



**Groundwater Sample Results,
Combined Level 2 and Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 320-21044-1**

*Naval Weapons Station Earle
Colts Neck, New Jersey*

July 2019

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NWS EARLE
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LABORATORY DATA PACKAGE, 320-21044-1, NWS EARLE, NJ
09/29/2016
TESTAMERICA LABORATORIES, INC

ANALYTICAL REPORT

Job Number: 320-21044-1

Job Description: Ensafe-NWS - Earle, NJ PFCs

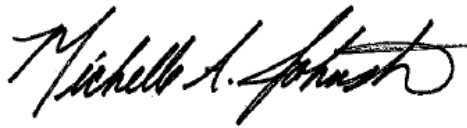
For:

Earth Toxics, Inc

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Attention: Mike Dryden



Approved for release.
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9/29/2016 9:46 AM

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The test results in this report relate only to the samples in this report and meet all requirements of NELAP, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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Definitions/Glossary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Qualifiers

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
D	The reported value is from a dilution.

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: Earth Toxics, Inc
Project: Ensafe-NWS - Earle, NJ PFCs
Report Number: 320-21044-1

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.

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.

Sample Receipt

The samples were received on 8/18/2016 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

The requested 537 modified PFAS analyses were logged on a 25 business day turn around time due to current laboratory capacity.

No other anomalies were encountered during sample receipt.

Perfluorinated Hydrocarbons (PFCs)

Samples FB081716 (320-21044-1), EB081716 (320-21044-2), MCFSMW-3_0816 (320-21044-3), 46MW05_0816 (320-21044-4), 46MW03_0816 (320-21044-5), MCFSMW-14_0816 (320-21044-6), MCFSMW-4_0816 (320-21044-7) and MCFSMW-5_0816 (320-21044-8) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with WS-LC-0025. The samples were prepared on 08/22/2016 and analyzed on 09/04/2016 and 09/19/2016.

Reporting limits have been adjusted accordingly for the initial volumes extracted.

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: MCFSMW-3_0816 (320-21044-3) and 46MW05_0816 (320-21044-4). Samples were reanalyzed at dilutions in order to obtain these analytes within the calibration range. Both sets of data have been reported. Associated data have been flagged "J" in accordance with the DOD QSM.

The level 1 standard from the ICAL (ICV 320-125915/12)(ICV 320-125915/22) is used to evaluate the tune criteria. The instrument mass windows are set at +/-0.5 amu. Detection of the analyte serves as verification that the assigned mass is within +/-0.5 amu of the true value, which meets the DOD tune criterion.

The level 1 standard from the ICAL (ICV 320-128009/12) is used to evaluate the tune criteria. The instrument mass windows are set at +/-0.5 amu. Detection of the analyte serves as verification that the assigned mass is within +/-0.5 amu of the true value, which meets the DOD tune criterion.

MS/MSD analyses for prep batch 320-123451 were not requested.

The injection times displayed in Chrome/TALS do not match the injection times listed on A8 instrument printouts. The instrument printout listing the injection times can be found at the end of the run log section.

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

Detection Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: FB081716

Lab Sample ID: 320-21044-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	2.4		2.3	1.8	0.73	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.3	1.8	0.79	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9	J M	3.6	2.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.7	M	2.3	1.8	0.68	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: EB081716

Lab Sample ID: 320-21044-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.3	J M	3.7	2.8	1.2	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MCFSMW-3_0816

Lab Sample ID: 320-21044-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	31		2.3	1.9	0.86	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	26		2.3	1.9	0.75	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	8.7	M	2.3	1.9	0.61	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	650		3.7	2.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	100	M	2.3	1.9	0.70	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	28	D	4.7	3.7	1.7	ng/L	2		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	26	D	4.7	3.7	1.5	ng/L	2		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	790	D	4.7	3.7	1.6	ng/L	2		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA) - DL	9.3	D M	4.7	3.7	1.2	ng/L	2		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	710	D	7.5	5.6	2.4	ng/L	2		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	100	D	4.7	3.7	1.4	ng/L	2		537 (Modified)	Total/NA

Client Sample ID: 46MW05_0816

Lab Sample ID: 320-21044-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83	ng/L	1		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: 46MW05_0816 (Continued)

Lab Sample ID: 320-21044-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	82	M	2.4	1.9	0.71	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	40	D	12	9.5	4.4	ng/L	5		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	19	D	12	9.5	3.8	ng/L	5		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	660	D	12	9.5	4.1	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1300	D	19	14	6.1	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	84	D	12	9.5	3.6	ng/L	5		537 (Modified)	Total/NA

Client Sample ID: 46MW03_0816

Lab Sample ID: 320-21044-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.4	M	2.4	1.9	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.1	M	3.8	2.8	1.2	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MCFSMW-14_0816

Lab Sample ID: 320-21044-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	5.0		2.4	1.9	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5	J M	3.8	2.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J M	2.4	1.9	0.71	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MCFSMW-4_0816

Lab Sample ID: 320-21044-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	26		2.4	1.9	0.87	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	77		2.4	1.9	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	200		2.4	1.9	0.82	ng/L	1		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	21		2.4	1.9	0.62	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	69	M	3.8	2.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	160	M	2.4	1.9	0.71	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MCFSMW-5_0816

Lab Sample ID: 320-21044-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	12		2.3	1.9	0.86	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		2.3	1.9	0.75	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-5_0816 (Continued)

Lab Sample ID: 320-21044-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	45		2.3	1.9	0.81	ng/L		1	537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.92	J	2.3	1.9	0.61	ng/L		1	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	22	M	3.7	2.8	1.2	ng/L		1	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	27	M	2.3	1.9	0.70	ng/L		1	537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: FB081716

Date Collected: 08/17/16 10:20

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-1

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83	ng/L		09/04/16 13:31	1
Perfluoroheptanoic acid (PFHpA)	2.4		2.3	1.8	0.73	ng/L		09/04/16 13:31	1
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.3	1.8	0.79	ng/L		09/04/16 13:31	1
Perfluorononanoic acid (PFNA)	1.8	U	2.3	1.8	0.59	ng/L		09/04/16 13:31	1
Perfluorooctanesulfonic acid (PFOS)	2.9	J M	3.6	2.7	1.2	ng/L		09/04/16 13:31	1
Perfluorooctanoic acid (PFOA)	2.7	M	2.3	1.8	0.68	ng/L		09/04/16 13:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	140		25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C4 PFOA	149		25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C4 PFOS	141		25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C4-PFHpA	148		25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C5 PFNA	137	M	25 - 150				08/22/16 13:34	09/04/16 13:31	1
18O2 PFHxS	142		25 - 150				08/22/16 13:34	09/04/16 13:31	1

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: EB081716

Date Collected: 08/17/16 10:23

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-2

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.3	1.9	0.85	ng/L		09/04/16 13:38	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	2.3	1.9	0.75	ng/L		09/04/16 13:38	1
Perfluorohexanesulfonic acid (PFHxS)	1.9	U	2.3	1.9	0.81	ng/L		09/04/16 13:38	1
Perfluorononanoic acid (PFNA)	1.9	U M	2.3	1.9	0.61	ng/L		09/04/16 13:38	1
Perfluorooctanesulfonic acid (PFOS)	1.3	J M	3.7	2.8	1.2	ng/L		09/04/16 13:38	1
Perfluorooctanoic acid (PFOA)	1.9	U M	2.3	1.9	0.70	ng/L		09/04/16 13:38	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	134		25 - 150	08/22/16 13:34	09/04/16 13:38	1
13C4 PFOA	139		25 - 150	08/22/16 13:34	09/04/16 13:38	1
13C4 PFOS	131		25 - 150	08/22/16 13:34	09/04/16 13:38	1
13C4-PFHpA	144		25 - 150	08/22/16 13:34	09/04/16 13:38	1
13C5 PFNA	134		25 - 150	08/22/16 13:34	09/04/16 13:38	1
18O2 PFHxS	136		25 - 150	08/22/16 13:34	09/04/16 13:38	1

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-3_0816

Lab Sample ID: 320-21044-3

Date Collected: 08/17/16 11:06

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	31		2.3	1.9	0.86	ng/L		09/04/16 13:46	1
Perfluoroheptanoic acid (PFHpA)	26		2.3	1.9	0.75	ng/L		09/04/16 13:46	1
Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82	ng/L		09/04/16 13:46	1
Perfluorononanoic acid (PFNA)	8.7	M	2.3	1.9	0.61	ng/L		09/04/16 13:46	1
Perfluorooctanesulfonic acid (PFOS)	650		3.7	2.8	1.2	ng/L		09/04/16 13:46	1
Perfluorooctanoic acid (PFOA)	100	M	2.3	1.9	0.70	ng/L		09/04/16 13:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		25 - 150	08/22/16 13:34	09/04/16 13:46	1
13C4 PFOA	89		25 - 150	08/22/16 13:34	09/04/16 13:46	1
13C4 PFOS	102		25 - 150	08/22/16 13:34	09/04/16 13:46	1
13C4-PFHpA	80		25 - 150	08/22/16 13:34	09/04/16 13:46	1
13C5 PFNA	62		25 - 150	08/22/16 13:34	09/04/16 13:46	1
18O2 PFHxS	91		25 - 150	08/22/16 13:34	09/04/16 13:46	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	28	D	4.7	3.7	1.7	ng/L		09/19/16 20:40	2
Perfluoroheptanoic acid (PFHpA)	26	D	4.7	3.7	1.5	ng/L		09/19/16 20:40	2
Perfluorohexanesulfonic acid (PFHxS)	790	D	4.7	3.7	1.6	ng/L		09/19/16 20:40	2
Perfluorononanoic acid (PFNA)	9.3	D M	4.7	3.7	1.2	ng/L		09/19/16 20:40	2
Perfluorooctanesulfonic acid (PFOS)	710	D	7.5	5.6	2.4	ng/L		09/19/16 20:40	2
Perfluorooctanoic acid (PFOA)	100	D	4.7	3.7	1.4	ng/L		09/19/16 20:40	2

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		25 - 150	08/22/16 13:34	09/19/16 20:40	2
13C4 PFOA	99		25 - 150	08/22/16 13:34	09/19/16 20:40	2
13C4 PFOS	113		25 - 150	08/22/16 13:34	09/19/16 20:40	2
13C4-PFHpA	91		25 - 150	08/22/16 13:34	09/19/16 20:40	2
13C5 PFNA	77		25 - 150	08/22/16 13:34	09/19/16 20:40	2
18O2 PFHxS	110		25 - 150	08/22/16 13:34	09/19/16 20:40	2

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: 46MW05_0816

Lab Sample ID: 320-21044-4

Date Collected: 08/17/16 12:16

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87	ng/L		09/04/16 13:54	1
Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76	ng/L		09/04/16 13:54	1
Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83	ng/L		09/04/16 13:54	1
Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62	ng/L		09/04/16 13:54	1
Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2	ng/L		09/04/16 13:54	1
Perfluorooctanoic acid (PFOA)	82	M	2.4	1.9	0.71	ng/L		09/04/16 13:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		25 - 150	08/22/16 13:34	09/04/16 13:54	1
13C4 PFOA	91		25 - 150	08/22/16 13:34	09/04/16 13:54	1
13C4 PFOS	105		25 - 150	08/22/16 13:34	09/04/16 13:54	1
13C4-PFHpA	89		25 - 150	08/22/16 13:34	09/04/16 13:54	1
13C5 PFNA	58		25 - 150	08/22/16 13:34	09/04/16 13:54	1
18O2 PFHxS	109		25 - 150	08/22/16 13:34	09/04/16 13:54	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	40	D	12	9.5	4.4	ng/L		09/19/16 20:48	5
Perfluoroheptanoic acid (PFHpA)	19	D	12	9.5	3.8	ng/L		09/19/16 20:48	5
Perfluorohexanesulfonic acid (PFHxS)	660	D	12	9.5	4.1	ng/L		09/19/16 20:48	5
Perfluorononanoic acid (PFNA)	9.5	U	12	9.5	3.1	ng/L		09/19/16 20:48	5
Perfluorooctanesulfonic acid (PFOS)	1300	D	19	14	6.1	ng/L		09/19/16 20:48	5
Perfluorooctanoic acid (PFOA)	84	D	12	9.5	3.6	ng/L		09/19/16 20:48	5

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	123		25 - 150	08/22/16 13:34	09/19/16 20:48	5
13C4 PFOA	117		25 - 150	08/22/16 13:34	09/19/16 20:48	5
13C4 PFOS	133		25 - 150	08/22/16 13:34	09/19/16 20:48	5
13C4-PFHpA	114		25 - 150	08/22/16 13:34	09/19/16 20:48	5
13C5 PFNA	91		25 - 150	08/22/16 13:34	09/19/16 20:48	5
18O2 PFHxS	138		25 - 150	08/22/16 13:34	09/19/16 20:48	5

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: 46MW03_0816

Lab Sample ID: 320-21044-5

Date Collected: 08/17/16 13:31

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87	ng/L		09/04/16 14:01	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76	ng/L		09/04/16 14:01	1
Perfluorohexanesulfonic acid (PFHxS)	3.4	M	2.4	1.9	0.82	ng/L		09/04/16 14:01	1
Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62	ng/L		09/04/16 14:01	1
Perfluorooctanesulfonic acid (PFOS)	6.1	M	3.8	2.8	1.2	ng/L		09/04/16 14:01	1
Perfluorooctanoic acid (PFOA)	1.9	U M	2.4	1.9	0.71	ng/L		09/04/16 14:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		25 - 150	08/22/16 13:34	09/04/16 14:01	1
13C4 PFOA	104		25 - 150	08/22/16 13:34	09/04/16 14:01	1
13C4 PFOS	132		25 - 150	08/22/16 13:34	09/04/16 14:01	1
13C4-PFHpA	109		25 - 150	08/22/16 13:34	09/04/16 14:01	1
13C5 PFNA	83		25 - 150	08/22/16 13:34	09/04/16 14:01	1
18O2 PFHxS	126		25 - 150	08/22/16 13:34	09/04/16 14:01	1

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-14_0816

Lab Sample ID: 320-21044-6

Date Collected: 08/17/16 09:51

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87	ng/L		09/04/16 14:08	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76	ng/L		09/04/16 14:08	1
Perfluorohexanesulfonic acid (PFHxS)	5.0		2.4	1.9	0.82	ng/L		09/04/16 14:08	1
Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62	ng/L		09/04/16 14:08	1
Perfluorooctanesulfonic acid (PFOS)	2.5	J M	3.8	2.8	1.2	ng/L		09/04/16 14:08	1
Perfluorooctanoic acid (PFOA)	1.1	J M	2.4	1.9	0.71	ng/L		09/04/16 14:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		25 - 150	08/22/16 13:34	09/04/16 14:08	1
13C4 PFOA	102		25 - 150	08/22/16 13:34	09/04/16 14:08	1
13C4 PFOS	128		25 - 150	08/22/16 13:34	09/04/16 14:08	1
13C4-PFHpA	109		25 - 150	08/22/16 13:34	09/04/16 14:08	1
13C5 PFNA	92		25 - 150	08/22/16 13:34	09/04/16 14:08	1
18O2 PFHxS	126		25 - 150	08/22/16 13:34	09/04/16 14:08	1

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-4_0816

Lab Sample ID: 320-21044-7

Date Collected: 08/17/16 11:31

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	26		2.4	1.9	0.87	ng/L		09/04/16 14:16	1
Perfluoroheptanoic acid (PFHpA)	77		2.4	1.9	0.76	ng/L		09/04/16 14:16	1
Perfluorohexanesulfonic acid (PFHxS)	200		2.4	1.9	0.82	ng/L		09/04/16 14:16	1
Perfluorononanoic acid (PFNA)	21		2.4	1.9	0.62	ng/L		09/04/16 14:16	1
Perfluorooctanesulfonic acid (PFOS)	69 M		3.8	2.8	1.2	ng/L		09/04/16 14:16	1
Perfluorooctanoic acid (PFOA)	160 M		2.4	1.9	0.71	ng/L		09/04/16 14:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	78		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C4 PFOA	89		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C4 PFOS	117		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C4-PFHpA	88		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C5 PFNA	86		25 - 150				08/22/16 13:34	09/04/16 14:16	1
18O2 PFHxS	104		25 - 150				08/22/16 13:34	09/04/16 14:16	1

Client Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-5_0816

Lab Sample ID: 320-21044-8

Date Collected: 08/17/16 13:16

Matrix: Water

Date Received: 08/18/16 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	12		2.3	1.9	0.86	ng/L		09/04/16 14:54	1
Perfluoroheptanoic acid (PFHpA)	13		2.3	1.9	0.75	ng/L		09/04/16 14:54	1
Perfluorohexanesulfonic acid (PFHxS)	45		2.3	1.9	0.81	ng/L		09/04/16 14:54	1
Perfluorononanoic acid (PFNA)	0.92	J	2.3	1.9	0.61	ng/L		09/04/16 14:54	1
Perfluorooctanesulfonic acid (PFOS)	22	M	3.7	2.8	1.2	ng/L		09/04/16 14:54	1
Perfluorooctanoic acid (PFOA)	27	M	2.3	1.9	0.70	ng/L		09/04/16 14:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		25 - 150	08/22/16 13:34	09/04/16 14:54	1
13C4 PFOA	95		25 - 150	08/22/16 13:34	09/04/16 14:54	1
13C4 PFOS	117		25 - 150	08/22/16 13:34	09/04/16 14:54	1
13C4-PFHpA	100		25 - 150	08/22/16 13:34	09/04/16 14:54	1
13C5 PFNA	75		25 - 150	08/22/16 13:34	09/04/16 14:54	1
18O2 PFHxS	119		25 - 150	08/22/16 13:34	09/04/16 14:54	1

Default Detection Limits

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: 3535

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

Isotope Dilution Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		¹³ C2 PFHx (25-150)	¹³ C4 PFO (25-150)	¹³ C4 PFO (25-150)	¹³ C4-PFHp (25-150)	¹³ C5 PFNA (25-150)	¹⁸ O2 PFHx (25-150)
320-21044-1	FB081716	140	149	141	148	137 M	142
320-21044-2	EB081716	134	139	131	144	134	136
320-21044-3	MCFSMW-3_0816	84	89	102	80	62	91
320-21044-3 - DL	MCFSMW-3_0816	110	99	113	91	77	110
320-21044-4	46MW05_0816	96	91	105	89	58	109
320-21044-4 - DL	46MW05_0816	123	117	133	114	91	138
320-21044-5	46MW03_0816	100	104	132	109	83	126
320-21044-6	MCFSMW-14_0816	101	102	128	109	92	126
320-21044-7	MCFSMW-4_0816	78	89	117	88	86	104
320-21044-8	MCFSMW-5_0816	90	95	117	100	75	119
LCS 320-123451/2-A	Lab Control Sample	123	131	125	131	120	128
LCSD 320-123451/3-A	Lab Control Sample Dup	128	135	128	137	122	132
MB 320-123451/1-A	Method Blank	130	139	130	147	129	133

Surrogate Legend

¹³C2 PFHxA = ¹³C2 PFHxA

¹³C4 PFOA = ¹³C4 PFOA

¹³C4 PFOS = ¹³C4 PFOS

¹³C4-PFHpA = ¹³C4-PFHpA

¹³C5 PFNA = ¹³C5 PFNA

¹⁸O2 PFHxS = ¹⁸O2 PFHxS

QC Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-123451/1-A

Matrix: Water

Analysis Batch: 126120

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 123451

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	2.0	0.92	ng/L		09/04/16 13:08	1
Perfluoroheptanoic acid (PFHpA)	2.0	U M	2.5	2.0	0.80	ng/L		09/04/16 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	2.0	0.87	ng/L		09/04/16 13:08	1
Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65	ng/L		09/04/16 13:08	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U M	4.0	3.0	1.3	ng/L		09/04/16 13:08	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75	ng/L		09/04/16 13:08	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	130		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4 PFOA	139		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4 PFOS	130		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4-PFHpA	147		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C5 PFNA	129		25 - 150	08/22/16 13:34	09/04/16 13:08	1
18O2 PFHxS	133		25 - 150	08/22/16 13:34	09/04/16 13:08	1

Lab Sample ID: LCS 320-123451/2-A

Matrix: Water

Analysis Batch: 126120

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 123451

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	34.2		ng/L		97	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	36.6		ng/L		91	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.2		ng/L		86	60 - 140
Perfluorononanoic acid (PFNA)	40.0	36.5		ng/L		91	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	29.5		ng/L		79	60 - 140
Perfluorooctanoic acid (PFOA)	40.0	37.9		ng/L		95	60 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	123		25 - 150
13C4 PFOA	131		25 - 150
13C4 PFOS	125		25 - 150
13C4-PFHpA	131		25 - 150
13C5 PFNA	120		25 - 150
18O2 PFHxS	128		25 - 150

Lab Sample ID: LCSD 320-123451/3-A

Matrix: Water

Analysis Batch: 126120

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 123451

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	34.6		ng/L		98	50 - 150	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	35.4		ng/L		89	60 - 140	3	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.8		ng/L		87	60 - 140	2	30
Perfluorononanoic acid (PFNA)	40.0	36.6		ng/L		91	60 - 140	0	30

TestAmerica Sacramento

QC Sample Results

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

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

Lab Sample ID: LCSD 320-123451/3-A

Matrix: Water

Analysis Batch: 126120

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 123451

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	37.1	30.0		ng/L		81	60 - 140	2	30
Perfluorooctanoic acid (PFOA)	40.0	36.6		ng/L		91	60 - 140	4	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	128		25 - 150
13C4 PFOA	135		25 - 150
13C4 PFOS	128		25 - 150
13C4-PFHpA	137		25 - 150
13C5 PFNA	122		25 - 150
18O2 PFHxS	132		25 - 150

QC Association Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

LCMS

Prep Batch: 123451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-1	FB081716	Total/NA	Water	3535	
320-21044-2	EB081716	Total/NA	Water	3535	
320-21044-3	MCFSMW-3_0816	Total/NA	Water	3535	
320-21044-3 - DL	MCFSMW-3_0816	Total/NA	Water	3535	
320-21044-4	46MW05_0816	Total/NA	Water	3535	
320-21044-4 - DL	46MW05_0816	Total/NA	Water	3535	
320-21044-5	46MW03_0816	Total/NA	Water	3535	
320-21044-6	MCFSMW-14_0816	Total/NA	Water	3535	
320-21044-7	MCFSMW-4_0816	Total/NA	Water	3535	
320-21044-8	MCFSMW-5_0816	Total/NA	Water	3535	
MB 320-123451/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-123451/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-123451/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 126120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-1	FB081716	Total/NA	Water	537 (Modified)	123451
320-21044-2	EB081716	Total/NA	Water	537 (Modified)	123451
320-21044-3	MCFSMW-3_0816	Total/NA	Water	537 (Modified)	123451
320-21044-4	46MW05_0816	Total/NA	Water	537 (Modified)	123451
320-21044-5	46MW03_0816	Total/NA	Water	537 (Modified)	123451
320-21044-6	MCFSMW-14_0816	Total/NA	Water	537 (Modified)	123451
320-21044-7	MCFSMW-4_0816	Total/NA	Water	537 (Modified)	123451
320-21044-8	MCFSMW-5_0816	Total/NA	Water	537 (Modified)	123451
MB 320-123451/1-A	Method Blank	Total/NA	Water	537 (Modified)	123451
LCS 320-123451/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	123451
LCSD 320-123451/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	123451

Analysis Batch: 128009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-3 - DL	MCFSMW-3_0816	Total/NA	Water	537 (Modified)	123451
320-21044-4 - DL	46MW05_0816	Total/NA	Water	537 (Modified)	123451

Lab Chronicle

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: FB081716

Date Collected: 08/17/16 10:20

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			551.1 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:31	JRB	TAL SAC
Instrument ID: A8										

Client Sample ID: EB081716

Date Collected: 08/17/16 10:23

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			536.9 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:38	JRB	TAL SAC
Instrument ID: A8										

Client Sample ID: MCFSMW-3_0816

Date Collected: 08/17/16 11:06

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			533.4 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:46	JRB	TAL SAC
Instrument ID: A8										
Total/NA	Prep	3535	DL		533.4 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	2			128009	09/19/16 20:40	SBC	TAL SAC
Instrument ID: A8										

Client Sample ID: 46MW05_0816

Date Collected: 08/17/16 12:16

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			525.6 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:54	JRB	TAL SAC
Instrument ID: A8										
Total/NA	Prep	3535	DL		525.6 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	5			128009	09/19/16 20:48	SBC	TAL SAC
Instrument ID: A8										

Client Sample ID: 46MW03_0816

Date Collected: 08/17/16 13:31

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			527.5 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: 46MW03_0816

Date Collected: 08/17/16 13:31

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:01	JRB	TAL SAC
Instrument ID: A8										

Client Sample ID: MCFSMW-14_0816

Date Collected: 08/17/16 09:51

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			530.3 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:08	JRB	TAL SAC
Instrument ID: A8										

Client Sample ID: MCFSMW-4_0816

Date Collected: 08/17/16 11:31

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			528.1 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:16	JRB	TAL SAC
Instrument ID: A8										

Client Sample ID: MCFSMW-5_0816

Date Collected: 08/17/16 13:16

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			533.8 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:54	JRB	TAL SAC
Instrument ID: A8										

Laboratory References:

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

Certification Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
New Jersey	NELAP	2	CA005	06-30-17

Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-17
New Jersey	NELAP	2	CO004	06-30-17

Method Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Earth Toxics, Inc
Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-21044-1	FB081716	Water	08/17/16 10:20	08/18/16 09:30
320-21044-2	EB081716	Water	08/17/16 10:23	08/18/16 09:30
320-21044-3	MCFSMW-3_0816	Water	08/17/16 11:06	08/18/16 09:30
320-21044-4	46MW05_0816	Water	08/17/16 12:16	08/18/16 09:30
320-21044-5	46MW03_0816	Water	08/17/16 13:31	08/18/16 09:30
320-21044-6	MCFSMW-14_0816	Water	08/17/16 09:51	08/18/16 09:30
320-21044-7	MCFSMW-4_0816	Water	08/17/16 11:31	08/18/16 09:30
320-21044-8	MCFSMW-5_0816	Water	08/17/16 13:16	08/18/16 09:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Analysis Batch Number: 125915Lab Sample ID: IC 320-125915/14 Client Sample ID: _____Date Analyzed: 09/03/16 16:53 Lab File ID: 03SEP2016A_014_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	3.87	Baseline	phomsopha t	09/07/16 14:50
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	4.05	Baseline	phomsopha t	09/07/16 14:50

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Analysis Batch Number: 126120Lab Sample ID: MB 320-123451/1-A Client Sample ID: _____Date Analyzed: 09/04/16 13:08 Lab File ID: 03SEP2016D_005_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	2.55	Incomplete Integration	barnettj	09/17/16 11:28
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 11:28

Lab Sample ID: 320-21044-1 Client Sample ID: FB081716Date Analyzed: 09/04/16 13:31 Lab File ID: 03SEP2016D_008_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:33
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	barnettj	09/17/16 11:33
13C5 PFNA	3.32	Incomplete Integration	barnettj	09/17/16 11:33

Lab Sample ID: 320-21044-2 Client Sample ID: EB081716Date Analyzed: 09/04/16 13:38 Lab File ID: 03SEP2016D_009_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 11:35
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	barnettj	09/17/16 11:35
Perfluorononanoic acid (PFNA)	3.31	Missed Peak	barnettj	09/17/16 11:35

Lab Sample ID: 320-21044-3 Client Sample ID: MCFSMW-3_0816Date Analyzed: 09/04/16 13:46 Lab File ID: 03SEP2016D_010_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:38
Perfluorononanoic acid (PFNA)	3.31	Incomplete Integration	barnettj	09/17/16 11:38

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Analysis Batch Number: 126120Lab Sample ID: 320-21044-4 Client Sample ID: 46MW05_0816Date Analyzed: 09/04/16 13:54 Lab File ID: 03SEP2016D_011_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:41

Lab Sample ID: 320-21044-5 Client Sample ID: 46MW03_0816Date Analyzed: 09/04/16 14:01 Lab File ID: 03SEP2016D_012_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.57	Baseline	barnettj	09/17/16 11:43
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 11:43
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	barnettj	09/17/16 11:43

Lab Sample ID: 320-21044-6 Client Sample ID: MCFSMW-14_0816Date Analyzed: 09/04/16 14:08 Lab File ID: 03SEP2016D_013_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.92	Isomers	barnettj	09/17/16 11:45
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 11:45

Lab Sample ID: 320-21044-7 Client Sample ID: MCFSMW-4_0816Date Analyzed: 09/04/16 14:16 Lab File ID: 03SEP2016D_014_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 12:04
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 12:04

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Analysis Batch Number: 126120Lab Sample ID: 320-21044-8 Client Sample ID: MCFSMW-5_0816Date Analyzed: 09/04/16 14:54 Lab File ID: 03SEP2016D_019_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 12:04
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 12:04

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Analysis Batch Number: 128009Lab Sample ID: IC 320-128009/4 Client Sample ID: _____Date Analyzed: 09/19/16 15:48 Lab File ID: 19SEP2016A_004_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendor fc	09/20/16 08:42

Lab Sample ID: 320-21044-3 DL Client Sample ID: MCFSMW-3_0816 DLDate Analyzed: 09/19/16 20:40 Lab File ID: 19SEP2016B_019_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	3.12	Baseline	chandrase nas	09/21/16 17:20

Lab Sample ID: CCV 320-128009/50 Client Sample ID: _____Date Analyzed: 09/19/16 21:33 Lab File ID: 19SEP2016B_026_p1_e1.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C5 PFNA	3.11	Baseline	westendor fc	09/21/16 14:40

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCMPFCSU_00043	12/02/16	06/02/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8_FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4_PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2_PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2_PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2_PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	1802_PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5_PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4_PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4_PFOS	0.956 ug/mL
					LCMPFUdA_00008	1000 uL	13C2_PFUdA	1 ug/mL
.LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
.LCM4PFHFA_00006	05/22/20	Wellington Laboratories, Lot M4PFHFA0515			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
.LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
.LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8_FOSA	50 ug/mL
.LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4_PFBA	50 ug/mL
.LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2_PFDA	50 ug/mL
.LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2_PFDoA	50 ug/mL
.LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2_PFHxA	50 ug/mL
.LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		1802_PFHxS	47.3 ug/mL
.LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5_PFNA	50 ug/mL
.LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4_PFOA	50 ug/mL
.LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4_PFOS	47.8 ug/mL
.LCMPFUdA_00008	10/31/19	Wellington Laboratories, Lot MPFUdA1014			(Purchased Reagent)		13C2_PFUdA	50 ug/mL
LCPFC-L1_00021	12/28/16	08/03/16	MeOH/H2O, Lot 90285	5 mL	LCMPFCSU_00044	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_PFUdA	50 ng/mL
					LCPFCSP_00057	25 uL	Perfluorobutyric acid	0.5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ng/mL
							Perfluorodecanoic acid	0.5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorododecanoic acid	0.5 ng/mL
							Perfluorodecane Sulfonic acid	0.482 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.5 ng/mL
							Perfluoroheptanesulfonic Acid	0.476 ng/mL
							Perfluorohexanoic acid	0.5 ng/mL
							Perfluorohexadecanoic acid	0.5 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.455 ng/mL
							Perfluorononanoic acid (PFNA)	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
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00006	1000 uL	13C4-PFHFA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA_00006	05/22/20	Wellington Laboratories, Lot M4PFHFA0515			(Purchased Reagent)		13C4-PFHFA	50 ug/mL
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00008	10/31/19	Wellington Laboratories, Lot MPFUDa1014			(Purchased Reagent)		13C2 PFUnA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFCSP_00057	02/01/17	08/03/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00056	1000 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 (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
							Perfluorononanoic acid (PFNA)	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							
..LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
LCPFTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL					
LCPFUDa_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL					
...LCPFBA_00004	01/30/20	Wellington Laboratories, Lot PFBA0115			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00004	10/09/19	Wellington Laboratories, Lot LPFBS1014			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...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 00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpS 00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA 00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA 00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA 00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA 00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA 00006	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 00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA 00004	12/10/18		Wellington Laboratories, Lot PFTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUdA 00004	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L2_00022	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	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
					LCMPFCSP_00057	50 uL	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 (PFHpA)	1 ng/mL
							Perfluoroheptanesulfonic Acid	0.952 ng/mL
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.91 ng/mL
							Perfluorononanoic acid (PFNA)	1 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanoic acid (PFOA)	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
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00006	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00006	05/22/20		Wellington Laboratories, Lot M4PFHpA0515		(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00007	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00010	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00007	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00010	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00007	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00011	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00007	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00008	10/31/19		Wellington Laboratories, Lot MPFUDa1014		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFCSU_00057	02/01/17	08/03/16	Methanol, Lot 090285	10000 uL	LCPFCSU_00056	1000 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 (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
							Perfluorononanoic acid (PFNA)	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
..LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFOA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDa_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL
...LCPFBA_00004	01/30/20	Wellington Laboratories, Lot PFBA0115			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00004	10/09/19	Wellington Laboratories, Lot LPFBS1014			(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_00005	07/02/20	Wellington Laboratories, Lot LPFDS0615			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFHpA_00005	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpS_00008	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA_00004	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA_00004	11/28/17	Wellington Laboratories, Lot PFHxDA0707			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00001	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFNA 00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA 00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA 00006	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 00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA 00004	12/10/18		Wellington Laboratories, Lot PFTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUDa 00004	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L3_00019	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	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
					LCPFCSP_00057	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 (PFHpA)	5 ng/mL
							Perfluoroheptanesulfonic Acid	4.76 ng/mL
							Perfluorohexanoic acid	5 ng/mL
							Perfluorohexadecanoic acid	5 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	4.55 ng/mL
							Perfluorononanoic acid (PFNA)	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA_00006	05/22/20	Wellington Laboratories, Lot M4PFHFA0515			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00008	10/31/19	Wellington Laboratories, Lot MPFUDa1014			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFCSU_00057	02/01/17	08/03/16	Methanol, Lot 090285	10000 uL	LCPFCSU_00056	1000 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 (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
							Perfluorononanoic acid (PFNA)	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
..LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDA_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL
...LCPFBA_00004	01/30/20		Wellington Laboratories, Lot PFBA0115		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00004	10/09/19		Wellington Laboratories, Lot LPFBS1014		(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_00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpS_00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA_00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA_00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA_00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA_00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00006	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_00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTTrDA_00004	12/10/18		Wellington Laboratories, Lot PFTTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFUDa_00004	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L4_00022	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	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
					LCPFCSP_00056	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 (PFHpA)	20 ng/mL
							Perfluoroheptanesulfonic Acid	19.04 ng/mL
							Perfluorohexanoic acid	20 ng/mL
							Perfluorohexadecanoic acid	20 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	18.2 ng/mL
							Perfluorononanoic acid (PFNA)	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
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFHxS_00007	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00006	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00006	05/22/20		Wellington Laboratories, Lot M4PFHPA0515		(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00007	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00010	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00007	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00010	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00007	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00011	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00007	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00008	10/31/19		Wellington Laboratories, Lot MPFUDa1014		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluoroheptadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluoroheptanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00004	01/30/20		Wellington Laboratories, Lot PFBA0115		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00004	10/09/19		Wellington Laboratories, Lot LPFBS1014		(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_00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpS_00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00006	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_00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00004	12/10/18		Wellington Laboratories, Lot PFTTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00004	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L5_00020	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	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
					LCPFCSP_00056	250 uL	Perfluorobutyric acid	50 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ng/mL
							Perfluorodecanoic acid	50 ng/mL
							Perfluorododecanoic acid	50 ng/mL
							Perfluorodecane Sulfonic acid	48.2 ng/mL
							Perfluoroheptanoic acid (PFHpA)	50 ng/mL
							Perfluoroheptanesulfonic Acid	47.6 ng/mL
							Perfluorohexanoic acid	50 ng/mL
							Perfluorohexadecanoic acid	50 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.5 ng/mL
							Perfluorononanoic acid (PFNA)	50 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
							Perfluorooctadecanoic acid	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00006	1000 uL	13C4-PFHFA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA_00006	05/22/20	Wellington Laboratories, Lot M4PFHFA0515			(Purchased Reagent)		13C4-PFHFA	50 ug/mL
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00008	10/31/19	Wellington Laboratories, Lot MPFUdA1014			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHFA_00005	200 uL	Perfluoroheptanoic acid (PFHFA)	1 ug/mL
					LCPFHFA_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA 00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA 00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00004	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDa 00004	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA 00004	01/30/20		Wellington Laboratories, Lot PFBA0115		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00004	10/09/19		Wellington Laboratories, Lot LPFBS1014		(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 00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpS 00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA 00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA 00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA 00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA 00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA 00006	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 00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA 00004	12/10/18		Wellington Laboratories, Lot PFTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDa 00004	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L6_00019	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCPMFCSU_00044	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2 PFUnA	50 ng/mL
					LCPFCSP_00056	1000 uL	Perfluorobutyric acid	200 ng/mL
							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 (PFHpA)	200 ng/mL
							Perfluoroheptanesulfonic Acid	190.4 ng/mL
							Perfluorohexanoic acid	200 ng/mL
							Perfluorohexadecanoic acid	200 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	182 ng/mL
							Perfluorononanoic acid (PFNA)	200 ng/mL
							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
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00008	1000 uL	13C2 PFUnA	1 ug/mL
					..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112	
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL	
..LCM4PFHPA_00006	05/22/20	Wellington Laboratories, Lot M4PFHpA0515		(Purchased Reagent)		13C4-PFHpA	50 ug/mL	
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL	
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL	
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL	
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL	
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL	
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL	

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFHxS_00007	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00007	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00011	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00015	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00008	10/31/19		Wellington Laboratories, Lot MPFUdA0104		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00004	01/30/20		Wellington Laboratories, Lot PFBA0115		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00004	10/09/19		Wellington Laboratories, Lot LPFBS1014		(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_00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpS_00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00006	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_00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFTrDA_00004	12/10/18		Wellington Laboratories, Lot PFTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00004	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L7_00019	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	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
					LCPFCSP_00056	2000 uL	Perfluorobutyric acid	400 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	353.6 ng/mL
							Perfluorodecanoic acid	400 ng/mL
							Perfluorododecanoic acid	400 ng/mL
							Perfluorodecane Sulfonic acid	385.6 ng/mL
							Perfluoroheptanoic acid (PFHpA)	400 ng/mL
							Perfluoroheptanesulfonic Acid	380.8 ng/mL
							Perfluoroheptanoic acid	400 ng/mL
							Perfluoroheptadecanoic acid	400 ng/mL
							Perfluoroheptanesulfonic acid (PFHxS)	364 ng/mL
							Perfluorononanoic acid (PFNA)	400 ng/mL
							Perfluorooctanoic acid (PFOA)	400 ng/mL
							Perfluorooctadecanoic acid	400 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	371.2 ng/mL
							Perfluorooctane Sulfonamide	400 ng/mL
							Perfluoropentanoic acid	400 ng/mL
							Perfluorotetradecanoic acid	400 ng/mL
							Perfluorotridecanoic acid	400 ng/mL
							Perfluoroundecanoic acid	400 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL		
					LCMPFHxS_00007	1000 uL	18O2 PFHxS	0.946 ug/mL		
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL		
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL		
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL		
					LCMPFUdA_00008	1000 uL	13C2 PFUnA	1 ug/mL		
..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL		
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL		
..LCM4PFHPA_00006	05/22/20	Wellington Laboratories, Lot M4PFHpa0515			(Purchased Reagent)		13C4-PFHpa	50 ug/mL		
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL		
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL		
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL		
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL		
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL		
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL		
..LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL		
..LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL		
..LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL		
..LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
..LCMPFUdA_00008	10/31/19	Wellington Laboratories, Lot MPFUdA1014			(Purchased Reagent)		13C2 PFUnA	50 ug/mL		
.LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL		
					LCPFBS_00004	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_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL		
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL		
					LCPFHps_00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL		
					LCPFHxA_00004	200 uL	Perfluorohexanoic acid	1 ug/mL		
					LCPFHxDA_00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL		
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL		
					LCPFNA_00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL		
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL		
					LCPFODA_00005	200 uL	Perfluorooctadecanoic acid	1 ug/mL		
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL		
					LCPFOSA_00006	200 uL	Perfluorooctane Sulfonamide	1 ug/mL		
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL		
					LCPFTeDA_00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL		
					LCPFTrDA_00004	200 uL	Perfluorotridecanoic acid	1 ug/mL		
					LCPFUdA_00004	200 uL	Perfluoroundecanoic acid	1 ug/mL		
..LCPFBA_00004	01/30/20	Wellington Laboratories, Lot PFBA0115			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL		
..LCPFBS_00004	10/09/19	Wellington Laboratories, Lot LFPBS1014			(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		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFDS 00005	07/02/20		Wellington Laboratories, Lot LPFDS0615		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00005	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpS 00008	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA 00004	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA 00004	11/28/17		Wellington Laboratories, Lot PFHxDA0707		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00001	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA 00005	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA 00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA 00006	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 00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA 00004	12/10/18		Wellington Laboratories, Lot PFTTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA 00004	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC2-IC_00003	01/21/17	08/17/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00006	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
.LCMPFC2SU_00006	01/21/17	07/21/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M 00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00001	200 uL	d5-NetFOSAA	1 ug/mL
					LCM2-6:FTS 00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00001	03/10/19		WELLINGTON, Lot dNetFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00001	05/08/20		WELLINGTON, Lot d5NetFOSAA0515		(Purchased Reagent)		d5-NetFOSAA	50 ug/mL
..LCM2-6:FTS 00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
LCPFC2-L1_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00014	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00001	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00001	03/10/19		WELLINGTON, Lot dNEtFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00001	05/08/20		WELLINGTON, Lot d5NEtFOSAA0515		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00014	01/20/17	07/20/16	Methanol, Lot 104453	5000 uL	LCPFC2SP_00013	500 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
..LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NETFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NETFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L2_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00014	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
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NETFOSA-M_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA_00001	200 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETFOSA-M_00001	03/10/19		WELLINGTON, Lot dNETFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA_00001	05/08/20		WELLINGTON, Lot d5NETFOSAA0515		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00014	01/20/17	07/20/16	Methanol, Lot 104453	5000 uL	LCPFC2SP_00013	500 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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
..LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NetFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NetFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L3_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00014	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-octanesulfo namide	5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
							MeFOSA	5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00001	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00001	03/10/19		WELLINGTON, Lot dNetFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00001	05/08/20		WELLINGTON, Lot d5NEtFOSAA0515		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00014	01/20/17	07/20/16	Methanol, Lot 104453	5000 uL	LCPFC2SP_00013	500 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
..LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NEtFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NEtFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L4_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00013	100 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-octanesulfoamide	20 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
							MeFOSA	20 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NMeFOSA-M_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NMeFOSAA_00001	200 uL	d5-NMeFOSAA	1 ug/mL
					LCM2-6:FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NMeFOSA-M_00001	03/10/19		WELLINGTON, Lot dNetFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NMeFOSAA_00001	05/08/20		WELLINGTON, Lot d5NetFOSAA0515		(Purchased Reagent)		d5-NMeFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfoamide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NETFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NETFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L5_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00013	250 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
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NMeFOSA-M_00001	200 uL	MeFOSA	50 ng/mL
					LCd-NMeFOSA-M_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
					LCd3-NMeFOSAA_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd5-NMeFOSAA_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCM2-6:FTS_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCM2-8:2FTS_00001	200 uL	d5-NMeFOSAA	1 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
..LCd-NMeFOSA-M_00001	03/10/19		WELLINGTON, Lot dNetFOSA0314M		(Purchased Reagent)		M2-8:2FTS	0.958 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd5-NMeFOSAA_00001	05/08/20		WELLINGTON, Lot d5NetFOSAA0515		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		d5-NMeFOSAA	50 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M 00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NETFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NETFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M 00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPPFC2-L6_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPPFC2SP_00013	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-octanesulfo namide	200 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							MeFOSA	200 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NETFOSA-M 00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA 00001	200 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS 00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETFOSA-M 00001	03/10/19		WELLINGTON, Lot dNETFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00001	05/08/20		WELLINGTON, Lot d5NETFOSAA0515		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:FTS 00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NETFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NETFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L7_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU_00005	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
					LCPFC2SP_00013	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	379.2 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	383.2 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	400 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	400 ng/mL
							MeFOSA	400 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	400 ng/mL
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NETFOSA-M_00001	200 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA_00001	200 uL	d5-NETFOSAA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCM2-6:FTS_00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00001	200 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00001	03/10/19		WELLINGTON, Lot dNEtFOSA0314M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00001	01/28/19		WELLINGTON, Lot dNMeFOSA0114M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00001	01/31/18		WELLINGTON, Lot d3NMeFOSAA0113		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00001	05/08/20		WELLINGTON, Lot d5NEtFOSAA0515		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00001	07/15/17		WELLINGTON, Lot M262FTS0714		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00001	04/13/17		WELLINGTON, Lot M282FTS0414		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfoamide	1 ug/mL
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00002	07/14/19		WELLINGTON, Lot NEtFOSA0714M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfoamide	50 ug/mL
..LCN-EtFOSAA_00001	01/29/18		WELLINGTON, Lot NEtFOSAA0113		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00001	07/15/19		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00001	12/09/19		WELLINGTON, Lot NMeFOSAA1214		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFCIC_00019	12/02/16	06/25/16	MeOH/H2O, Lot 09285	5 mL	LCMPFCSU_00043	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFACMXB_00007	125 uL	Perfluorobutanesulfonic acid (PFBS)	44.25 ng/mL
							Perfluoroheptanoic acid (PFHpA)	50 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	47.25 ng/mL
							Perfluorononanoic acid (PFNA)	50 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	47.75 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
.LCMPFCSU_00043	12/02/16	06/02/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010	1000 uL	13C8_FOSA	1 ug/mL
					LCMPFBA_00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFuD_A_00008	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00006	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL	
..LCM2PFTeDA_00006	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL	
..LCM4PFHPA_00006	05/22/20	Wellington Laboratories, Lot M4PFHpA0515		(Purchased Reagent)		13C4-PFHpa	50 ug/mL	
..LCM5PFPEA_00007	05/22/20	Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL	
..LCM8FOSA_00010	12/22/17	Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8_FOSA	50 ug/mL	
..LCMPFBA_00007	05/24/21	Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL	
..LCMPFDA_00010	08/19/20	Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL	
..LCMPFDoA_00007	04/08/21	Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL	
..LCMPFHxA_00011	04/08/21	Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL	
..LCMPFHxS_00007	10/23/20	Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL	
..LCMPFNA_00007	04/13/19	Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL	
..LCMPFOA_00011	01/22/21	Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL	
..LCMPFOS_00015	01/22/21	Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL	
..LCMPFuD_A_00008	10/31/19	Wellington Laboratories, Lot MPFUDa1014		(Purchased Reagent)		13C2 PFUnA	50 ug/mL	
.LCPFACMXB_00007	11/06/20						Perfluorobutanesulfonic acid (PFBS)	1.77 ug/mL
							Perfluoroheptanoic acid (PFHpA)	2 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	1.89 ug/mL
							Perfluorononanoic acid (PFNA)	2 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCPFCSP_00053	01/06/17	07/06/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00003	100 uL	Perfluorobutane Sulfonate	0.442 ug/mL
					LCPFBSA_00001	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00004	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00004	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00005	100 uL	Perfluorodecane Sulfonate	0.482 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00005	100 uL	Perfluoroheptanoic acid (PFHpA)	0.5 ug/mL
					LCPFHpS_00008	100 uL	Perfluoroheptane Sulfonate	0.476 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00004	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00004	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00001	100 uL	Perfluorohexane Sulfonate	0.455 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.455 ug/mL
					LCPFNA_00005	100 uL	Perfluorononanoic acid (PFNA)	0.5 ug/mL
					LCPFNS_00002	100 uL	PFNS (Perflouro-1-nonanesulfonate)	0.48 ug/mL
					LCPFOA_00005	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00005	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00001	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00006	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00004	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFPeS_00002	100 uL	PFPeS (Perflouro-1-pentanesulfonate)	0.469 ug/mL
					LCPFTeDA_00004	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
LCPFTrDA_00004	100 uL	Perfluorotridecanoic acid	0.5 ug/mL					
LCPFUdA_00004	100 uL	Perfluoroundecanoic acid	0.5 ug/mL					
.LCPFBA_00004	01/30/20	Wellington Laboratories, Lot PFBA0115			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
.LCPFBS_00003	10/09/19	Wellington Laboratories, Lot LPFBS1014			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
.LCPFBSA_00001	10/09/19	Wellington Laboratories, Lot LPFBS1014			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA_00004	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00004	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
.LCPFDS_00005	07/02/20	Wellington Laboratories, Lot LPFDS0615			(Purchased Reagent)		Perfluorodecane Sulfonate	48.2 ug/mL
							Perfluorodecane Sulfonic acid	48.2 ug/mL
.LCPFHpA_00005	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
.LCPFHpS_00008	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptane Sulfonate	47.6 ug/mL
							Perfluoroheptanesulfonic Acid	47.6 ug/mL
.LCPFHxA_00004	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
.LCPFHxDA_00004	11/28/17	Wellington Laboratories, Lot PFHxDA0707			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00001	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
.LCPFNA_00005	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFNS_00002	07/04/17		Wellington Laboratories, Lot LPFNS0712		(Purchased Reagent)		PFNS (Perflouro-1-nonanesulfonate)	48 ug/mL
.LCPFOA 00005	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA 00005	01/30/20		Wellington Laboratories, Lot PFODA0115		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00001	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA 00006	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
.LCPFPeA 00004	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
.LCPFPeS_00002	07/04/17		Wellington Laboratories, Lot LPFPeS0712		(Purchased Reagent)		PFPeS (Perflouro-1-pentanesulfonate)	46.9 ug/mL
.LCPFTeDA 00004	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA 00004	12/10/18		Wellington Laboratories, Lot PFTrDA1213		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA 00004	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Reagent

LC6:2FTS_00001

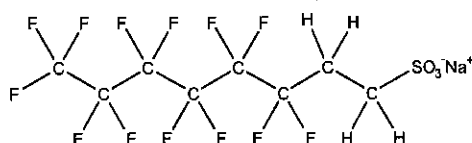
r: 7h115 &v
S: 7h20/15 &v



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS1014
COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_8H_4F_{13}SO_3Na$ **MOLECULAR WEIGHT:** 450.15
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt) **SOLVENT(S):** Methanol
 $47.4 \pm 2.4 \mu\text{g/ml}$ (6:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/03/2014
EXPIRY DATE: (mm/dd/yyyy) 10/03/2017
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: 03/27/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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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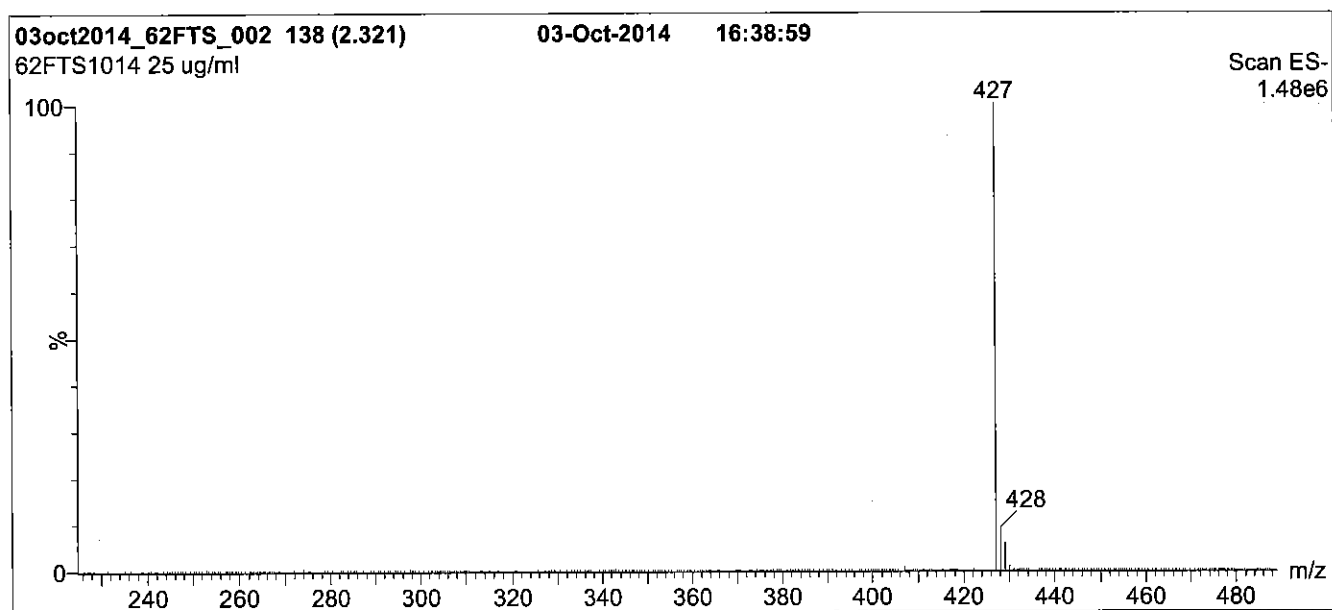
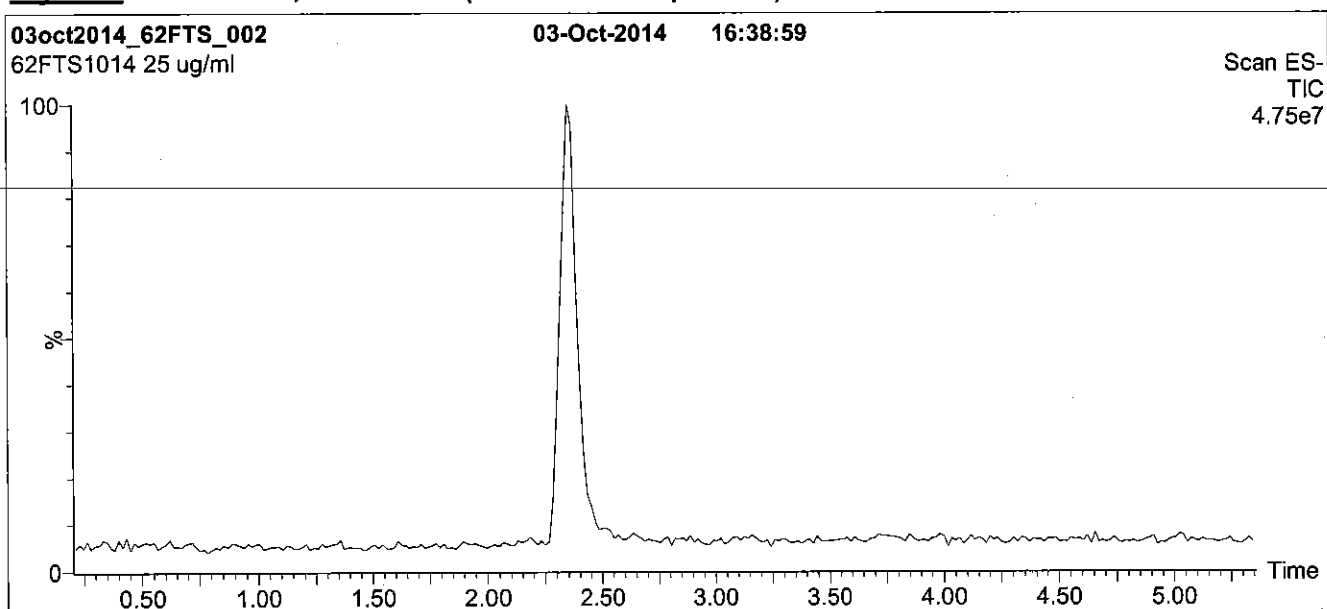
QUALITY MANAGEMENT:

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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: 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

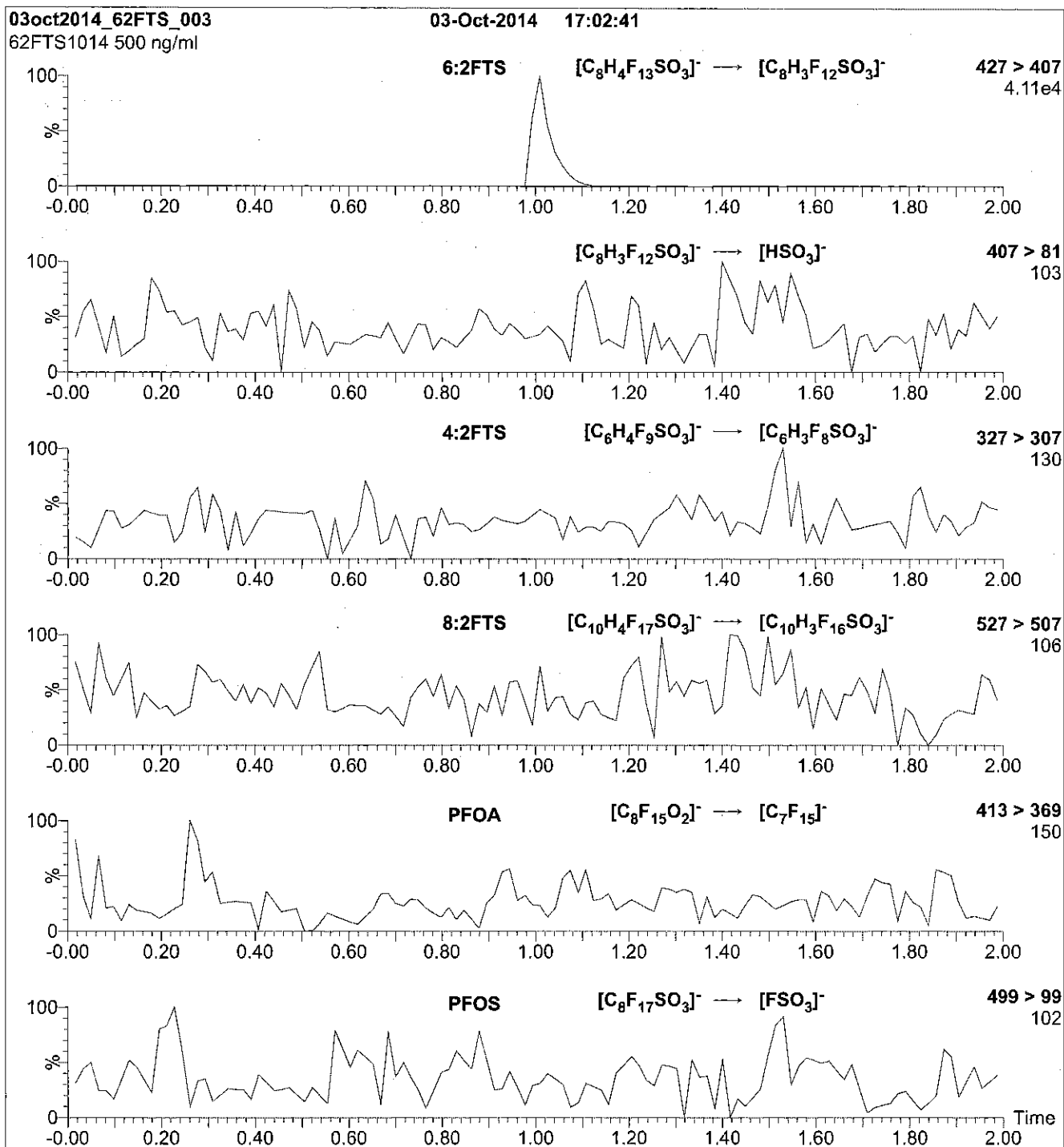
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 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)

