		101	29156	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.822	0.0		12021229	51.8		104	720740	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	4435026	18.9		94.3	43101	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		289972	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	7502474	17.9		101		
298.90 > 99.00	1.861	1.861	0.0	1.000	3017401		2.49(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.114	0.0		10805439	51.2		102	475031	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.114	2.114	0.0	1.000	3713940	19.3		96.6	84231	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.461	2.461	0.0	1.000	3618893	18.9		94.6	60101	
D 9 13C4-PFHpA										
367.00 > 322.00	2.453	2.453	0.0		9884920	51.2		102	369166	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.469	2.469	0.0	1.000	5238045	17.4		95.8		
D 11 18O2 PFHxS										
403.00 > 84.00	2.469	2.469	0.0		13823553	47.5		100	348177	
D 12 M2-6:2FTS										
429.00 > 409.00	2.788	2.788	0.0		3694881	47.9		101		

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	2.796	2.796	0.0	1.000	1353562	19.5	103	
D 14 13C4 PFOA	417.00	> 372.00	2.819	2.819	0.0		10286559	50.2	100	292725
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	2.827	2.827	0.0	1.000	4854413	19.5	102	
15 Perfluorooctanoic acid	413.00	> 369.00	2.819	2.819	0.0	1.000	3960427	18.8	94.2	62611
	413.00	> 169.00	2.819	2.819	0.0	1.000	2308507	1.72(0.90-1.10)		74927
D 18 13C4 PFOS	503.00	> 80.00	3.185	3.185	0.0		11567566	47.9	100	242932
20 Perfluorononanoic acid	463.00	> 419.00	3.194	3.194	0.0	1.000	3218143	19.6	98.2	77770
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.194	3.194	0.0	1.000	4247631	17.8	96.2	353019 M
	499.00	> 99.00	3.194	3.194	0.0	1.000	974159	4.36(0.90-1.10)		270697
D 19 13C5 PFNA	468.00	> 423.00	3.194	3.194	0.0		9058709	50.9	102	193806
D 21 13C8 FOSA	506.00	> 78.00	3.520	3.520	0.0		18561780	50.6	101	405320
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.528	3.528	0.0	1.000	6604194	19.8	99.0	219525
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	3.536	3.536	0.0	0.998	1679267	20.0	104	
D 26 M2-8:2FTS	529.00	> 509.00	3.545	3.545	0.0		4332479	46.8	97.7	M M
24 Perfluorodecanoic acid	513.00	> 469.00	3.553	3.553	0.0	1.000	2761607	19.2	95.8	97703
D 23 13C2 PFDA	515.00	> 470.00	3.553	3.553	0.0		7960902	47.8	95.5	143763
D 27 d3-NMeFOSAA	573.00	> 419.00	3.704	3.704	0.0		4092792	48.0	96.1	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.704	3.704	0.0	1.000	1570991	19.8	98.8	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	3.857	3.857	0.0	1.000	2628753	18.2	94.6	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.866	3.866	0.0		4073018	50.1	100	
31 Perfluoroundecanoic acid	563.00	> 519.00	3.875	3.875	0.0	1.000	2222841	17.6	88.2	58948
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	3.875	3.875	0.0	1.002	1452697	19.6	98.0	
D 30 13C2 PFUnA	565.00	> 520.00	3.875	3.875	0.0		6216619	47.5	95.1	214621
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.009	4.009	0.0		4166966	47.4	94.7	
35 MeFOSA	512.00	> 169.00	4.019	4.019	0.0	1.000	1521901	19.5	97.6	

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	4.157	4.157	0.0	1.000	1991275	19.4	96.8	15637	
D 36 13C2 PFDaA	615.00 > 570.00	4.157	4.157	0.0		5623053	45.4	90.7	178362	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.193	4.193	0.0		3884326	45.6	91.1		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.199	4.199	0.0	1.000	1504823	19.7	98.5		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.431	4.431	0.0	1.000	1862340	19.0	94.8	44086	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.664	4.664	0.0	1.000	3886827	17.6	87.9	40864	
	713.00 > 169.00	4.664	4.664	0.0	1.000	568627	6.84(0.00-0.00)		97360	
D 43 13C2-PFTeDA	715.00 > 670.00	4.664	4.664	0.0		11625184	44.9	89.7	351961	
D 44 13C2-PFHxDA	815.00 > 770.00	5.072	5.072	0.0		5834570	46.7	93.3	89817	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.083	5.083	0.0	1.000	1911163	18.0	89.8	1711	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.439	5.439	0.0	1.000	1663583	20.6	103	1632	

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\20170314-40808.b\2017.03.13A_037.d

Injection Date: 13-Mar-2017 15:52:37

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

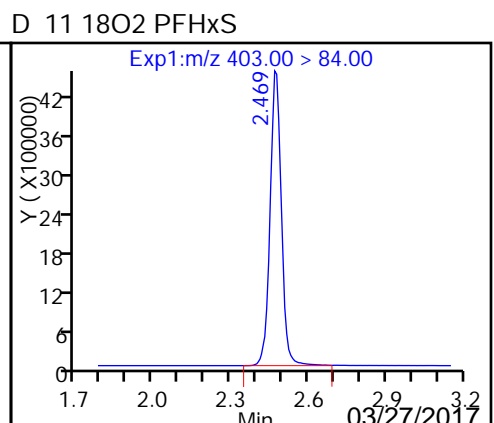
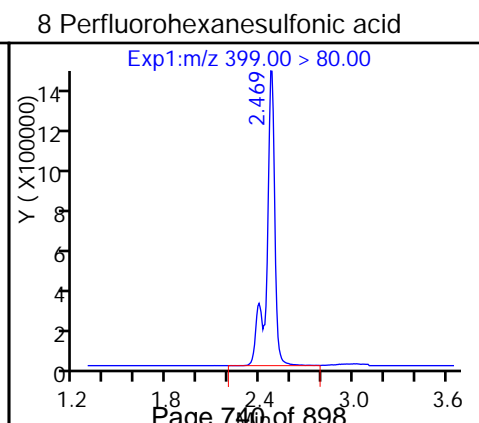
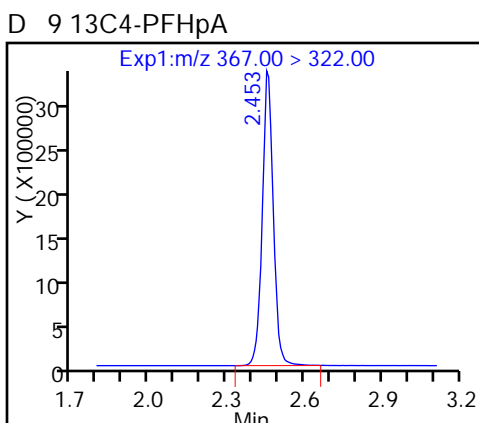
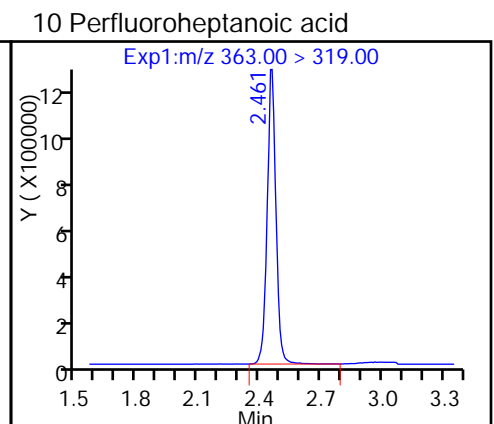
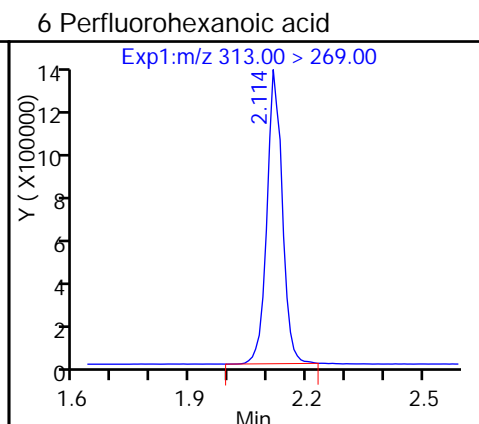
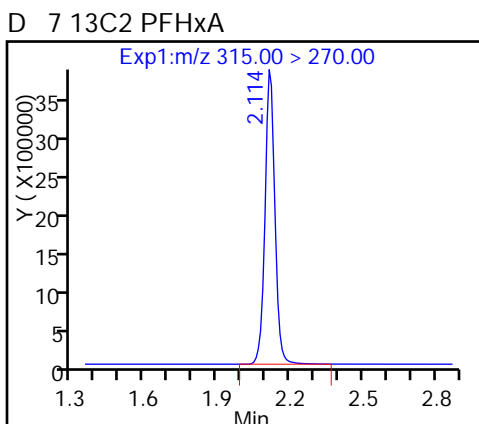
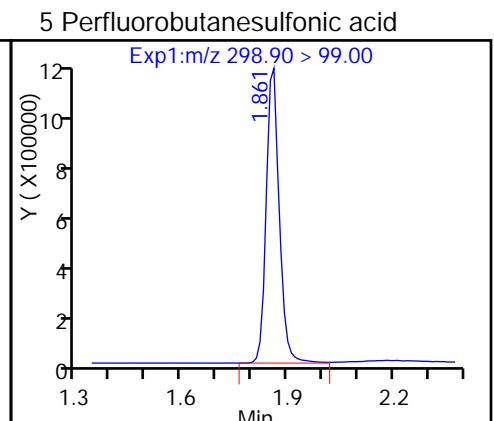
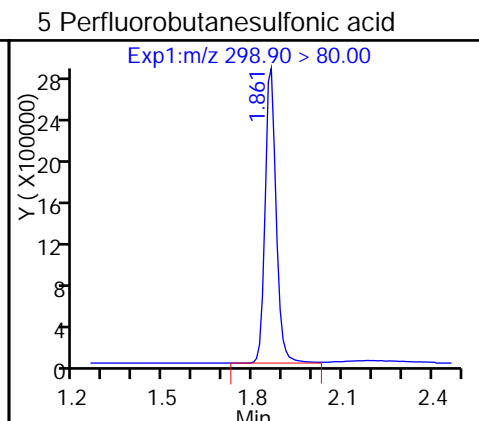
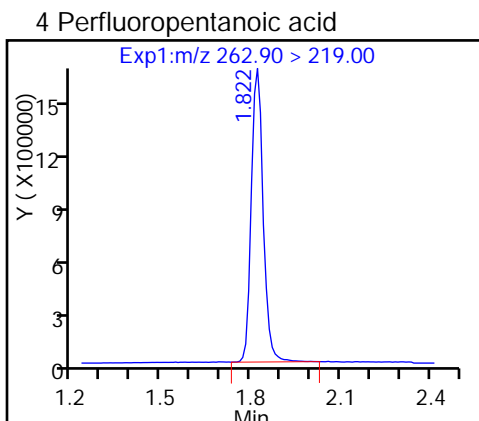
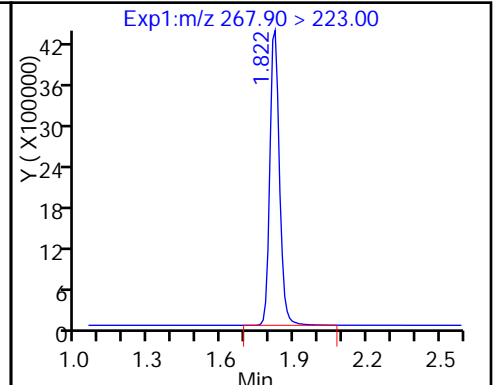
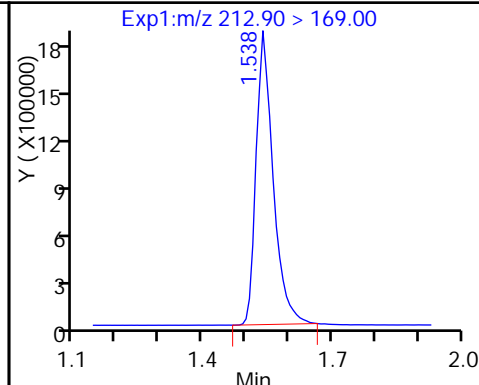
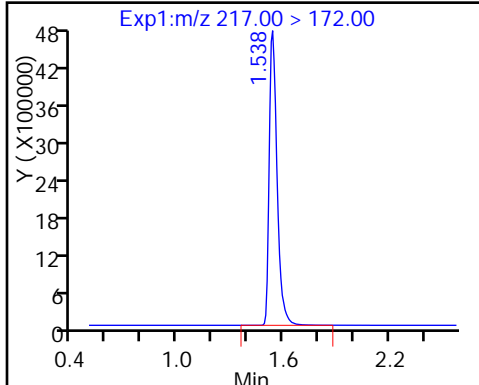
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

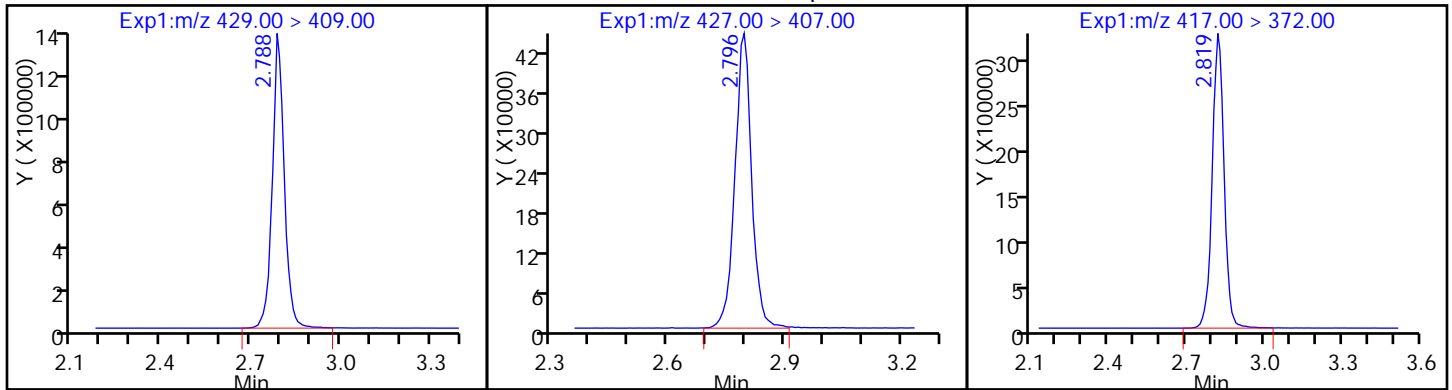
D 3 13C5-PFPeA



D 12 M2-6:2FTS

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

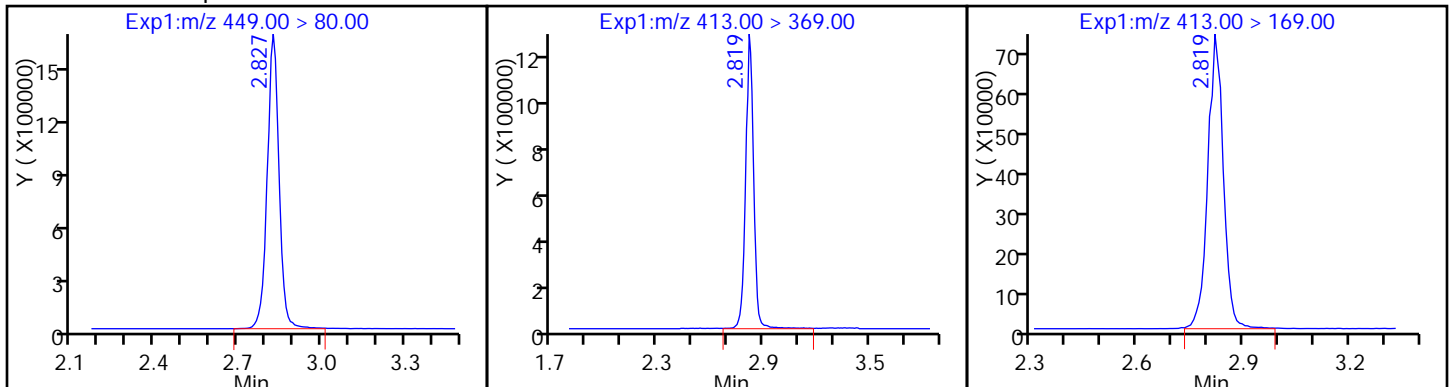
D 14 13C4 PFOA



16 Perfluoroheptanesulfonic Acid

15 Perfluorooctanoic acid

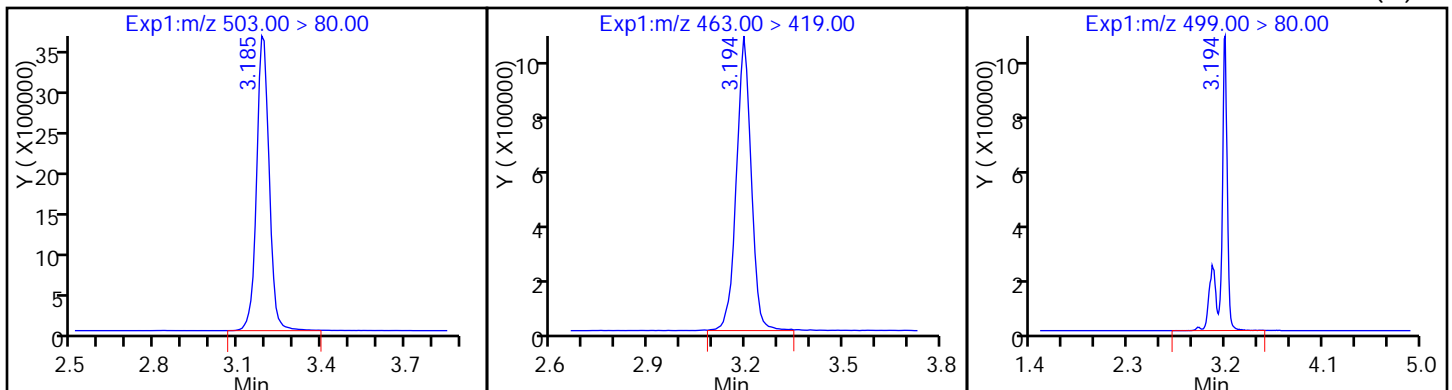
15 Perfluorooctanoic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

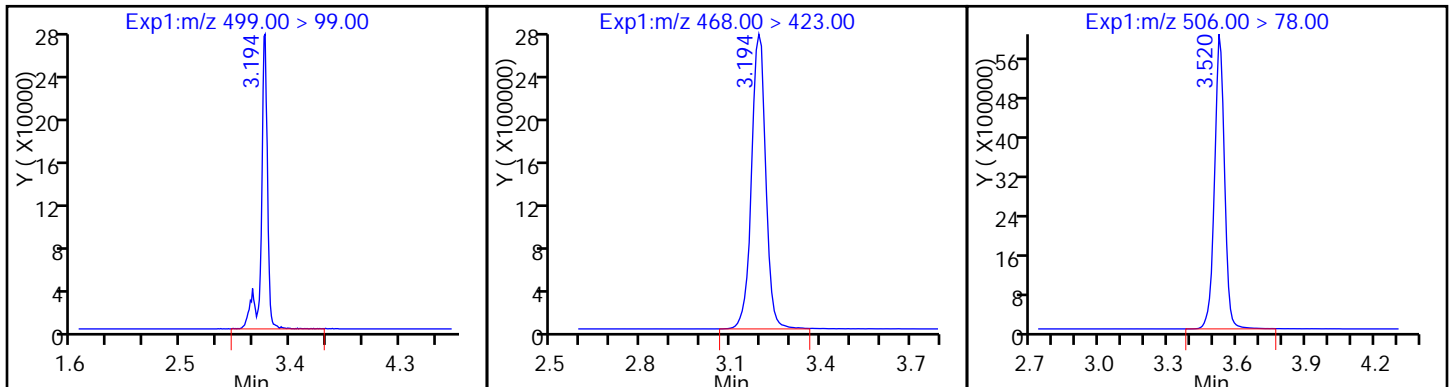
17 Perfluorooctane sulfonic acid (M)



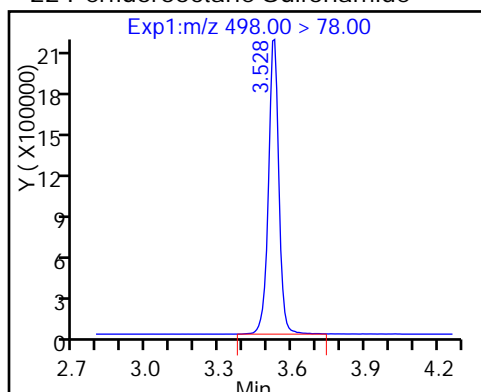
17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

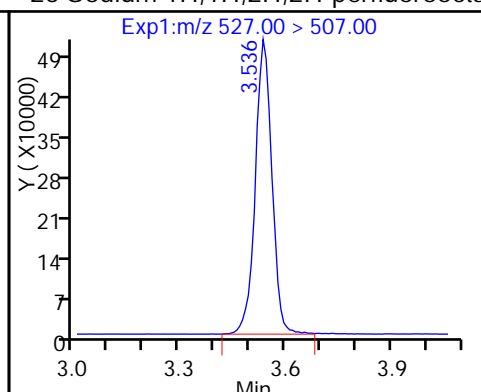
D 21 13C8 FOSA



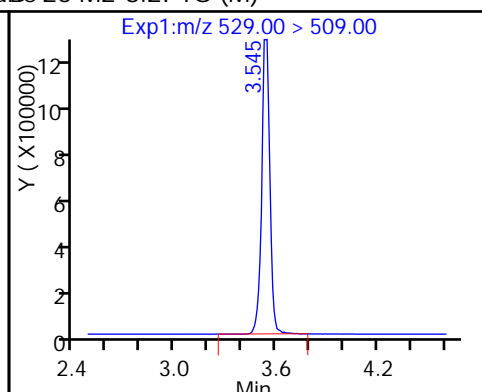
22 Perfluorooctane Sulfonamide



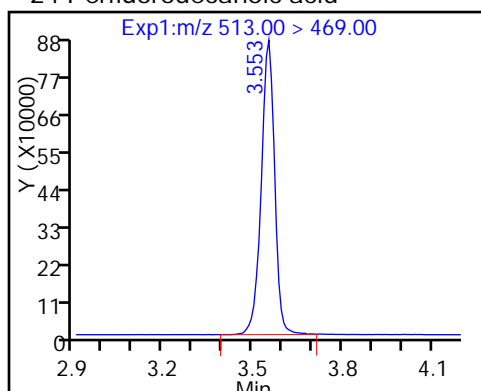
25 Sodium 1H,1H,2H,2H-perfluorooctane



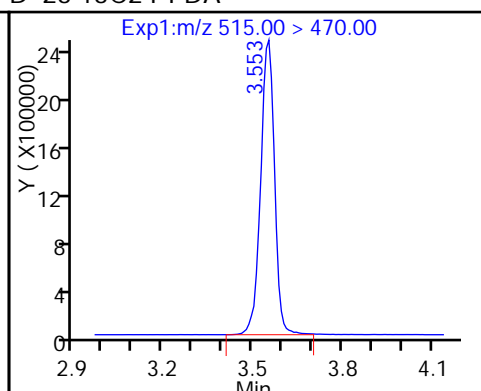
D 26 M2-8:2FTS (M)



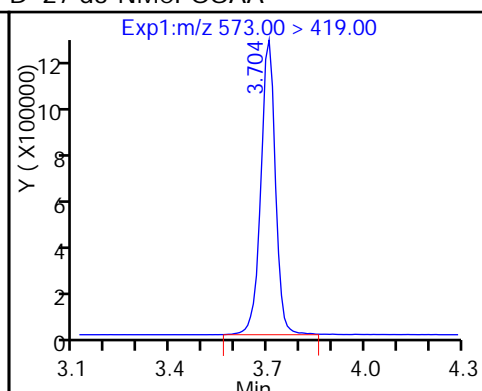
24 Perfluorodecanoic acid



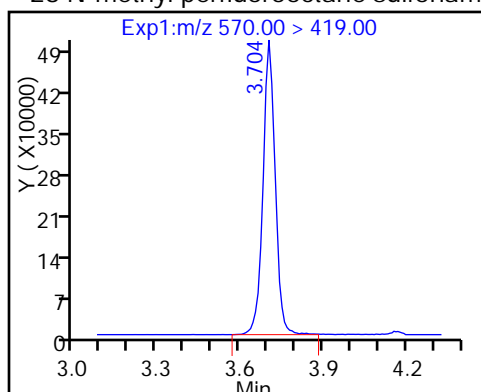
D 23 13C2 PFDA



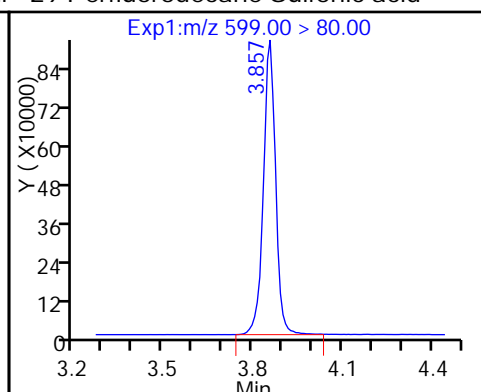
D 27 d3-NMeFOSAA



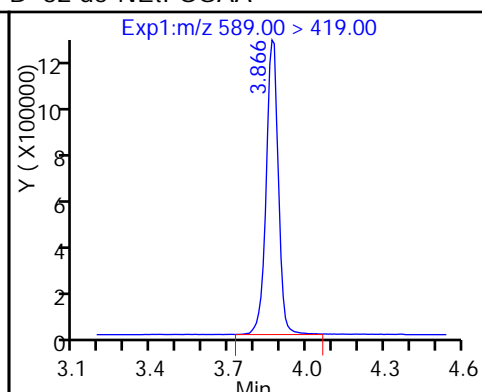
28 N-methyl perfluorooctane sulfonamid



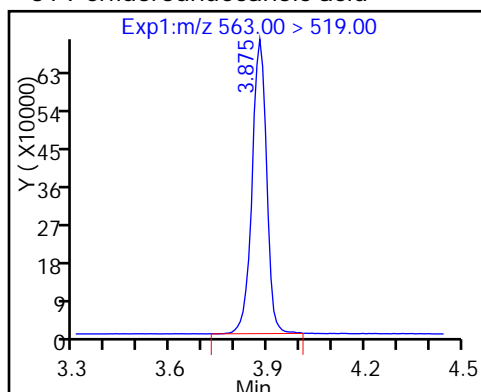
29 Perfluorodecane Sulfonic acid



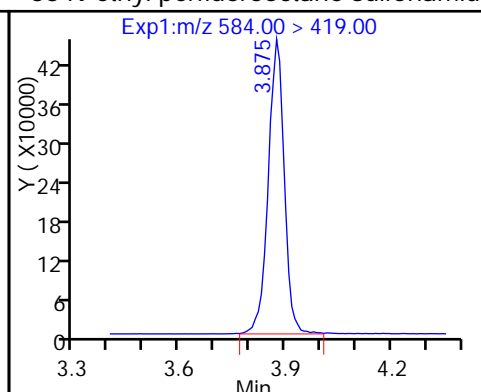
D 32 d5-NEtFOSAA



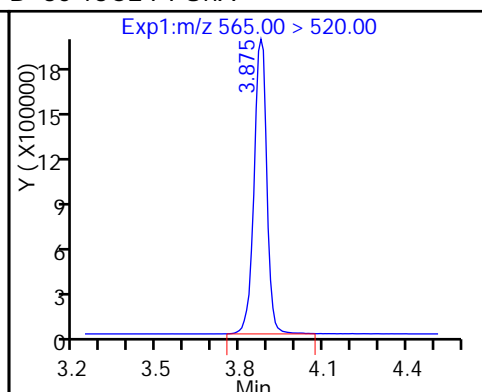
31 Perfluoroundecanoic acid



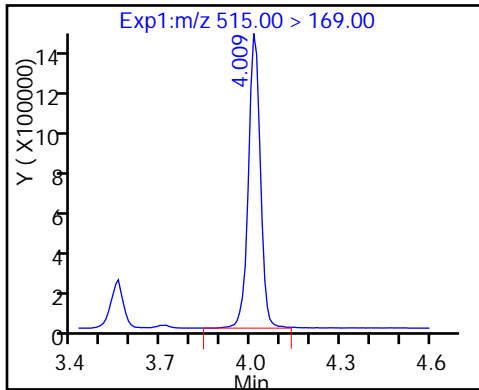
33 N-ethyl perfluorooctane sulfonamid



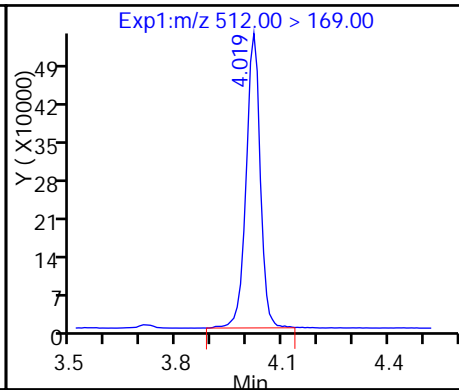
D 30 13C2 PFUnA



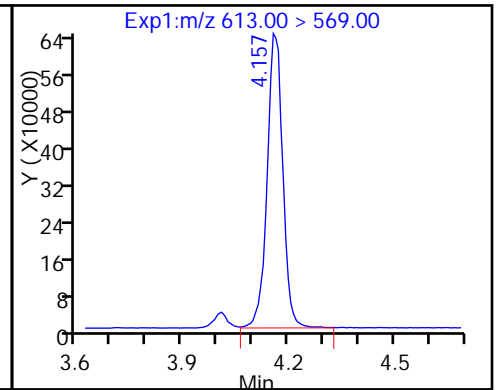
D 34 d-N-MeFOSA-M



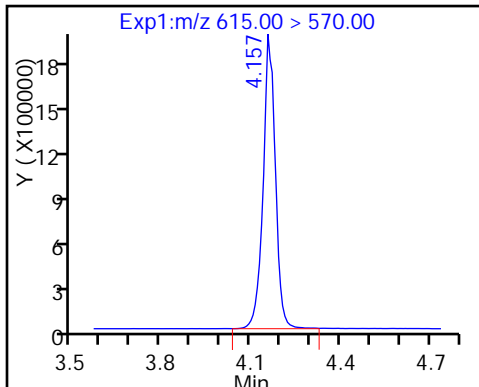
35 MeFOSA



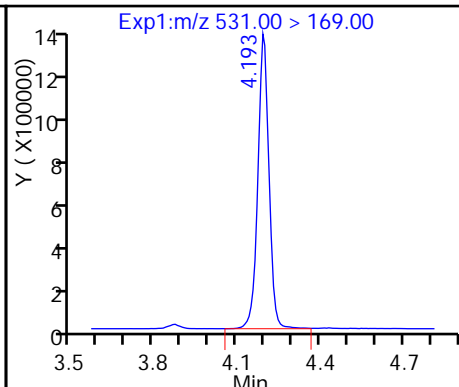
37 Perfluorododecanoic acid



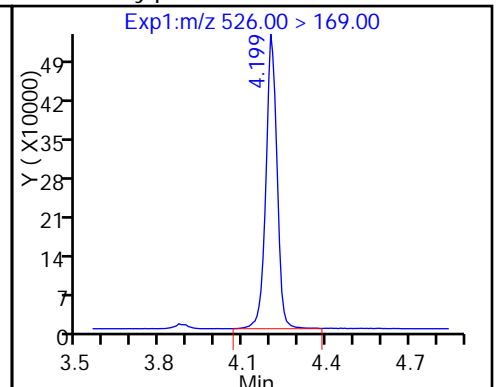
D 36 13C2 PFDaA



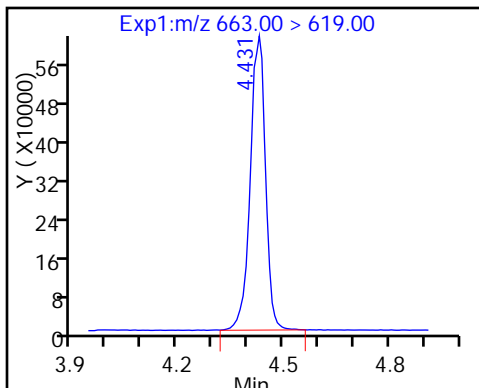
D 38 d-N-EtFOSA-M



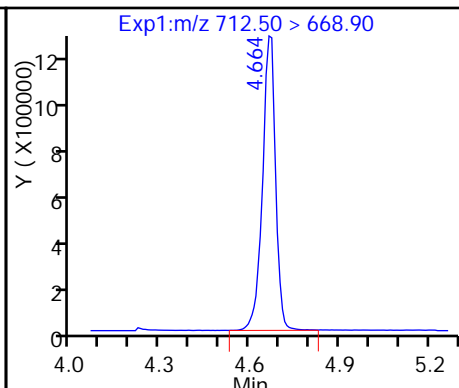
39 N-ethylperfluoro-1-octanesulfonami



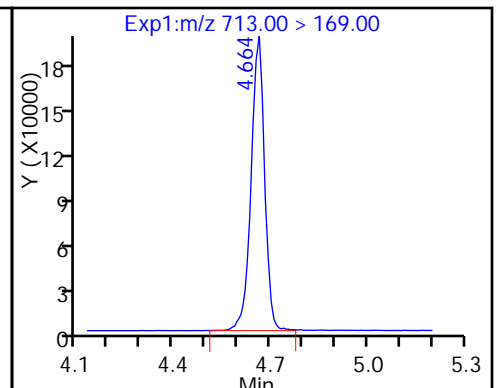
41 Perfluorotridecanoic acid



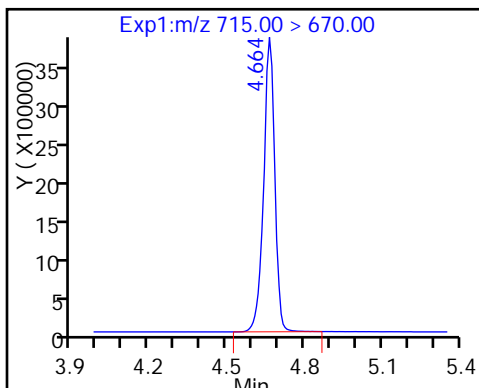
42 Perfluorotetradecanoic acid



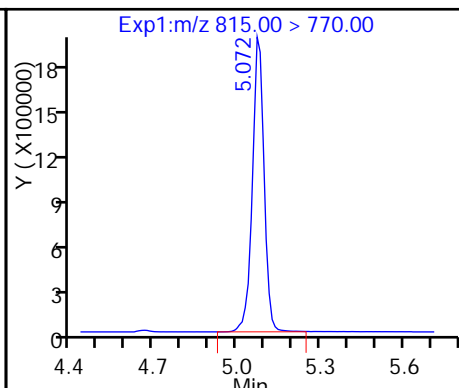
42 Perfluorotetradecanoic acid



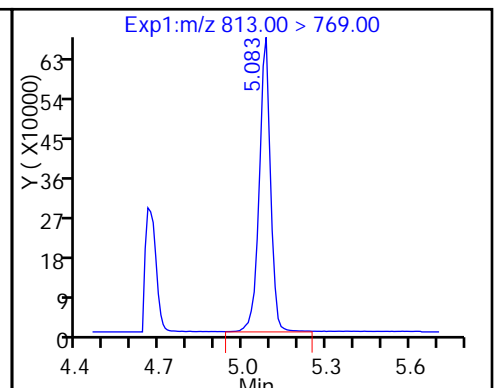
D 43 13C2-PFTeDA



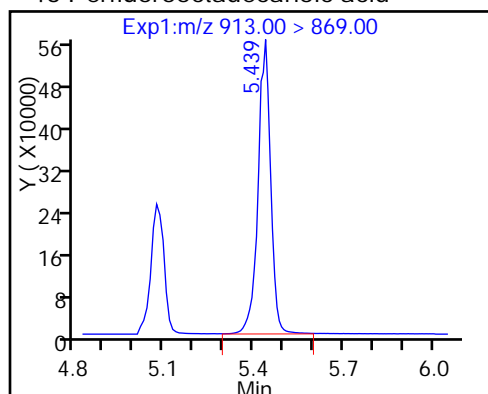
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

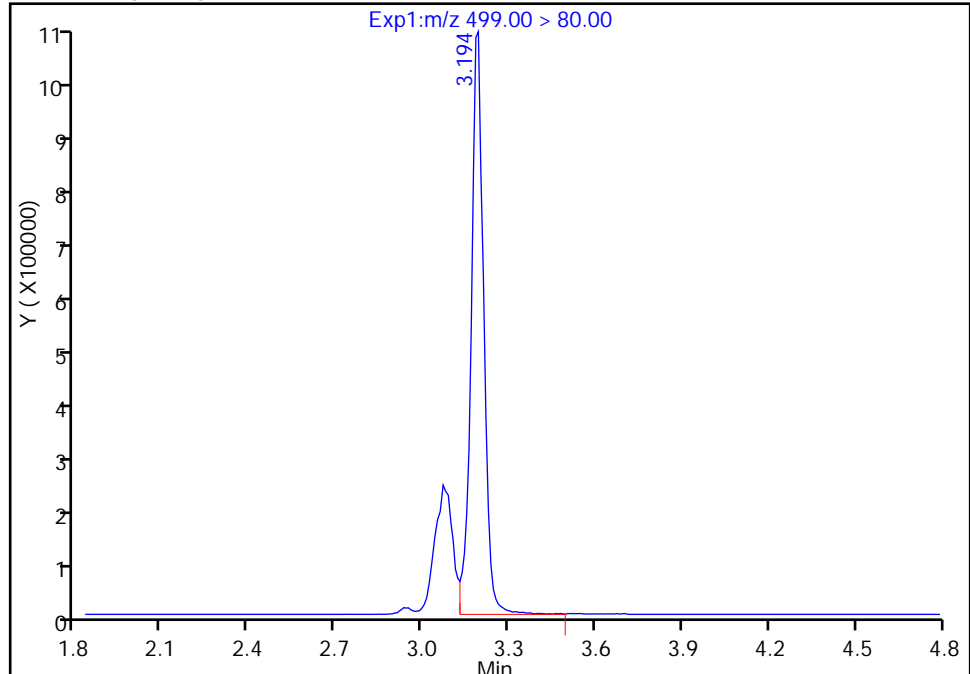
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_037.d
Injection Date: 13-Mar-2017 15:52:37 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

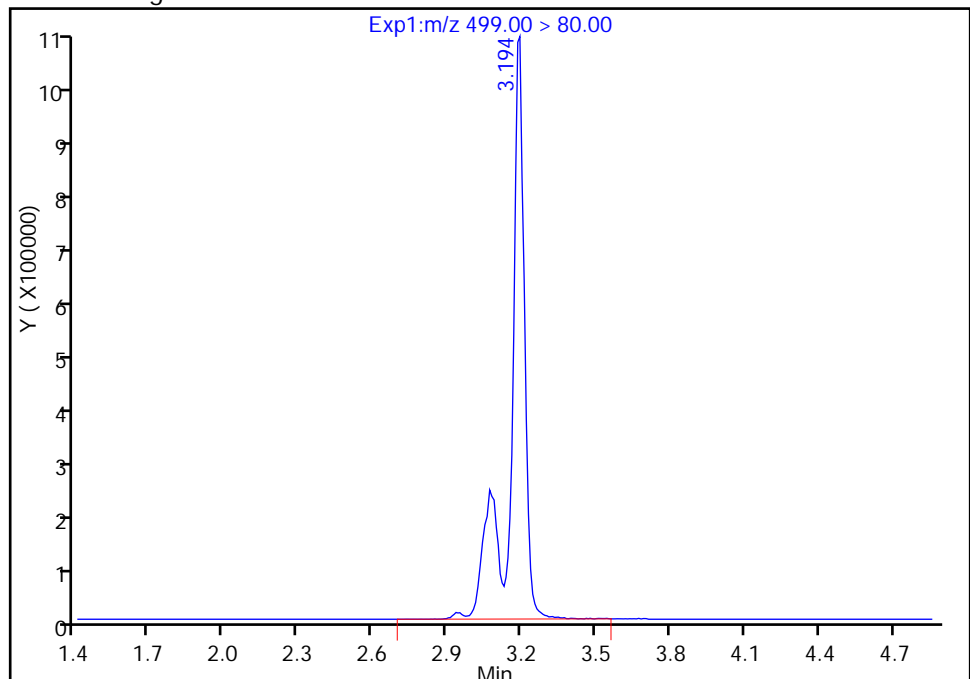
RT: 3.19
Area: 3211048
Amount: 13.491684
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 4247631
Amount: 17.847038
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:29:29

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

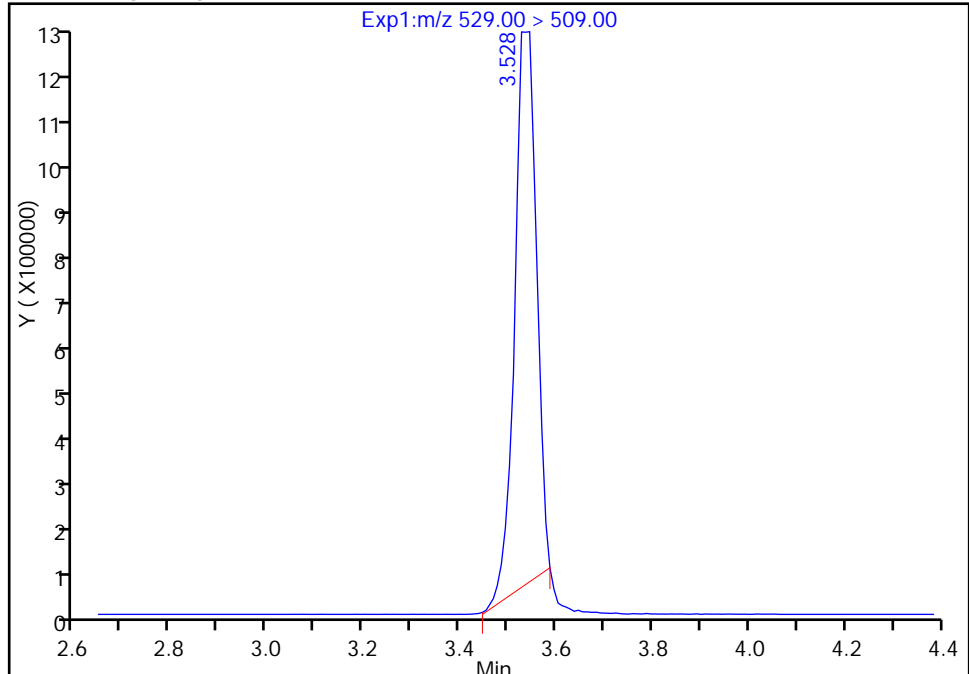
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_037.d
Injection Date: 13-Mar-2017 15:52:37 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 26 M2-8:2FTS, CAS: STL02280

Signal: 1

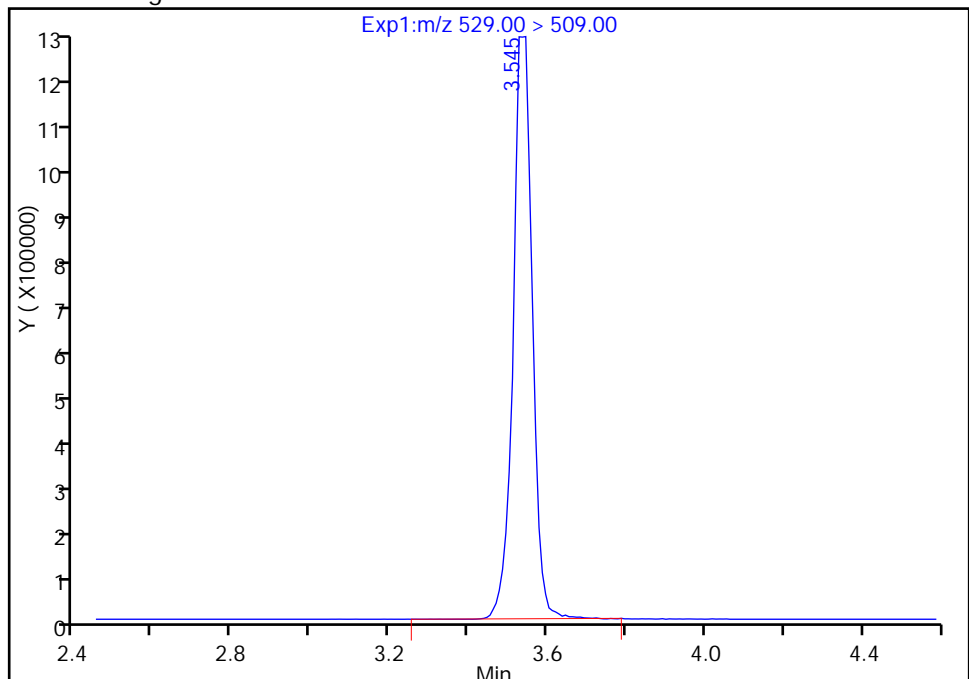
RT: 3.53
Area: 3811322
Amount: 41.158102
Amount Units: ng/ml

Processing Integration Results



RT: 3.54
Area: 4332479
Amount: 46.786026
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:29:29

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Lab Sample ID: CCV 320-154808/11 Calibration Date: 03/13/2017 17:08

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: 2017.03.13A_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	0.8967		52.9	50.0	5.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.998		51.0	50.0	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.489		45.9	44.2	3.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9279		52.2	50.0	4.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9870		51.0	50.0	2.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.028		45.5	45.5	-0.0	25.0
6:2FTS	L2ID		0.8949		47.7	47.4	0.7	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.029		50.4	50.0	0.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.115		51.5	47.6	8.1	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9486		52.5	50.0	4.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.027		48.4	46.4	4.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9415		52.4	50.0	4.8	25.0
8:2FTS	L2ID		0.9577		49.6	47.9	3.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9479		52.3	50.0	4.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9228		47.5	50.0	-5.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6391		51.7	48.2	7.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8738		48.0	50.0	-4.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9661		47.7	50.0	-4.7	25.0
MeFOSA	AveID	0.9355	0.8926		47.7	50.0	-4.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9321		51.0	50.0	1.9	25.0
N-EtFOSA-M	AveID	0.9837	0.9417		47.9	50.0	-4.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9371		53.6	50.0	7.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.723		43.8	50.0	-12.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9678		51.8	50.0	3.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7574		52.8	50.0	5.6	25.0
13C4 PFBA	Ave	292242	309050		52.9	50.0	5.8	50.0
13C5-PFPeA	Ave	232192	242148		52.1	50.0	4.3	50.0
13C2 PFHxA	Ave	210884	228784		54.2	50.0	8.5	50.0
13C4-PFHpA	Ave	192959	203194		52.7	50.0	5.3	50.0
18O2 PFHxS	Ave	290899	314947		51.2	47.3	8.3	50.0
M2-6:2FTS	Ave	77178	104880		64.5	47.5	35.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154808/11 Calibration Date: 03/13/2017 17:08
 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: 2017.03.13A_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	202929		49.5	50.0	-1.0	50.0
13C4 PFOS	Ave	241637	246892		48.8	47.8	2.2	50.0
13C5 PFNA	Ave	177866	169387		47.6	50.0	-4.8	50.0
13C8 FOSA	Ave	366918	366578		50.0	50.0	-0.0	50.0
M2-8:2FTS	Ave	92602	91736		47.5	47.9	-0.9	50.0
13C2 PFDA	Ave	166704	150691		45.2	50.0	-9.6	50.0
d3-NMeFOSAA	Ave	85186	69595		40.8	50.0	-18.3	50.0
13C2 PFUnA	Ave	130805	113904		43.5	50.0	-12.9	50.0
d5-NEtFOSAA	Ave	81371	63787		39.2	50.0	-21.6	50.0
d-N-MeFOSA-M	Ave	87983	88104		50.1	50.0	0.1	50.0
13C2 PFDoA	Ave	123944	108874		43.9	50.0	-12.2	50.0
d-N-EtFOSA-M	Ave	85249	79850		46.8	50.0	-6.3	50.0
13C2-PFTEdA	Ave	259165	218344		42.1	50.0	-15.8	50.0
13C2-PFHxDA	Ave	125061	122229		48.9	50.0	-2.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 13-Mar-2017 17:08:37 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\20170314-40808.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Mar-2017 13:30:27 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: XAWRK019

First Level Reviewer: westendorfc

Date: 14-Mar-2017 13:25:50

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	1.540	1.540	0.0		15452482	52.9		106	997450	
2 Perfluorobutyric acid										
212.90 > 169.00	1.548	1.548	0.0	1.000	13856752	52.9		106	97933	
D 3 13C5-PFPeA										
267.90 > 223.00	1.824	1.824	0.0		12107401	52.1		104	726281	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.824	1.824	0.0	1.000	12083263	51.0		102	116539	
D 47 13C3-PFBS										
301.90 > 83.00	1.853	1.853	0.0		318338	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.863	1.863	0.0	1.000	20722636	45.9		104		
298.90 > 99.00	1.863	1.863	0.0	1.000	8992401		2.30(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.114	0.0		11439211	54.2		108	542139	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.123	2.123	0.0	1.000	10614390	52.2		104	271358	
D 9 13C4-PFHpA										
367.00 > 322.00	2.464	2.464	0.0		10159685	52.7		105	395765	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.456	2.456	0.0	1.000	10027949	51.0		102	98011	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.480	2.480	0.0	1.000	14735744	45.5		100.0		
D 11 18O2 PFHxS										
403.00 > 84.00	2.480	2.480	0.0		14896982	51.2		108	480567	
D 12 M2-6:2FTS										
429.00 > 409.00	2.799	2.799	0.0		4981801	64.5		136		

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	2.799	2.799	0.0	1.000	4449007	47.7	101	
D 14 13C4 PFOA	417.00	> 372.00	2.822	2.822	0.0		10146464	49.5	99.0	304384
15 Perfluorooctanoic acid	413.00	> 369.00	2.822	2.822	0.0	1.000	10443097	50.4	101	153416
	413.00	> 169.00	2.822	2.822	0.0	1.000	6214376	1.68(0.90-1.10)		147333
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	2.830	2.830	0.0	1.000	13102121	51.5	108	
D 18 13C4 PFOS	503.00	> 80.00	3.188	3.188	0.0		11801442	48.8	102	188222
20 Perfluorononanoic acid	463.00	> 419.00	3.197	3.197	0.0	1.000	8034156	52.5	105	129920
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.197	3.197	0.0	1.000	11759508	48.4	104	2766869 M
	499.00	> 99.00	3.197	3.197	0.0	1.000	2575871	4.57(0.90-1.10)		234407 M
D 19 13C5 PFNA	468.00	> 423.00	3.197	3.197	0.0		8469352	47.6	95.2	359482
D 21 13C8 FOSA	506.00	> 78.00	3.534	3.534	0.0		18328903	50.0	99.9	366408
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.534	3.534	0.0	1.000	17256464	52.4	105	386932
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	3.551	3.551	0.0	1.000	4208415	49.6	103	
D 26 M2-8:2FTS	529.00	> 509.00	3.551	3.551	0.0		4394164	47.5	99.1	
24 Perfluorodecanoic acid	513.00	> 469.00	3.559	3.559	0.0	1.000	7141579	52.3	105	258645
D 23 13C2 PFDA	515.00	> 470.00	3.559	3.559	0.0		7534536	45.2	90.4	190131
D 27 d3-NMeFOSAA	573.00	> 419.00	3.711	3.711	0.0		3479759	40.8	81.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.711	3.711	0.0	1.000	3211030	47.5	95.0	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	3.865	3.865	0.0	1.000	7605801	51.7	107	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.883	3.883	0.0		3189343	39.2	78.4	
31 Perfluoroundecanoic acid	563.00	> 519.00	3.883	3.883	0.0	1.000	5502307	47.7	95.3	97815
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	3.883	3.883	0.0	1.000	2786799	48.0	96.0	
D 30 13C2 PFUnA	565.00	> 520.00	3.883	3.883	0.0		5695179	43.5	87.1	205085
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.027	4.027	0.0		4405207	50.1	100	
35 MeFOSA	512.00	> 169.00	4.037	4.037	0.0	1.000	3932183	47.7	95.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00 > 569.00	4.175	4.175	0.0	1.000	5074326	51.0	102	54573	
D 36 13C2 PFDaA	615.00 > 570.00	4.175	4.175	0.0		5443717	43.9	87.8	136300	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.212	4.212	0.0		3992480	46.8	93.7		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.220	4.220	0.0	1.000	3759742	47.9	95.7		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.443	4.443	0.0	1.000	5101140	53.6	107	114258	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.670	4.670	0.0	1.000	9381591	43.8	87.6	41395	
	713.00 > 169.00	4.670	4.670	0.0	1.000	1483069	6.33(0.00-0.00)		163624	
D 43 13C2-PFTeDA	715.00 > 670.00	4.670	4.670	0.0		10917206	42.1	84.2	354469	
D 44 13C2-PFHxDA	815.00 > 770.00	5.079	5.079	0.0		6111460	48.9	97.7	107800	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.090	5.090	0.0	1.000	5268497	51.8	104	5197	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.444	5.444	0.0	1.000	4123073	52.8	106	5520	