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) = $3.50e-3$
Collision Energy (eV) = 25

Reagent

LC8 : 2FTS_00001

r: 7/16/15 8V
S: 7/22/15 8V



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

8:2FTS

LOT NUMBER:

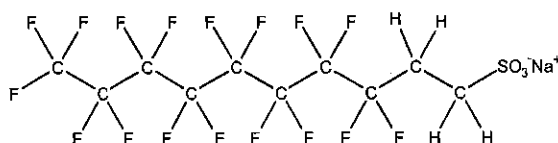
82FTS1014

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:

$50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt)
 $47.9 \pm 2.4 \mu\text{g/ml}$ (8:2FTS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/03/2014

EXPIRY DATE: (mm/dd/yyyy)

10/03/2017

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: 03/27/2015

(mm/dd/yyyy)

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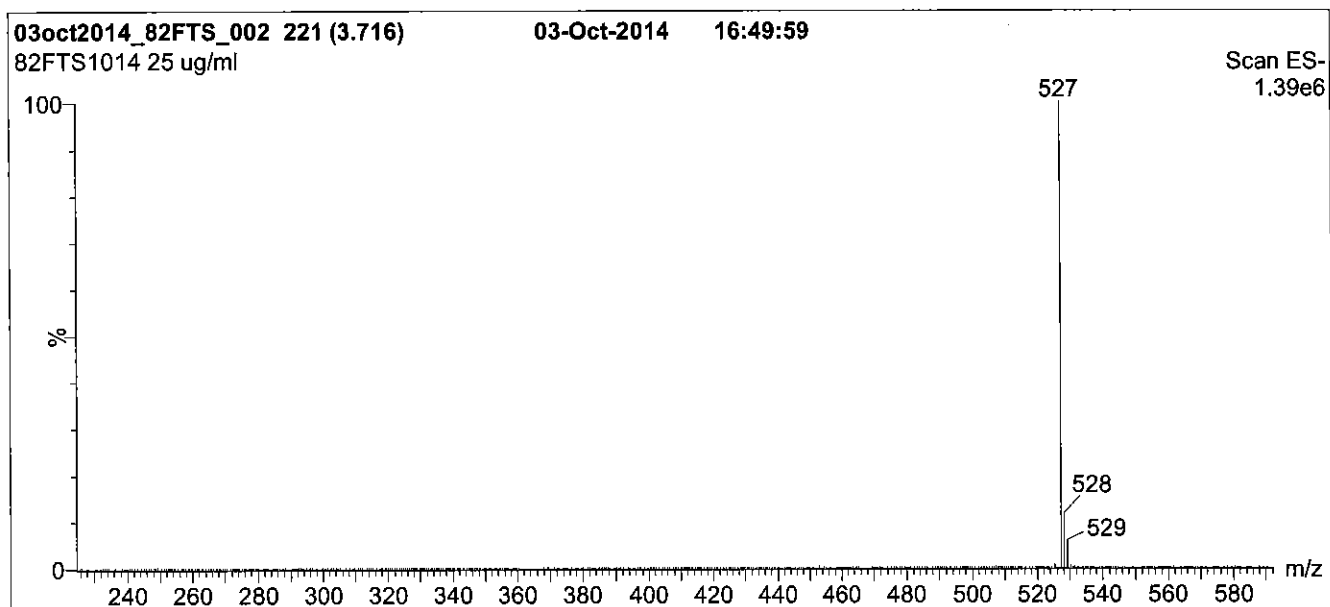
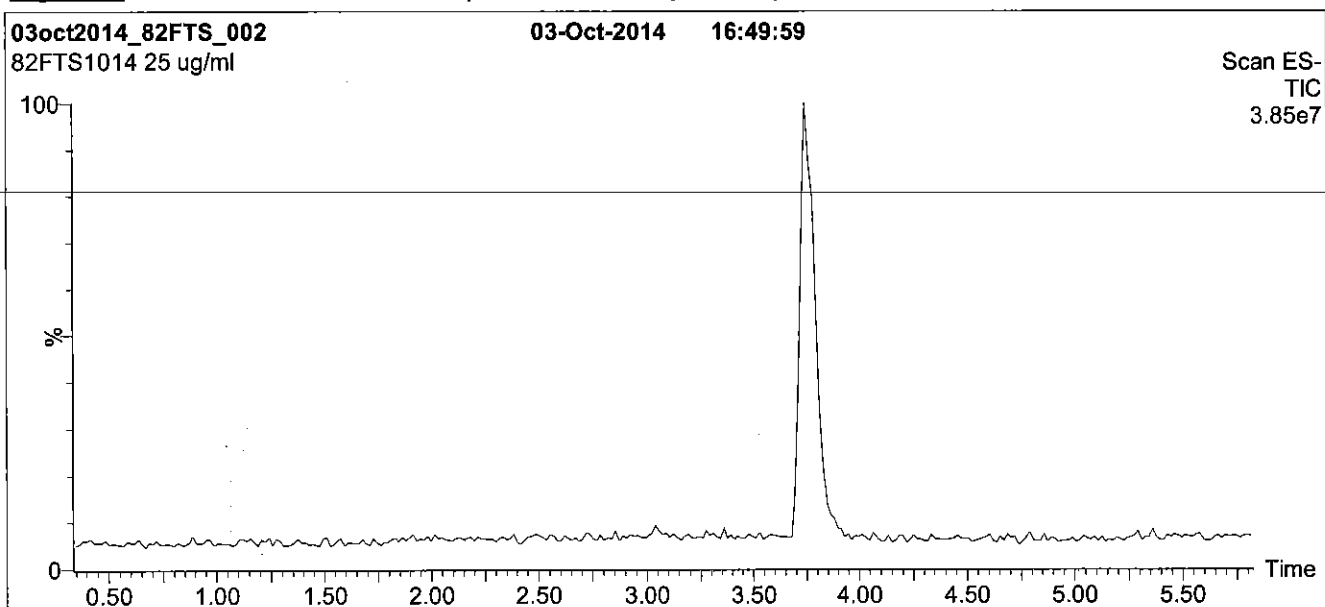
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 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.
Return to initial conditions in 0.5 min.
Time: 10 min

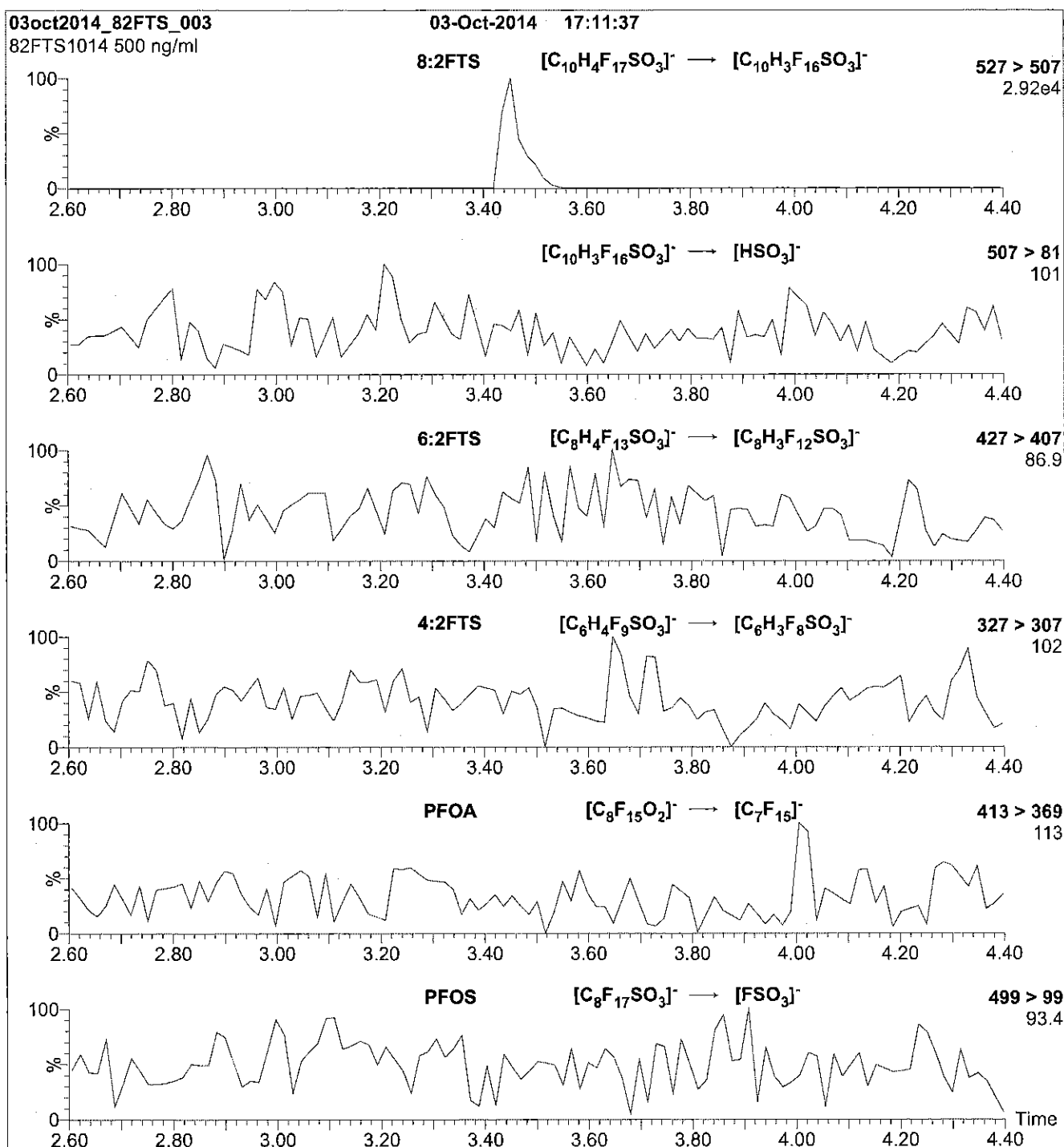
Flow: 300 μ l/min

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) = 3.50e-3
Collision Energy (eV) = 30

Reagent

LCd-NEtFOSA-M_00001

C: 7/16/15 8/



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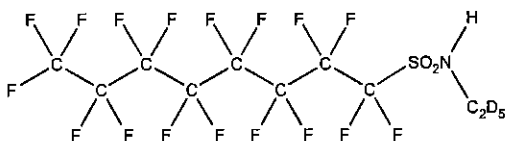
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-EtFOSA-M
COMPOUND: N-ethyl-d₅-perfluoro-1-octanesulfonamide

LOT NUMBER: dNEtFOSA0314M

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₁₀D₅HF₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/10/2014
EXPIRY DATE: (mm/dd/yyyy) 03/10/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 532.23
SOLVENT(S): Methanol
ISOTOPIC PURITY: ≥98% ²H₅

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: 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

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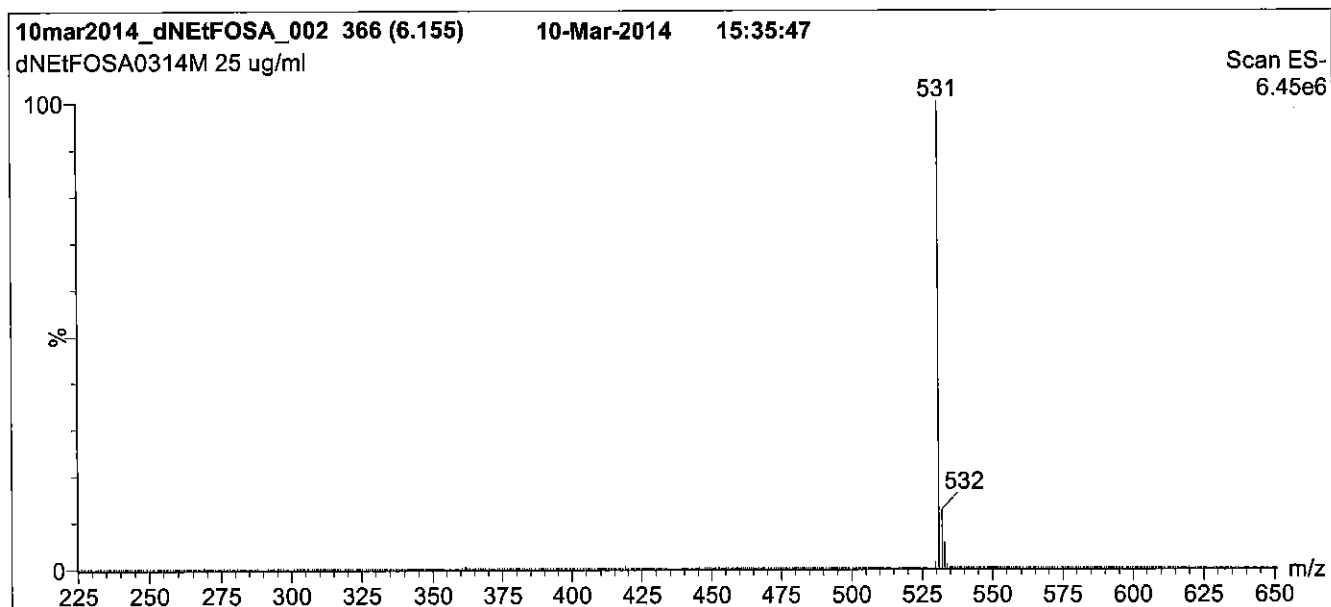
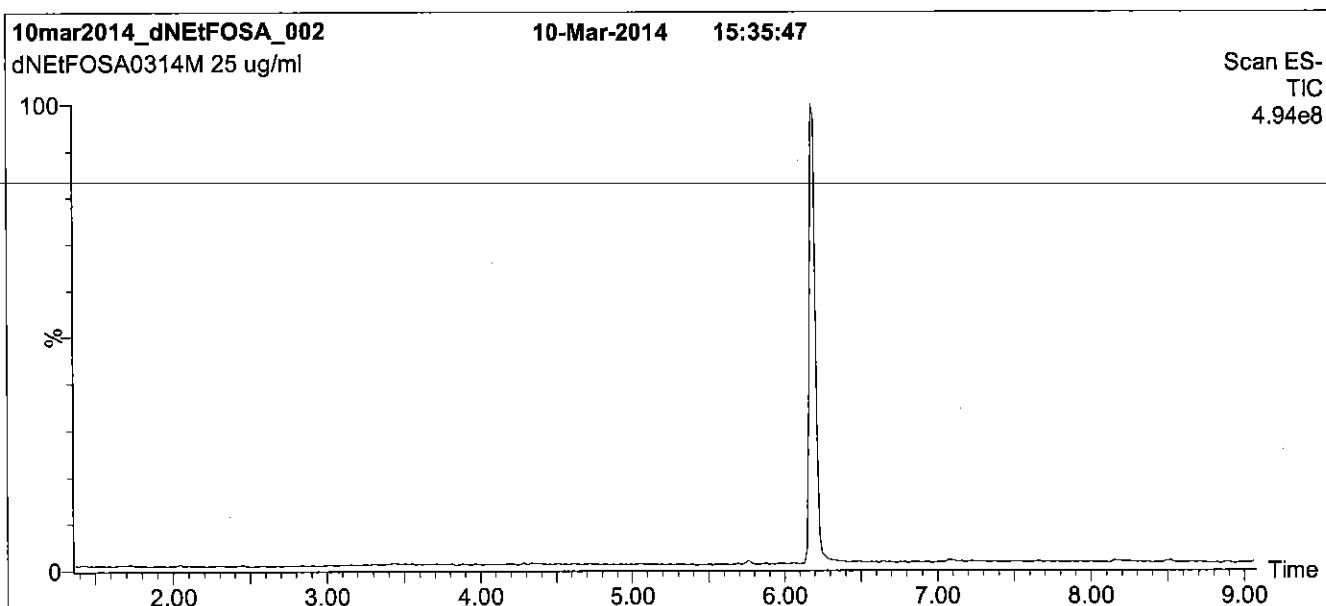
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Figure 1: d-N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)



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: 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

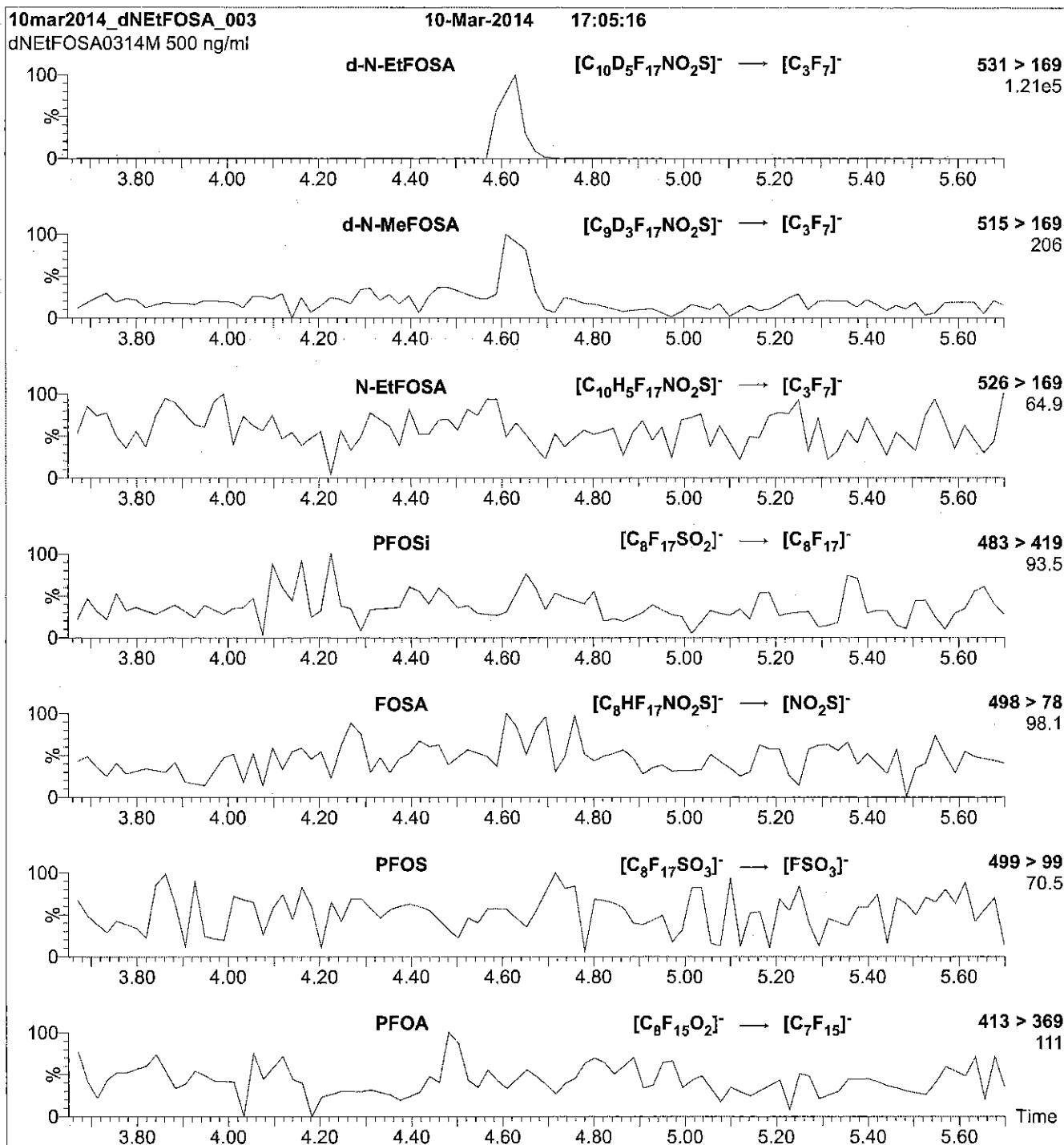
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 950 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml d-N-EtFOSA-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) = 3.43e-3
Collision Energy (eV) = 25

Reagent

LCd-NMeFOSA-M_00001

r: 7/16/15 SKW



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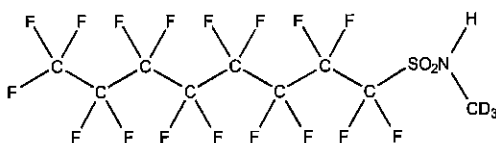
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M
COMPOUND: N-methyl-d₃-perfluoro-1-octanesulfonamide

LOT NUMBER: dNMeFOSA0114M

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₉D₃HF₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/28/2014
EXPIRY DATE: (mm/dd/yyyy) 01/28/2019
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: 04/01/2015
(mm/dd/yyyy)

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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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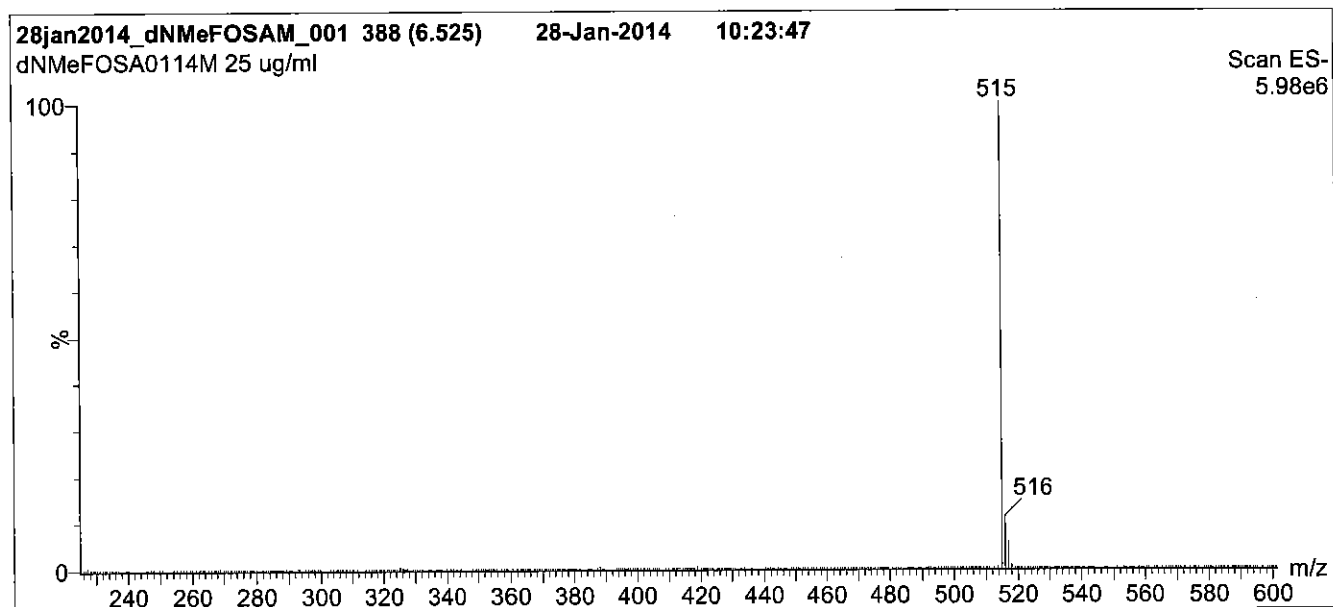
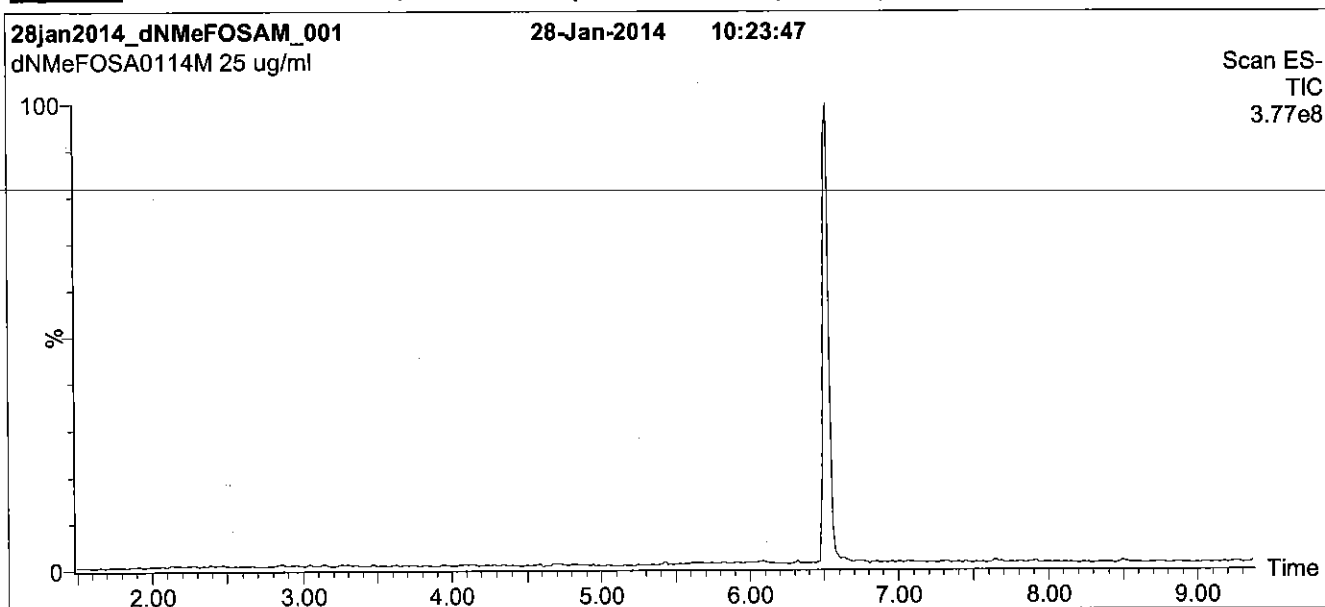
QUALITY MANAGEMENT:

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

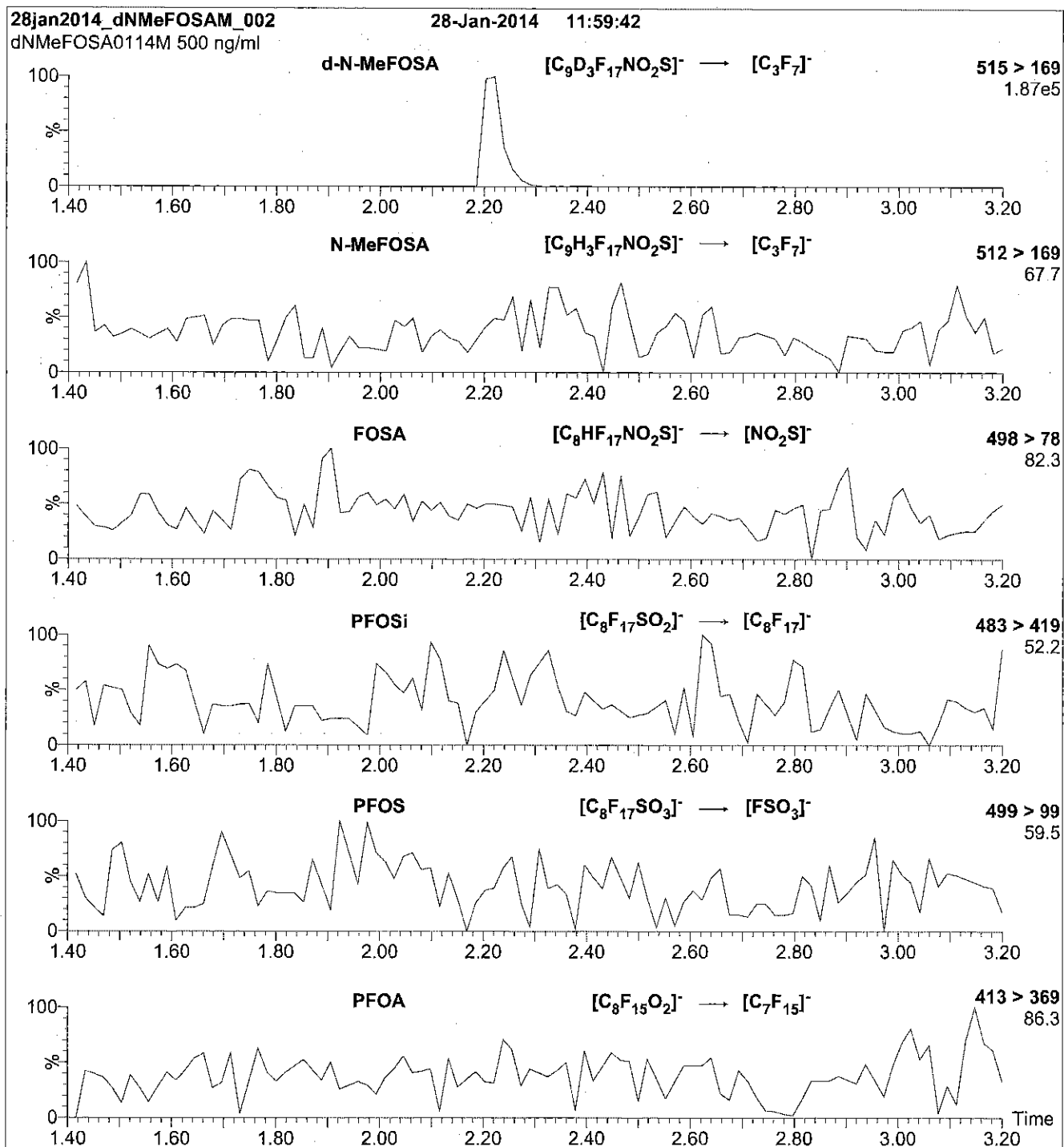
Flow: 300 μ l/min

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) = 3.50e-3
Collision Energy (eV) = 30

Reagent

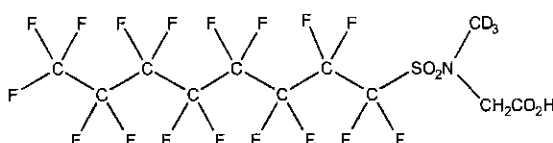
LCd3-NMeFOSAA_00001



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0113
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₁D₃H₃F₁₇NO₄S **MOLECULAR WEIGHT:** 574.23
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 01/31/2013
EXPIRY DATE: (mm/dd/yyyy) 01/31/2018
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: 04/06/2015

(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:

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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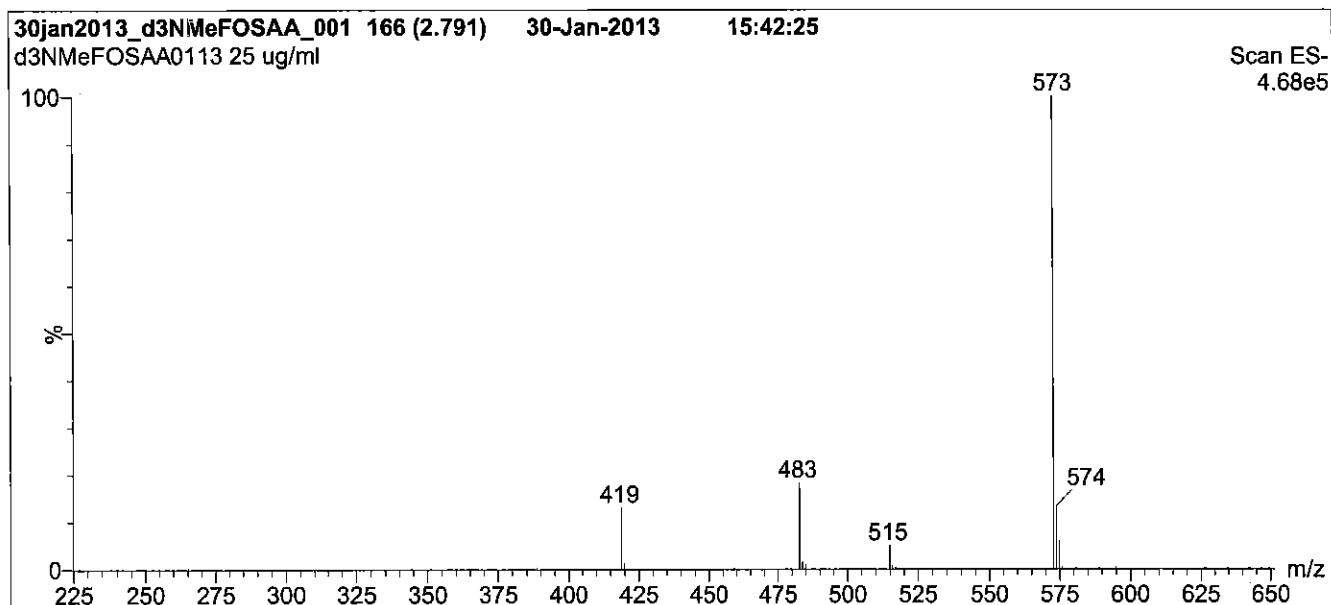
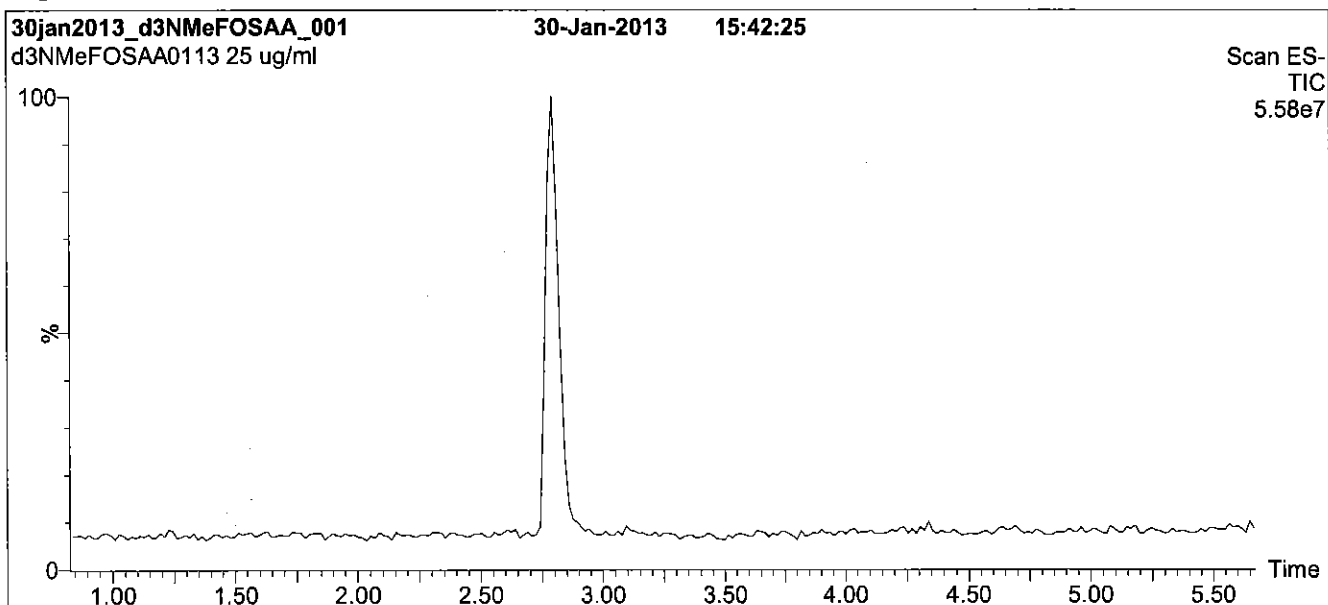
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient

Start: 65% (80:20 MeOH:ACN) / 35% 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

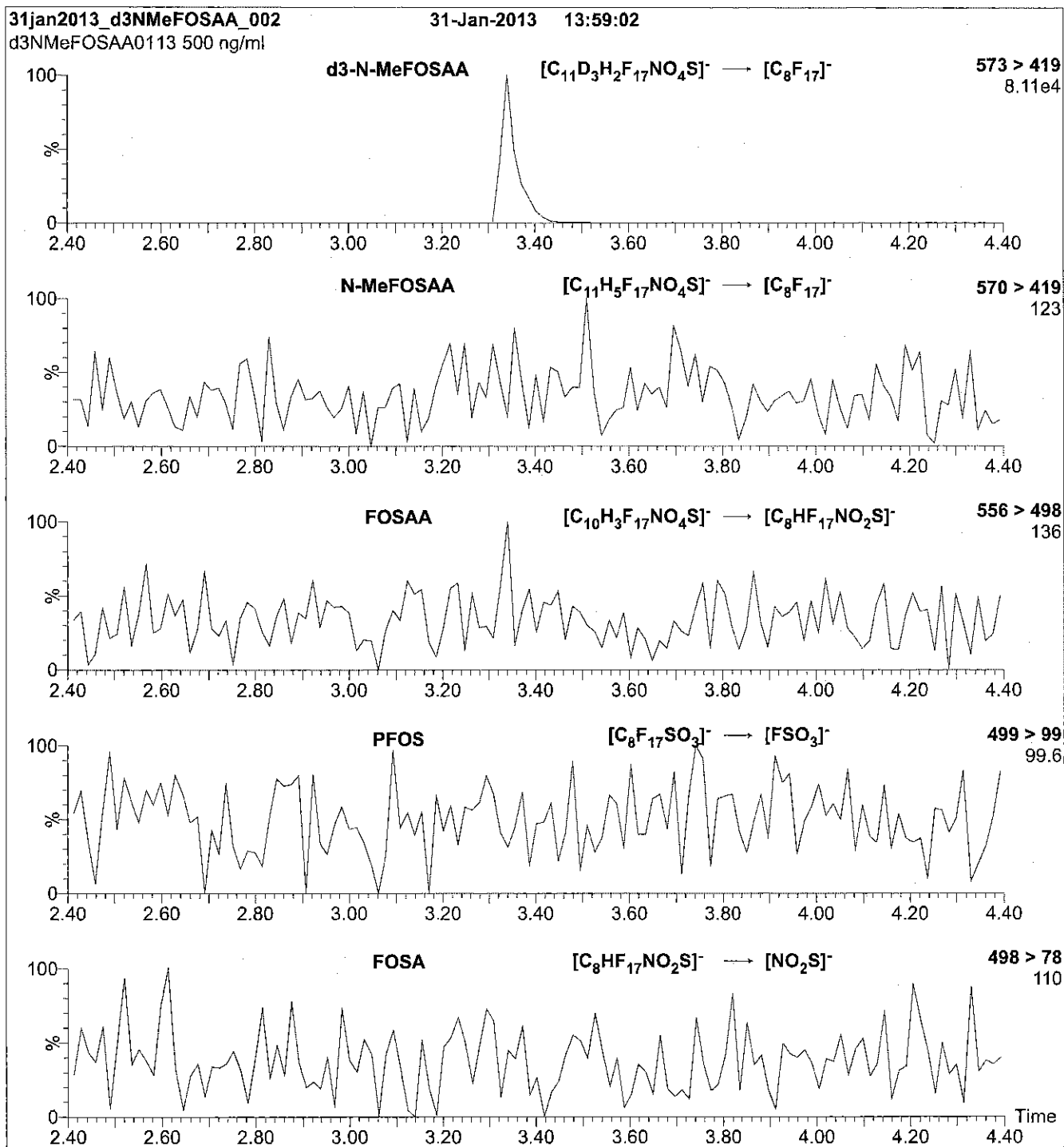
Flow: 300 μ l/min

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



Conditions for Figure 2:

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

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

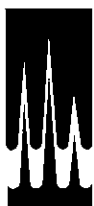
Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 25

Reagent

LCd5-NEtFOSAA_00001

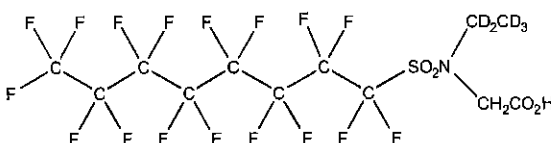


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0515
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_{12}D_5H_3F_{17}NO_4S$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$

MOLECULAR WEIGHT: 590.27
SOLVENT(S): Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/08/2015
EXPIRY DATE: (mm/dd/yyyy) 05/08/2020
RECOMMENDED STORAGE: Refrigerate ampoule

ISOTOPIC PURITY: $\geq 98\% \text{ } ^2\text{H}_5$

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: 05/11/2015
 (mm/dd/yyyy)

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

INTENDED USE:

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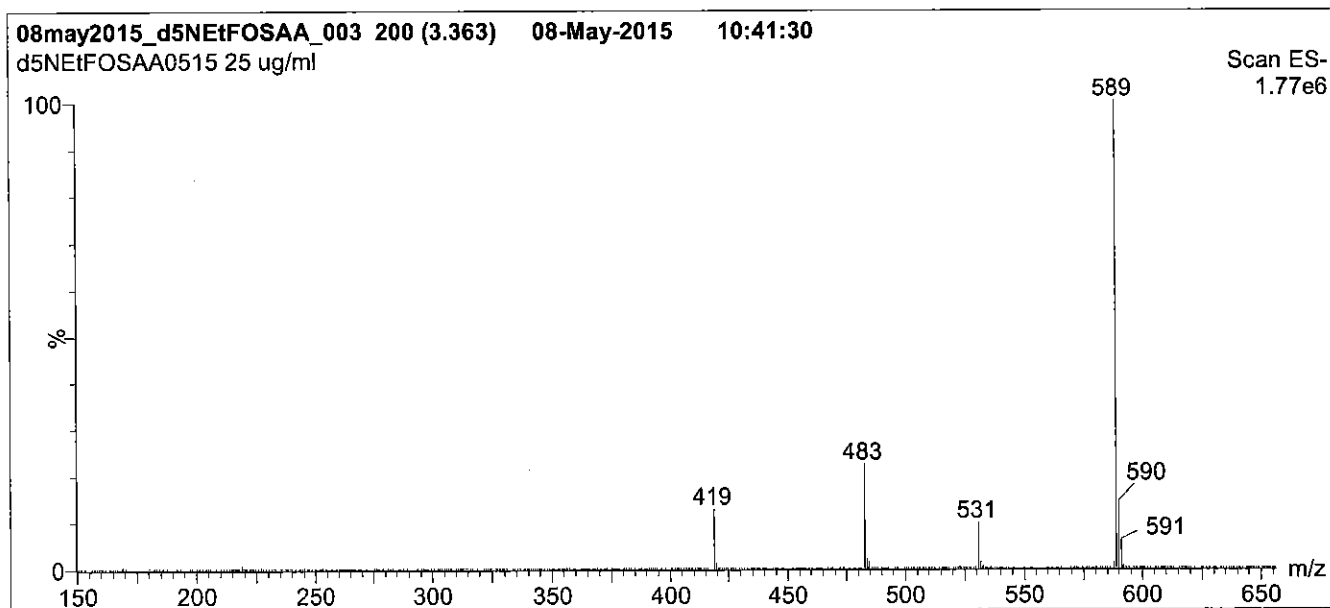
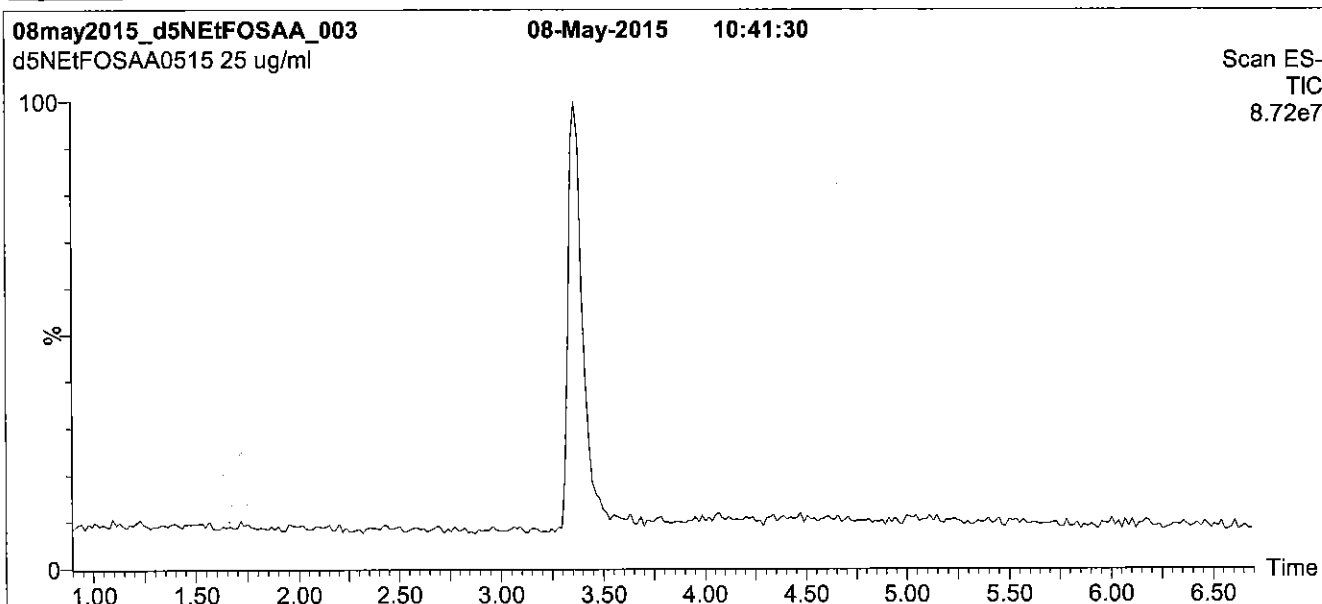
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Figure 1: d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)



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 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

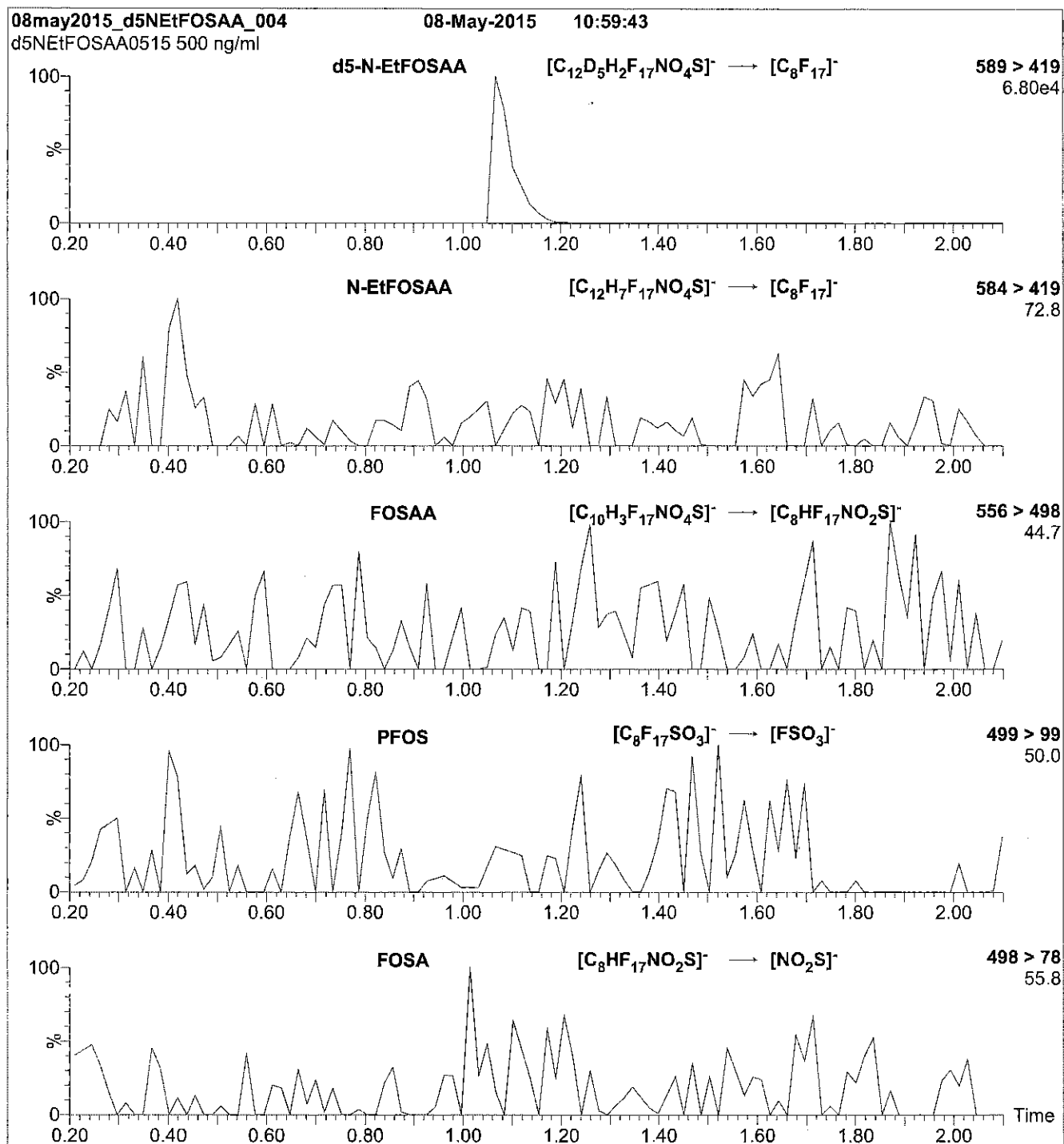
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 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% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

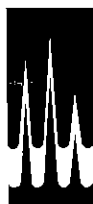
MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 25

Reagent

LCM2-6:FTS_00001

R. 7/16/15 SW
S. 7/20/15 SW

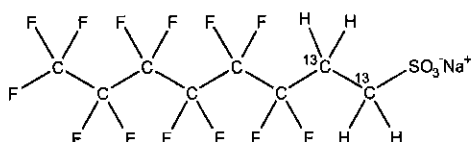


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0714
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) **SOLVENT(S):** Methanol
47.5 ± 2.4 µg/ml (M2-6:2FTS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 07/15/2014 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 07/15/2017
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: 03/27/2015
(mm/dd/yyyy)

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

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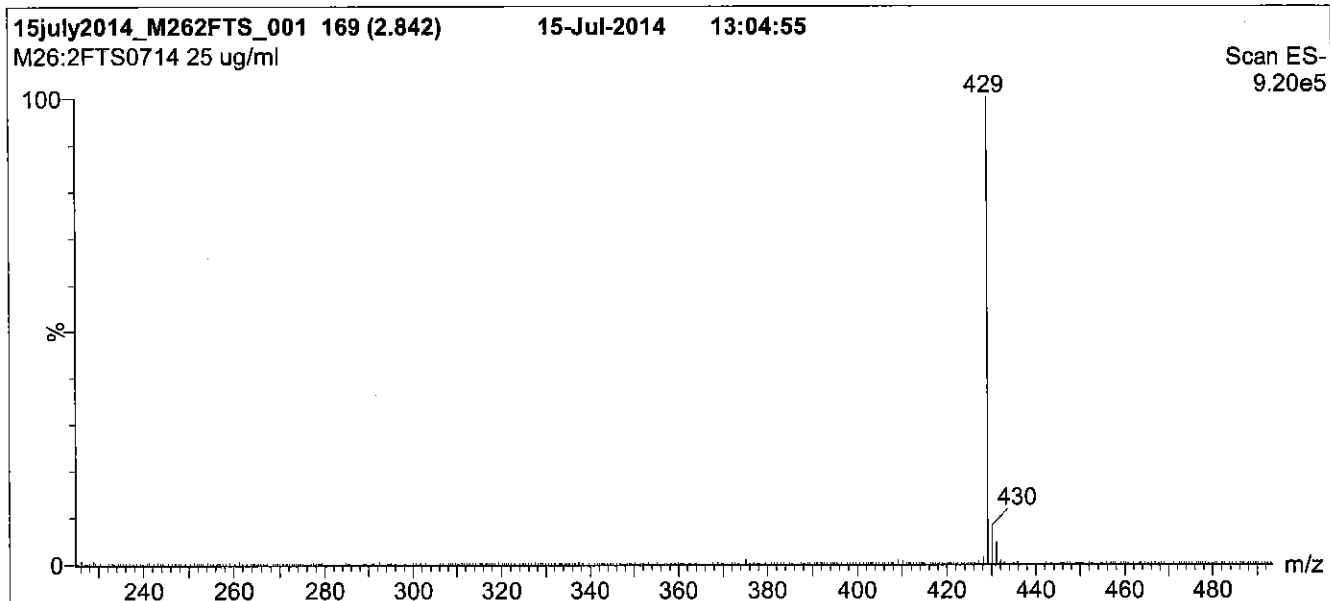
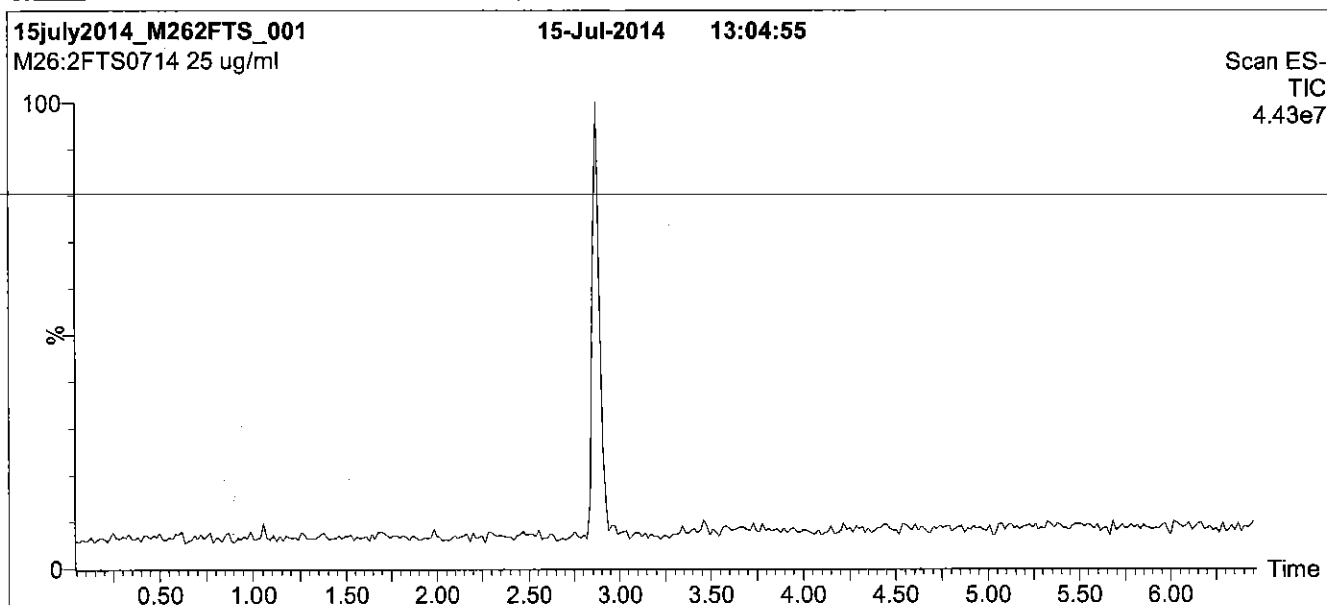
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 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