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\20170314-40808.b\2017.03.13A_047.d

Injection Date: 13-Mar-2017 17:08:37

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

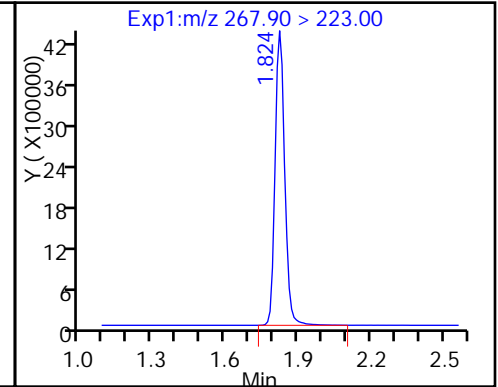
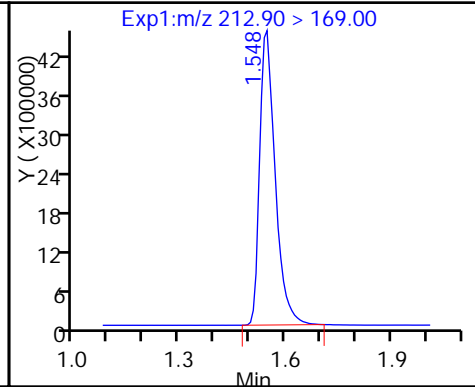
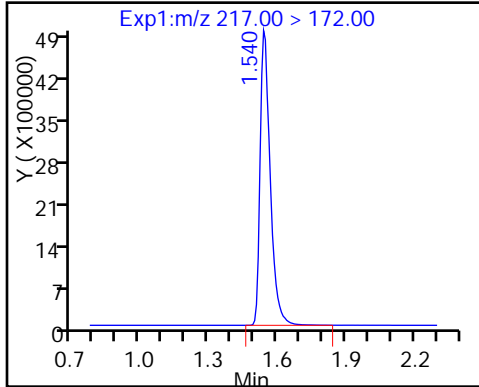
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

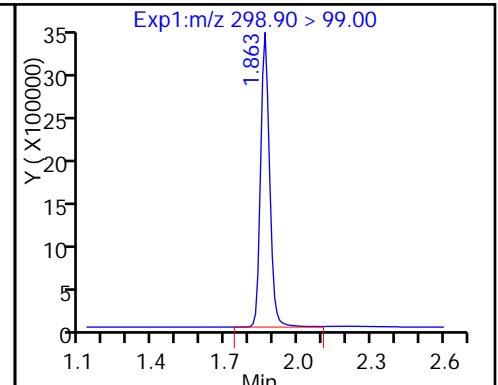
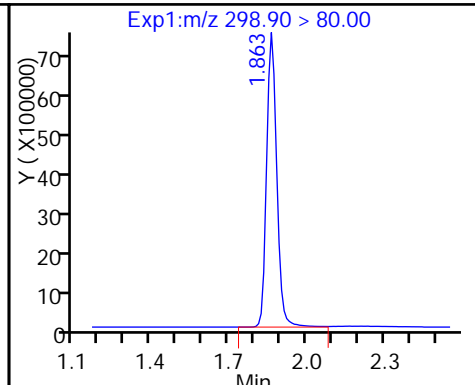
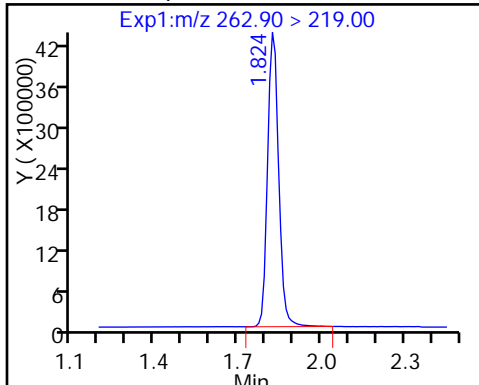
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

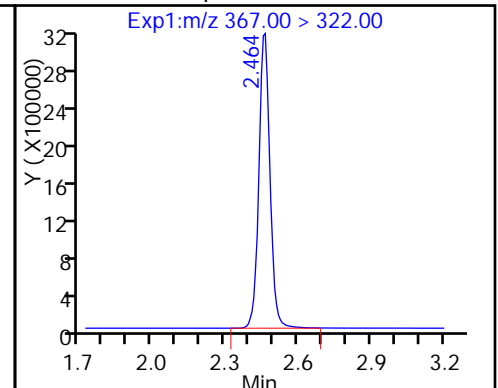
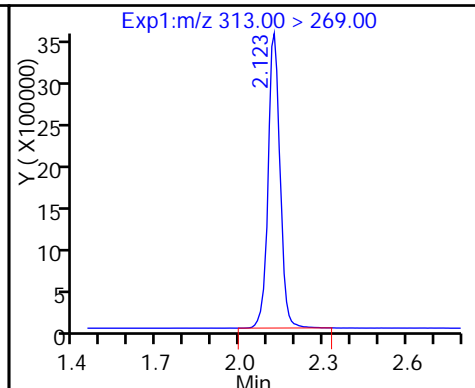
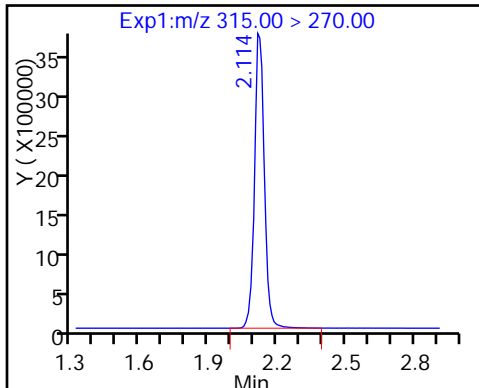
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

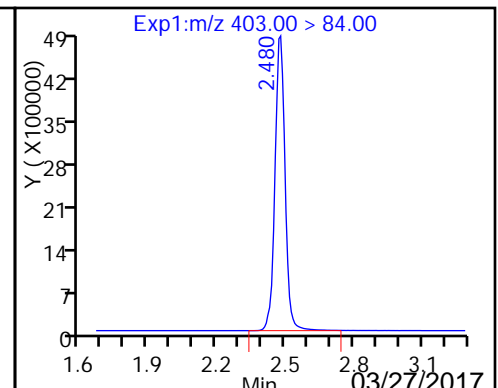
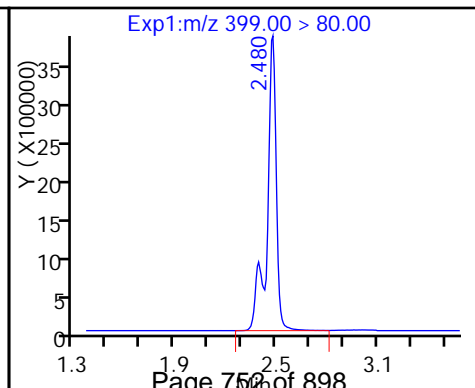
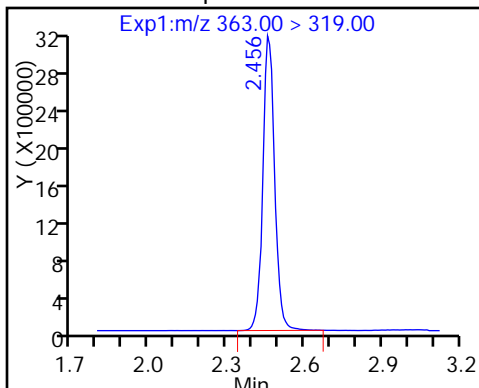
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

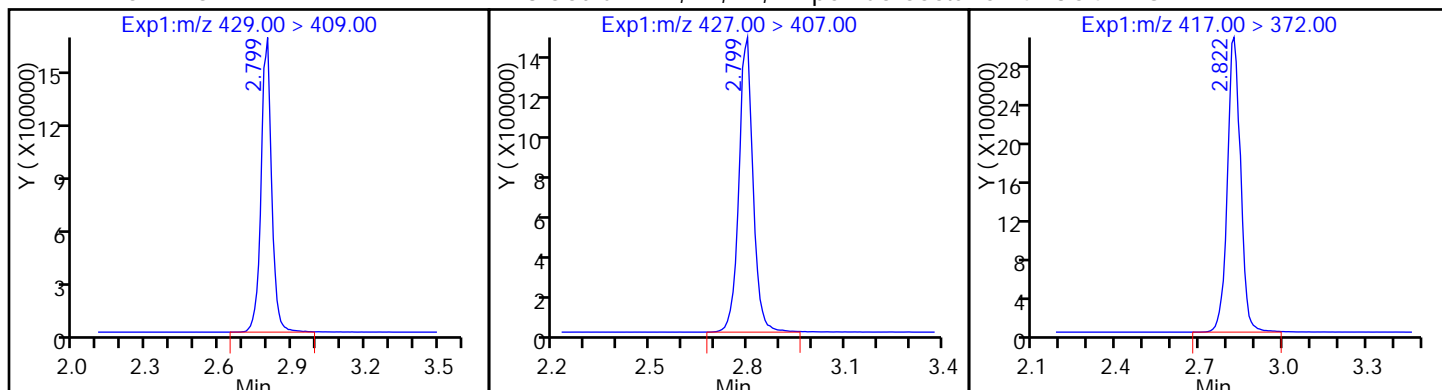
D 11 18O2 PFHxS



D 12 M2-6:2FTS

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

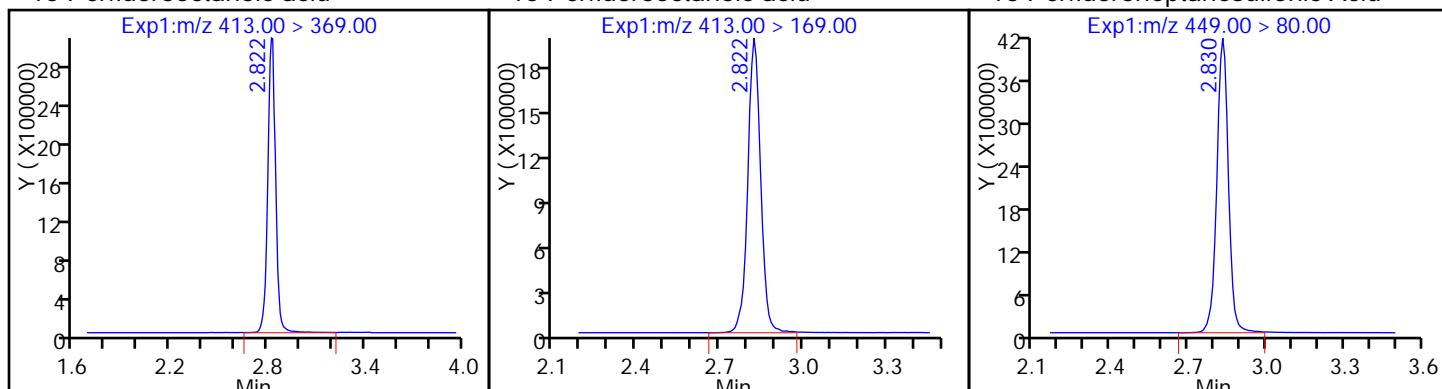
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

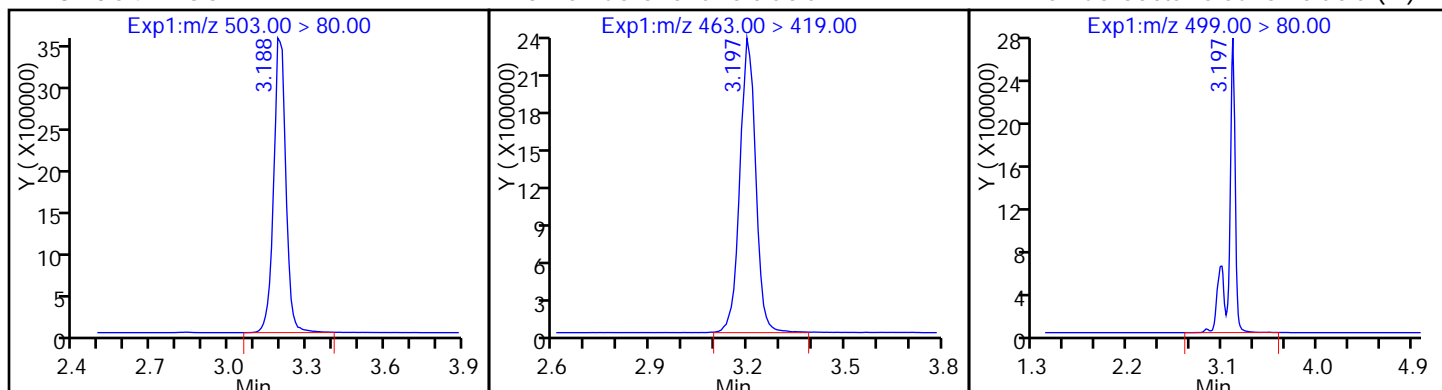
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

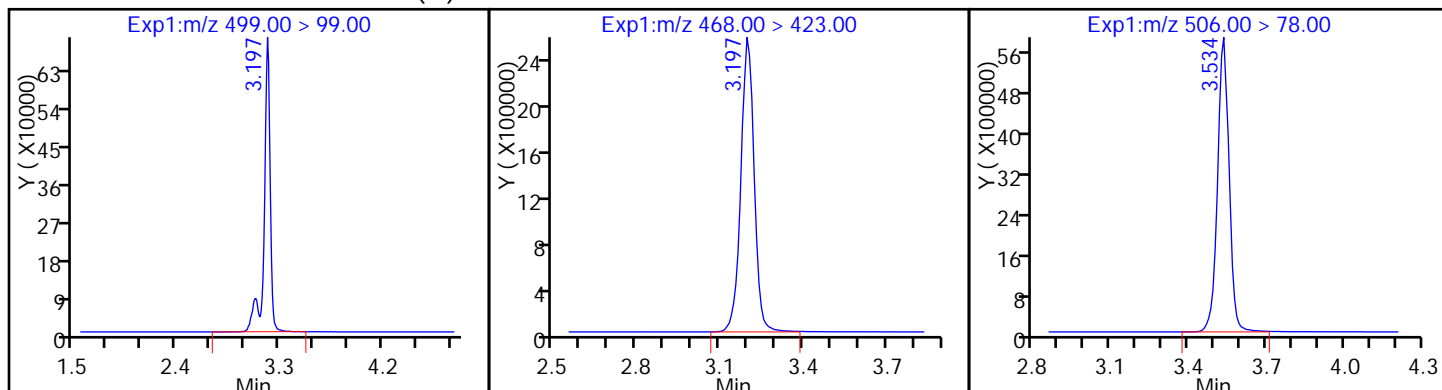
17 Perfluorooctane sulfonic acid (M)



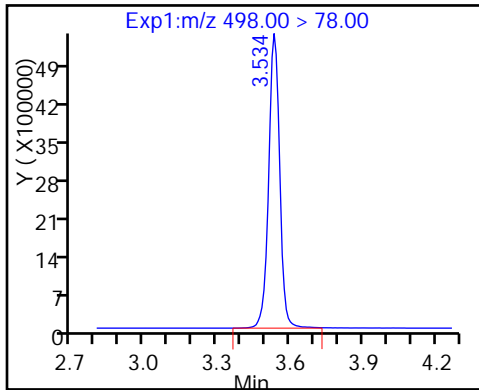
17 Perfluorooctane sulfonic acid (M)

D 19 13C5 PFNA

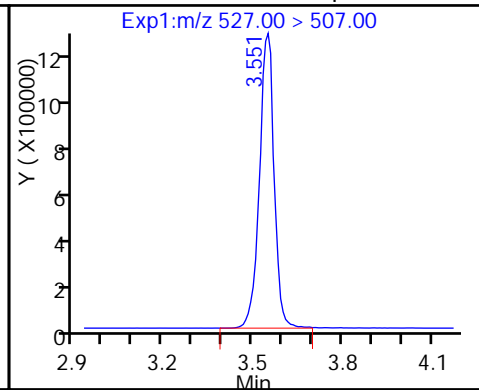
D 21 13C8 FOSA



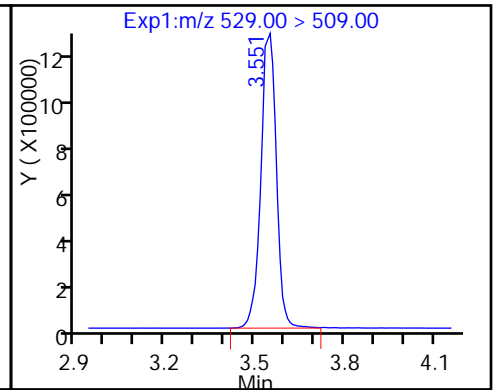
22 Perfluorooctane Sulfonamide



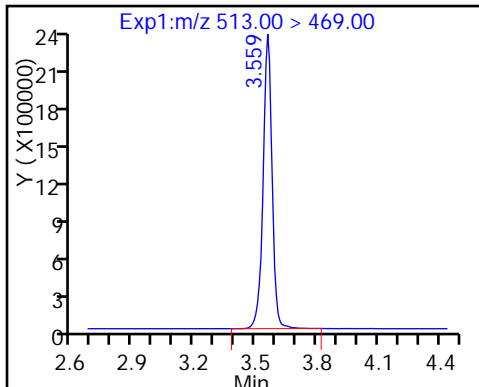
25 Sodium 1H,1H,2H,2H-perfluorooctane



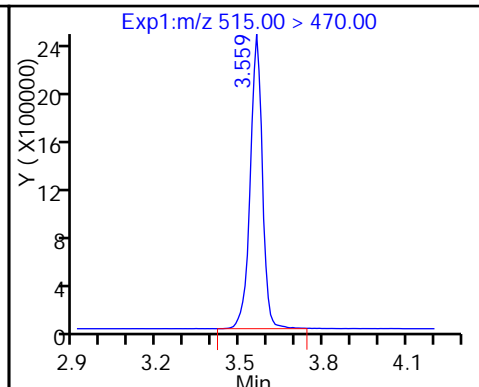
26 M2-8:2FTS



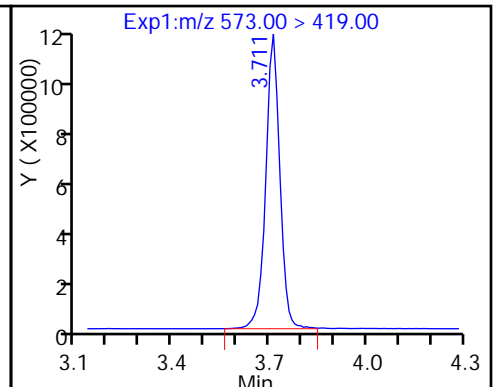
24 Perfluorodecanoic acid



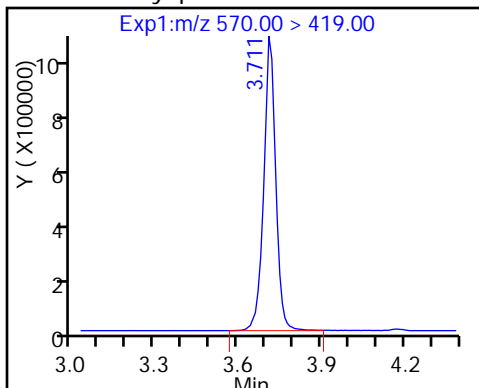
D 23 13C2 PFDA



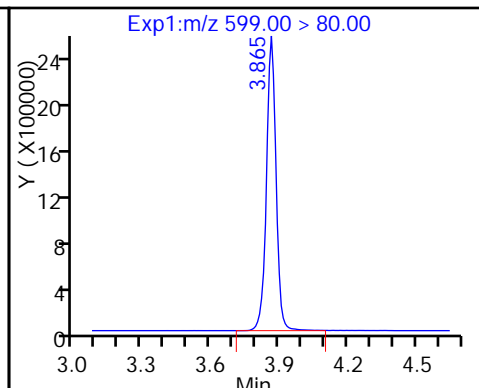
D 27 d3-NMeFOSAA



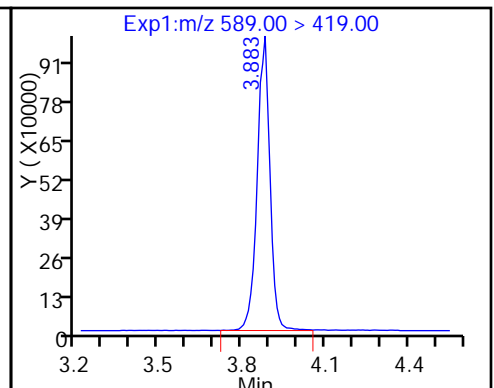
28 N-methyl perfluorooctane sulfonami



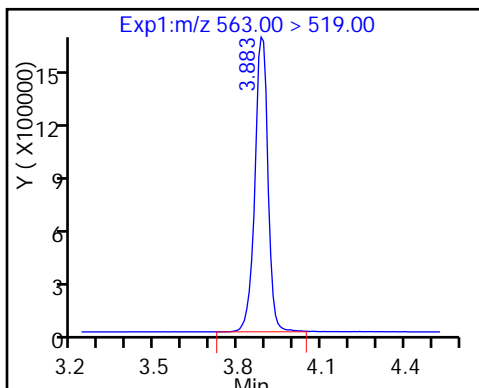
29 Perfluorodecane Sulfonic acid



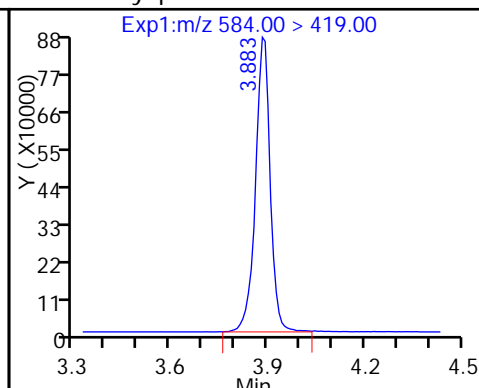
D 32 d5-NEtFOSAA



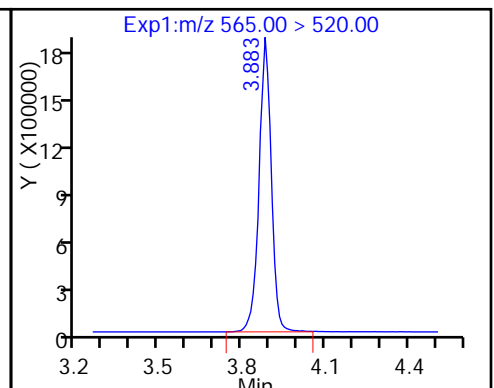
31 Perfluoroundecanoic acid



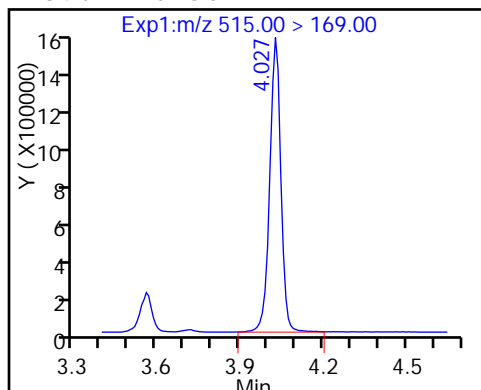
33 N-ethyl perfluorooctane sulfonamid



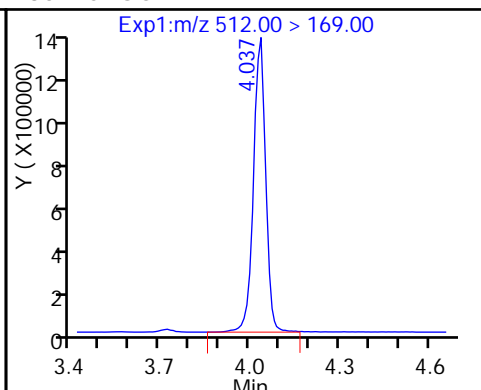
D 30 13C2 PFUnA



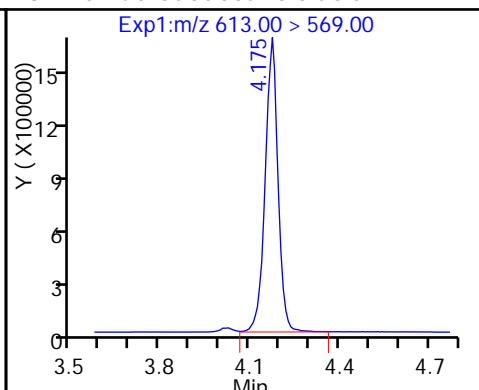
D 34 d-N-MeFOSA-M



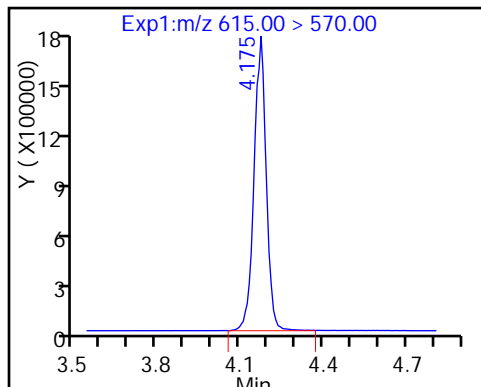
35 MeFOSA



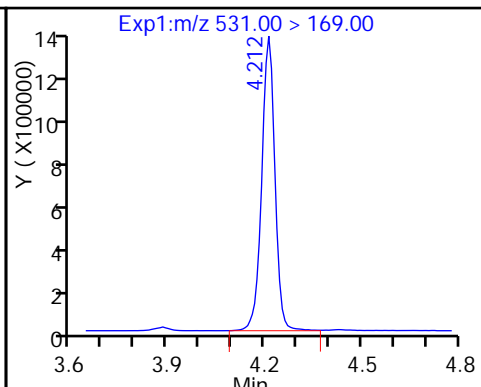
37 Perfluorododecanoic acid



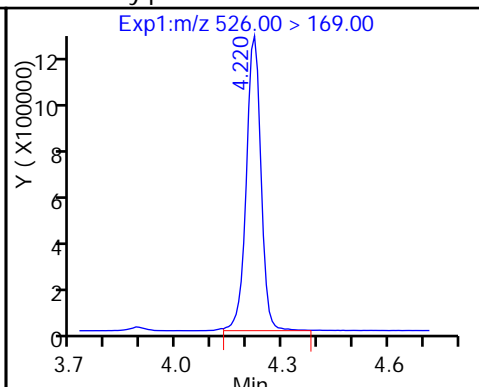
D 36 13C2 PFDa



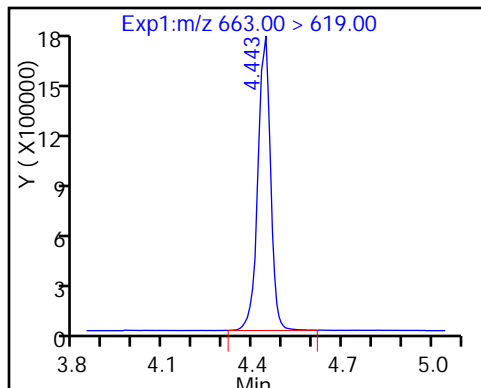
D 38 d-N-EtFOSA-M



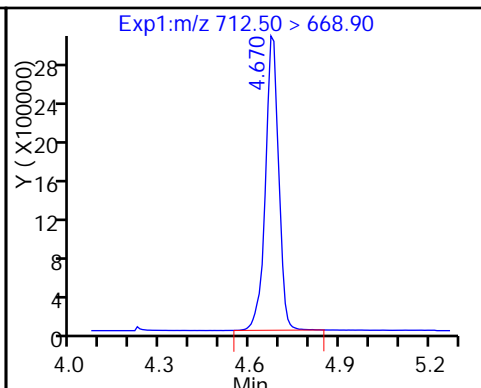
39 N-ethylperfluoro-1-octanesulfonami



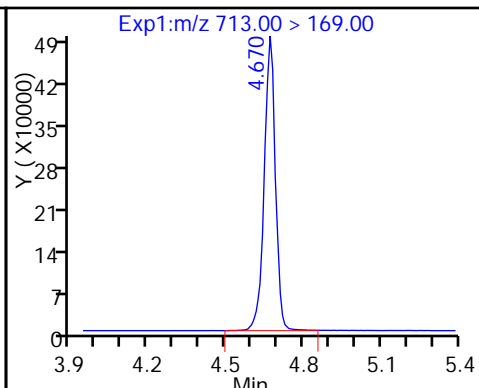
41 Perfluorotridecanoic acid



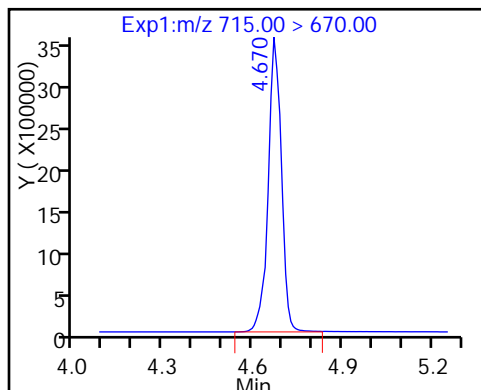
42 Perfluorotetradecanoic acid



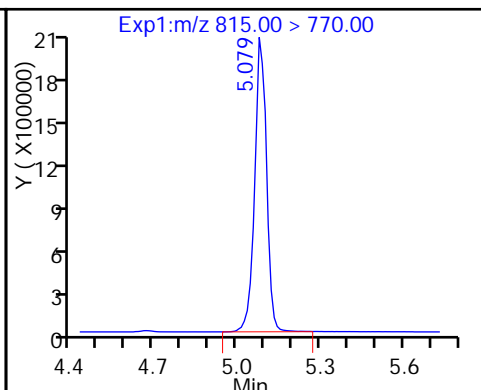
42 Perfluorotetradecanoic acid



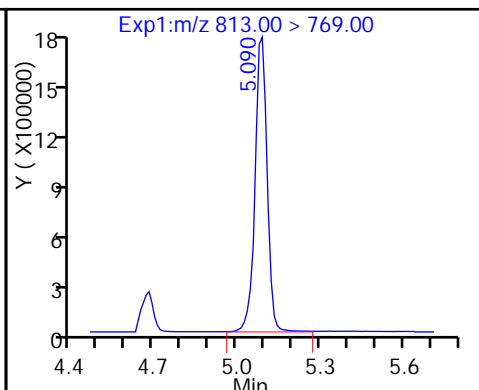
D 43 13C2-PFTeDA



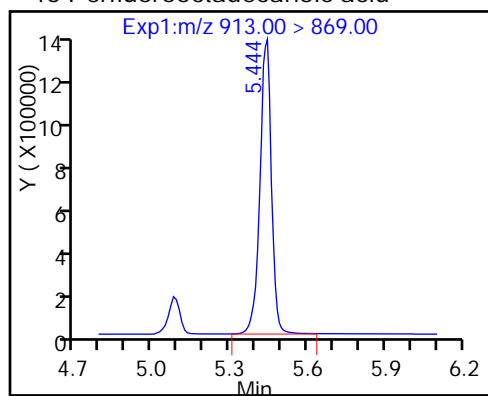
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

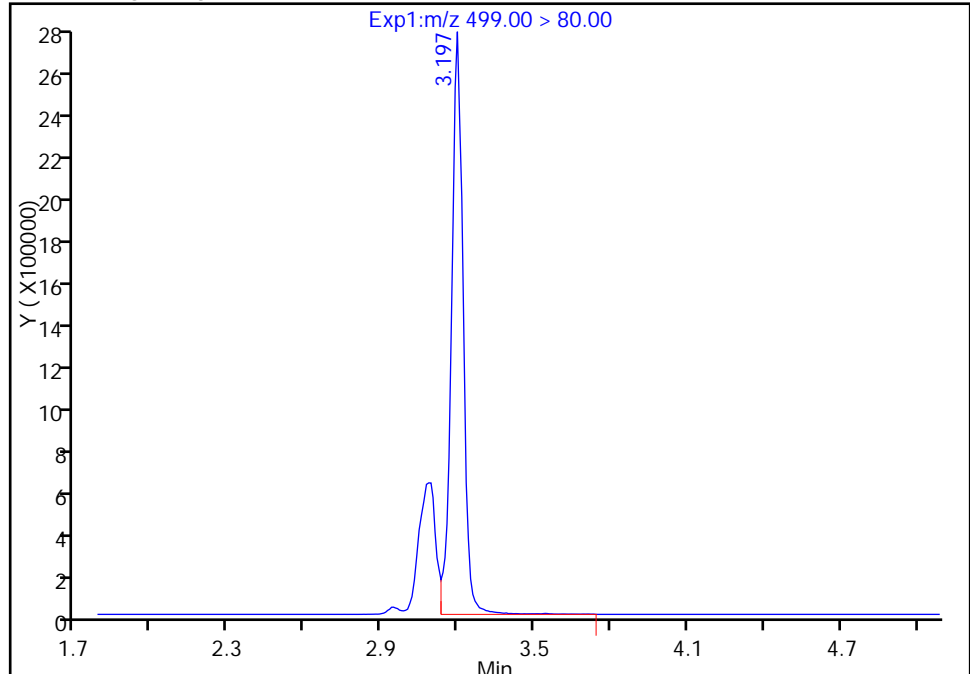
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Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

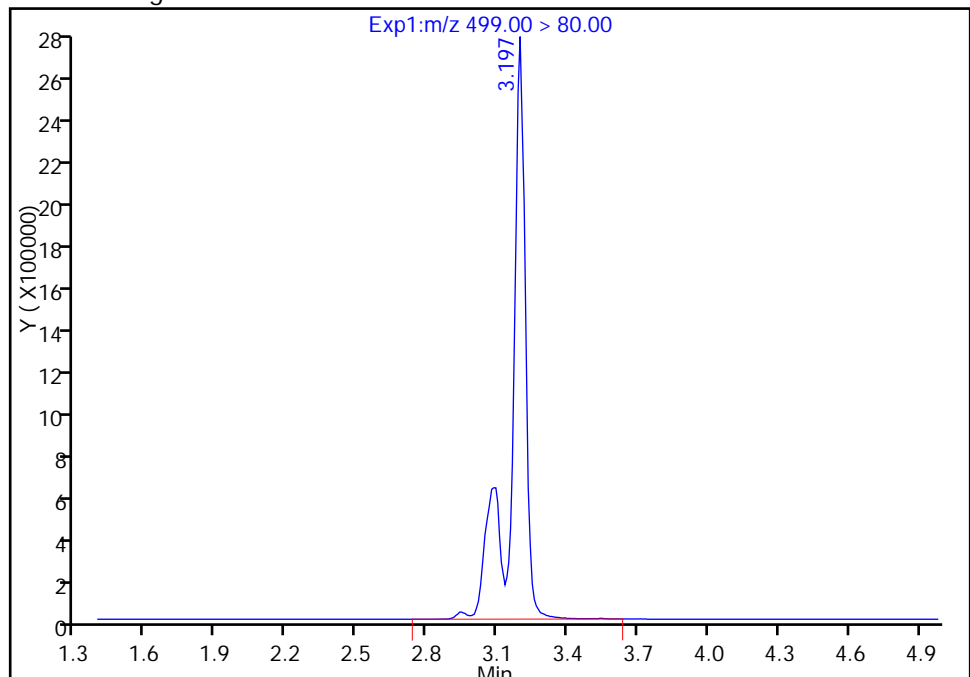
RT: 3.20
Area: 8825465
Amount: 36.346607
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 11759508
Amount: 48.430107
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:30:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

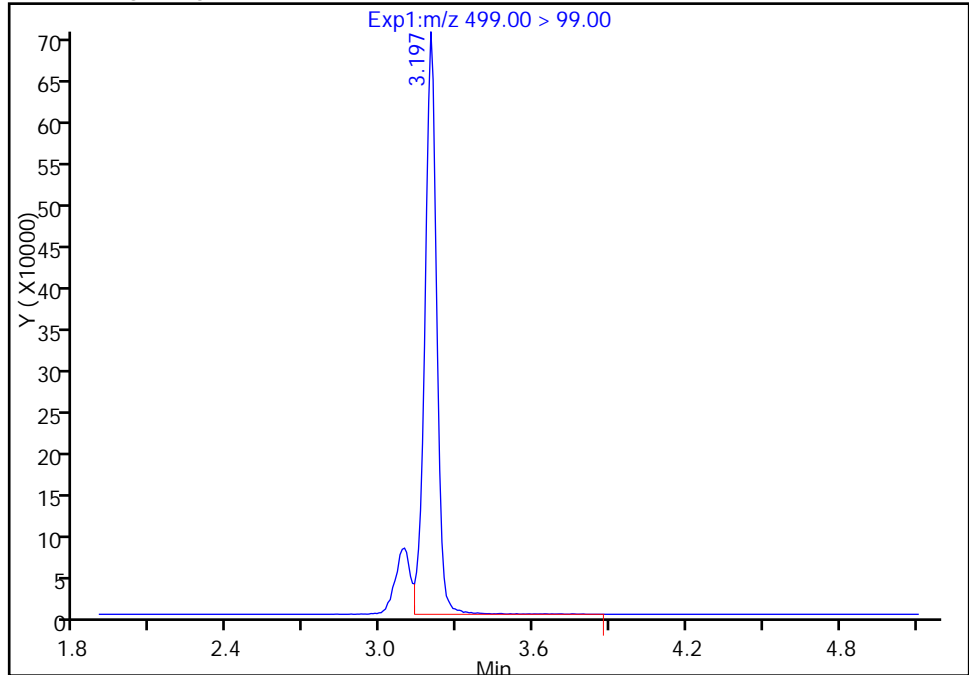
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

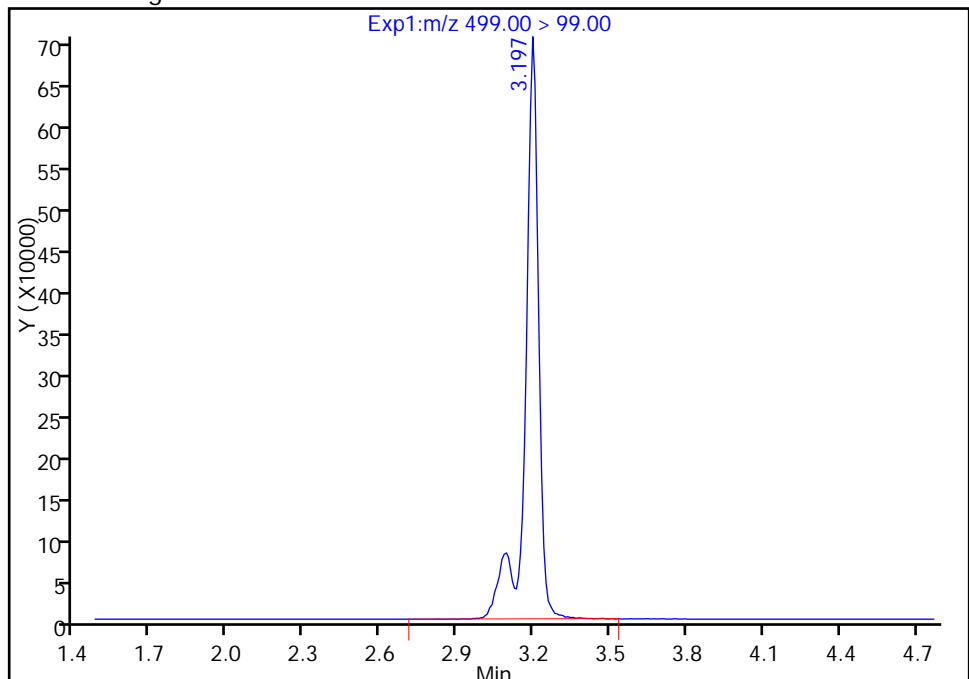
RT: 3.20
Area: 2266426
Amount: 36.346607
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 2575871
Amount: 48.430107
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:30:26

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 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 PFDoA										
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
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46 Perfluorooctadecanoic acid

913.00 > 869.00 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

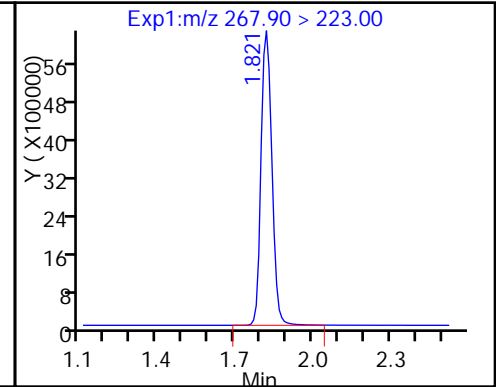
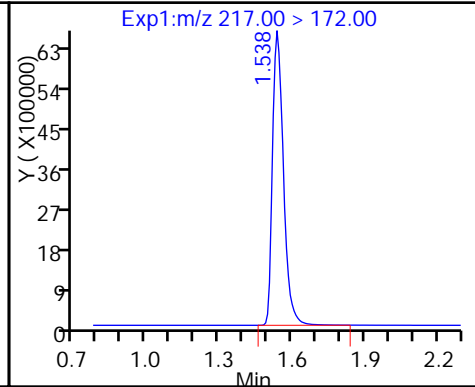
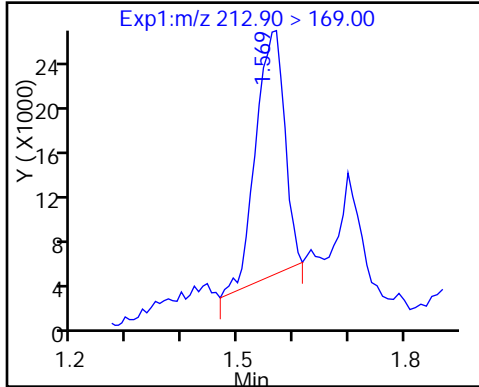
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

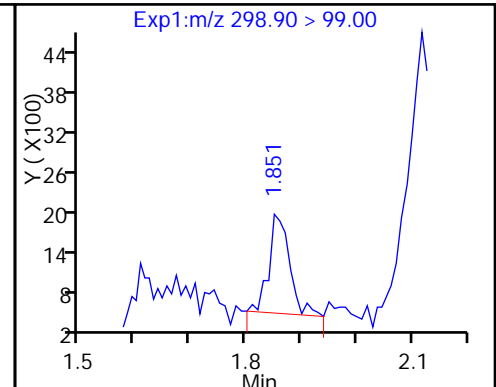
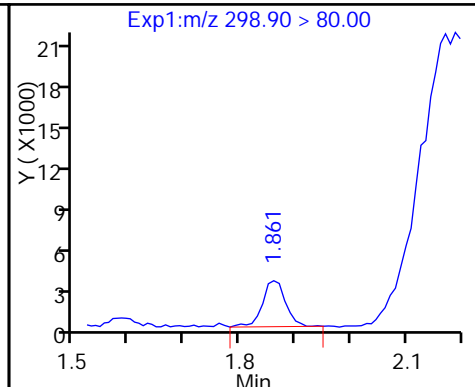
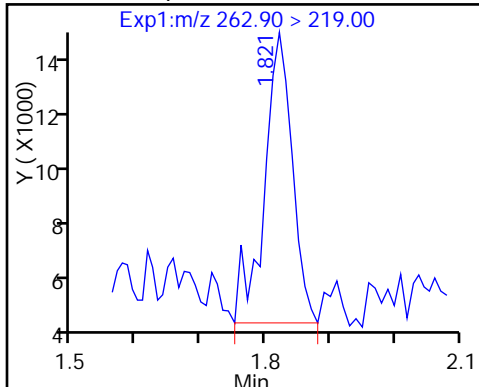
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

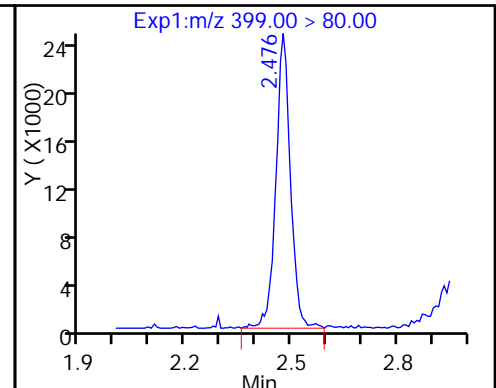
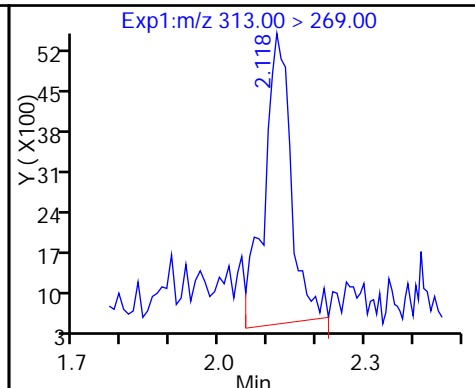
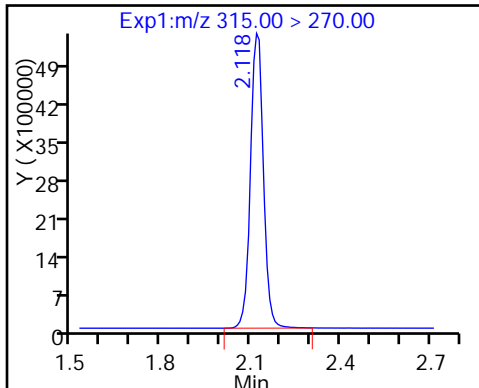
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

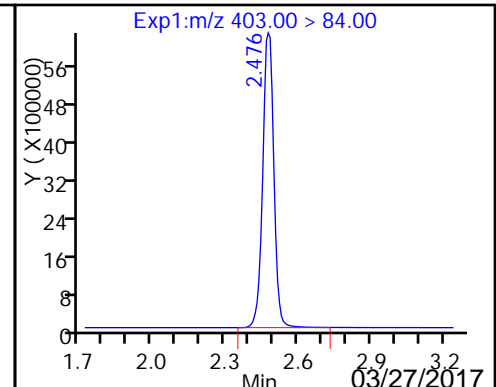
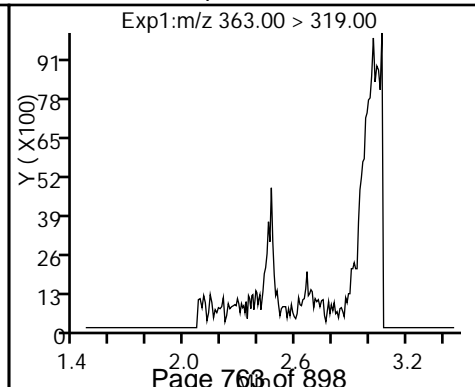
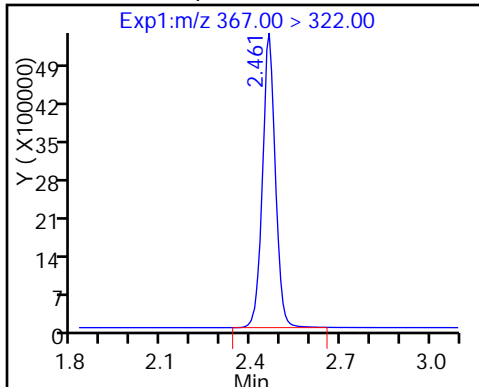
8 Perfluorohexanesulfonic acid



D 9 13C4-PFHpA

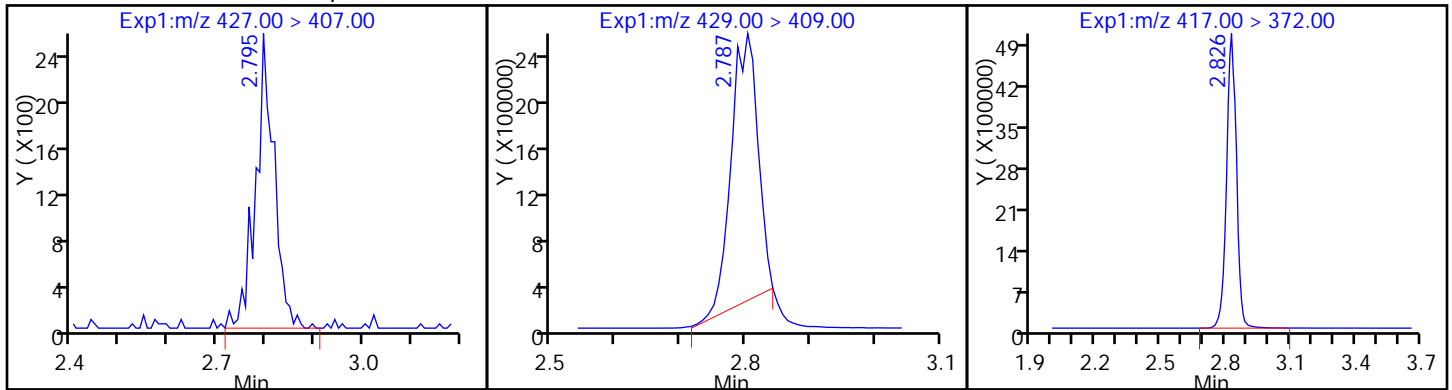
10 Perfluoroheptanoic acid (ND)

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

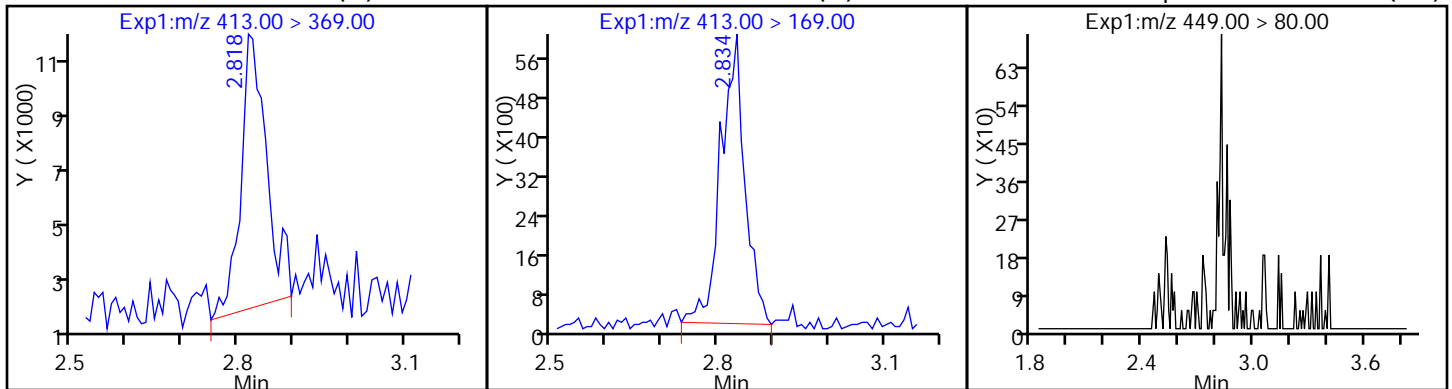
D 14 13C4 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid (M)

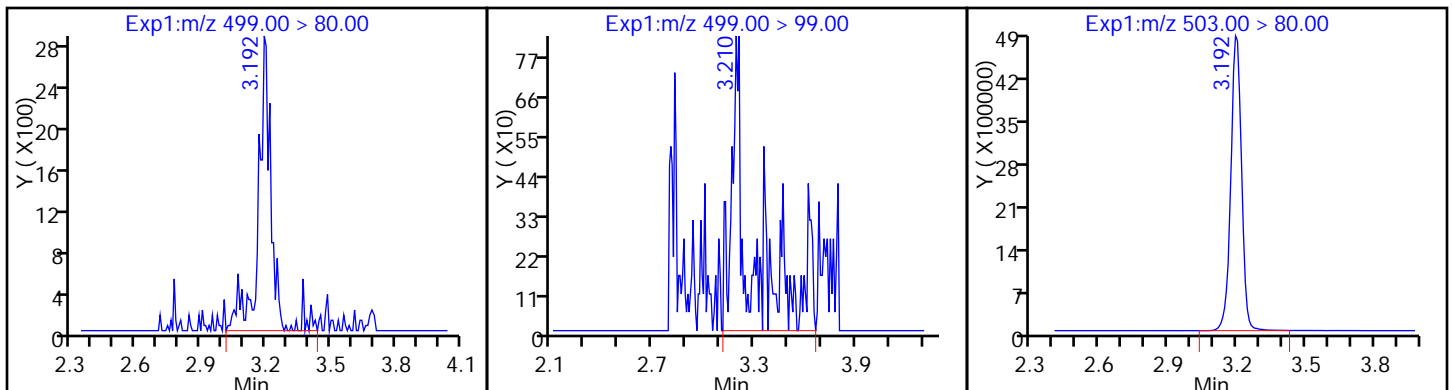
16 Perfluoroheptanesulfonic Acid (ND)



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

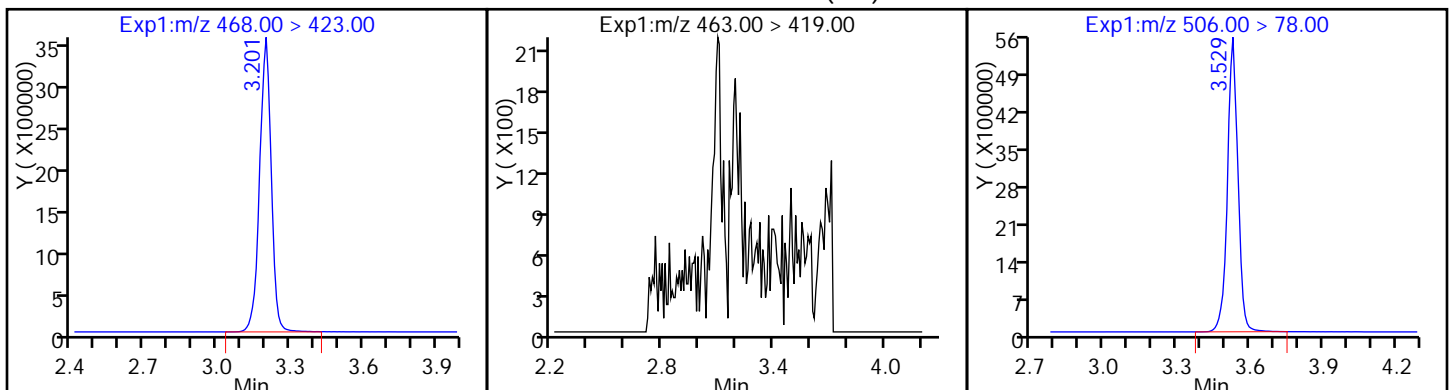
D 18 13C4 PFOS



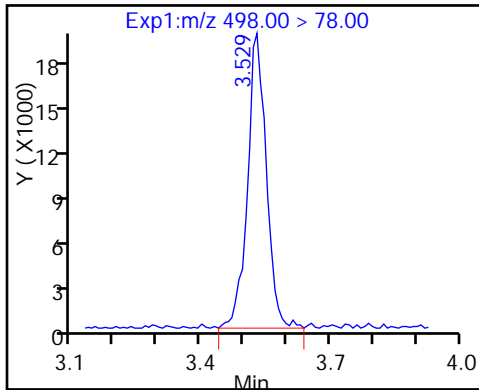
D 19 13C5 PFNA

20 Perfluorononanoic acid (ND)

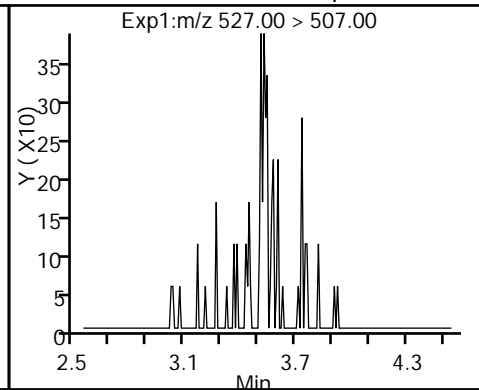
D 21 13C8 FOSA



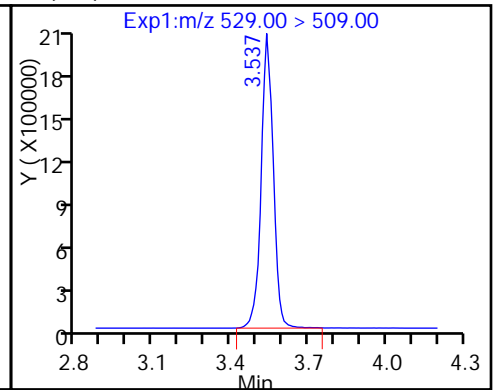
22 Perfluorooctane Sulfonamide



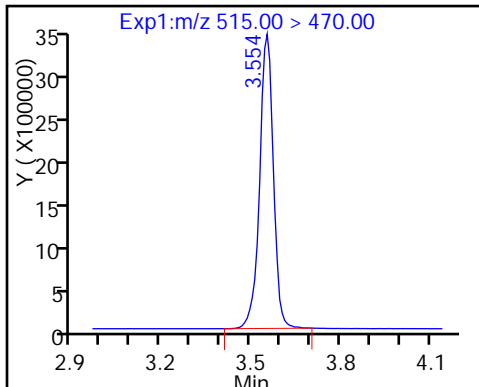
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



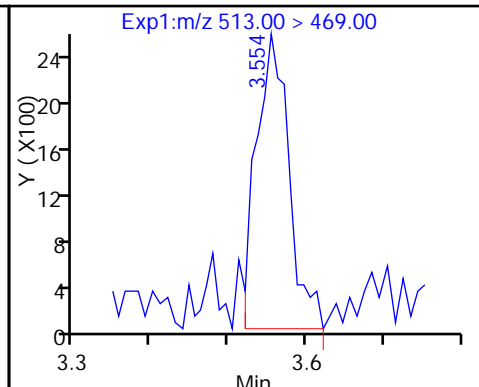
D 26 D12-8:2FTS



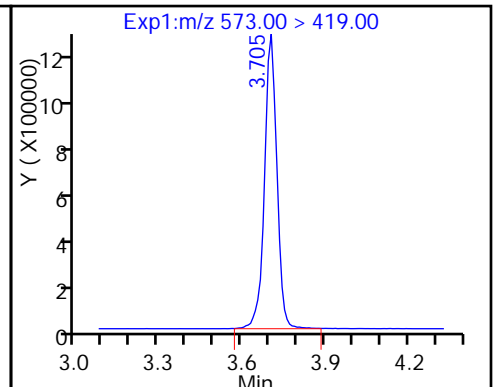
D 23 13C2 PFDA



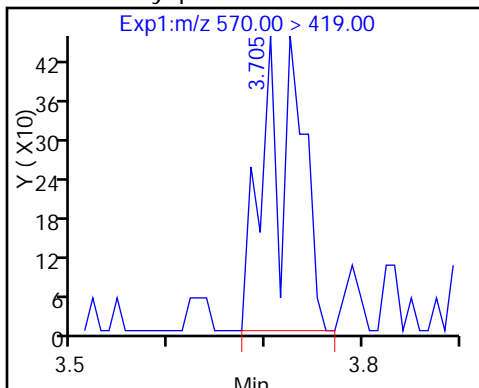
24 Perfluorodecanoic acid



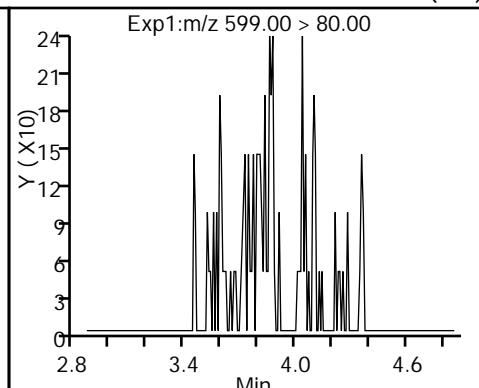
D 27 d3-NMeFOSAA



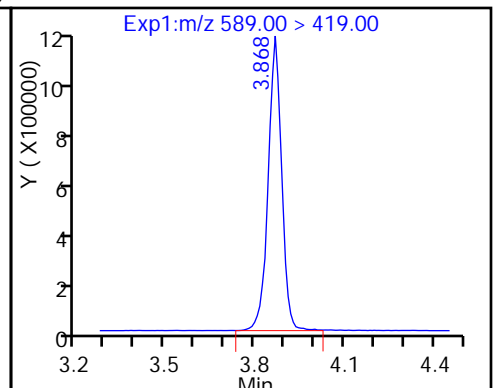
28 N-methyl perfluorooctane sulfonamid



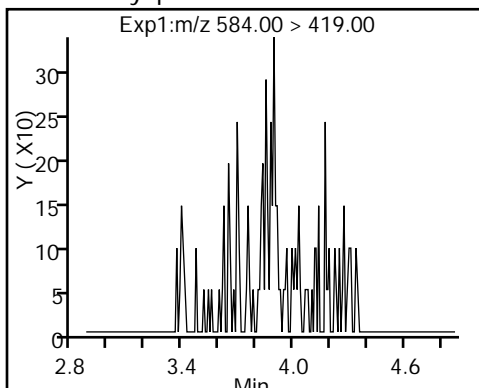
29 Perfluorodecane Sulfonic acid (ND)



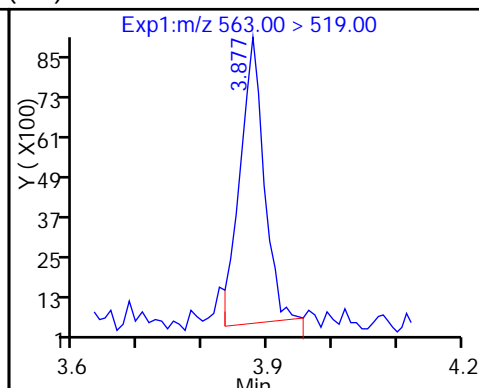
D 32 d5-NEtFOSAA



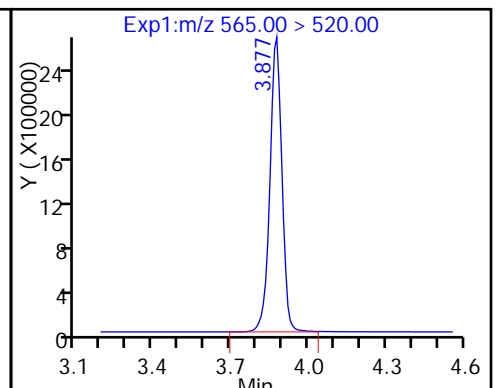
33 N-ethyl perfluorooctane sulfonamid (ND)



D 30 13C2 PFUnA



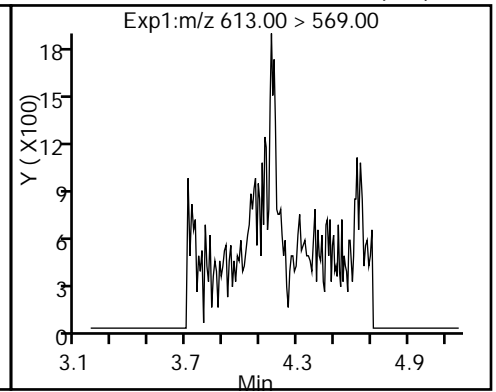
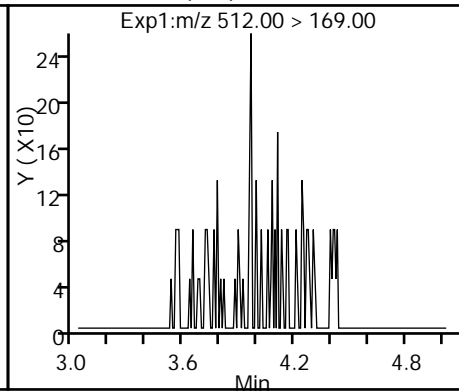
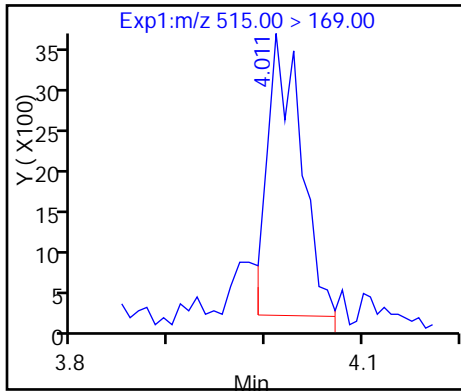
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

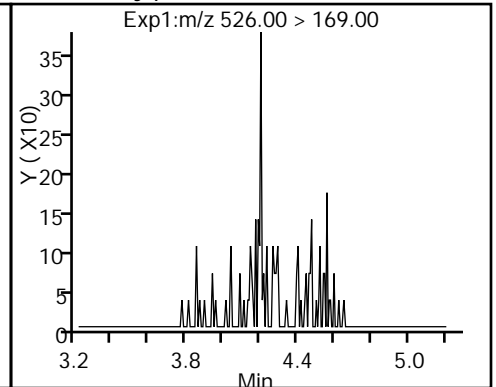
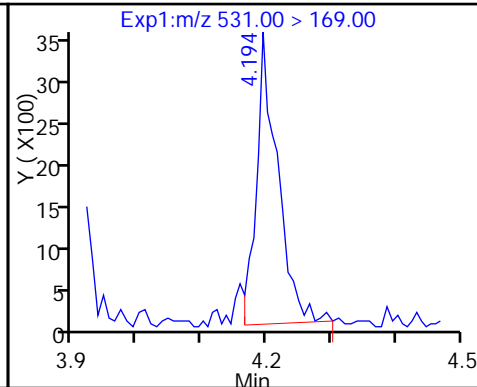
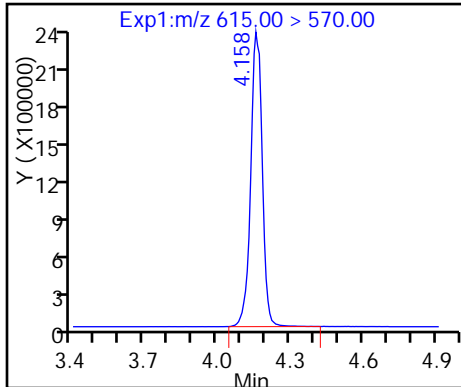
37 Perfluorododecanoic acid (ND)



D 36 13C2 PFDa

D 38 d-N-EtFOSA-M

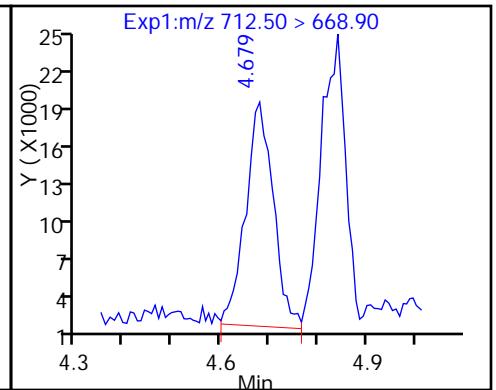
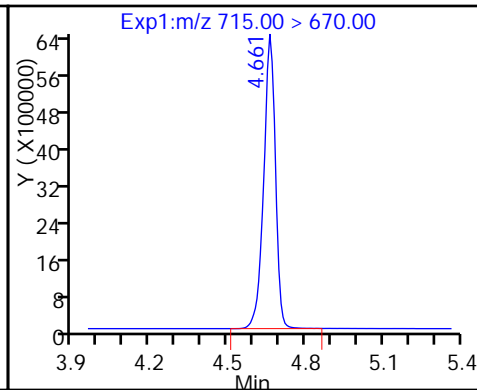
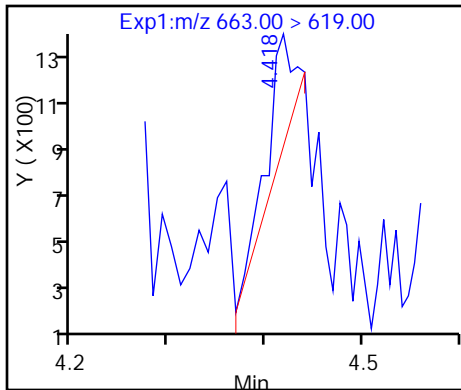
39 N-ethylperfluoro-1-octanesulfonami (ND)



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

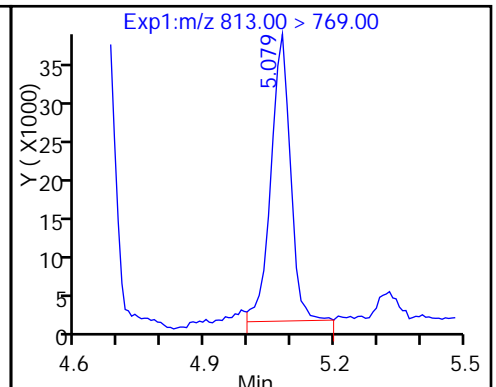
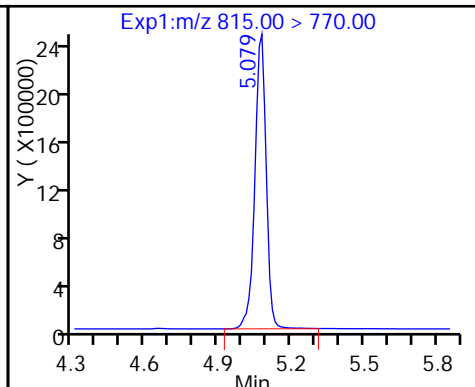
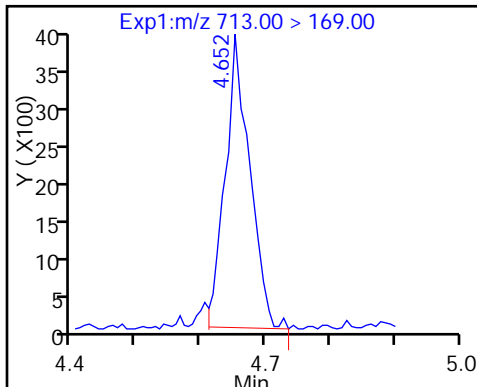
42 Perfluorotetradecanoic acid



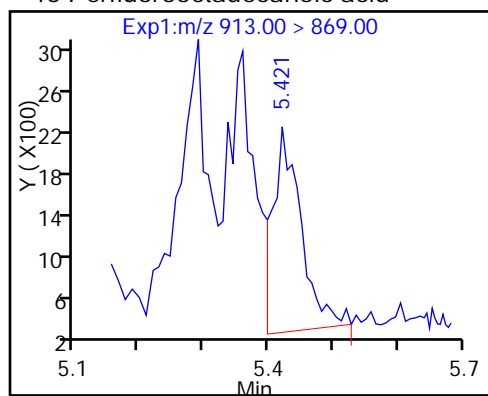
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

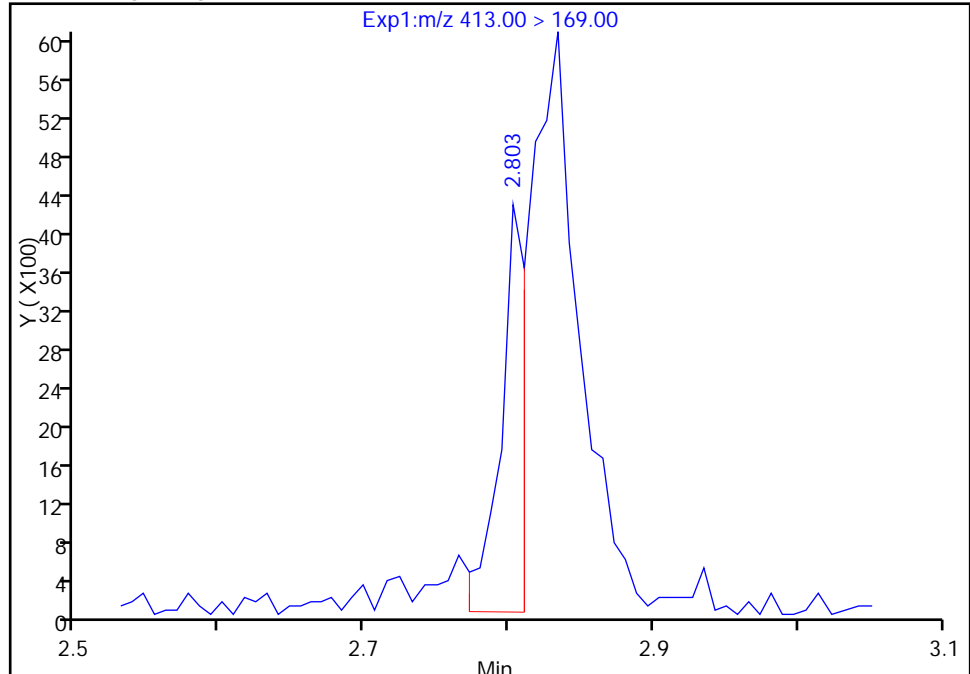
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_004.d
Injection Date: 02-Mar-2017 10:35:15 Instrument ID: A8_N
Lims ID: MB 320-152587/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 1 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

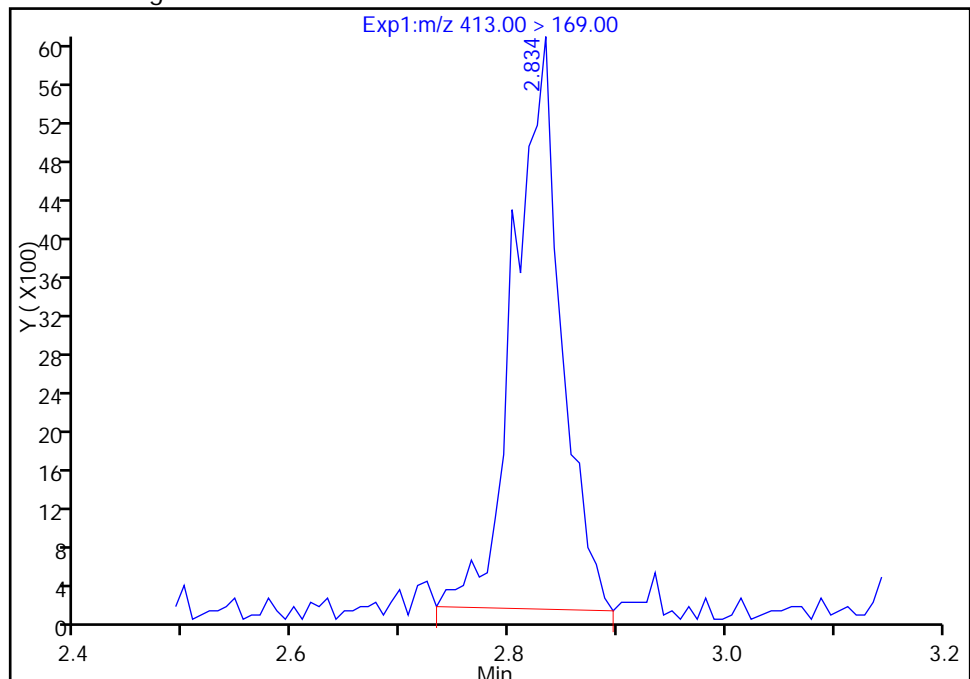
RT: 2.80
Area: 4378
Amount: 0.159296
Amount Units: ng/ml

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

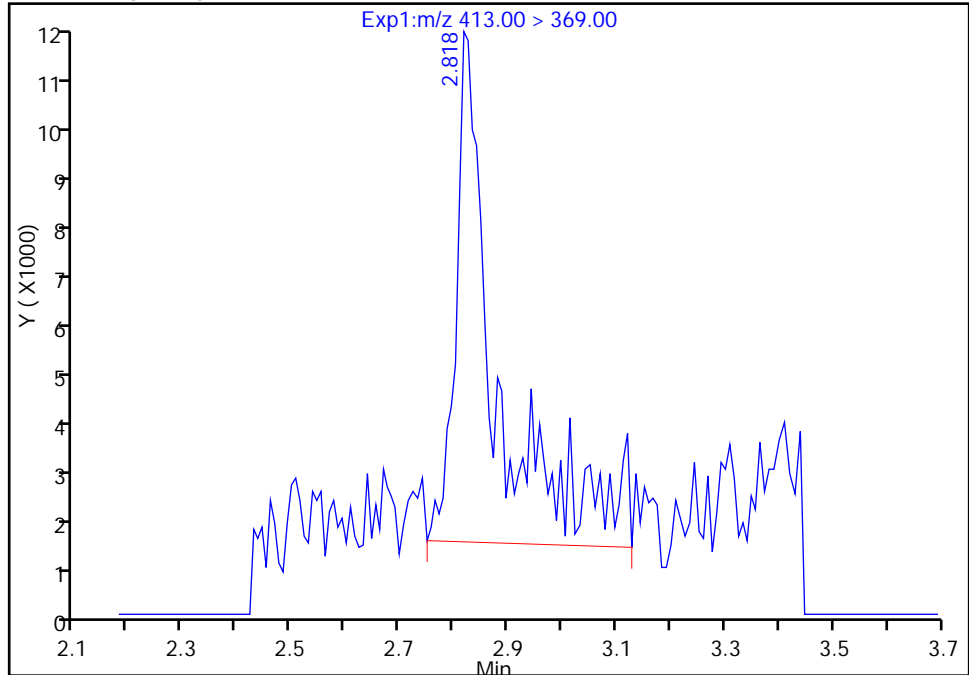
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Injection Date: 02-Mar-2017 10:35:15 Instrument ID: A8_N
Lims ID: MB 320-152587/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 1 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

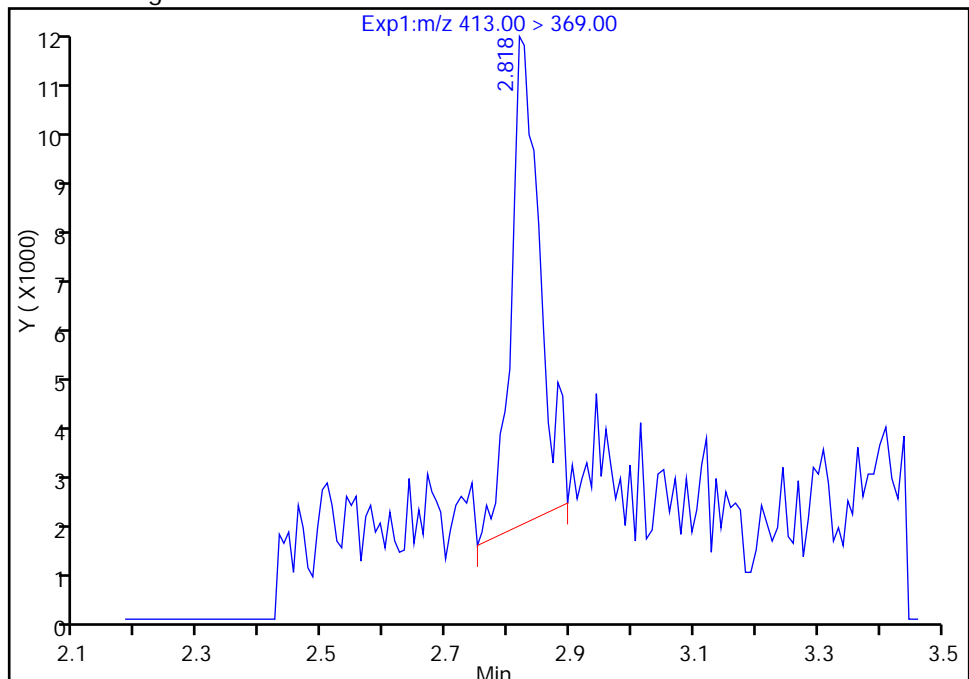
RT: 2.82
Area: 52817
Amount: 0.159296
Amount Units: ng/ml

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.: 320-26103-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-152961/1-A
 Matrix: Solid Lab File ID: 2017.03.11C_029.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5(g) Date Analyzed: 03/11/2017 15:42
 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.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.30	U M	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	122	M	25-150
STL00991	13C4 PFOS	99		25-150
STL00994	18O2 PFHxS	113		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_029.d
 Lims ID: MB 320-152961/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 11-Mar-2017 15:42:39 ALS Bottle#: 21 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152961/1-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:06:27 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:41:23

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	1.531	1.539	-0.008	1.000	134172	0.4677			863	
D 1 13C4 PFBA										
217.00 > 172.00	1.523	1.539	-0.016		16927834	57.9		116	794099	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.822	-0.010		13006613	56.0		112	919403	
D 60 M2-4:2FTS										
329.00 > 309.00	2.132	2.082	0.050		1026	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.105	2.117	-0.012		11831659	56.1		112	371941	
D 9 13C4-PFHpA										
367.00 > 322.00	2.440	2.452	-0.012		12991496	67.3		135	391779	
D 11 18O2 PFHxS										
403.00 > 84.00	2.463	2.468	-0.005		15611542	53.7		113	436656	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.463	2.476	-0.013	1.000	62813	0.1850				M
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.806	2.818	-0.012	1.000	24500	0.0955			200	
413.00 > 169.00	2.814	2.818	-0.004	1.003	11630		2.11(0.90-1.10)		403	M
D 14 13C4 PFOA										M
417.00 > 372.00	2.814	2.818	-0.004		12550907	61.2		122	5125	M
D 18 13C4 PFOS										
503.00 > 80.00	3.179	3.192	-0.013		11429074	47.3		99.0	377414	
D 19 13C5 PFNA										
468.00 > 423.00	3.179	3.201	-0.022		9672030	54.4		109	179563	
D 21 13C8 FOSA										
506.00 > 78.00	3.511	3.519	-0.008		5148723	14.0		28.1	179132	
D 23 13C2 PFDA										
515.00 > 470.00	3.536	3.544	-0.008		8070327	48.4		96.8	227455	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 27 d3-NMeFOSAA	573.00 > 419.00	3.693	3.693	0.0	4312	0.0506		0.0		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.839	3.867	-0.028	8158	0.1003		0.0		M
31 Perfluoroundecanoic acid	563.00 > 519.00	3.848	3.867	-0.019	1.000	13756	0.1213		351	
D 30 13C2 PFUnA	565.00 > 520.00	3.865	3.876	-0.011	5594866	42.8		85.5	214862	
D 34 d-N-MeFOSA-M	515.00 > 169.00	3.979	4.010	-0.031	339	0.003853		0.0		
D 36 13C2 PFDaA	615.00 > 570.00	4.160	4.159	0.001	3601691	29.1		58.1	97744	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.188	4.195	-0.007	425	0.004985		0.0		
D 43 13C2-PFTeDA	715.00 > 670.00	4.661	4.663	-0.002	3905504	15.1		30.1	230328	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.678	4.663	0.015	1.000	56654	0.3999		601	M
	713.00 > 169.00	4.661	4.663	-0.002	0.996	1717	33.00(0.00-0.00)		669	M
D 44 13C2-PFHxDA	815.00 > 770.00	5.068	5.078	-0.010	1091667	8.73		17.5	64556	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.068	5.078	-0.010	1.000	14153	-0.1646		73.3	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_029.d

Injection Date: 11-Mar-2017 15:42:39

Instrument ID: A8_N

Lims ID: MB 320-152961/1-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 21

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

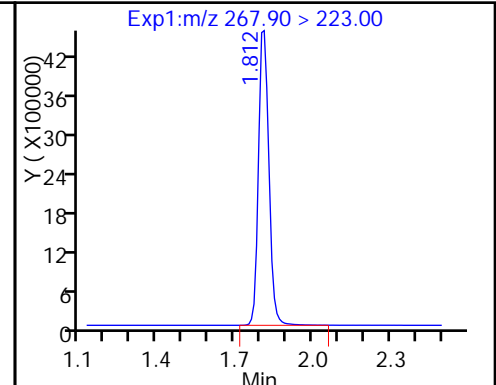
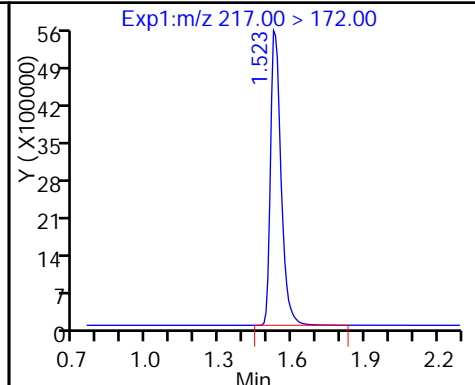
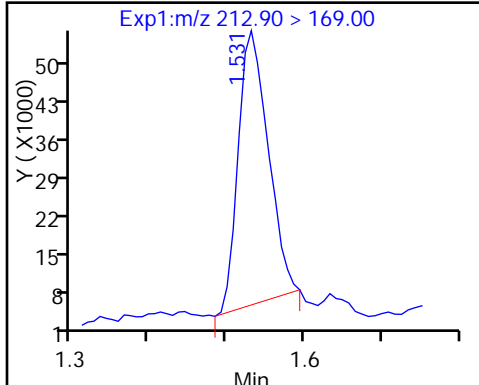
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

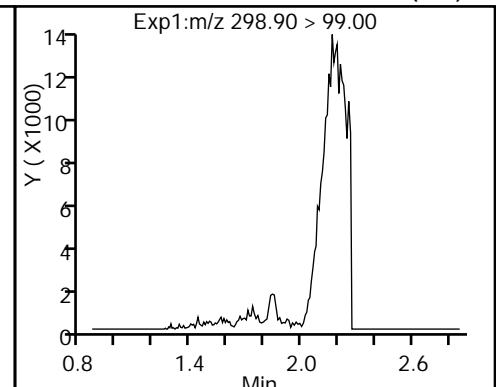
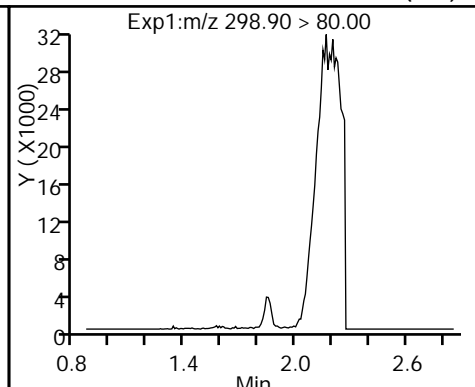
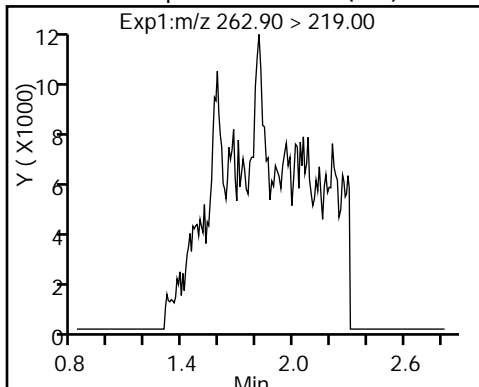
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

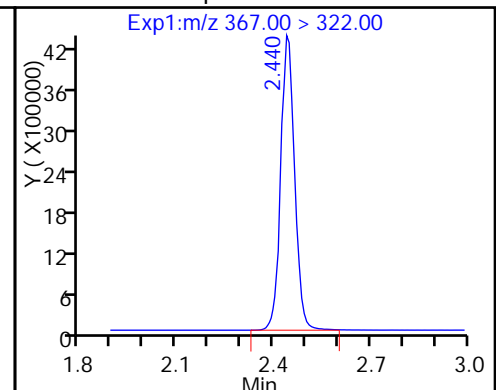
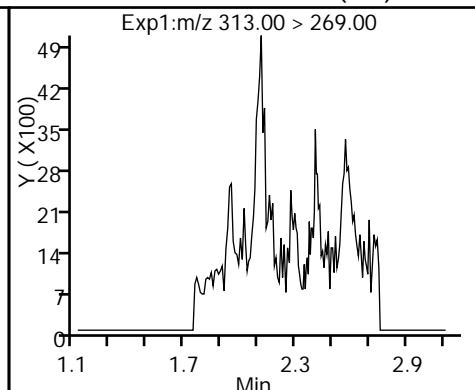
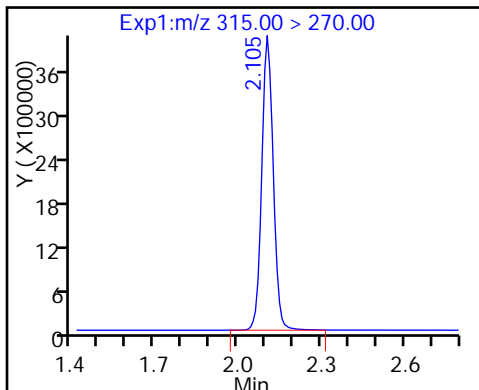
5 Perfluorobutanesulfonic acid (ND)



D 7 13C2 PFHxA

6 Perfluorohexanoic acid (ND)

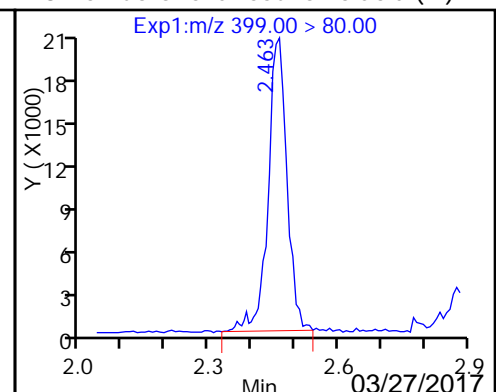
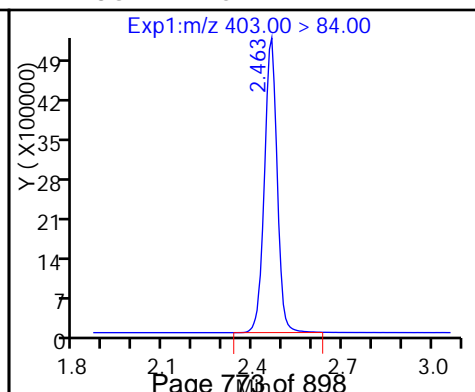
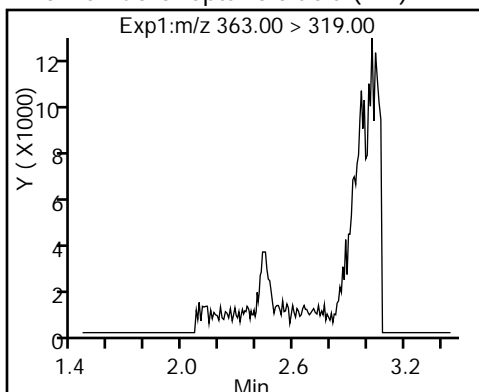
D 9 13C4-PFHpA



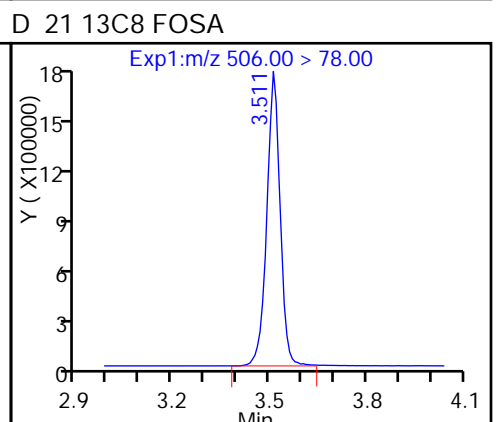
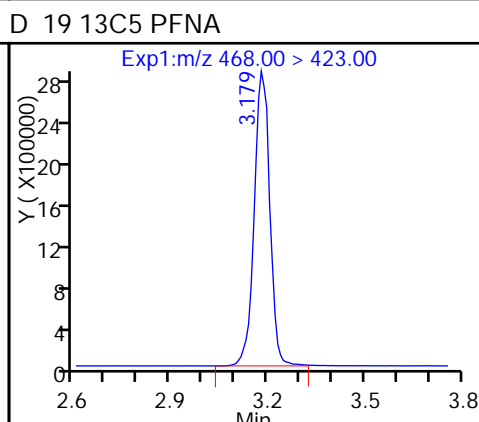
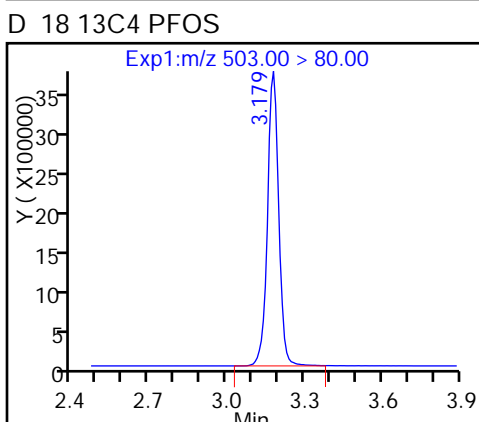
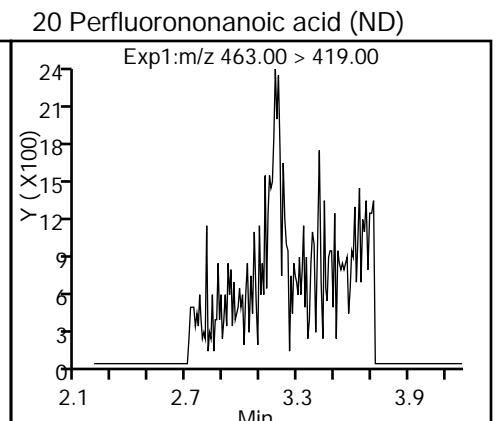
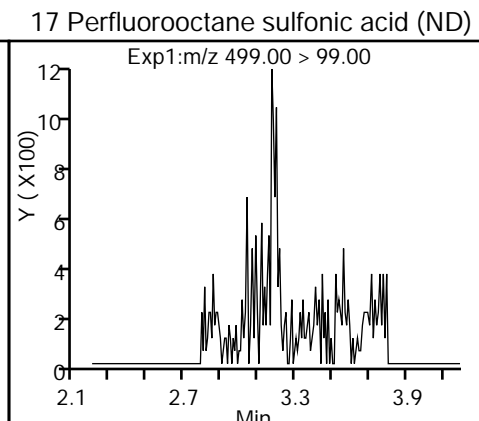
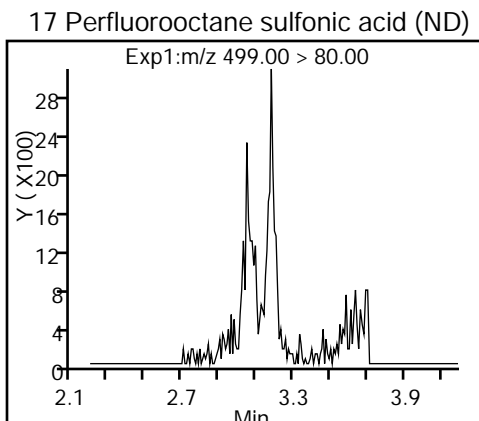
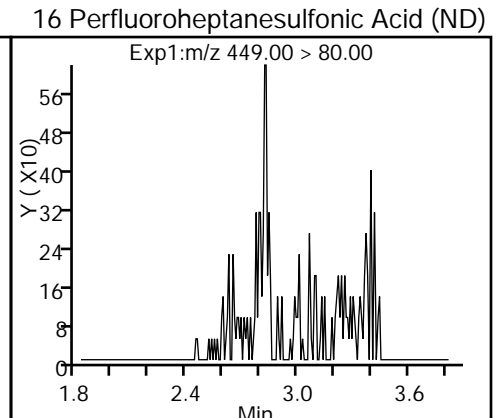
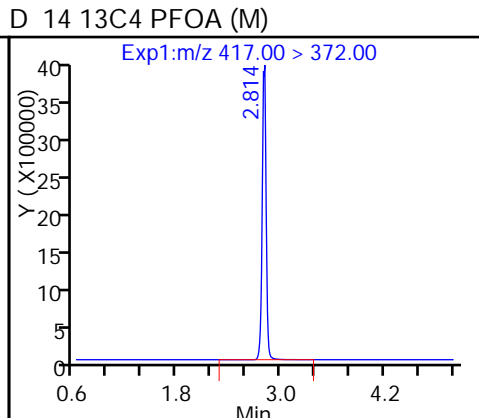
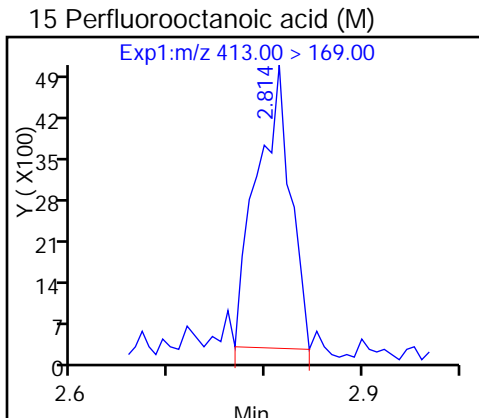
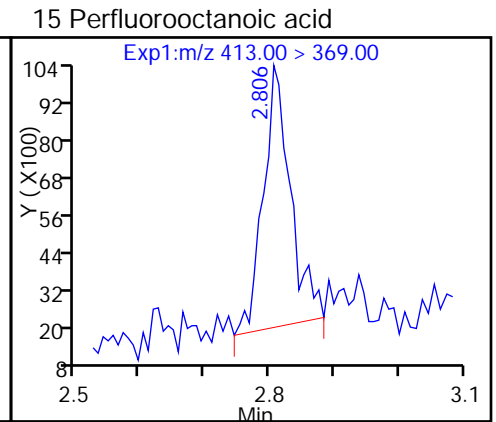
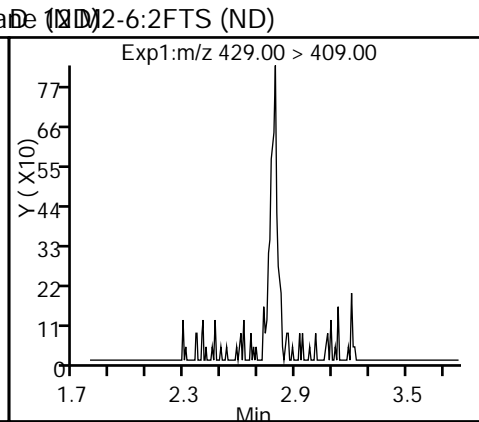
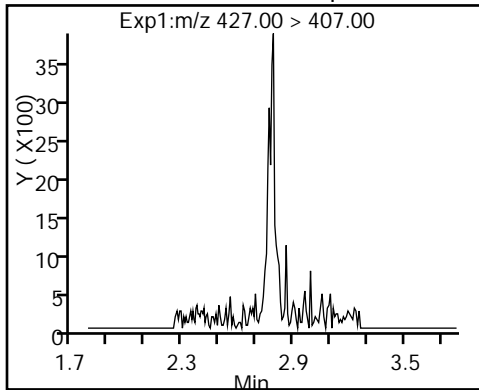
10 Perfluoroheptanoic acid (ND)

D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)

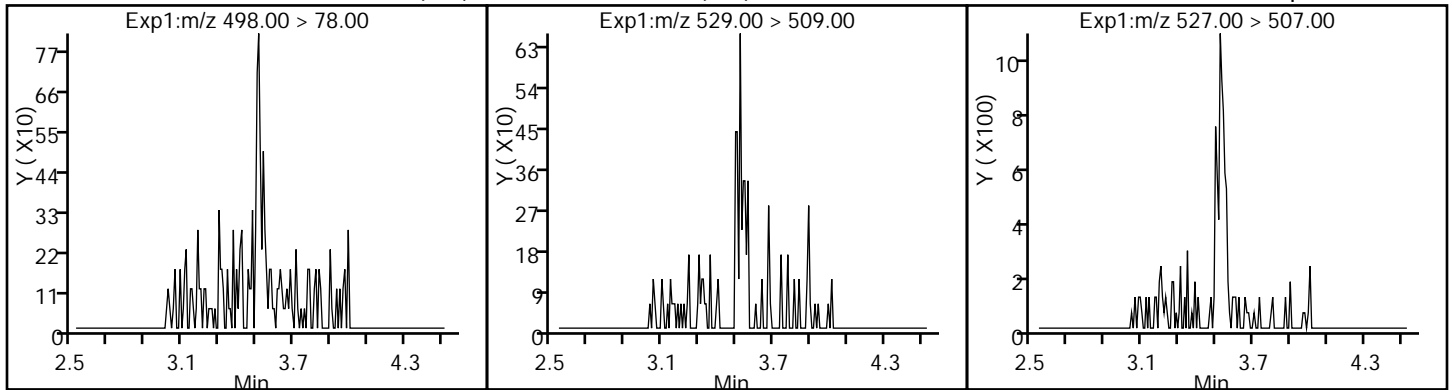


13 Sodium 1H,1H,2H,2H-perfluorooctadec-11-ynoate (ND)



22 Perfluorooctane Sulfonamide (ND) D 26 M2-8:2FTS (ND)

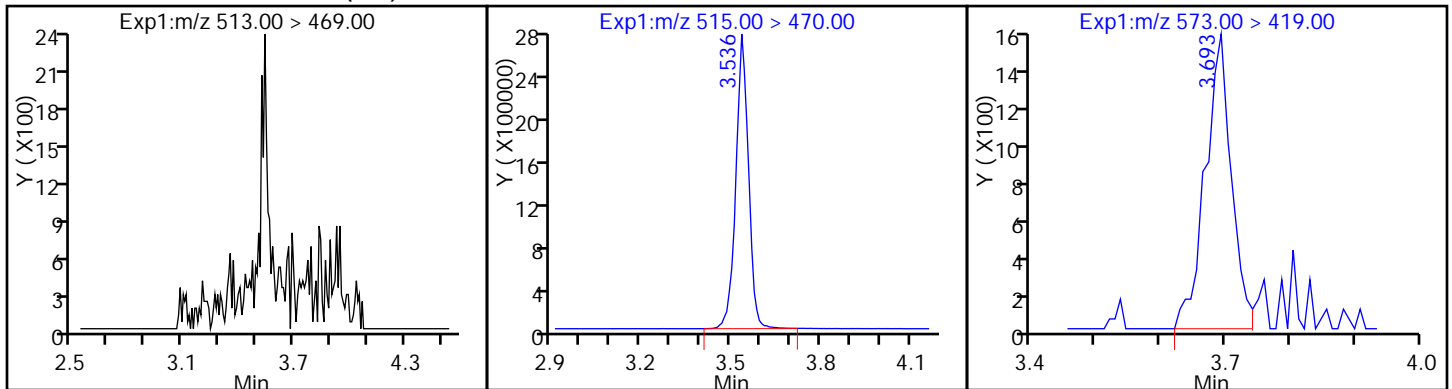
25 Sodium 1H,1H,2H,2H-perfluorooctane (ND)