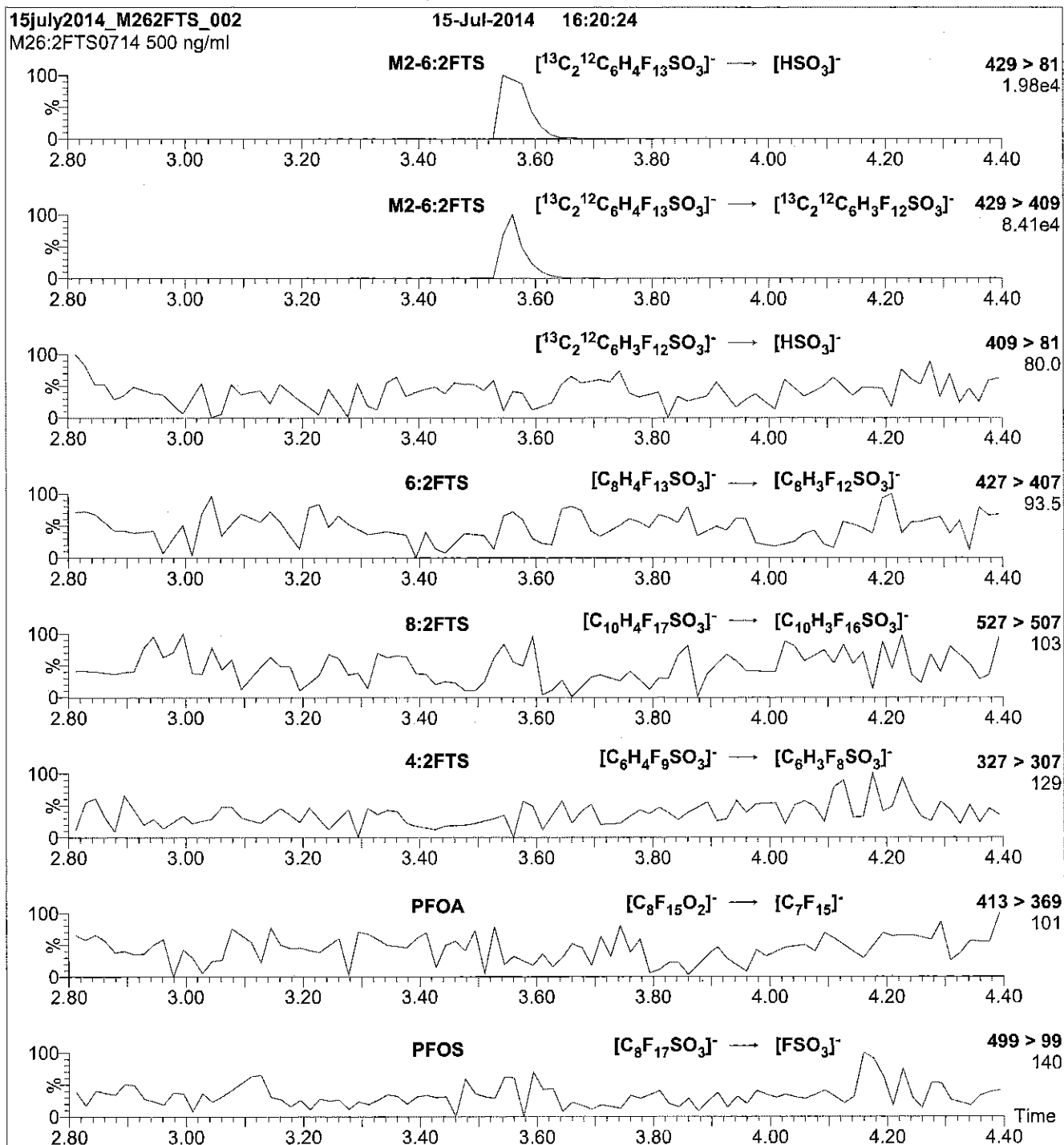
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 950 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: 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) = 3.43e-3
Collision Energy (eV) = 25

Reagent

LCM2-8:2FTS_00001

r: 7/16/15 B/
8: 7/22/15 STV

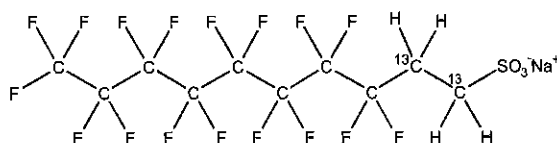


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0414
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) 04/13/2014 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 04/13/2017
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 8:2FTS contains 4.22% of ³⁴S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 03/27/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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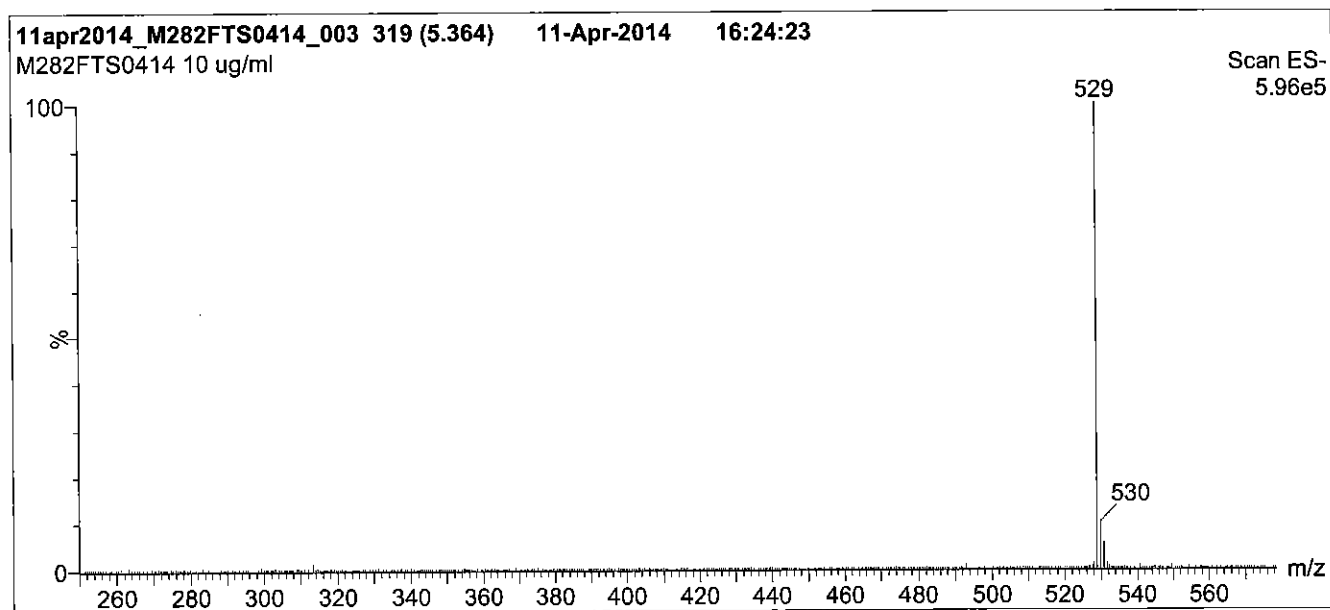
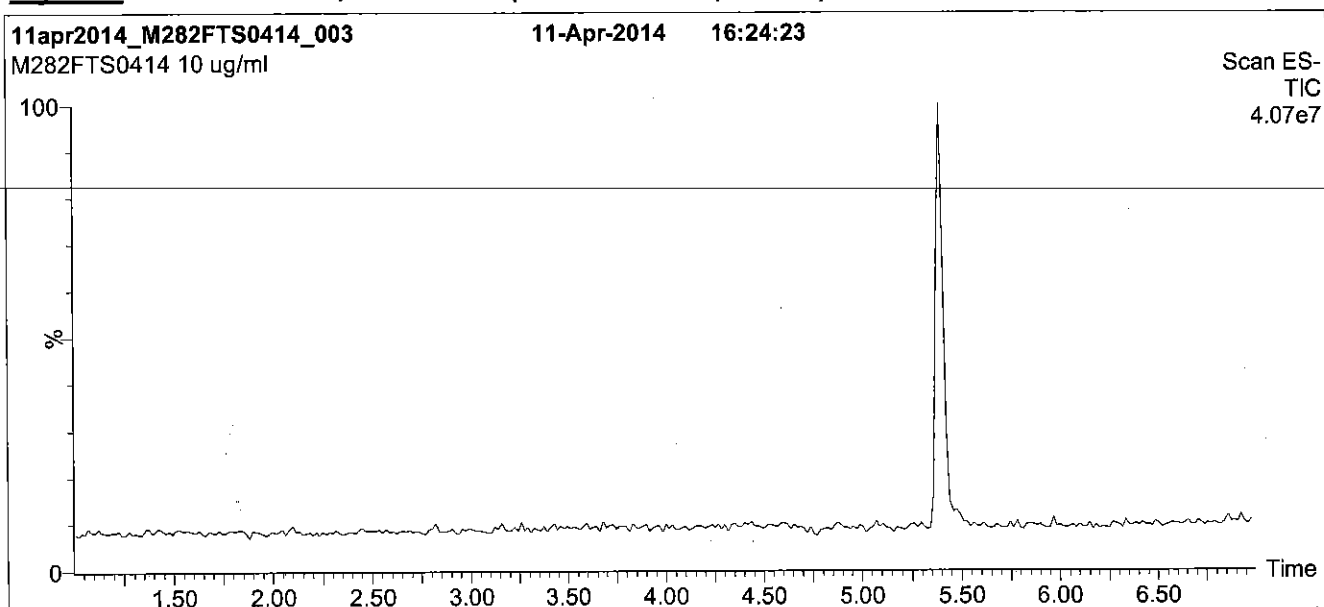
QUALITY MANAGEMENT:

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Figure 1: 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

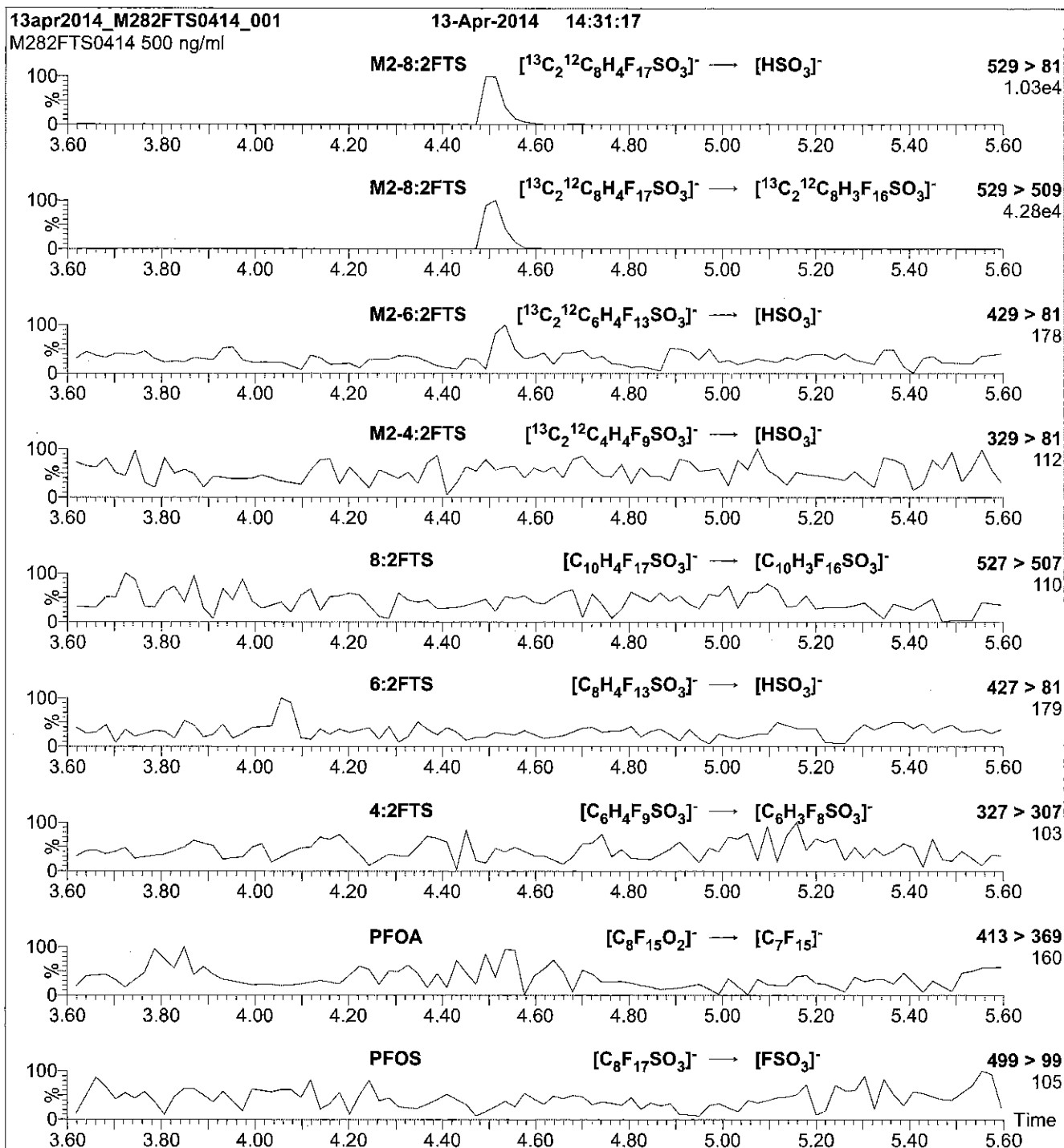
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 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) = 3.24e-3
Collision Energy (eV) = 25

Reagent

LCN-EtFOSA-M_00002

P: 7/16/15 SW



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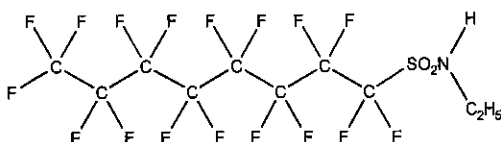
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0714M

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA: $C_{10}H_6F_{17}NO_2S$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/14/2014
EXPIRY DATE: (mm/dd/yyyy) 07/14/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 527.20
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim

Date: 04/01/2015
(mm/dd/yyyy)

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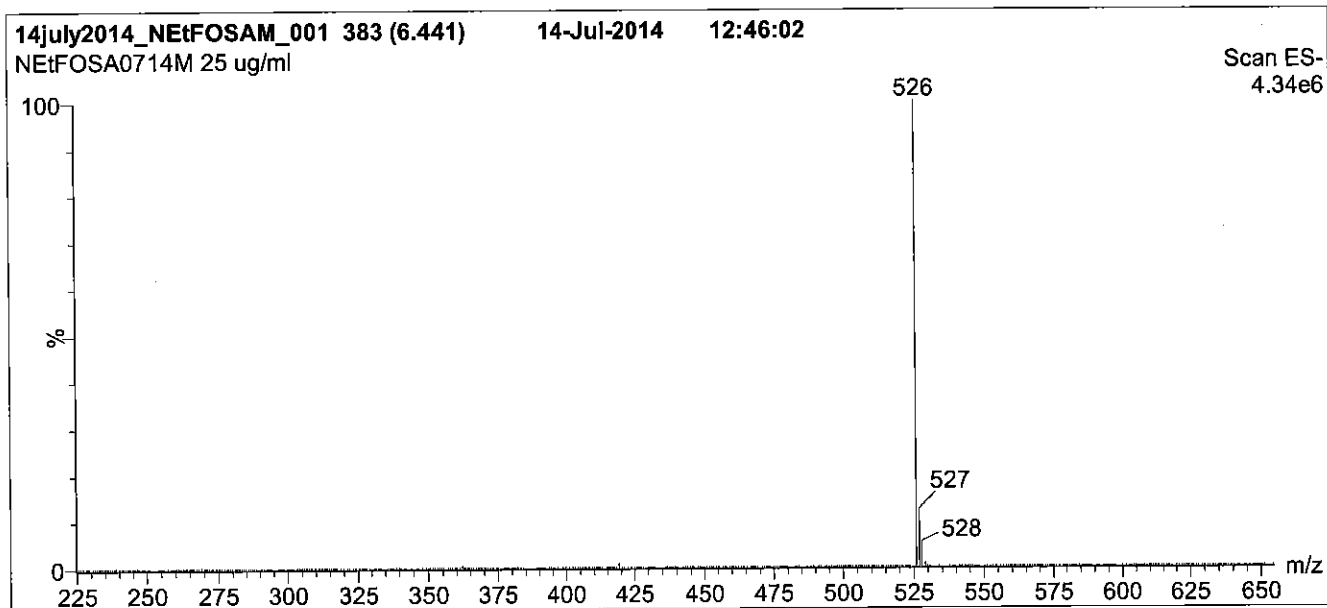
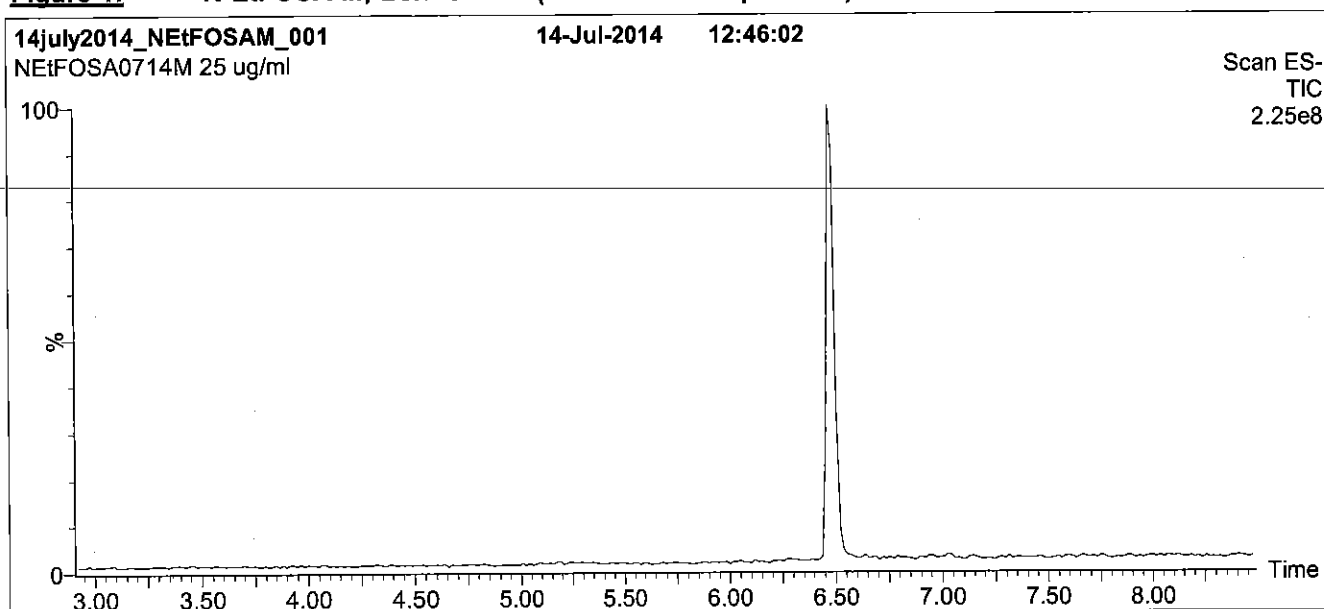
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Figure 1: N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)



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 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

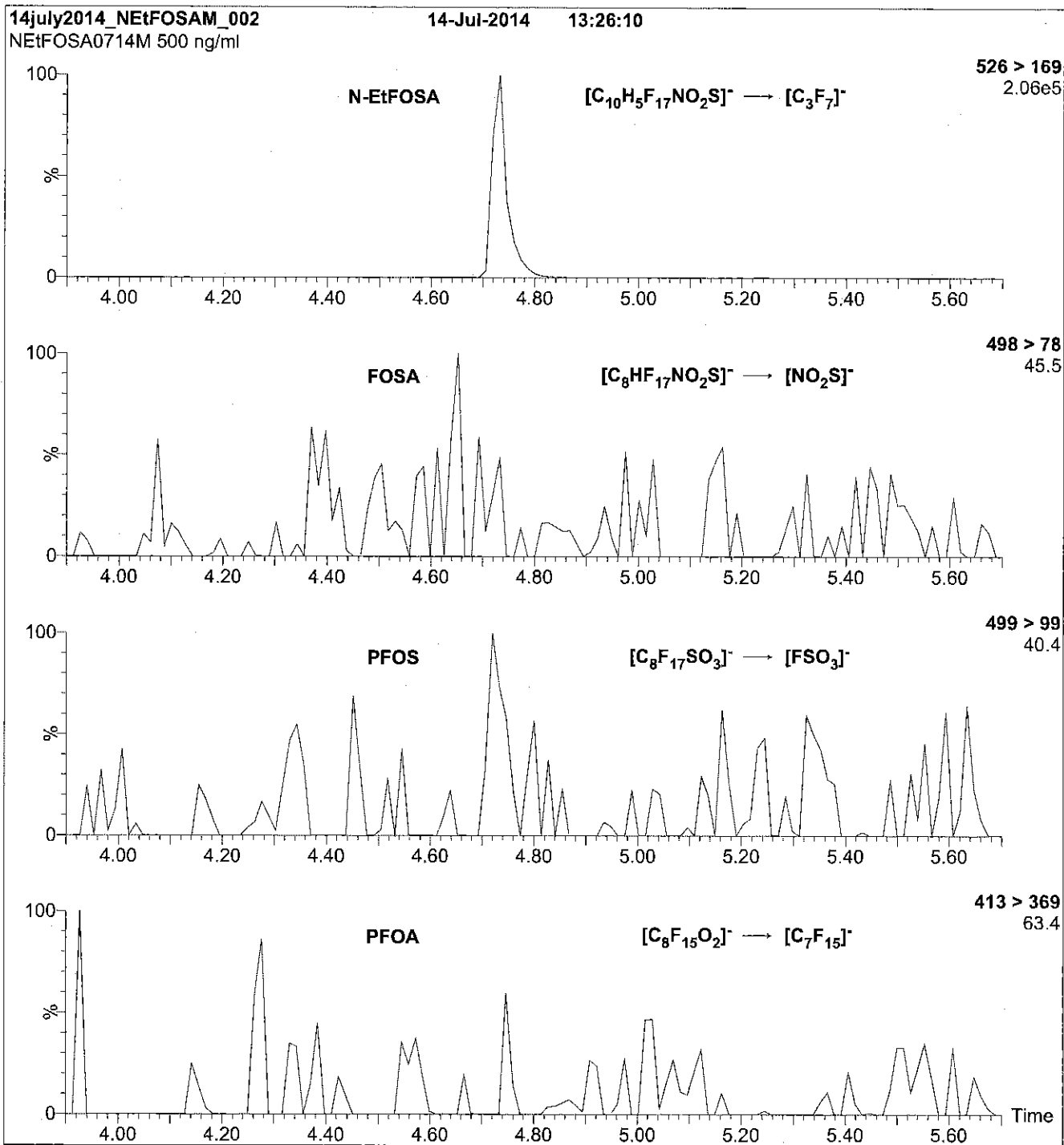
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 950 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) = 3.50e-3
Collision Energy (eV) = 30

Reagent

LCN-EtFOSAA_00001

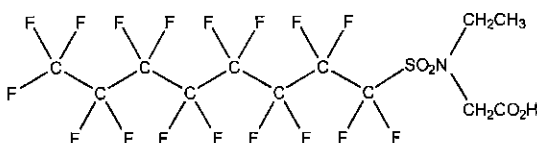


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSAA **LOT NUMBER:** NEtFOSAA0113
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) 01/29/2013
EXPIRY DATE: (mm/dd/yyyy) 01/29/2018
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: 04/06/2015

(mm/dd/yyyy)

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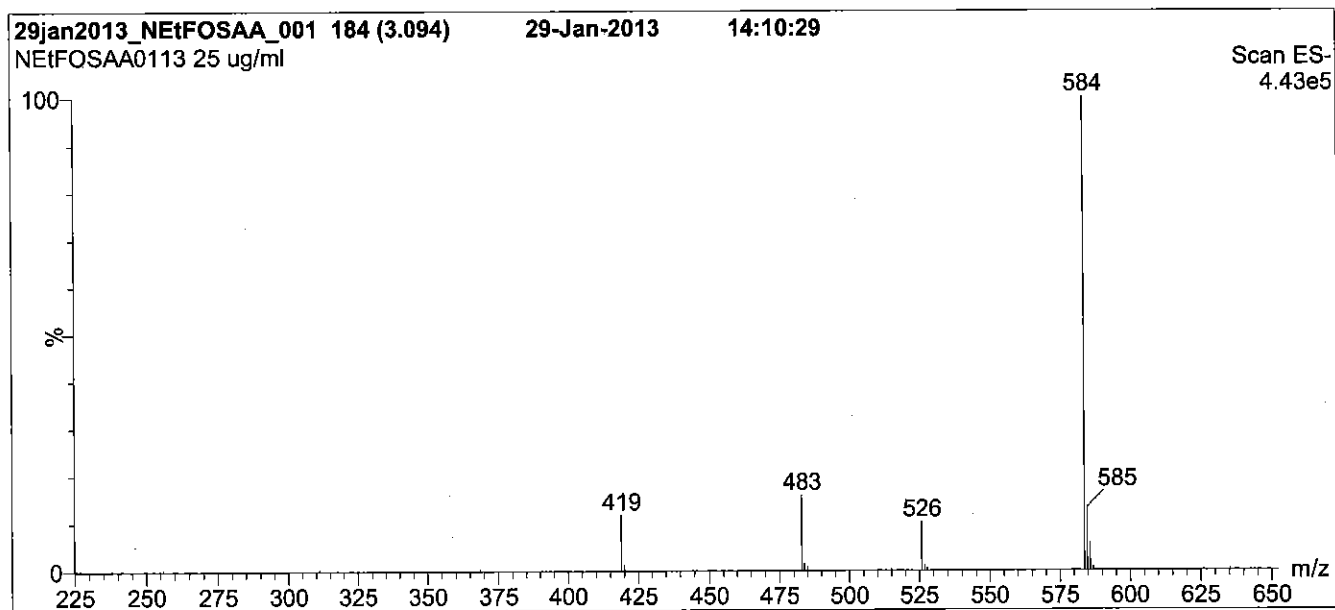
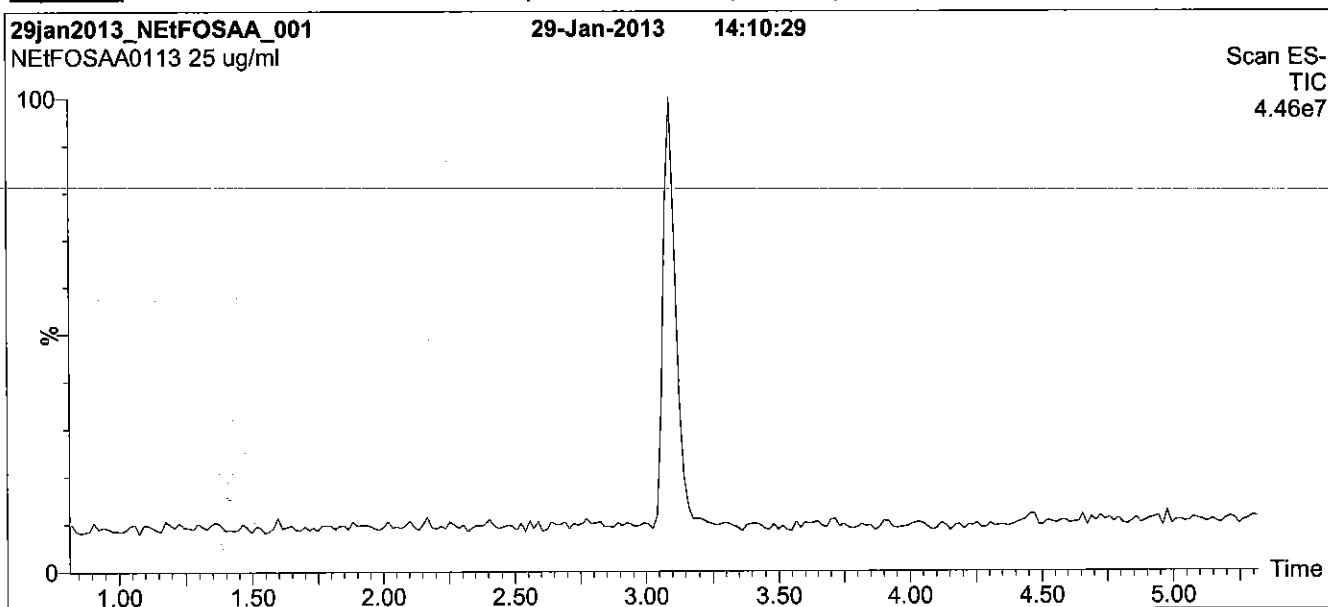
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Figure 1: N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% 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

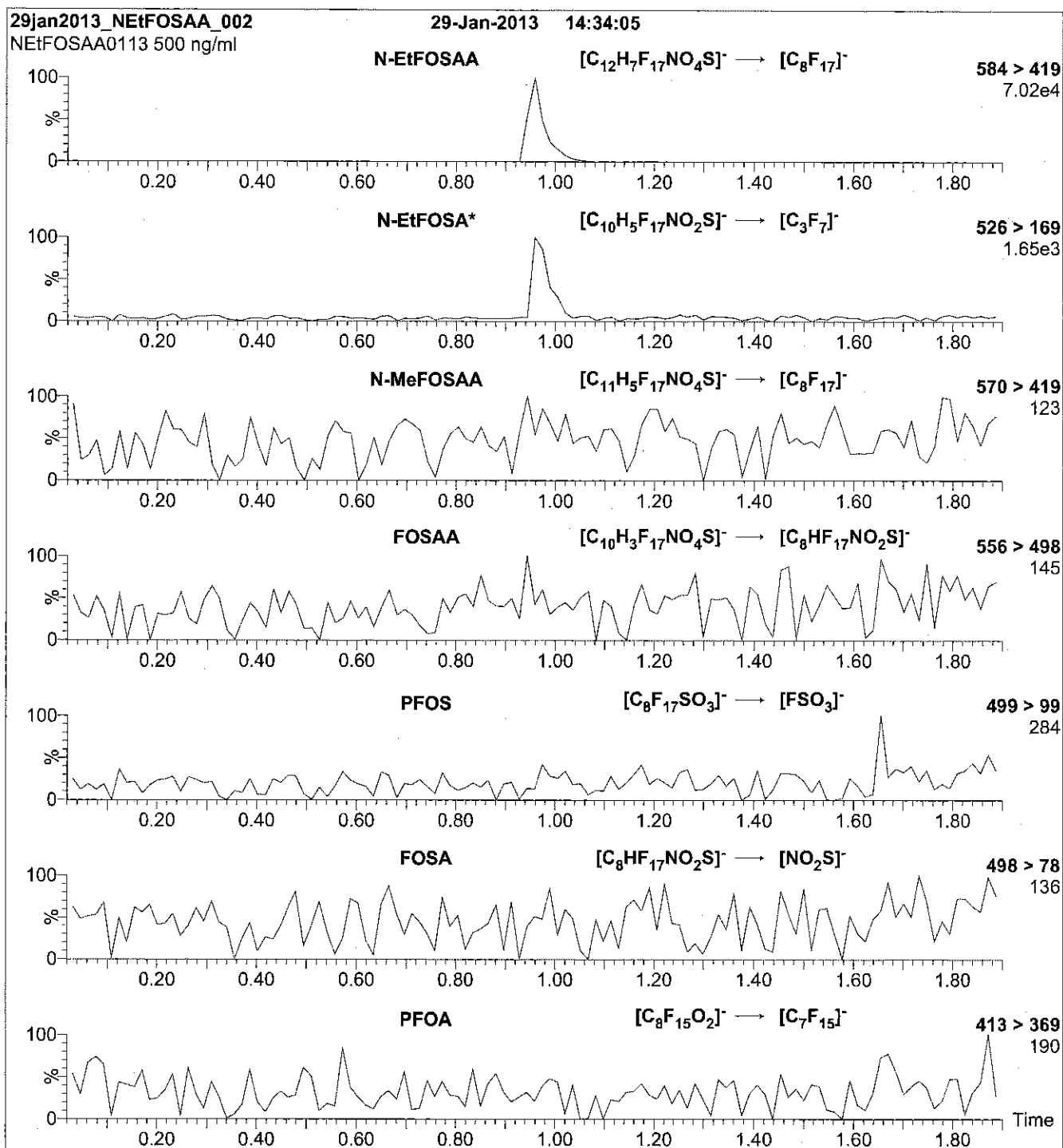
Flow: 300 μ l/min

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% 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

LCN-MeFOSA-M_00001

R: 7/16/15 SPW



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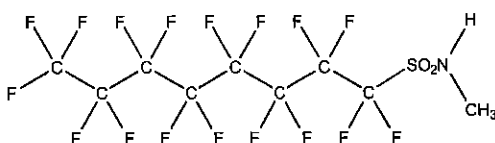
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0714M

STRUCTURE:

CAS #: 31506-32-8



MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/15/2014
EXPIRY DATE: (mm/dd/yyyy) 07/15/2019
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.

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Certified By:

B.G. Chittim

Date: 04/01/2015

(mm/dd/yyyy)

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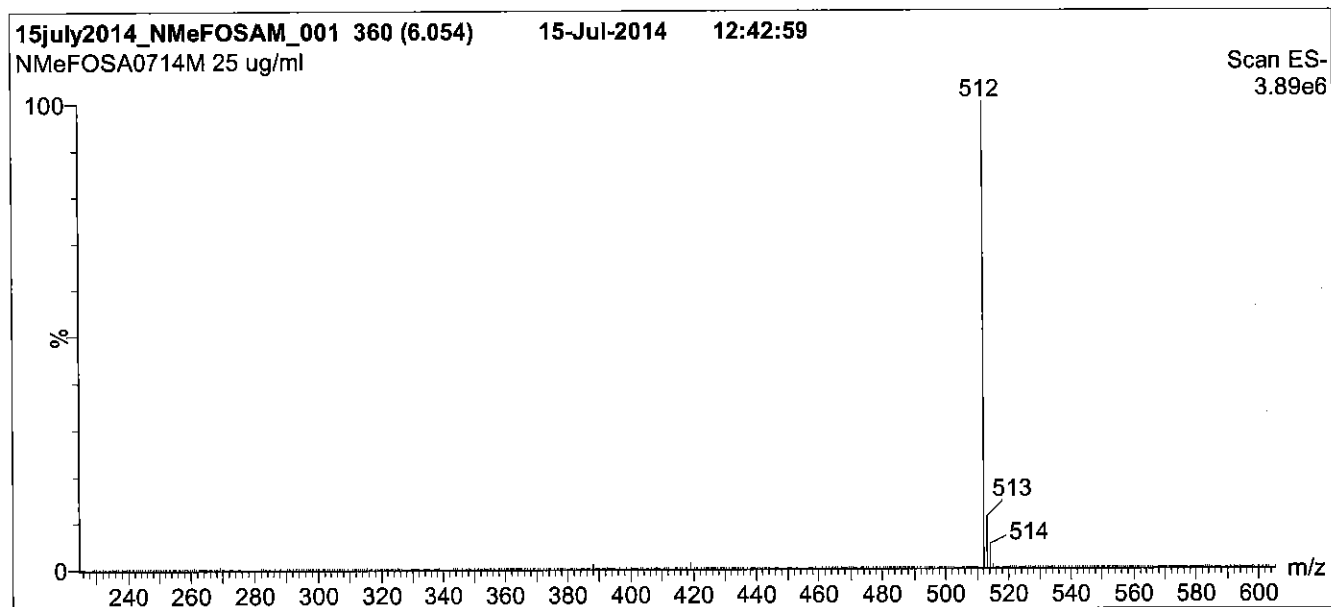
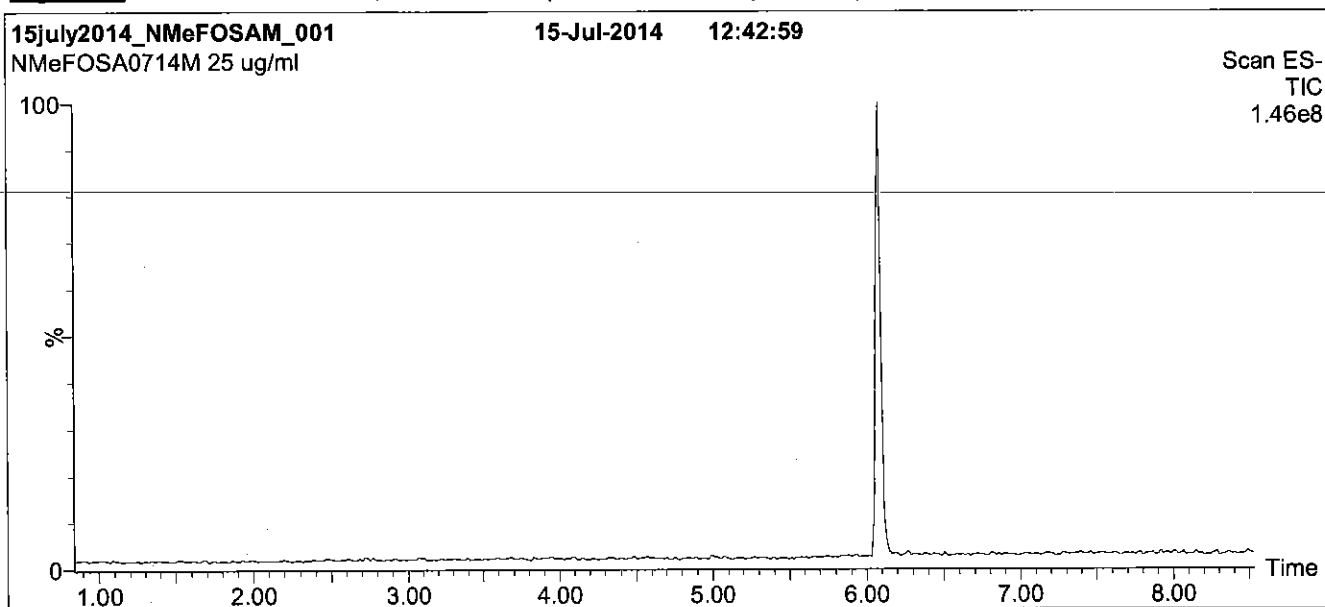
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Figure 1: N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

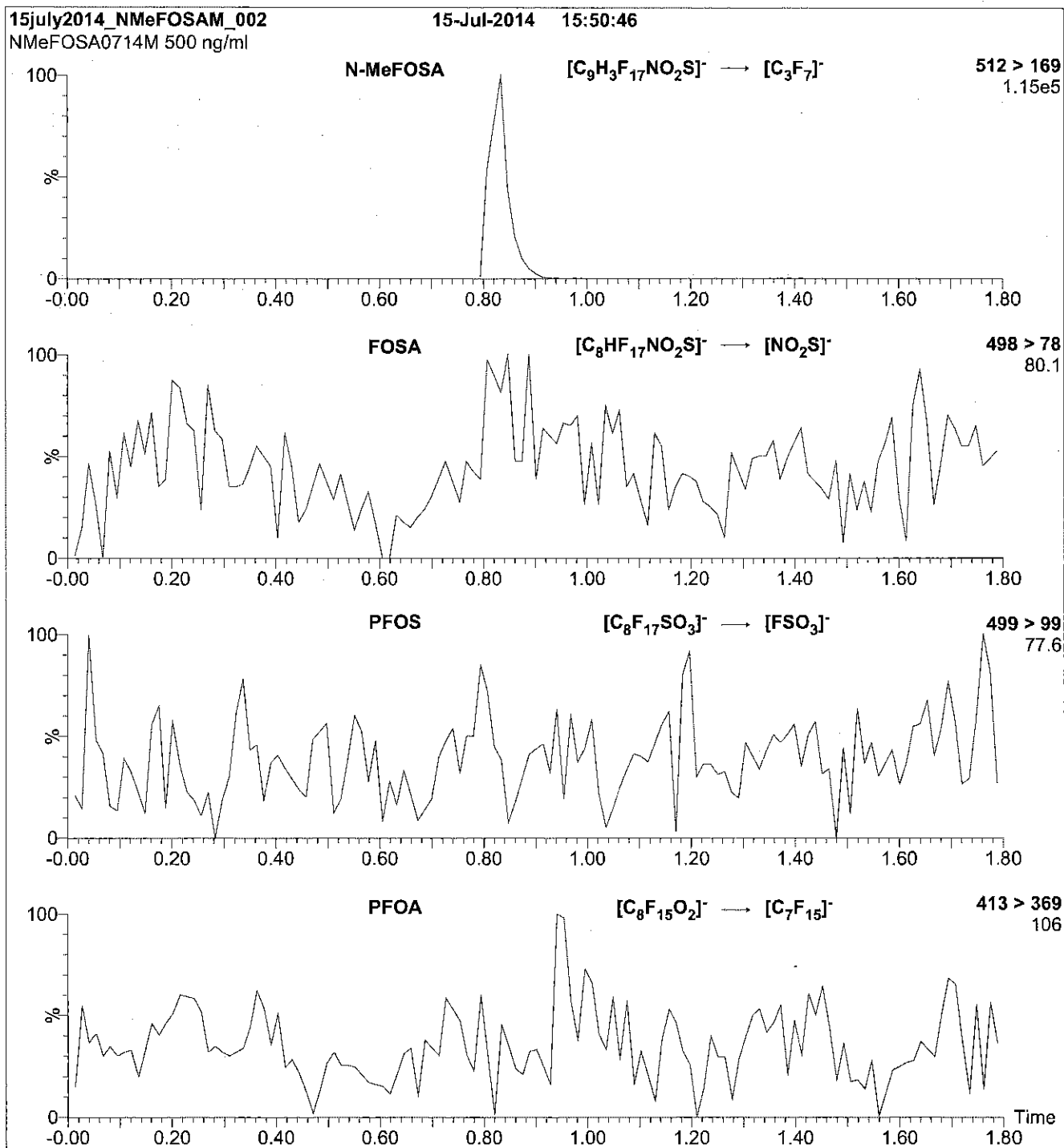
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 950 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 μ l (500 ng/ml N-MeFOSA-M)

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

LCN-MeFOSAA_00001

Y:7/10/13 SEU

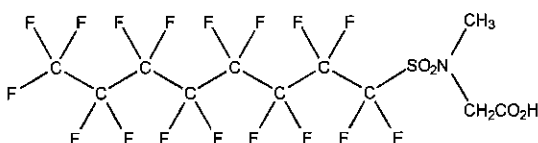


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA1214
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2355-31-9



MOLECULAR FORMULA: $C_{11}H_6F_{17}NO_4S$ **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) 12/09/2014
EXPIRY DATE: (mm/dd/yyyy) 12/09/2019
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: 04/06/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

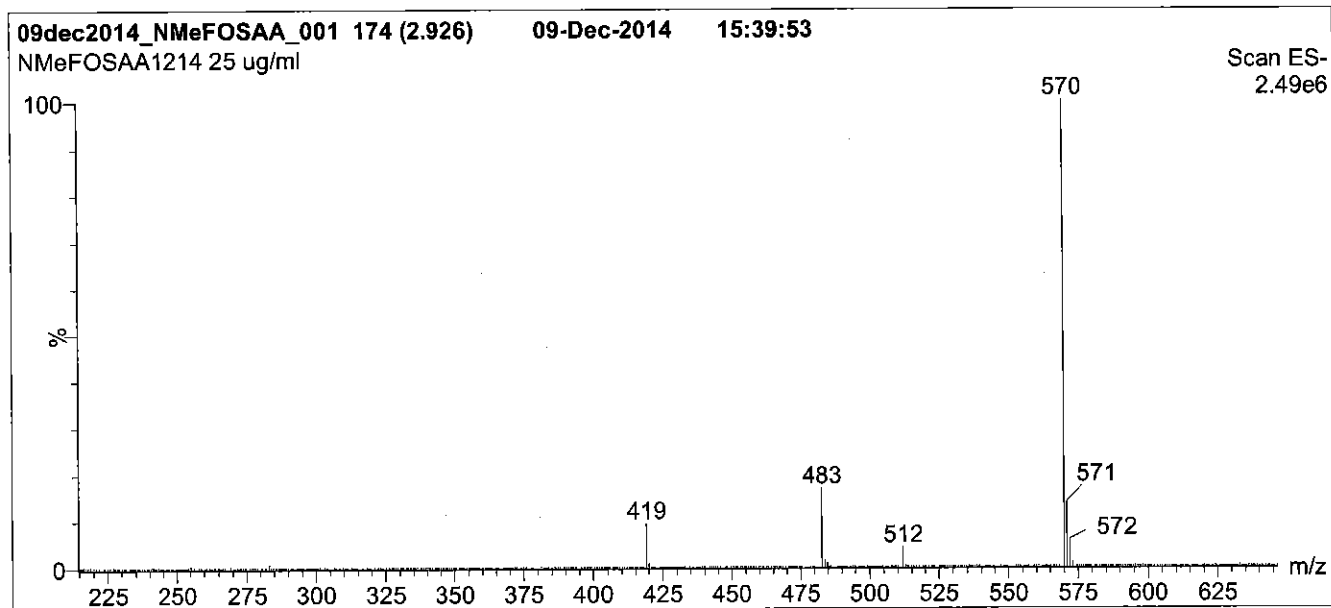
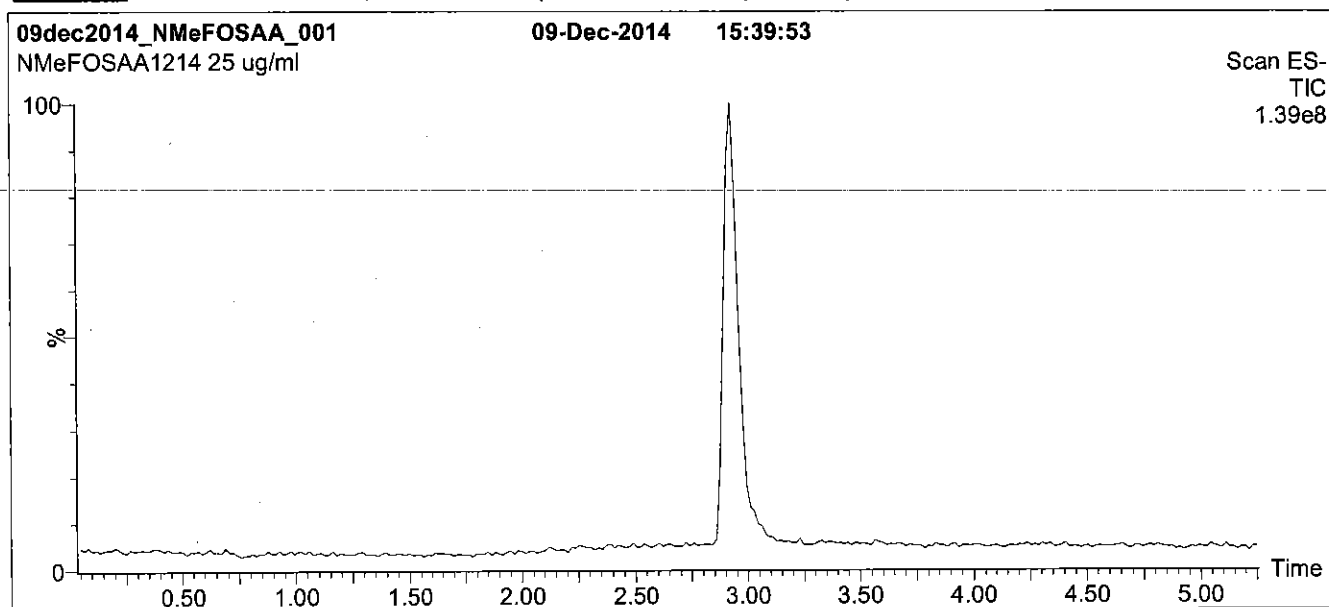
QUALITY MANAGEMENT:

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



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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: 65% (80:20 MeOH:ACN) / 35% 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

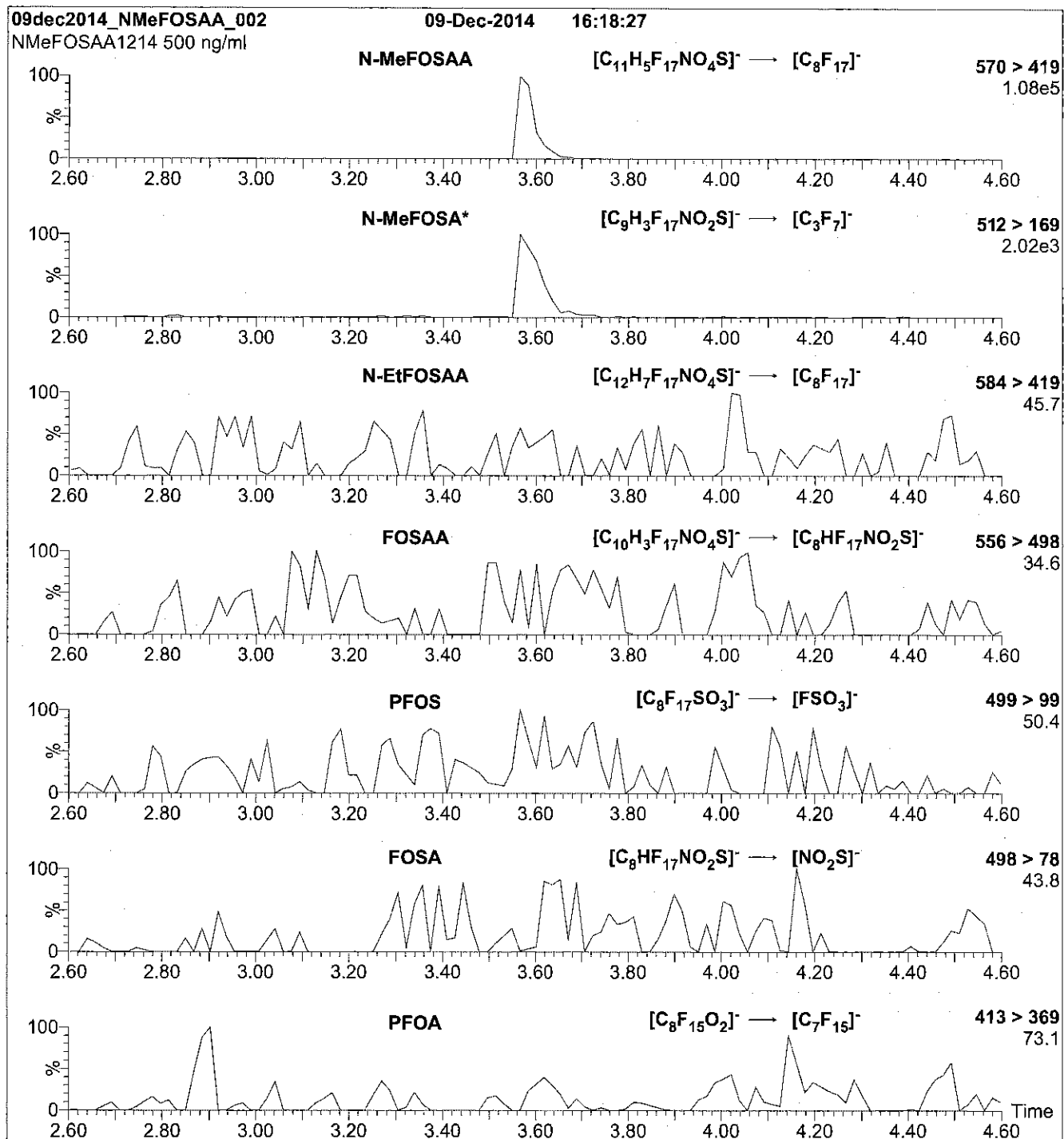
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (215 - 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 fragmentation of N-MeFOSAA.

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)

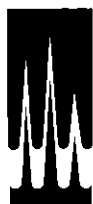
Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

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:

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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-buthanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	F
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	I
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	L

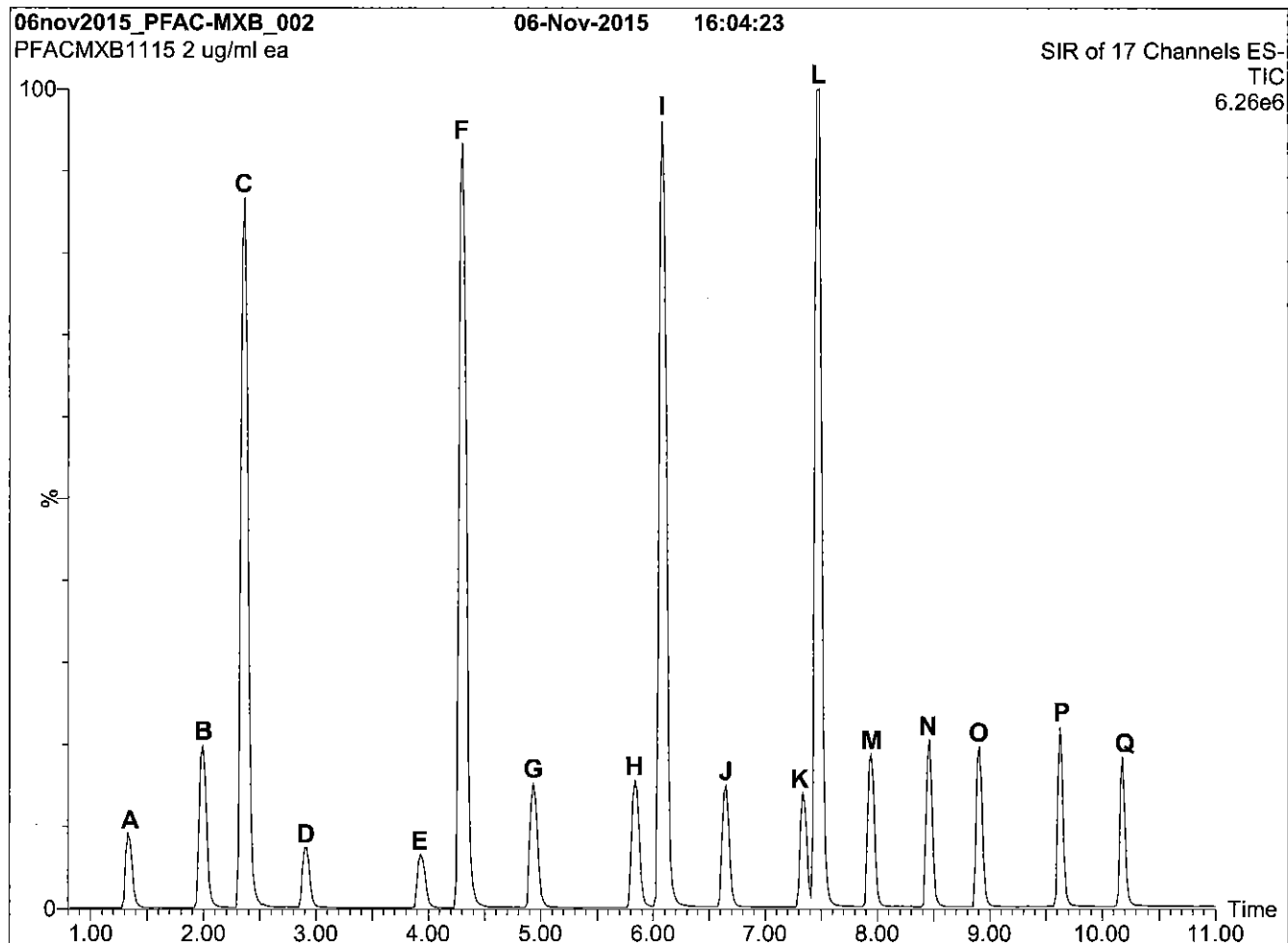
Certified By:


B.G. Chittim

Date: 11/11/2015

(mm/dd/yyyy)

Figure 1: PFAC-MXB; LC/MS Data (Total Ion Current Chromatogram; SIR)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient

Start: 55% H₂O / 45% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 10 min and hold for 1 min
before returning to initial conditions in 0.5 min.