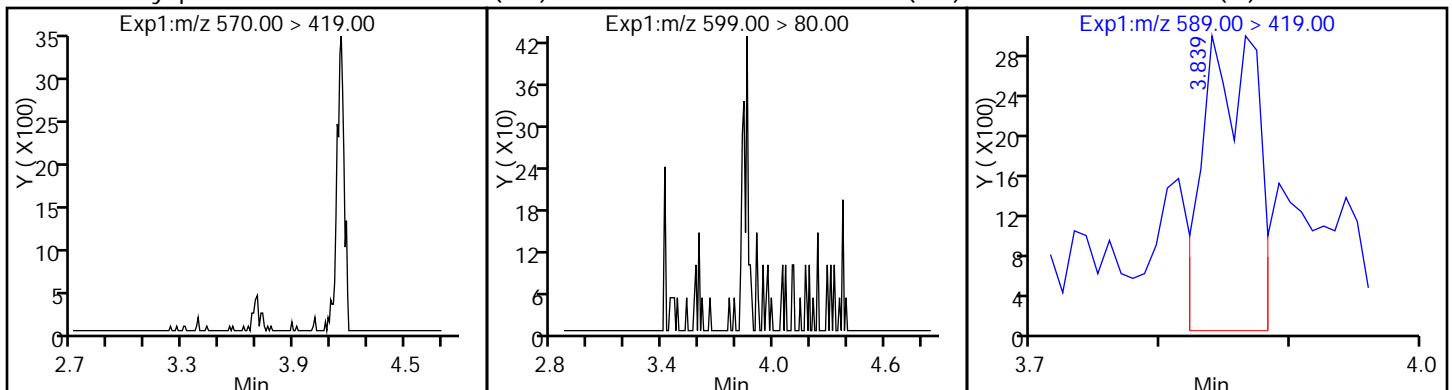
24 Perfluorodecanoic acid (ND)

D 23 13C2 PFDA

D 27 d3-NMeFOSAA

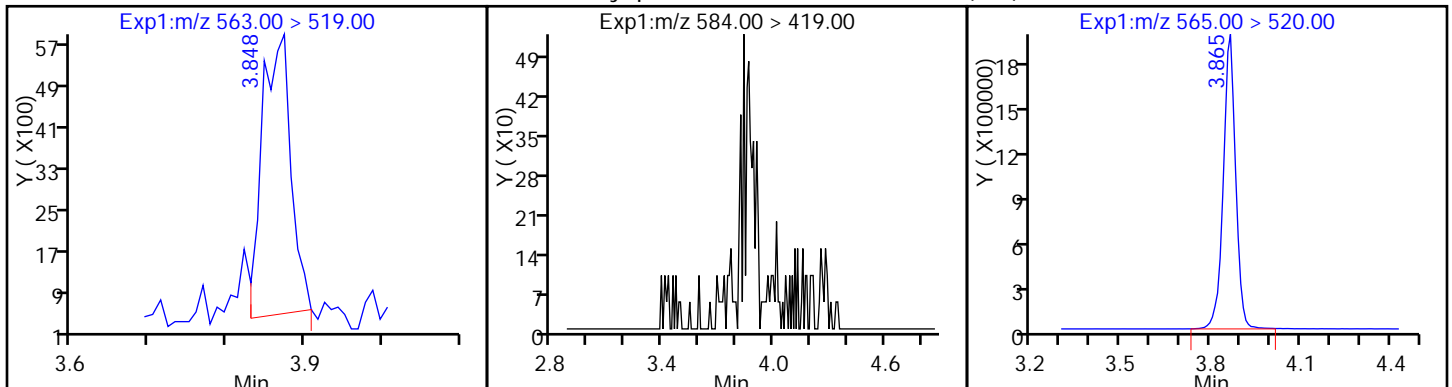


28 N-methyl perfluorooctane sulfonamide (ND) D 29 Perfluorodecane Sulfonic acid (ND) D 32 d5-NEtFOSAA (M)

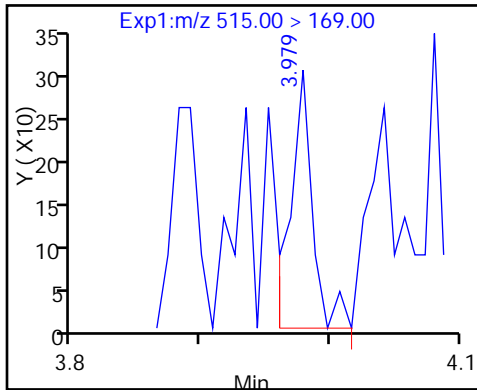


31 Perfluoroundecanoic acid

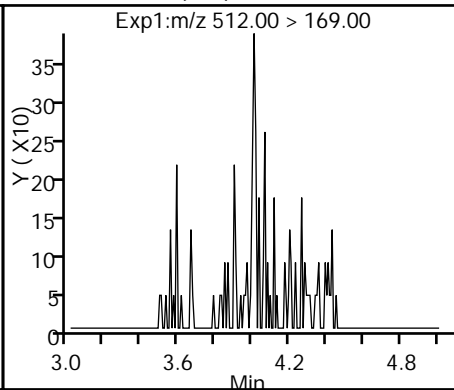
33 N-ethyl perfluorooctane sulfonamide (ND) D 30 13C2 PFUnA



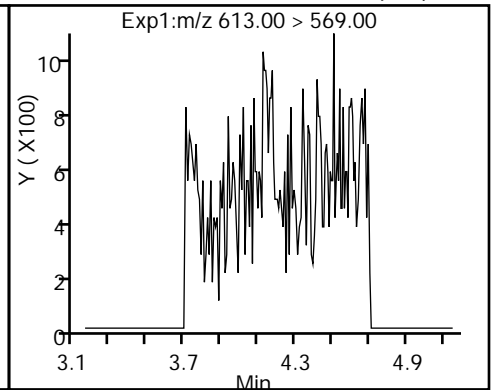
D 34 d-N-MeFOSA-M



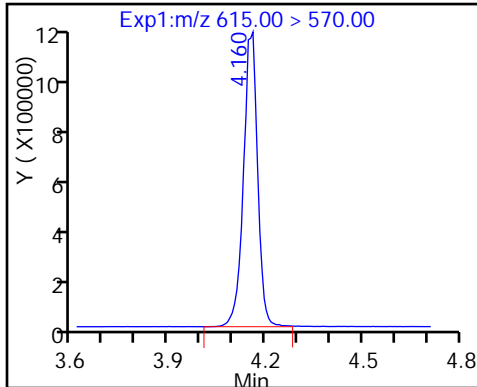
35 MeFOSA (ND)



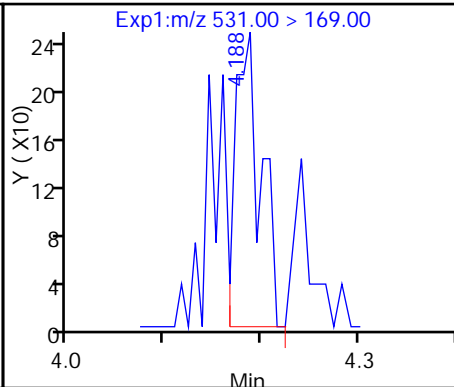
37 Perfluorododecanoic acid (ND)



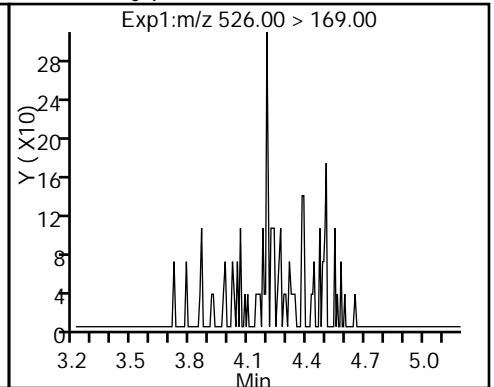
D 36 13C2 PFDaA



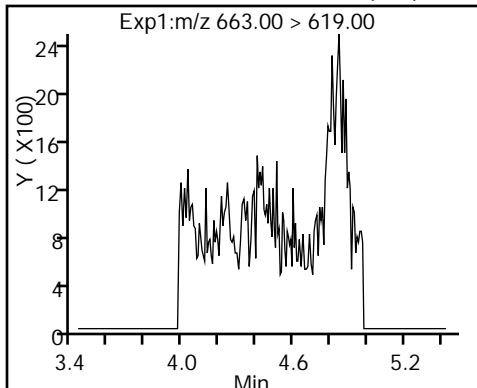
D 38 d-N-EtFOSA-M



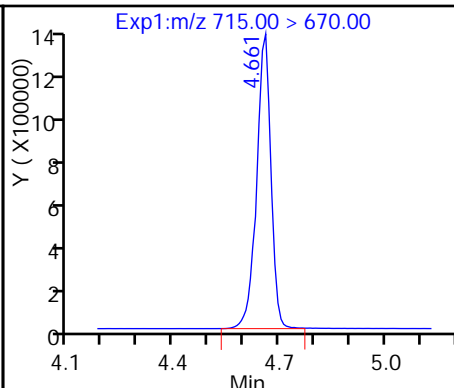
39 N-ethylperfluoro-1-octanesulfonami (ND)



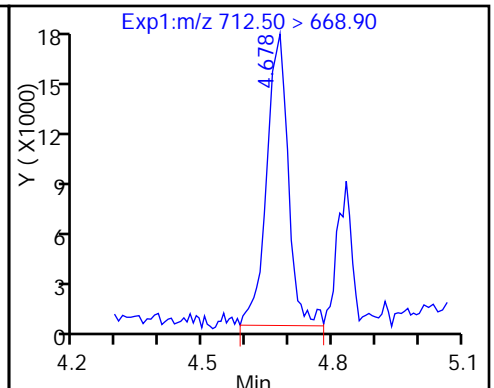
41 Perfluorotridecanoic acid (ND)



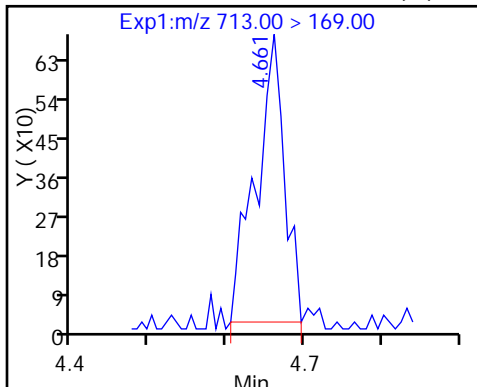
D 43 13C2-PFTeDA



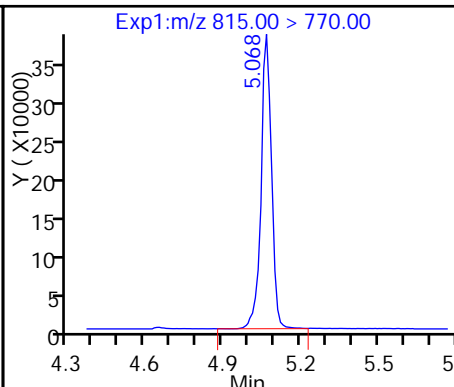
42 Perfluorotetradecanoic acid



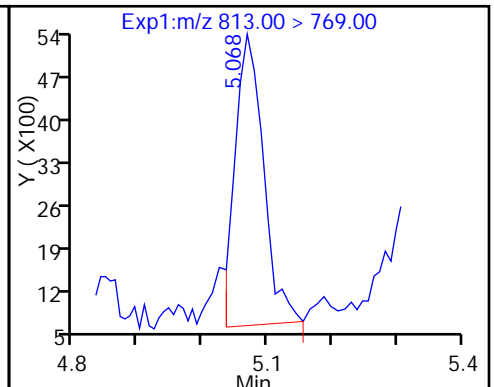
42 Perfluorotetradecanoic acid (M)



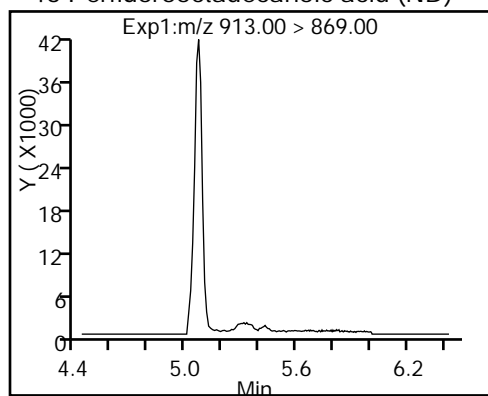
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND)



TestAmerica Sacramento

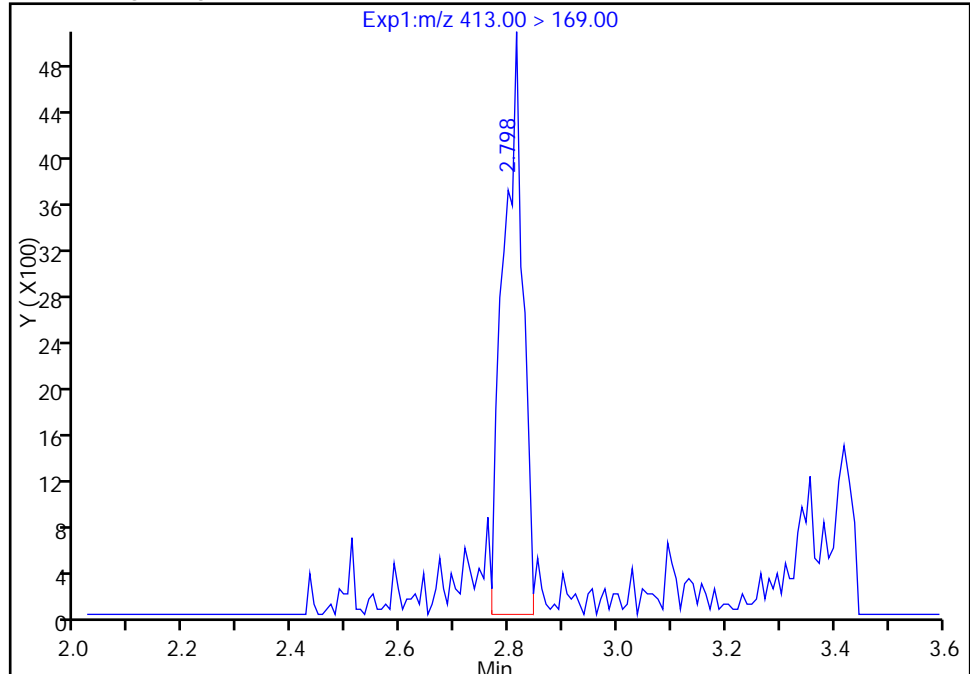
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_029.d
Injection Date: 11-Mar-2017 15:42:39 Instrument ID: A8_N
Lims ID: MB 320-152961/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 21 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

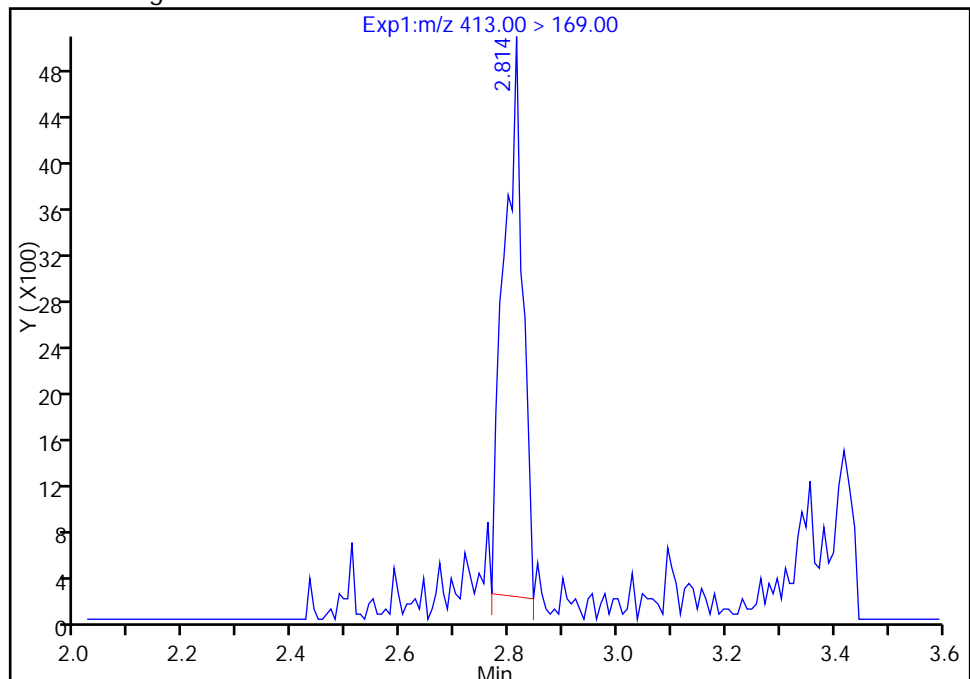
RT: 2.80
Area: 12547
Amount: 0.095533
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 11630
Amount: 0.095533
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:06:19

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

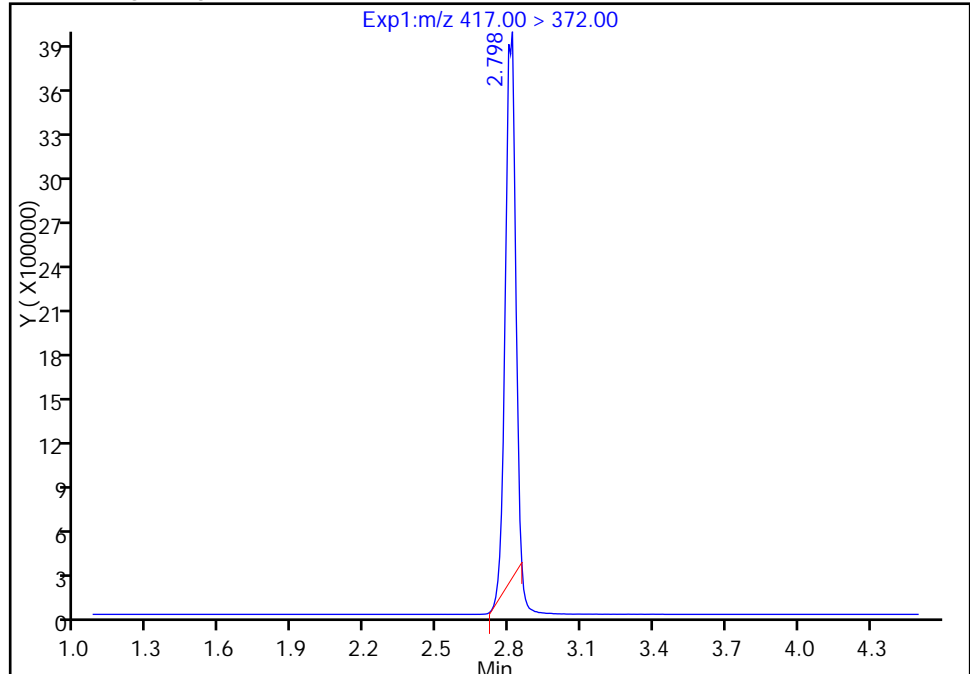
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_029.d
Injection Date: 11-Mar-2017 15:42:39 Instrument ID: A8_N
Lims ID: MB 320-152961/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 21 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 14 13C4 PFOA, CAS: STL00990

Signal: 1

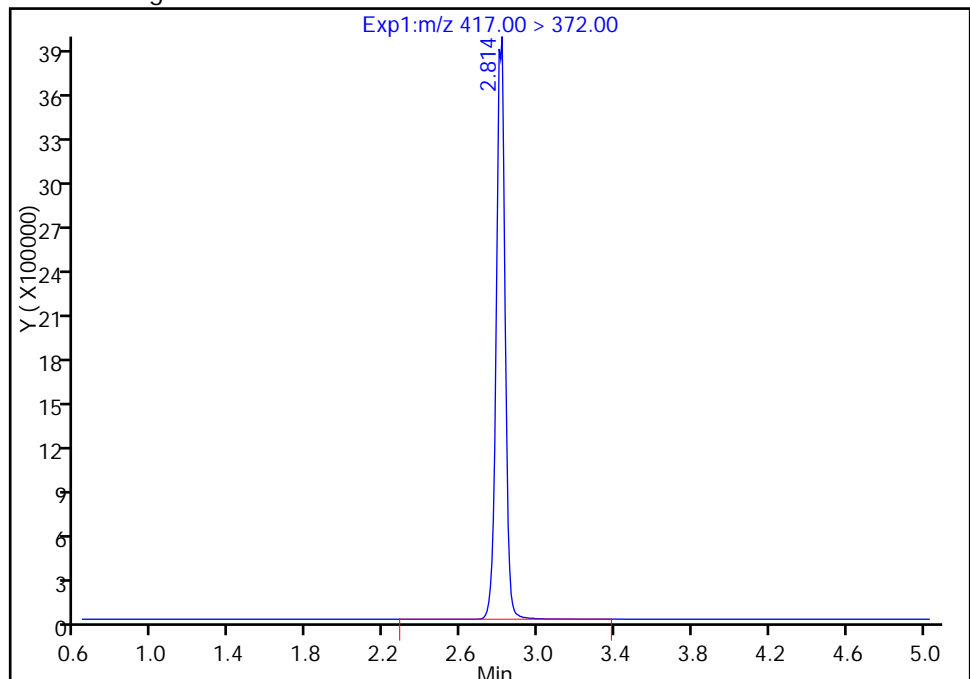
RT: 2.80
Area: 10788575
Amount: 52.639263
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 12550907
Amount: 61.237976
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:05:20

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 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	4550584	

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 PFDaA										
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

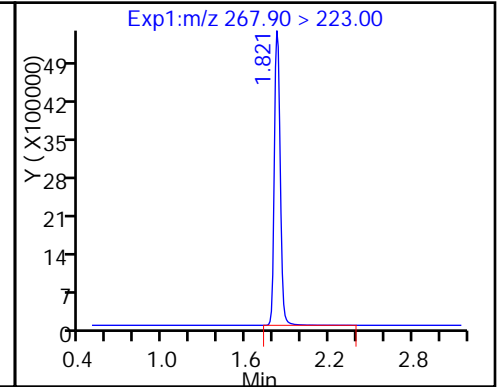
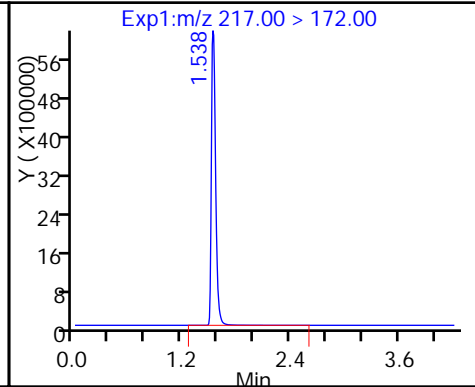
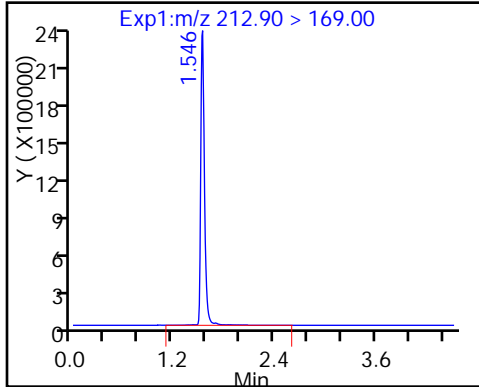
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

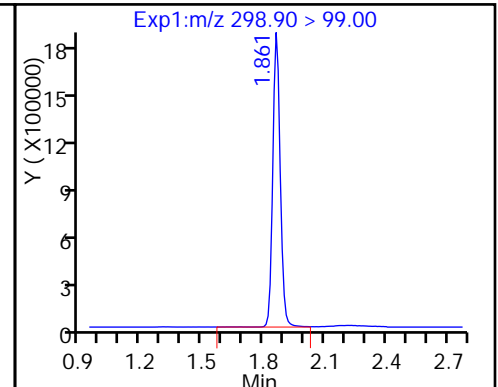
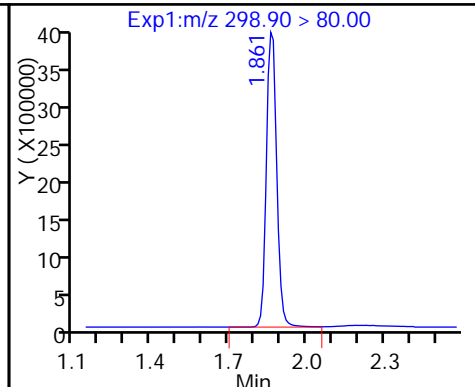
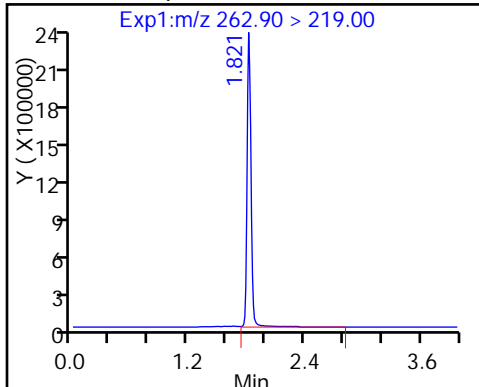
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

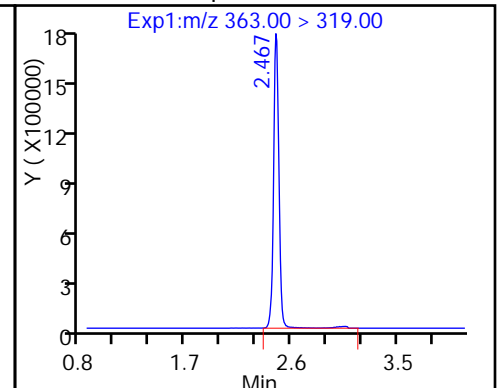
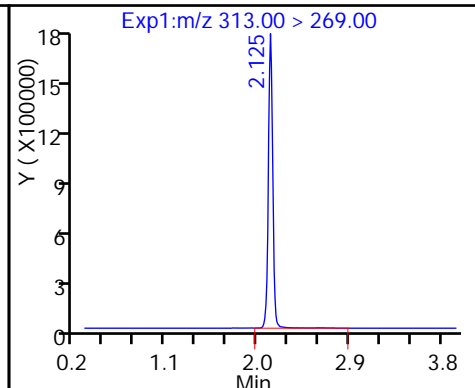
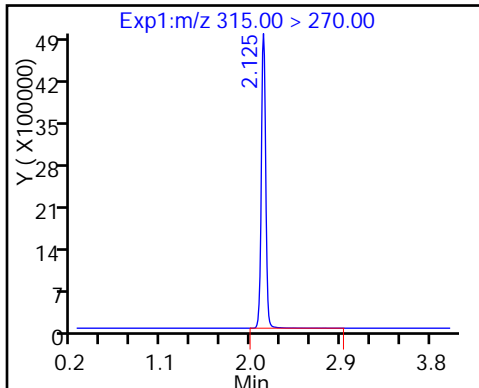
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

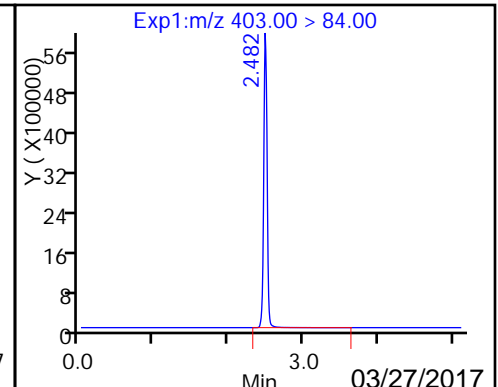
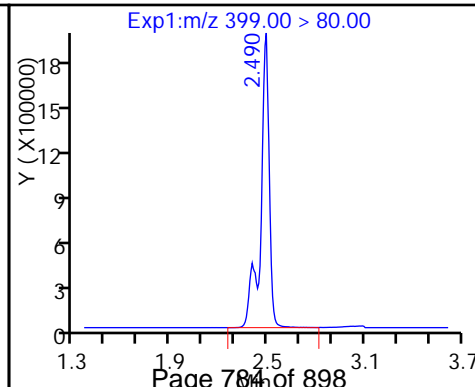
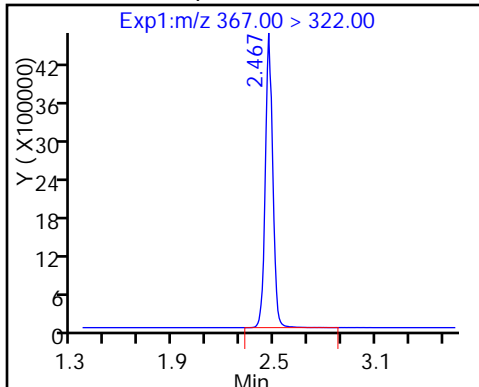
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

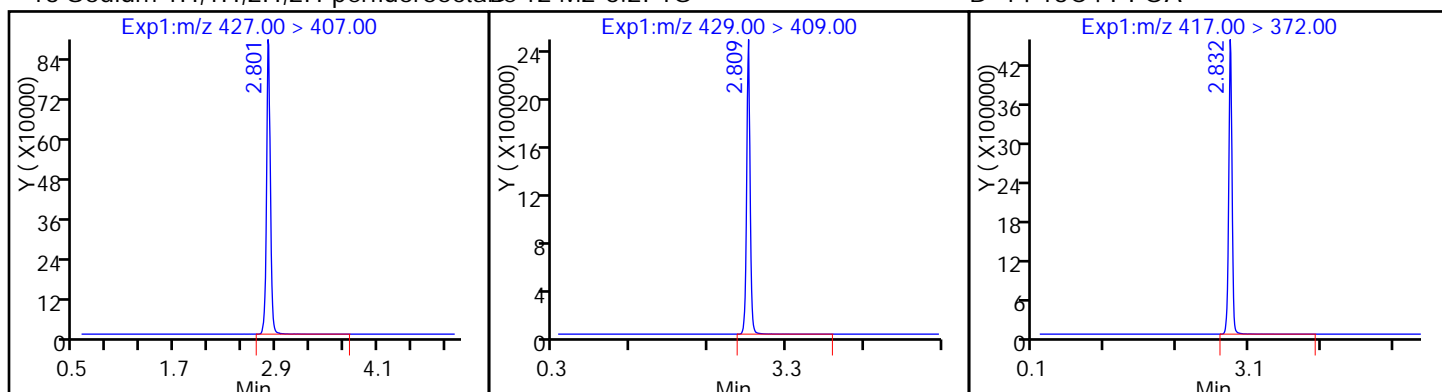
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

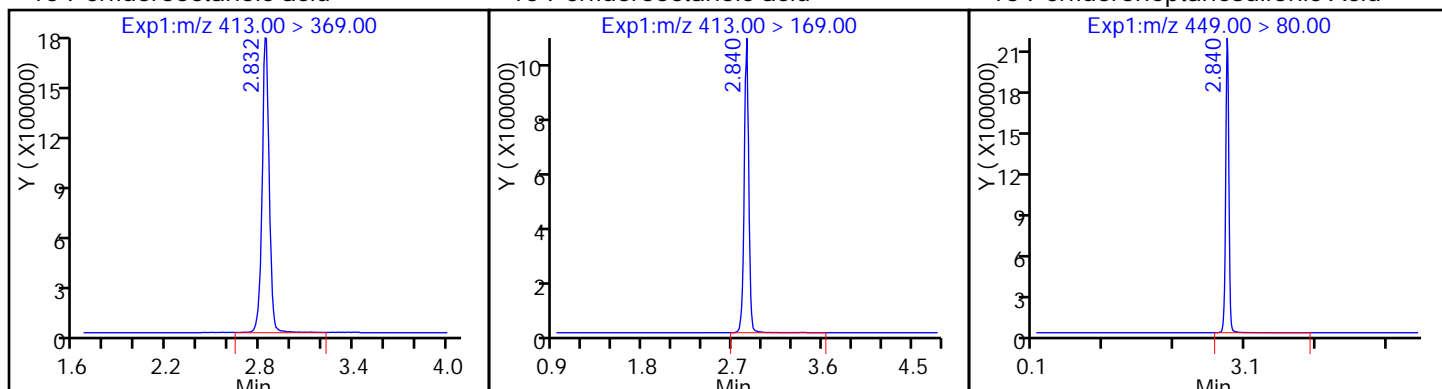
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

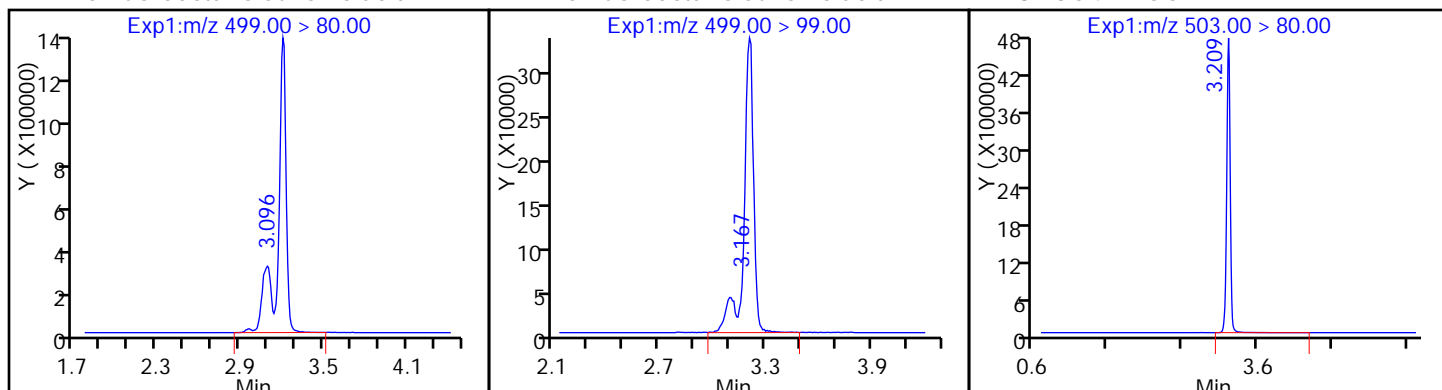
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

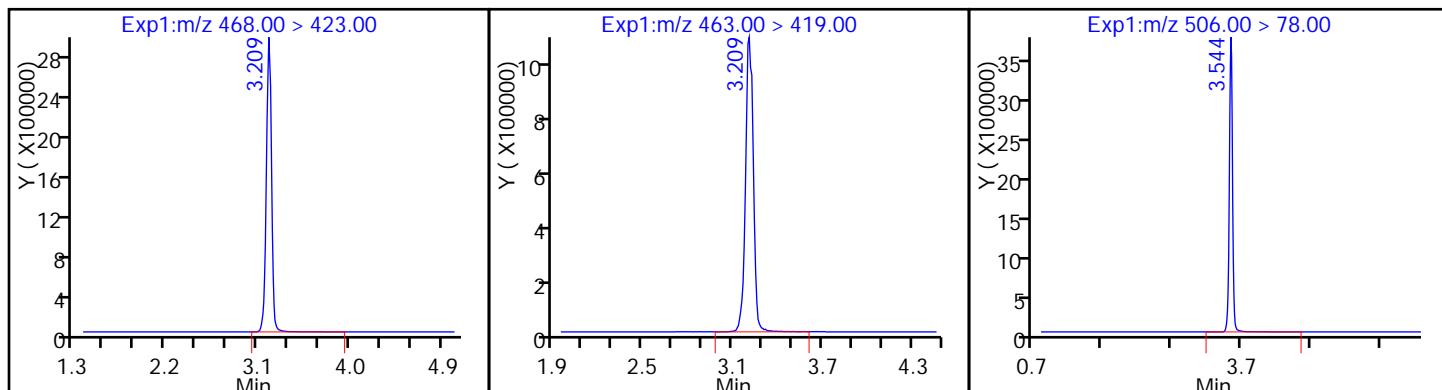
D 18 13C4 PFOS



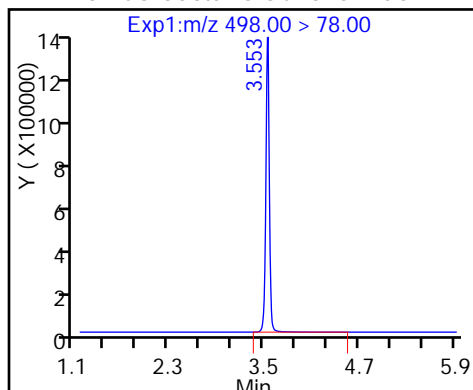
D 19 13C5 PFNA

20 Perfluorononanoic acid

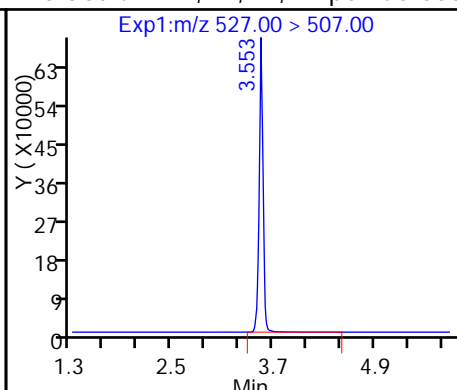
D 21 13C8 FOSA



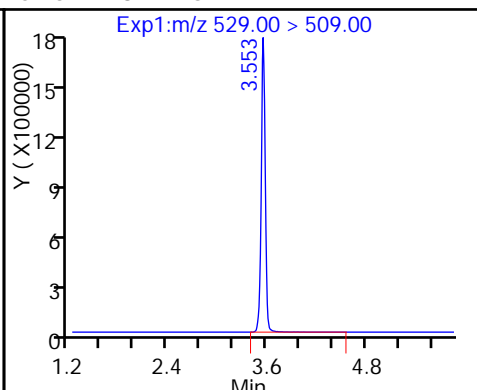
22 Perfluorooctane Sulfonamide



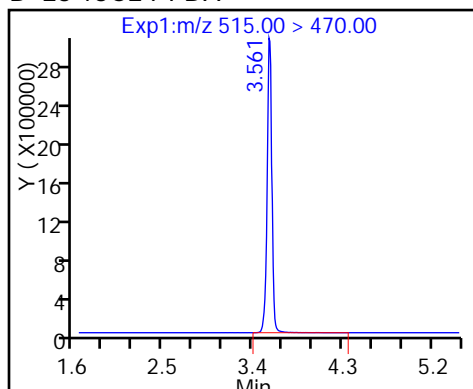
25 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



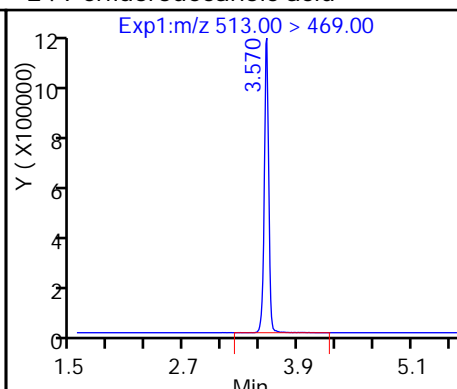
D 26 M2-8:2FTS



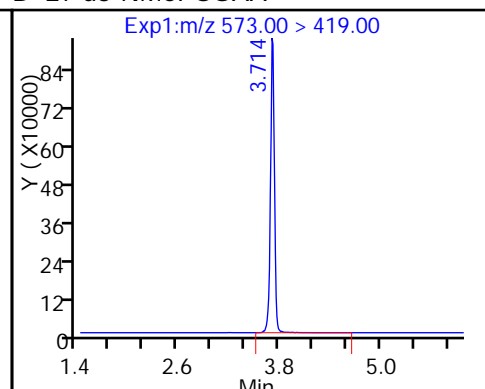
D 23 13C2 PFDA



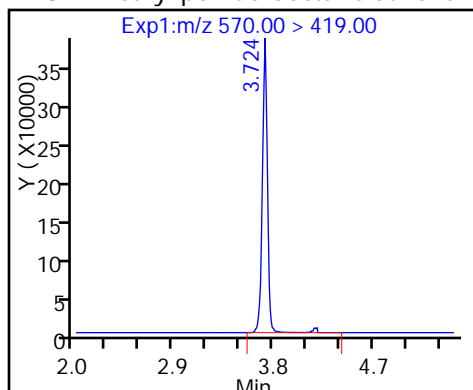
24 Perfluorodecanoic acid



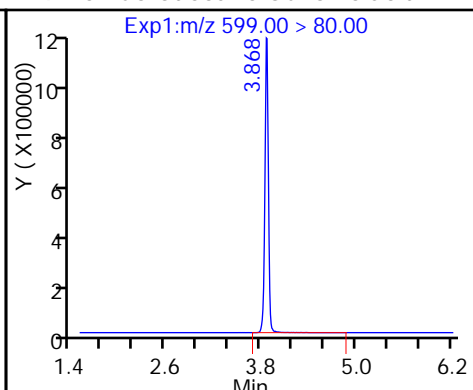
D 27 d3-NMeFOSAA



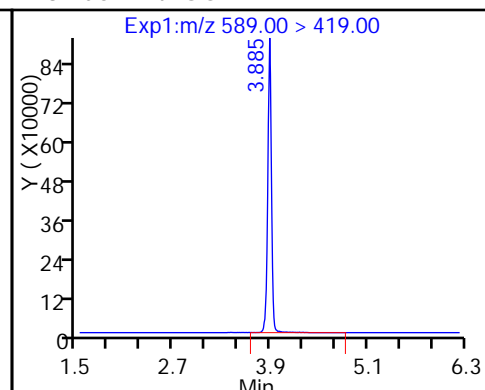
28 N-methyl perfluorooctane sulfonamide



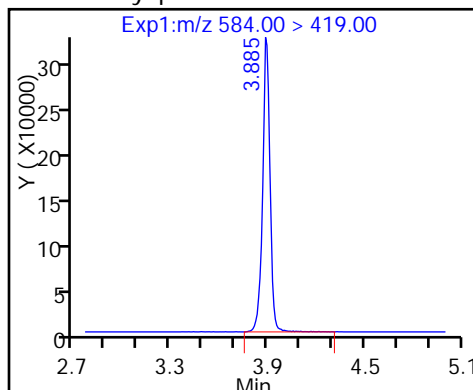
29 Perfluorodecane Sulfonic acid



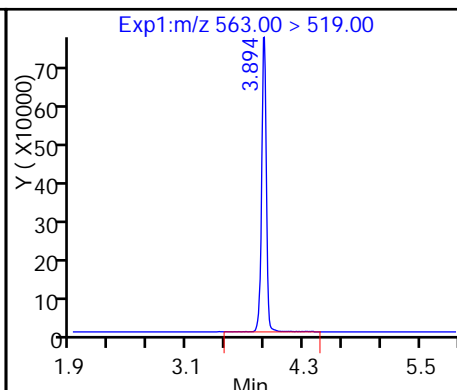
D 32 d5-NEtFOSAA



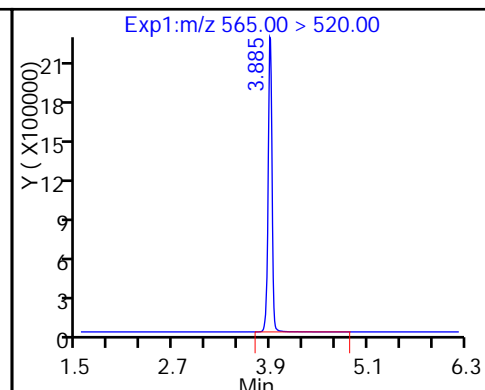
33 N-ethyl perfluorooctane sulfonamide



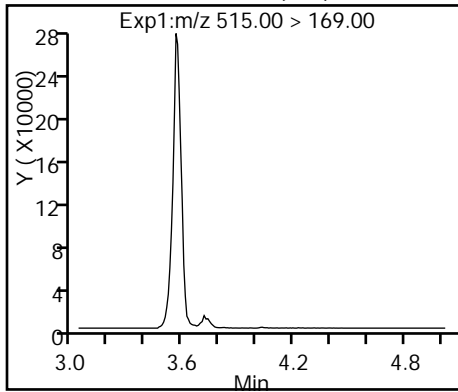
31 Perfluoroundecanoic acid



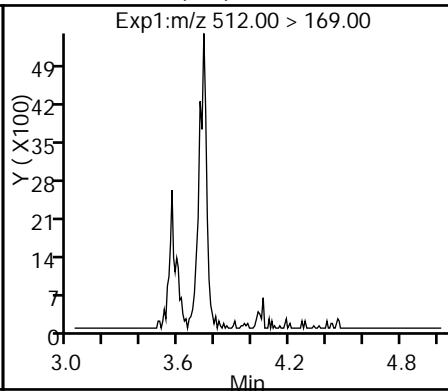
D 30 13C2 PFUnA



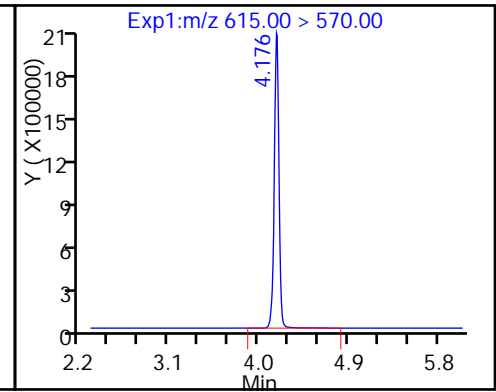
D 34 d-N-MeFOSA-M (ND)



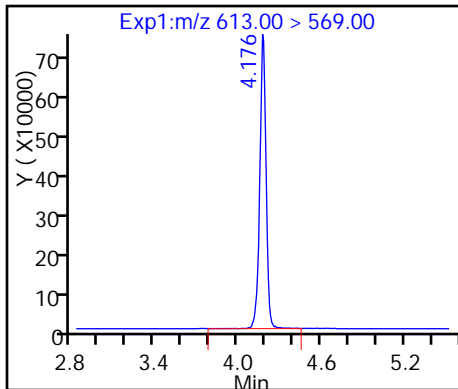
35 MeFOSA (ND)



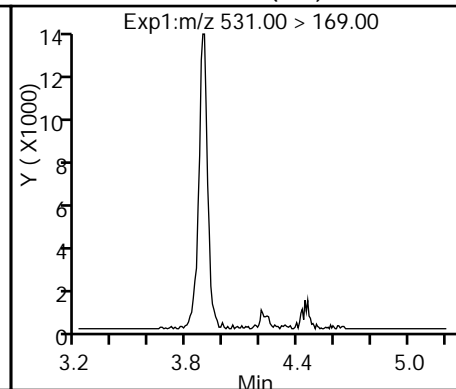
D 36 13C2 PFDaA



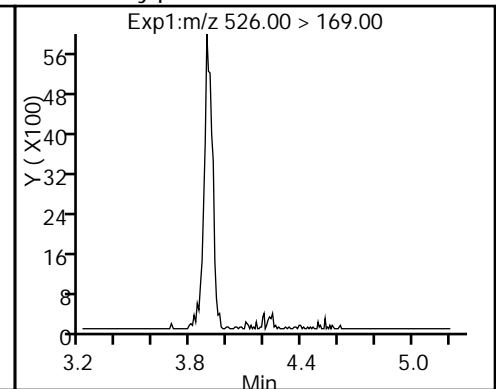
37 Perfluorododecanoic acid



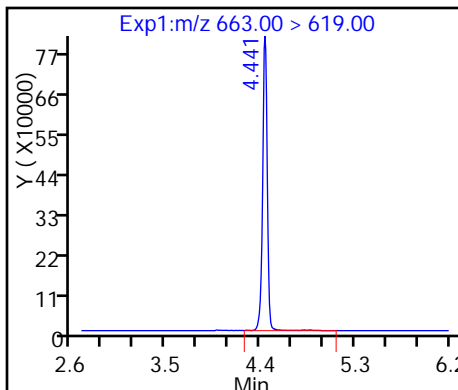
D 38 d-N-EtFOSA-M (ND)



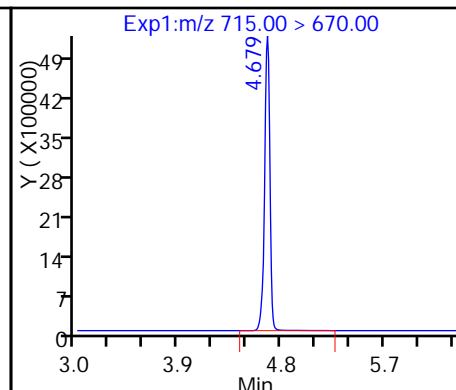
39 N-ethylperfluoro-1-octanesulfonami (ND)



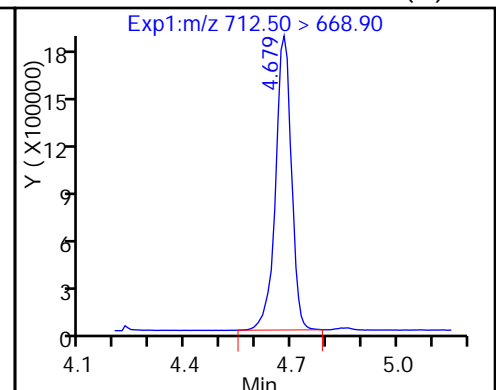
41 Perfluorotridecanoic acid



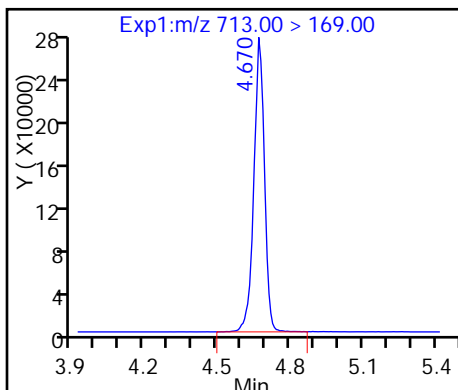
D 43 13C2-PFTeDA



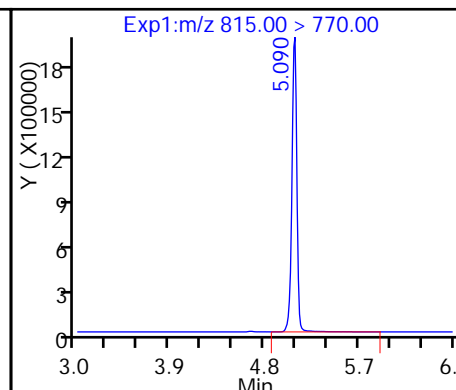
42 Perfluorotetradecanoic acid (M)



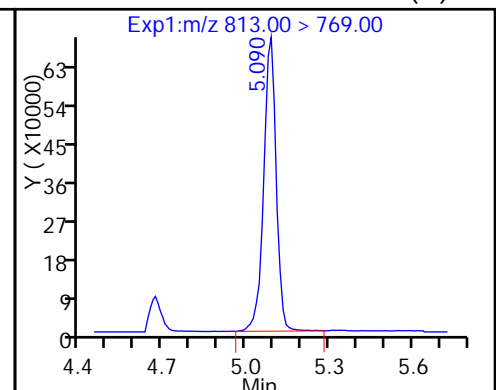
42 Perfluorotetradecanoic acid



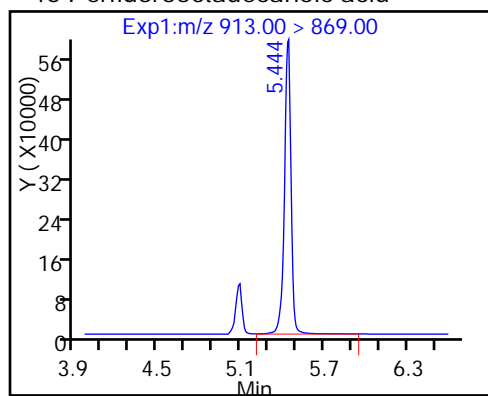
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-152961/2-A
 Matrix: Solid Lab File ID: 2017.03.11C_030.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5(g) Date Analyzed: 03/11/2017 15:50
 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.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.25		0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.90	M	0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.04		0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	113		25-150
STL00991	13C4 PFOS	100		25-150
STL00994	18O2 PFHxS	108		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_030.d
 Lims ID: LCS 320-152961/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 11-Mar-2017 15:50:10 ALS Bottle#: 22 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-152961/2-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:07:17 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:43:01

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	1.539	1.539	0.0	1.000	6207356	22.5		113	34637	
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.539	-0.008		16263597	55.7		111	873396	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.822	-0.010		12900820	55.6		111	642597	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	5293681	21.0		105	53511	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.862	1.862	0.0	1.000	9063620	20.2		114		
298.90 > 99.00	1.852	1.862	-0.010	0.995	3681995		2.46(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.117	-0.003		11255192	53.4		107	386580	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.114	2.117	-0.003	1.000	4264279	21.3		106	68562	
D 9 13C4-PFHpA										
367.00 > 322.00	2.451	2.452	-0.001		12045502	62.4		125	424209	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.451	2.452	-0.001	1.000	4769410	20.5		102	44338	
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.468	-0.001		14824463	51.0		108	445048	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.467	2.476	-0.009	1.000	5797120	18.0		98.8		M
15 Perfluorooctanoic acid										
413.00 > 369.00	2.817	2.818	-0.001	1.000	5017942	21.3		106	51775	
413.00 > 169.00	2.817	2.818	-0.001	1.000	2908750		1.73(0.90-1.10)		70652	
D 14 13C4 PFOA										
417.00 > 372.00	2.817	2.818	-0.001		11549112	56.4		113	274031	

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	2.825	2.826	-0.001	1.000	5467339	22.0	116		
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.183	3.192	-0.009	1.000	4622109	19.5	105	125982	M
499.00 > 99.00	3.183	3.192	-0.009	1.000	1056407		4.38(0.90-1.10)		305554	M
20 Perfluorononanoic acid	463.00 > 419.00	3.183	3.192	-0.009	1.000	3572364	21.4	107	129365	M
D 18 13C4 PFOS	503.00 > 80.00	3.183	3.192	-0.009		11525773	47.7	99.8	319128	
D 19 13C5 PFNA	468.00 > 423.00	3.183	3.201	-0.018		9242189	52.0	104	268813	
D 21 13C8 FOSA	506.00 > 78.00	3.522	3.519	0.003		7304099	19.9	39.8	232731	
22 Perfluorooctane Sulfonamide	498.00 > 78.00	3.522	3.519	0.003	1.000	2698921	20.6	103	144218	
24 Perfluorodecanoic acid	513.00 > 469.00	3.548	3.544	0.004	1.000	3152164	21.6	108	121090	
D 23 13C2 PFDA	515.00 > 470.00	3.539	3.544	-0.005		8044389	48.3	96.5	173179	
29 Perfluorodecane Sulfonic acid	599.00 > 80.00	3.860	3.858	0.002	1.000	2377793	16.6	85.9		
31 Perfluoroundecanoic acid	563.00 > 519.00	3.868	3.867	0.001	1.000	2092016	18.3	91.7	84522	
D 30 13C2 PFUnA	565.00 > 520.00	3.868	3.876	-0.008		5629350	43.0	86.1	260670	
37 Perfluorododecanoic acid	613.00 > 569.00	4.156	4.159	-0.003	1.000	1667761	19.9	99.6	50613	
D 36 13C2 PFDaA	615.00 > 570.00	4.156	4.159	-0.003		4578448	36.9	73.9	151689	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.429	4.428	0.001	1.000	1175044	14.7	73.5	23883	
D 43 13C2-PFTeDA	715.00 > 670.00	4.664	4.663	0.001		6556041	25.3	50.6	306881	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.664	4.663	0.001	1.000	2328892	12.9	64.7	23847	
713.00 > 169.00	4.664	4.663	0.001	1.000	342993		6.79(0.00-0.00)		59180	
D 44 13C2-PFHxDA	815.00 > 770.00	5.070	5.078	-0.008		1482012	11.9	23.7	67346	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.081	5.078	0.003	1.000	525219	5.81	29.1	1790	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.430	5.429	0.001	1.000	254133	3.87	19.3	984	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_030.d

Injection Date: 11-Mar-2017 15:50:10

Instrument ID: A8_N

Lims ID: LCS 320-152961/2-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 22

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

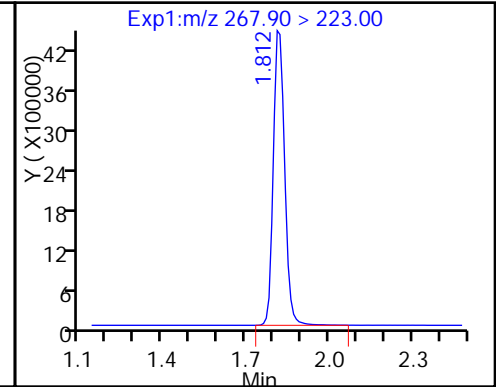
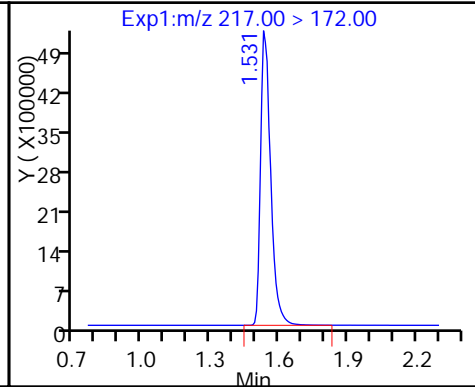
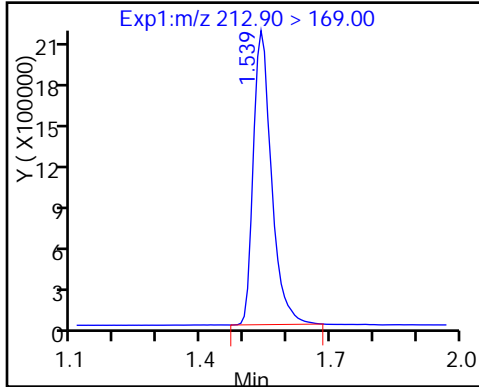
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

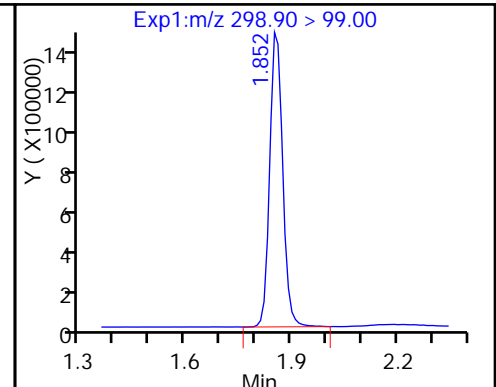
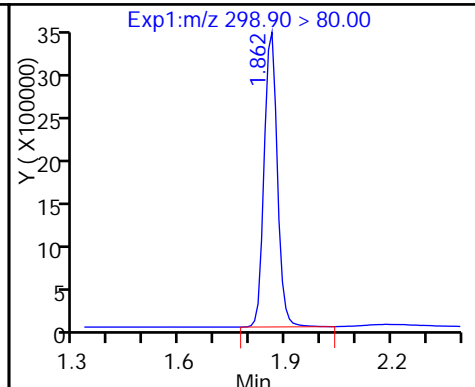
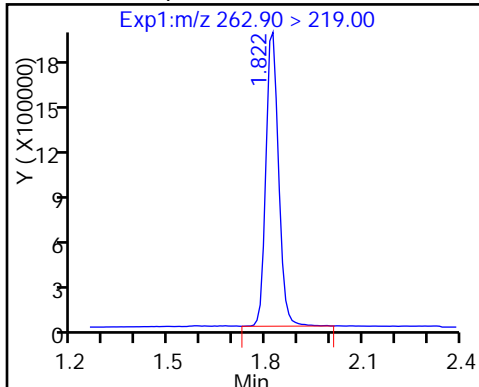
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

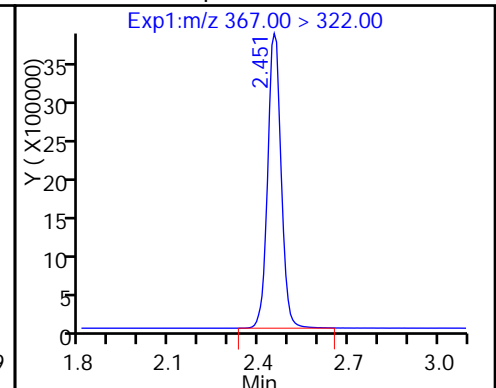
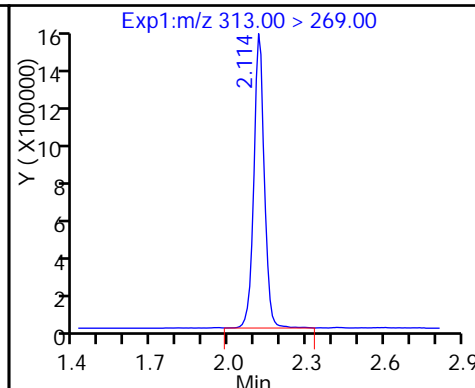
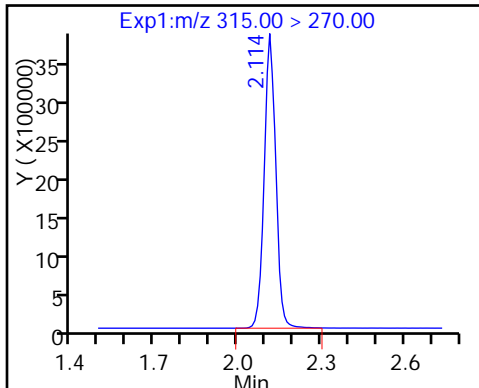
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

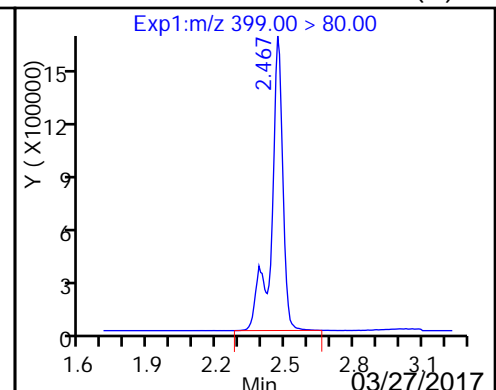
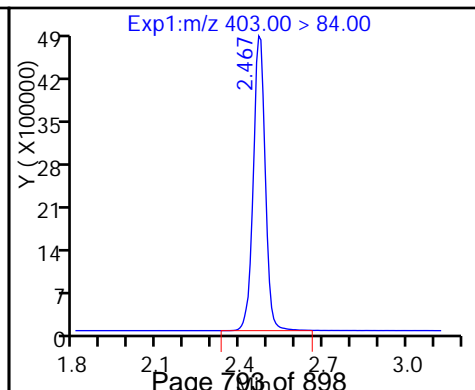
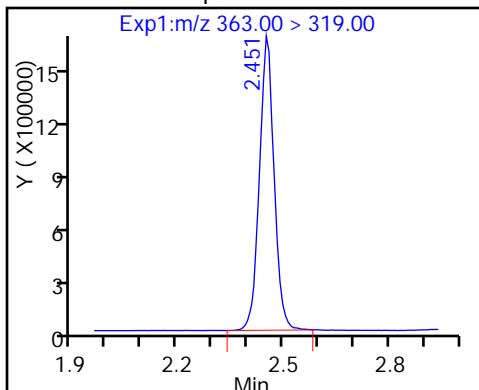
D 9 13C4-PFHpA

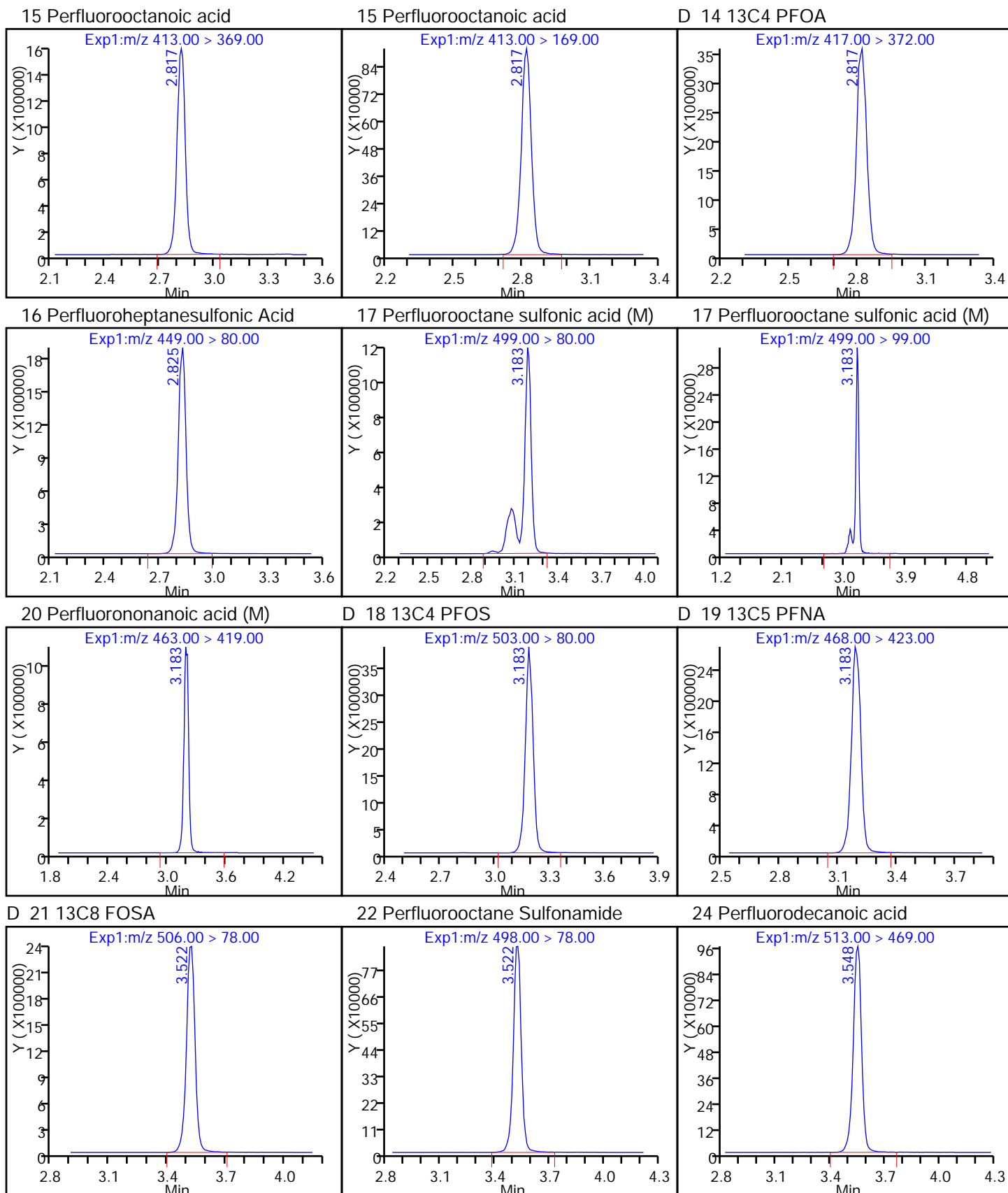


10 Perfluoroheptanoic acid

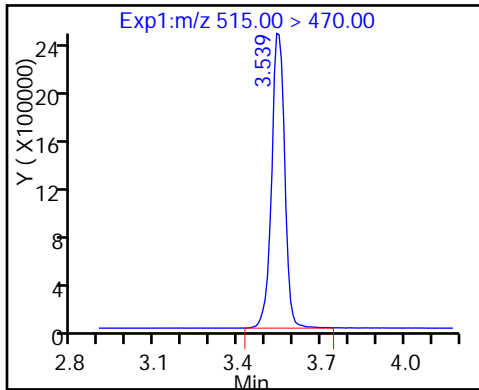
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)

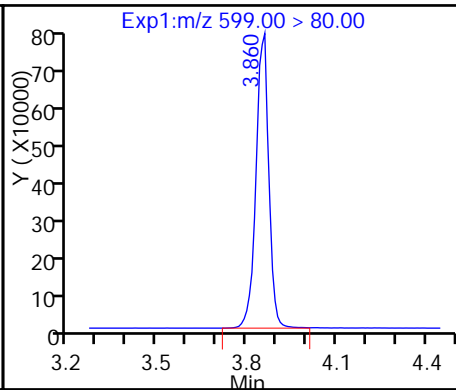




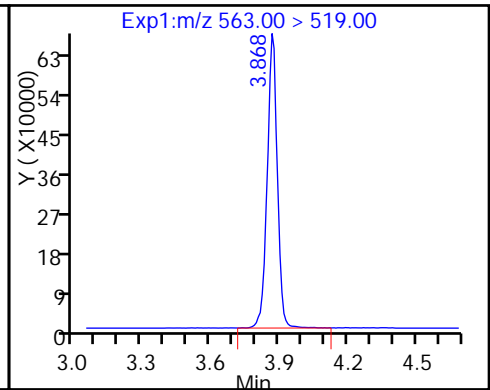
D 23 13C2 PFDA



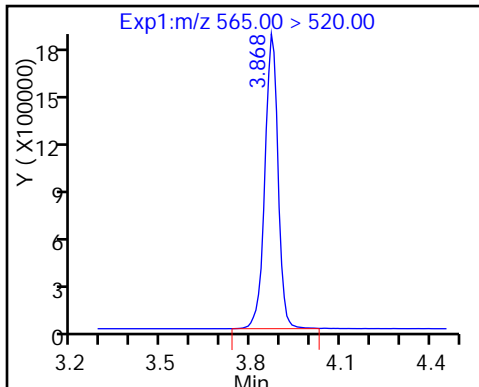
29 Perfluorodecane Sulfonic acid



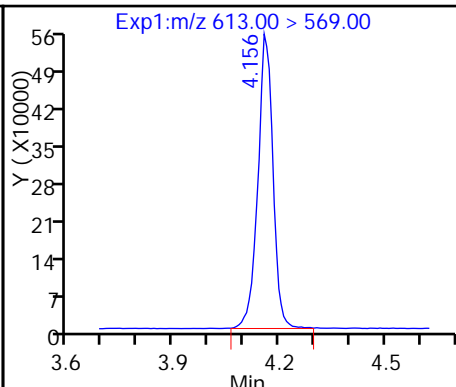
31 Perfluoroundecanoic acid



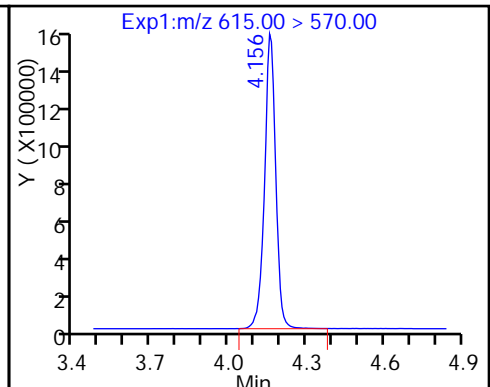
D 30 13C2 PFUnA



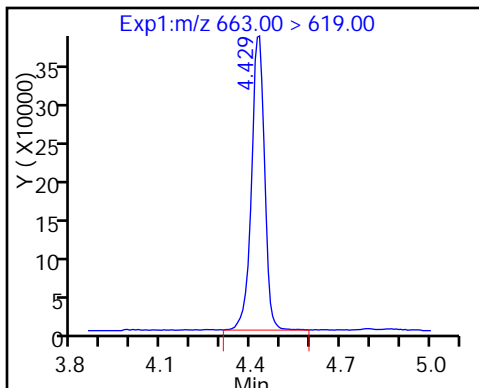
37 Perfluorododecanoic acid



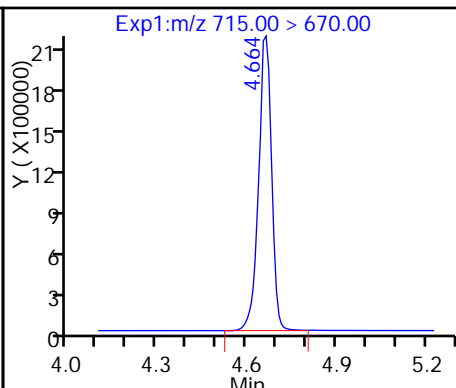
D 36 13C2 PFDa



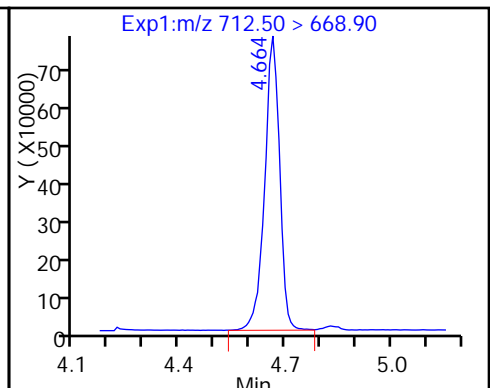
41 Perfluorotridecanoic acid



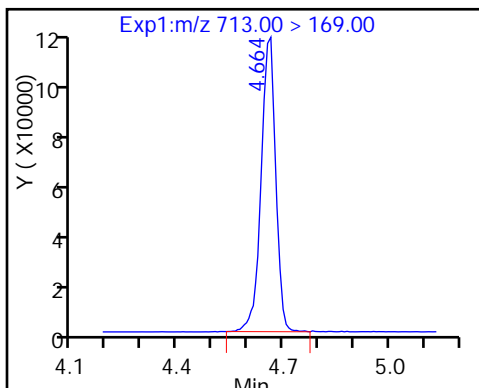
D 43 13C2-PFTeDA



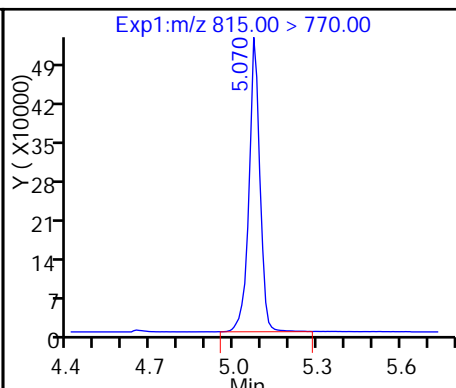
42 Perfluorotetradecanoic acid



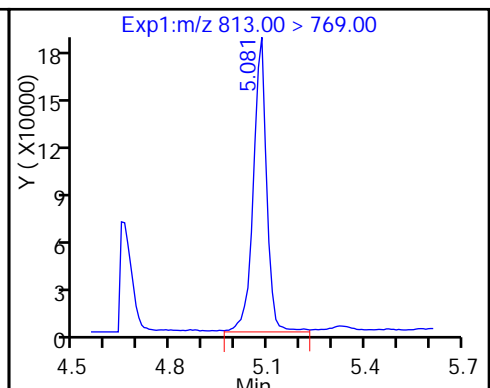
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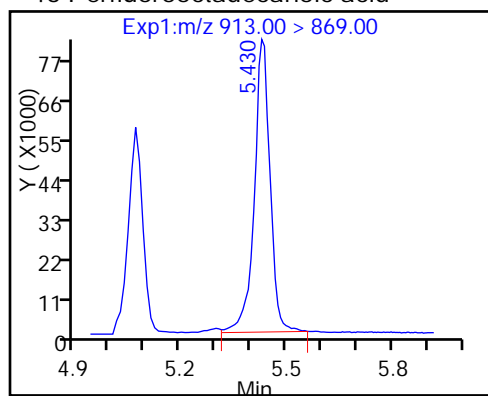
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

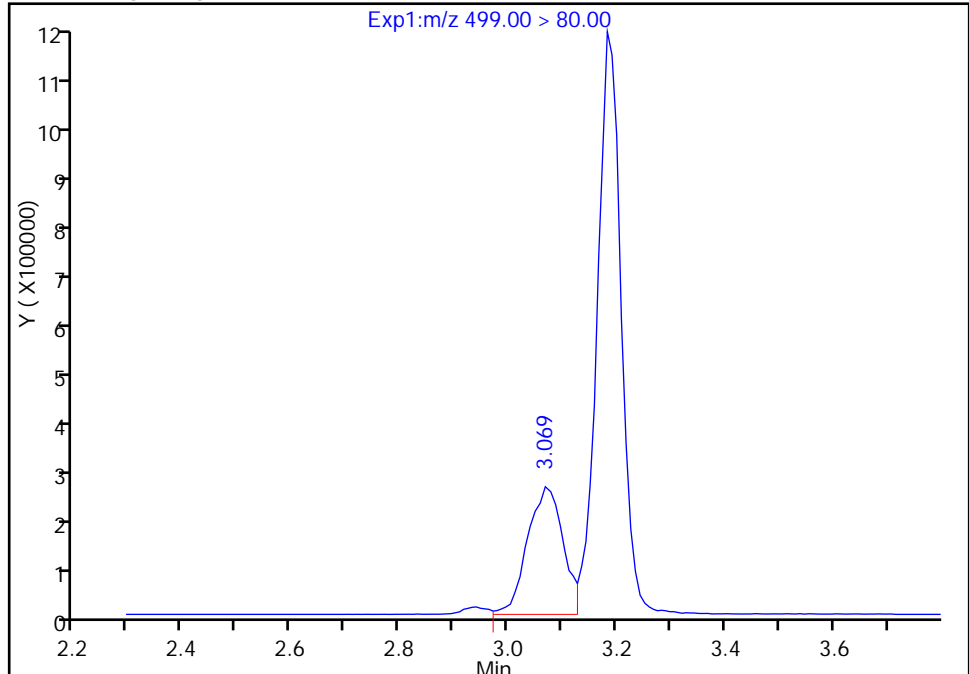
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Injection Date: 11-Mar-2017 15:50:10 Instrument ID: A8_N
Lims ID: LCS 320-152961/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 22 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

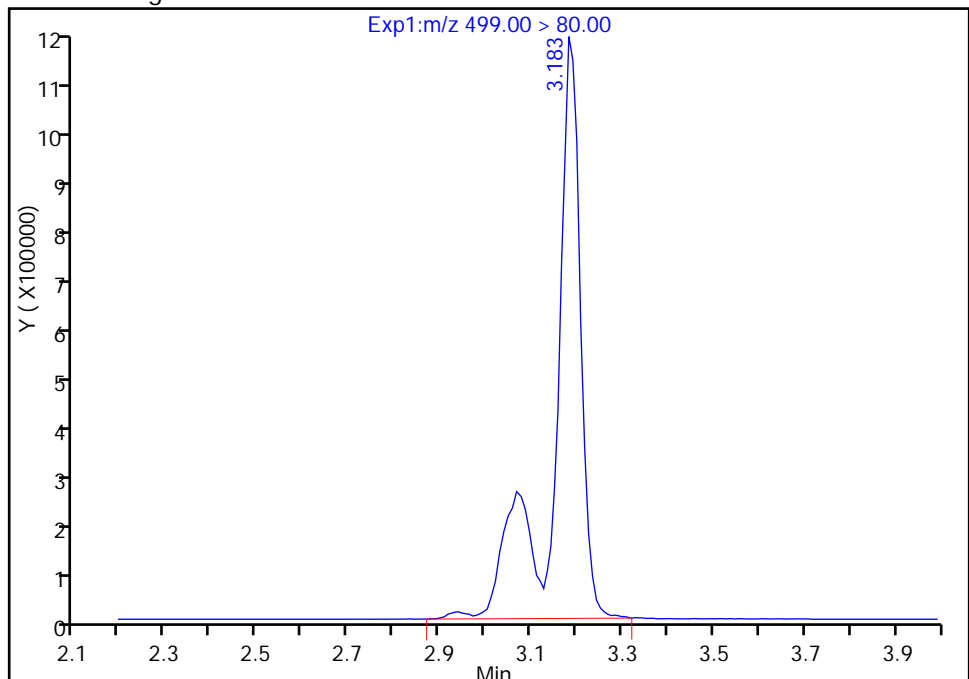
RT: 3.07
Area: 1125580
Amount: 4.746436
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 4622109
Amount: 19.490881
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:06:29

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

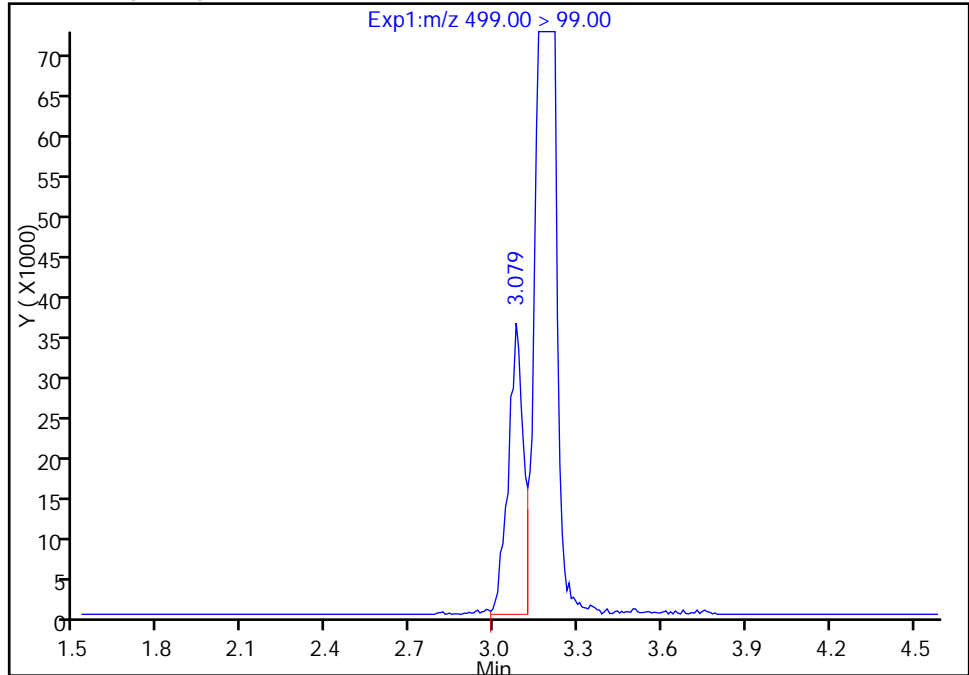
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Injection Date: 11-Mar-2017 15:50:10 Instrument ID: A8_N
Lims ID: LCS 320-152961/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 22 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

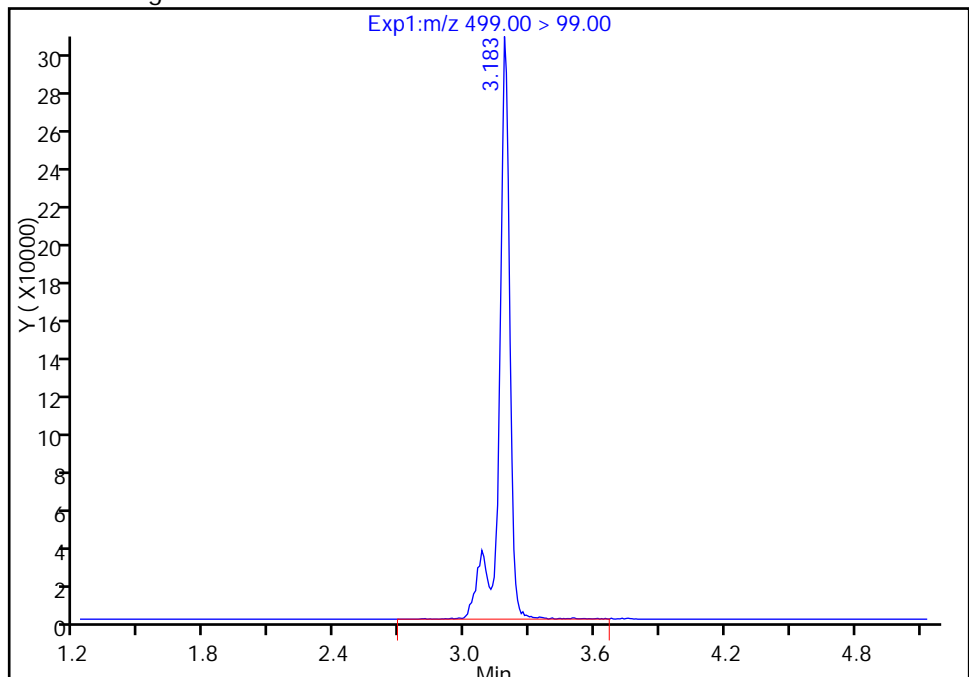
RT: 3.08
Area: 131886
Amount: 4.746436
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1056407
Amount: 19.490881
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:06:47

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 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		14569054	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										M
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	
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

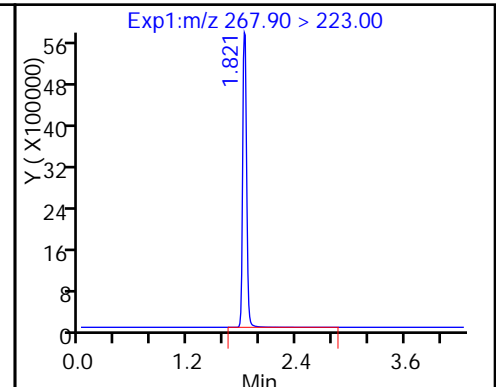
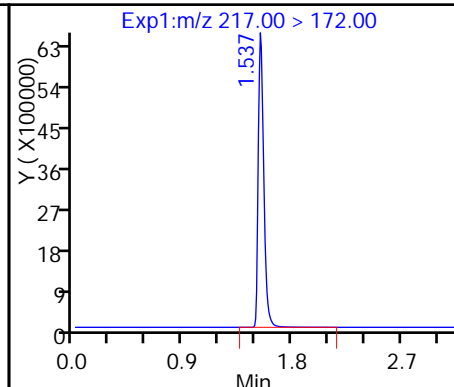
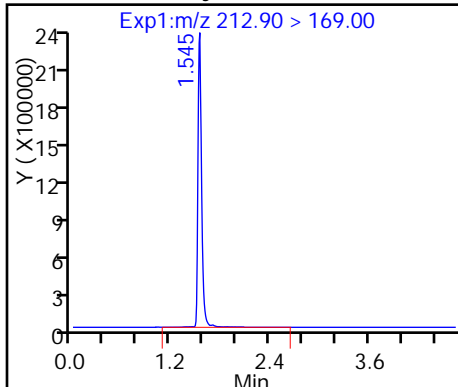
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

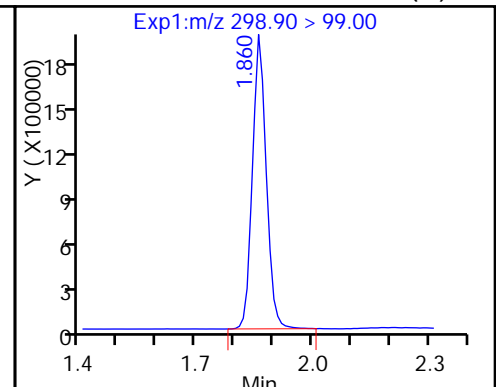
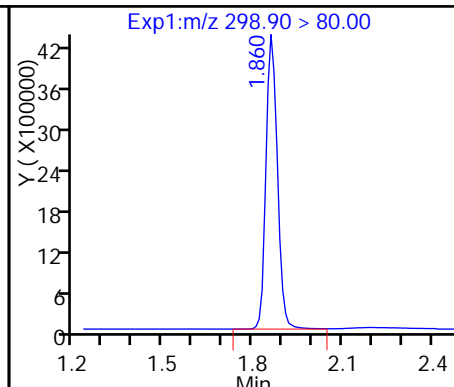
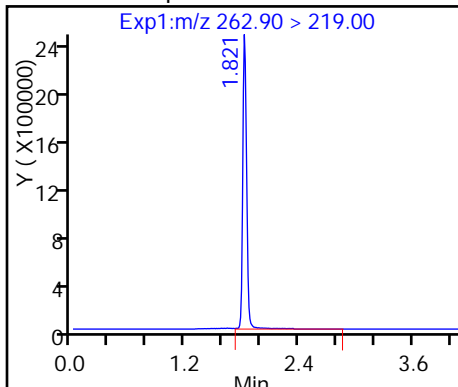
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

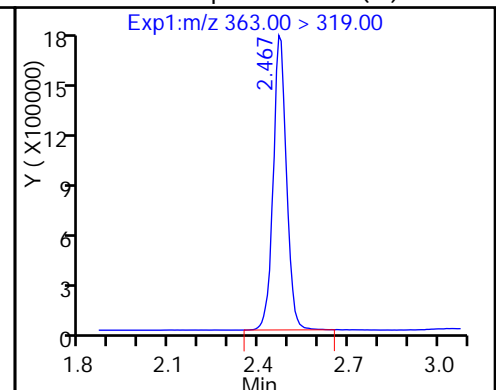
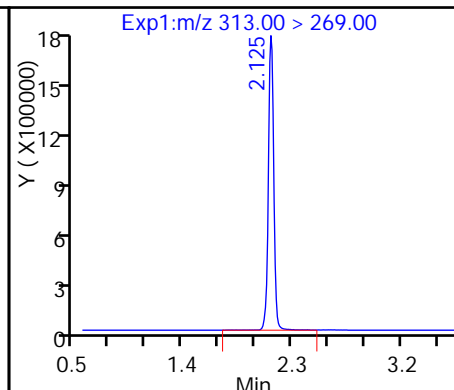
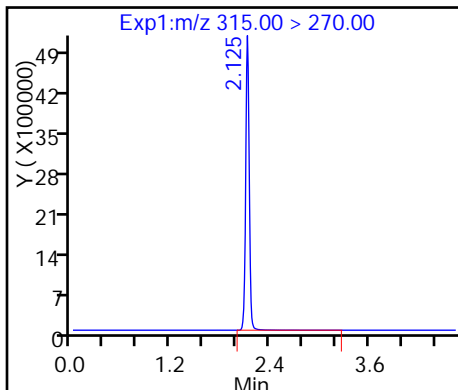
5 Perfluorobutanesulfonic acid (M)



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

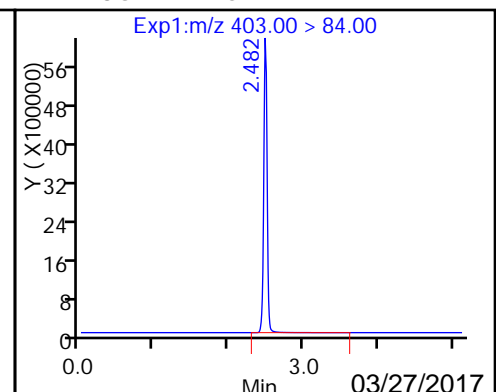
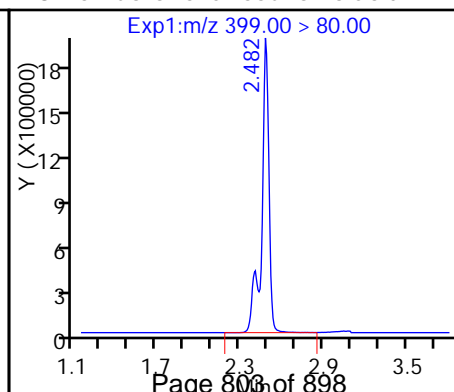
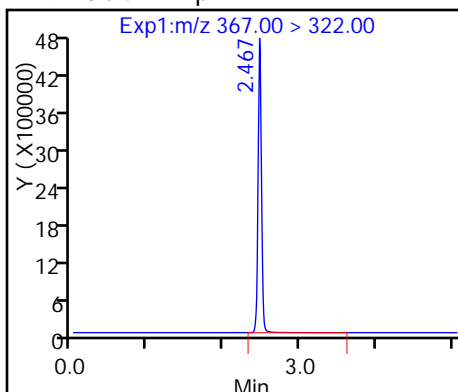
10 Perfluoroheptanoic acid (M)



D 9 13C4-PFHpA

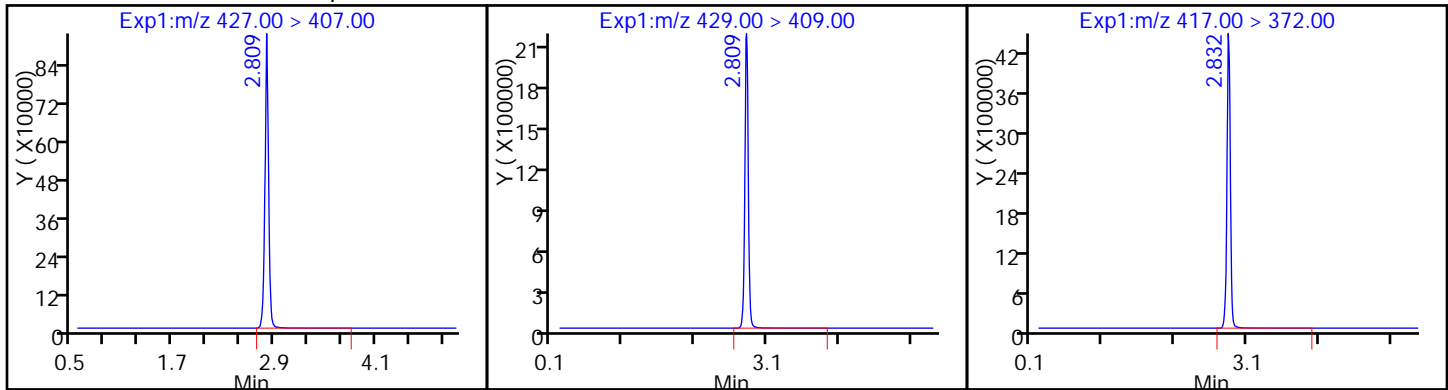
8 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



13 Sodium 1H,1H,2H,2H-perfluorooctadec-12 M2-6:2FTS

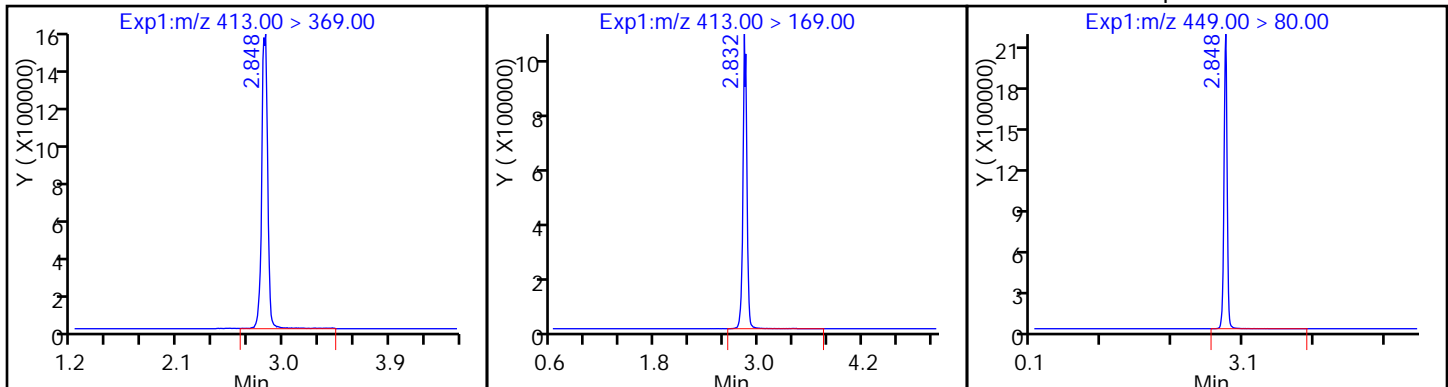
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

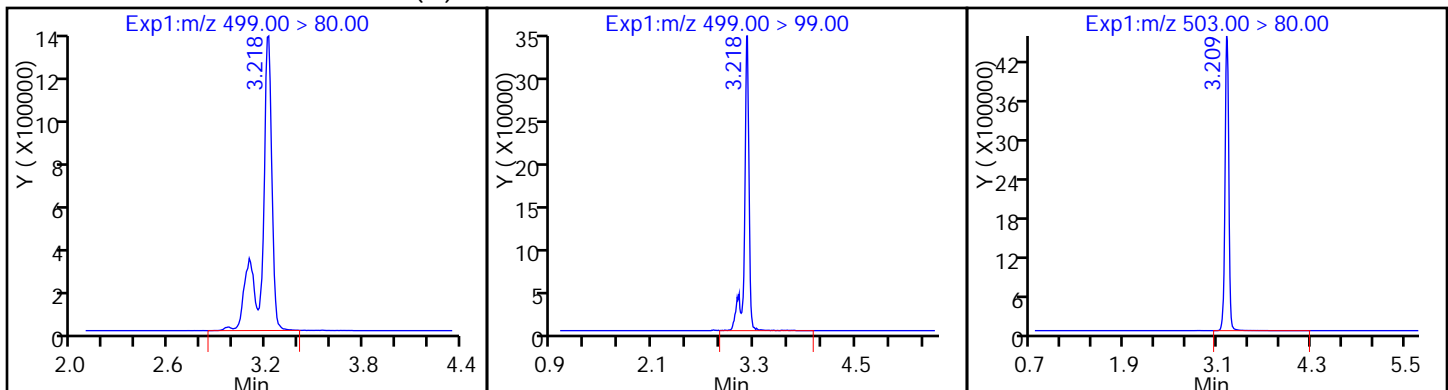
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

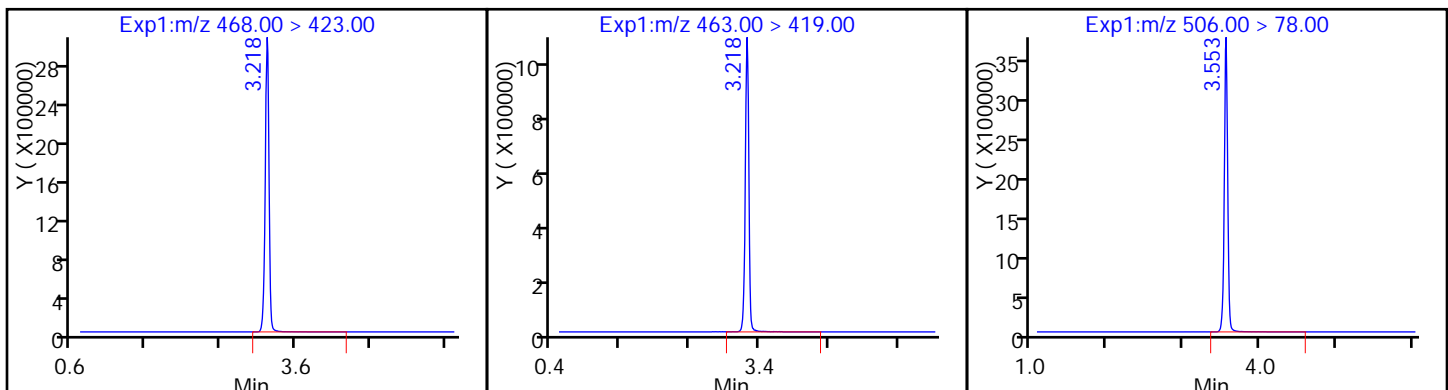
D 18 13C4 PFOS



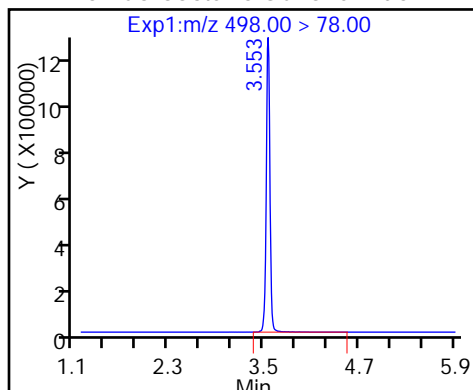
D 19 13C5 PFNA

20 Perfluorononanoic acid

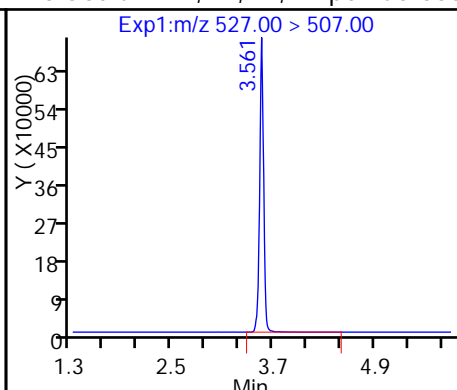
D 21 13C8 FOSA



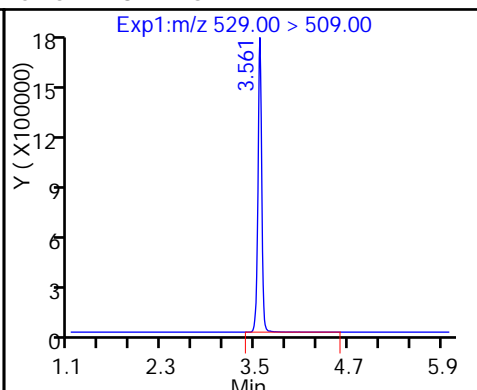
22 Perfluorooctane Sulfonamide



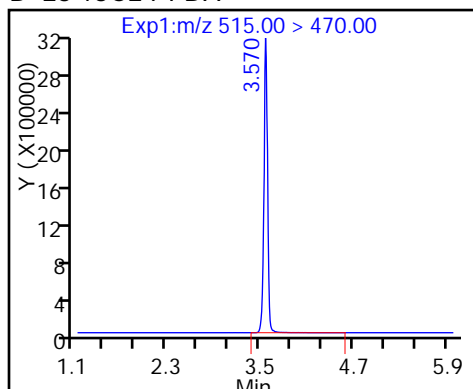
25 Sodium 1H,1H,2H,2H-perfluorooctane



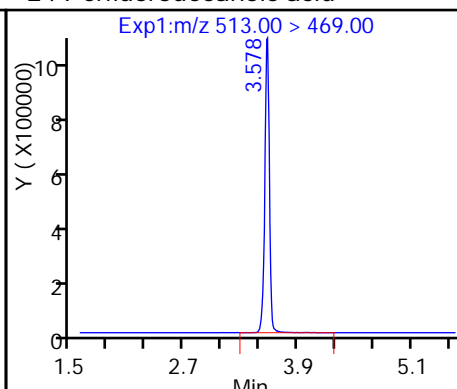
D 26 M2-8:2FTS



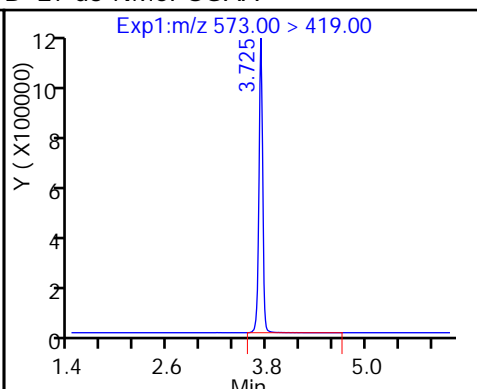
D 23 13C2 PFDA



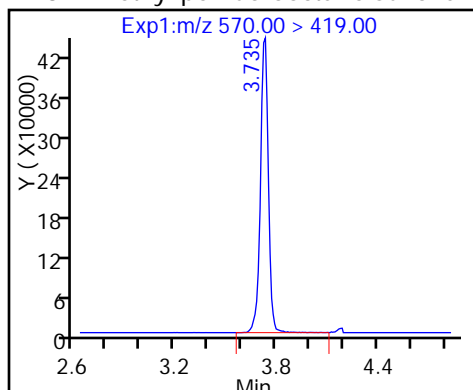
24 Perfluorodecanoic acid



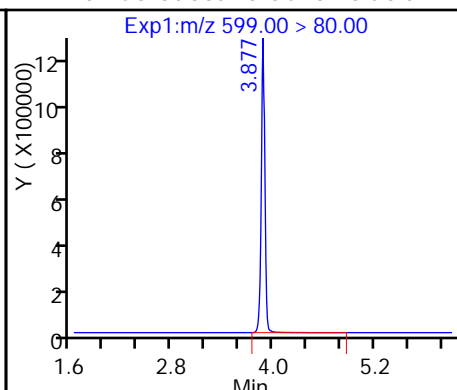
D 27 d3-NMeFOSAA



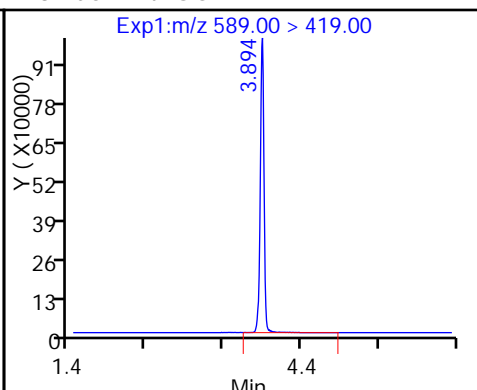
28 N-methyl perfluorooctane sulfonami



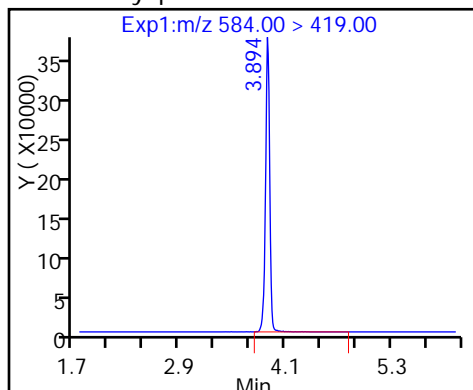
29 Perfluorodecane Sulfonic acid



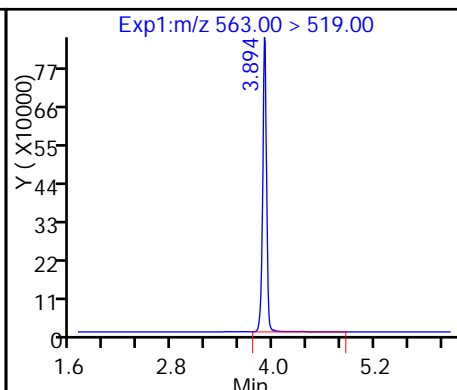
D 32 d5-NEtFOSAA



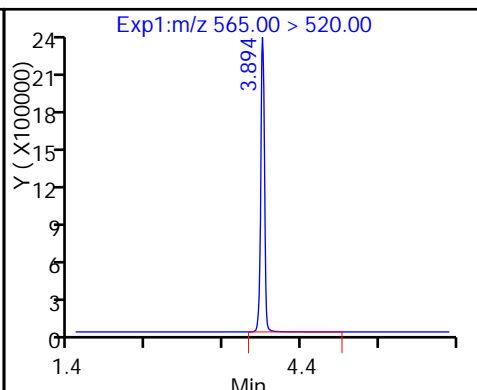
33 N-ethyl perfluorooctane sulfonamid



31 Perfluoroundecanoic acid



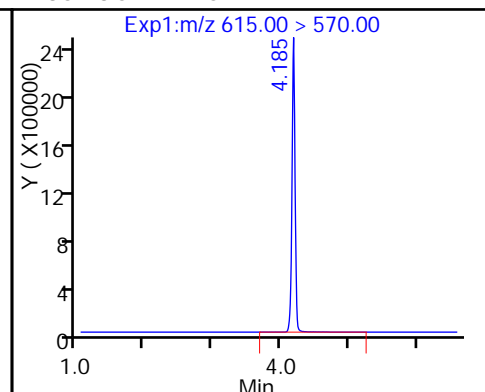
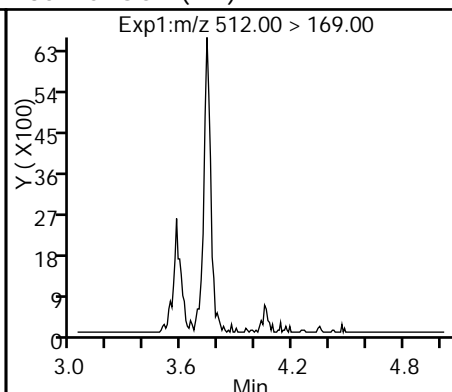
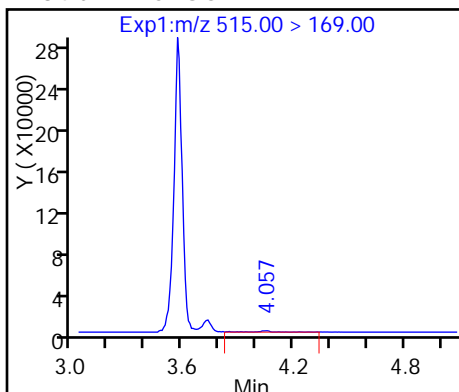
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA (ND)