Time: 12 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR of 17 Channels

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (10-70)
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)

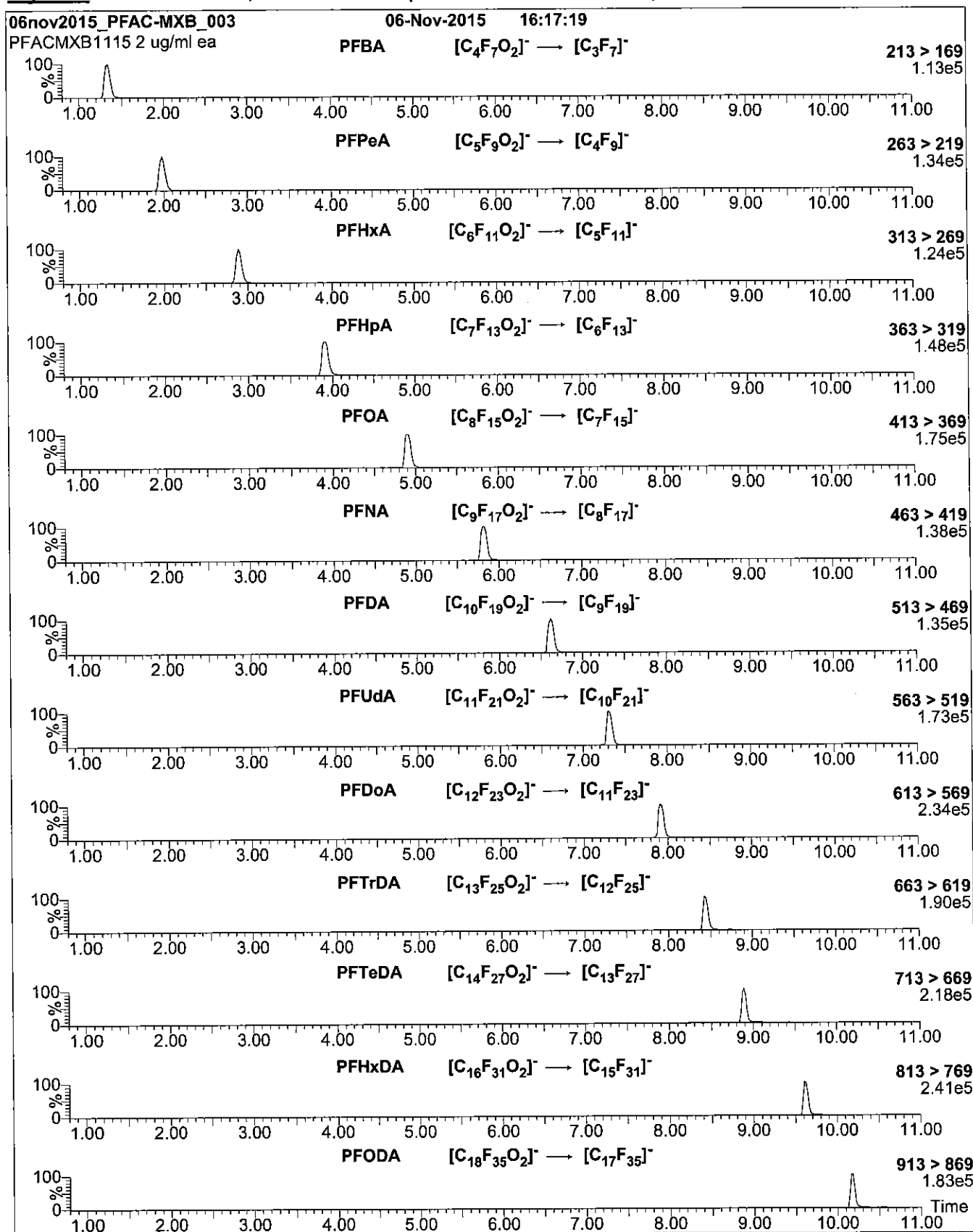
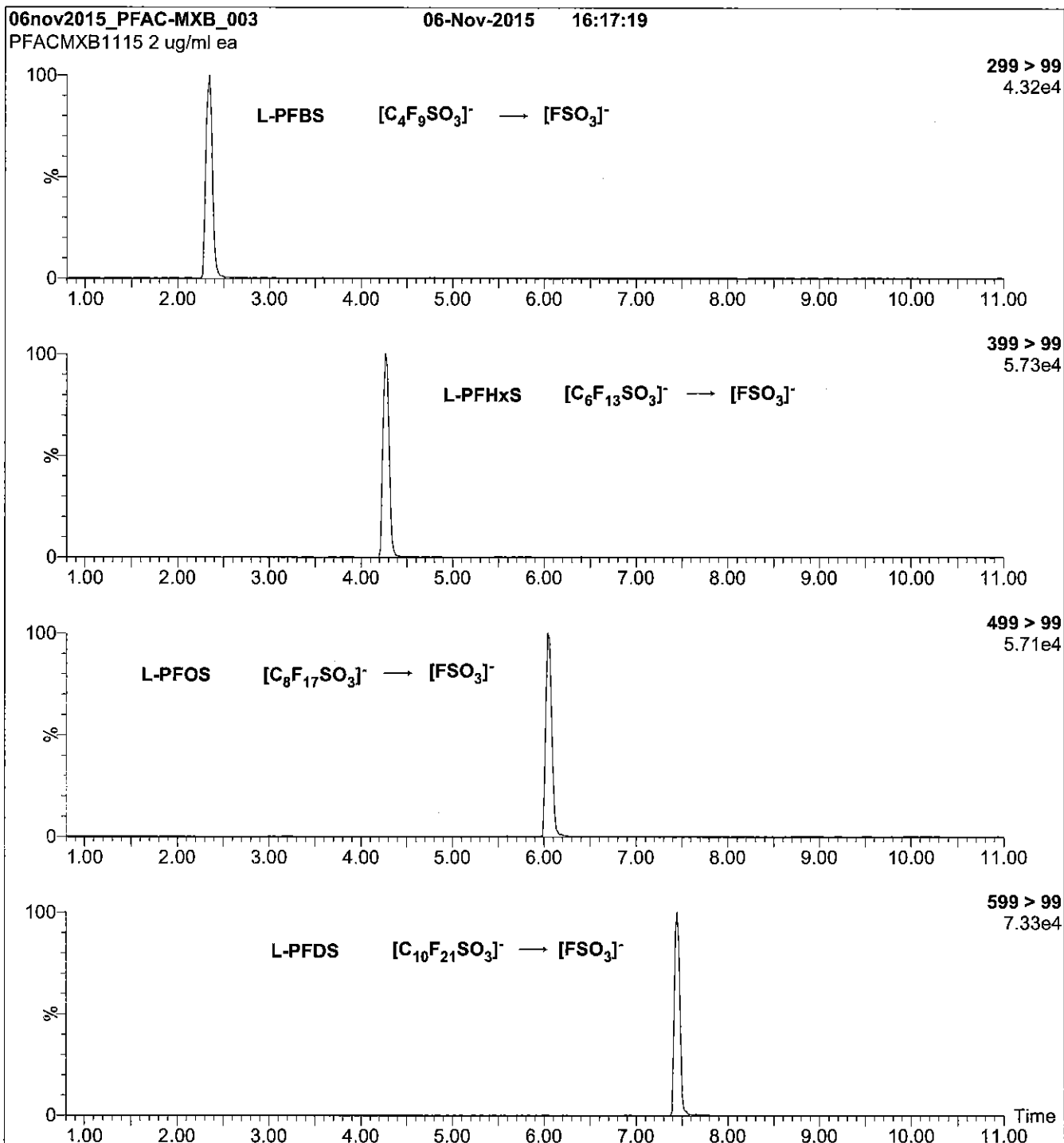


Figure 3: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figures 2 and 3:

Injection: on-column (PFAC-MXB)

Mobile phase: Same as Figure 1

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.24e-3

Collision Energy (eV) = 8-50 (variable)

Reagent

LCPFBA_00004



587895

ID: LCPFBA_00004

Exp: 01/30/20 Prep: CBW

PF-n-butanoic acid

R: 2/25/16 CBW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFBA

LOT NUMBER:

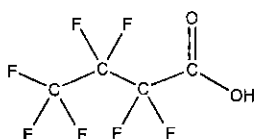
PFBA0115

COMPOUND:

Perfluoro-n-butanoic acid

STRUCTURE:**CAS #:**

375-22-4

**MOLECULAR FORMULA:** $C_4HF_7O_2$ **MOLECULAR WEIGHT:**

214.04

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

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x_1, x_2, \dots, x_n on which it depends is:

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

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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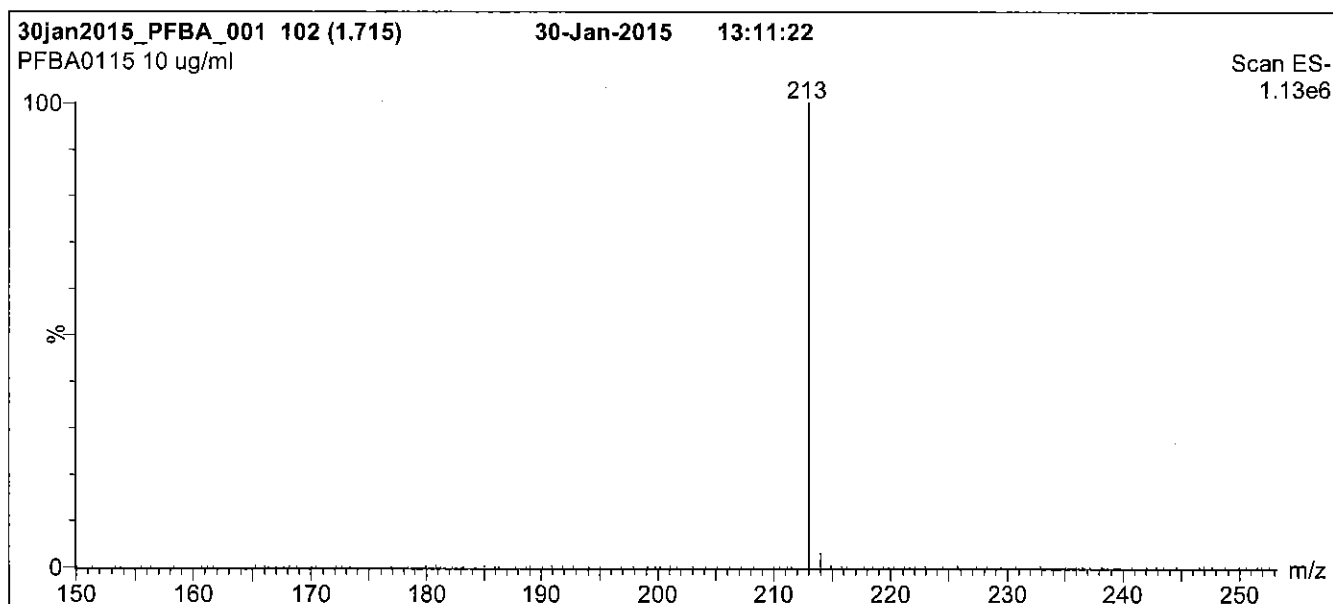
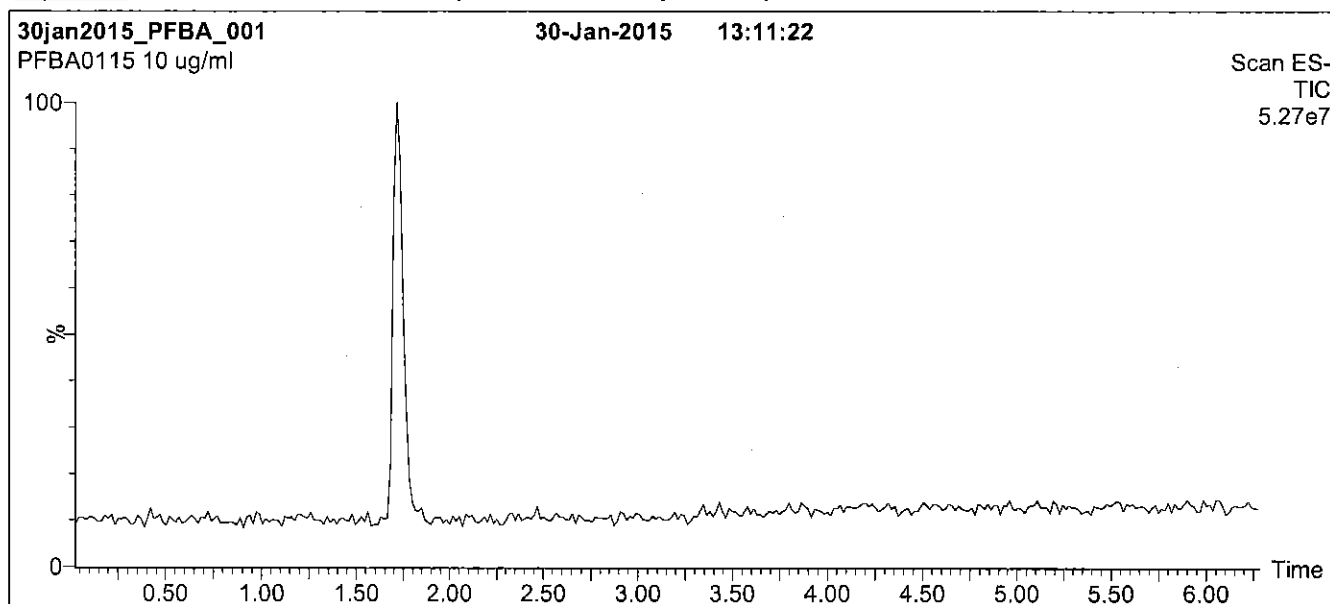
QUALITY MANAGEMENT:

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

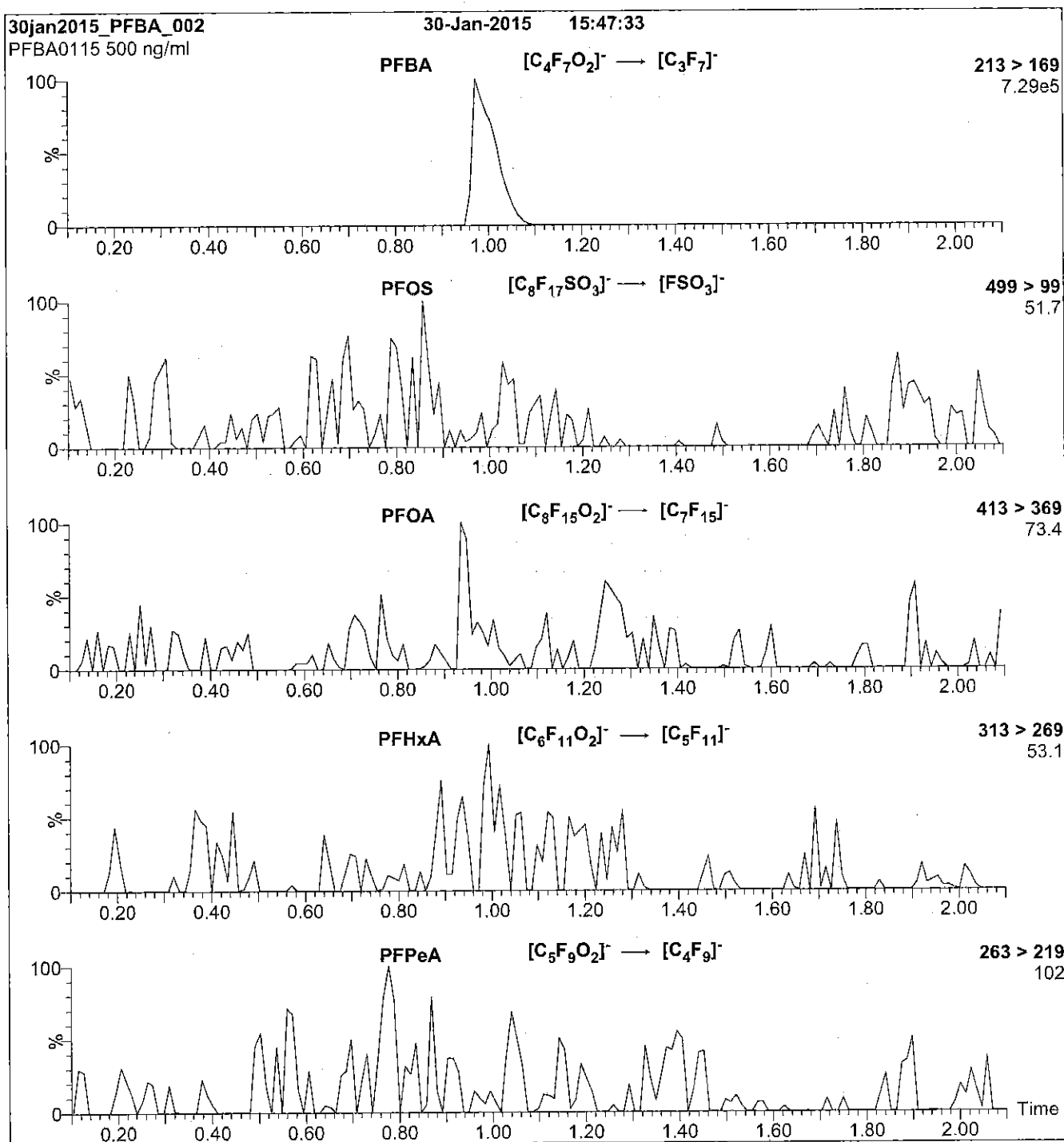
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 8.00
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% H_2O
(both with 10 mM NH_4OAc buffer)

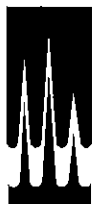
Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = $3.35e-3$
Collision Energy (eV) = 10

Reagent

LCPFBS_00003



WELLINGTON LABORATORIES

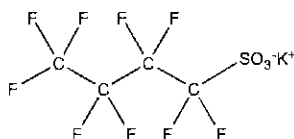
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate

LOT NUMBER: LPFBS1014

STRUCTURE:

CAS #: 29420-49-3



MOLECULAR FORMULA: $C_4F_9SO_3K$
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (K salt)
 $44.2 \pm 2.2 \mu\text{g/ml}$ (PFBS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/09/2014
EXPIRY DATE: (mm/dd/yyyy) 10/09/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 338.19
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: 10/17/2014
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

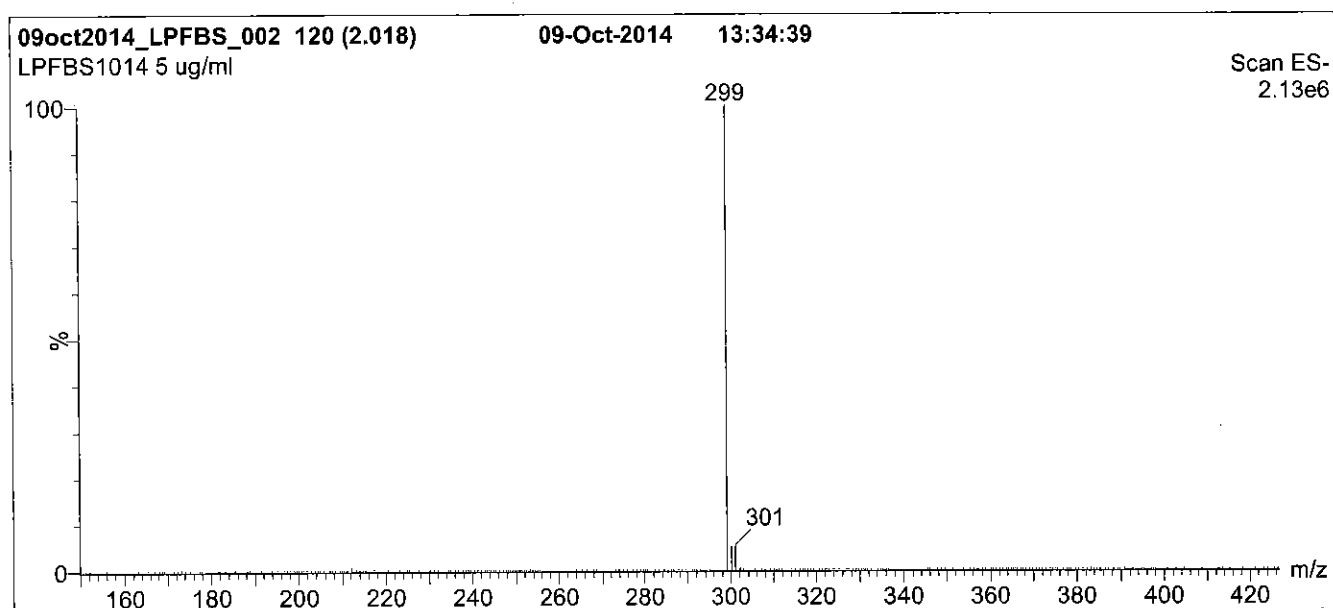
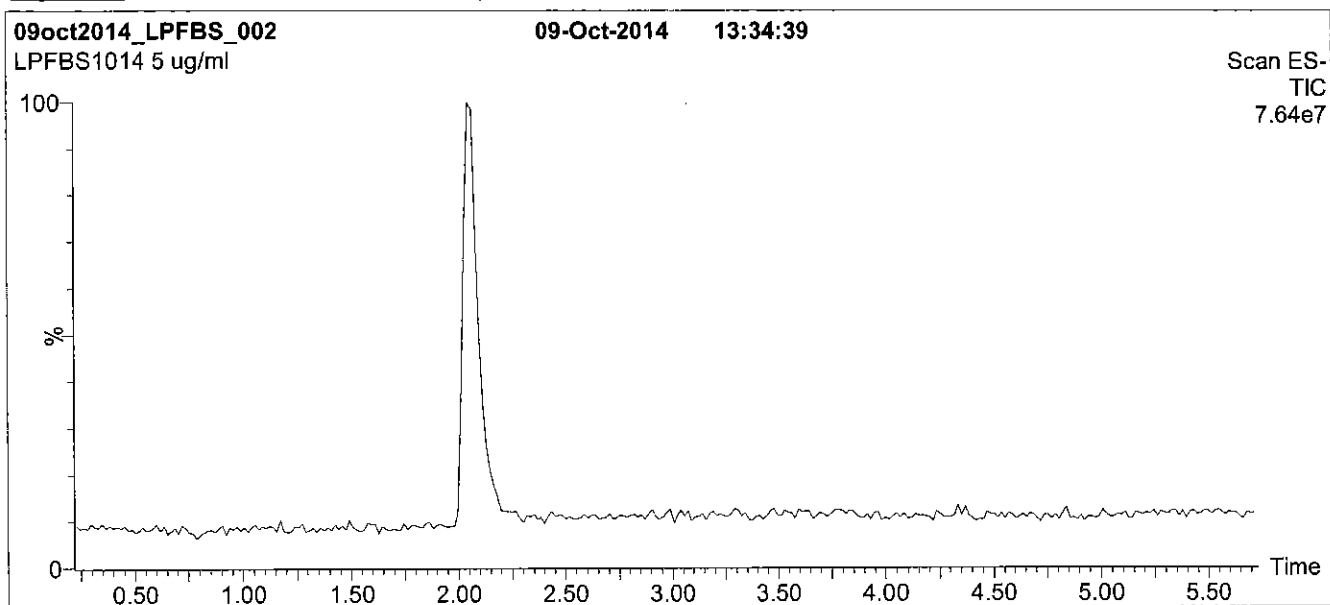
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).



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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 (150 - 850 amu)

Source: Electrospray (negative)

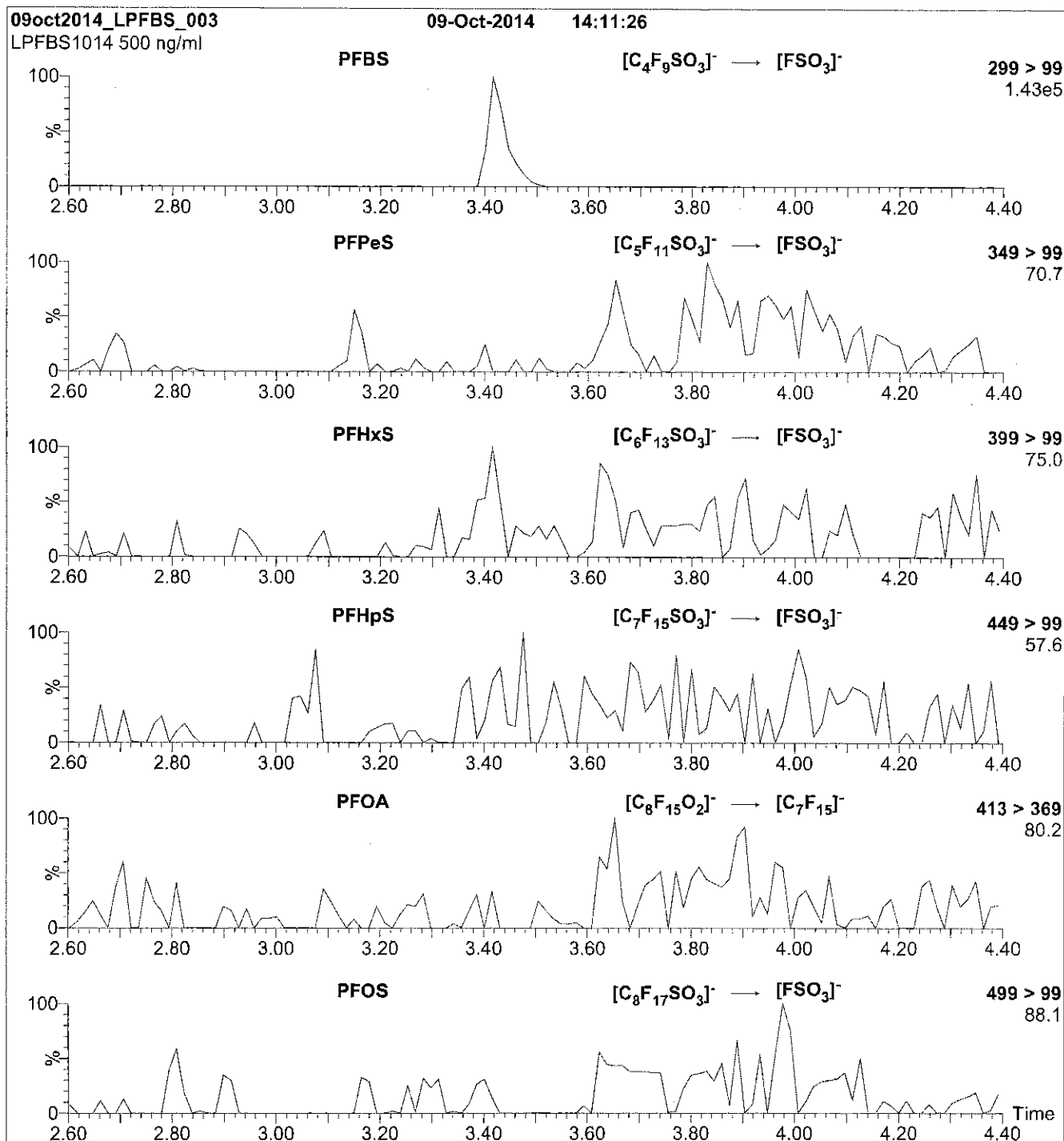
Capillary Voltage (kV) = 2.00

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% 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) = 25

Reagent

LCPFBS_00004



605236

ID: LCPFB5_00004

Exp: 10/09/19 Prpd: CBW
PF-1-butanefulfonate K sa

Rec. 3/29/16 JRB ✓

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

L-PFBS

LOT NUMBER:

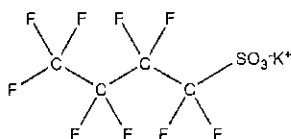
LPFBS1014

COMPOUND:

Potassium perfluoro-1-butanefulfonate

STRUCTURE:**CAS #:**

29420-49-3

**MOLECULAR FORMULA:** $C_4F_9SO_3K$ **MOLECULAR WEIGHT:**

338.19

CONCENTRATION:

50.0 ± 2.5 µg/ml (K salt)

SOLVENT(S):

Methanol

44.2 ± 2.2 µg/ml (PFBS anion)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/09/2014

EXPIRY DATE: (mm/dd/yyyy)

10/09/2019

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: 04/02/2015

(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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SYNTHESIS / CHARACTERIZATION:

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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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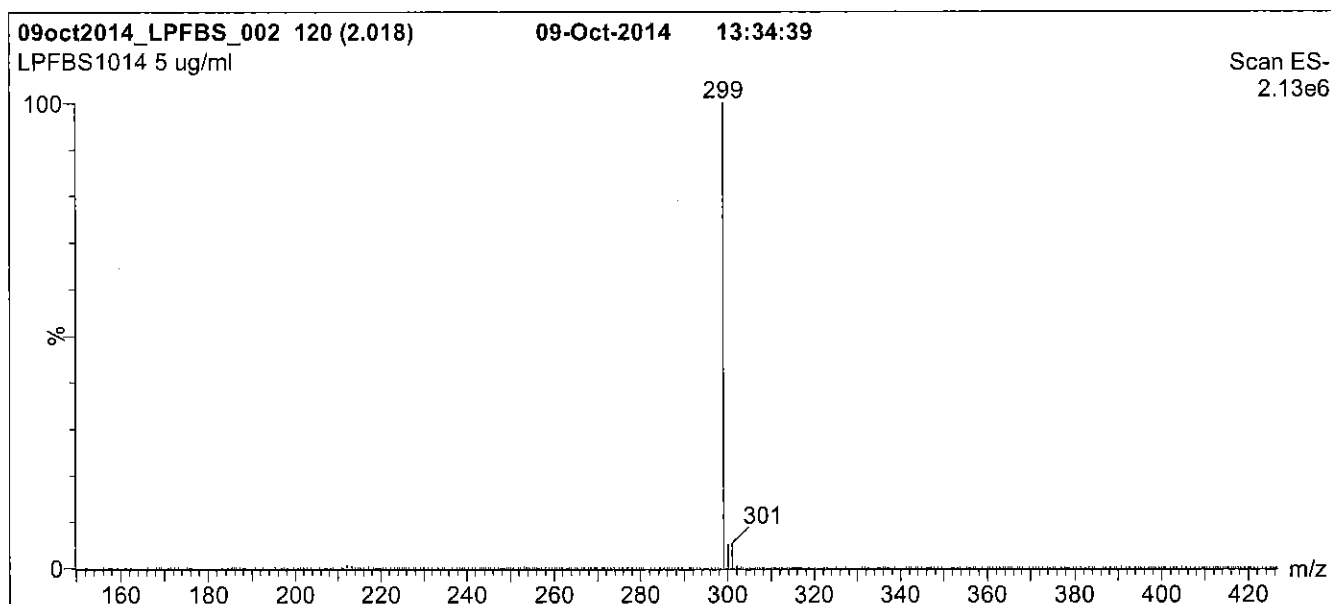
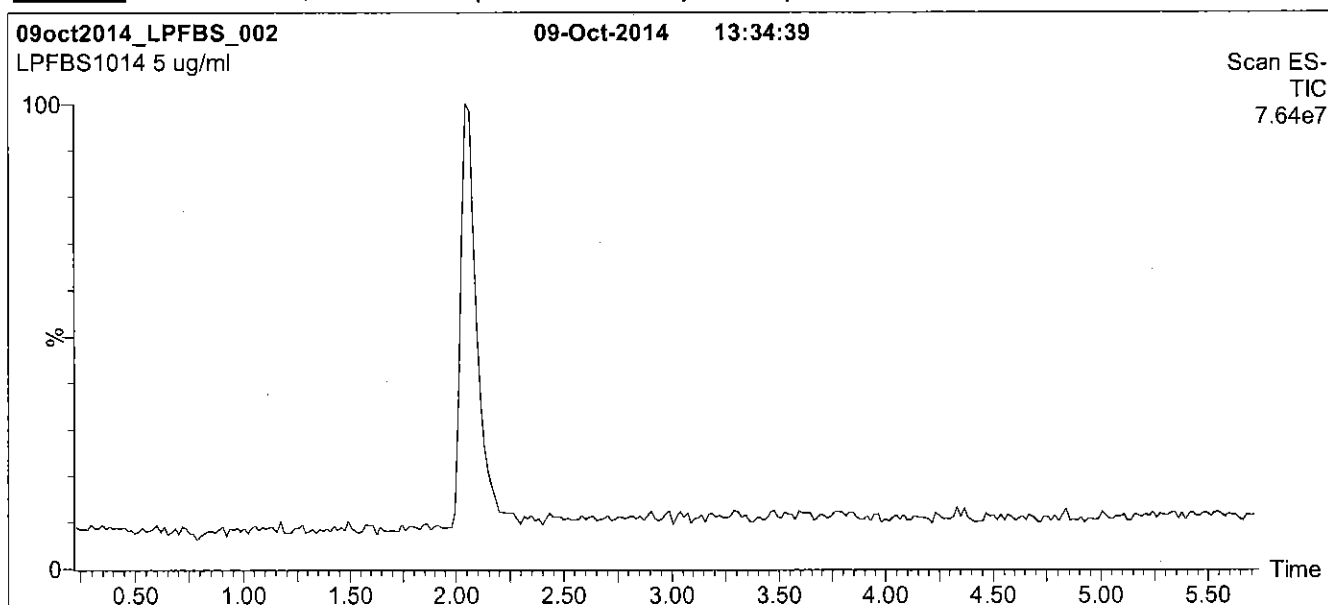
QUALITY MANAGEMENT:

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: 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 (150 - 850 amu)

Source: Electrospray (negative)

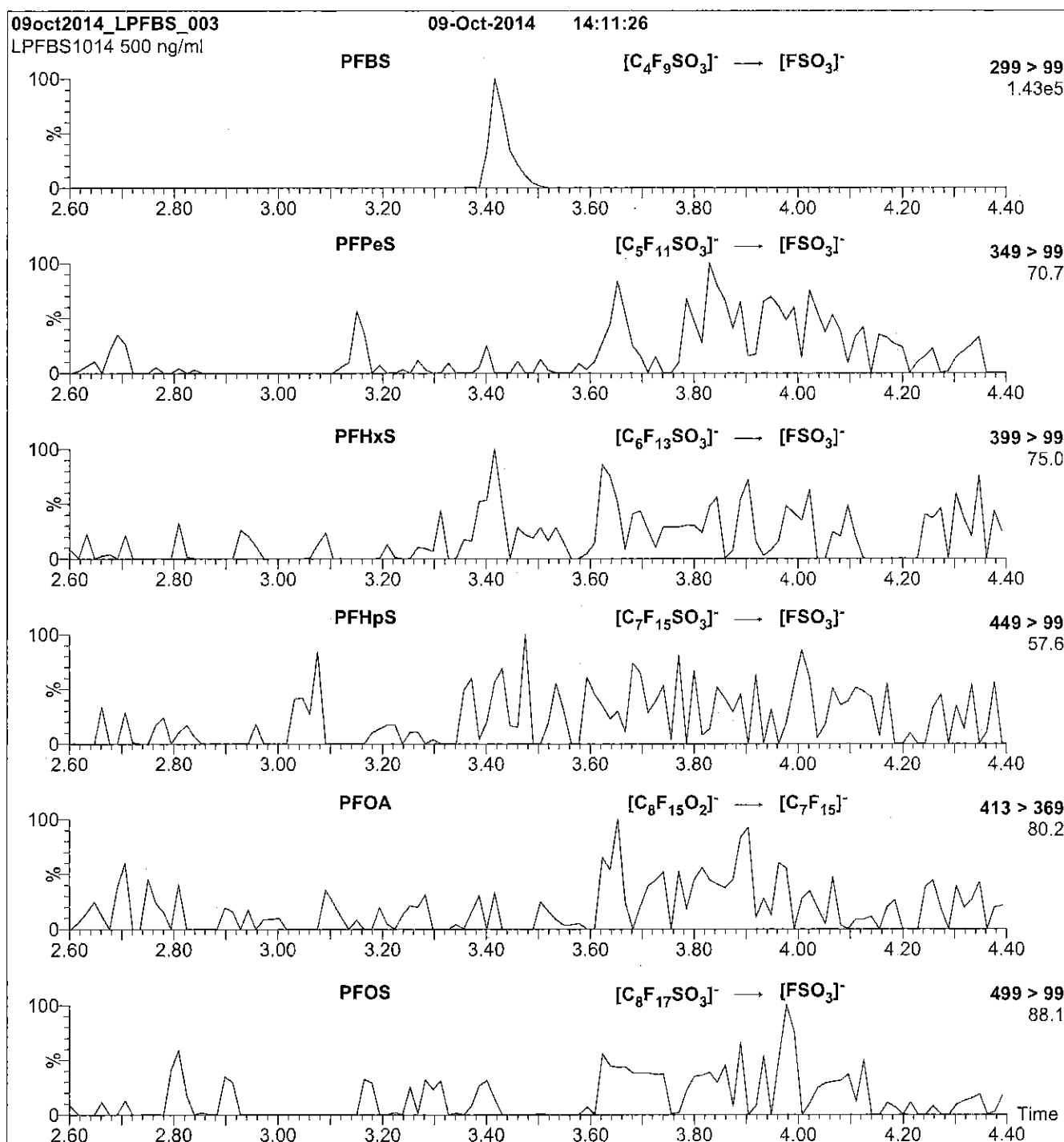
Capillary Voltage (kV) = 2.00

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% 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) = 25

Reagent

LCPFDA_00004



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFDA

LOT NUMBER:

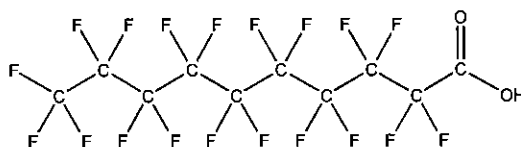
PFDA0615

COMPOUND:

Perfluoro-n-decanoic acid

STRUCTURE:**CAS #:**

335-76-2

**MOLECULAR FORMULA:** $C_{10}H_2F_{18}O_2$ **MOLECULAR WEIGHT:**

514.08

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/02/2015

EXPIRY DATE: (mm/dd/yyyy)

07/02/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.6% PFNA and ~ 0.3% PFOA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date:

07/24/2015
(mm/dd/yyyy)

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

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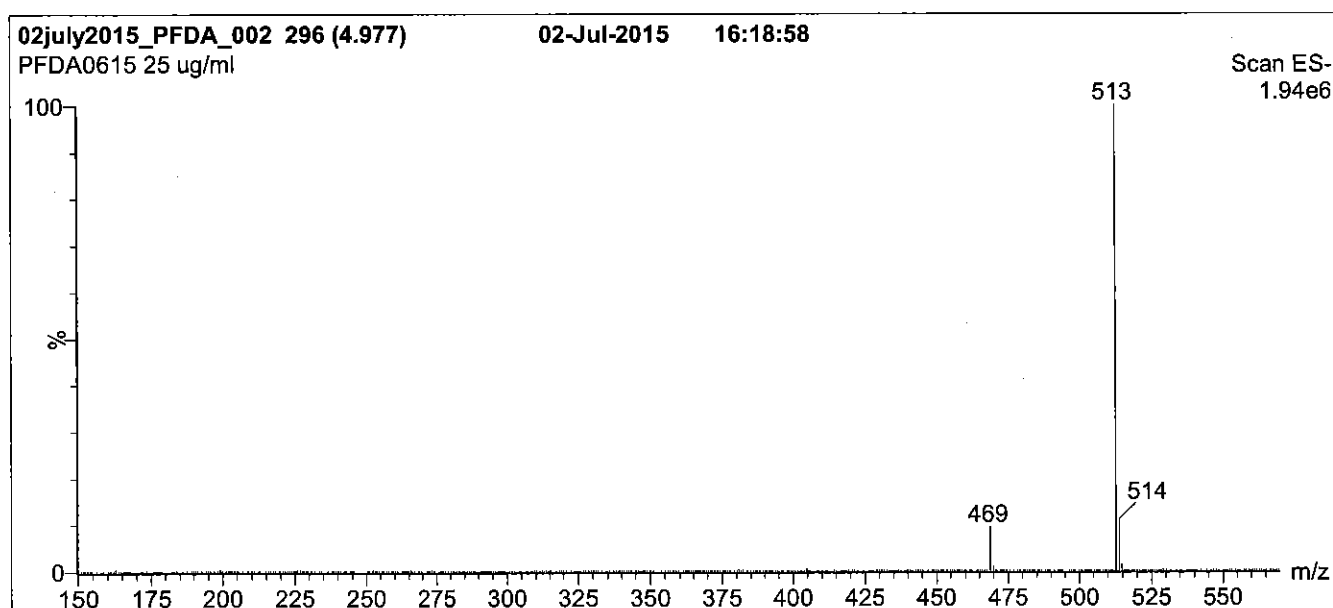
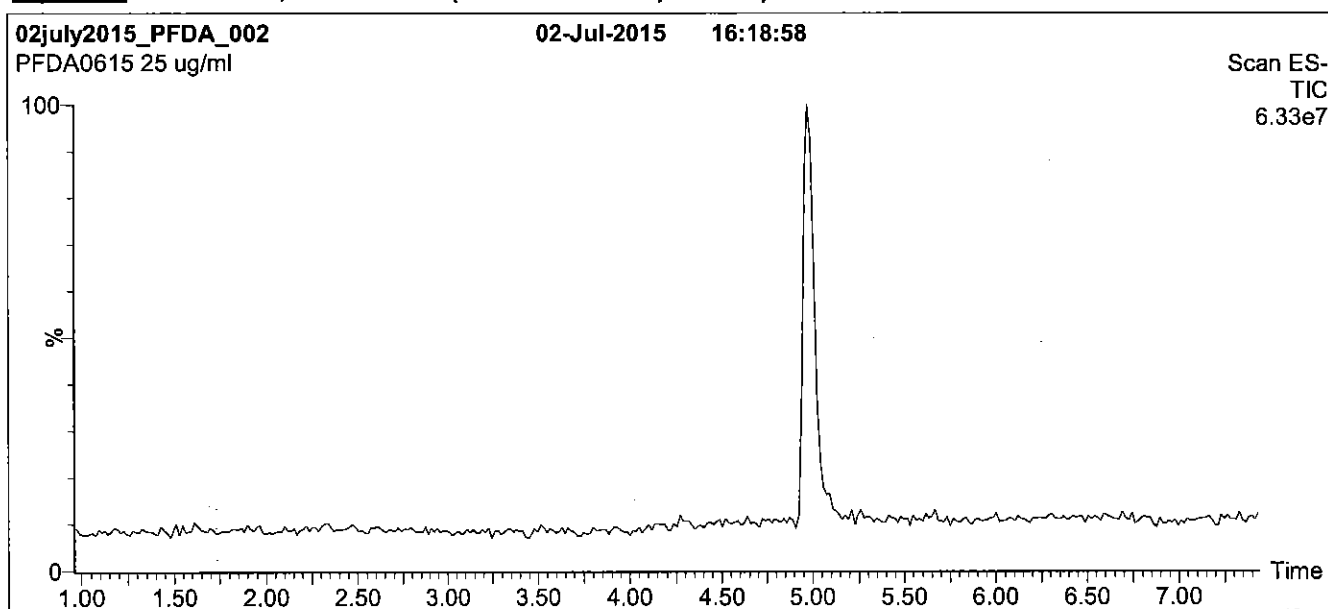
QUALITY MANAGEMENT:

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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

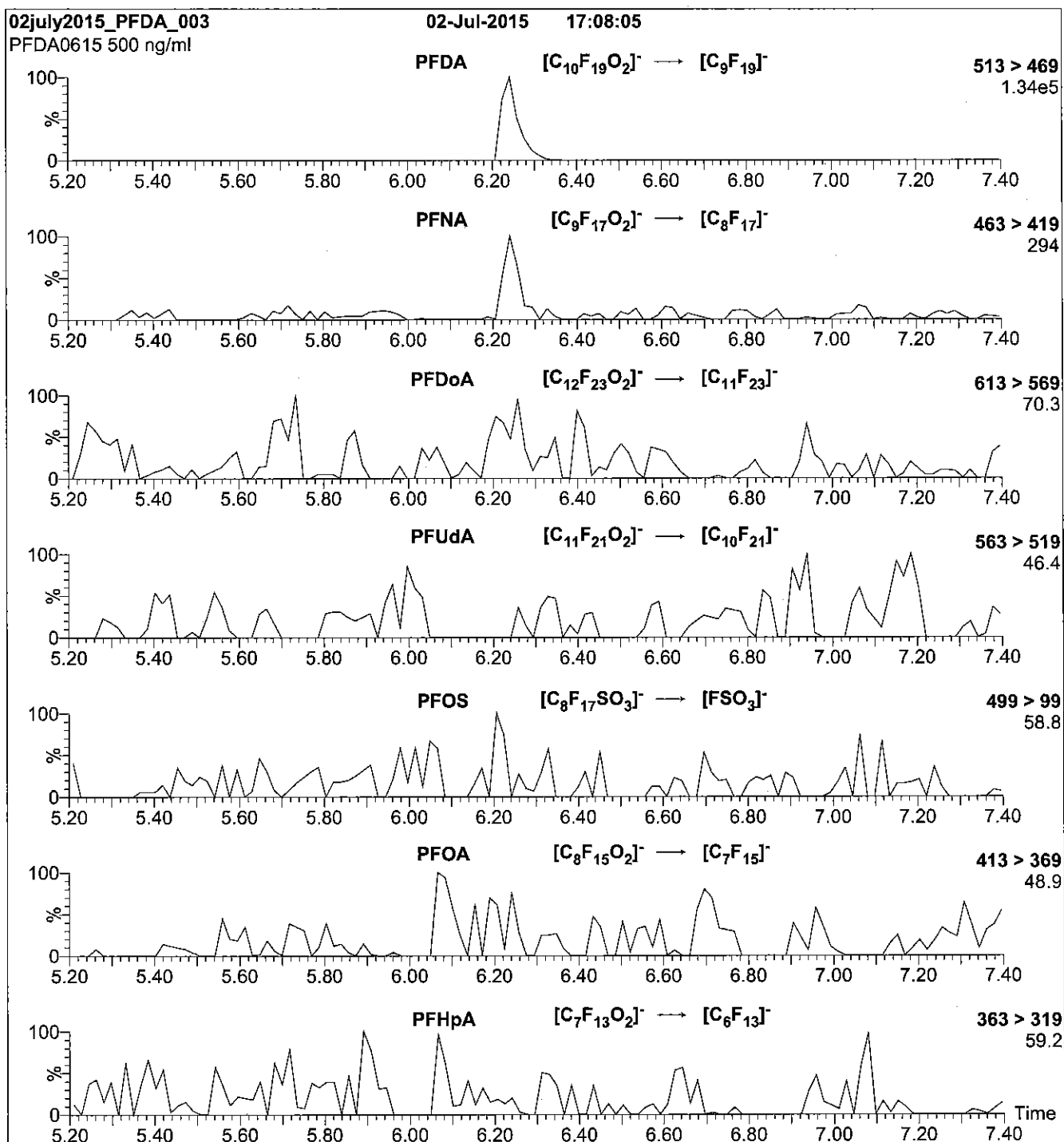
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc buffer)

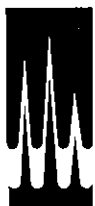
Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 13

Reagent

LCPFDoA_00004



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFD0A

LOT NUMBER:

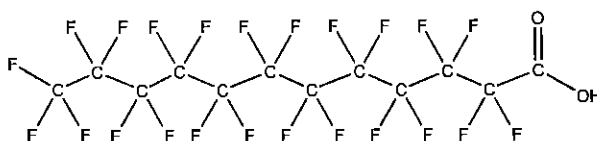
PFD0A0115

COMPOUND:

Perfluoro-n-dodecanoic acid

STRUCTURE:**CAS #:**

307-55-1

**MOLECULAR FORMULA:** $C_{12}H_{23}O_2$ **MOLECULAR WEIGHT:**

614.10

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mm/dd/yyyy)

01/30/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 03/25/2015

(mm/dd/yyyy)

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

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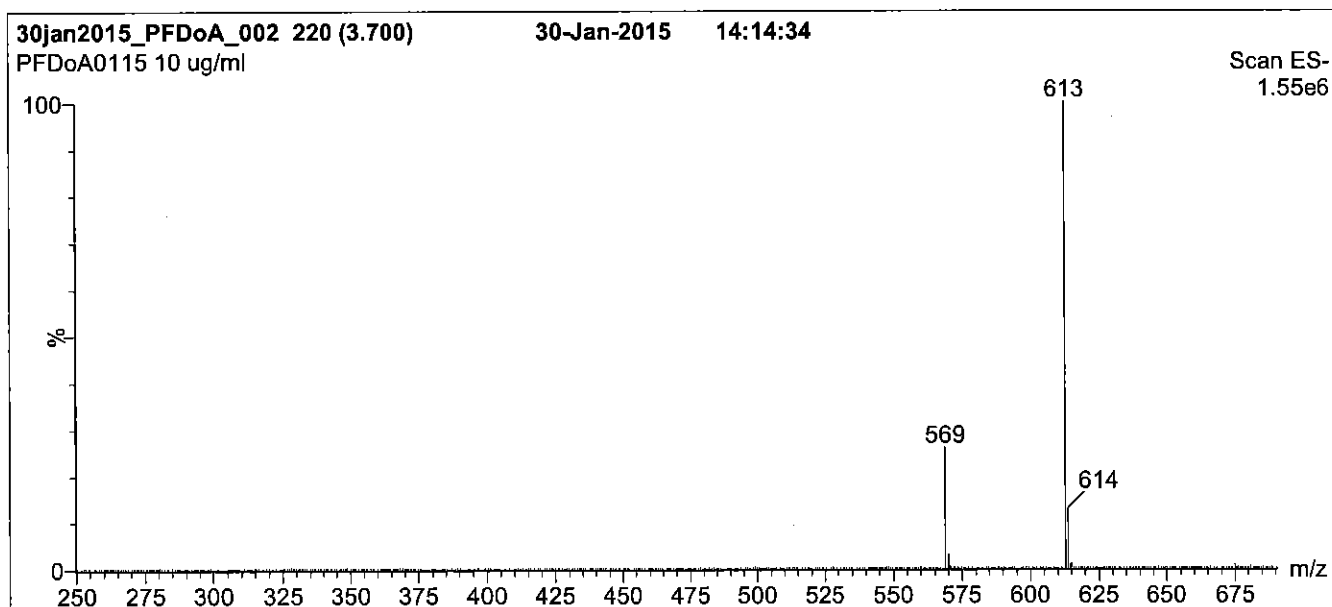
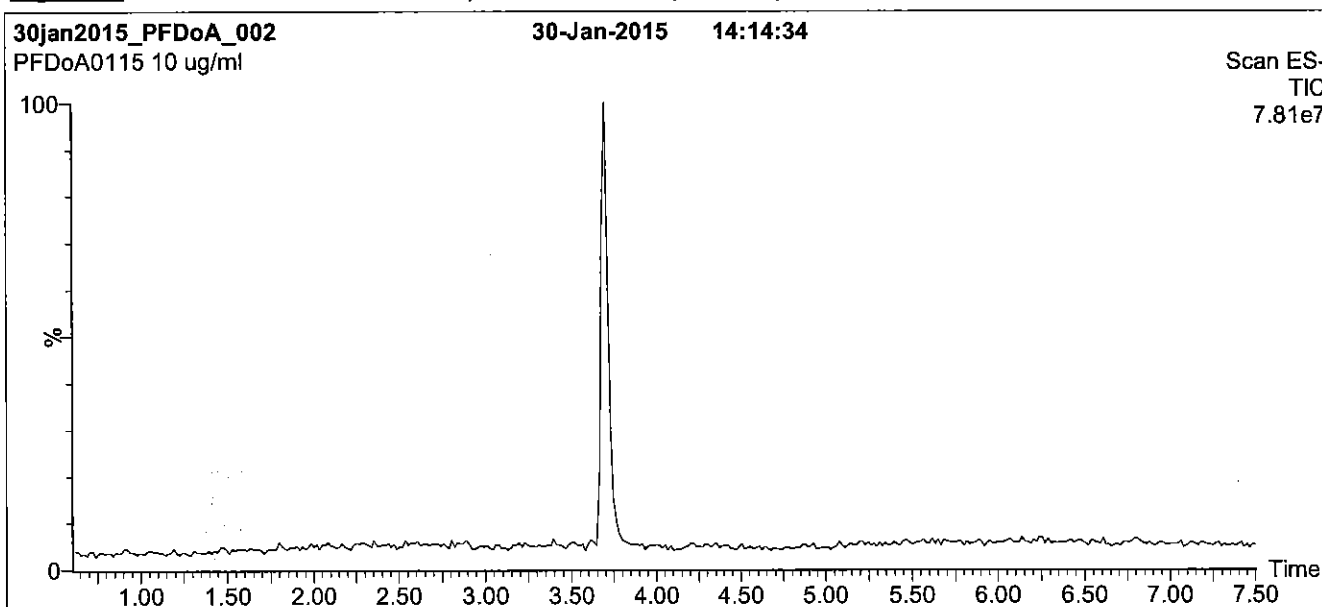
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Figure 1: PFD_oA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

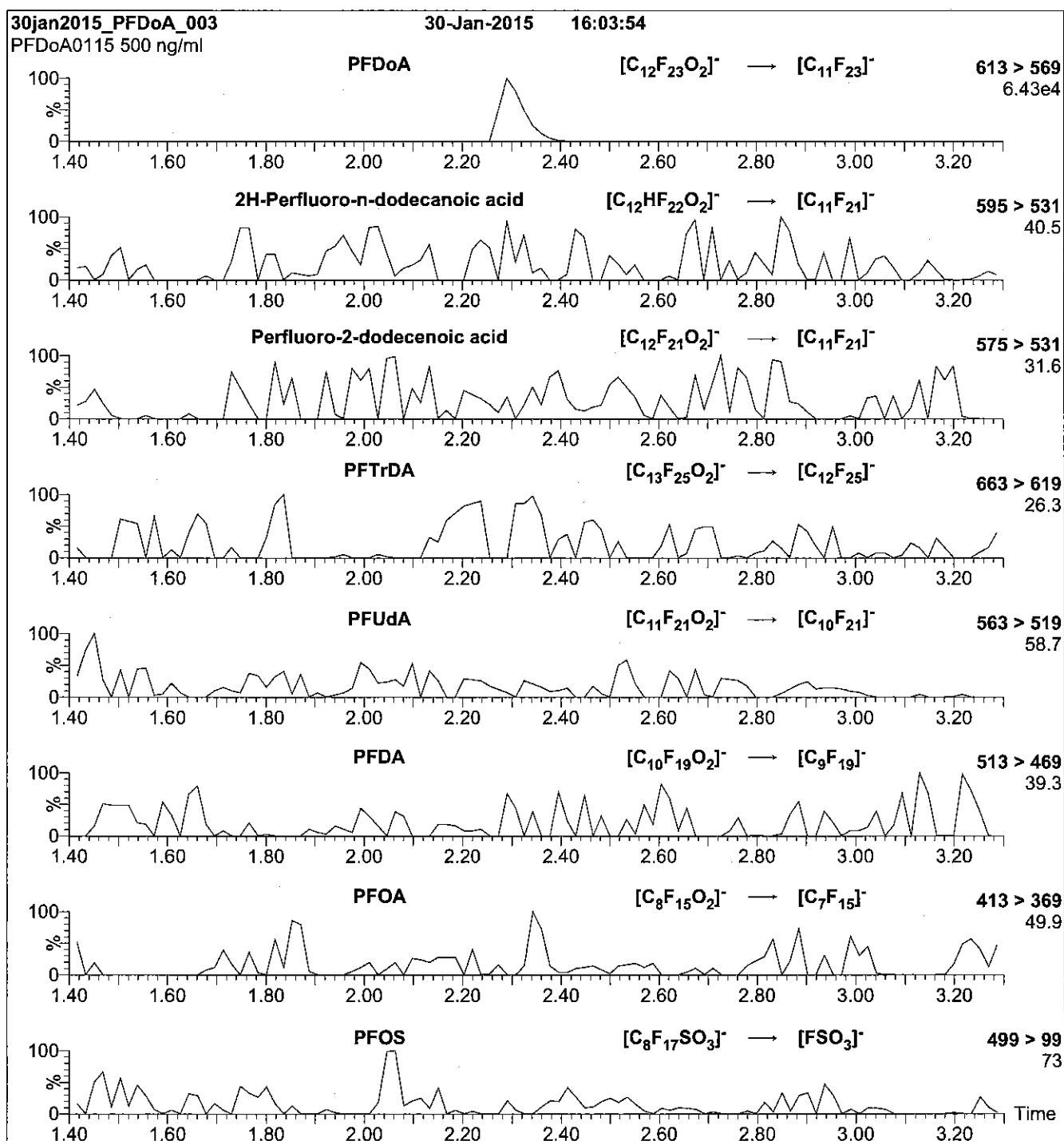
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 13

Flow: 300 μ l/min

Reagent

LCPFDS_00005



605240

ID: LCPFDS_00005

Exp: 07/02/20 Prod: CBW

PF-1-decanesulfonate sodi

Rec. 3/29/16 JRB



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFDS

LOT NUMBER:

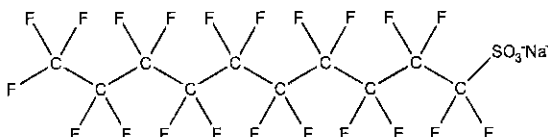
LPFDS0615

COMPOUND:

Sodium perfluoro-1-decanesulfonate

STRUCTURE:**CAS #:**

2806-15-7

**MOLECULAR FORMULA:** $C_{10}F_{21}SO_3Na$ **MOLECULAR WEIGHT:**

622.13

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)

SOLVENT(S):

Methanol

48.2 ± 2.4 µg/ml (PFDS anion)

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 ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/07/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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.