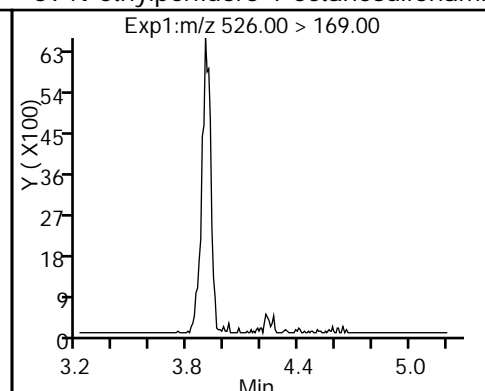
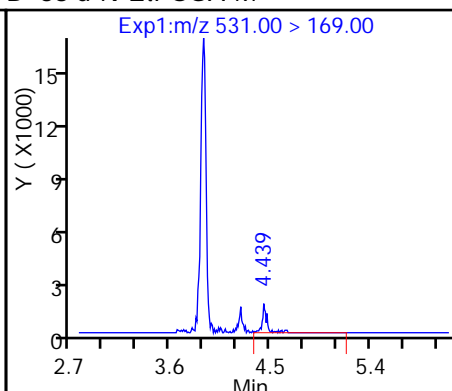
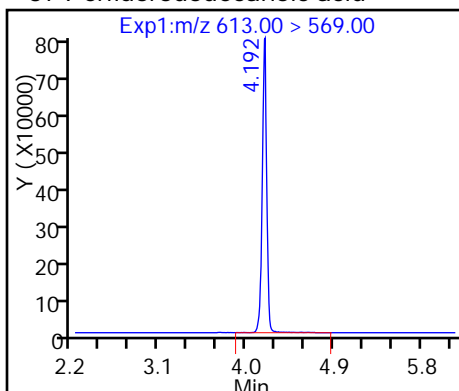
D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

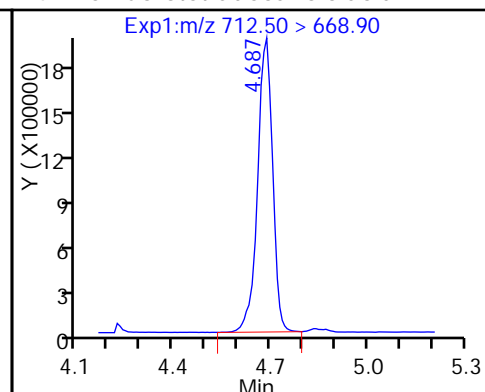
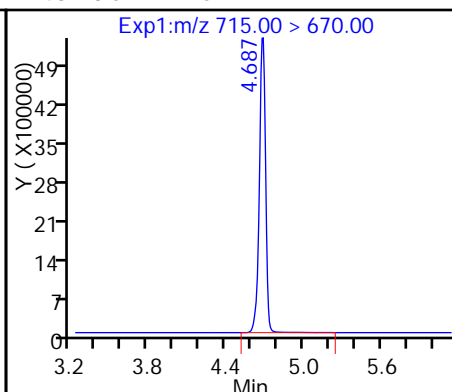
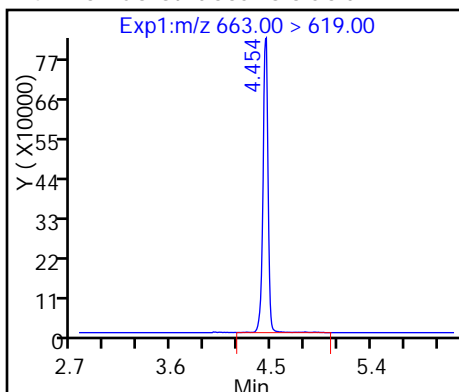
39 N-ethylperfluoro-1-octanesulfonami (ND)



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

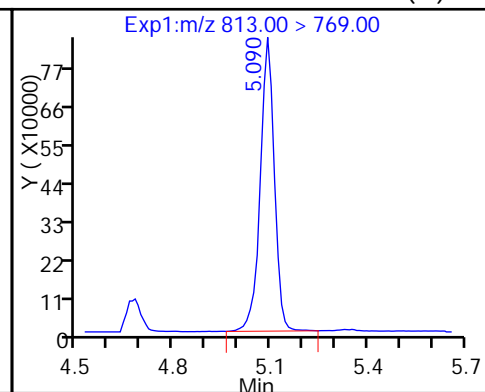
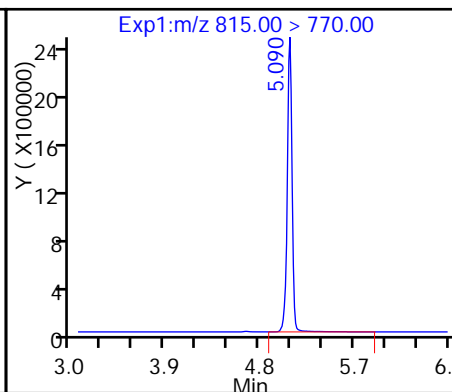
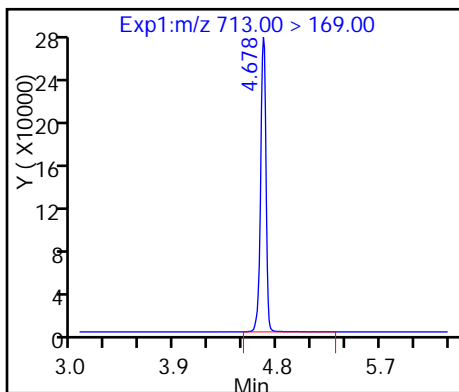
42 Perfluorotetradecanoic acid



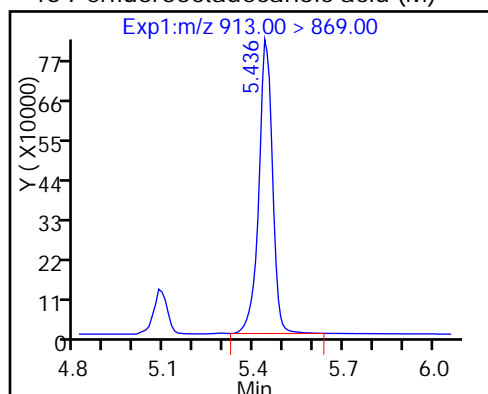
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid (M)



46 Perfluorooctadecanoic acid (M)



TestAmerica Sacramento

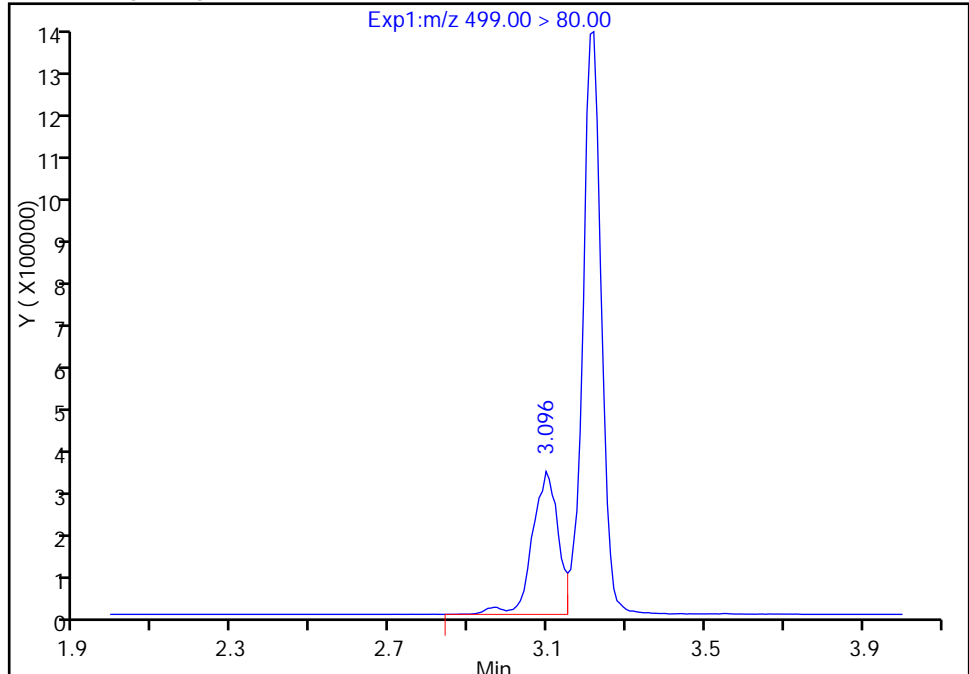
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d
Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

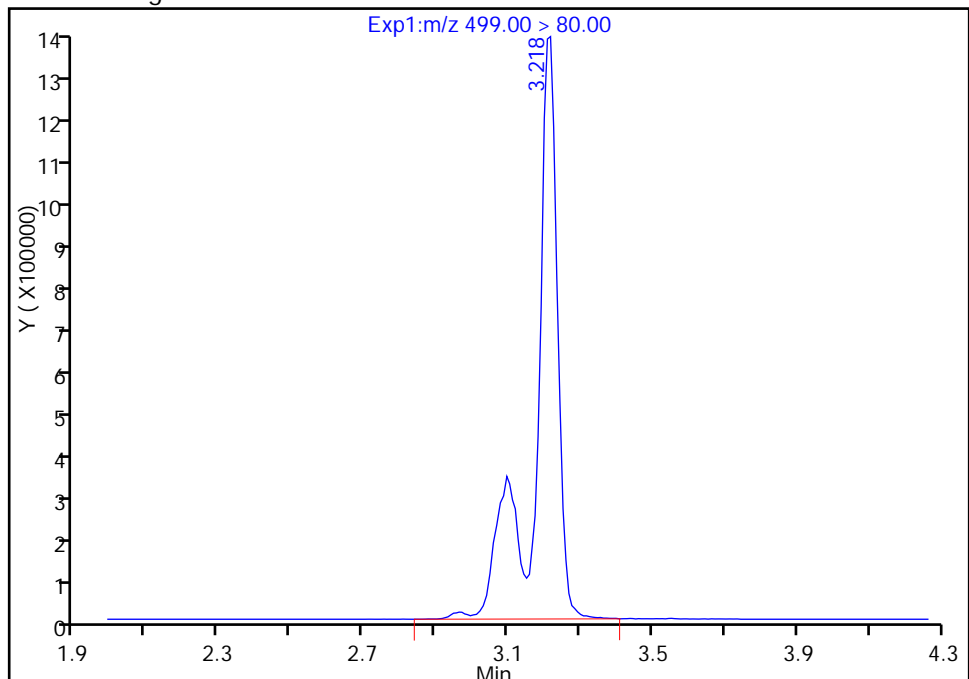
RT: 3.10
Area: 1451227
Amount: 4.532466
Amount Units: ng/ml

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

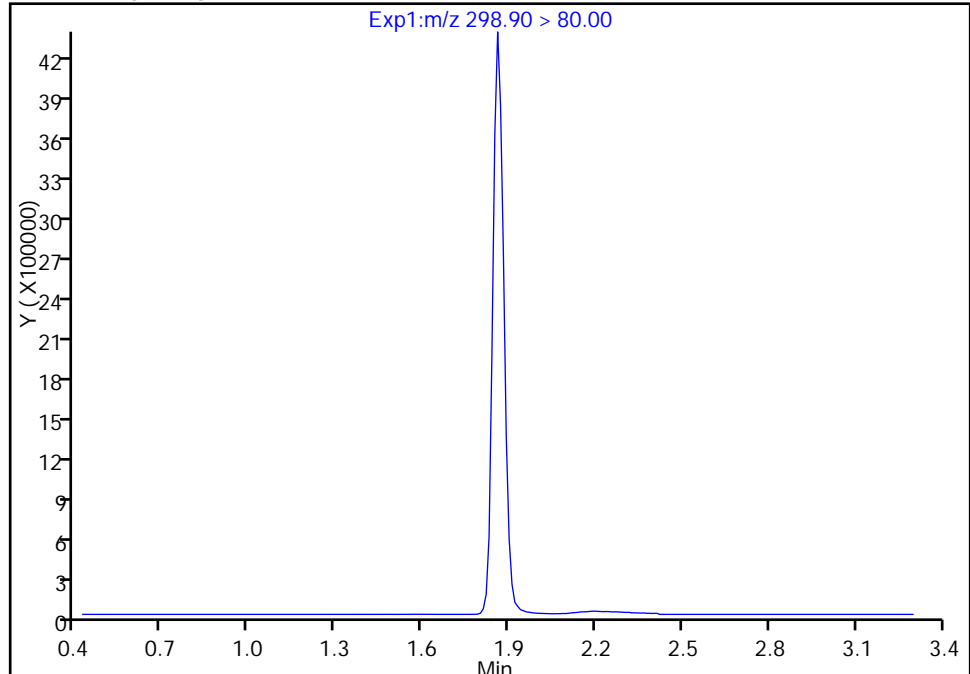
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d
Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

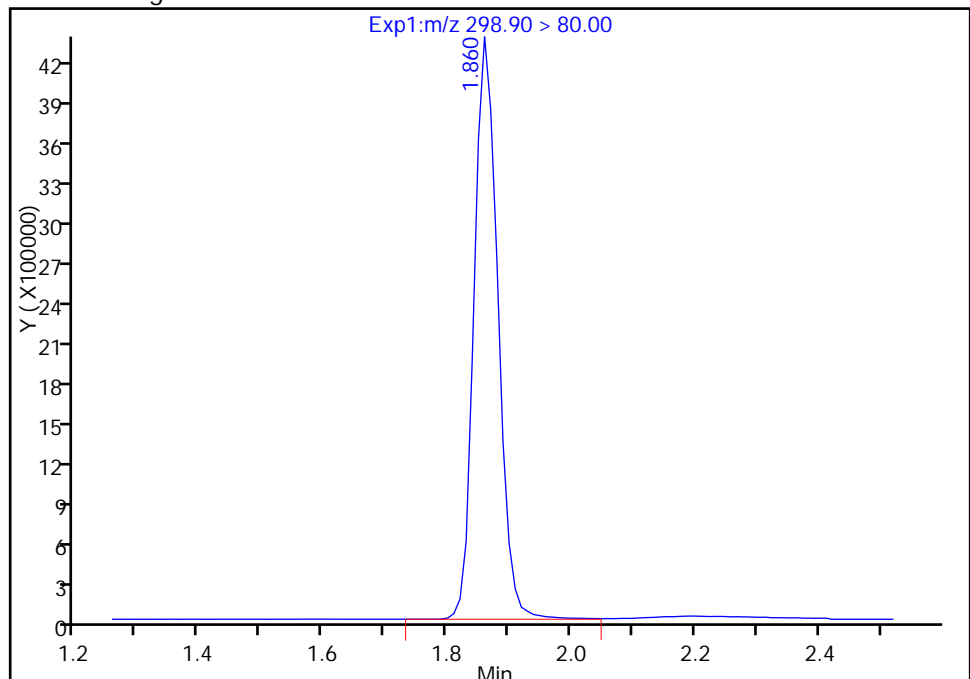
Not Detected
Expected RT: 1.86

Processing Integration Results



RT: 1.86
Area: 11762366
Amount: 20.164565
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 02-Mar-2017 12:34:09

Audit Action: Assigned Compound ID

Audit Reason: Baseline

TestAmerica Sacramento

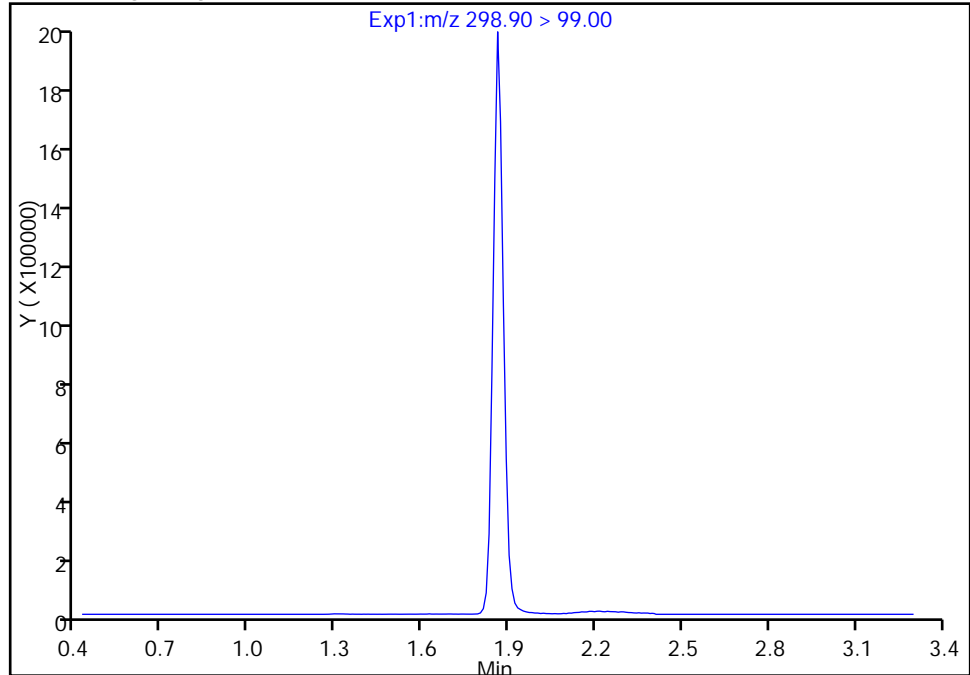
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170302-40393.b\2017.03.02A_006.d
Injection Date: 02-Mar-2017 10:50:15 Instrument ID: A8_N
Lims ID: LCSD 320-152587/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

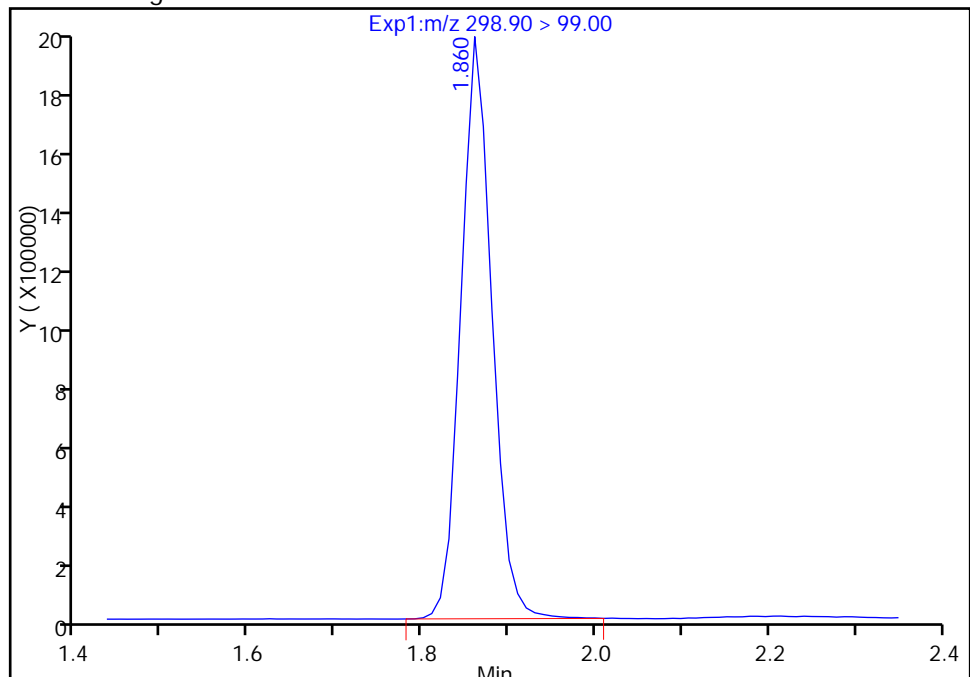
Not Detected
Expected RT: 1.86

Processing Integration Results



RT: 1.86
Area: 4842032
Amount: 20.164565
Amount Units: ng/ml

Manual Integration Results



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.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4C-SB01-0001 MS Lab Sample ID: 320-26103-3 MS
 Matrix: Solid Lab File ID: 2017.03.11C_034.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:21
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 4.96(g) Date Analyzed: 03/11/2017 16:20
 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.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	5.92	M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.56	M	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.20		0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	104		25-150
STL00991	13C4 PFOS	68		25-150
STL00994	18O2 PFHxS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_034.d
 Lims ID: 320-26103-A-3-B MS
 Client ID: MEAFF-SDA4C-SB01-0001
 Sample Type: MS
 Inject. Date: 11-Mar-2017 16:20:08 ALS Bottle#: 26 Worklist Smp#: 31
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-3-b ms
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:10:23 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:49:59

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	1.539	1.539	0.0	1.000	5877669	22.8		114	30732	M
D 1 13C4 PFBA										
217.00 > 172.00	1.539	1.539	0.0		15239806	52.1		104	858902	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.822	0.0		12949889	55.8		112	807592	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	5746796	22.7		113	51852	
D 47 13C3-PFBS										
301.90 > 83.00	1.792	1.852	-0.060		1666	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.862	1.862	0.0	1.000	8147815	21.8		123		
298.90 > 99.00	1.852	1.862	-0.010	0.995	3292797		2.47(0.00-0.00)			
D 60 M2-4:2FTS										
329.00 > 309.00	2.081	2.082	-0.001		7293	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.115	2.117	-0.002		11133328	52.8		106	342140	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.115	2.117	-0.002	1.000	4532363	22.9		114	70298	
D 9 13C4-PFHpA										
367.00 > 322.00	2.452	2.452	0.0		11309686	58.6		117	327007	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.452	2.452	0.0	1.000	4654700	21.3		106	47002	
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.468	-0.001		12364355	42.5		89.9	456999	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.467	2.476	-0.009	1.000	5291406	19.7		108		M

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	2.817	2.818	-0.001	1.000	5368025	24.8		124	67449	
413.00 > 169.00	2.817	2.818	-0.001	1.000	3116781		1.72(0.90-1.10)		114737	M
D 14 13C4 PFOA										
417.00 > 372.00	2.817	2.818	-0.001		10611726	51.8		104	247730	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.817	2.826	-0.009	1.000	4158300	24.5		129		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.192	0.001	1.000	4437803	27.4		148	210656	M
499.00 > 99.00	3.193	3.192	0.001	1.000	974129		4.56(0.90-1.10)		69977	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.193	3.192	0.001	1.000	3310223	21.7		108	65382	
D 18 13C4 PFOS										
503.00 > 80.00	3.184	3.192	-0.008		7860486	32.5		68.1	237543	
D 19 13C5 PFNA										
468.00 > 423.00	3.184	3.201	-0.017		8441693	47.5		94.9	263486	
D 21 13C8 FOSA										
506.00 > 78.00	3.523	3.519	0.004		4867221	13.3		26.5	161744	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.523	3.519	0.004	1.000	1820186	20.8		104	86802	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.548	3.544	0.004	1.000	2561416	22.4		112	55720	
D 23 13C2 PFDA										
515.00 > 470.00	3.548	3.544	0.004		6303583	37.8		75.6	170638	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.718	3.703	0.015	1.000	579	NR		0.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.860	3.858	0.002	1.000	1142281	11.7		60.5		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.869	3.867	0.002	1.000	1365269	19.2		95.8	35069	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.983	3.876	0.107	1.000	378	NR		0.0		
D 30 13C2 PFUnA										
565.00 > 520.00	3.869	3.876	-0.007		3514415	26.9		53.7	218536	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.029	4.010	0.019		566	0.006433		0.0		
35 MeFOSA										
512.00 > 169.00	4.011	4.010	0.001	1.000	371	NR		0.0		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.163	4.159	0.004	1.000	988616	19.7		98.6	4700	
D 36 13C2 PFDoA										
615.00 > 570.00	4.163	4.159	0.004		2742127	22.1		44.2	116892	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.306	4.195	0.111		354	0.004153		0.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.420	4.428	-0.008	1.000	819687	17.1		85.6	16120	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.663	4.663	0.0		6153274	23.7		47.5	300391	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.663	4.663	0.0	1.000	2087365	19.4		96.8	23368	
713.00 > 169.00	4.663	4.663	0.0	1.000	312355		6.68(0.00-0.00)		55090	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.080	5.078	0.002		2562702	20.5		41.0	146755	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.080	5.078	0.002	1.000	927803	17.9		89.4	3916	
46 Perfluorooctadecanoic acid										M
913.00 > 869.00	5.444	5.429	0.015	1.000	688520	17.5		87.5	1815	M

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\20170311-40737.b\2017.03.11C_034.d

Injection Date: 11-Mar-2017 16:20:08

Instrument ID: A8_N

Lims ID: 320-26103-A-3-B MS

Client ID: MEAFF-SDA4C-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 26

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

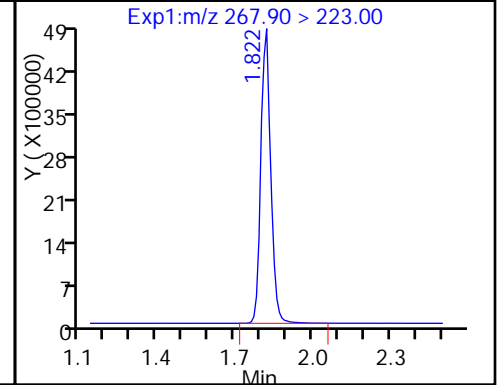
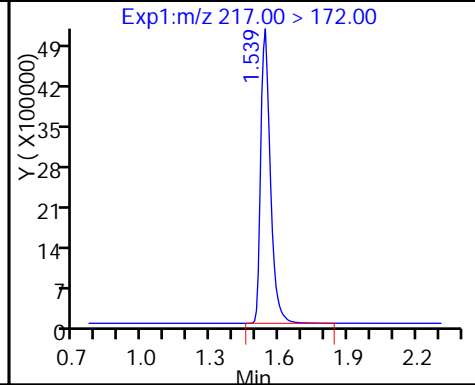
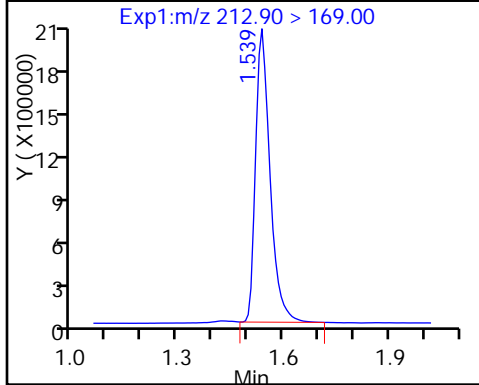
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

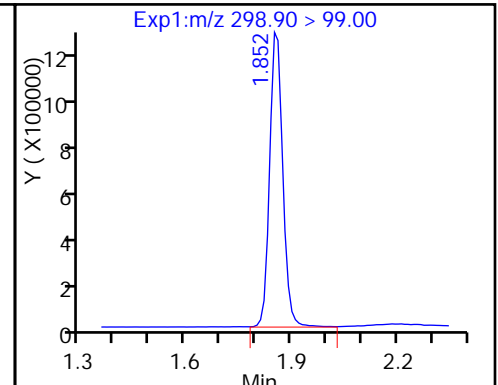
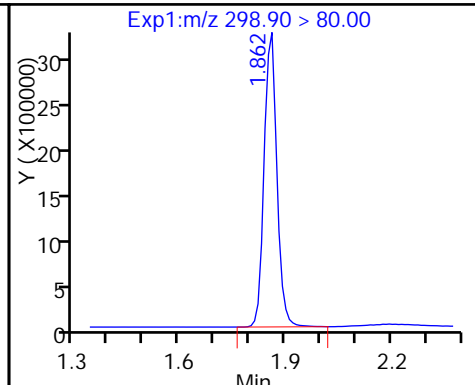
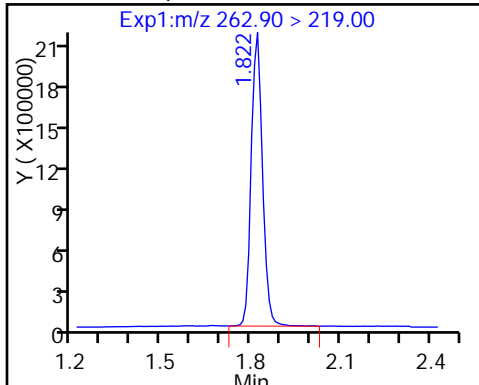
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

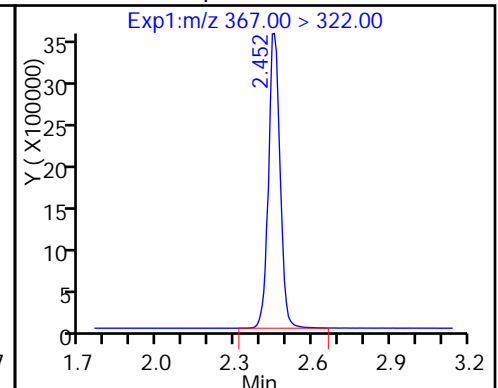
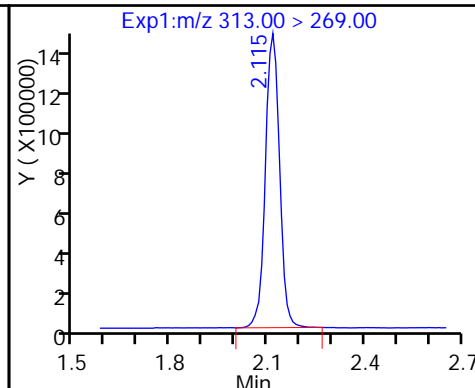
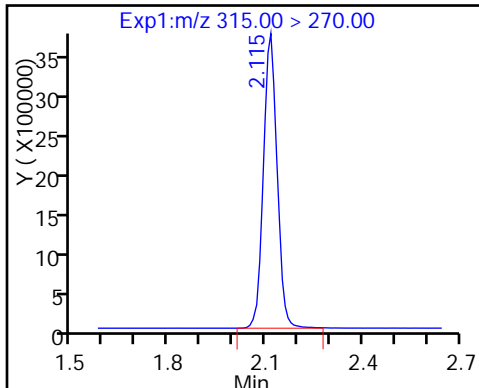
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

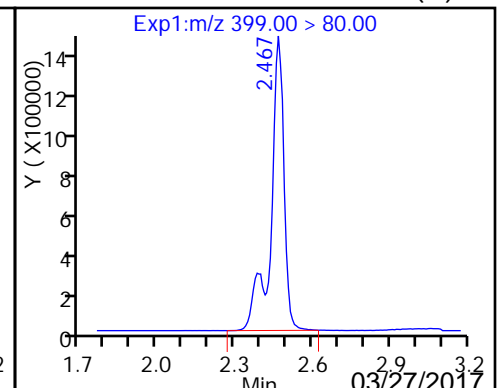
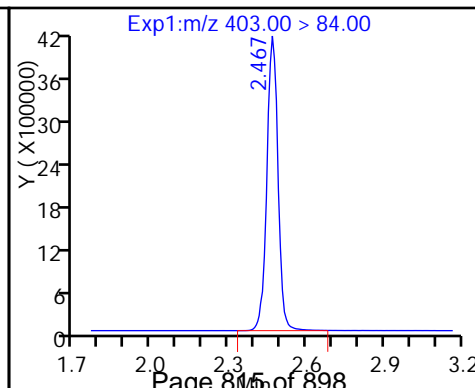
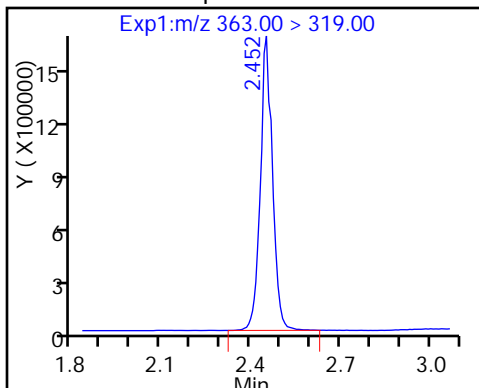
D 9 13C4-PFHpA



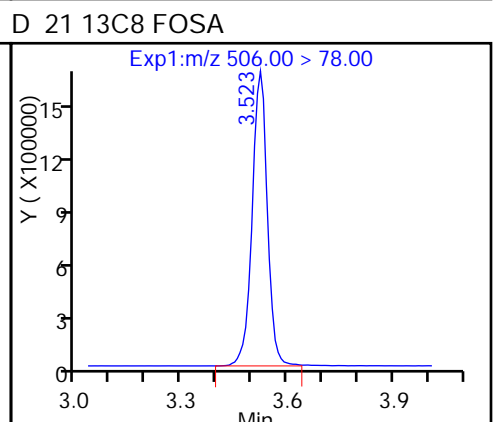
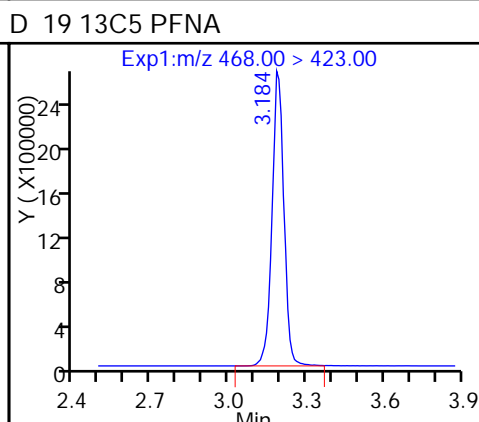
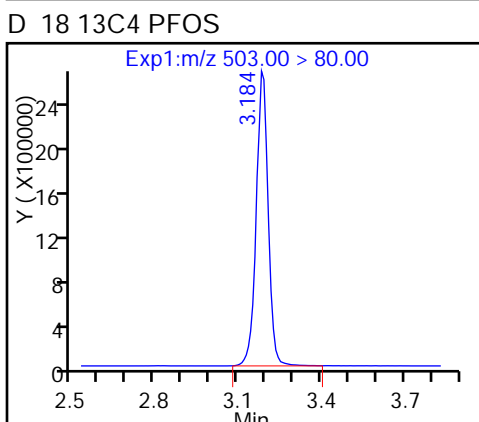
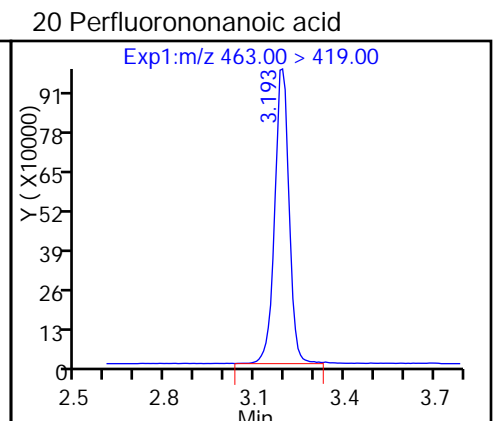
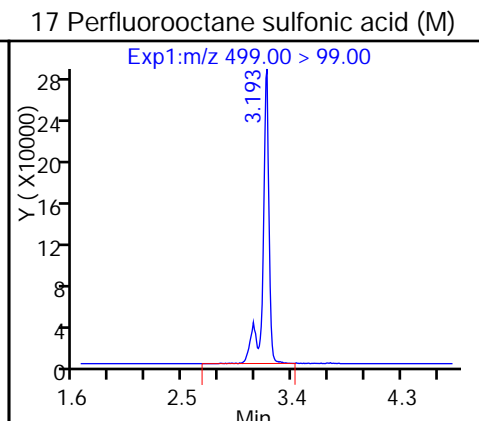
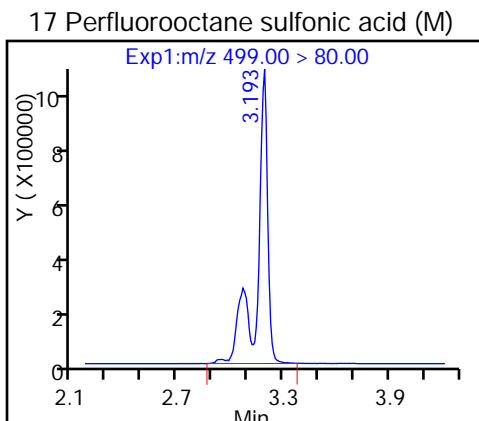
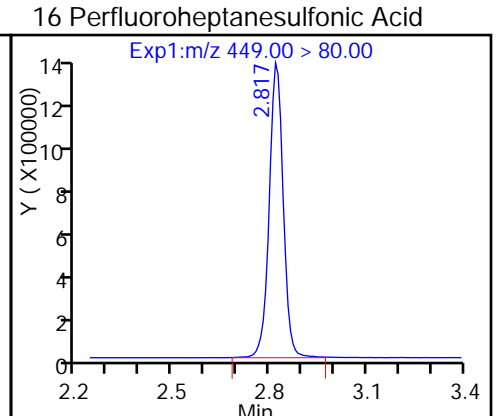
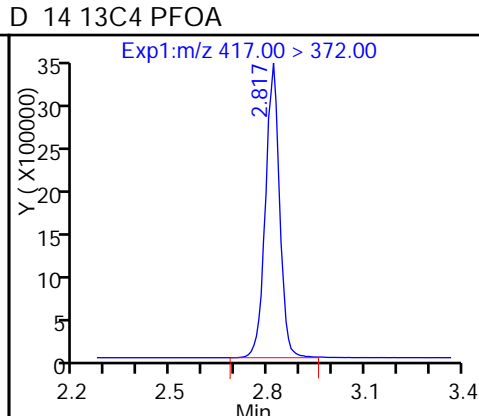
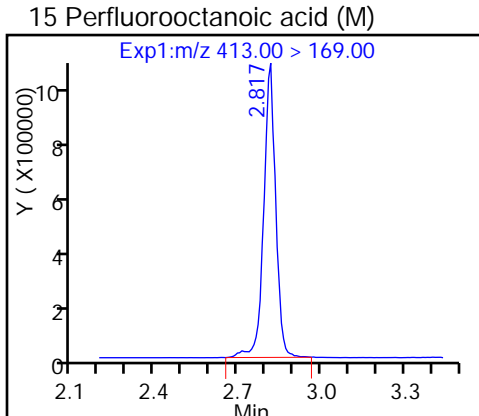
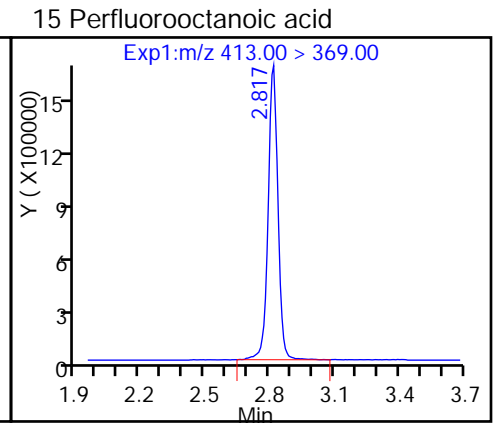
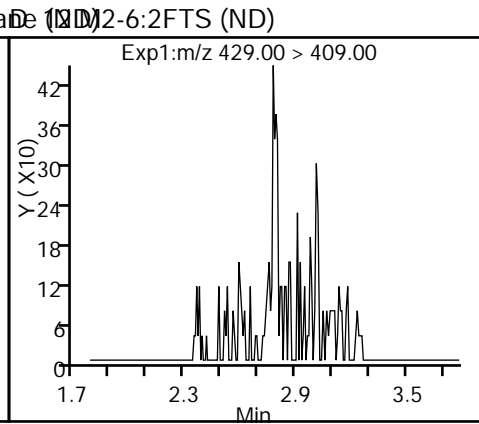
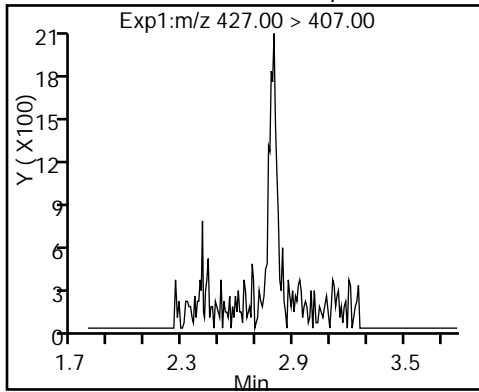
10 Perfluoroheptanoic acid

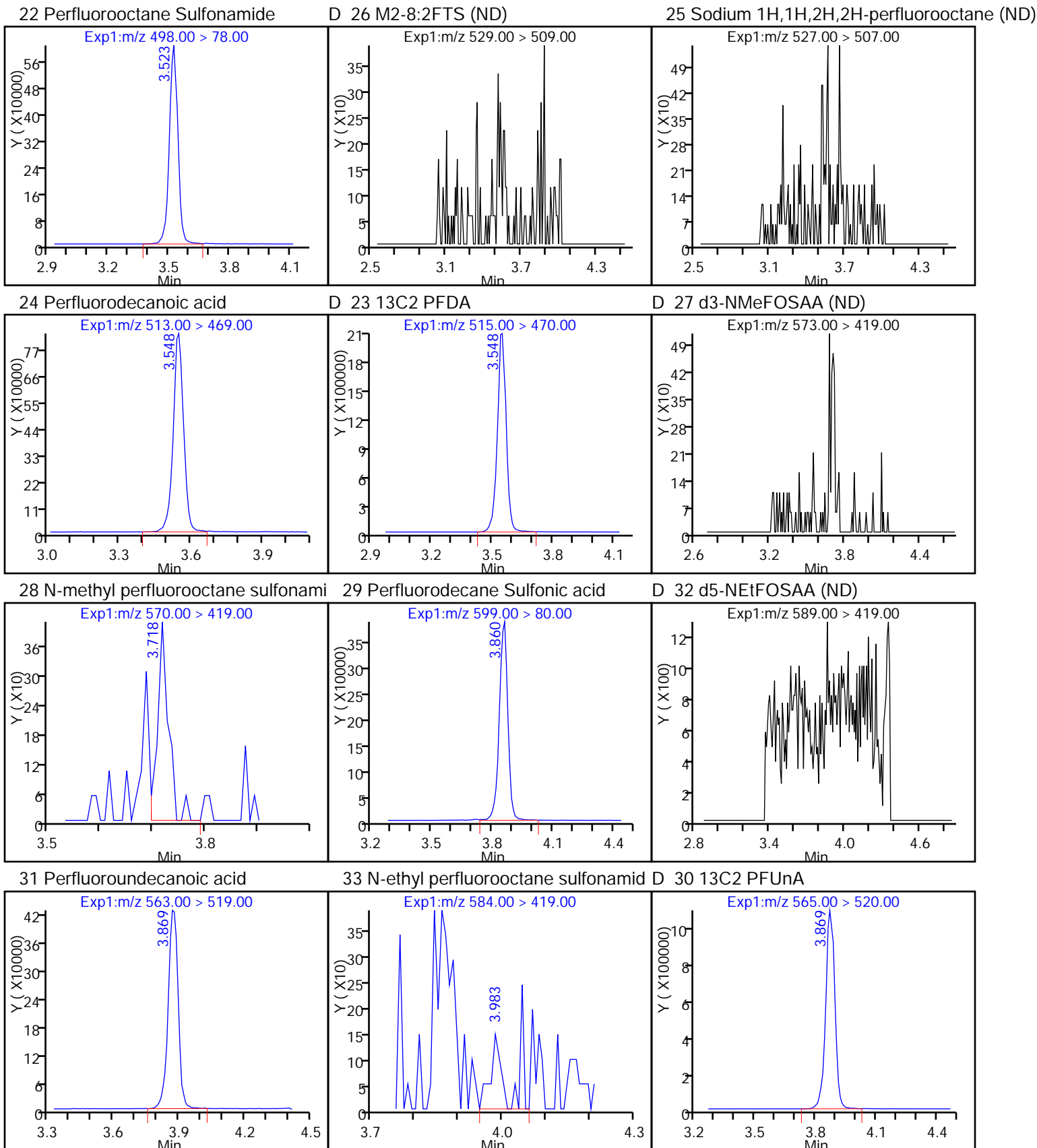
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)