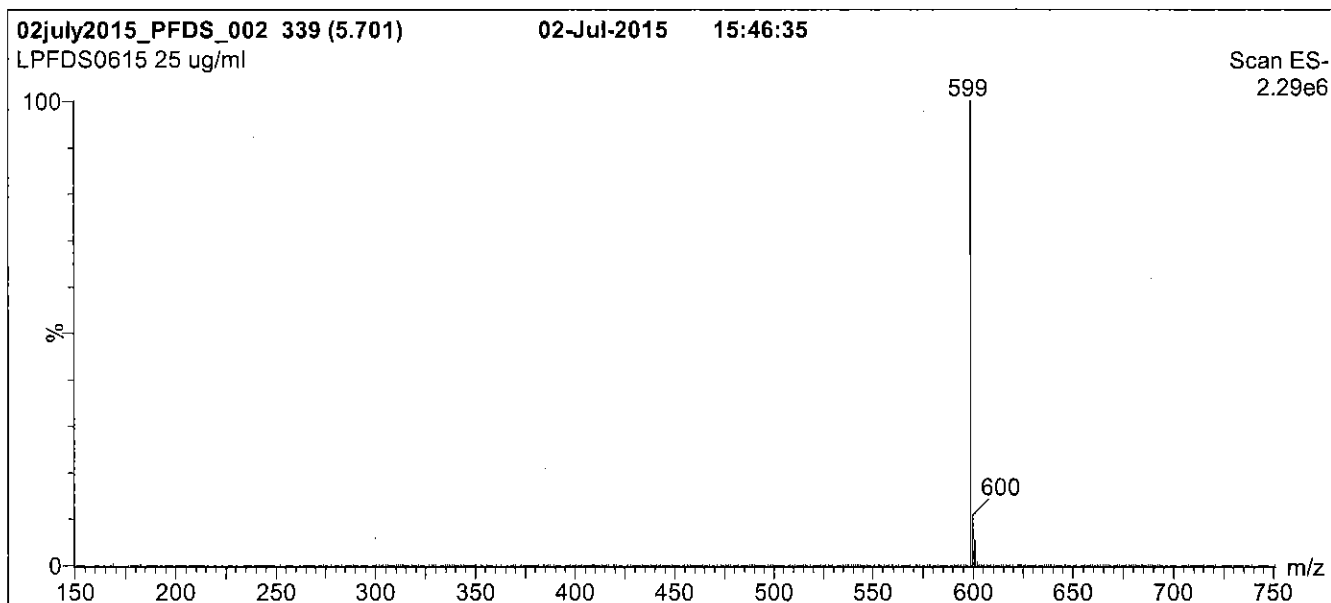
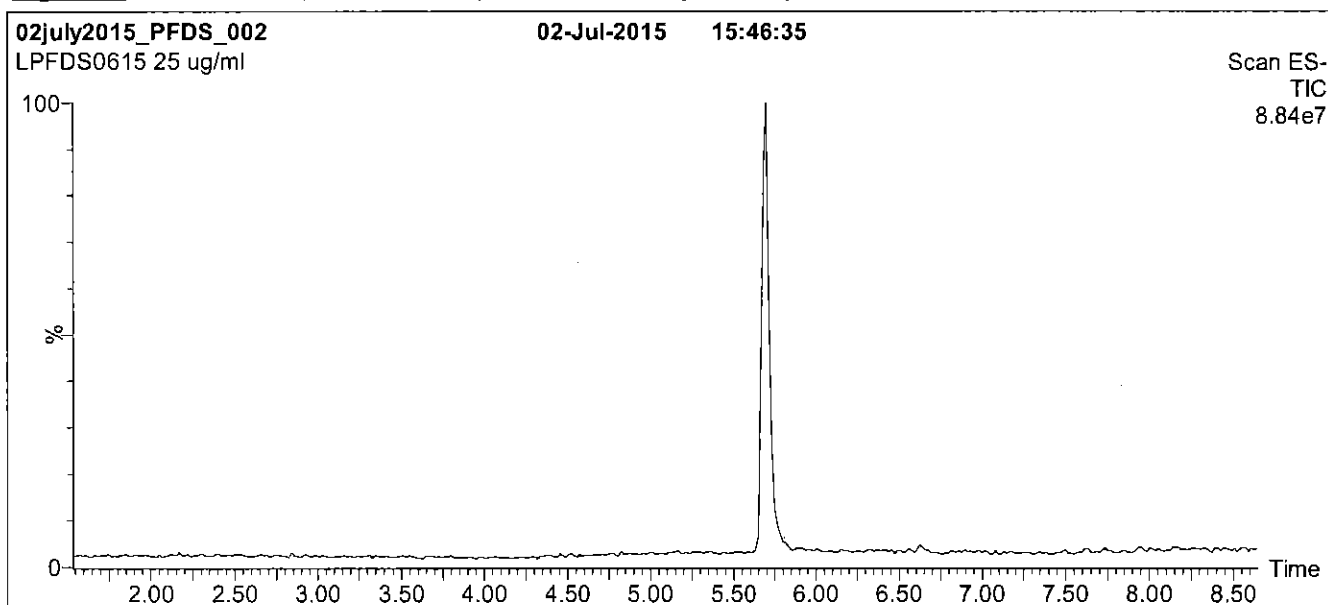
QUALITY MANAGEMENT:

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: L-PFDS; 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

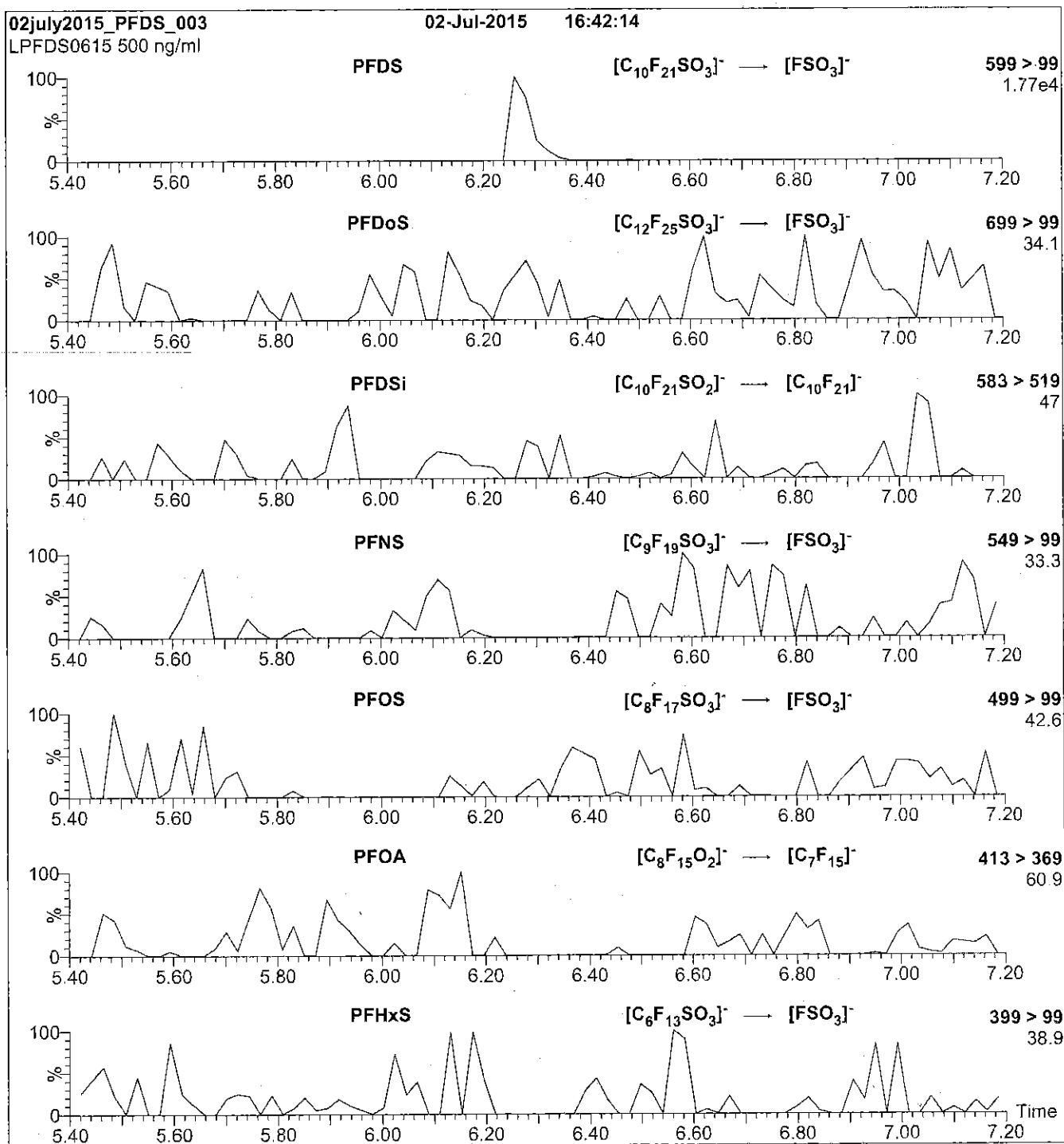
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 70.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: L-PFDS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml L-PFDS)

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) = 50

Reagent

LCPFHpA_00005



609639

ID: LCPFHpA_00005

Exp: 01/22/21 Prpd: CBW

PF-n-heptanoic acid

R: 4/7/16 CBW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHpA

LOT NUMBER:

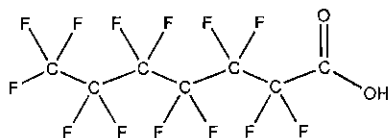
PFHpA0116

COMPOUND:

Perfluoro-n-heptanoic acid

STRUCTURE:**CAS #:**

375-85-9

**MOLECULAR FORMULA:** $C_7H_{13}O_2$ **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:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

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.

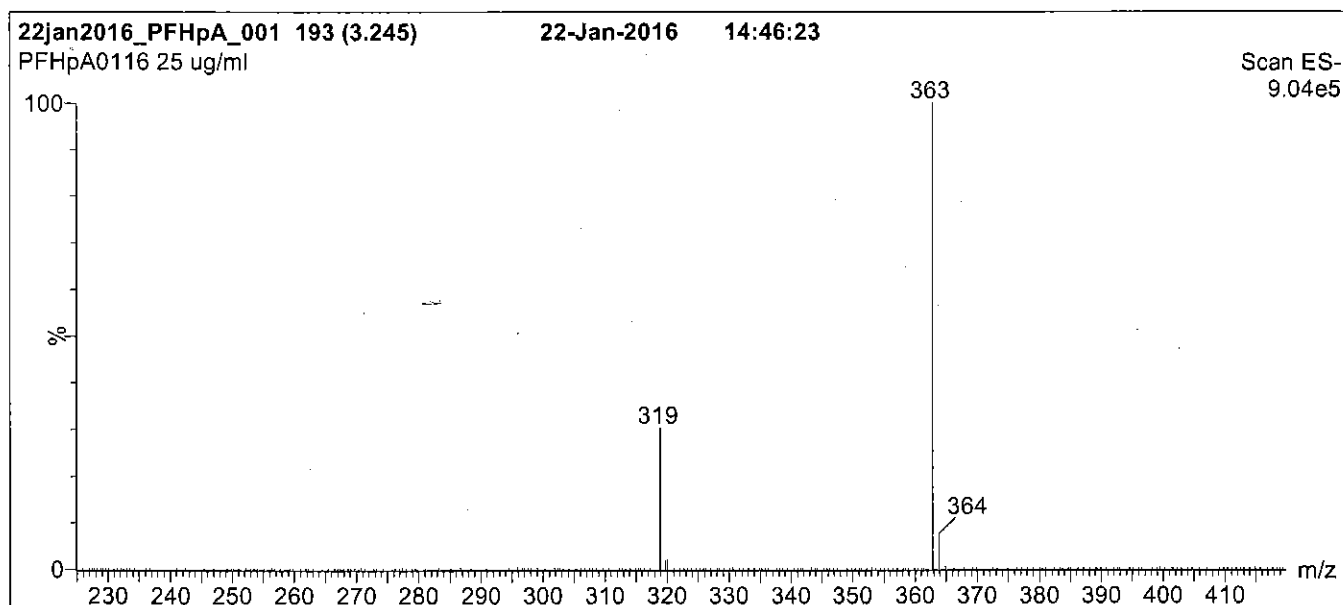
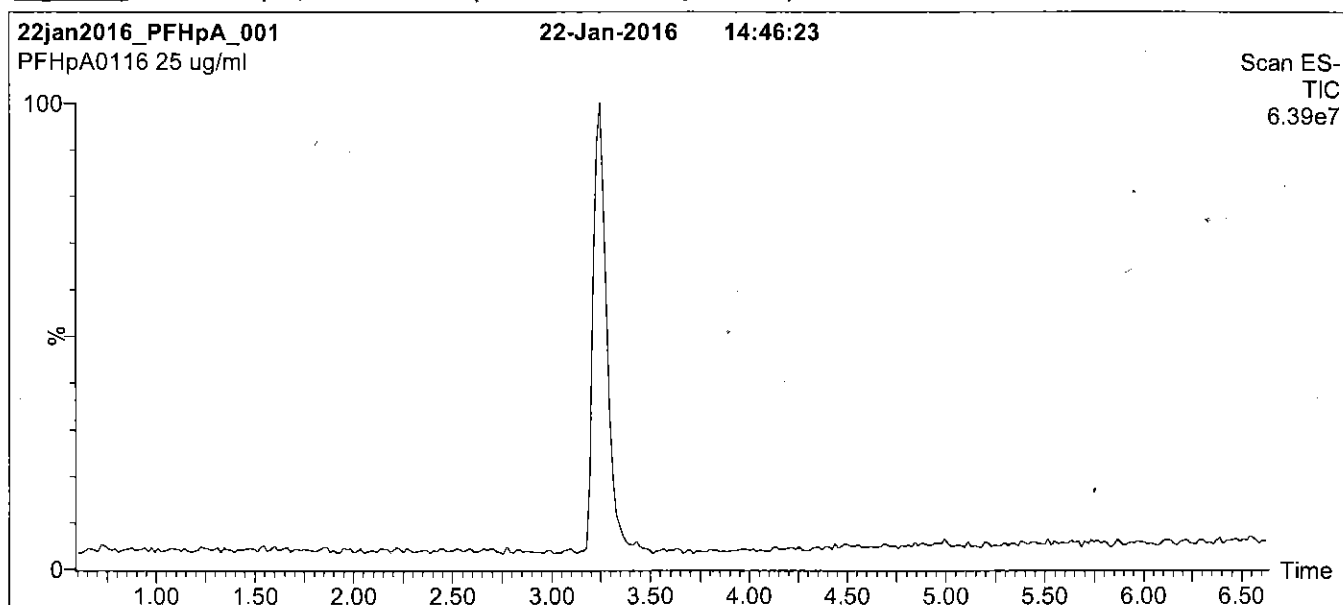
QUALITY MANAGEMENT:

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: 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

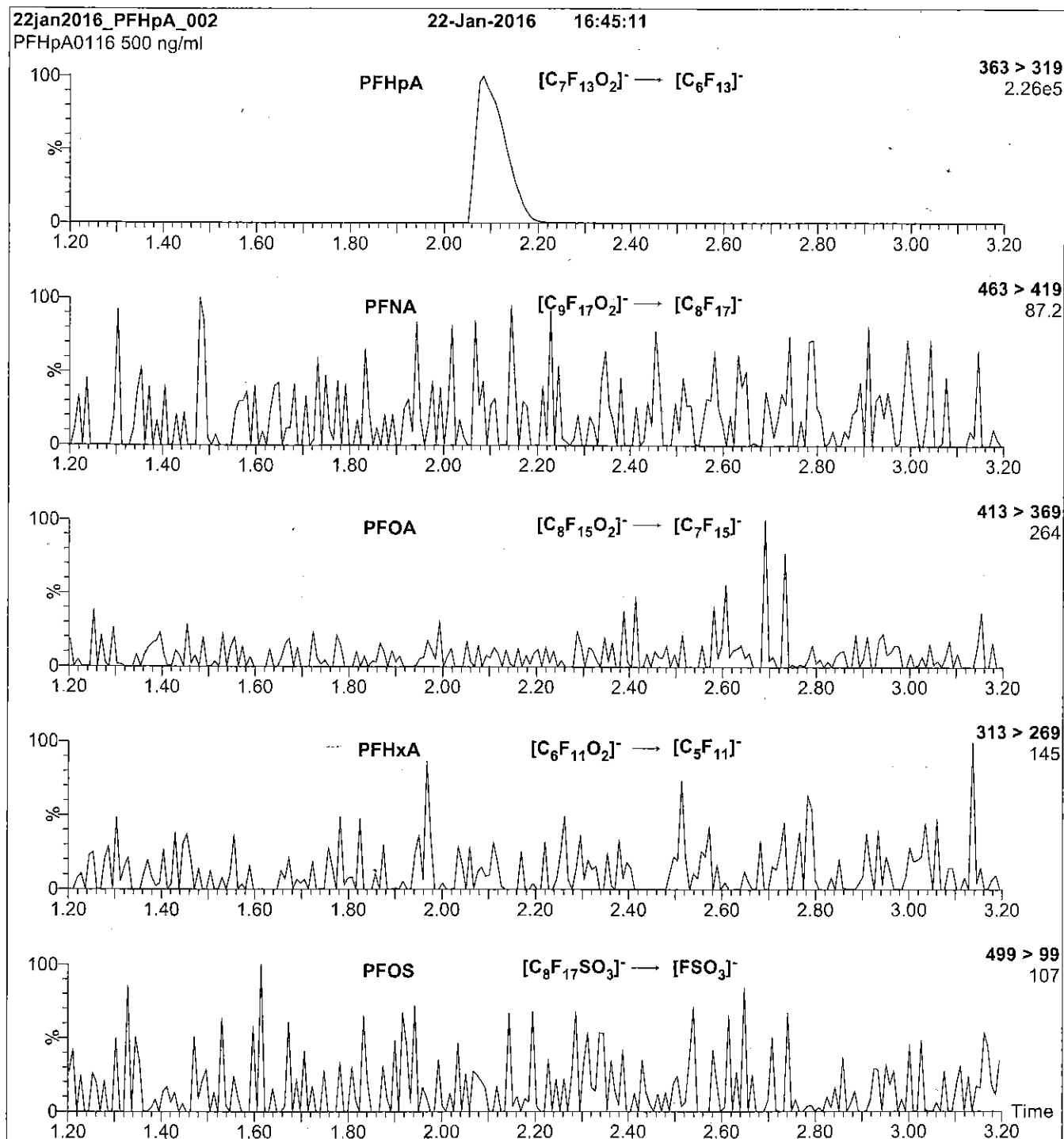
Flow: 300 μ l/min

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_00008



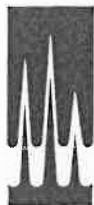
627751

ID: LCPFHPS_00008

Exp: 11/06/20 Pp: CBW

PFHpS at 47.6ug/mL

R: 5/10/16 CBW

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

L-PFHpS

LOT NUMBER:

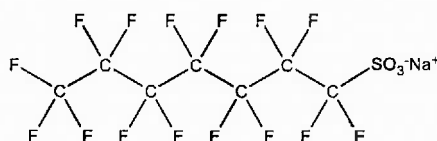
LPFHpS1115

COMPOUND:

Sodium perfluoro-1-heptanesulfonate

STRUCTURE:**CAS #:**

Not available

**MOLECULAR FORMULA:** $C_7F_{15}SO_3Na$ **MOLECULAR WEIGHT:**

472.10

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt)**SOLVENT(S):**

Methanol

 $47.6 \pm 2.4 \mu\text{g/ml}$ (PFHpS anion)**CHEMICAL PURITY:**

>98%

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

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 ($C_8F_{13}SO_3Na$) 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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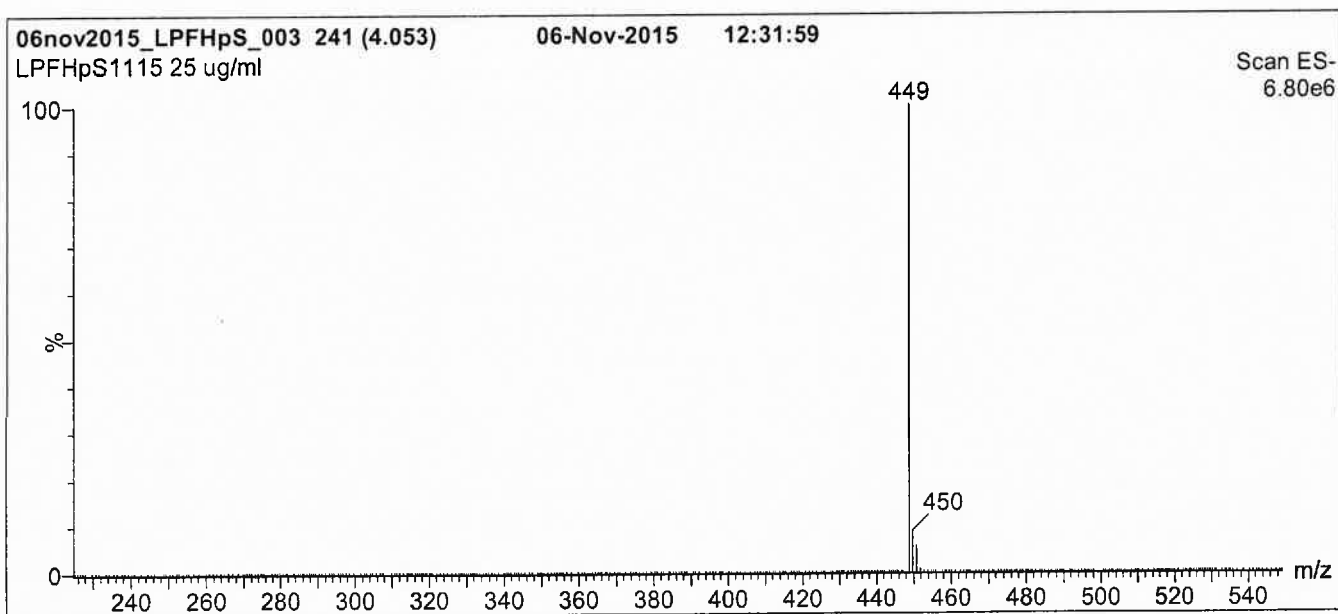
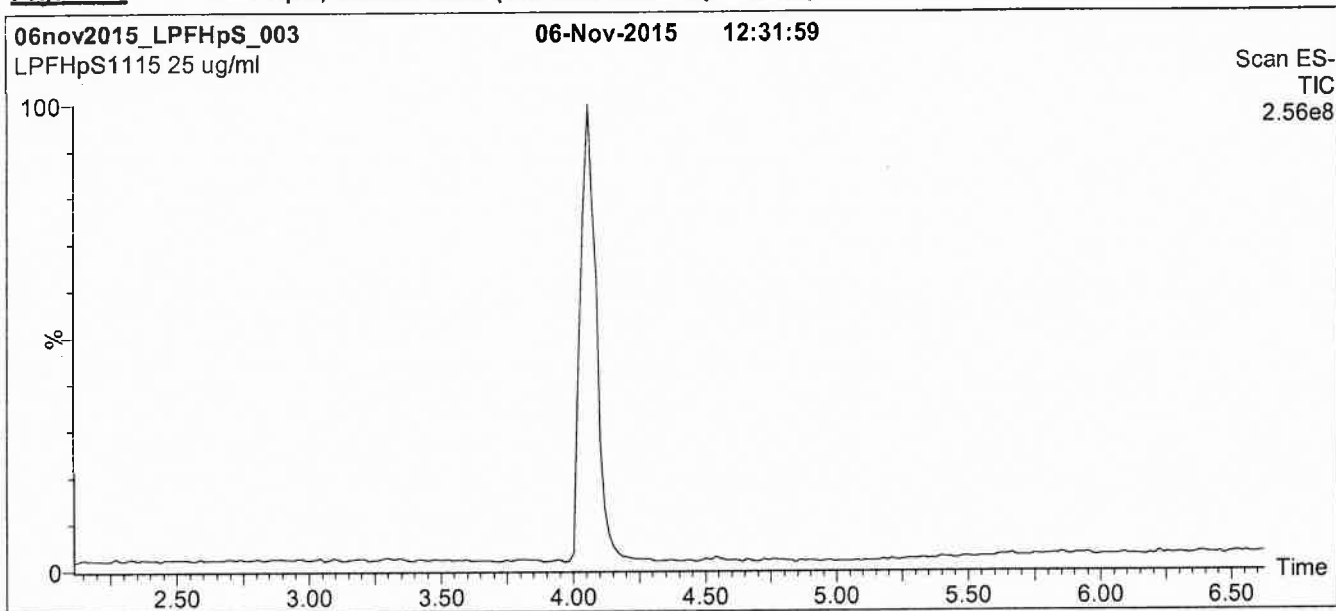
QUALITY MANAGEMENT:

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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

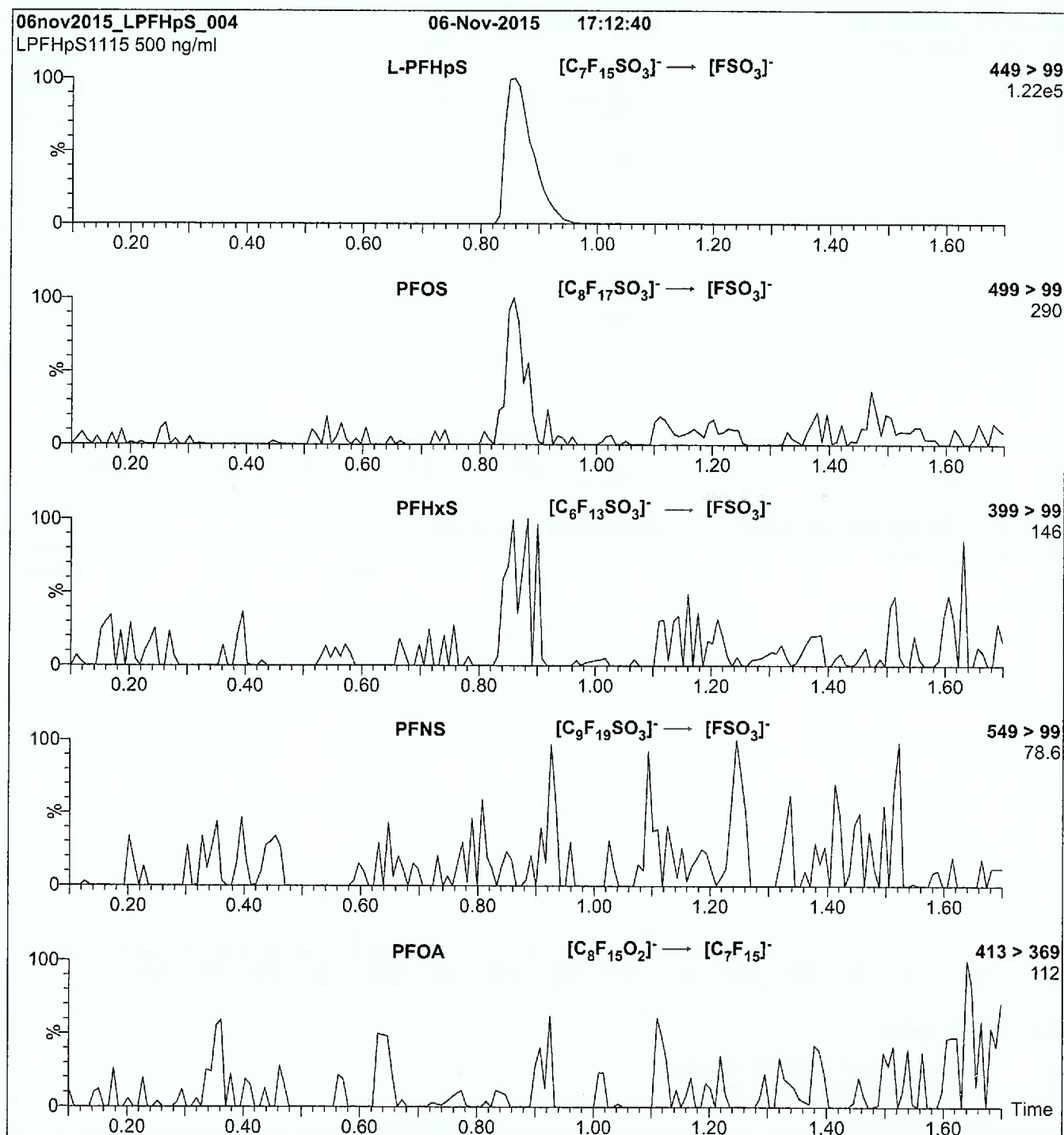
Flow: 300 μ l/min

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_00004



609702

ID: LCPFHxA_00004

Exp: 12/22/20 Ppd: CBW

PF-n-hexanoic acid

R: 4/7/16 CBW

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

PFHxA

LOT NUMBER:

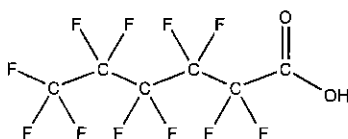
PFHxA1215

COMPOUND:

Perfluoro-n-hexanoic acid

STRUCTURE:**CAS #:**

307-24-4

**MOLECULAR FORMULA:** $C_6H_5F_{11}O_2$ **CONCENTRATION:** $50 \pm 2.5 \mu\text{g/ml}$ **MOLECULAR WEIGHT:**

314.05

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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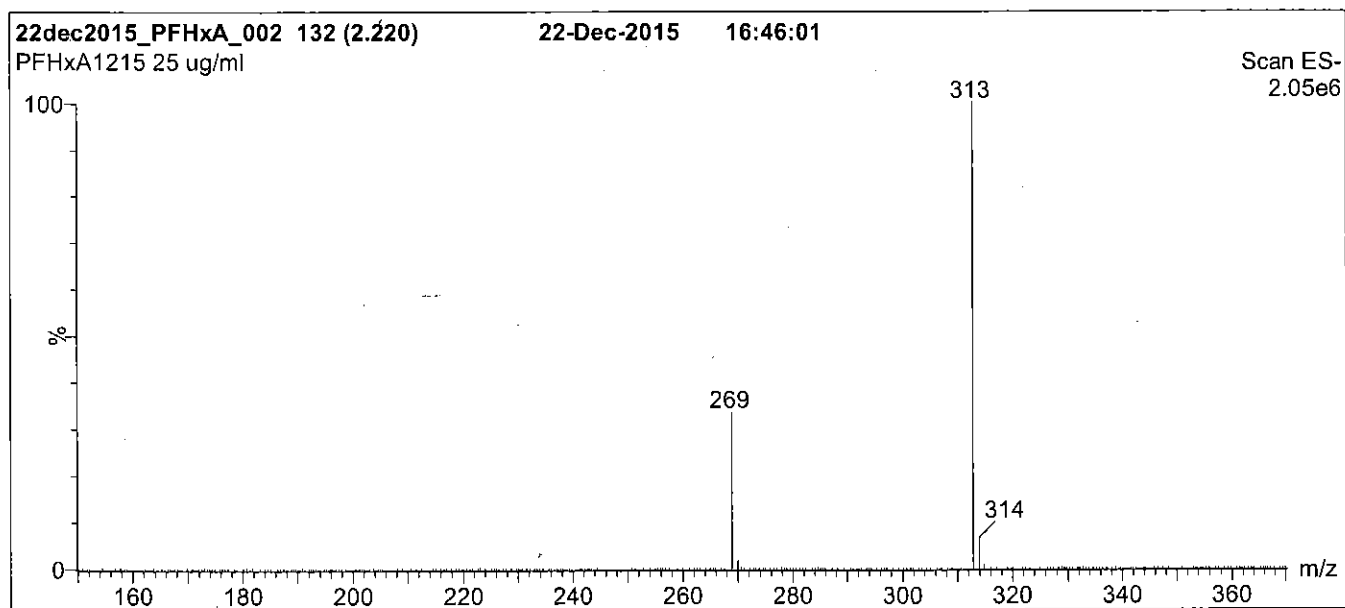
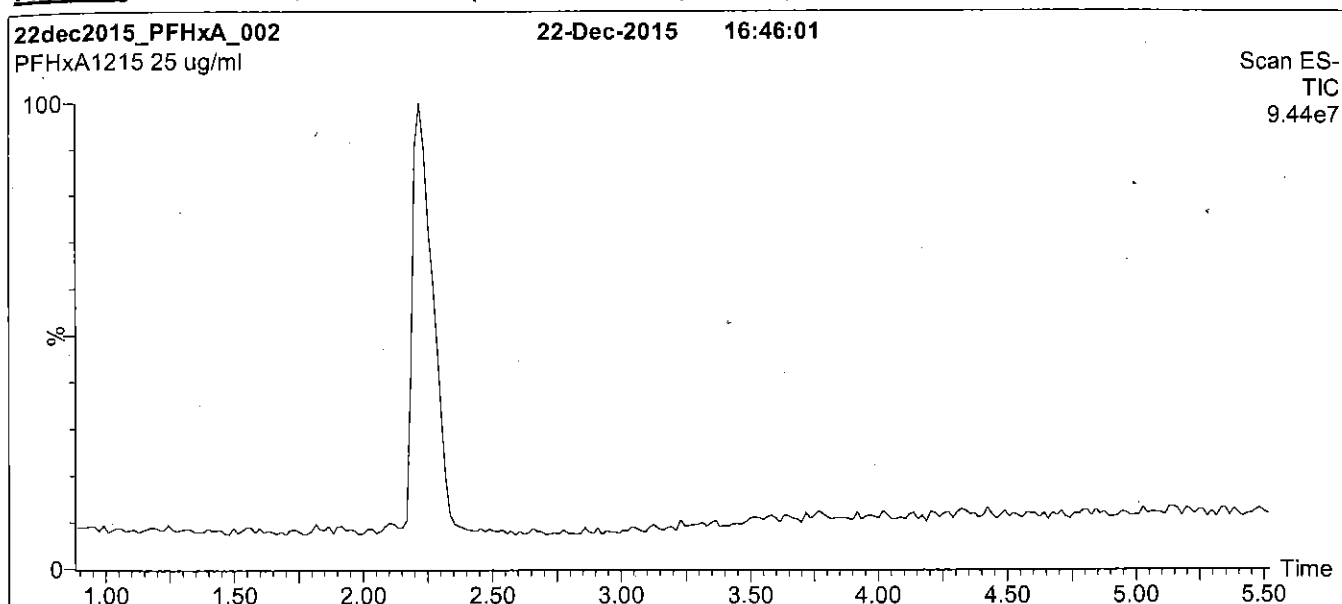
QUALITY MANAGEMENT:

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: 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

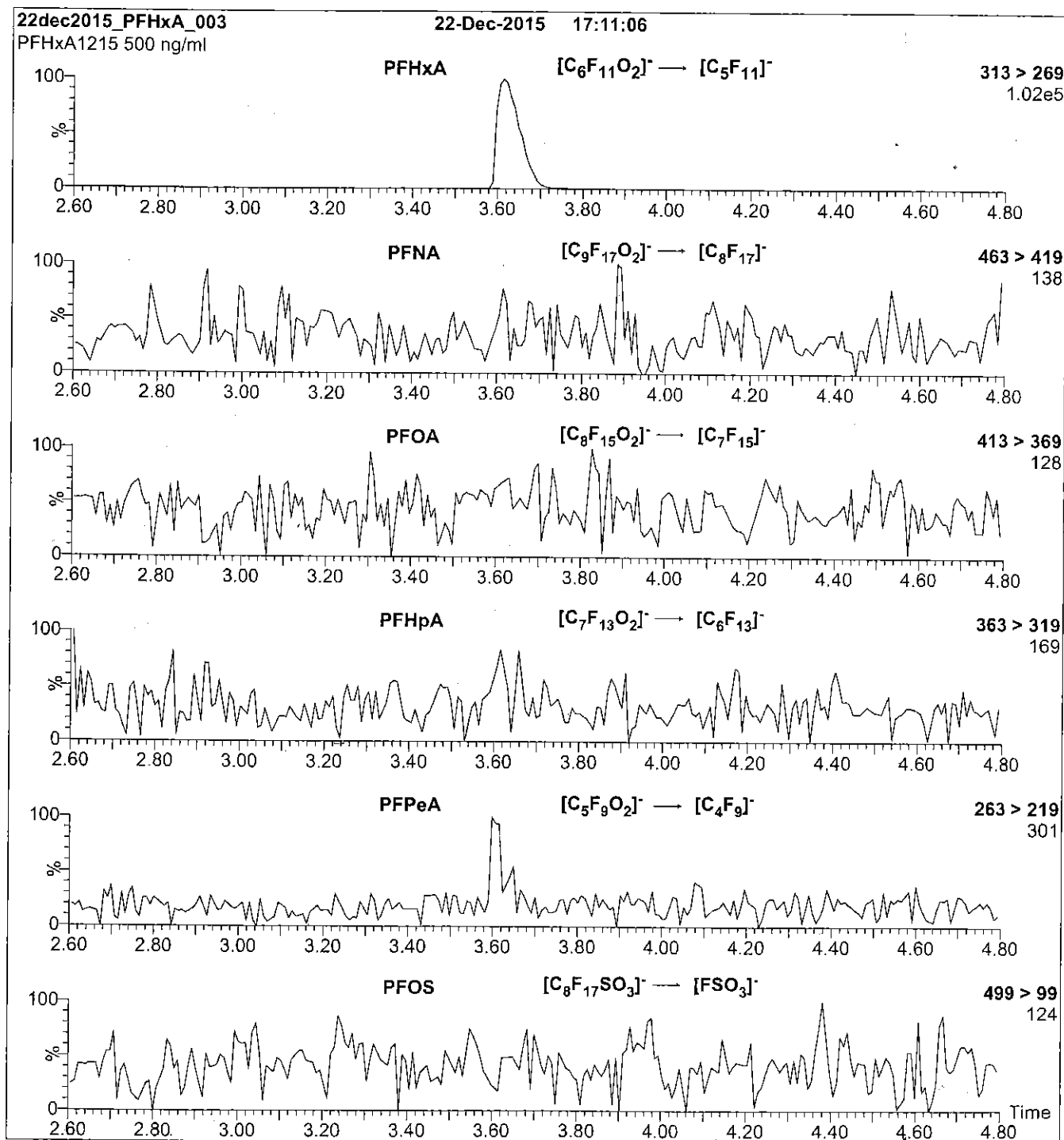
Flow: 300 μ l/min

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

LCPFHxS-br_00001



566007

ID: LCPFHxS-br_00001

Exp: 07/03/20 Ppdt: CBW

Potassium Perfluorohexane

P: 12/9/15 SW

**WELLINGTON**
LABORATORIES**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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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

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

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

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Table A: br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F -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.

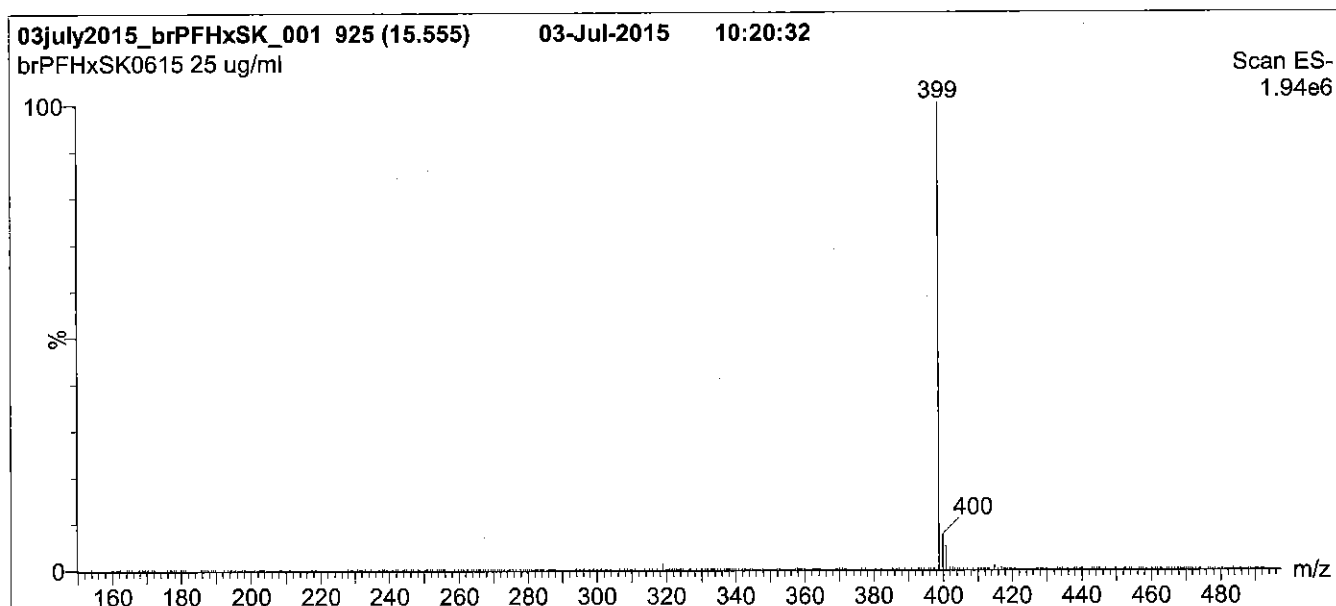
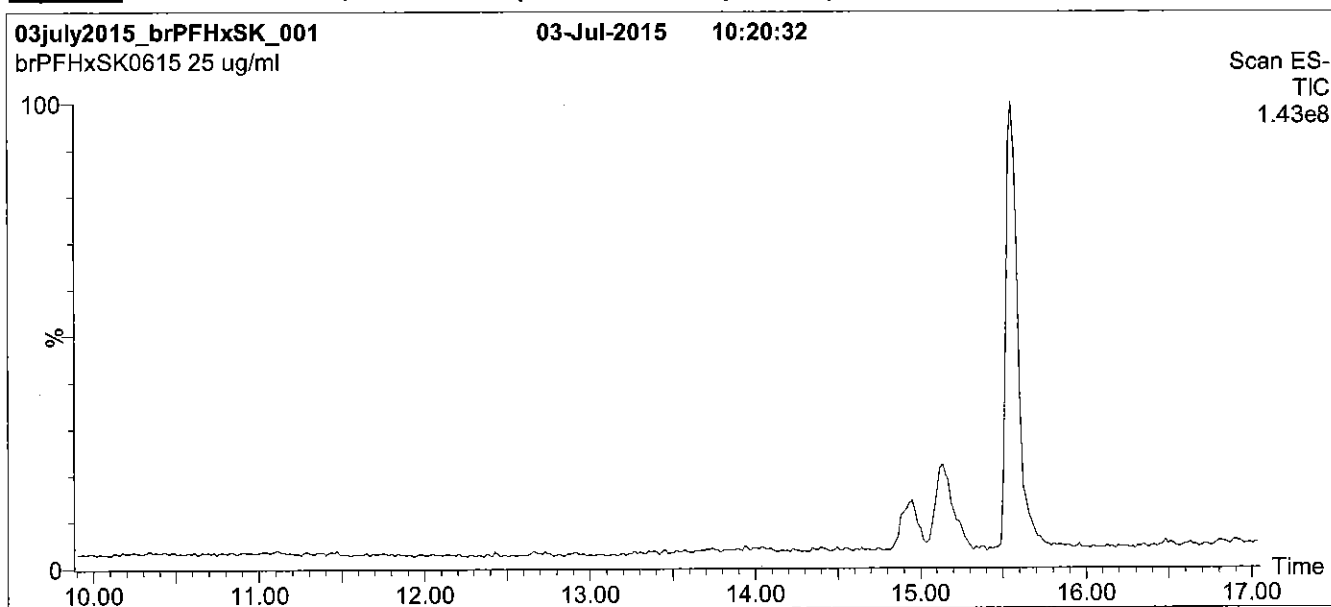
Certified By:

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

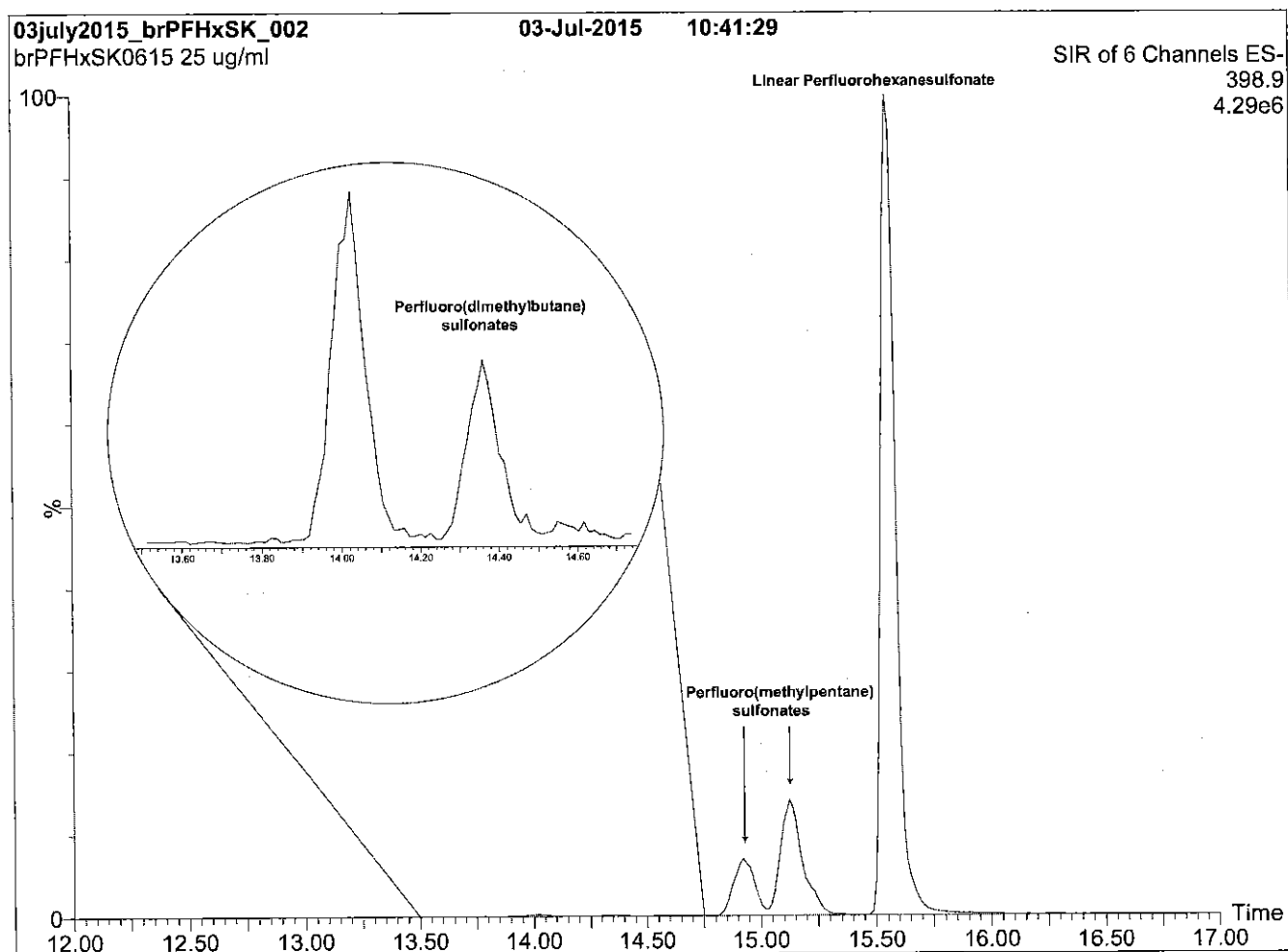
Flow: 300 μ l/min

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

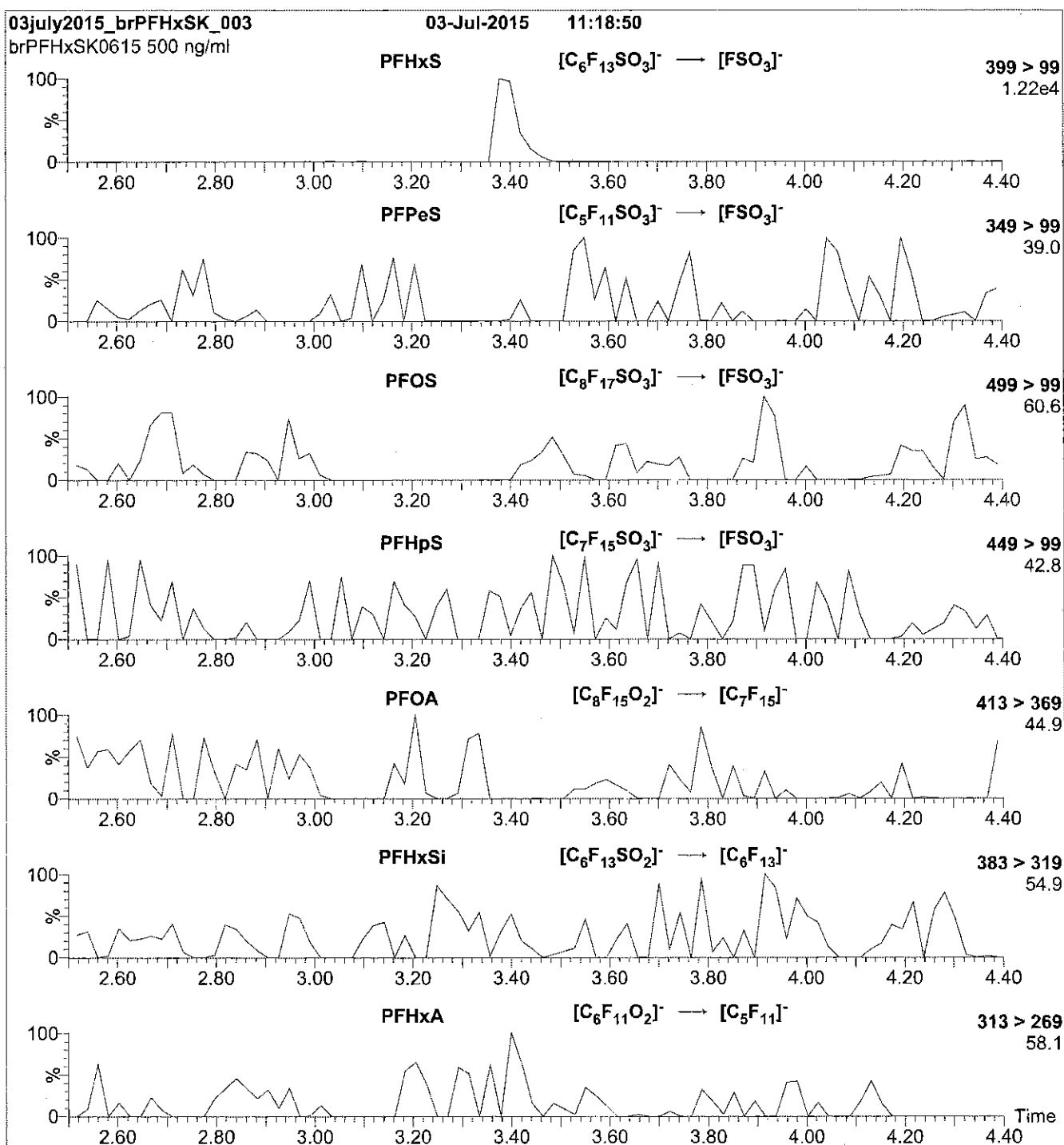
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

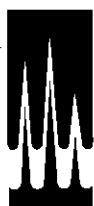
Reagent

LCPFNA_00005



609703
ID: LCPFNA_00005
Exp: 10/23/20 Prod: CBW
PF-n-nonanoic acid

R: 4/7/16 CBW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

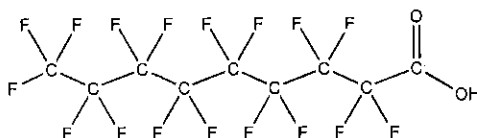
COMPOUND:

Perfluoro-n-nonanoic acid

STRUCTURE:

CAS #:

375-95-1



MOLECULAR FORMULA:

$C_9H_{17}O_2$

MOLECULAR WEIGHT:

464.08

CONCENTRATION:

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

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date:

10/30/2015
(mm/dd/yyyy)

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

INTENDED USE:

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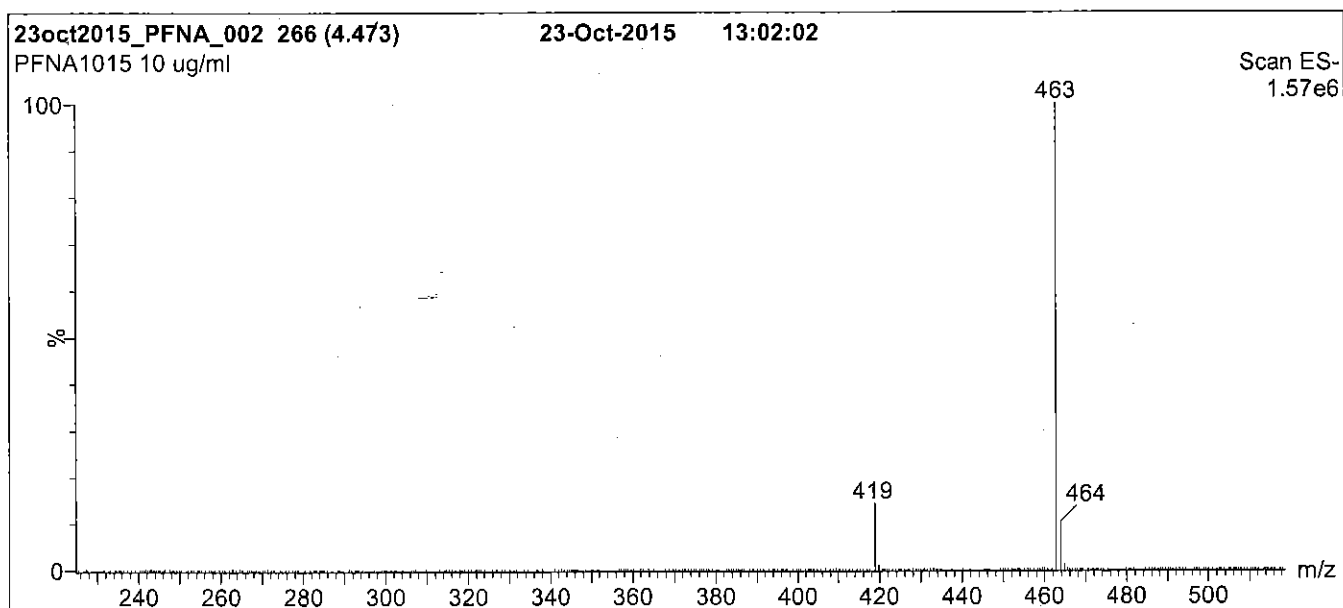
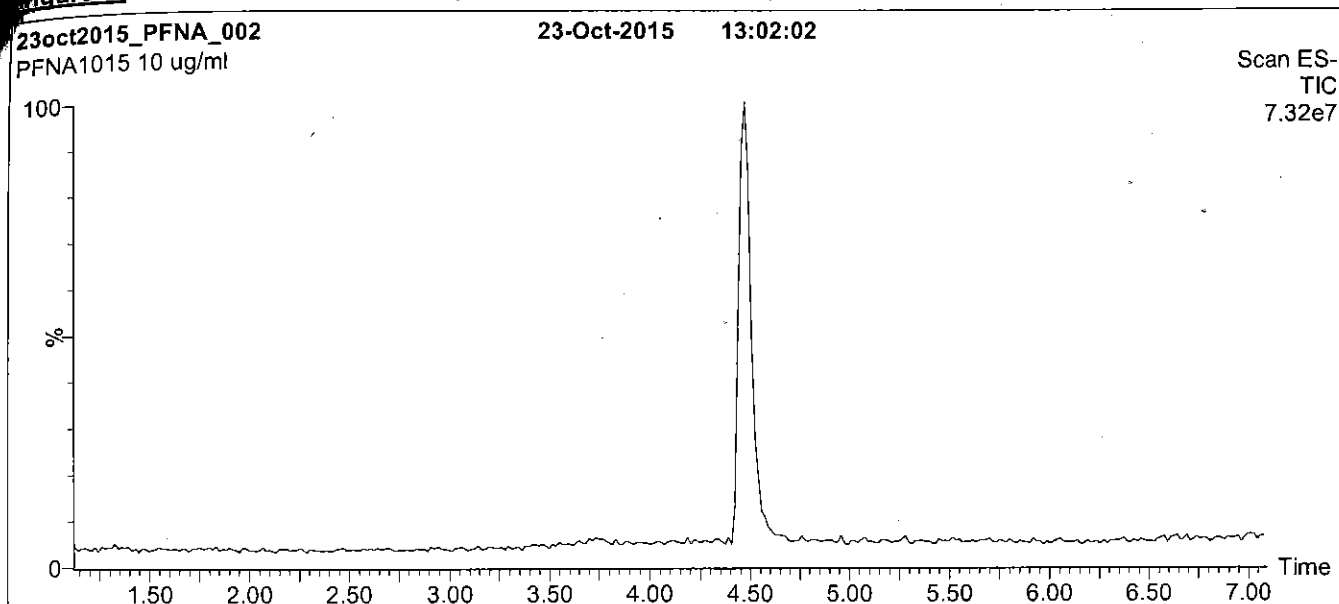
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Figure 1: PFNA; LC/MS Data (TIC and Mass Spectrum)



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

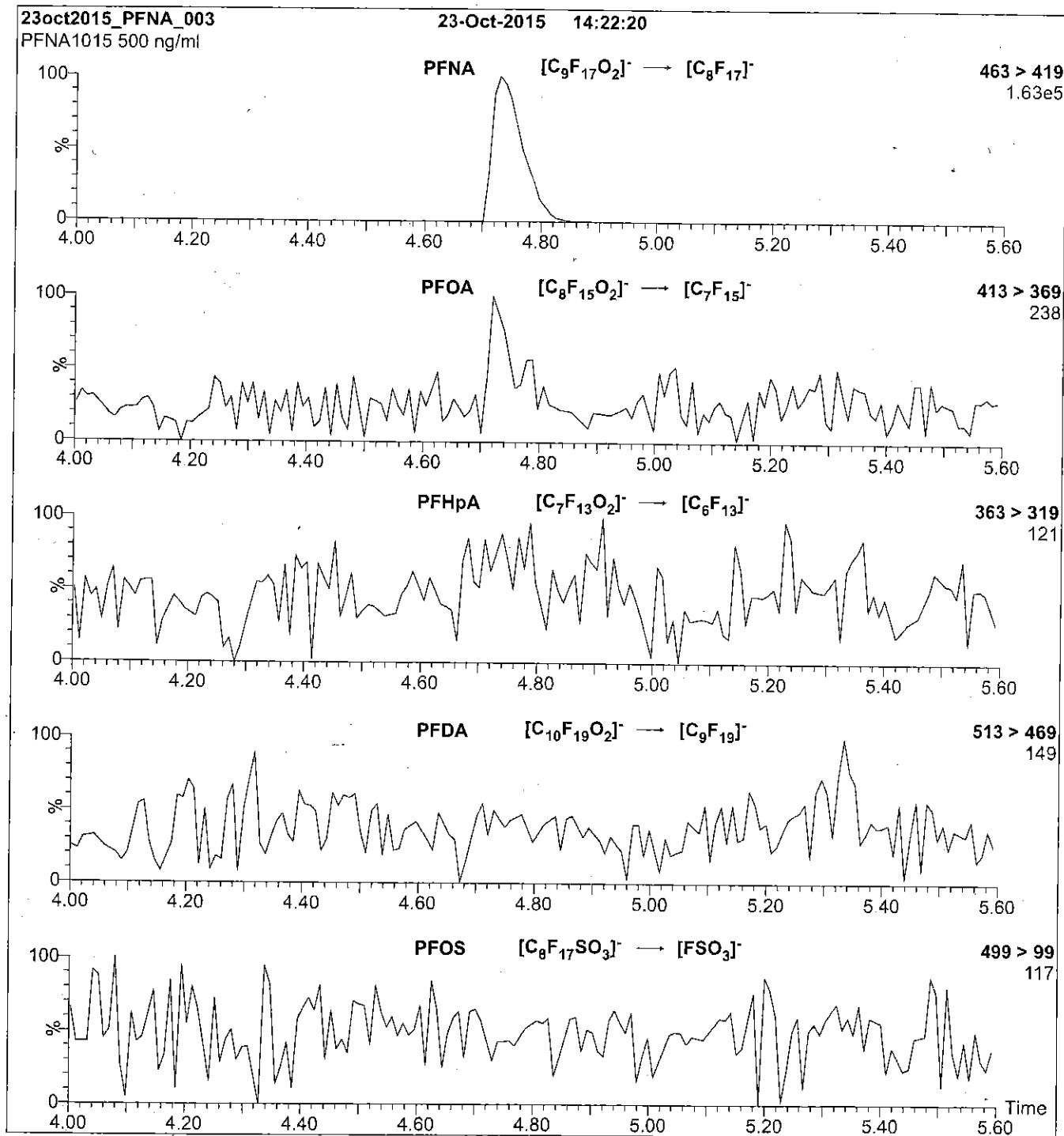
Flow: 300 μ l/min

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

LCPFNS_00002



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFNS

LOT NUMBER:

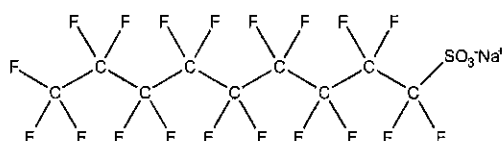
LPFNS0712

COMPOUND:

Sodium perfluoro-1-nonanesulfonate

STRUCTURE:**CAS #:**

98789-57-2

**MOLECULAR FORMULA:** $C_9F_{19}SO_3Na$ **MOLECULAR WEIGHT:**

572.12

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)
48.0 ± 2.4 µg/ml (PFNS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/04/2012

EXPIRY DATE: (mm/dd/yyyy)

07/04/2017

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim

Date: 01/15/2013

(mm/dd/yyyy)

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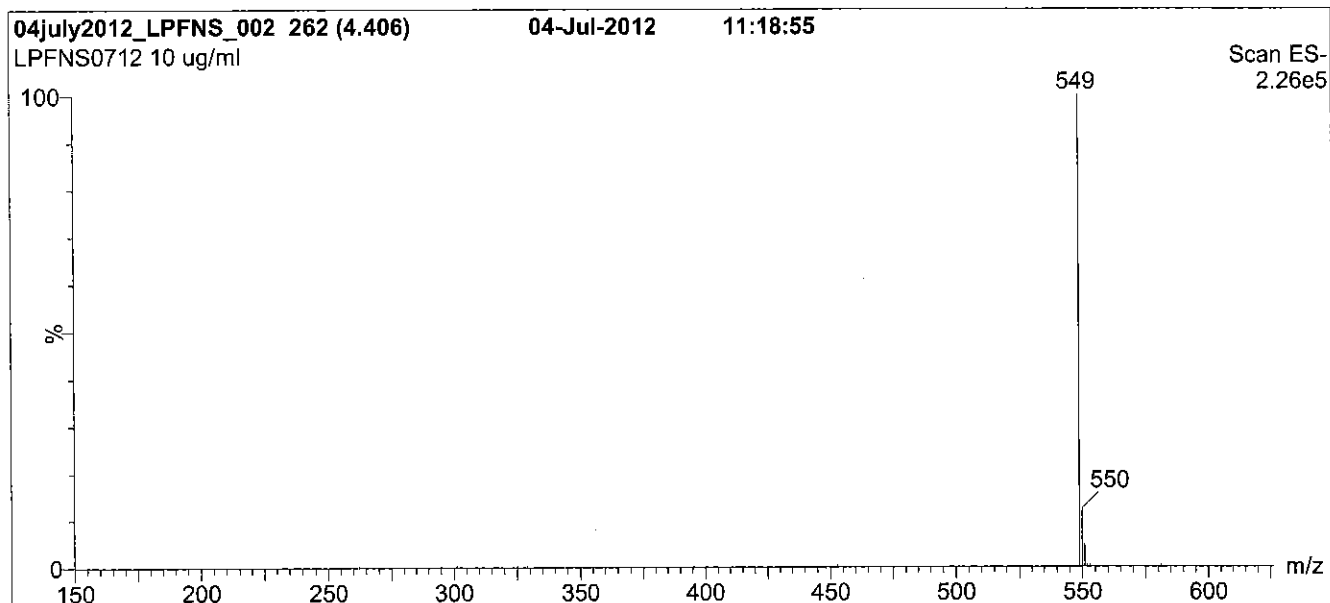
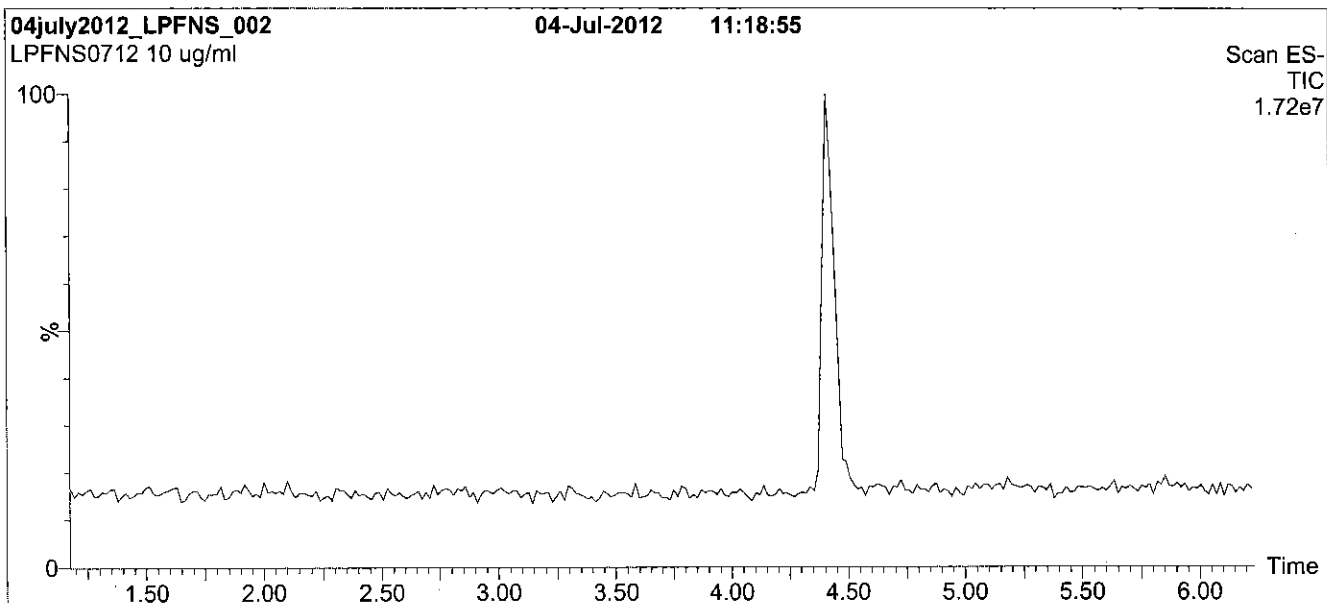
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).