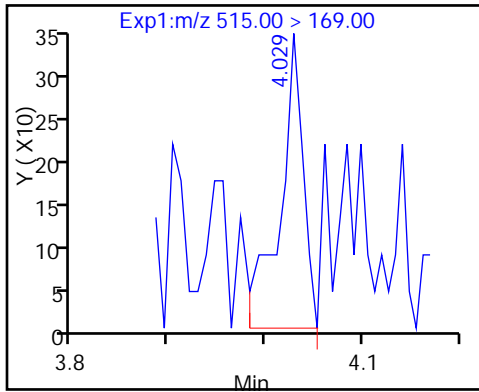


13 Sodium 1H,1H,2H,2H-perfluorooctadec-10-ynoate (ND)

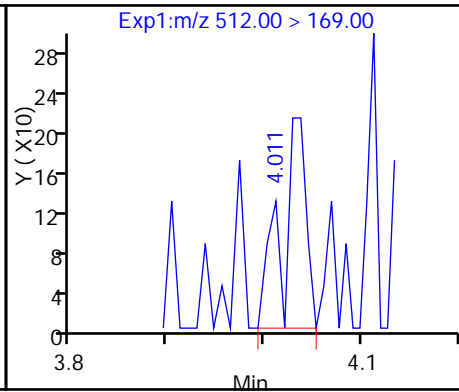




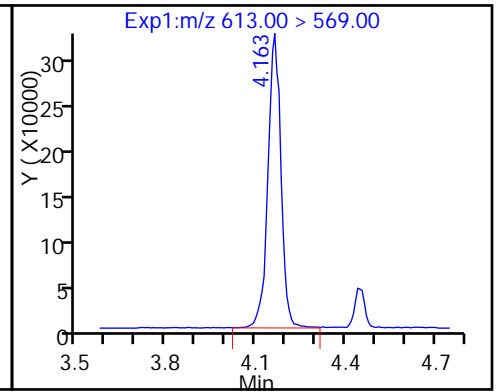
D 34 d-N-MeFOSA-M



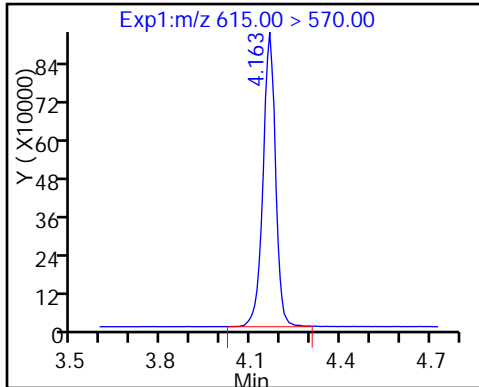
35 MeFOSA



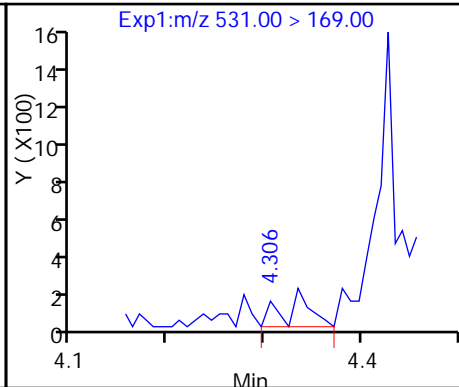
37 Perfluorododecanoic acid



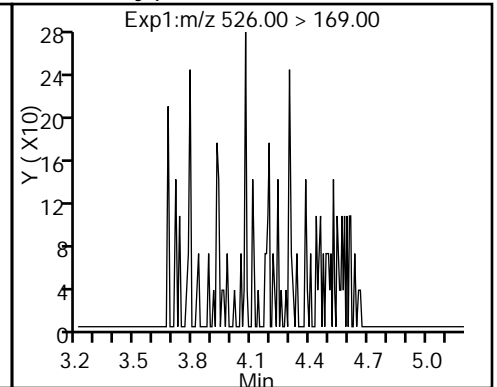
D 36 13C2 PFDa



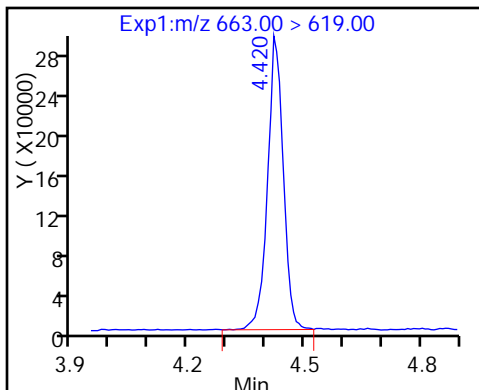
D 38 d-N-EtFOSA-M



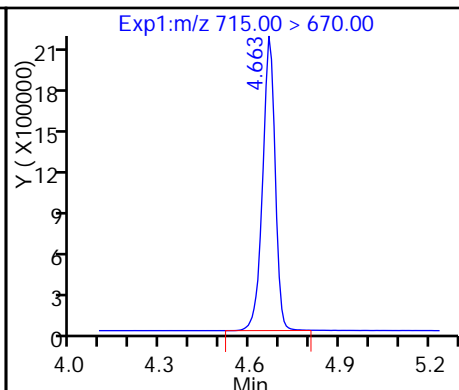
39 N-ethylperfluoro-1-octanesulfonami (ND)



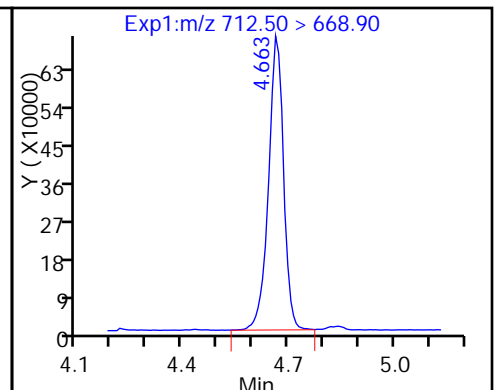
41 Perfluorotridecanoic acid



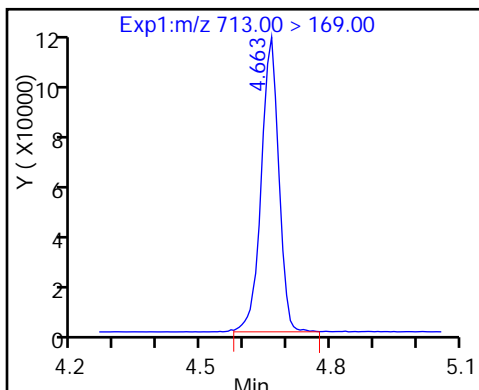
D 43 13C2-PFTeDA



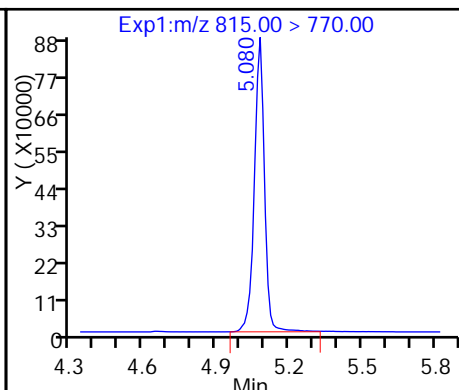
42 Perfluorotetradecanoic acid



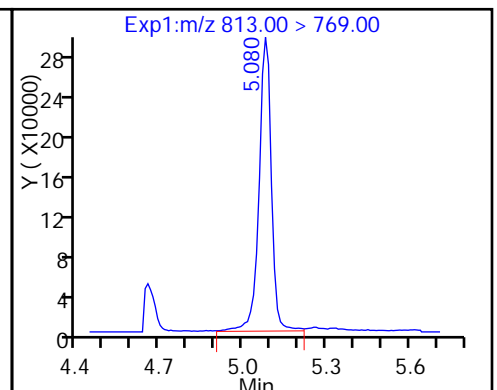
42 Perfluorotetradecanoic acid



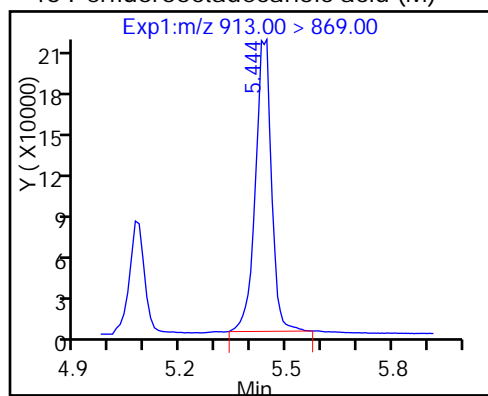
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (M)



TestAmerica Sacramento

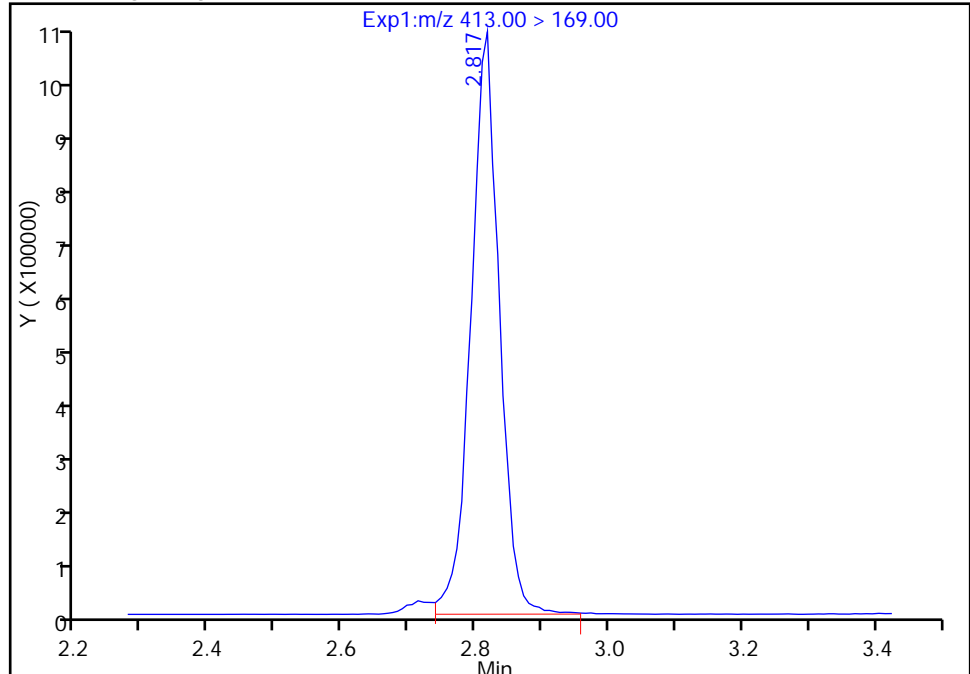
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_034.d
Injection Date: 11-Mar-2017 16:20:08 Instrument ID: A8_N
Lims ID: 320-26103-A-3-B MS
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 26 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

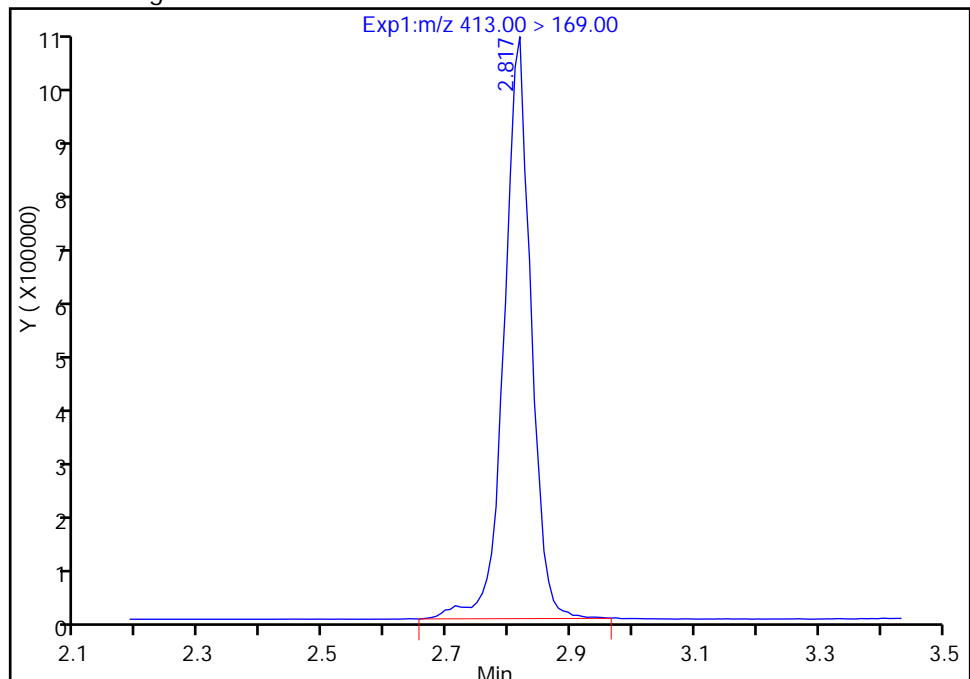
RT: 2.82
Area: 3065089
Amount: 24.756702
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 3116781
Amount: 24.756702
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:09:41

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

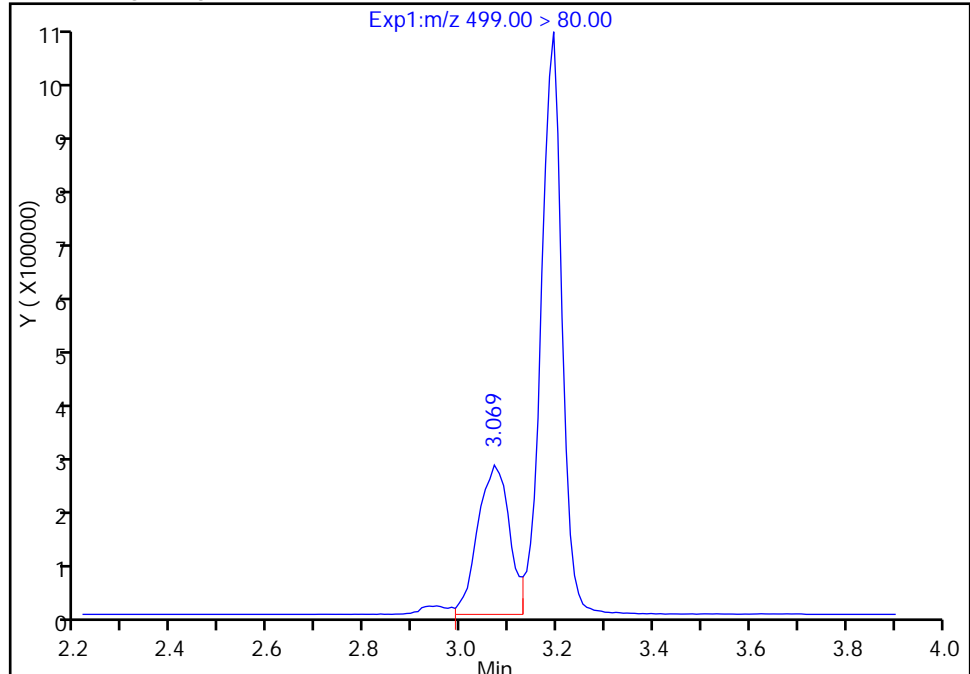
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_034.d
Injection Date: 11-Mar-2017 16:20:08 Instrument ID: A8_N
Lims ID: 320-26103-A-3-B MS
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 26 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

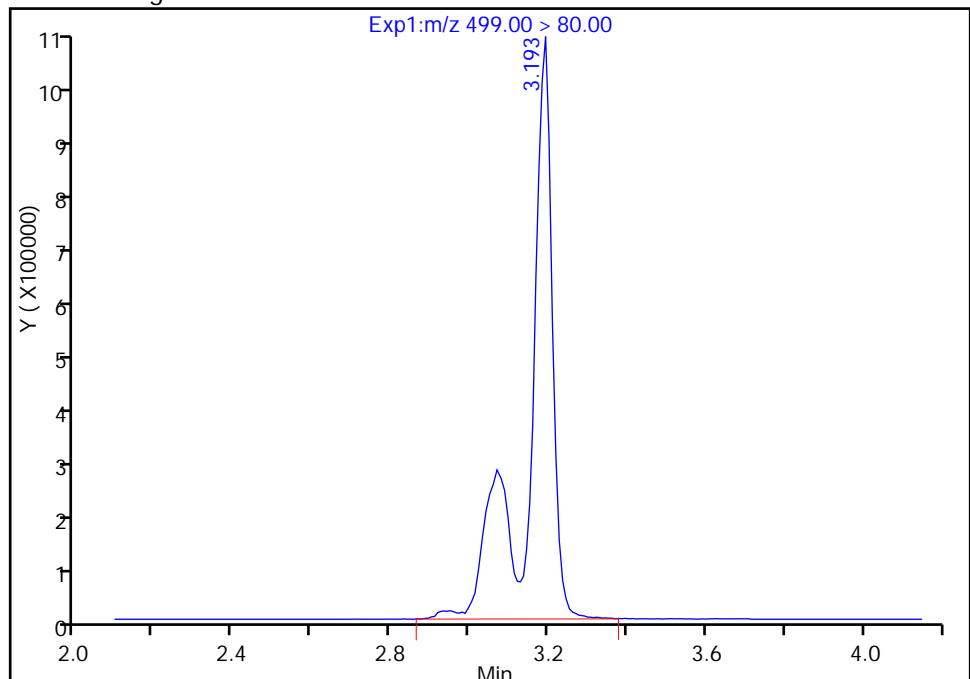
RT: 3.07
Area: 1228658
Amount: 7.597015
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 4437803
Amount: 27.439739
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:09:41
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 821 of 898

03/27/2017

TestAmerica Sacramento

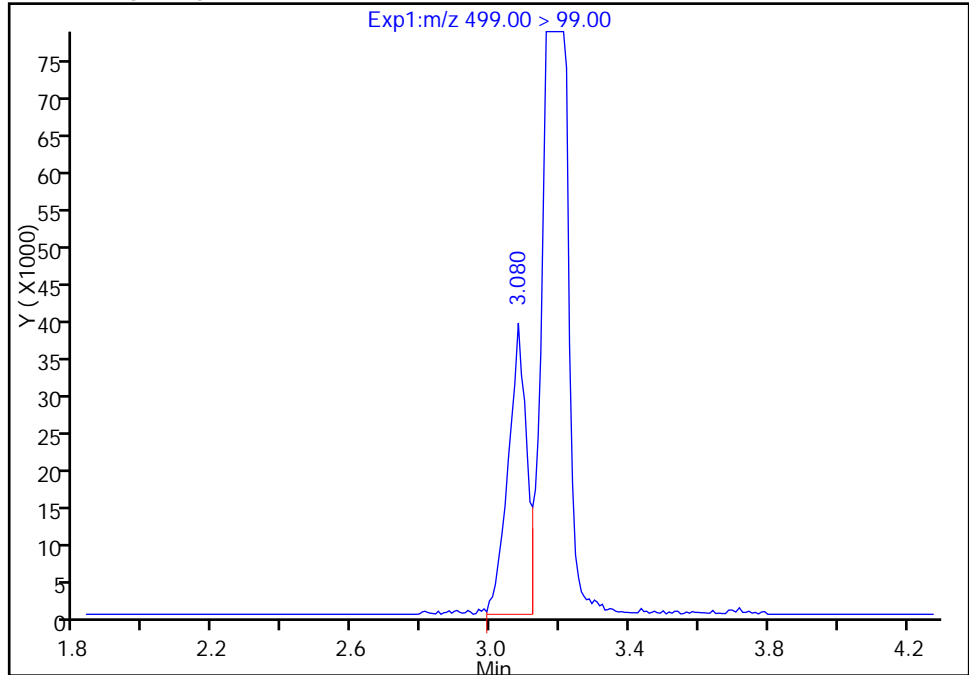
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Injection Date: 11-Mar-2017 16:20:08 Instrument ID: A8_N
Lims ID: 320-26103-A-3-B MS
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 26 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

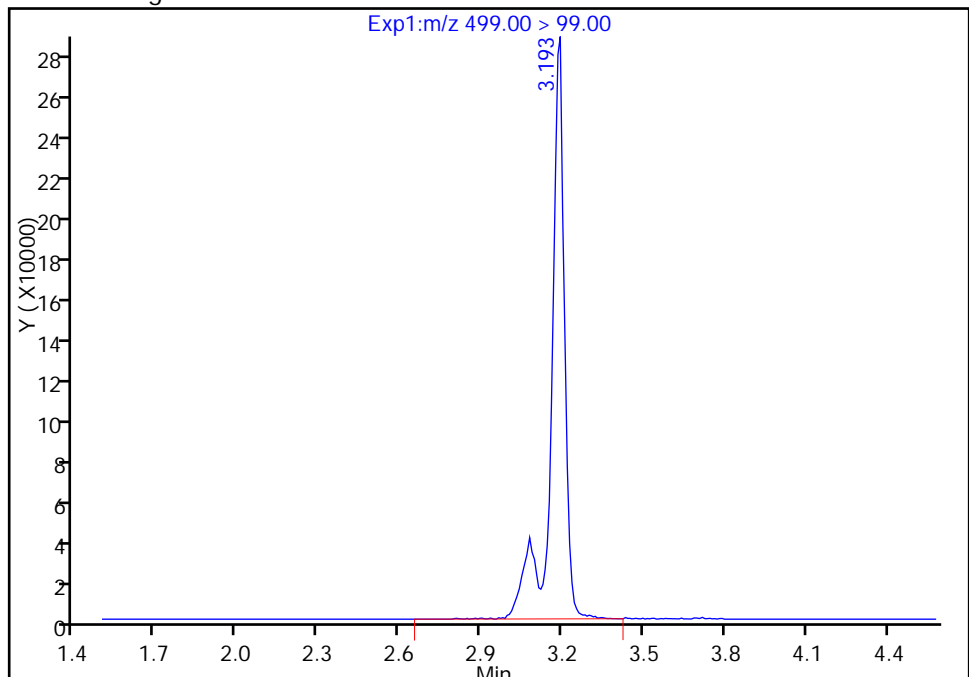
RT: 3.08
Area: 141999
Amount: 7.597015
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 974129
Amount: 27.439739
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:10:20

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4C-SB01-0001 MSD Lab Sample ID: 320-26103-3 MSD
 Matrix: Solid Lab File ID: 2017.03.11C_035.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:21
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5.03(g) Date Analyzed: 03/11/2017 16:27
 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.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	5.69	M	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.93	M	0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.12		0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	112		25-150
STL00991	13C4 PFOS	72		25-150
STL00994	18O2 PFHxS	94		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_035.d
 Lims ID: 320-26103-A-3-C MSD
 Client ID: MEAFF-SDA4C-SB01-0001
 Sample Type: MSD
 Inject. Date: 11-Mar-2017 16:27:37 ALS Bottle#: 27 Worklist Smp#: 32
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26103-a-3-c msd
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 16-Mar-2017 08:11:19 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: XAWRK016

First Level Reviewer: changnoit

Date: 13-Mar-2017 13:51:46

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	1.539	1.539	0.0	1.000	6270437	23.1		116	29369	
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.539	-0.008		16016624	54.8		110	896339	
D 3 13C5-PFPeA										
267.90 > 223.00	1.813	1.822	-0.009		13960876	60.1		120	834940	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.823	1.822	0.001	1.000	5945475	21.8		109	53249	
D 47 13C3-PFBS										
301.90 > 83.00	1.853	1.852	0.001		1394	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.853	1.862	-0.009	1.000	8501606	21.7		123		
298.90 > 99.00	1.853	1.862	-0.009	1.000	3437235		2.47(0.00-0.00)			
D 60 M2-4:2FTS										
329.00 > 309.00	2.117	2.082	0.035		944	NC				
D 7 13C2 PFHxA										
315.00 > 270.00	2.117	2.117	0.0		11570480	54.9		110	495354	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.108	2.117	-0.009	1.000	4688695	22.8		114	62739	
D 9 13C4-PFHpA										
367.00 > 322.00	2.454	2.452	0.002		11409153	59.1		118	382618	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.454	2.452	0.002	1.000	4817380	21.8		109	52536	
D 11 18O2 PFHxS										
403.00 > 84.00	2.470	2.468	0.002		12942178	44.5		94.1	408048	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.470	2.476	-0.006	1.000	5428756	19.3		106		M

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	2.812	2.818	-0.006	1.000	5638956	24.1		121	44070	
413.00 > 169.00	2.820	2.818	0.002	1.003	3354835		1.68(0.90-1.10)		99228	M
D 14 13C4 PFOA										
417.00 > 372.00	2.820	2.818	0.002		11434847	55.8		112	330982	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.820	2.826	-0.006	1.000	4505770	25.1		132		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.185	3.192	-0.007	1.000	5029921	29.4		158	170355	M
499.00 > 99.00	3.185	3.192	-0.007	1.000	1091204		4.61(0.90-1.10)		155101	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.194	3.192	0.002	1.000	3481334	21.0		105	66080	
D 18 13C4 PFOS										
503.00 > 80.00	3.185	3.192	-0.007		8320337	34.4		72.0	274799	
D 19 13C5 PFNA										
468.00 > 423.00	3.185	3.201	-0.016		9165525	51.5		103	292320	
D 21 13C8 FOSA										
506.00 > 78.00	3.524	3.519	0.005		8727741	23.8		47.6	210689	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.524	3.519	0.005	1.000	3204402	20.4		102	95353	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.550	3.544	0.006	1.000	2863594	22.3		112	57503	
D 23 13C2 PFDA										
515.00 > 470.00	3.541	3.544	-0.003		7087446	42.5		85.0	208499	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.699	3.703	-0.004	1.000	902	NR		0.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.853	3.858	-0.005	1.000	1417308	13.7		70.9		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.867	-0.005	1.000	1658419	18.9		94.5	40096	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.871	3.876	-0.005	1.000	1215	NR		0.0		
D 30 13C2 PFUnA										
565.00 > 520.00	3.871	3.876	-0.005		4328963	33.1		66.2	192922	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	3.985	4.010	-0.025		545	0.006194		0.0		
35 MeFOSA										
512.00 > 169.00	4.064	4.010	0.054	1.000	320	NR		0.0		
37 Perfluorododecanoic acid										M
613.00 > 569.00	4.166	4.159	0.007	1.000	1265805	20.4		102	4396	M
D 36 13C2 PFDaA										
615.00 > 570.00	4.158	4.159	-0.001		3399076	27.4		54.8	115579	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.072	4.195	-0.123		413	0.004845		0.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.144	4.202	-0.058	1.000	335	NR		0.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.422	4.428	-0.006	1.000	1028483	17.3		86.6	18332	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.657	4.663	-0.006		6847568	26.4		52.8	278078	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.666	4.663	0.003	1.000	2249882	16.8		84.1	31990	
713.00 > 169.00	4.657	4.663	-0.006	0.998	350694		6.42(0.00-0.00)		60389	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.072	5.078	-0.006		2737573	21.9		43.8	84258	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.072	5.078	-0.006	1.000	1023099	15.9		79.3	3669	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.431	5.429	0.002	1.000	795133	16.3		81.5	1877	

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\20170311-40737.b\2017.03.11C_035.d

Injection Date: 11-Mar-2017 16:27:37

Instrument ID: A8_N

Lims ID: 320-26103-A-3-C MSD

Client ID: MEAFF-SDA4C-SB01-0001

Operator ID: A8-PC\A8

ALS Bottle#: 27

Worklist Smp#: 32

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

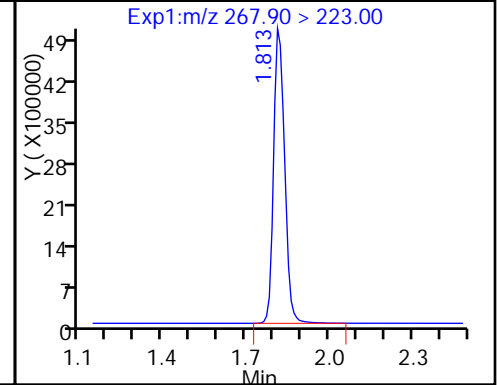
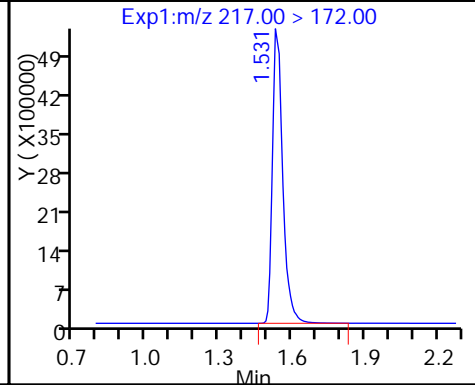
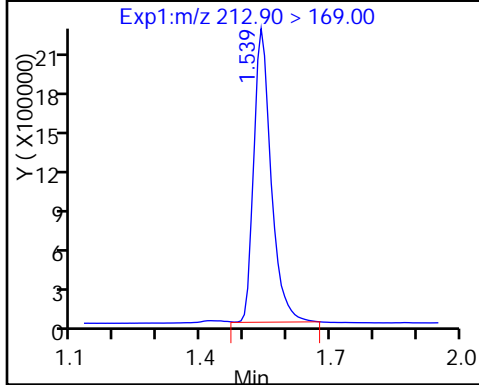
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

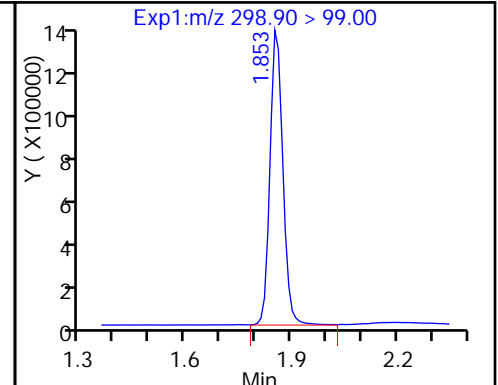
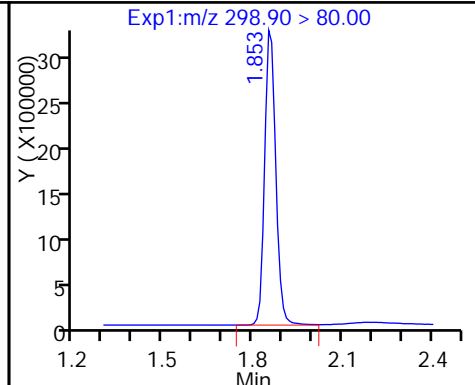
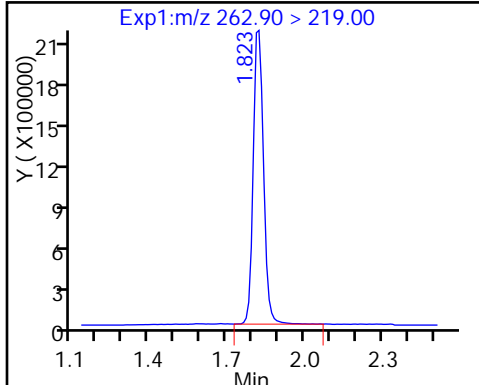
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

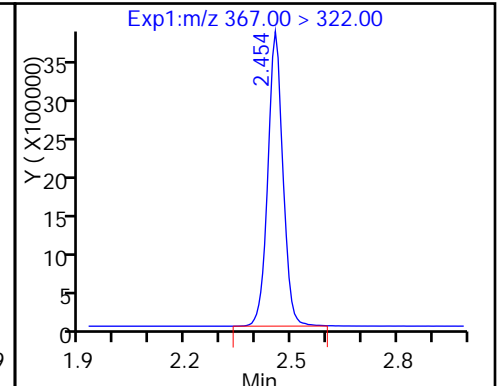
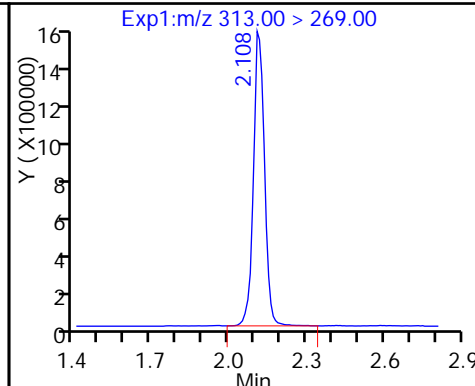
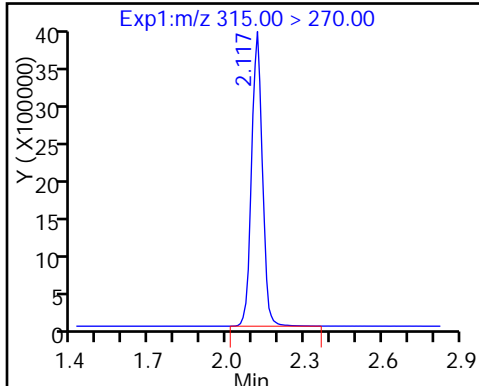
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

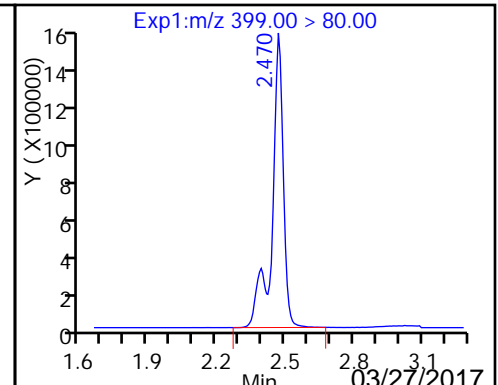
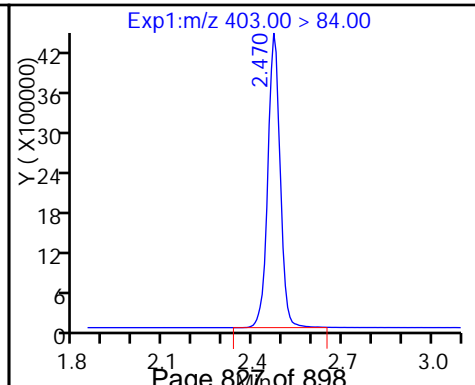
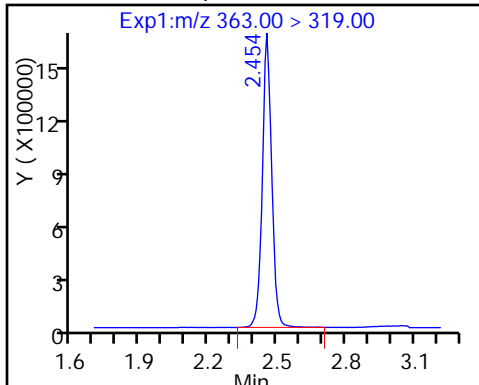
D 9 13C4-PFHpA



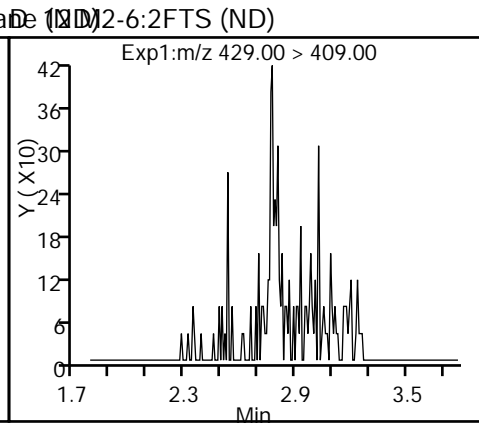
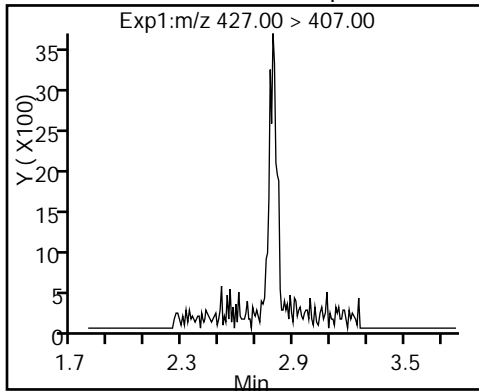
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

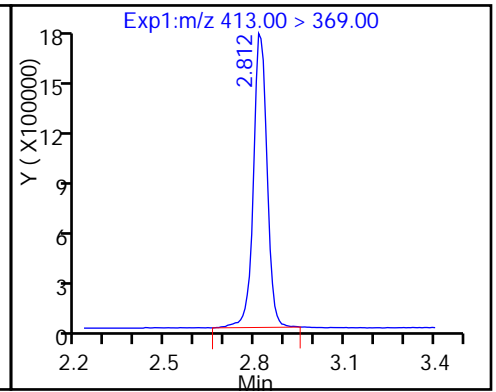
8 Perfluorohexanesulfonic acid (M)



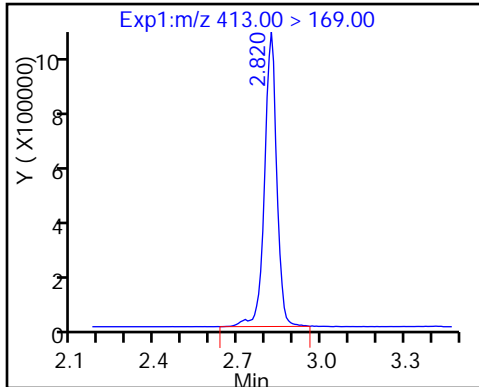
13 Sodium 1H,1H,2H,2H-perfluorooctadec-10-ynoate (ND)



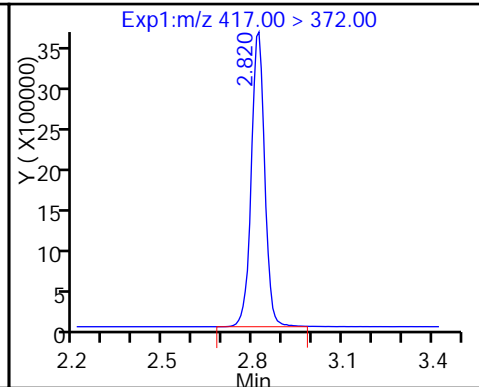
15 Perfluorooctanoic acid



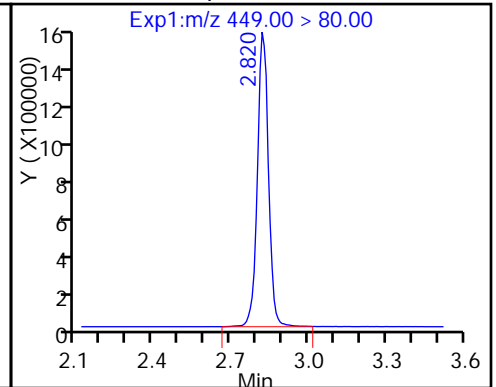
15 Perfluorooctanoic acid (M)



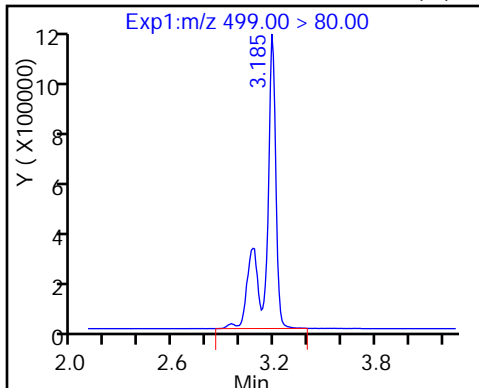
D 14 13C4 PFOA



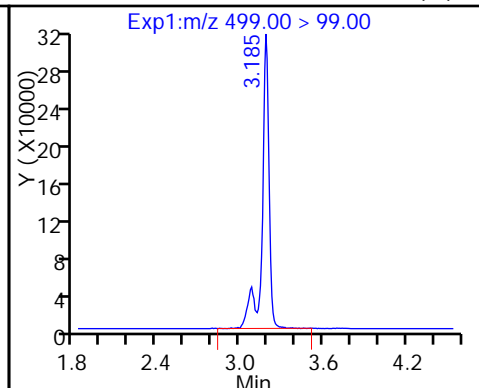
16 Perfluoroheptanesulfonic Acid



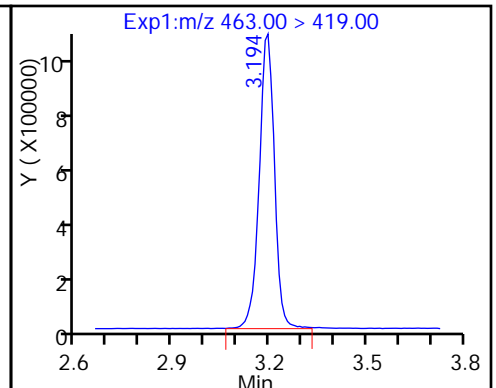
17 Perfluorooctane sulfonic acid (M)



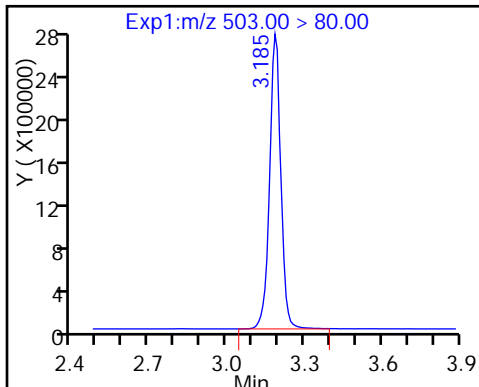
17 Perfluorooctane sulfonic acid (M)



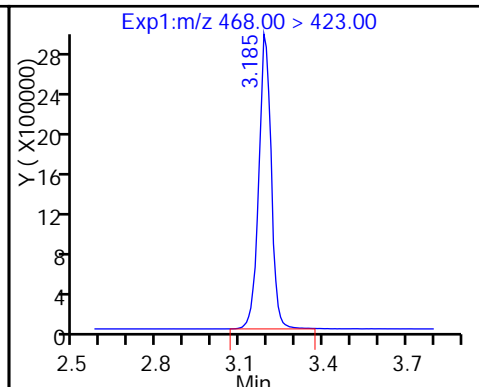
20 Perfluorononanoic acid



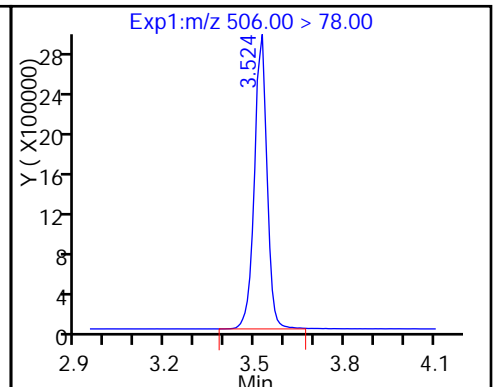
D 18 13C4 PFOS

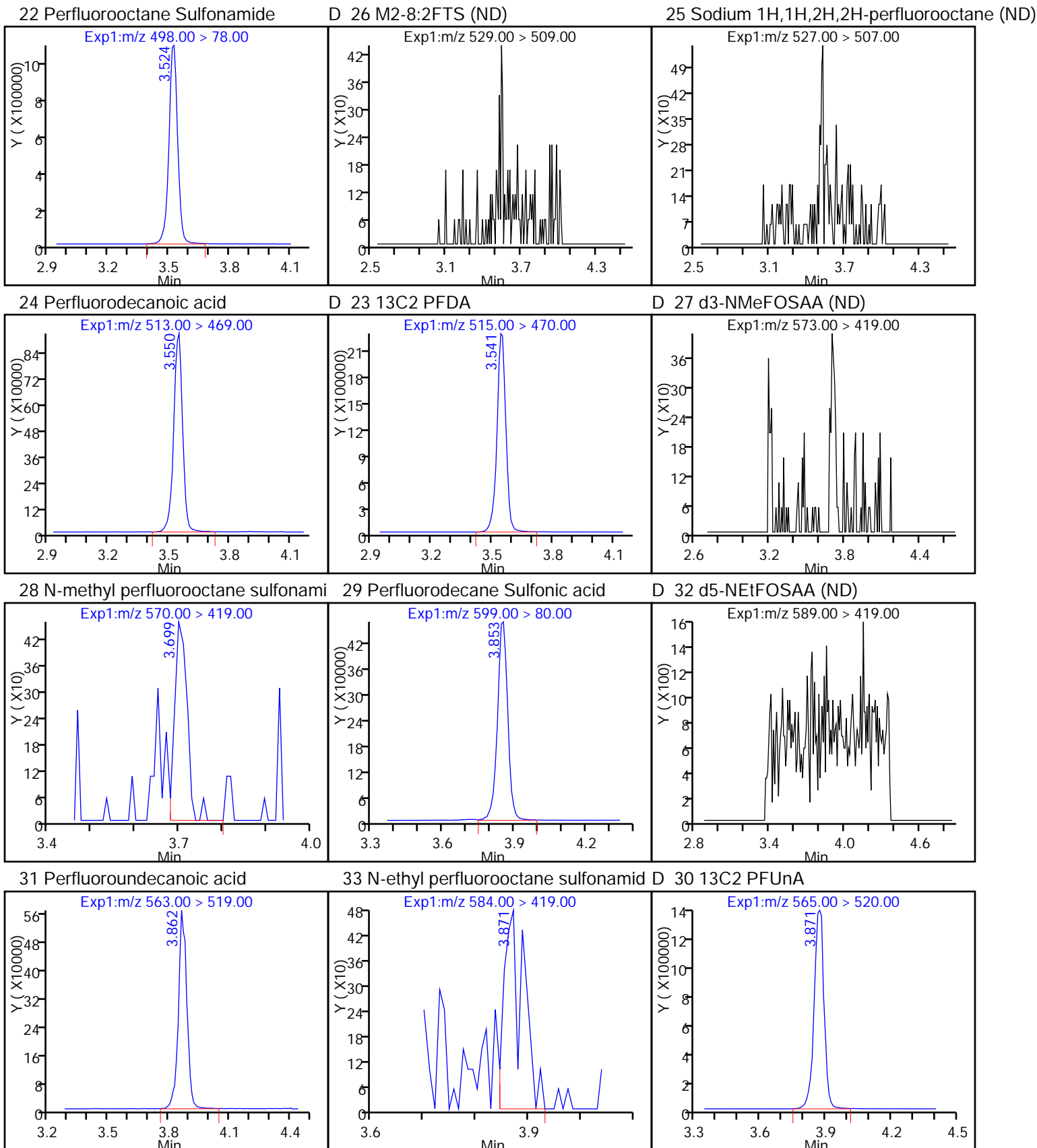


D 19 13C5 PFNA

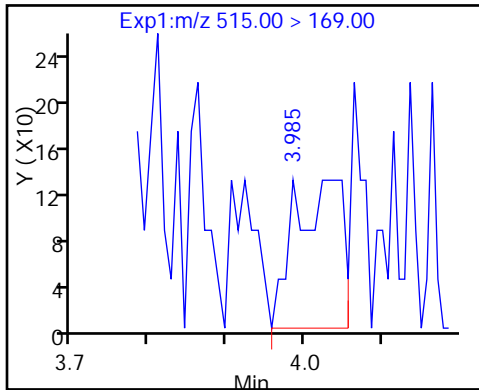


D 21 13C8 FOSA

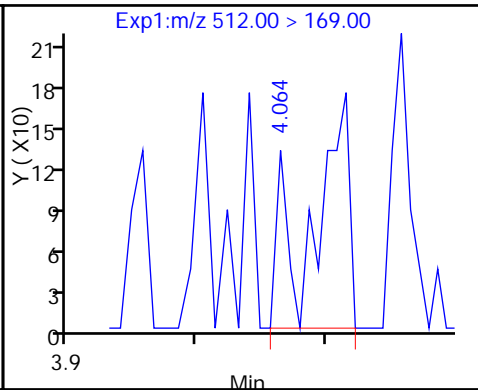




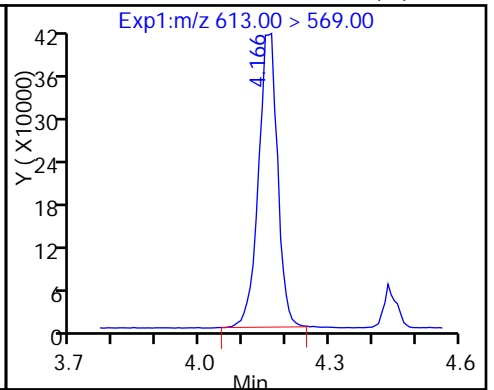
D 34 d-N-MeFOSA-M



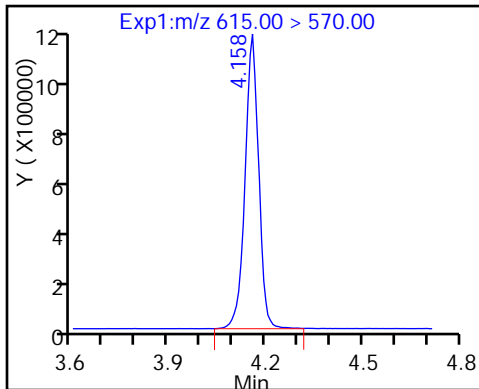
35 MeFOSA



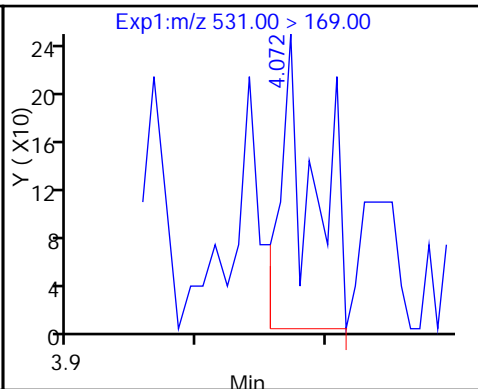
37 Perfluorododecanoic acid (M)



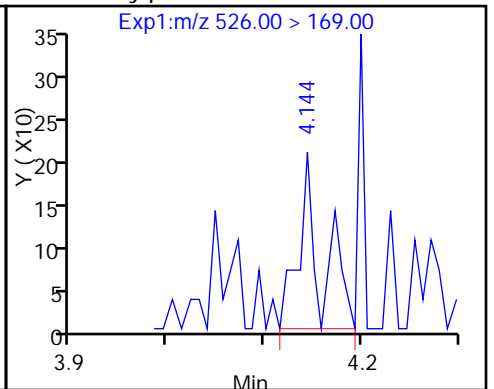
D 36 13C2 PFDa



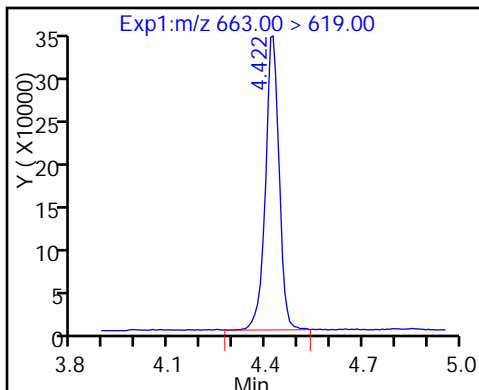
D 38 d-N-EtFOSA-M



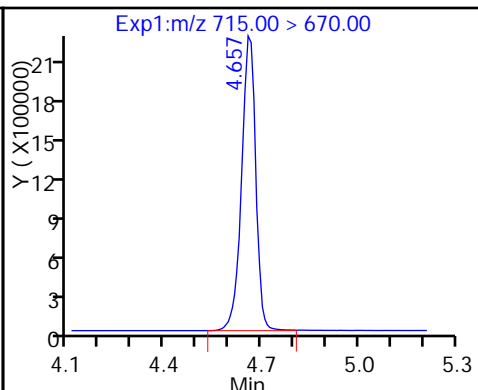
39 N-ethylperfluoro-1-octanesulfonami



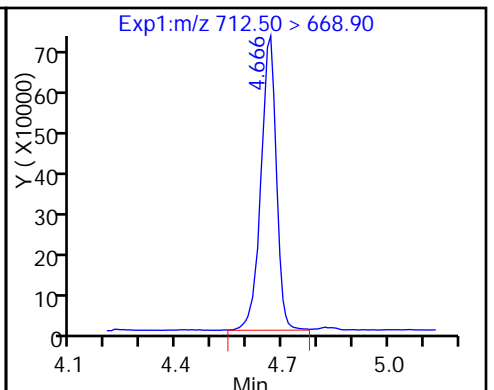
41 Perfluorotridecanoic acid



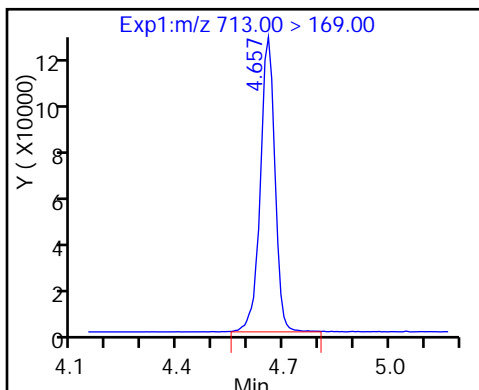
D 43 13C2-PFTeDA



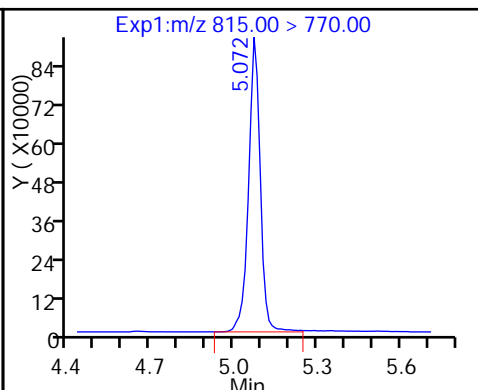
42 Perfluorotetradecanoic acid



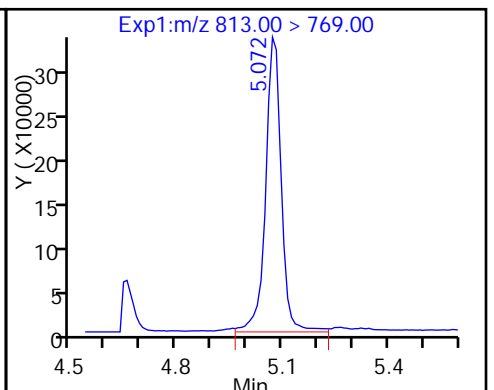
42 Perfluorotetradecanoic acid



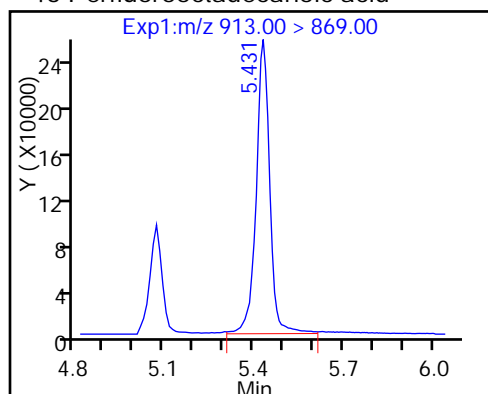
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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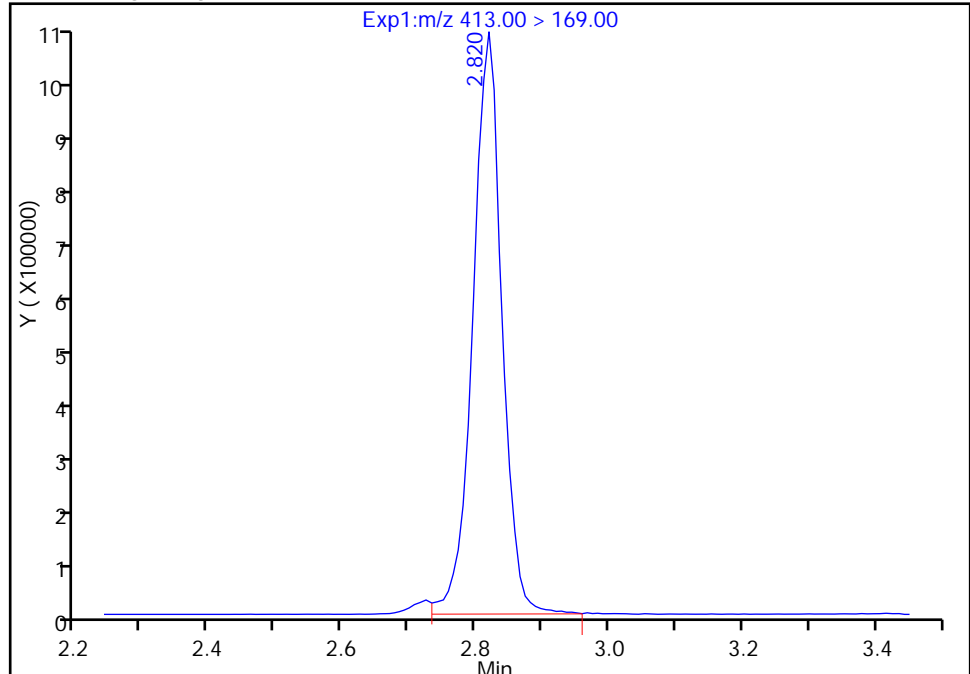
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_035.d
Injection Date: 11-Mar-2017 16:27:37 Instrument ID: A8_N
Lims ID: 320-26103-A-3-C MSD
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 27 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

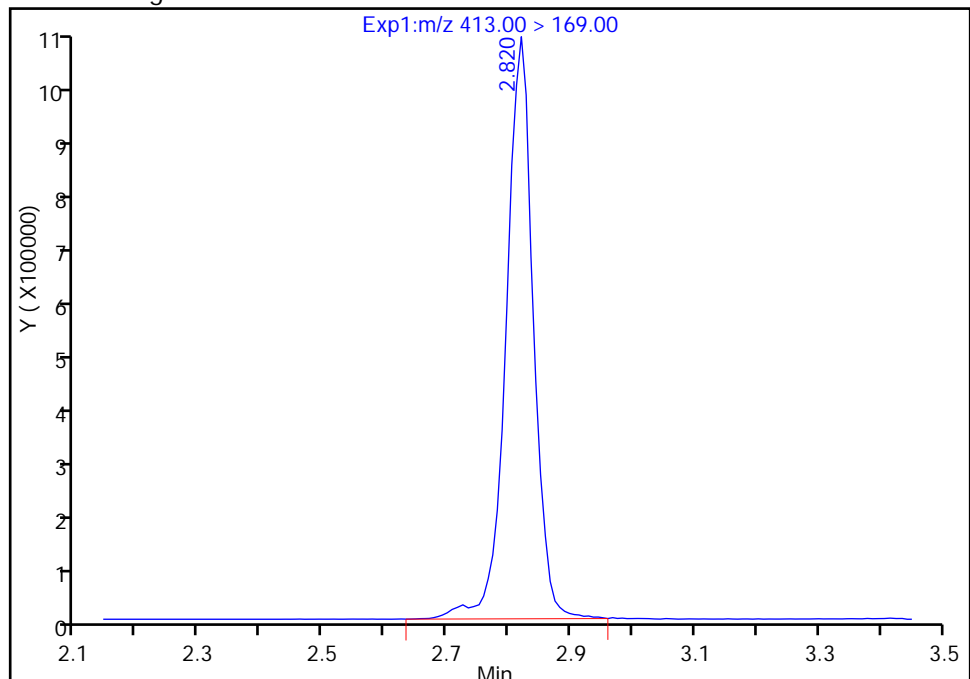
RT: 2.82
Area: 3304637
Amount: 24.134185
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 3354835
Amount: 24.134185
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:10:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

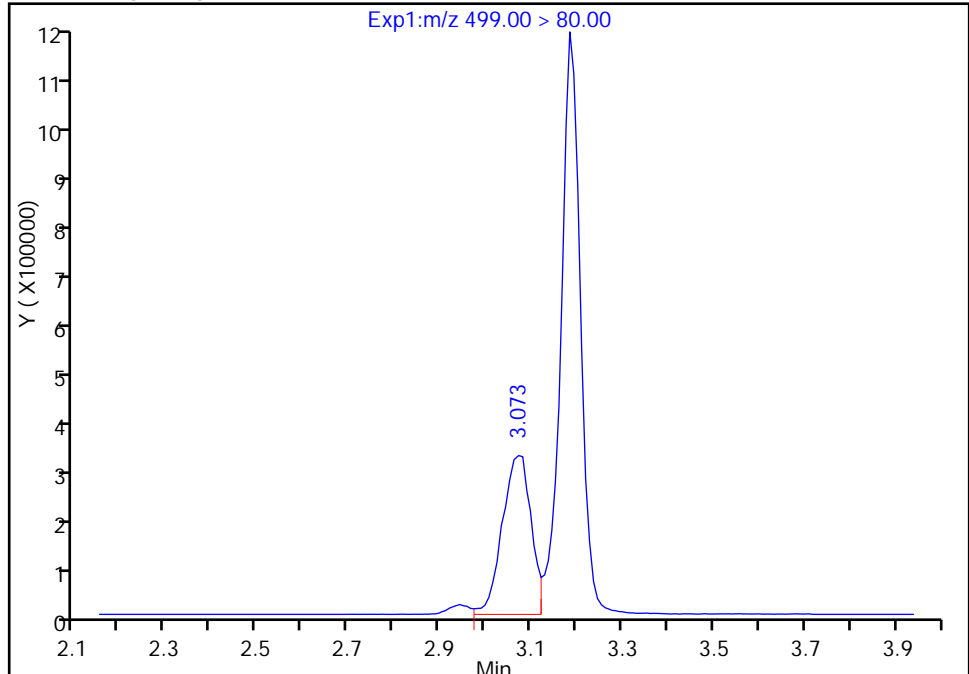
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_035.d
Injection Date: 11-Mar-2017 16:27:37 Instrument ID: A8_N
Lims ID: 320-26103-A-3-C MSD
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 27 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

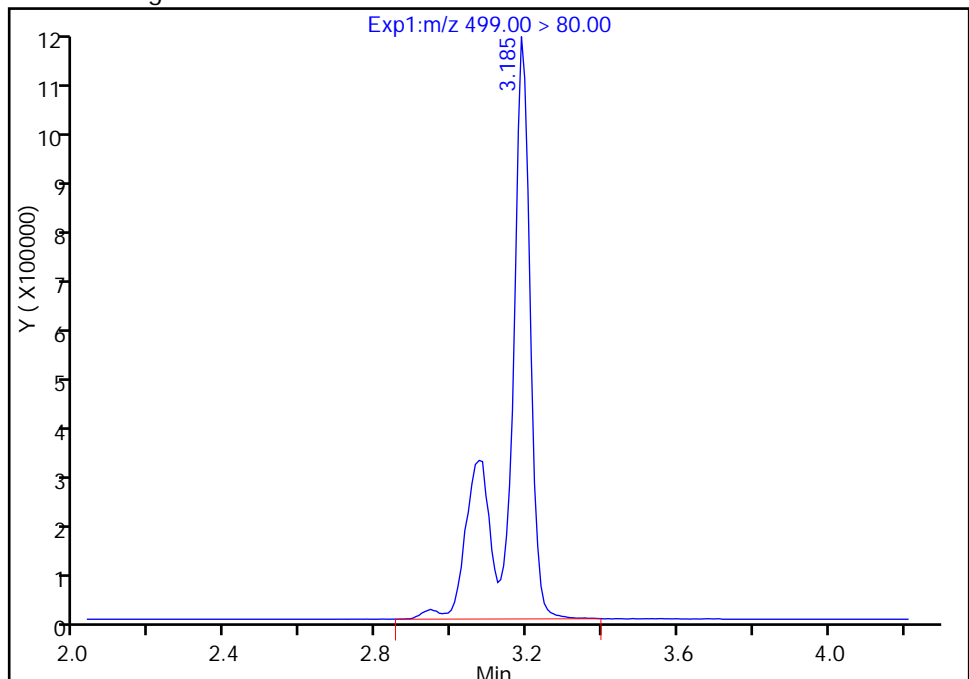
RT: 3.07
Area: 1420459
Amount: 8.297536
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 5029921
Amount: 29.382016
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 16-Mar-2017 08:10:26

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

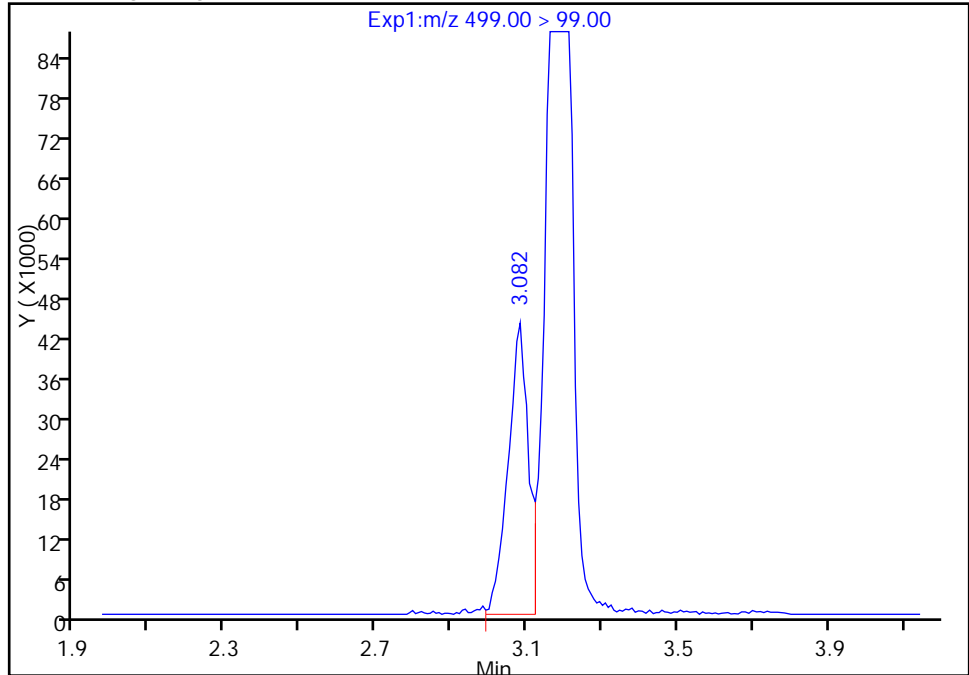
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170311-40737.b\2017.03.11C_035.d
Injection Date: 11-Mar-2017 16:27:37 Instrument ID: A8_N
Lims ID: 320-26103-A-3-C MSD
Client ID: MEAFF-SDA4C-SB01-0001
Operator ID: A8-PC\A8 ALS Bottle#: 27 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

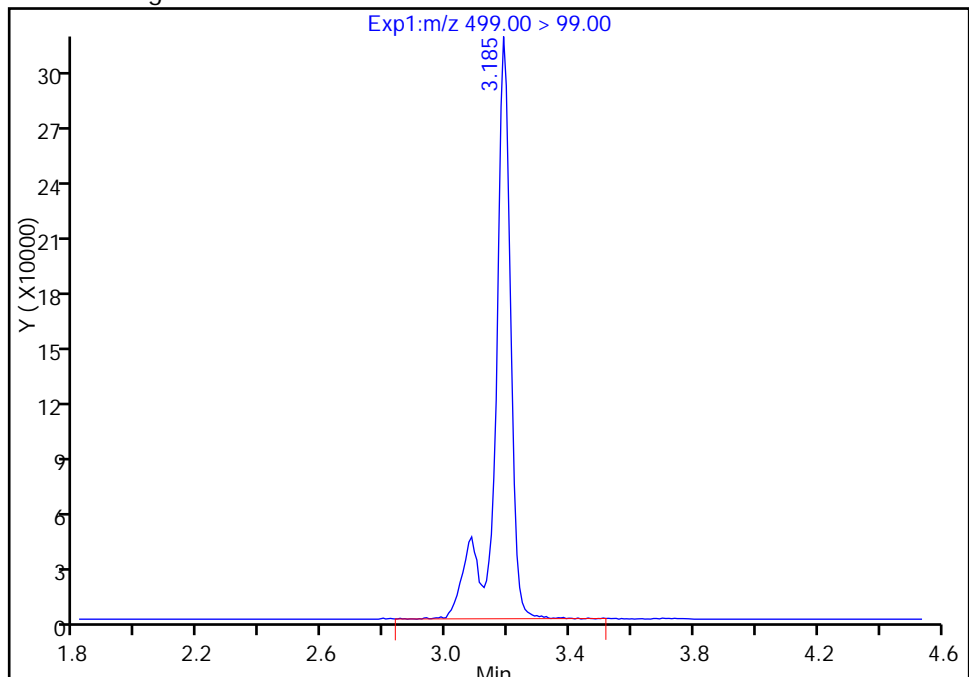
RT: 3.08
Area: 161771
Amount: 8.297536
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1091204
Amount: 29.382016
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Mar-2017 08:10:59

Audit Action: Manually Integrated

Audit Reason: Isomers

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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.: 320-26103-1

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)
ZZZZZ		03/02/2017 11:20	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/02/2017 11:35	1		GeminiC18 3x100 3(mm)
320-26103-7		03/02/2017 11:42	1	2017.03.02A_013 .d	GeminiC18 3x100 3(mm)
CCV 320-152836/23		03/02/2017 11:50	1	2017.03.02A_014 .d	GeminiC18 3x100 3(mm)
320-26103-12		03/02/2017 11:57	1	2017.03.02A_015 .d	GeminiC18 3x100 3(mm)
CCV 320-152836/25		03/02/2017 12:05	1	2017.03.02A_016 .d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/03/2017 09:07Analysis Batch Number: 153020 End Date: 03/03/2017 10:00

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		03/03/2017 09:07	1		GeminiC18 3x100 3(mm)
CCV 320-153020/3 CCVL		03/03/2017 09:15	1		GeminiC18 3x100 3(mm)
CCV 320-153020/4		03/03/2017 09:22	1	2017.03.03A_004 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/03/2017 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/03/2017 09:37	1		GeminiC18 3x100 3(mm)
320-26103-7 DL		03/03/2017 09:45	50	2017.03.03A_007 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/03/2017 09:53	10		GeminiC18 3x100 3(mm)
CCV 320-153020/9		03/03/2017 10:00	1	2017.03.03A_009 .d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26103-1

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	2017.03.11C_027 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 15:35	1		GeminiC18 3x100 3(mm)
MB 320-152961/1-A		03/11/2017 15:42	1	2017.03.11C_029 .d	GeminiC18 3x100 3(mm)
LCS 320-152961/2-A		03/11/2017 15:50	1	2017.03.11C_030 .d	GeminiC18 3x100 3(mm)
320-26103-1		03/11/2017 15:57	1	2017.03.11C_031 .d	GeminiC18 3x100 3(mm)
320-26103-2		03/11/2017 16:05	1	2017.03.11C_032 .d	GeminiC18 3x100 3(mm)
320-26103-3		03/11/2017 16:12	1	2017.03.11C_033 .d	GeminiC18 3x100 3(mm)
320-26103-3 MS		03/11/2017 16:20	1	2017.03.11C_034 .d	GeminiC18 3x100 3(mm)
320-26103-3 MSD		03/11/2017 16:27	1	2017.03.11C_035 .d	GeminiC18 3x100 3(mm)
320-26103-4		03/11/2017 16:35	1	2017.03.11C_036 .d	GeminiC18 3x100 3(mm)
320-26103-5		03/11/2017 16:42	1	2017.03.11C_037 .d	GeminiC18 3x100 3(mm)
CCV 320-154503/35		03/11/2017 16:50	1	2017.03.11C_038 .d	GeminiC18 3x100 3(mm)
320-26103-8		03/11/2017 16:57	1	2017.03.11C_039 .d	GeminiC18 3x100 3(mm)
320-26103-9		03/11/2017 17:05	1	2017.03.11C_040 .d	GeminiC18 3x100 3(mm)
320-26103-10		03/11/2017 17:12	1	2017.03.11C_041 .d	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)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/11/2017 12:34

Analysis 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
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	2017.03.11C_049 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 18:20	1		GeminiC18 3x100 3(mm)
CCV 320-154503/48		03/11/2017 18:27	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/13/2017 11:39Analysis Batch Number: 154721End Date: 03/13/2017 13:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154721/1 CCVL		03/13/2017 11:39	1	2017.03.13A_004 .d	GeminiC18 3x100 3(mm)
CCV 320-154721/2		03/13/2017 11:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:02	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:09	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:17	20		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:24	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:32	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:39	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:47	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:54	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:02	10		GeminiC18 3x100 3(mm)
CCV 320-154721/12		03/13/2017 13:09	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:17	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:24	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:32	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:39	10		GeminiC18 3x100 3(mm)
CCV 320-154721/17		03/13/2017 13:47	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-26103-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/13/2017 15:52Analysis Batch Number: 154808End Date: 03/13/2017 17:53

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154808/1		03/13/2017 15:52	1	2017.03.13A_037 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:01	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:08	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:23	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:31	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:38	20		GeminiC18 3x100 3(mm)
320-26103-9 DL		03/13/2017 16:46	100	2017.03.13A_044 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:53	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:01	10		GeminiC18 3x100 3(mm)
CCV 320-154808/11		03/13/2017 17:08	1	2017.03.13A_047 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:16	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:23	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:31	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:38	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:46	1		GeminiC18 3x100 3(mm)
CCV 320-154808/17		03/13/2017 17:53	1		GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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
320-26103-A-7	MEAFF-MRD-0621-0 217	3535, 537 (Modified)	T	321.56 g	26.42 g	295.1 mL	0.50 mL		25 uL
320-26103-A-12	MEAFF-MRD-0615-0 217	3535, 537 (Modified)	T	320.69 g	27.25 g	293.4 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				
320-26103-A-7	MEAFF-MRD-0621-0 217	3535, 537 (Modified)	T						
320-26103-A-12	MEAFF-MRD-0615-0 217	3535, 537 (Modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

537 (Modified)

Page 1 of 2

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

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.: 320-26103-1

SDG No.: _____

Batch Number: 152961 Batch Start Date: 03/02/17 17:04 Batch Analyst: Winchester, Ethan RBatch Method: SHAKE Batch End Date: 03/07/17 19:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00047	LCPFCSP 00080		
MB 320-152961/1		SHAKE, 537 (Modified)		5 g	1 mL	50 uL			
LCS 320-152961/2		SHAKE, 537 (Modified)		5 g	1 mL	50 uL	40 uL		
320-26103-A-1	MEAFF-SDA4C-SB02 -0001	SHAKE, 537 (Modified)	T	5.02 g	1 mL	50 uL			
320-26103-A-2	MEAFF-SDA4C-SB02 -0204	SHAKE, 537 (Modified)	T	5.00 g	1 mL	50 uL			
320-26103-A-3	MEAFF-SDA4C-SB01 -0001	SHAKE, 537 (Modified)	T	4.94 g	1 mL	50 uL			
320-26103-A-3 MS	MEAFF-SDA4C-SB01 -0001	SHAKE, 537 (Modified)	T	4.96 g	1 mL	50 uL	40 uL		
320-26103-A-3 MSD	MEAFF-SDA4C-SB01 -0001	SHAKE, 537 (Modified)	T	5.03 g	1 mL	50 uL	40 uL		
320-26103-A-4	MEAFF-SDA4C-SB01 -0204	SHAKE, 537 (Modified)	T	5.02 g	1 mL	50 uL			
320-26103-A-5	MEAFF-FTA2-SB02- 0608	SHAKE, 537 (Modified)	T	5.01 g	1 mL	50 uL			
320-26103-A-8	MEAFF-FTA2-SB05- 0608	SHAKE, 537 (Modified)	T	4.99 g	1 mL	50 uL			
320-26103-A-9	MEAFF-FTA2-SB04- 0608	SHAKE, 537 (Modified)	T	4.98 g	1 mL	50 uL			
320-26103-A-10	MEAFF-FTA2-SB03- 0608	SHAKE, 537 (Modified)	T	5.08 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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Batch Number: 152961 Batch Start Date: 03/02/17 17:04 Batch Analyst: Winchester, Ethan RBatch Method: SHAKE Batch End Date: 03/07/17 19:30

Batch Notes	
Acetic Acid ID	429065
Balance ID	QA-074
Hexane ID	863965
Manifold ID	5,6
Methanol ID	865706
Methanolic Potassium Hydroxide ID	865063
Millipore Water Dispense Date	3-6-17
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.

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): [Signature]

Date: 3/3/17

2nd Level Reviewer: [Signature]

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 152081

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>RRC</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

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Printed : 2/23/2017

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TestAmerica Sacramento

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	JMR 2/23/17	KMK 2-23-17
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	LCMPFC2SU_00014	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>WPM 2/28/17</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: _____

Sample Dilution Record

Method ID PFC-IDA-D0D5

Job # 26103 ; 25962

Analyst (Print Name) Suyharz Chandraseen 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
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
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
LCS-320-152587/3 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCS 320-152587-3-A
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
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
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
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
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
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
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	LCMPFCSU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCMPFC2SU_00014	25 uL	0.50 mL	<i>[Signature]</i>	<i>[Signature]</i>
LCS 320-152587/2	LCMPFCSU_00047	25 uL	0.50 mL		
LCS 320-152587/2	LCPCF2SP_00017	20 uL	0.50 mL		
LCS 320-152587/2	LCPCFSP_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	LCPCF2SP_00017	20 uL	0.50 mL		
LCSD 320-152587/3	LCPCFSP_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>Mr. Reed</i>	WPM 2/28/17
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: _____

26319, 26320, A8
 Job No: 26321 Instrument ID & Date: 3-14-17 ICAL Batch: 153408
 Extraction Batch: 154682 Worklist #: 40849, 40851 TALS Batch: 155003, 155025, 155026, 155057

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. Low-range CCV injected at start of analytical run? CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?	✓			✓
3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICAL and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	✓
5. All target compounds in MB < 1/3 RL? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 3-15-17

2nd Level Reviewer / Date: AWW 3/16/2017

NCM # and Comments: 81004

A8

Instrument ID & Date: 3-6-17 Worklist#: 40511

ICAL Batch: 153407, 153408 Calibration ID number: 28784, 28785

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x ²) Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤ MRL within ±50% of true value? Are points > MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 3-6-17

2nd Level Reviewer / Date: Mindy 3/2/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 14MAR2017A_537

Worklist Number: 40849

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40849.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 155003	LC 537 ICAL Raw Batch: 155004
# 1 RINSE	# 1 RINSE	# 3 CCVL
# 2 RINSE	# 2 RINSE	
# 3 CCVL	# 3 CCVL	
# 4 CCV L5	# 4 CCV L5	
# 5 RB	# 5 RB	
# 6 MB 320-154682/1-A	# 6 MB 320-154682/1-A	
# 7 LCS 320-154682/2-A	# 7 LCS 320-154682/2-A	
# 8 320-26319-A-1-A	# 8 320-26319-A-1-A	
# 9 320-26319-A-2-A	# 9 320-26319-A-2-A	
#10 320-26319-A-3-A	#10 320-26319-A-3-A	
#11 320-26319-A-4-A	#11 320-26319-A-4-A	
#12 320-26319-A-5-A	#12 320-26319-A-5-A	
#13 320-26319-A-6-A	#13 320-26319-A-6-A	
#14 320-26319-A-7-A	#14 320-26319-A-7-A	
#15 320-26319-A-8-A	#15 320-26319-A-8-A	
#16 CCV L3	#16 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155025
#16 CCV L3	#16 CCV L3
#17 RB	#17 RB
#18 320-26319-A-9-A	#18 320-26319-A-9-A
#19 320-26319-A-10-A	#19 320-26319-A-10-A
#20 320-26319-A-11-A	#20 320-26319-A-11-A
#21 320-26319-A-12-A	#21 320-26319-A-12-A
#22 320-26319-A-12-D LMS	#22 320-26319-A-12-D LMS
#23 320-26319-A-12-E LMSD	#23 320-26319-A-12-E LMSD
#24 320-26320-A-1-A	#24 320-26320-A-1-A
#25 320-26320-A-1-D LMS	#25 320-26320-A-1-D LMS
#26 320-26320-A-1-E LMSD	#26 320-26320-A-1-E LMSD
#27 320-26320-A-2-A	#27 320-26320-A-2-A
#28 CCV L5	#28 CCV L5

QC Batch: 3	LC 537 CS ICAL Raw Batch: 155026
#28 CCV L5	#28 CCV L5
#29 RB	#29 RB
#30 320-26320-A-3-A	#30 320-26320-A-3-A
#31 320-26320-A-4-A	#31 320-26320-A-4-A
#32 320-26321-A-1-A	#32 320-26321-A-1-A
#33 320-26321-A-1-D LMS	#33 320-26321-A-1-D LMS
#34 320-26321-A-1-E LMSD	#34 320-26321-A-1-E LMSD
#35 320-26321-A-2-A	#35 320-26321-A-2-A
#36 320-26321-A-3-A	#36 320-26321-A-3-A
#37 320-26321-A-4-A	#37 320-26321-A-4-A
#38 CCV L3	#38 CCV L3
#39 RB	#39 RB

TestAmerica Laboratories

Worklist QC Batch Report

Worklist Name: 15MAR2017A_537

Worklist Number: 40851

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40851.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 155007	LC 537 ICAL Raw Batch: 155008
# 1 RINSE	# 1 RINSE	# 3 CCVL
# 2 RINSE	# 2 RINSE	
# 3 CCVL	# 3 CCVL	
# 4 CCV L5	# 4 CCV L5	
# 5 RB	# 5 RB	
# 6 QC LC537-SU_00033	# 6 QC LC537-SU_00033	
# 7 CCV L3	# 7 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155057
# 7 CCV L3	# 7 CCV L3
# 8 RB	# 8 RB
# 9 RINSE	# 9 RINSE
#10 CCV L5	#10 CCV L5
#11 320-26319-A-1-A	#11 320-26319-A-1-A
#12 320-26320-A-3-A	#12 320-26320-A-3-A
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Batch Open: 3/13/2017 2:41:00PM

Batch End: 3/14/17 13:50

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHs Rcvd Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-154682/1 N/A	N/A		250 mL 1.0 mL	7	N/A	N/A	N/A	chlorine=ND	MB-320-154682/1-A
2 LCS-320-154682/2 N/A	N/A		250 mL 1.0 mL	7	N/A	N/A	N/A	chlorine=ND	LCS-320-154682/2-A
3 320-26319-A-1 (537_DuPont)	N/A (320-26319-1)	278.68 g 27.21 g	251.5 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-1-A
4 320-26319-A-2 (537_DuPont)	N/A (320-26319-1)	277.30 g 27.05 g	250.3 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-2-A
5 320-26319-A-3 (537_DuPont)	N/A (320-26319-1)	281.82 g 27.14 g	254.7 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-3-A
6 320-26319-A-4 (537_DuPont)	N/A (320-26319-1)	278.40 g 26.92 g	251.5 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-4-A
7 320-26319-A-5 (537_DuPont)	N/A (320-26319-1)	281.07 g 27.51 g	253.6 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-5-A
8 320-26319-A-6 (537_DuPont)	N/A (320-26319-1)	283.56 g 27.08 g	256.5 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-6-A
9 320-26319-A-7 (537_DuPont)	N/A (320-26319-1)	281.17 g 27.50 g	253.7 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-7-A
10 320-26319-A-8 (537_DuPont)	N/A (320-26319-1)	278.72 g 26.99 g	251.7 mL 1.0 mL	7	3/10/17	8_Days	4	chlorine=ND	320-26319-A-8-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

11	320-26319-A-9 (537_DuPont)	N/A (320-26319-1)	277.96 g 27.63 g	250.3 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
12	320-26319-A-10 (537_DuPont)	N/A (320-26319-1)	278.68 g 27.06 g	251.6 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
13	320-26319-A-11 (537_DuPont)	N/A (320-26319-1)	280.12 g 27.53 g	252.6 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
14	320-26319-A-12 (537_DuPont)	N/A (320-26319-1)	280.60 g 26.87 g	253.7 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
15	320-26319-A-12-LMS (537_DuPont)	N/A (320-26319-1)	281.42 g 27.04 g	254.4 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
16	320-26319-A-12-LMSD (537_DuPont)	N/A (320-26319-1)	284.71 g 26.77 g	257.9 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
17	320-26320-A-1 (537_DuPont)	N/A (320-26320-1)	277.04 g 26.98 g	250.1 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
18	320-26320-A-1-LMS (537_DuPont)	N/A (320-26320-1)	281.00 g 26.81 g	254.2 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
19	320-26320-A-1-LMSD (537_DuPont)	N/A (320-26320-1)	281.66 g 27.15 g	254.5 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
20	320-26320-A-2 (537_DuPont)	N/A (320-26320-1)	276.29 g 27.12 g	249.2 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
21	320-26320-A-3 (537_DuPont)	N/A (320-26320-1)	274.01 g 27.15 g	246.9 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	
22	320-26320-A-4 (537_DuPont)	N/A (320-26320-1)	279.79 g 27.36 g	252.4 mL 1.0 mL	7				3/10/17	8_Days	4	chlorine=ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)







Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

23	320-26321-A-1 (537_DuPont)	N/A (320-26321-1)	275.25 g 27.14 g	248.1 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-1-A
24	320-26321-A-1-LMS (537_DuPont)	N/A (320-26321-1)	273.50 g 27.45 g	246.1 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-1-B-LMS
25	320-26321-A-1-LMSD (537_DuPont)	N/A (320-26321-1)	276.37 g 26.86 g	249.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-1-E-LMSD
26	320-26321-A-2 (537_DuPont)	N/A (320-26321-1)	282.88 g 27.52 g	255.4 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-2-A
27	320-26321-A-3 (537_DuPont)	N/A (320-26321-1)	278.34 g 26.80 g	251.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-3-A
28	320-26321-A-4 (537_DuPont)	N/A (320-26321-1)	282.99 g 27.33 g	255.7 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	 320-26321-A-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Batch Notes	
Manifold ID	1, 3, 4
Trizma ID	SLBR4303V
SPE Cartridge ID	6341059-06
Methanol ID	865699
Reagent Water ID	3/13/17
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	CCB
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	CCB
Analyst ID - IS Reagent Drop	<i>HA</i>
Analyst ID - IS Reagent Drop Witness	<i>CCB</i>
Batch Comment	<i>861760 1/2</i>

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Comments

320-26319-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-5	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-6	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-7	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-8	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-9	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-10	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-11	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12-MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12-MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1-MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1-MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Batch Number: 320-154682

Method Code: 320-537_Prep-320

320-26320-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-154682/1	LC537-SU_00032	50 uL	1.0 mL	KMK 3-13-17	Ces 3-13-17
LCS 320-154682/2	LC537-HSP_00014	50 uL	1.0 mL		
LCS 320-154682/2	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-4	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-5	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-6	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-7	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-8	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-9	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-10	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-11	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26319-A-12 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12 LMSD	LC537-LSP_00017	50 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

320-26319-A-12 LMSD	LC537-SU_00032	50 uL	1.0 mL	KMK 3-13-17	008 3-13-17
320-26320-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-4	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-4	LC537-SU_00032	50 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Other Reagents:		
Reagent	Amount/Units	Lot#:

Preparation Batch Number(s): 154682

Test: 537-Prep

Earliest Holding Time: 3-14-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	/	/
Method/sample/login/QAS checked and correct	/	/
Worksheet Tab	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	/	/
Weights in anticipated range and not targeted	/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	/	/
The pH is transcribed correctly in TALS	/	/
All additional information transcribed into TALS is correct and raw data is attached	/	/
Comments are transcribed correctly in TALS	/	/
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: CEB

Date: 3-14-17

2nd Level Reviewer: VPM

Date: 3-14-17

Comments: _____

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job Number: 320-26103-1

SDG No.: _____

Project: Meridian 10006-7-105420 JM01 Navy Clean

Client Sample ID	Lab Sample ID
MEAFF-SDA4C-SB02-0001	320-26103-1
MEAFF-SDA4C-SB02-0204	320-26103-2
MEAFF-SDA4C-SB01-0001	320-26103-3
MEAFF-SDA4C-SB01-0204	320-26103-4
MEAFF-FTA2-SB02-0608	320-26103-5
MEAFF-FTA2-SB05-0608	320-26103-8
MEAFF-FTA2-SB04-0608	320-26103-9
MEAFF-FTA2-SB03-0608	320-26103-10

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-26103-1

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: 320-26103-1
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.: 320-26103-1
 SDG No.: _____
 Instrument ID: NOEQUIP Analysis Method: D 2216
 Start Date: 02/27/2017 16:11 End Date: 02/27/2017 16:11

Lab Sample Id	D/F	T y p e	Time	Analytes																									
				% S o l	M o i s t																								
ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
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ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
ZZZZZZ			16:11																										
320-26103-1	1	T	16:11	X	X																								
320-26103-2	1	T	16:11	X	X																								
320-26103-3	1	T	16:11	X	X																								
320-26103-4	1	T	16:11	X	X																								
320-26103-5	1	T	16:11	X	X																								
320-26103-8	1	T	16:11	X	X																								
320-26103-8 DU	1	T	16:11	X	X																								

Prep Types: _____
 T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Instrument ID: NOEQUIP Analysis Method: D 2216
 Start Date: 02/27/2017 16:35 End Date: 02/27/2017 16:35

Lab Sample Id	D/F	T y p e	Time	Analytes																									
				% S o l	M o i s t																								
320-26103-9	1	T	16:35	X	X																								
320-26103-9 DU	1	T	16:35	X	X																								
320-26103-10	1	T	16:35	X	X																								

Prep Types: _____
 T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Batch Number: 152404 Batch Start Date: 02/27/17 16:11 Batch Analyst: Yang, MaiseeBatch Method: D 2216 Batch End Date: 02/28/17 10:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry	AnalysisComment	
320-26103-A-1	MEAFF-SDA4C-SB02-0001	D 2216	T	14	1.00 g	7.13 g	6.22 g		
320-26103-A-2	MEAFF-SDA4C-SB02-0204	D 2216	T	15	0.99 g	7.67 g	6.73 g		
320-26103-A-3	MEAFF-SDA4C-SB01-0001	D 2216	T	16	1.00 g	9.79 g	8.41 g		
320-26103-A-4	MEAFF-SDA4C-SB01-0204	D 2216	T	17	1.01 g	7.60 g	6.44 g		
320-26103-A-5	MEAFF-FTA2-SB02-0608	D 2216	T	18	1.02 g	10.55 g	8.06 g	clay	
320-26103-A-8	MEAFF-FTA2-SB05-0608	D 2216	T	19	1.00 g	6.90 g	5.54 g		
320-26103-A-8 DU	MEAFF-FTA2-SB05-0608	D 2216	T	20	1.06 g	7.24 g	5.82 g		

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	02/28/17 @ 9:25
Date and Time Samples out of Desiccator	02/28/17 @ 10:10
Date samples were placed in the oven	02/27/17
Oven Temp In	109 Degrees C
Time samples were place in the oven	16:41
Date samples were removed from oven	02/28/17
Oven Temp Out	112 Degrees C
Time Samples were removed from oven	9:25
Oven ID	Soil Prep #1
Thermometer ID	151969626

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Batch Number: 152405 Batch Start Date: 02/27/17 16:35 Batch Analyst: Yang, MaisseeBatch Method: D 2216 Batch End Date: 02/28/17 10:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
320-26103-A-9	MEAFF-FTA2-SB04-0608	D 2216	T	1	1.01 g	7.55 g	5.64 g		
320-26103-A-9 DU	MEAFF-FTA2-SB04-0608	D 2216	T	2	1.04 g	7.37 g	5.58 g		
320-26103-A-10	MEAFF-FTA2-SB03-0608	D 2216	T	3	1.03 g	6.88 g	5.47 g		

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	02/28/17 @ 9:25
Date and Time Samples out of Desiccator	02/28/17 @ 10:10
Date samples were placed in the oven	02/27/17
Oven Temp In	109 Degrees C
Time samples were place in the oven	16:41
Date samples were removed from oven	02/28/17
Oven Temp Out	112 Degrees C
Time Samples were removed from oven	9:25
Oven ID	Soil Prep #1
Thermometer ID	151969626

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): 152405, 152404
152396 Test: % Moisture

Earliest Holding Time: N/A

320-26103, -26105, -26050, -26102, -26096, -26047

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	/
Weights in anticipated range and not targeted	/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	/	/
The pH is transcribed correctly in TALS	NA	/
All additional information transcribed into TALS is correct and raw data is attached	NA	/
Comments are transcribed correctly in TALS	NA	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	NA	/
All spike amounts correct and added to necessary samples and QC	NA	/
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: MY

Date: 02/28/17

2nd Level Reviewer: OMO

Date: 02/29/17

Comments: _____

Preparation Batch Number(s): 152405, 152404
152396 Test: % Moisture

Earliest Holding Time: N/A

320-26103, -26105, -26050, -26102, -26096, -26047

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	/
Weights in anticipated range and not targeted	/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	/	/
The pH is transcribed correctly in TALS	NA	/
All additional information transcribed into TALS is correct and raw data is attached	NA	/
Comments are transcribed correctly in TALS	NA	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	NA	/
All spike amounts correct and added to necessary samples and QC	NA	/
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: MY

Date: 02/28/17

2nd Level Reviewer: OMO

Date: 02/29/17


Comments: _____

Shipping and Receiving Documents

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

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

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bryan Burklingstock		Site Contact: Ryan Brown		Date: 2/23/17		COC No: 3	
CH2M Hill		Tel/Fax:		Lab Contact: Jill Kellmann		Carrier: FedEx		Sampler:	
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600		<input checked="" type="checkbox"/> CALENDAR DAYS		Analysis Turnaround Time				For Lab Use Only:	
Atlanta, GA 30328		<input type="checkbox"/> TAT if different from Below		2 weeks				Walk-in Client:	
(678) 530-4060		<input type="checkbox"/> 1 week		2 days				Lab Sampling:	
(770) 604-9183		<input type="checkbox"/> 1 day						Job / SDG No.:	
Project Name: Meridian 10006-7-105420 JM01 Navy Clean									
Site: NAS Meridian									
P O #: 10006-7-105420									
Sample Identification		Sample Date	Sample Time	Sample Type (G=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
MEAFF-SDA4C-SB02-0001	2/23/17	0900	G	SD	1	NN	X	X	 320-26103 Chain of Custody
MEAFF-SDA4C-SB02-0204		0908							
MEAFF-SDA4C-SB01-0001		0921							
MEAFF-SDA4C-SB01-0204		0933							
MEAFF-FTA2-SB02-0608		1200							
MEAFF-MRD-0504-0217		1430		GW	2		X	X	
MEAFF-MRD-0601-0217		1600		GW	4		X	X	
MEAFF-FTA2-SB03-0608		1350		SD	1		X	X	
MEAFF-FTA2-SB04-0608		1435		SD	1		X	X	
MEAFF-FTA2-SB03-0608		1455		SD	1		X	X	
MEAFF-FTA2-SB03-0217		1435		GW	2		X	X	
MEAFF-MRD-0605-0217		1600		GW	4		X	X	
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please list any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.									
Special Instructions/QC Requirements & Comments: Send results to Mike Zambari - address should be on file									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C) Obs'd:		Corr'd:		Therm ID No.:	
Requested by: Ryan Brown		Date/Time: 2/23/17		Received by: Mike Zambari		Company: TAW/S		Date/Time: 2/24/17 9:50	
Requested by:		Date/Time:		Received by:		Company:		Date/Time:	
Requested by:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

Client: CH2M Hill, Inc.

Job Number: 320-26103-1

Login Number: 26103
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	Not requested on COC.
There are no discrepancies between the containers received and the COC.	False	Received MS/SD not listed on COC.
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: 320-26103-1
Laboratory: Test America Laboratories, West Sacramento, California
Site: Naval Air Station Meridian, JM01, Meridian, Mississippi
Date: October 28, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1*	MEAFF-SDA4C-SB02-0001	320-26103-1	Soil
2*	MEAFF-SDA4C-SB02-0204	320-26103-2	Soil
3*	MEAFF-SDA4C-SB01-0001	320-26103-3	Soil
3MS*	MEAFF-SDA4C-SB01-0001MS	320-26103-3MS	Soil
3MSD*	MEAFF-SDA4C-SB01-0001MSD	320-26103-3MSD	Soil
4*	MEAFF-SDA4C-SB01-0204	320-26103-4	Soil
5*	MEAFF-FTA2-SB02-0608	320-26103-5	Soil
6†	MEAFF-MRD-0504-0217	320-26103-6	Water
7	MEAFF-MRD-0621-0217	320-26103-7	Water
7DL*	MEAFF-MRD-0621-0217DL	320-26103-7DL	Water
8*	MEAFF-FTA2-SB05-0608	320-26103-8	Soil
9*	MEAFF-FTA2-SB04-0608	320-26103-9	Soil
9DL*	MEAFF-FTA2-SB04-0608DL	320-26103-9DL	Soil
10*	MEAFF-FTA2-SB03-0608	320-26103-10	Soil
11†	MEAFF-MRD-0503-0217	320-26103-11	Water
12	MEAFF-MRD-0615-0217	320-26103-12	Water

* - PFCs only † - 1,4-Dioxane only

A full data validation was performed on the analytical data for eight soil samples and four water samples collected on February 23, 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)" and the Test America Laboratories (TAL) Standard Operating Procedure for the analysis of 1,4-dioxane by GC/MS-SIM.

Specific method references are as follows:

Analysis

PFCs
SVOC-SIM (1,4-Dioxane)

Method References

USEPA Method 537 Modified
TAL SOP WS-MS-0011

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;
- USEPA Region 4 “Data Validation Standard Operating Procedures for CLP Organic Data using GC/MS and GC/ECD”, Rev. 0.0, February 2016;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Holding times and sample preservation
- Liquid/Gas Chromatography/Mass Spectrometry (LC/GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

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 samples were not collected.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

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.
- EDS Sample ID 7 was flagged (E) by the laboratory for all PFCs exceeding the linear range of the instrument. The sample was diluted and reanalyzed and the dilution results for all compounds should be used reporting purposes.
- EDS Sample ID 9 was flagged (E) by the laboratory for PFOS exceeding the linear range of the instrument. The sample was diluted and reanalyzed and the dilution result for PFOS should be used for reporting purposes.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Semivolatile Organic Compounds (1,4-Dioxane)

Holding Times

- All samples were extracted within 7 days for water samples and analyzed within 40 days.

GC/MS Tuning

- All criteria were met.

Initial Calibration

- The initial calibrations exhibited acceptable %RSD and/or correlation coefficients and mean RRF criteria.

Continuing Calibration

- The continuing calibrations exhibited acceptable %D and RRF criteria.

Method Blank

- The method blanks were free of contamination.

Field Blank

- Field QC samples were not collected.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples/Laboratory Control Sample Duplicate (LCS/LCSD)

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

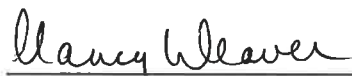
- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:



Nancy Weaver
Senior Chemist

Dated: 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.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4C-SB02-0001 Lab Sample ID: 320-26103-1
 Matrix: Solid Lab File ID: 2017.03.11C_031.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:00
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5.02(g) Date Analyzed: 03/11/2017 15:57
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 14.8 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U M	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.21	J 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	123		25-150
STL00991	13C4 PFOS	84		25-150
STL00994	18O2 PFHxS	100		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4C-SB02-0204 Lab Sample ID: 320-26103-2
 Matrix: Solid Lab File ID: 2017.03.11C_032.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:08
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5.00(g) Date Analyzed: 03/11/2017 16:05
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 14.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 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	96		25-150
STL00991	13C4 PFOS	44		25-150
STL00994	18O2 PFHxS	81		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

3

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-SDA4C-SB01-0001 Lab Sample ID: 320-26103-3
 Matrix: Solid Lab File ID: 2017.03.11C_033.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:21
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 4.94(g) Date Analyzed: 03/11/2017 16:12
 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.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.76	M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9	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	109		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	90		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

4

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Client Sample ID: MEAFF-SDA4C-SB01-0204 Lab Sample ID: 320-26103-4

Matrix: Solid Lab File ID: 2017.03.11C 036.d

Analysis Method: 537 (Modified) Date Collected: 02/23/2017 09:33

Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04

Sample wt/vol: 5.02(g) Date Analyzed: 03/11/2017 16:35

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 17.6 GPC Cleanup: (Y/N) N

Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.22	J M	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.42	J 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	98		25-150
STL00991	13C4 PFOS	45		25-150
STL00994	18O2 PFHxS	86		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

5

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-FTA2-SB02-0608 Lab Sample ID: 320-26103-5
 Matrix: Solid Lab File ID: 2017.03.11C_037.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 12:00
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5.01(g) Date Analyzed: 03/11/2017 16:42
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 26.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.41	U	0.68	0.41	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.41	U	0.68	0.41	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.41	U M	0.54	0.41	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	109		25-150
STL00991	13C4 PFOS	103		25-150
STL00994	18O2 PFHxS	103		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

7

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0621-0217 Lab Sample ID: 320-26103-7
 Matrix: Water Lab File ID: 2017.03.02A_013.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 16:00
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 295.1(mL) Date Analyzed: 03/02/2017 11:42
 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)	13000 5400	M-E	110 2.1	85 1.7	32 0.63
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	410 400	E	170 3.4	130 2.5	54 1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	690 860	M-E	110 2.1	85 1.7	39 0.78

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	25		25-150
STL00991	13C4 PFOS	121		25-150
STL00994	18O2 PFHxS	32		25-150

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7DL

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0621-0217 DL Lab Sample ID: 320-26103-7 DL
 Matrix: Water Lab File ID: 2017.03.03A_007.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 16:00
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 295.1(mL) Date Analyzed: 03/03/2017 09:45
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 50
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 153020 Units: ng/L

Use original results

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	13000	D-M	110	85	32
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	410	D	170	130	54
375-73-5	Perfluorobutanesulfonic acid (PFBS)	690	D	110	85	39

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	138		25-150
STL00994	18O2 PFHxS	137		25-150

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8

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-FTA2-SB05-0608 Lab Sample ID: 320-26103-8
 Matrix: Solid Lab File ID: 2017.03.11C_039.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 13:50
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 4.99(g) Date Analyzed: 03/11/2017 16:57
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 23.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.41	J M	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.4	M	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	J M	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	93		25-150

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9

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-FTA2-SB04-0608 Lab Sample ID: 320-26103-9
 Matrix: Solid Lab File ID: 2017.03.11C_040.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 14:35
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 4.98(g) Date Analyzed: 03/11/2017 17:05
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 29.2 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	0.71	0.43	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1000	770 E-M	71 0.71	43 0.43	18 0.18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.1		0.57	0.43	0.15

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	85		25-150
STL00991	13C4 PFOS	32		25-150
STL00994	18O2 PFHxS	86		25-150

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LCMS ORGANICS ANALYSIS DATA SHEET

9DL

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-FTA2-SB04-0608 DL Lab Sample ID: 320-26103-9 DL
 Matrix: Solid Lab File ID: 2017.03.13A_044.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 14:35
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 4.98(g) Date Analyzed: 03/13/2017 16:46
 Con. Extract Vol.: 1(mL) Dilution Factor: 100
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 29.2 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154808 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	22	J B M	71	43	14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1000	B M	71	43	18
375-73-5	Perfluorobutanesulfonic acid (PFBS)	43	U	57	43	15

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	54		25-150
STL00994	18O2 PFHxS	75		25-150

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16

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-FTA2-SB03-0608 Lab Sample ID: 320-26103-10
 Matrix: Solid Lab File ID: 2017.03.11C_041.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 14:55
 Extraction Method: SHAKE Date Extracted: 03/02/2017 17:04
 Sample wt/vol: 5.08(g) Date Analyzed: 03/11/2017 17:12
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 24.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154503 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.14	J M	0.65	0.39	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.61	J M	0.65	0.39	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.74	N	0.52	0.39	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	102		25-150
STL00991	13C4 PFOS	87		25-150
STL00994	18O2 PFHxS	98		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0615-0217 Lab Sample ID: 320-26103-12
 Matrix: Water Lab File ID: 2017.03.02A_015.d
 Analysis Method: 537 (Modified) Date Collected: 02/23/2017 16:05
 Extraction Method: 3535 Date Extracted: 02/28/2017 16:42
 Sample wt/vol: 293.4 (mL) Date Analyzed: 03/02/2017 11:57
 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)	210		2.1	1.7	0.64
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	46		3.4	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	180		2.1	1.7	0.78

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	133		25-150
STL00994	18O2 PFHxS	117		25-150

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0504-0217 Lab Sample ID: 320-26103-6
 Matrix: Water Lab File ID: S031404.D
 Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 14:30
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1067.4 (mL) Date Analyzed: 03/14/2017 16:12
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.47	U	0.94	0.47	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	72		42-91

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

7

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0621-0217 Lab Sample ID: 320-26103-7
 Matrix: Water Lab File ID: S031405.D
 Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 16:00
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1057.6(mL) Date Analyzed: 03/14/2017 16:35
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.47	U	0.95	0.47	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	58		42-91

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

11

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1

SDG No.: _____

Client Sample ID: MEAFF-MRD-0503-0217 Lab Sample ID: 320-26103-11

Matrix: Water Lab File ID: S031406.D

Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 14:35

Extract. Method: 3510C Date Extracted: 03/02/2017 13:45

Sample wt/vol: 1034.8 (mL) Date Analyzed: 03/14/2017 16:57

Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1

Injection Volume: 1 (uL) Level: (low/med) Low

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.97	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	68		42-91

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

12

Lab Name: TestAmerica Sacramento Job No.: 320-26103-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0615-0217 Lab Sample ID: 320-26103-12
 Matrix: Water Lab File ID: S031407.D
 Analysis Method: WS-MS-0011 Date Collected: 02/23/2017 16:05
 Extract. Method: 3510C Date Extracted: 03/02/2017 13:45
 Sample wt/vol: 1026.3(mL) Date Analyzed: 03/14/2017 17:20
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.49	U	0.97	0.49	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	59		42-91