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Figure 1: L-PFNS; 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 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

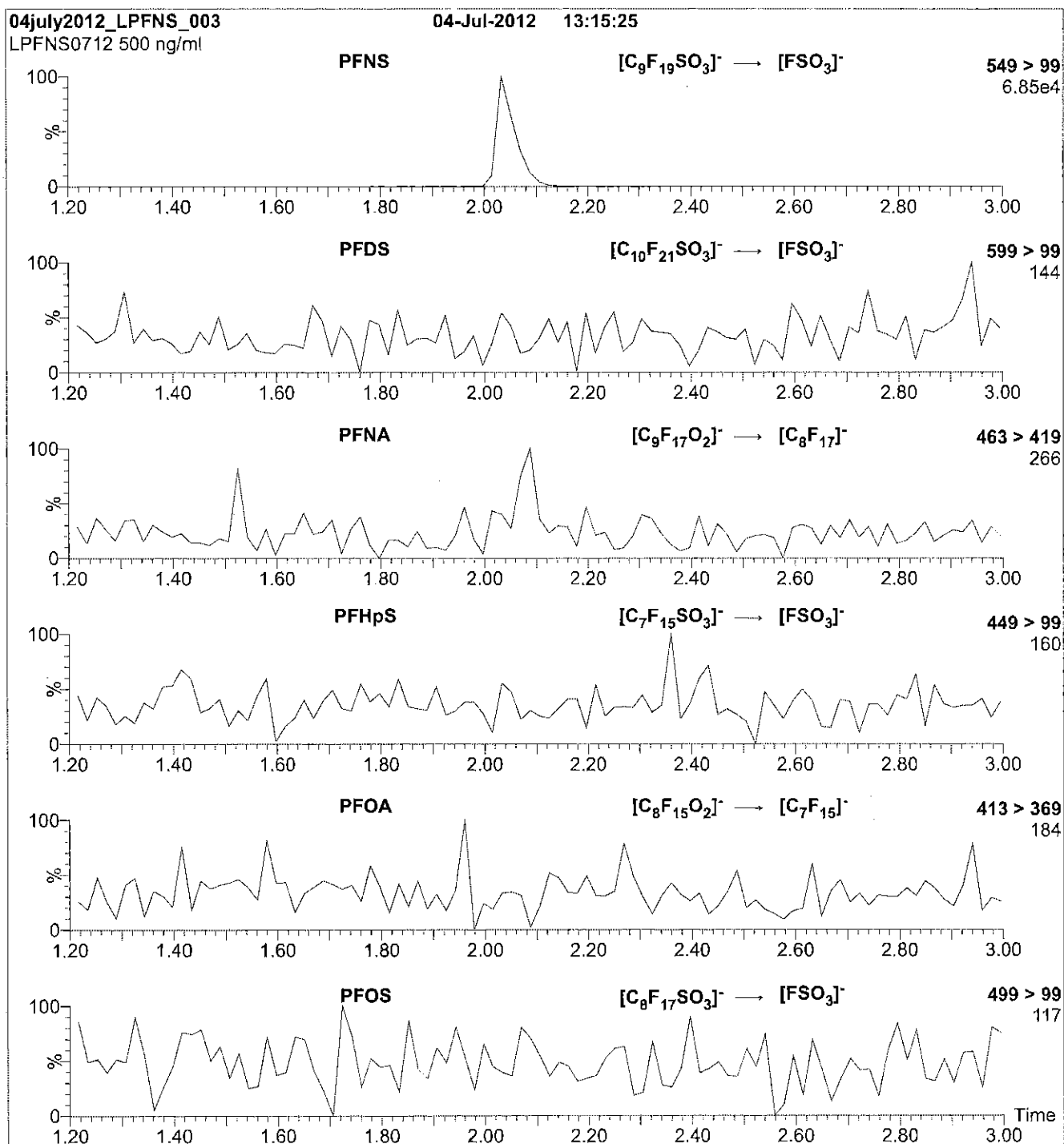
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: L-PFNS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml L-PFNS)

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

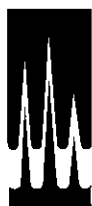
Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = $3.54e-3$
Collision Energy (eV) = 45

Reagent

LCPFOA_00005



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFOA

LOT NUMBER:

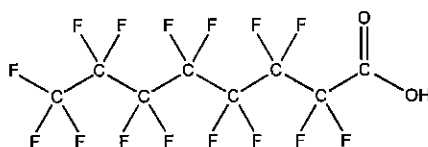
PFOA1115

COMPOUND:

Perfluoro-n-octanoic acid

STRUCTURE:**CAS #:**

335-67-1

**MOLECULAR FORMULA:** $C_8H_2F_{16}O_2$ **MOLECULAR WEIGHT:**

414.07

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 11/11/2015

(mm/dd/yyyy)

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

INTENDED USE:

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:

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.

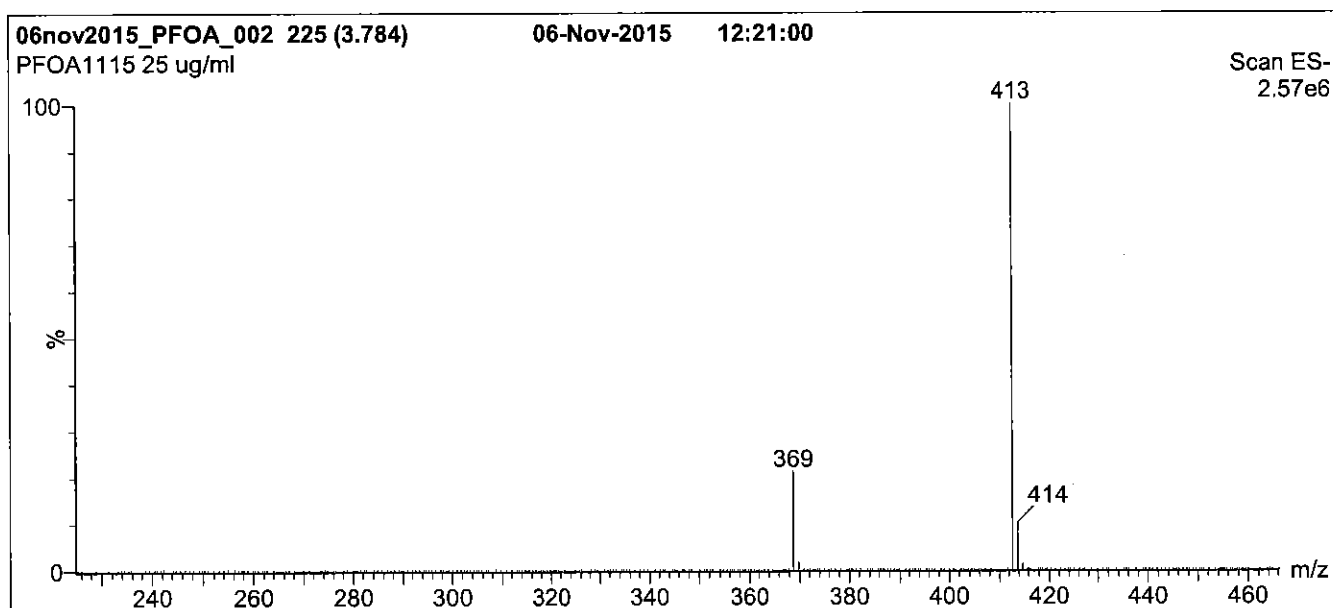
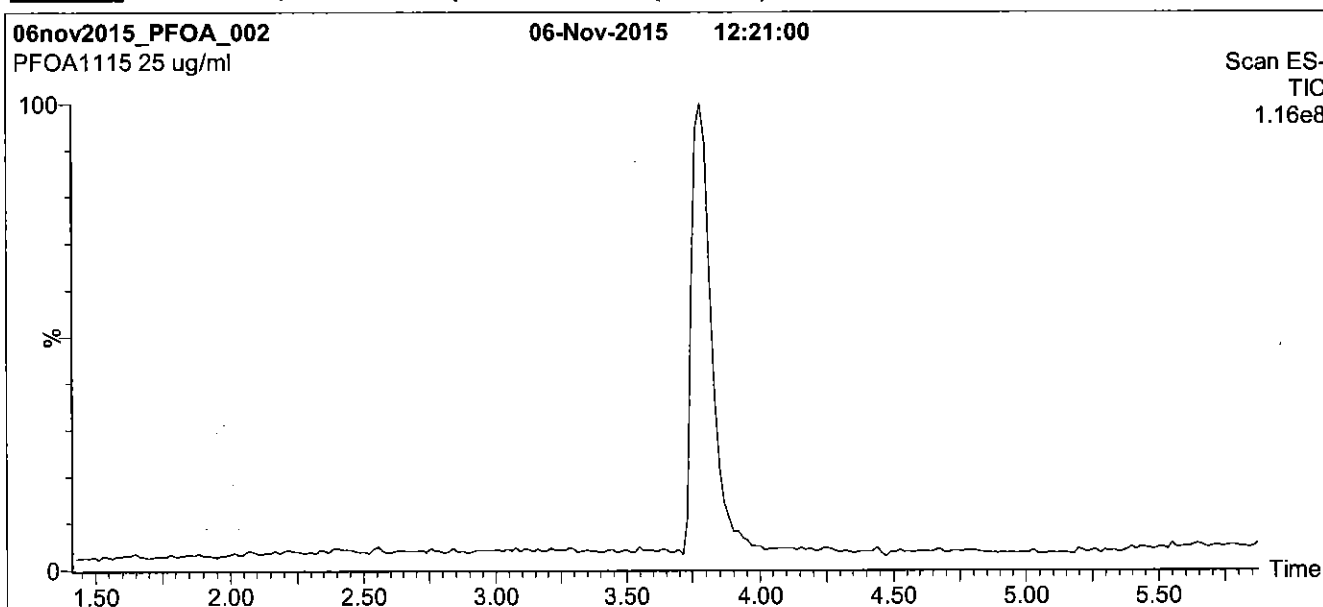
QUALITY MANAGEMENT:

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: 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

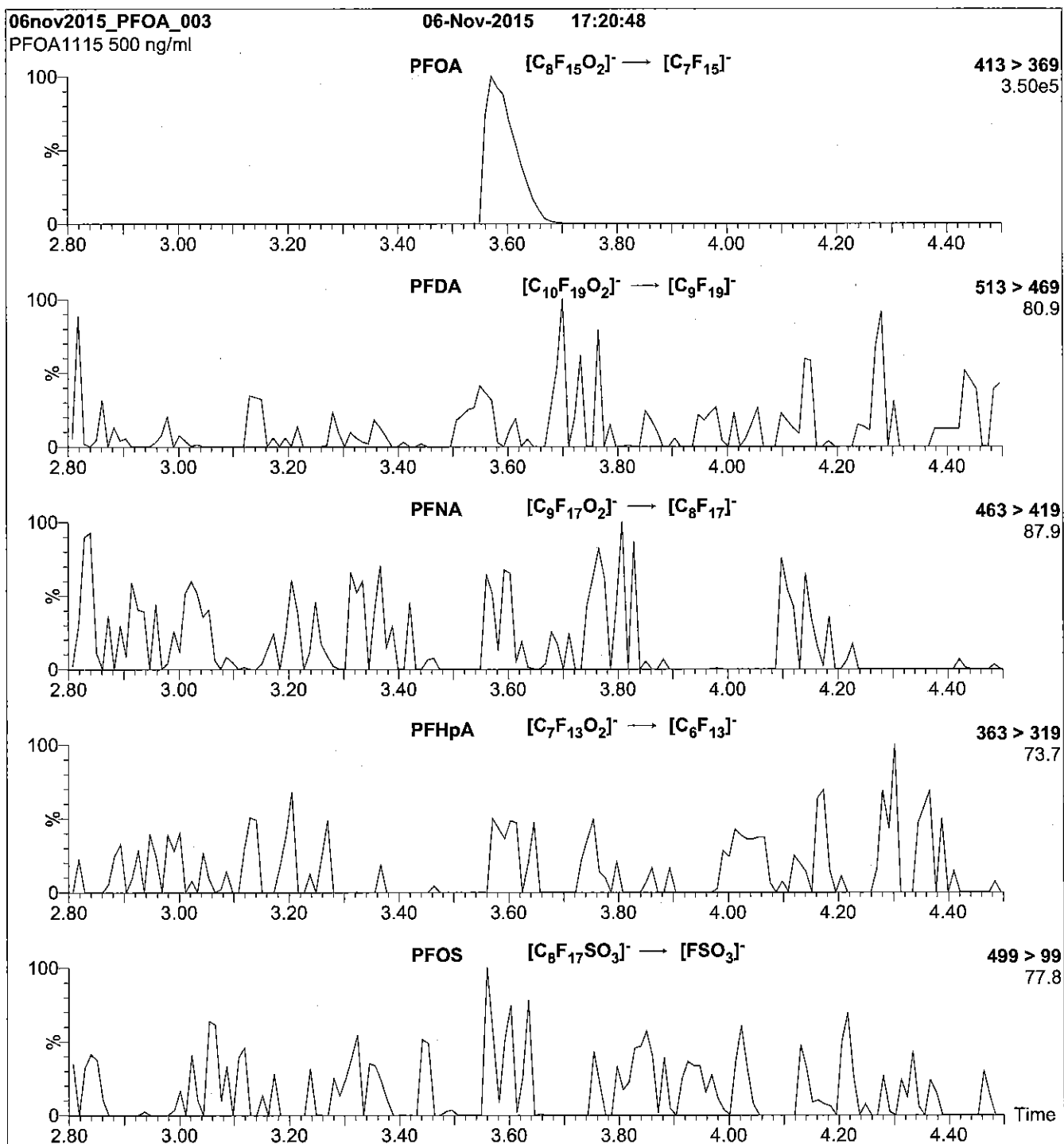
Flow: 300 μ l/min

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_00005



605234

ID: LCPFOA_00005

Exp: 01/30/20 Prod: CBW
PFODA stock 50ug/mL

Rec. 3/20/16 JRB



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

LOT NUMBER:

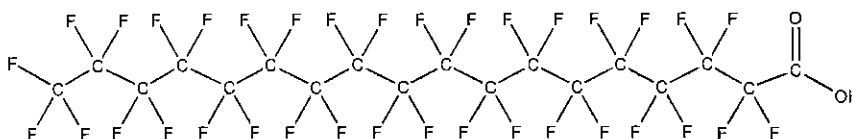
PFODA0115

COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:**CAS #:**

16517-11-6

**MOLECULAR FORMULA:** $C_{18}H_{35}O_2$ **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)

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

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

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

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

TRACEABILITY:

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

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LIMITED WARRANTY:

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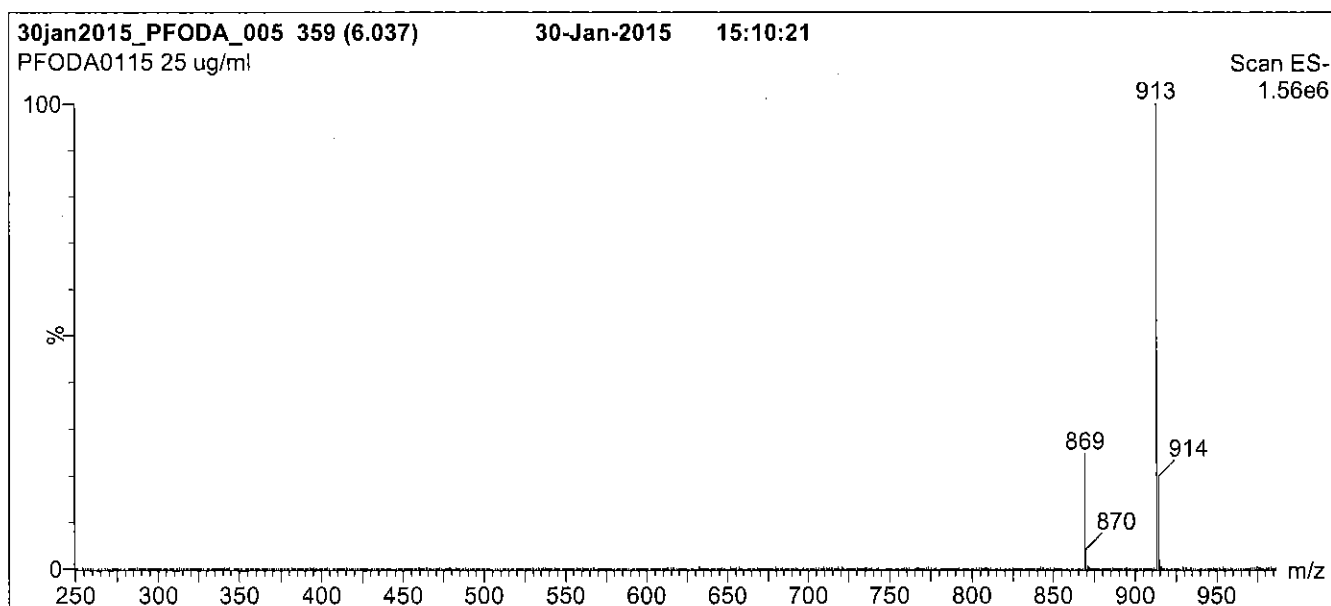
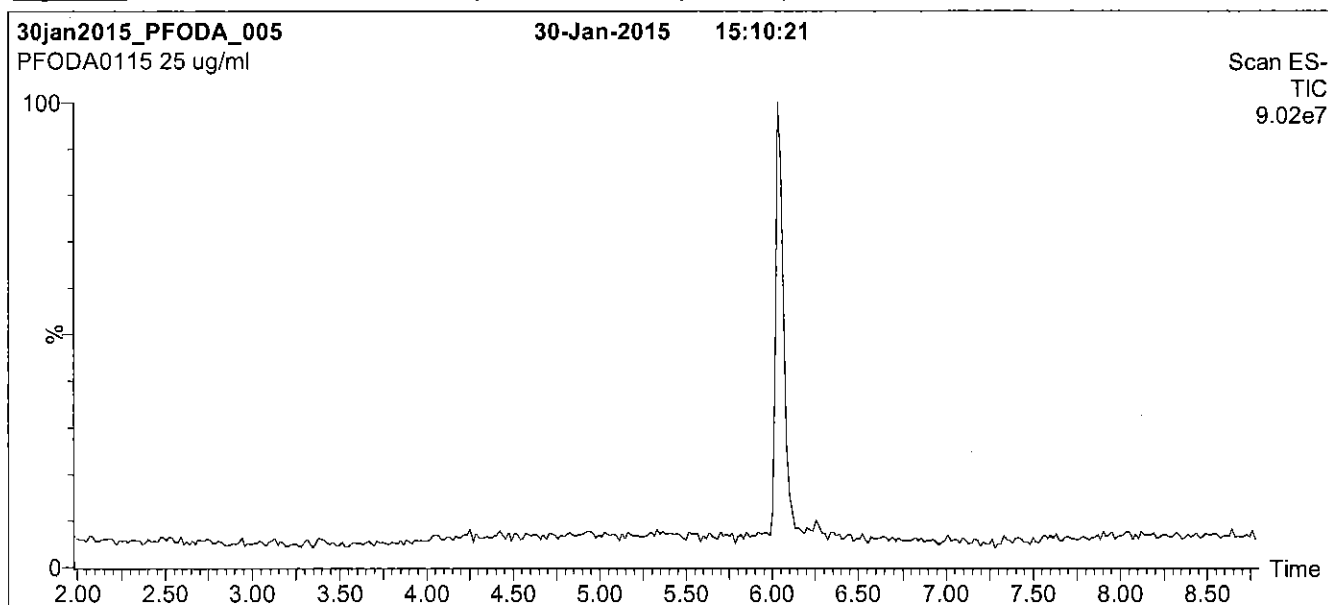
QUALITY MANAGEMENT:

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: 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: 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

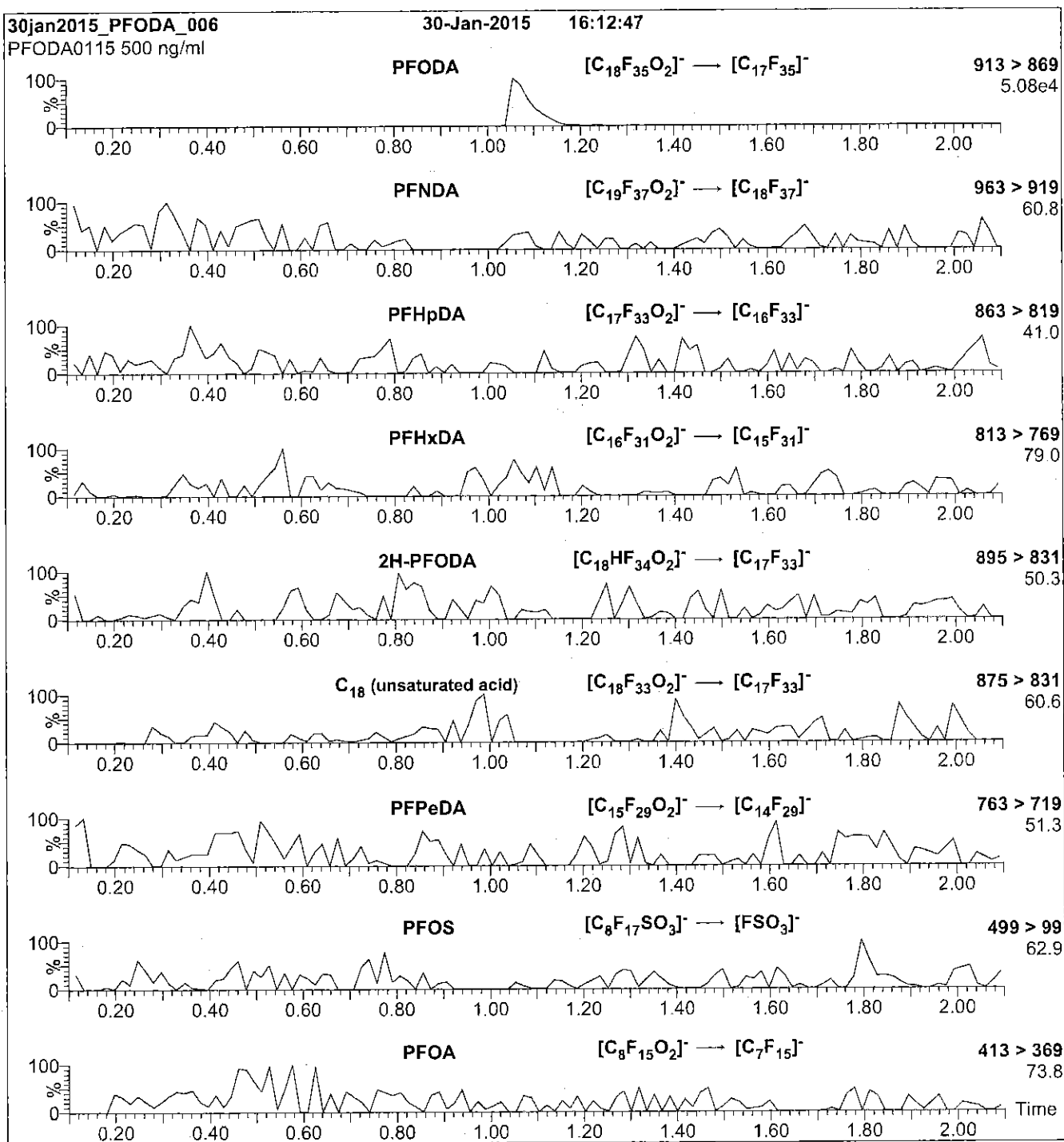
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 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 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 15

Reagent

LCPFOS-br_00001



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

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x_1, x_2, \dots, x_n on which it depends is:

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

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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 SO ₃ K ⁺	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CFSO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CFCF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CFCF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CFCF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CFCF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CFCF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3-\text{CCF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	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	$\begin{array}{c} \text{CF}_3-\text{CF}-\text{CF}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \quad \\ \text{CF}_3 \quad \text{CF}_3 \end{array}$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}-\text{CF}_2-\text{CF}-\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \quad \\ \text{CF}_3 \quad \text{CF}_3 \end{array}$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.

** Systematic Name: Potassium perfluorooctane-2-sulfonate.

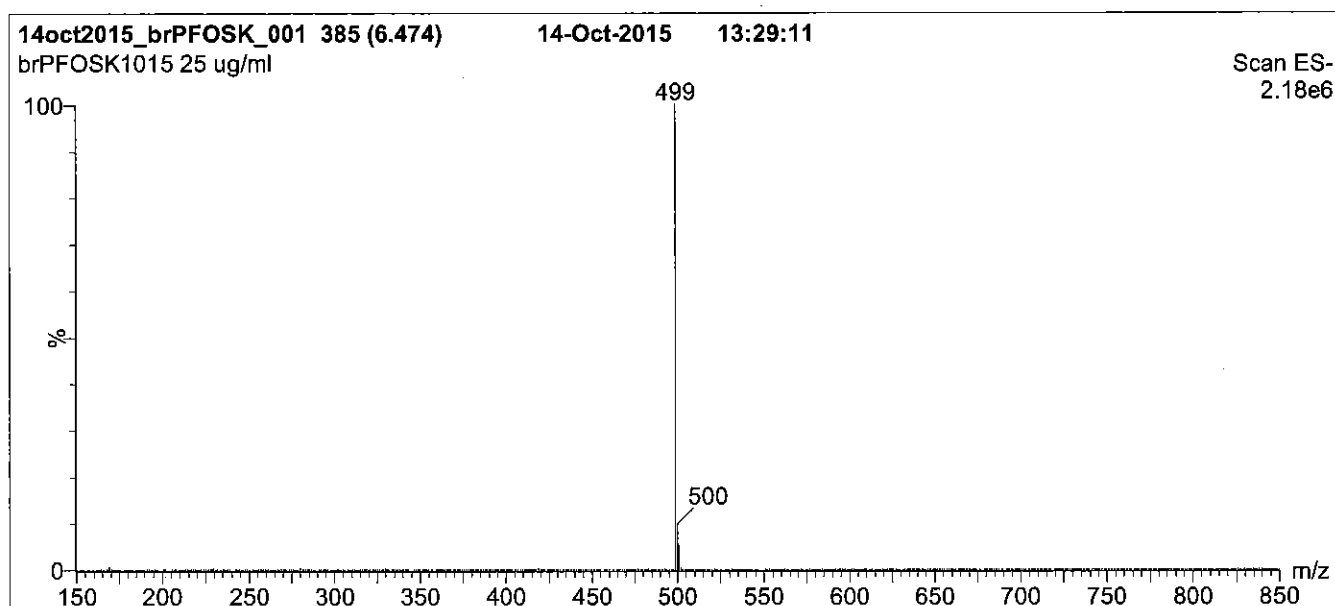
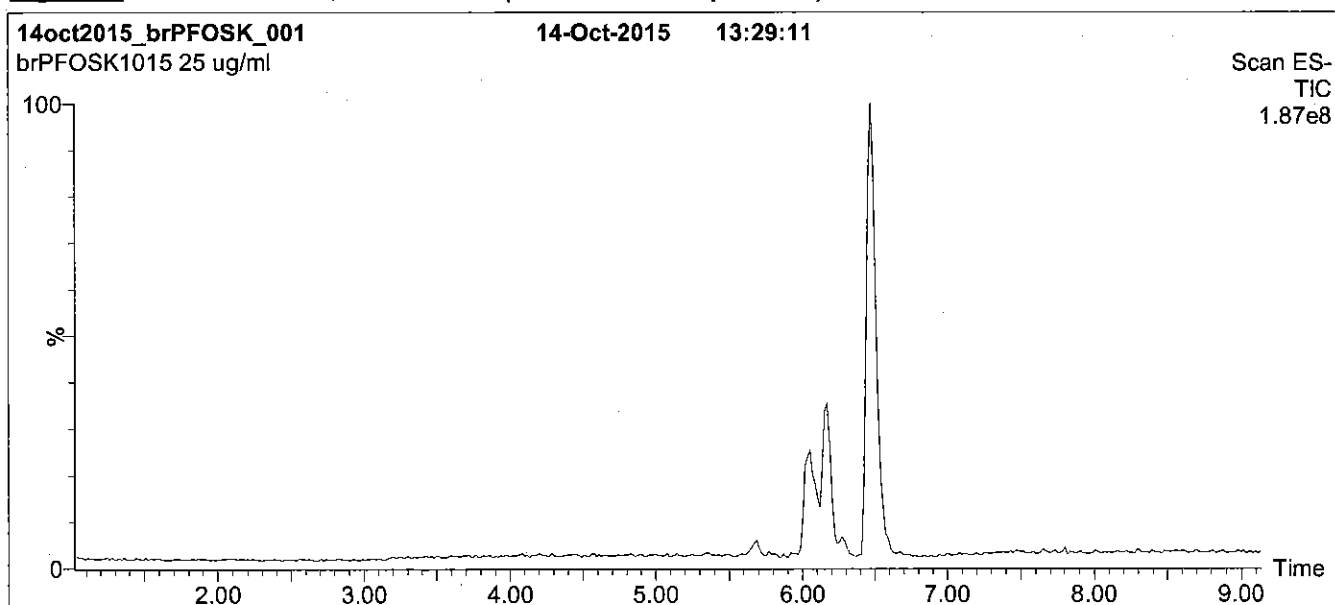
Certified By:


 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

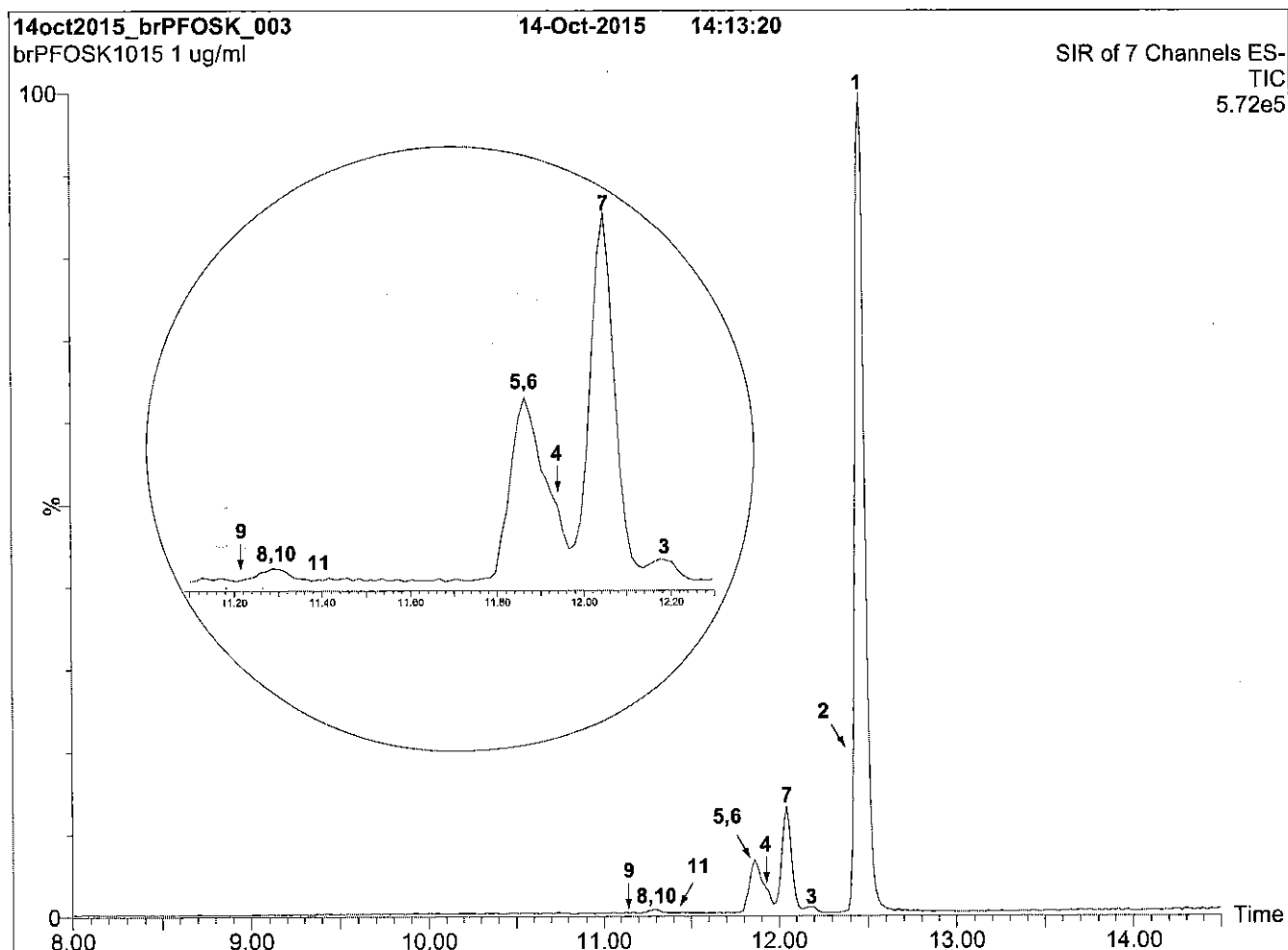
Flow: 300 μ l/min

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

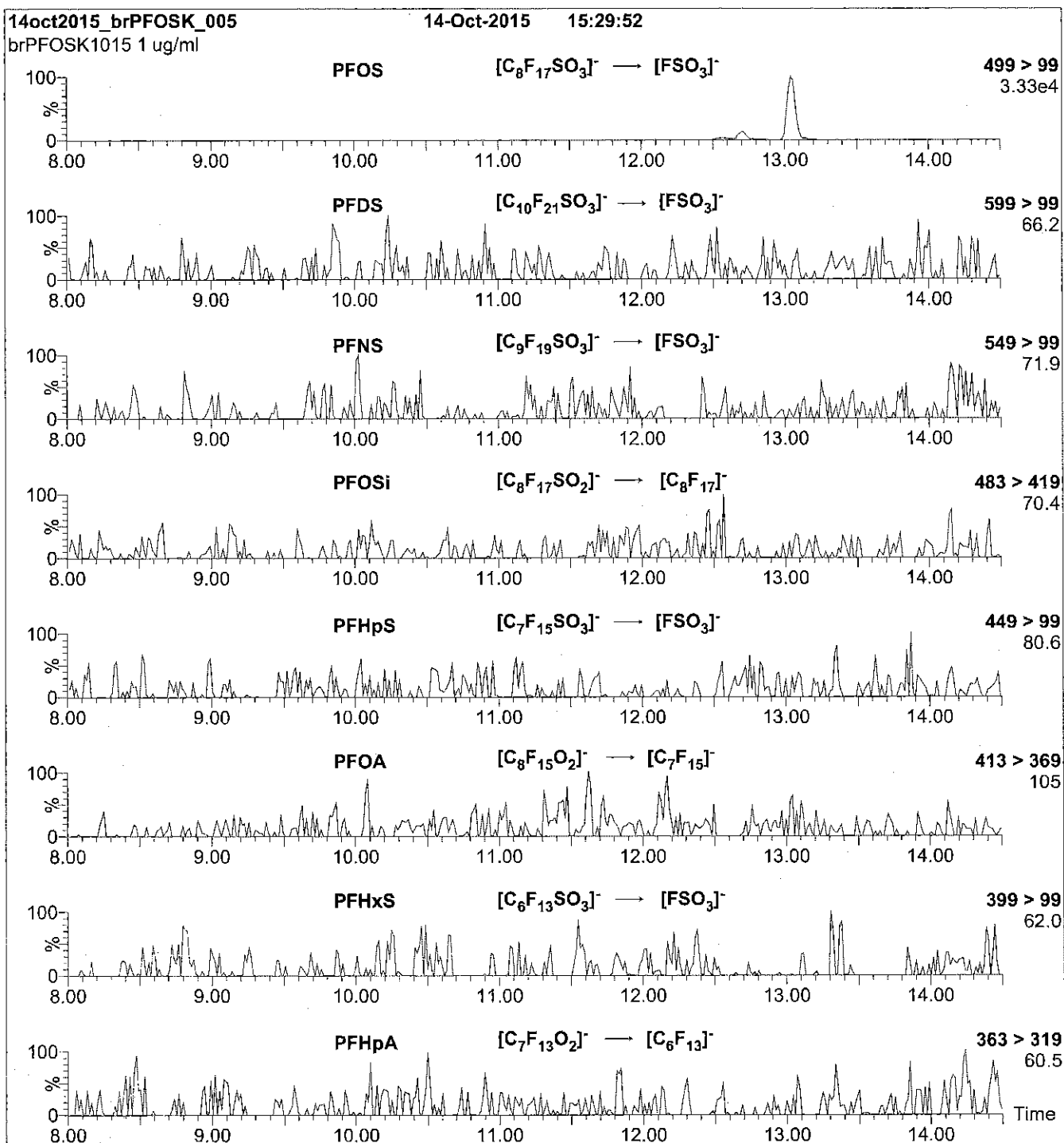
Chromatographic Conditions:

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 l/min

MS Parameters

Collision Gas (mbar) = 3.06e-3

Collision Energy (eV) = 11-50 (variable)

Reagent

LCPFOSA_00006



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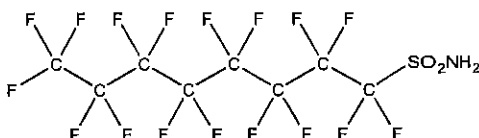
CERTIFICATE OF ANALYSIS DOCUMENTATION

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.

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.

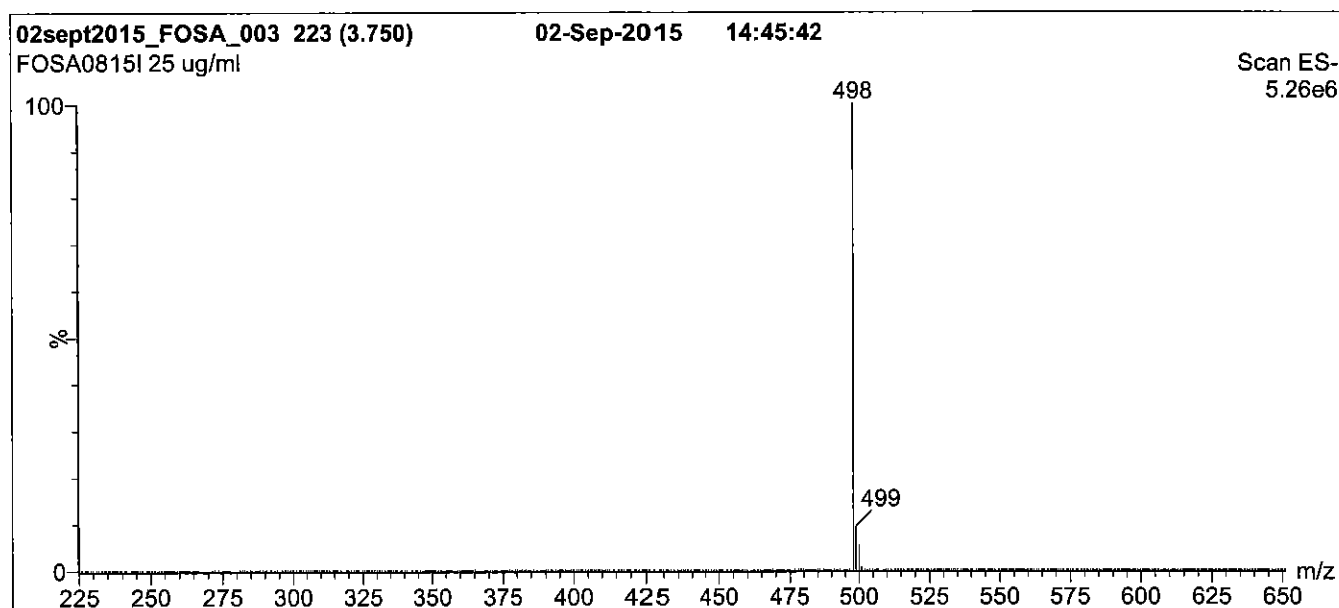
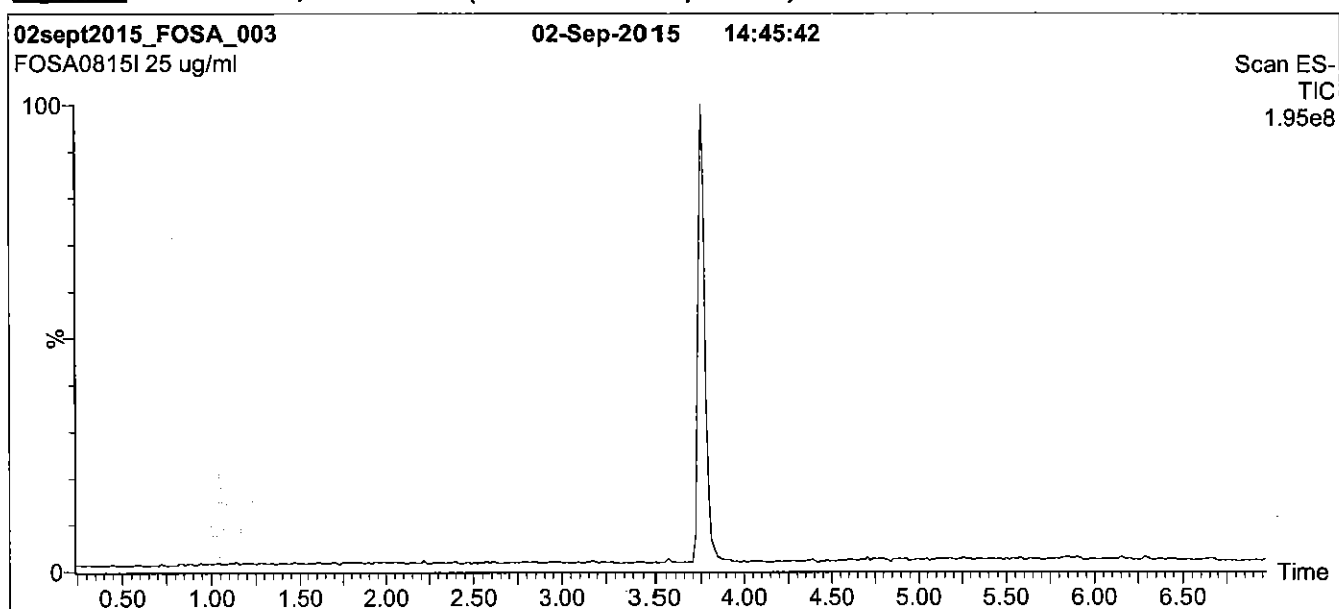
QUALITY MANAGEMENT:

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: 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

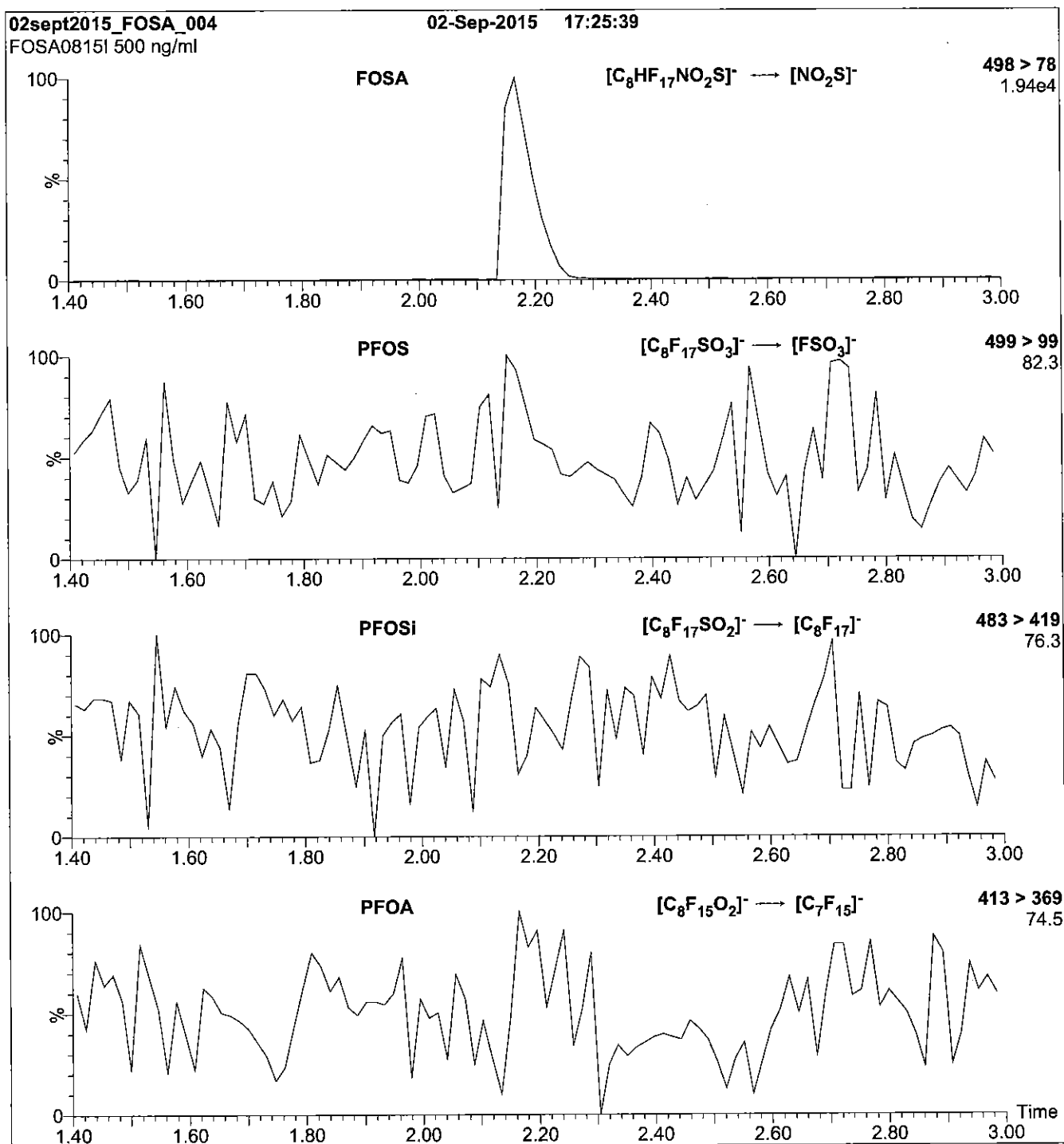
Flow: 300 μ l/min

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_00004



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFPeA

LOT NUMBER:

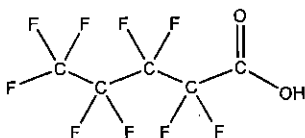
PFPeA0115

COMPOUND:

Perfluoro-n-pentanoic acid

STRUCTURE:**CAS #:**

2706-90-3

**MOLECULAR FORMULA:** $C_5H_2F_8O_2$ **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:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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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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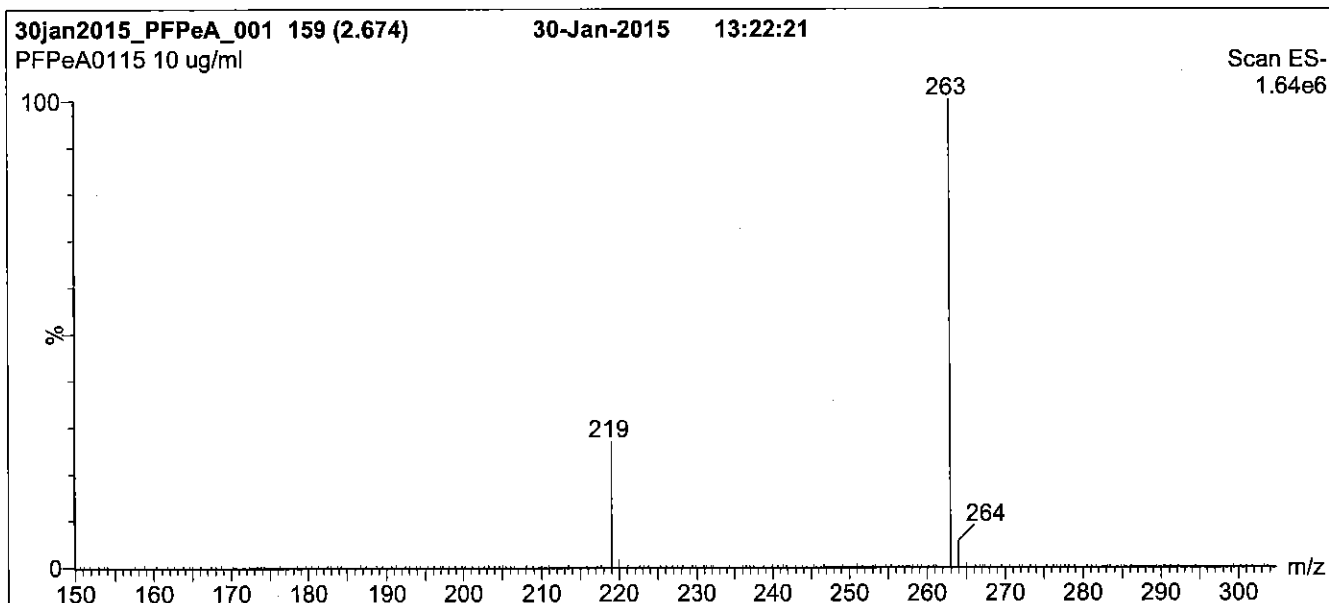
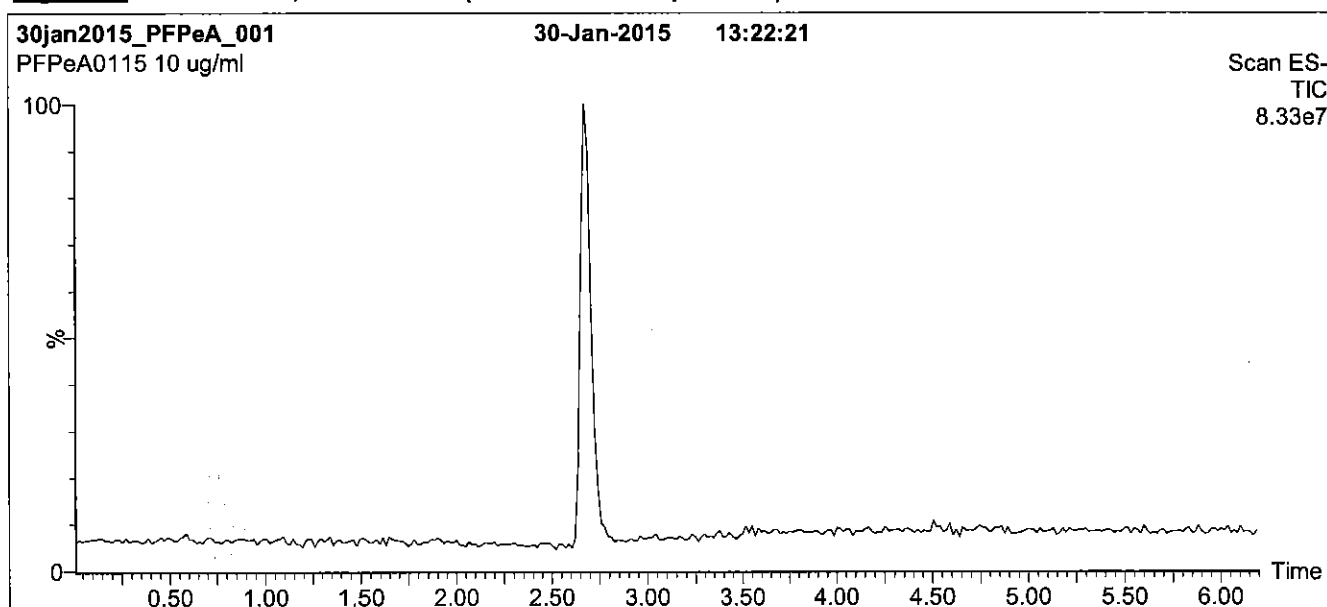
QUALITY MANAGEMENT:

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

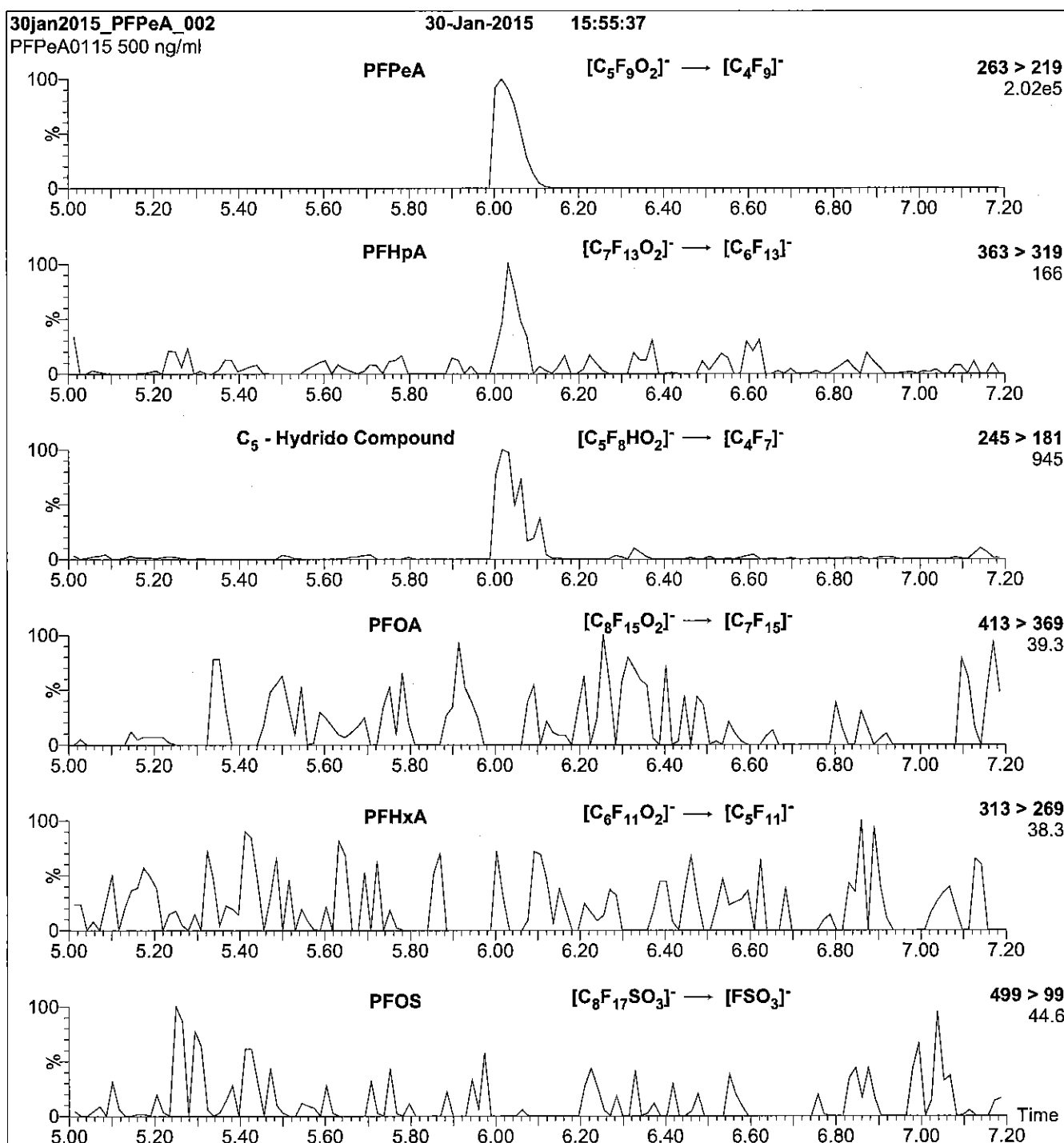
Flow: 300 μ l/min

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

LCFPPeS_00002

12 2445 2



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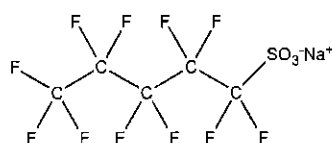
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPeS
COMPOUND: Sodium perfluoro-1-pentanesulfonate

LOT NUMBER: LPFPeS0712

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $C_5F_{11}SO_3Na$
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt)
 $46.9 \pm 2.3 \mu\text{g/ml}$ (PFPeS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/04/2012
EXPIRY DATE: (mm/dd/yyyy) 07/04/2017
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 372.09
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: 01/15/2013

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

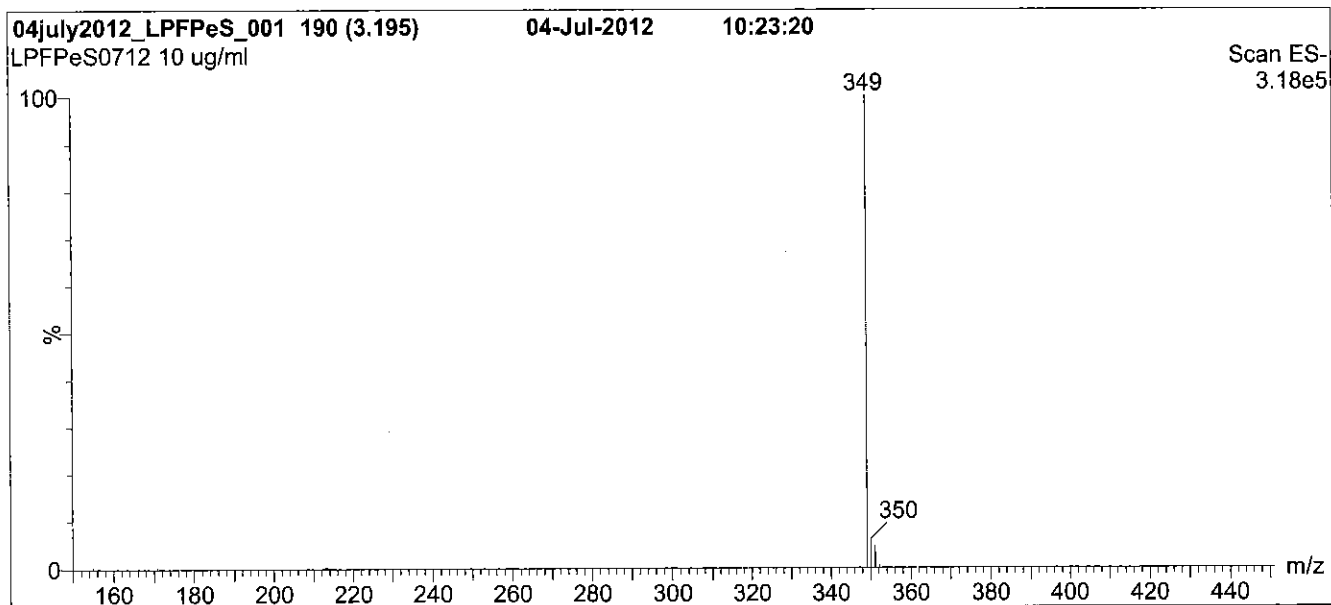
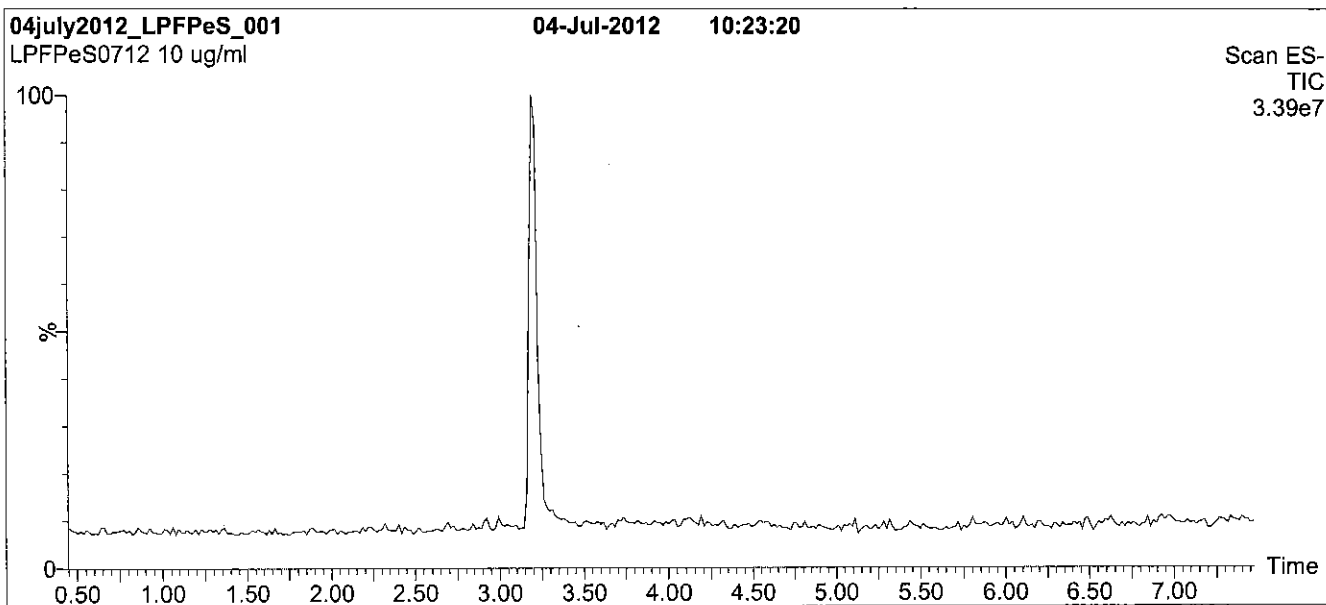
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).



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Figure 1: L-PFPeS; 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 over 0.5 min.
Time: 10 min

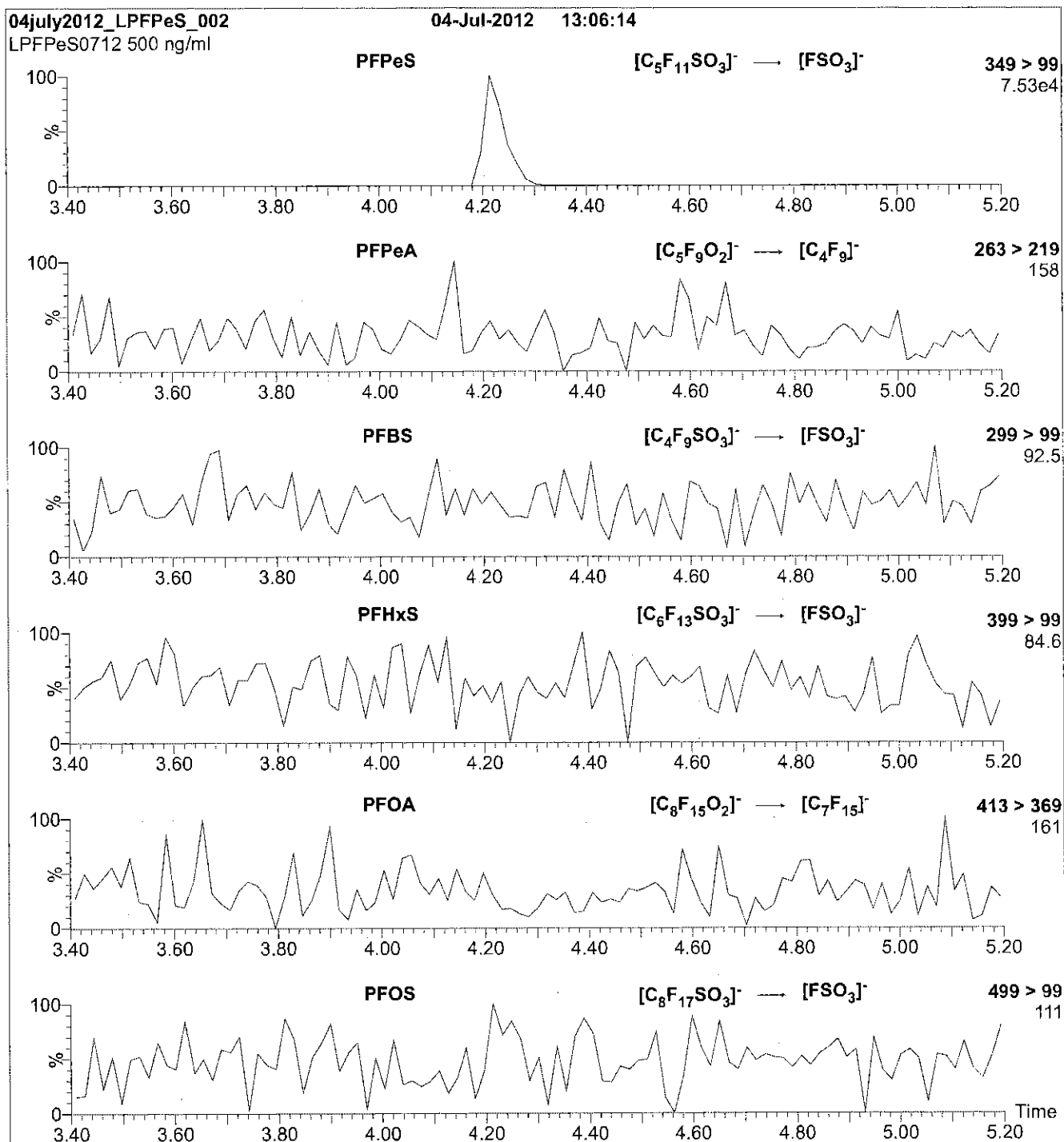
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: L-PFPeS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml L-PFPeS)

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) = 30

Reagent

LCPFTeDA_00004



609696

ID: LCPFTeDA_00004

Exp: 12/09/20 Pripd: CBW

PF-n-tetradecanoic acid

R: 4/7/16 CBW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFTeDA

LOT NUMBER:

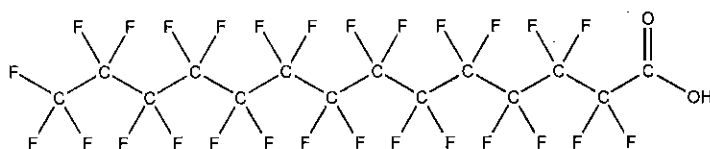
PFTeDA1215

COMPOUND:

Perfluoro-n-tetradecanoic acid

STRUCTURE:**CAS #:**

376-06-7

**MOLECULAR FORMULA:** $C_{14}H_{27}O_2$ **MOLECULAR WEIGHT:**

714.11

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **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 PFDa ($C_{12}H_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}H_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date:

12/09/2015
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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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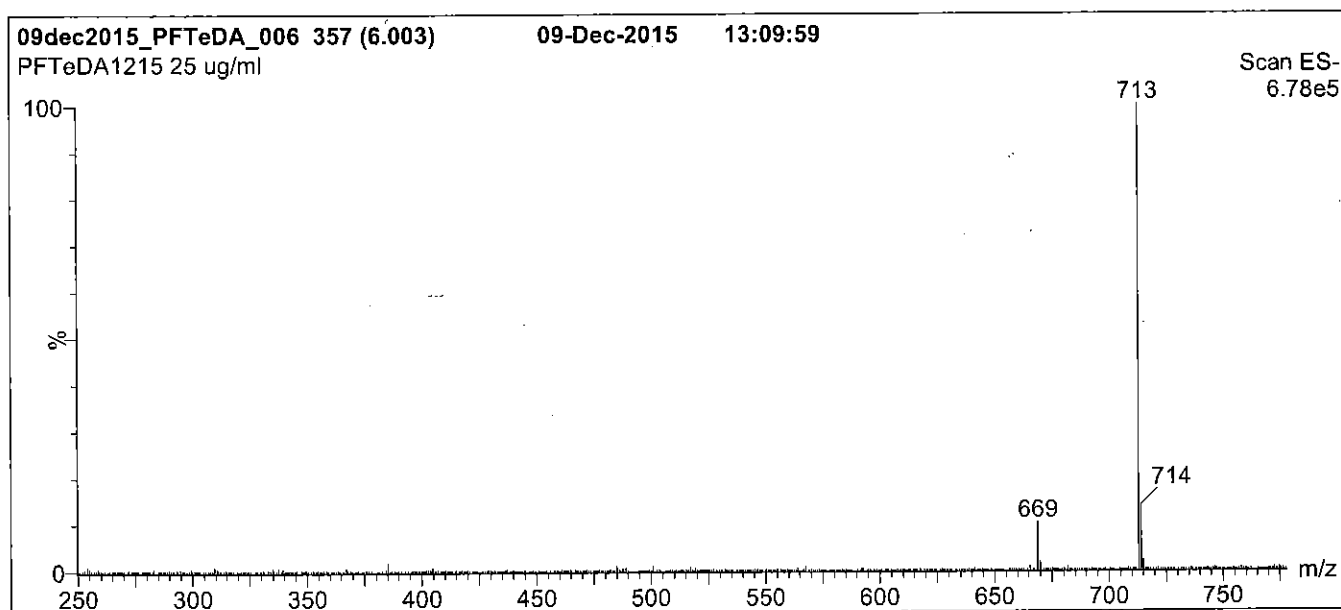
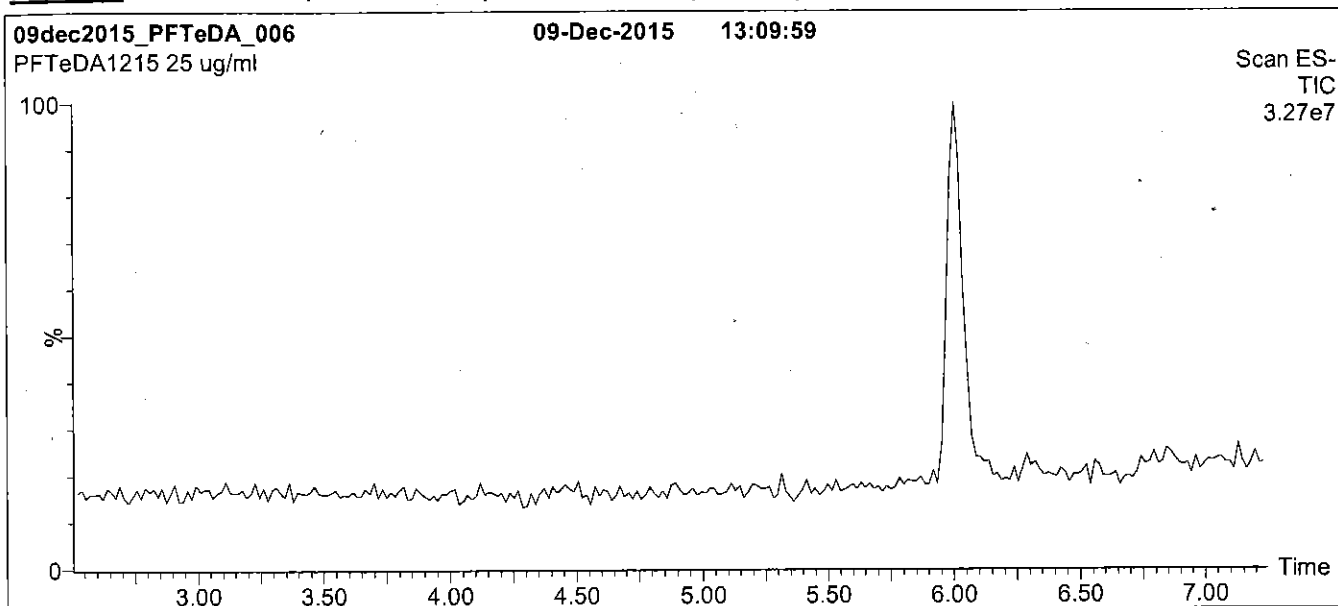
QUALITY MANAGEMENT:

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: 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

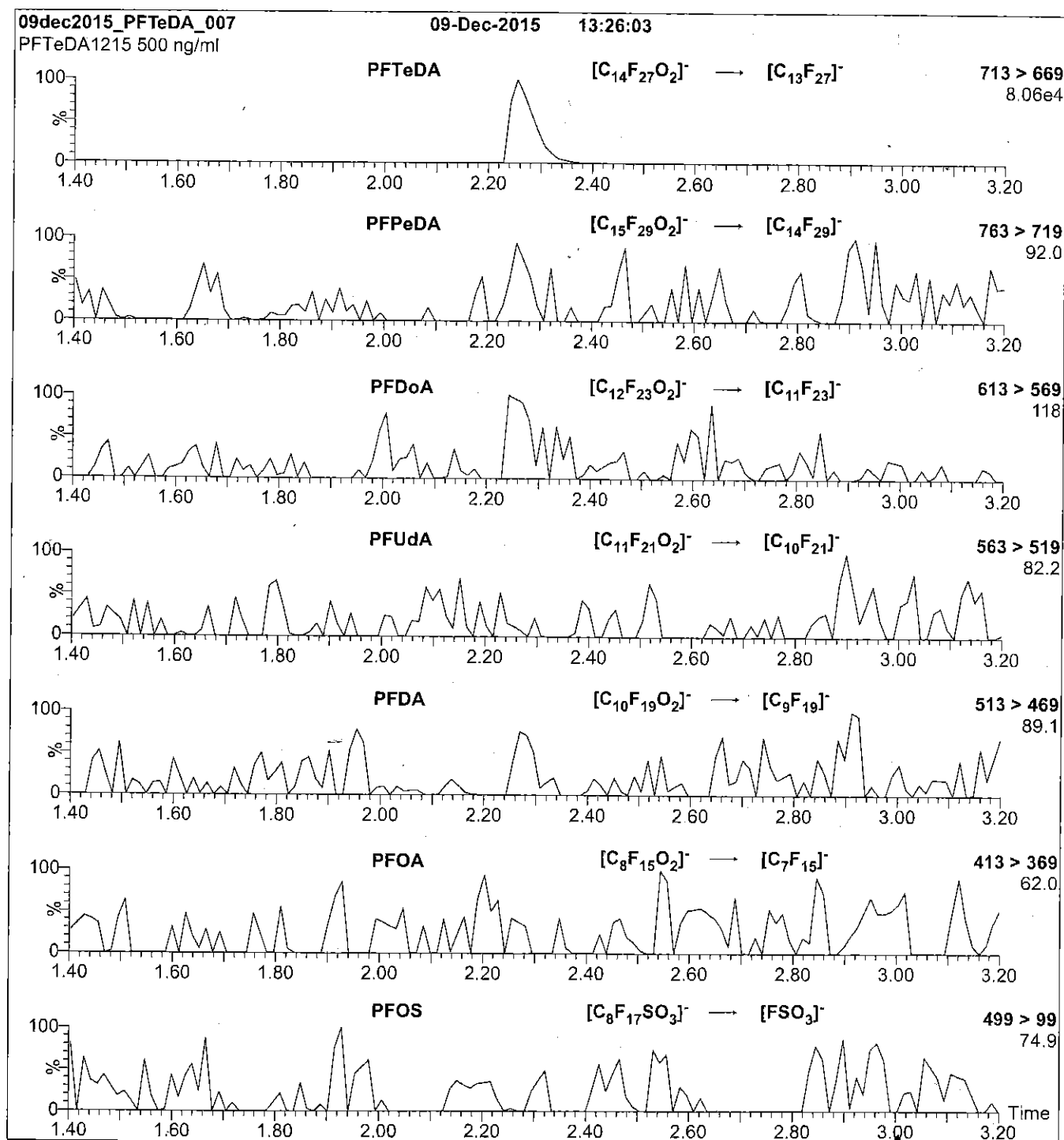
Flow: 300 μ l/min

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_00004



R: 4/7/16 CBW

609697

ID: LCPFTTrDA_00004

Exp: 12/10/18 Ppdt: CBW

PF-n-tridecanoic acid



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFTTrDA

LOT NUMBER:

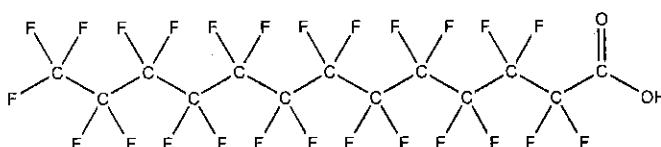
PFTTrDA1213

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)

12/10/2013

EXPIRY DATE: (mm/dd/yyyy)

12/10/2018

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

03/25/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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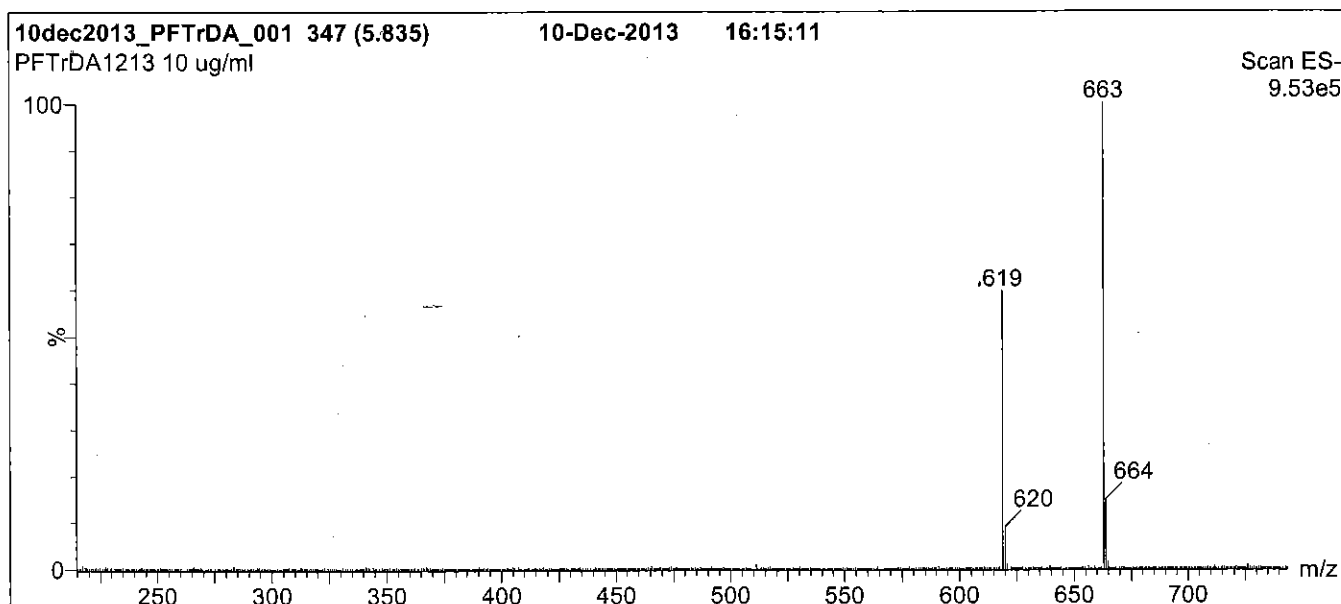
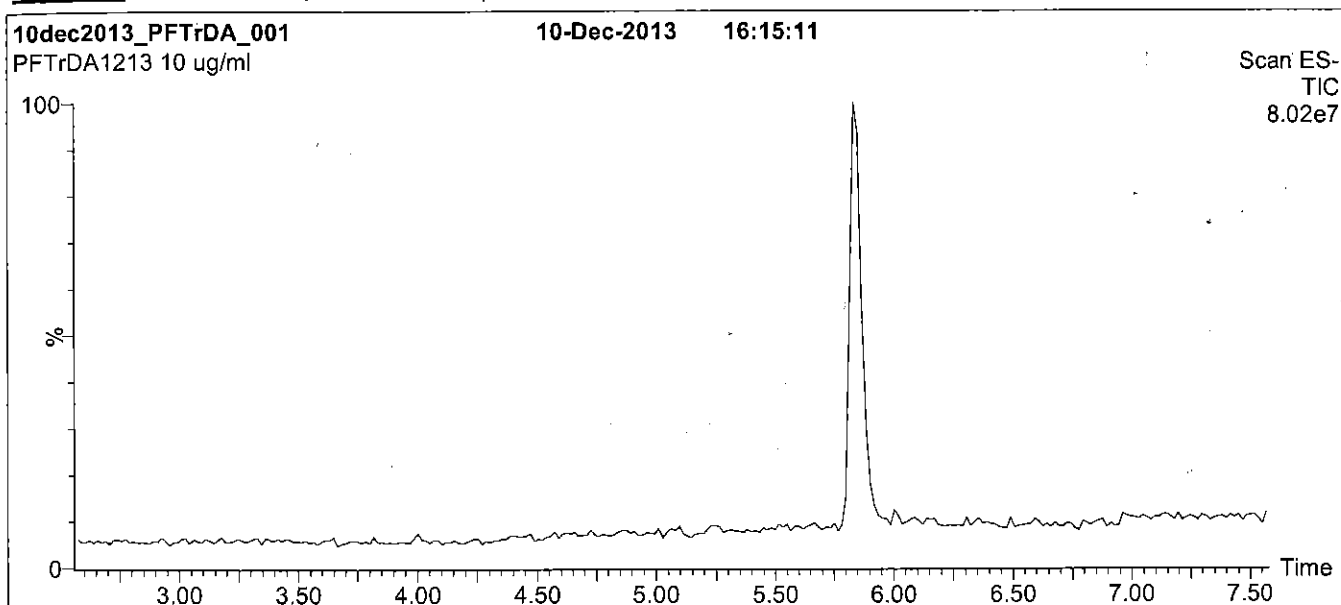
QUALITY MANAGEMENT:

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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

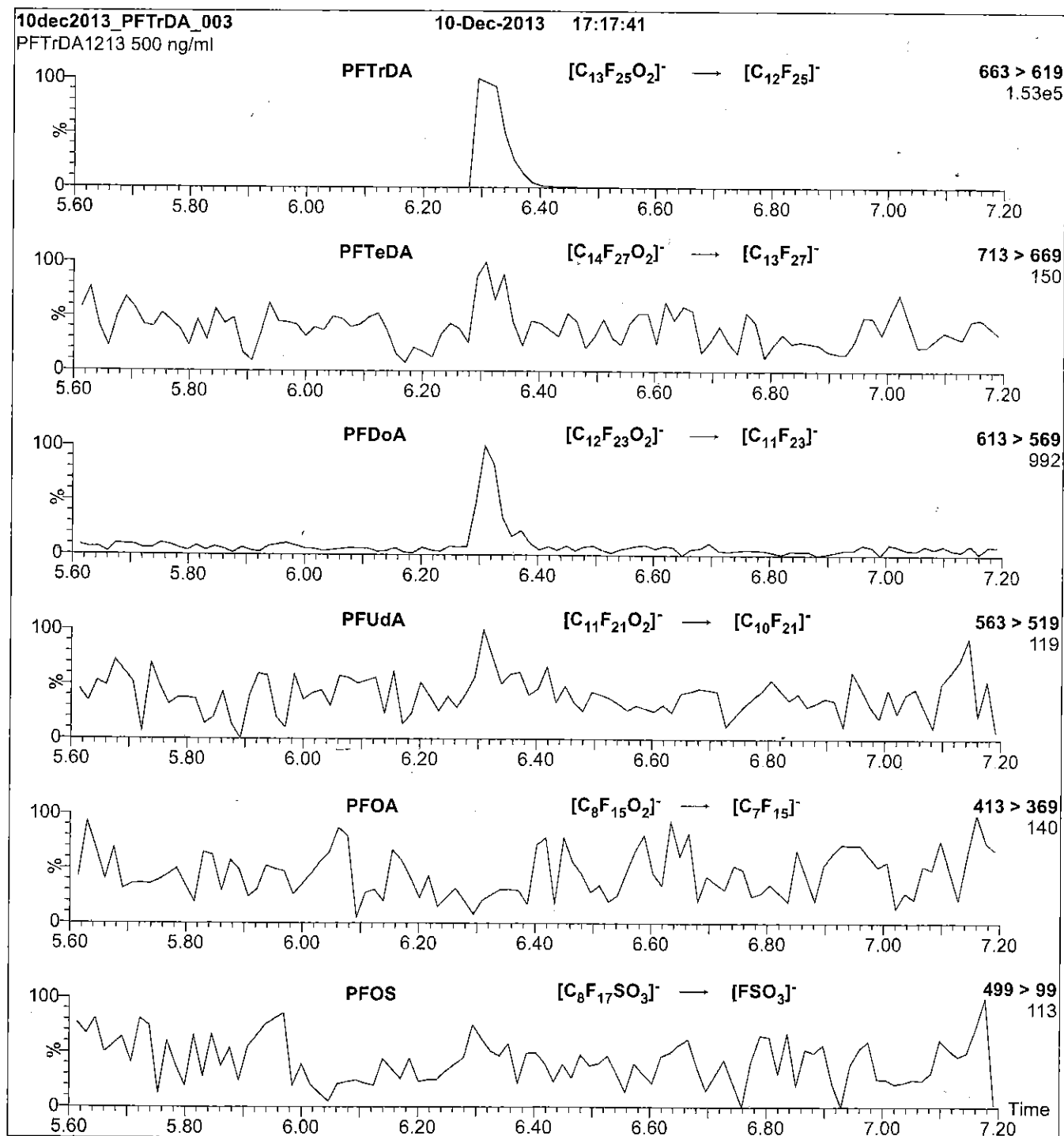
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (215 - 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% (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) = 15

Reagent

LCPFUdA_00004



WELLINGTON LABORATORIES

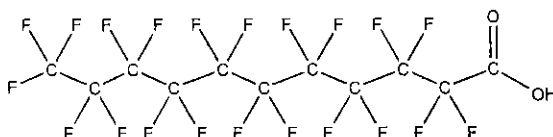
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid

LOT NUMBER: PFUdA0815

STRUCTURE:

CAS #: 2058-94-8



MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$

MOLECULAR WEIGHT: 564.09
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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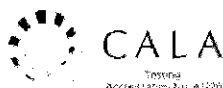
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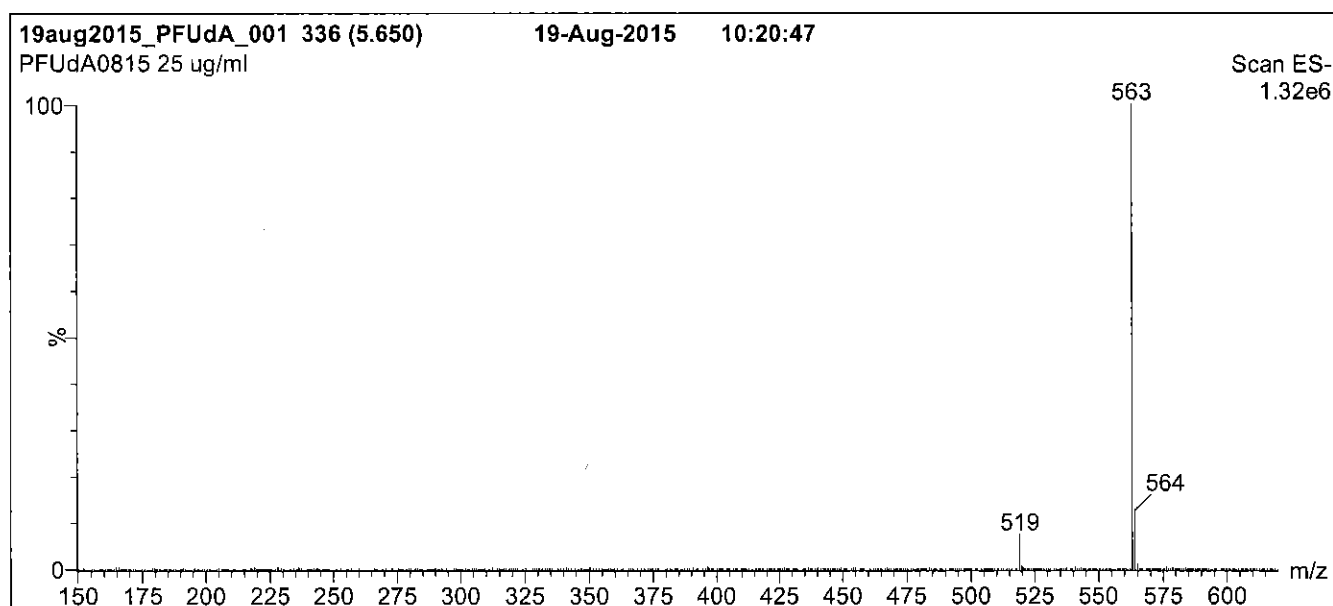
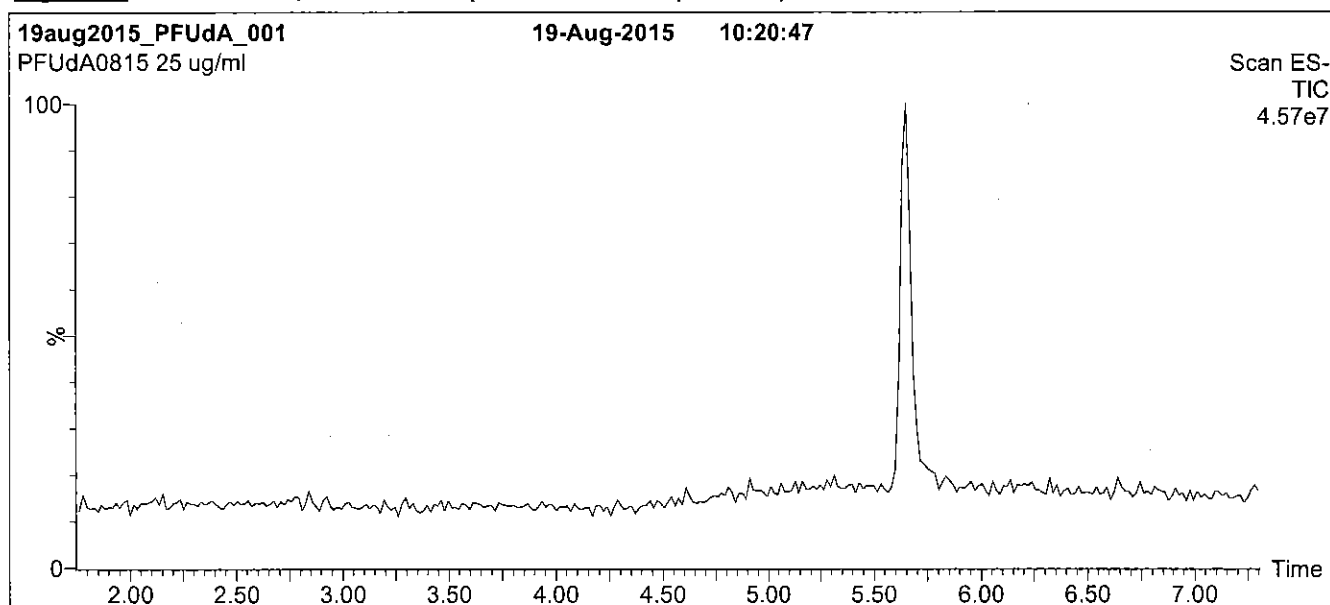
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Figure 1: PFUdA; LC/MS Data (TIC and Mass Spectrum)



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

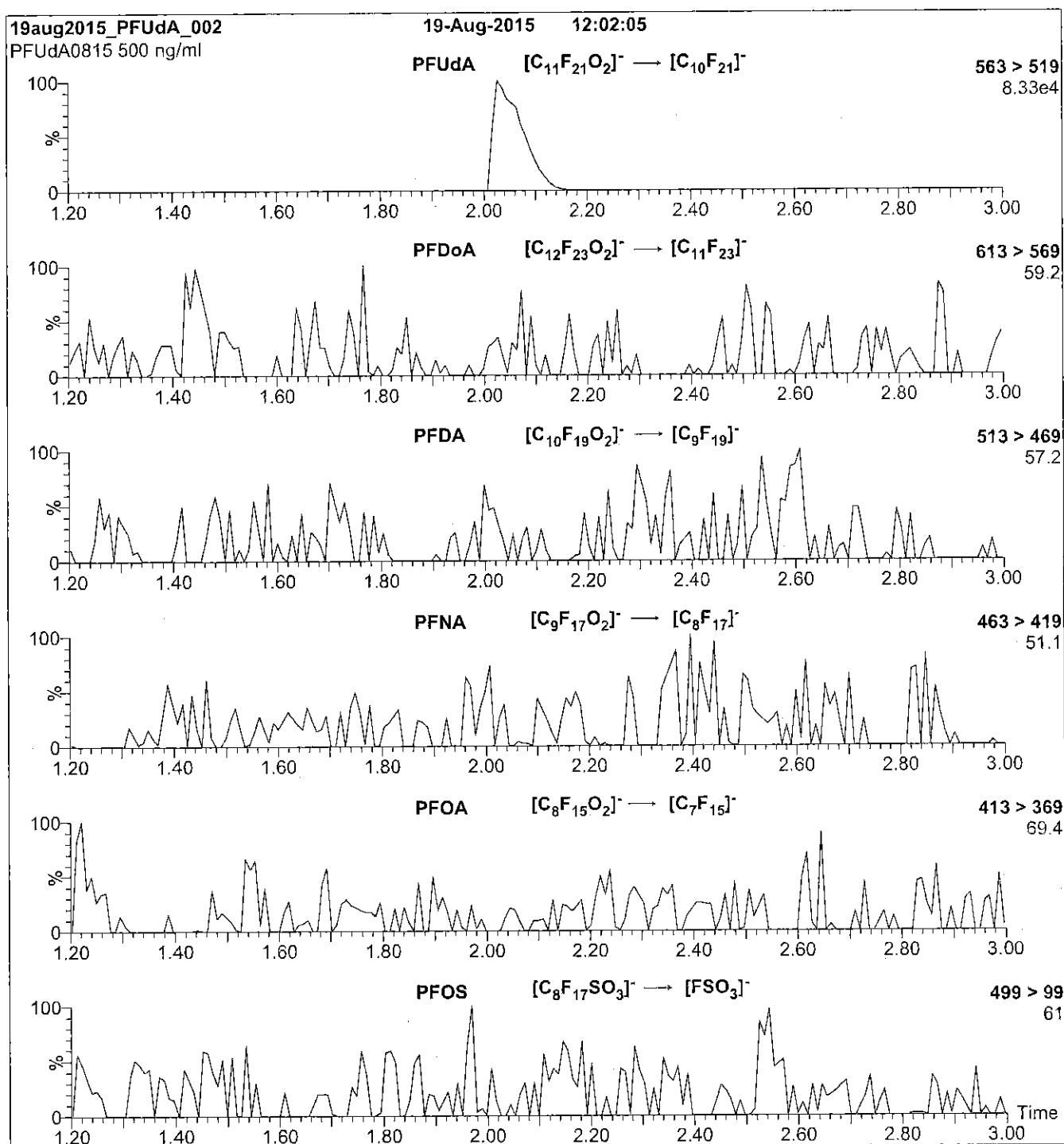
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 11

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS)
by Method PFC_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	13CHpA #	PFHxS #	PFOA #	PFOS #	PFNA #
FB081716	320-21044-1	140	148	142	149	141	137 M
EB081716	320-21044-2	134	144	136	139	131	134
MCFSMW-3_0816	320-21044-3	84	80	91	89	102	62
MCFSMW-3_0816 DL	320-21044-3 DL	110	91	110	99	113	77
46MW05_0816	320-21044-4	96	89	109	91	105	58
46MW05_0816 DL	320-21044-4 DL	123	114	138	117	133	91
46MW03_0816	320-21044-5	100	109	126	104	132	83
MCFSMW-14_0816	320-21044-6	101	109	126	102	128	92
MCFSMW-4_0816	320-21044-7	78	88	104	89	117	86
MCFSMW-5_0816	320-21044-8	90	100	119	95	117	75
	MB 320-123451/1-A	130	147	133	139	130	129
	LCS 320-123451/2-A	123	131	128	131	125	120
	LCSD 320-123451/3-A	128	137	132	135	128	122

	<u>QC LIMITS</u>
PFHxA = 13C2 PFHxA	25-150
13CHpA = 13C4-PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	25-150
PFNA = 13C5 PFNA	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.: 320-21044-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 03SEP2016D_006_p1_e1.d
 Lab ID: LCS 320-123451/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
13C2 PFHxA	100	123	123	25-150	
13C4 PFOA	100	131	131	25-150	
13C4 PFOS	95.6	119	125	25-150	
13C4-PFHpA	100	131	131	25-150	
13C5 PFNA	100	120	120	25-150	
18O2 PFHxS	94.6	121	128	25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.2	97	50-150	
Perfluoroheptanoic acid (PFHpA)	40.0	36.6	91	60-140	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.2	86	60-140	
Perfluorononanoic acid (PFNA)	40.0	36.5	91	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	29.5	79	60-140	
Perfluorooctanoic acid (PFOA)	40.0	37.9	95	60-140	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 03SEP2016D_007_p1_e1.d
 Lab ID: LCSD 320-123451/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
13C2 PFHxA	100	128	128			25-150	
13C4 PFOA	100	135	135			25-150	
13C4 PFOS	95.6	123	128			25-150	
13C4-PFHpA	100	137	137			25-150	
13C5 PFNA	100	122	122			25-150	
18O2 PFHxS	94.6	125	132			25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.6	98	1	30	50-150	
Perfluoroheptanoic acid (PFHpA)	40.0	35.4	89	3	30	60-140	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.8	87	2	30	60-140	
Perfluorononanoic acid (PFNA)	40.0	36.6	91	0	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	30.0	81	2	30	60-140	
Perfluorooctanoic acid (PFOA)	40.0	36.6	91	4	30	60-140	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Lab File ID: 03SEP2016D_005_p1_e1.d Lab Sample ID: MB 320-123451/1-A
 Matrix: Water Date Extracted: 08/22/2016 13:34
 Instrument ID: A8 Date Analyzed: 09/04/2016 13:08
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-123451/2-A	03SEP2016D 006 p1 e1.d	09/04/2016 13:16
	LCSD 320-123451/3-A	03SEP2016D 007 p1 e1.d	09/04/2016 13:23
FB081716	320-21044-1	03SEP2016D 008 p1 e1.d	09/04/2016 13:31
EB081716	320-21044-2	03SEP2016D 009 p1 e1.d	09/04/2016 13:38
MCFSMW-3_0816	320-21044-3	03SEP2016D 010 p1 e1.d	09/04/2016 13:46
46MW05_0816	320-21044-4	03SEP2016D 011 p1 e1.d	09/04/2016 13:54
46MW03_0816	320-21044-5	03SEP2016D 012 p1 e1.d	09/04/2016 14:01
MCFSMW-14_0816	320-21044-6	03SEP2016D 013 p1 e1.d	09/04/2016 14:08
MCFSMW-4_0816	320-21044-7	03SEP2016D 014 p1 e1.d	09/04/2016 14:16
MCFSMW-5_0816	320-21044-8	03SEP2016D 019 p1 e1.d	09/04/2016 14:54
MCFSMW-3_0816 DL	320-21044-3 DL	19SEP2016B 019 p1 e1.d	09/19/2016 20:40
46MW05_0816 DL	320-21044-4 DL	19SEP2016B 020 p1 e1.d	09/19/2016 20:48

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>FB081716</u>	Lab Sample ID: <u>320-21044-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_008_p1_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 10:20</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>551.1 (mL)</u>	Date Analyzed: <u>09/04/2016 13:31</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.4		2.3	1.8	0.73
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.4		2.3	1.8	0.79
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.3	1.8	0.59
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	J M	3.6	2.7	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	2.7	M	2.3	1.8	0.68

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	140		25-150
STL00990	13C4 PFOA	149		25-150
STL00991	13C4 PFOS	141		25-150
STL01892	13C4-PFHpA	148		25-150
STL00995	13C5 PFNA	137	M	25-150
STL00994	18O2 PFHxS	142		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d
 Lims ID: 320-21044-A-1-A
 Client ID: FB081716
 Sample Type: Client
 Inject. Date: 04-Sep-2016 13:31:00 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:33:44

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.942	1.944	-0.002	1.000	145605	0.3736				
298.9 > 99.0	1.942	1.944	-0.002	1.000	61846		2.35(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.209	2.213	-0.004		10122805	70.1		140	1226438	
D 11 13C4-PFHpA										
367 > 322.0	2.559	2.556	0.003		9669752	73.9		148	550566	
12 Perfluoroheptanoic acid										
363 > 319.0	2.559	2.556	0.003	1.000	265500	1.32			2872	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.574	2.571	0.003	1.000	363120	1.32				
D 10 18O2 PFHxS										
403 > 84.0	2.574	2.571	0.003		12113979	67.0		142	715173	
15 Perfluorooctanoic acid										
413 > 369.0	2.937	2.919	0.018	1.000	336410	1.49			4260	M
413 > 169.0	2.929	2.919	0.010	0.997	226161		1.49(0.90-1.10)		17453	M
D 14 13C4 PFOA										
417 > 372.0	2.929	2.928	0.001		10882883	74.6		149	439337	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.188	3.195	-0.006	1.000	383186	1.60			13318	M
499 > 99.0	3.305	3.195	0.111	1.037	124803		3.07(0.90-1.10)		6766	M
D 17 13C4 PFOS										
503 > 80.0	3.314	3.304	0.010		9761196	67.4		141	522363	
D 19 13C5 PFNA										
468 > 423.0	3.323	3.312	0.011		8705976	68.3		137	438993	M
20 Perfluorononanoic acid										
463 > 419.0	3.314	3.312	0.002	1.000	10041	0.0569			296	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d

Injection Date: 04-Sep-2016 13:31:00

Instrument ID: A8

Lims ID: 320-21044-A-1-A

Lab Sample ID: 320-21044-1

Client ID: FB081716

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 8

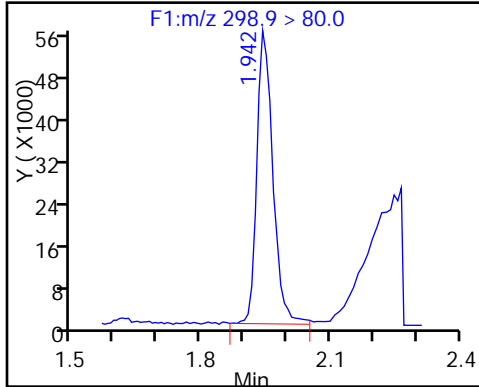
Injection Vol: 2.0 uL

Dil. Factor: 1.0000

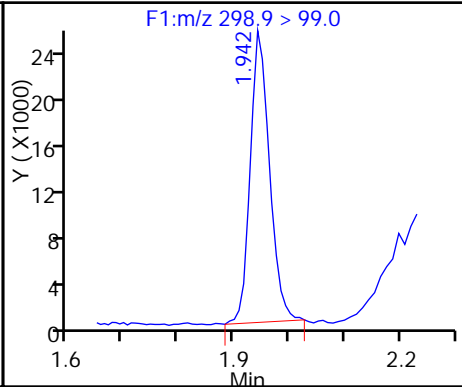
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

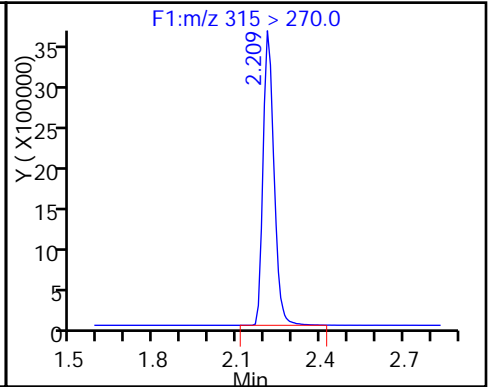
5 Perfluorobutanesulfonic acid



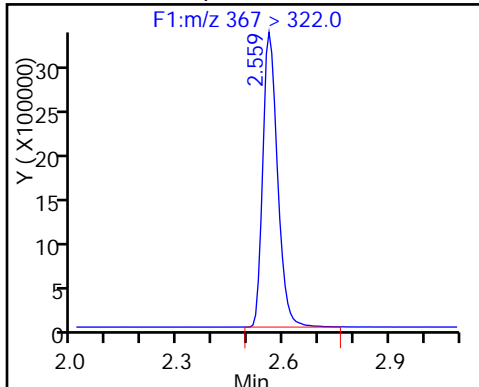
5 Perfluorobutanesulfonic acid



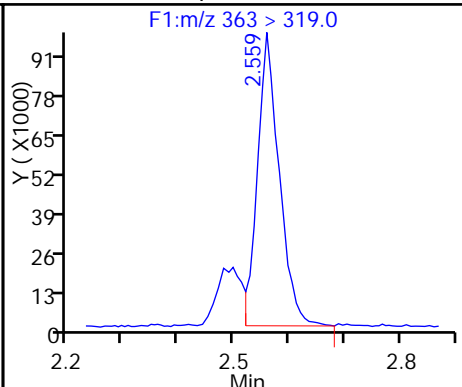
D 6 13C2 PFHxA



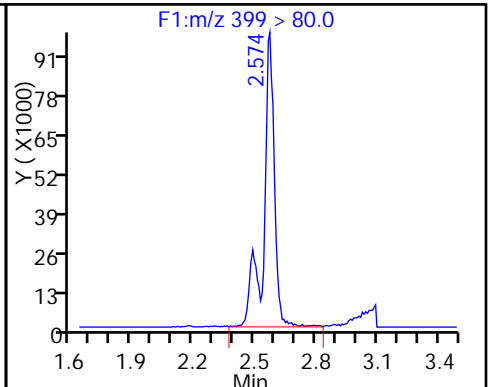
D 11 13C4-PFHpA



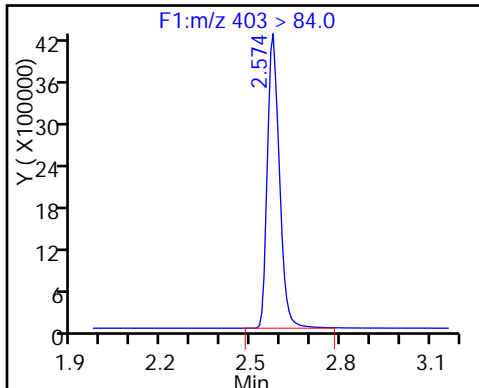
12 Perfluoroheptanoic acid



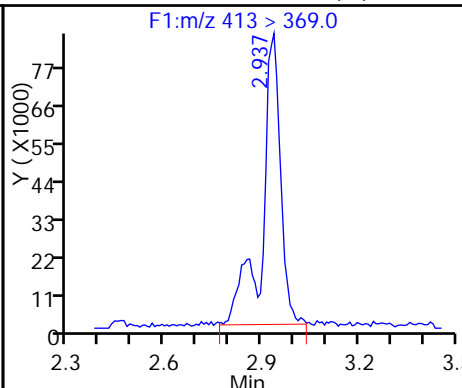
9 Perfluorohexanesulfonic acid



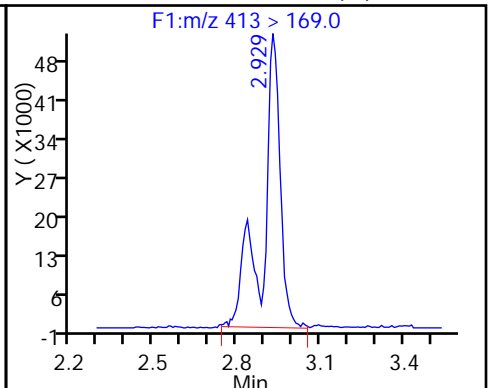
D 10 18O2 PFHxS



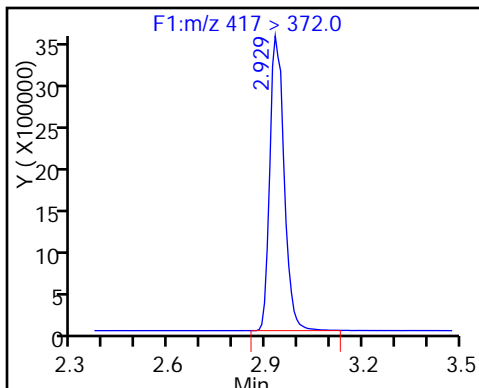
15 Perfluorooctanoic acid (M)



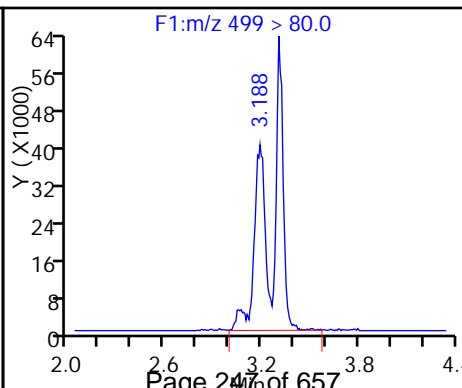
15 Perfluorooctanoic acid (M)



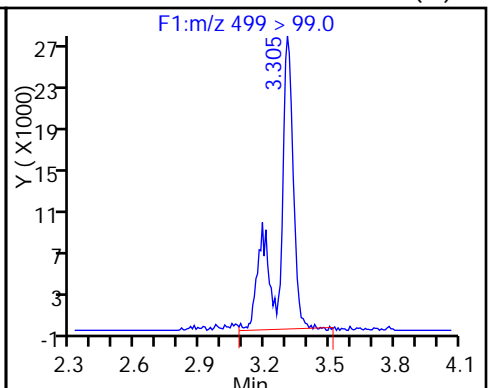
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



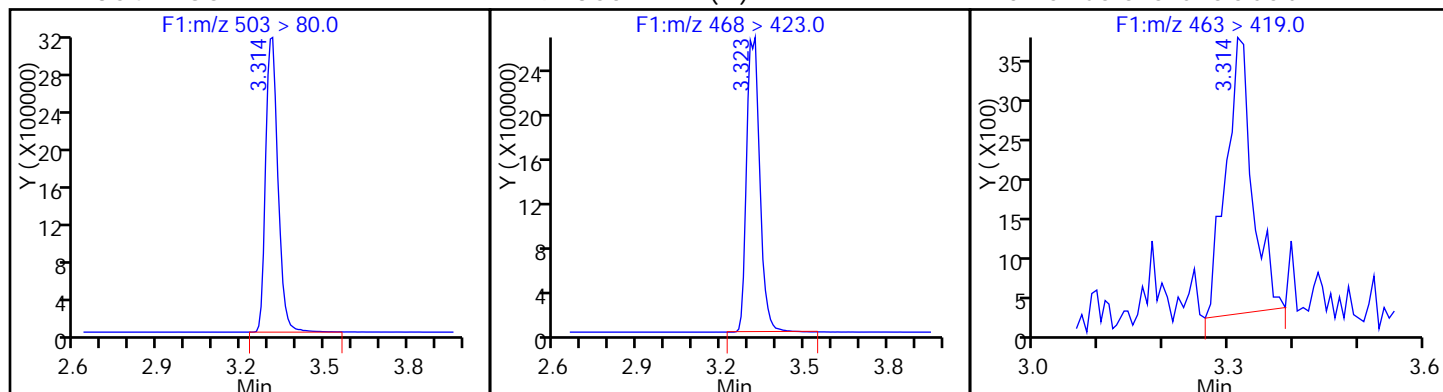
18 Perfluorooctane sulfonic acid (M)



D 17 13C4 PFOS

D 19 13C5 PFNA (M)

20 Perfluorononanoic acid



TestAmerica Sacramento

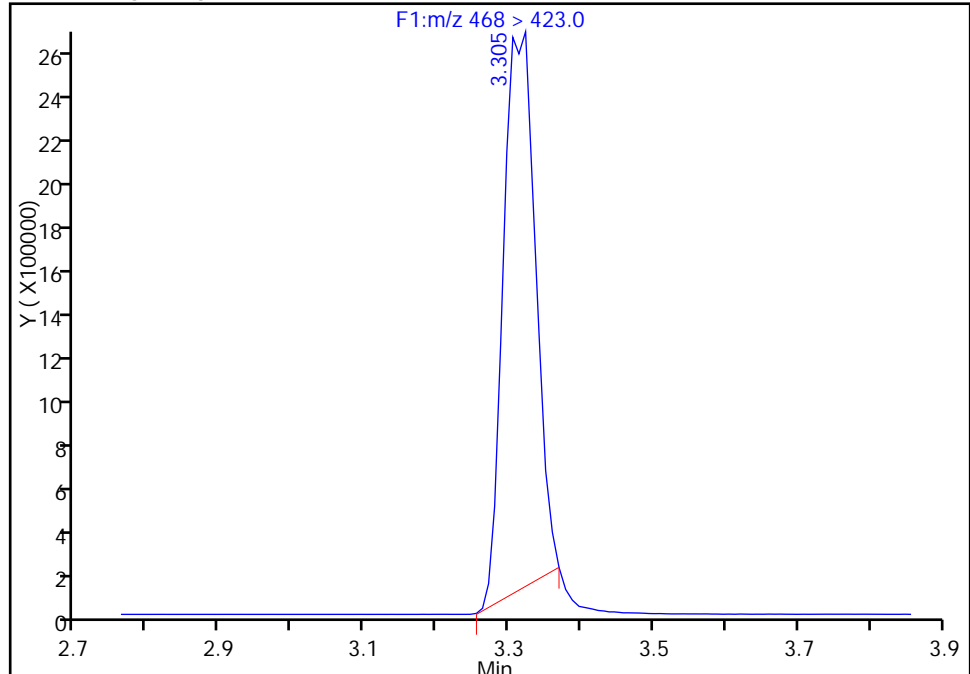
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d
Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8
Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1
Client ID: FB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

D 19 13C5 PFNA, CAS: STL00995

Signal: 1

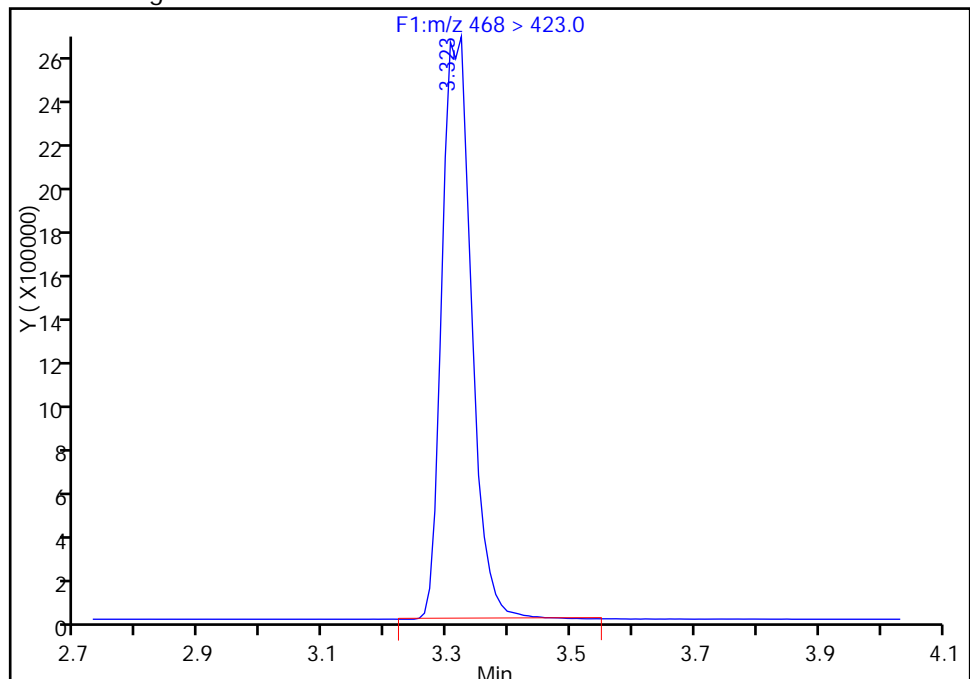
RT: 3.31
Area: 7827138
Amount: 61.376556
Amount Units: ng/ml

Processing Integration Results



RT: 3.32
Area: 8705976
Amount: 68.267970
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:33:44
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

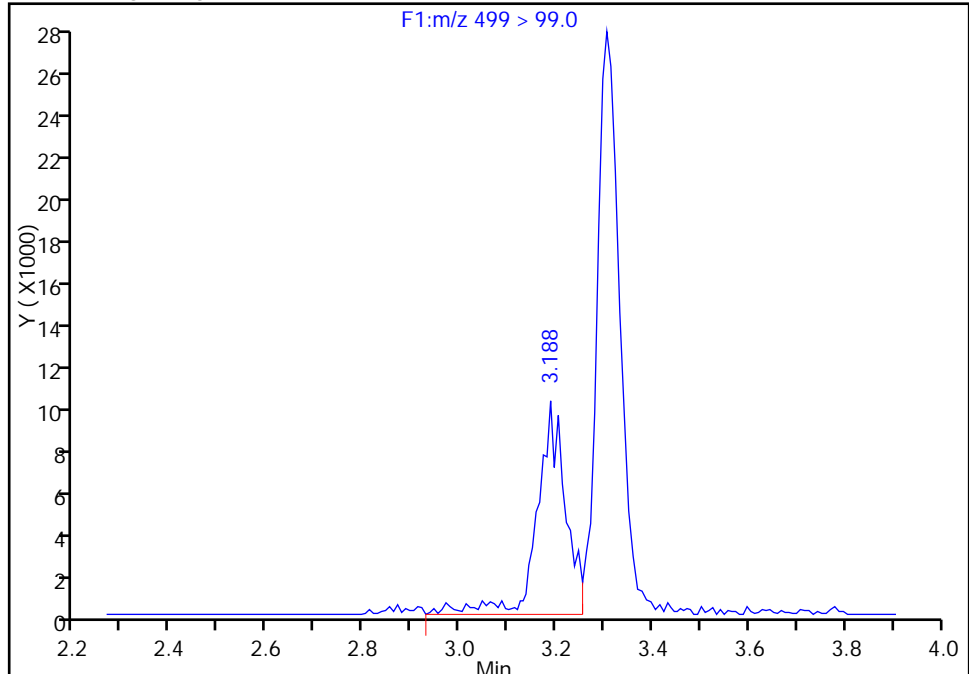
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d
Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8
Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1
Client ID: FB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 2

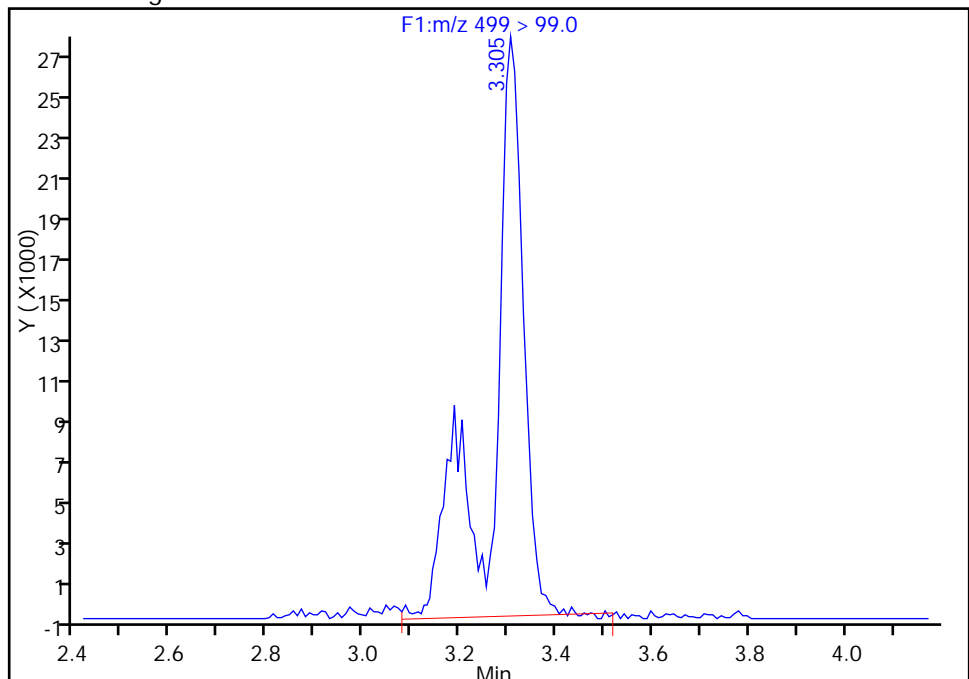
RT: 3.19
Area: 40797
Amount: 1.596707
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 124803
Amount: 1.596707
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:33:44
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

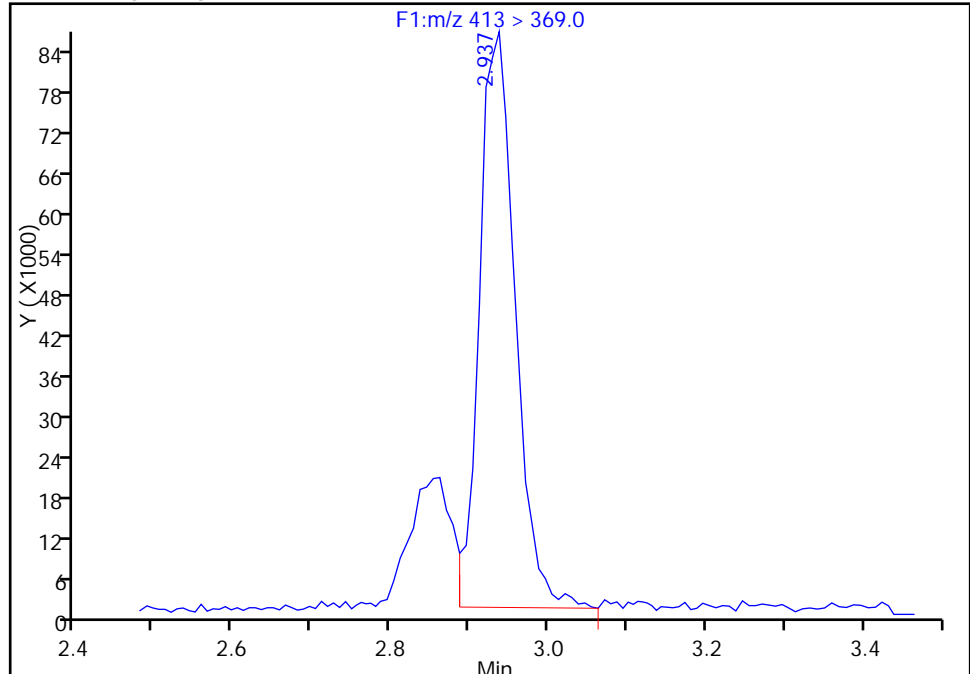
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d
Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8
Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1
Client ID: FB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

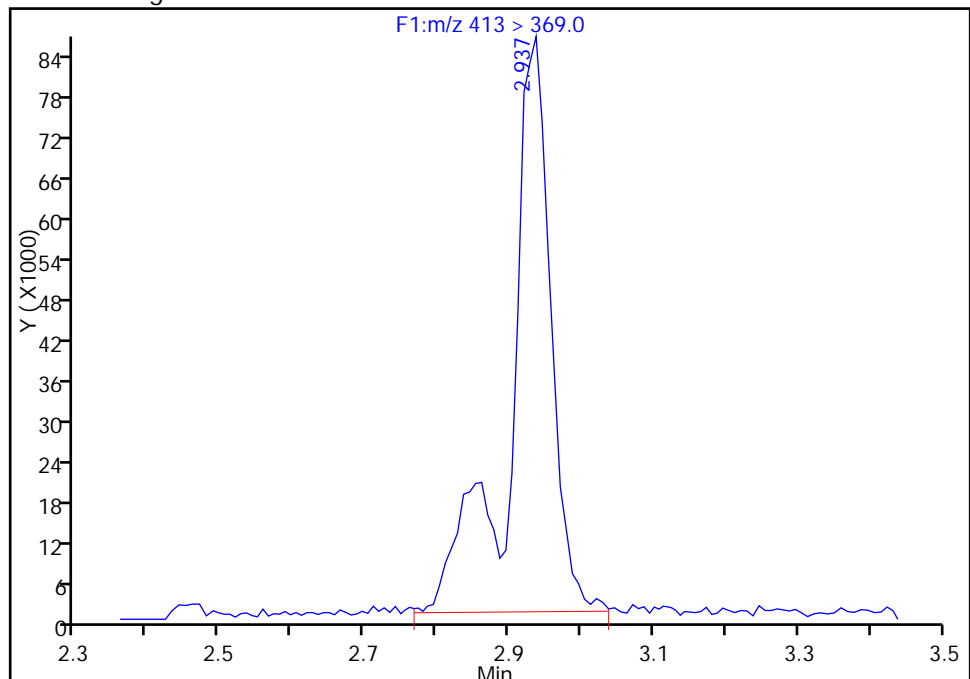
RT: 2.94
Area: 267908
Amount: 1.183030
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 336410
Amount: 1.485522
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:33:44
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

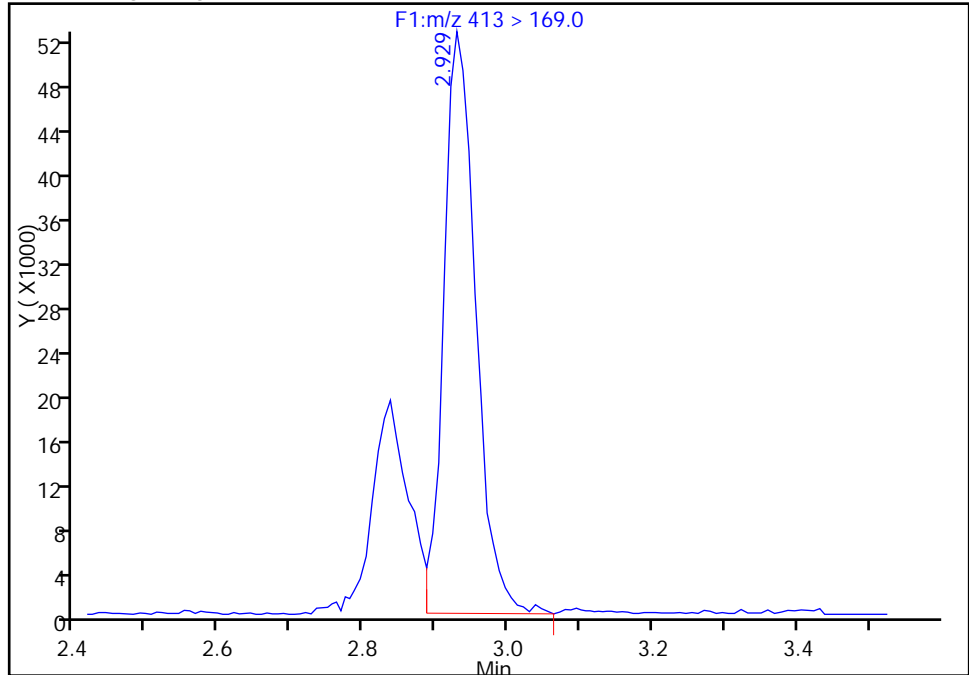
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d
Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8
Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1
Client ID: FB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

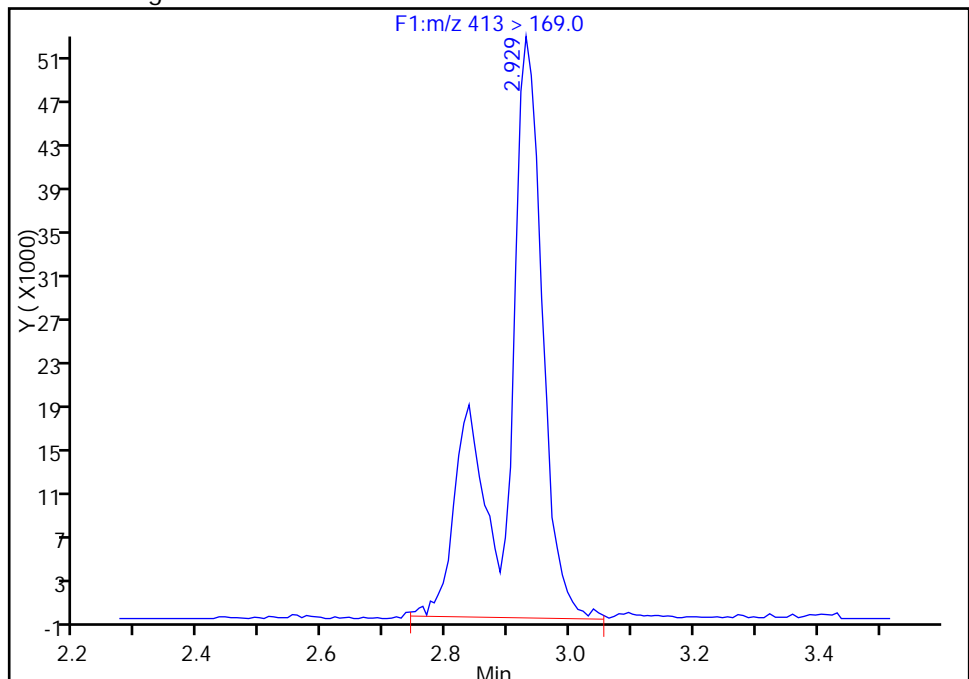
RT: 2.93
Area: 160154
Amount: 1.183030
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 226161
Amount: 1.485522
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:33:44

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>EB081716</u>	Lab Sample ID: <u>320-21044-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_009_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 10:23</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>536.9 (mL)</u>	Date Analyzed: <u>09/04/2016 13:38</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.3	1.9	0.85
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.9	U	2.3	1.9	0.81
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U M	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.3	J M	3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	U M	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	134		25-150
STL00990	13C4 PFOA	139		25-150
STL00991	13C4 PFOS	131		25-150
STL01892	13C4-PFHpA	144		25-150
STL00995	13C5 PFNA	134		25-150
STL00994	18O2 PFHxS	136		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d
 Lims ID: 320-21044-A-2-A
 Client ID: EB081716
 Sample Type: Client
 Inject. Date: 04-Sep-2016 13:38:00 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:35:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.950	1.944	0.006	1.000	20789	0.0554				
298.9 > 99.0	1.950	1.944	0.006	1.000	8861		2.35(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.209	2.213	-0.004		9689187	67.1		134	689360	
D 11 13C4-PFHpA										
367 > 322.0	2.559	2.556	0.003		9415096	71.9		144	646127	
12 Perfluoroheptanoic acid										
363 > 319.0	2.566	2.556	0.010	1.000	27177	0.1387			367	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.582	2.571	0.011	1.000	79797	0.3012				
D 10 18O2 PFHxS										
403 > 84.0	2.582	2.571	0.011		11666974	64.6		136	793659	
15 Perfluorooctanoic acid										
413 > 369.0	2.933	2.919	0.013	1.000	73328	0.3485			1028	M
413 > 169.0	2.933	2.919	0.013	1.000	41268		1.78(0.90-1.10)		2046	M
D 14 13C4 PFOA										
417 > 372.0	2.933	2.928	0.004		10111170	69.3		139	572194	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.198	3.195	0.004	1.000	150067	0.6756			3258	
499 > 99.0	3.299	3.195	0.105	1.032	45315		3.31(0.90-1.10)		3110	M
D 17 13C4 PFOS										
503 > 80.0	3.307	3.304	0.003		9034443	62.4		131	334407	
D 19 13C5 PFNA										
468 > 423.0	3.307	3.312	-0.005		8569404	67.2		134	447810	
20 Perfluorononanoic acid										
463 > 419.0	3.307	3.312	-0.005	1.000	8031	0.0462			348	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d

Injection Date: 04-Sep-2016 13:38:00

Instrument ID: A8

Lims ID: 320-21044-A-2-A

Lab Sample ID: 320-21044-2

Client ID: EB081716

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 9

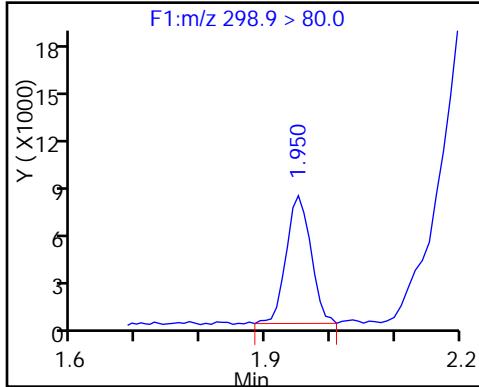
Injection Vol: 2.0 uL

Dil. Factor: 1.0000

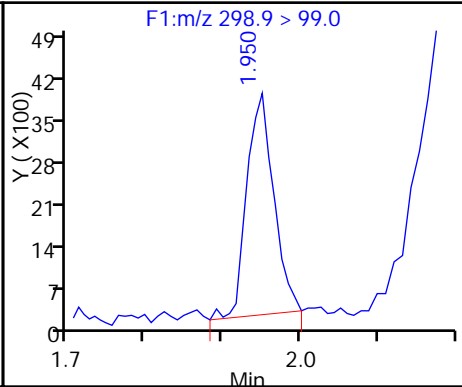
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

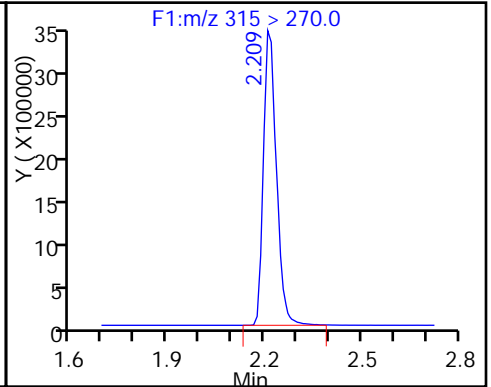
5 Perfluorobutanesulfonic acid



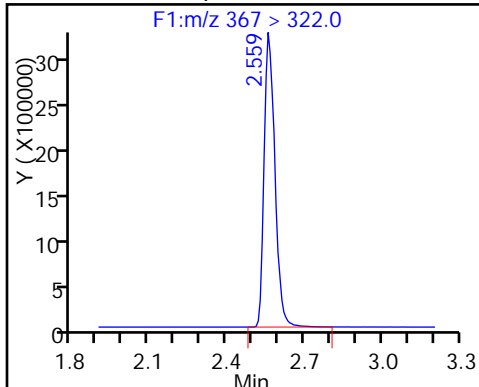
5 Perfluorobutanesulfonic acid



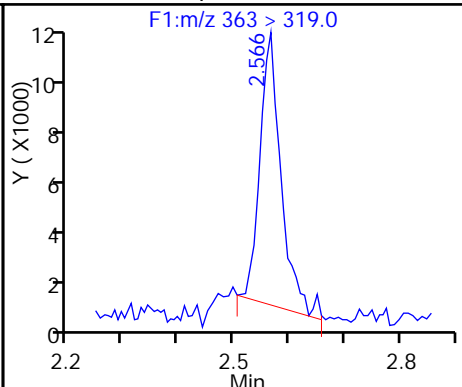
D 6 13C2 PFHxA



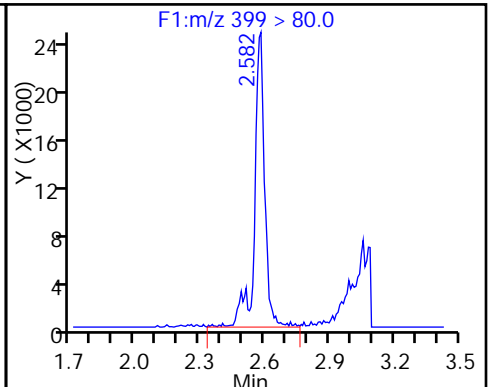
D 11 13C4-PFHpA



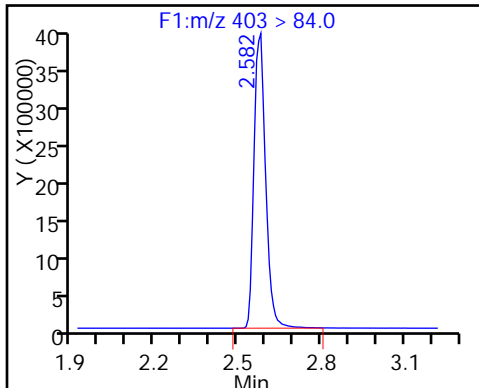
12 Perfluoroheptanoic acid



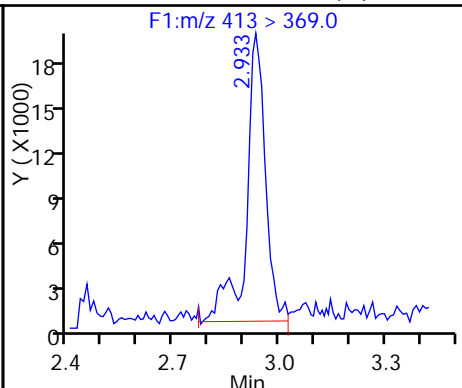
9 Perfluorohexanesulfonic acid



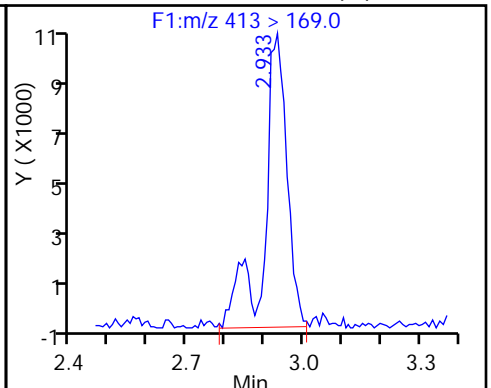
D 10 18O2 PFHxS



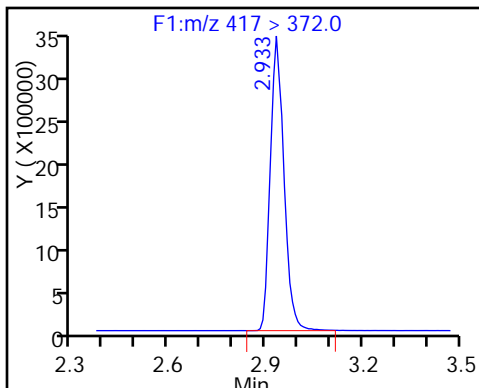
15 Perfluorooctanoic acid (M)



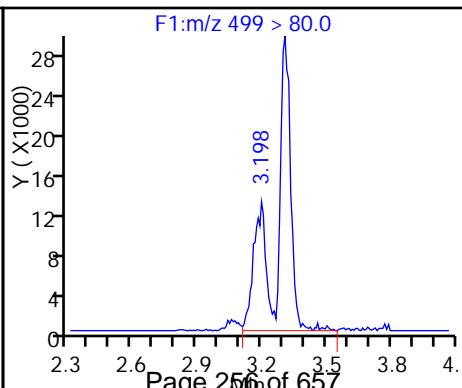
15 Perfluorooctanoic acid (M)



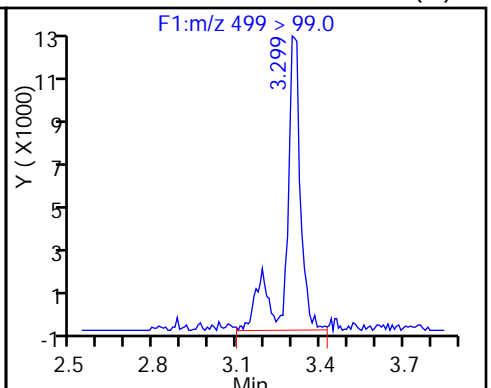
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



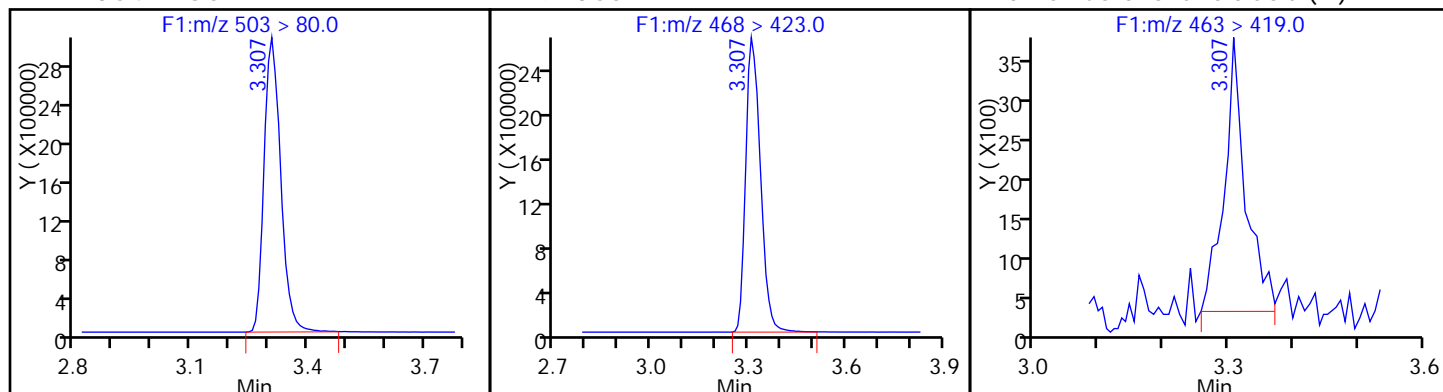
18 Perfluorooctane sulfonic acid (M)



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



TestAmerica Sacramento

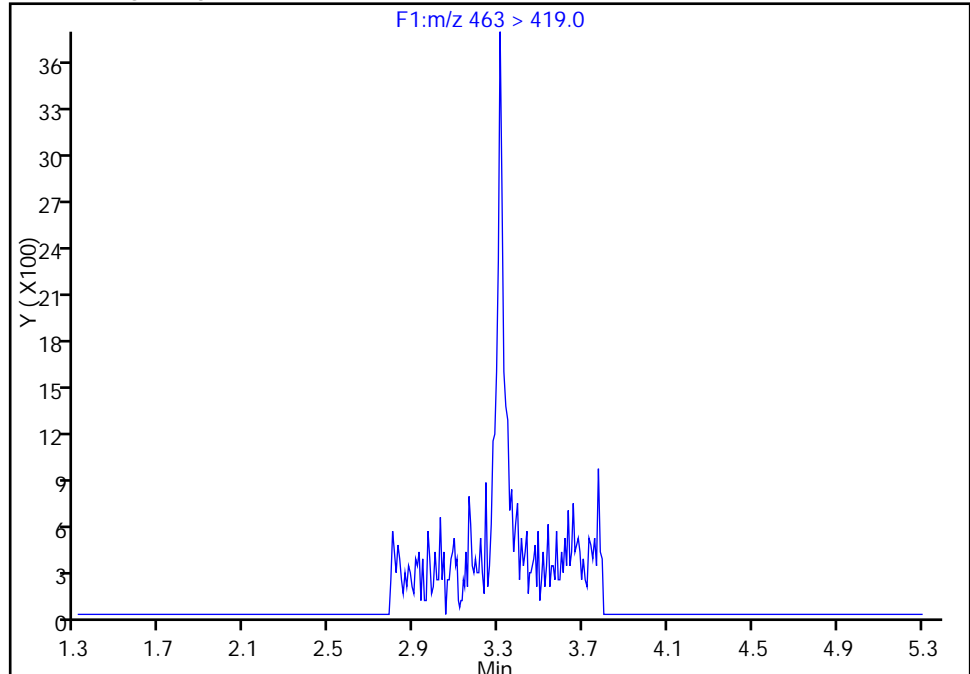
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d
Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8
Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2
Client ID: EB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

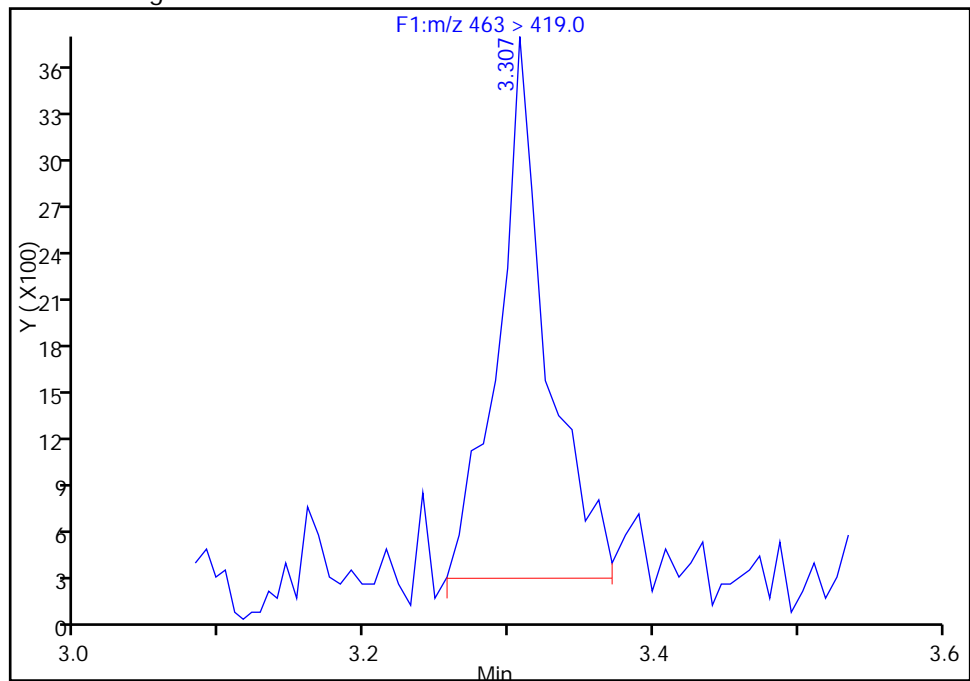
Not Detected
Expected RT: 3.31

Processing Integration Results



RT: 3.31
Area: 8031
Amount: 0.046230
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:35:52
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

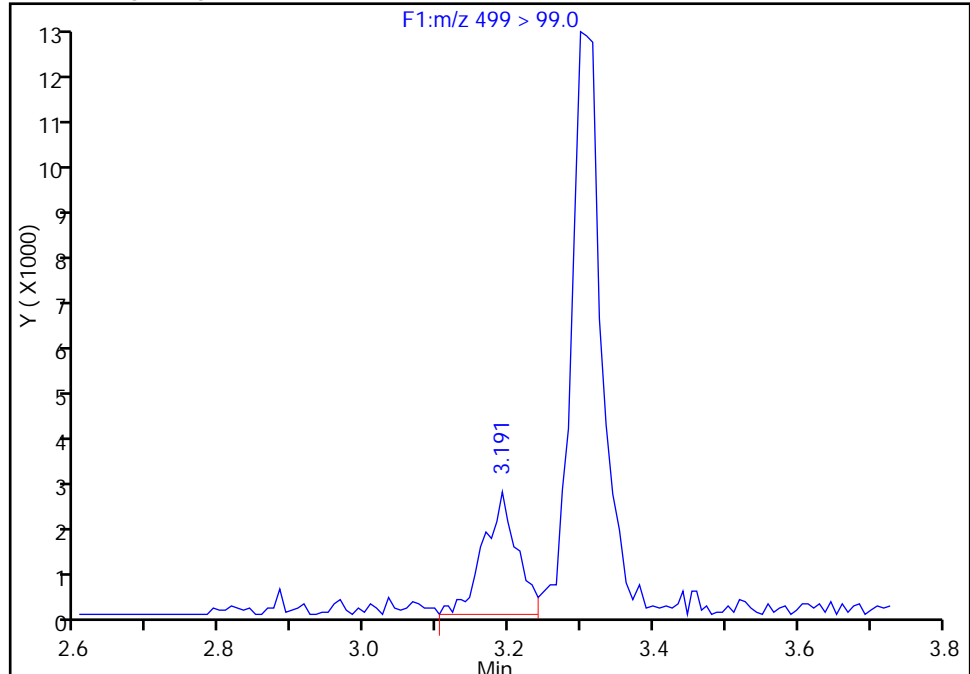
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d
Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8
Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2
Client ID: EB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 2

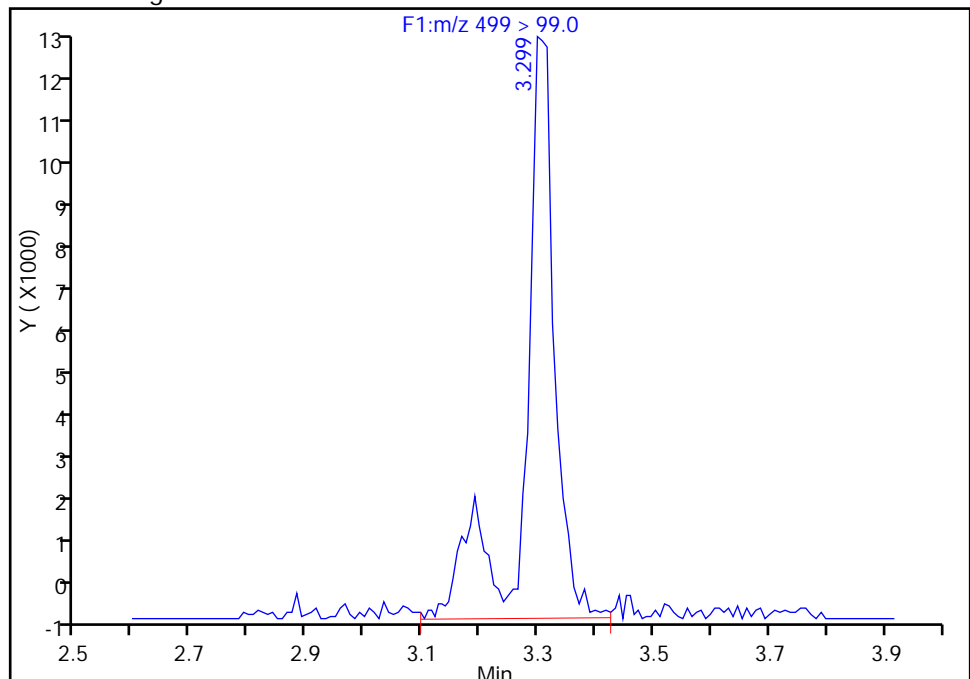
RT: 3.19
Area: 8409
Amount: 0.675620
Amount Units: ng/ml

Processing Integration Results



RT: 3.30
Area: 45315
Amount: 0.675620
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:35:52
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

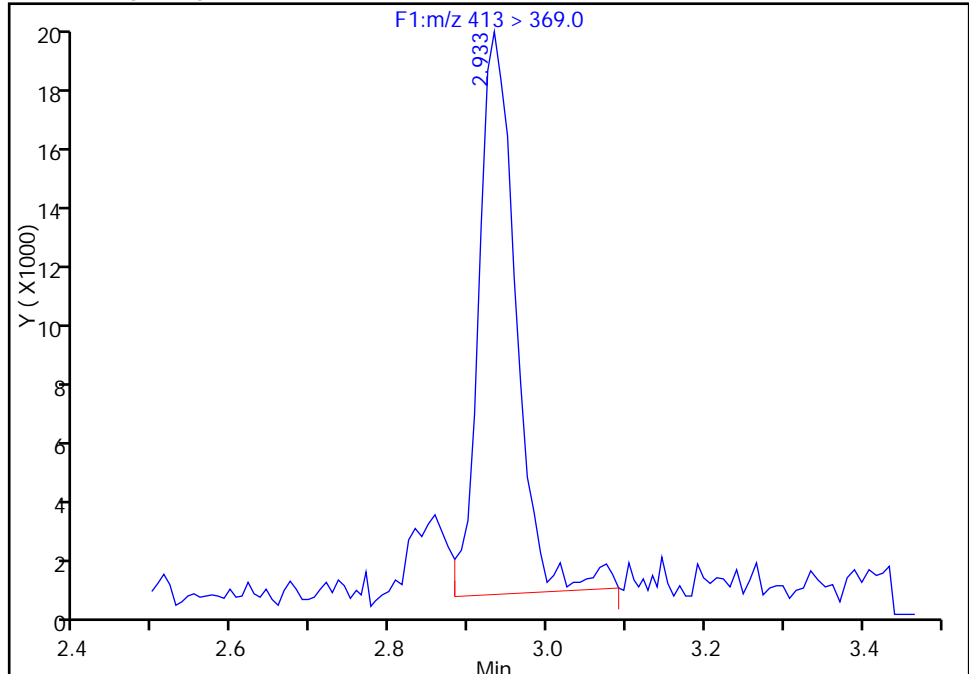
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d
Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8
Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2
Client ID: EB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

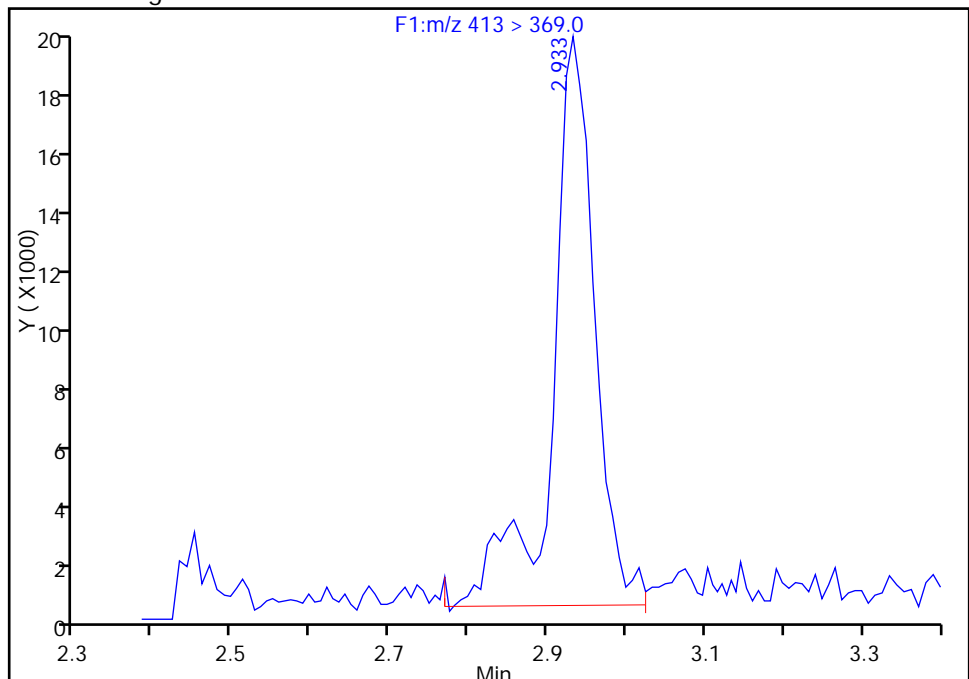
RT: 2.93
Area: 63214
Amount: 0.300446
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 73328
Amount: 0.348516
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:35:52
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

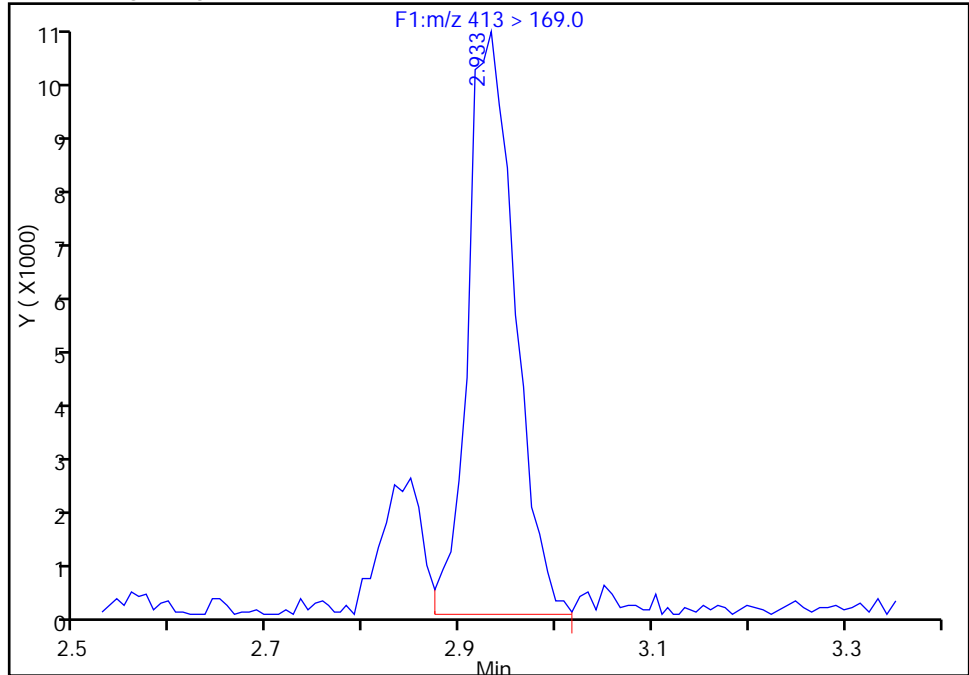
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d
Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8
Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2
Client ID: EB081716
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

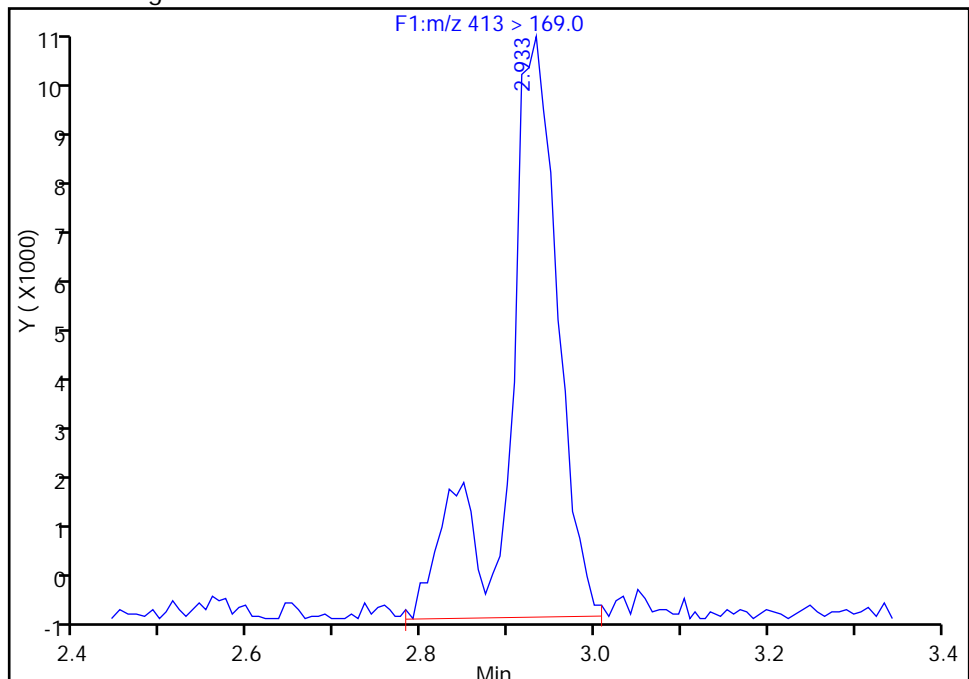
RT: 2.93
Area: 34568
Amount: 0.300446
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 41268
Amount: 0.348516
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:35:52

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>MCFSMW-3_0816</u>	Lab Sample ID: <u>320-21044-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_010_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 11:06</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>533.4 (mL)</u>	Date Analyzed: <u>09/04/2016 13:46</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31		2.3	1.9	0.86
375-85-9	Perfluoroheptanoic acid (PFHpA)	26		2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	8.7	M	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	650		3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	100	M	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		25-150
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	102		25-150
STL01892	13C4-PFHpA	80		25-150
STL00995	13C5 PFNA	62		25-150
STL00994	18O2 PFHxS	91		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d
 Lims ID: 320-21044-A-3-A
 Client ID: MCFSMW-3_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 13:46:00 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:38:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.944	1.944	0.0	1.000	4197413	16.8				
298.9 > 99.0	1.944	1.944	0.0	1.000	1744708		2.41(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.214	2.213	0.001		6092677	42.2		84.4	483130	
D 11 13C4-PFHpA										
367 > 322.0	2.555	2.556	-0.001		5228764	40.0		79.9	454723	
12 Perfluoroheptanoic acid										
363 > 319.0	2.563	2.556	0.007	1.000	1485996	13.7			5971	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.578	2.571	0.007	1.000	66668287	377.3				E E
D 10 18O2 PFHxS										
403 > 84.0	2.570	2.571	-0.001		7783335	43.1		91.1	489897	
15 Perfluorooctanoic acid										
413 > 369.0	2.935	2.919	0.016	1.000	7572919	56.0			63487	M
413 > 169.0	2.927	2.919	0.008	0.997	4653644		1.63(0.90-1.10)		183061	M
D 14 13C4 PFOA										
417 > 372.0	2.927	2.928	-0.001		6498890	44.6		89.1	366714	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.183	3.195	-0.011	1.000	60608288	348.1			274789	
499 > 99.0	3.273	3.195	0.079	1.029	14195754		4.27(0.90-1.10)		74642	
D 17 13C4 PFOS										
503 > 80.0	3.307	3.304	0.003		7081914	48.9		102	105156	
D 19 13C5 PFNA										
468 > 423.0	3.307	3.312	-0.005		3973840	31.2		62.3	170029	
20 Perfluorononanoic acid										
463 > 419.0	3.307	3.312	-0.005	1.000	374302	4.65			3066	M M

[QC Flag Legend](#)

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d

Injection Date: 04-Sep-2016 13:46:00

Instrument ID: A8

Lims ID: 320-21044-A-3-A

Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 10

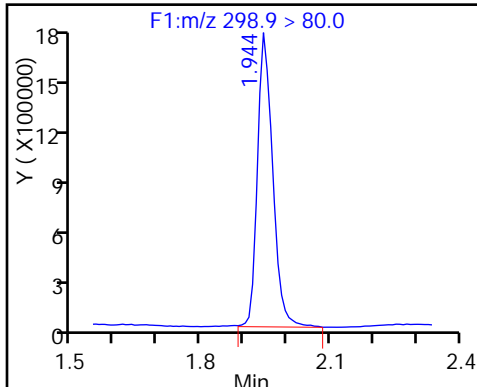
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

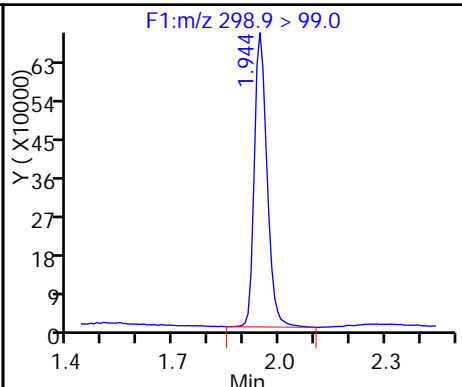
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

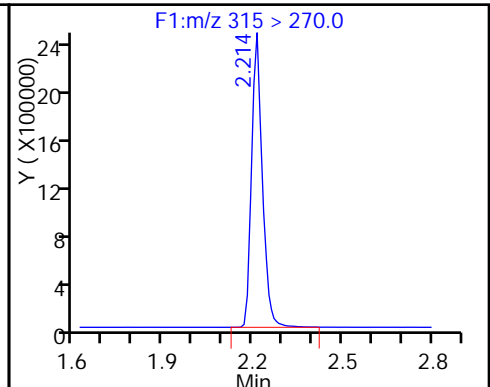
5 Perfluorobutanesulfonic acid



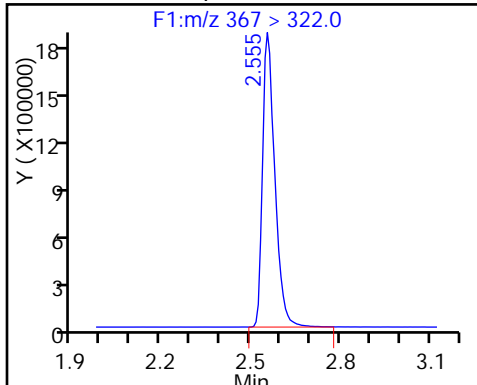
5 Perfluorobutanesulfonic acid



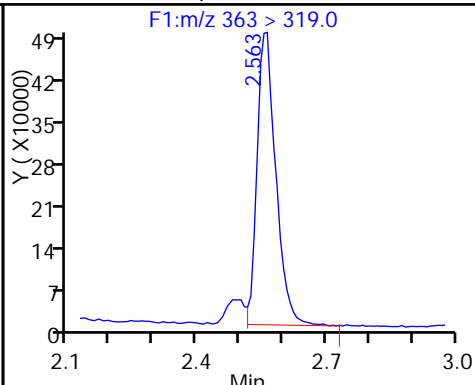
D 6 13C2 PFHxA



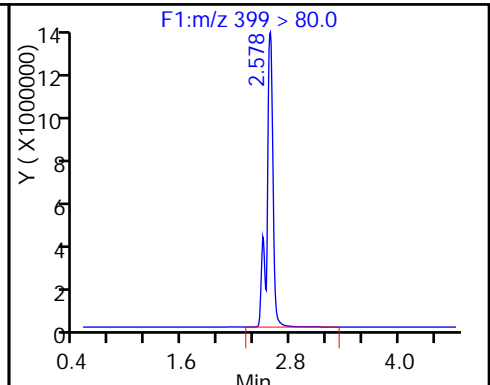
D 11 13C4-PFHpA



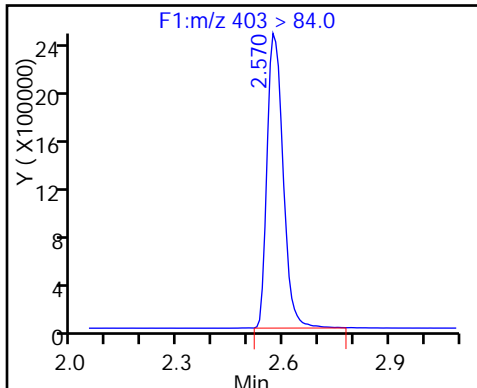
12 Perfluoroheptanoic acid



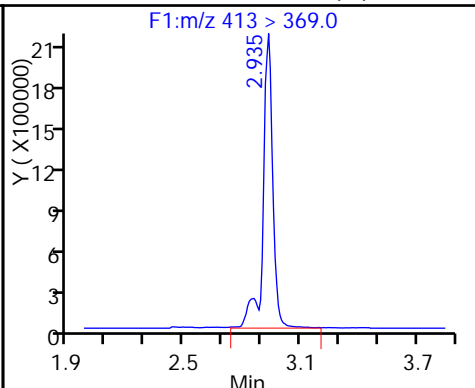
9 Perfluorohexanesulfonic acid



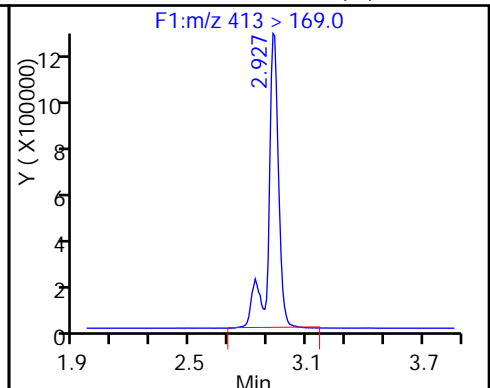
D 10 18O2 PFHxS



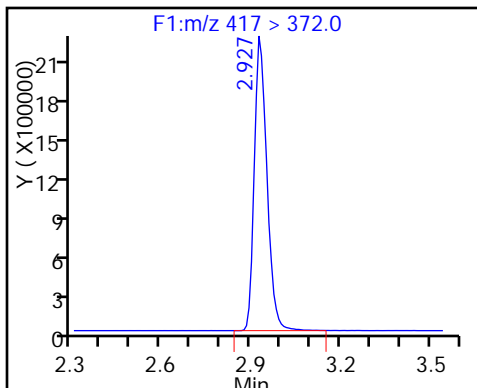
15 Perfluorooctanoic acid (M)



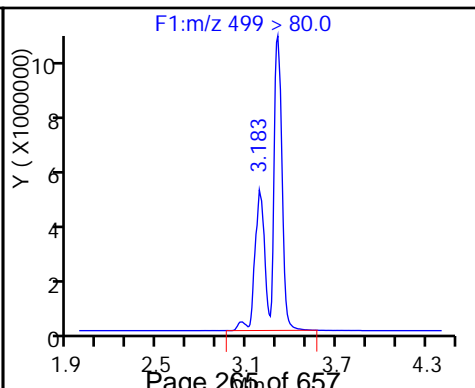
15 Perfluorooctanoic acid (M)



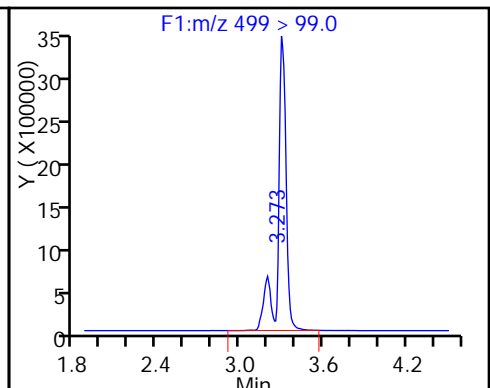
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



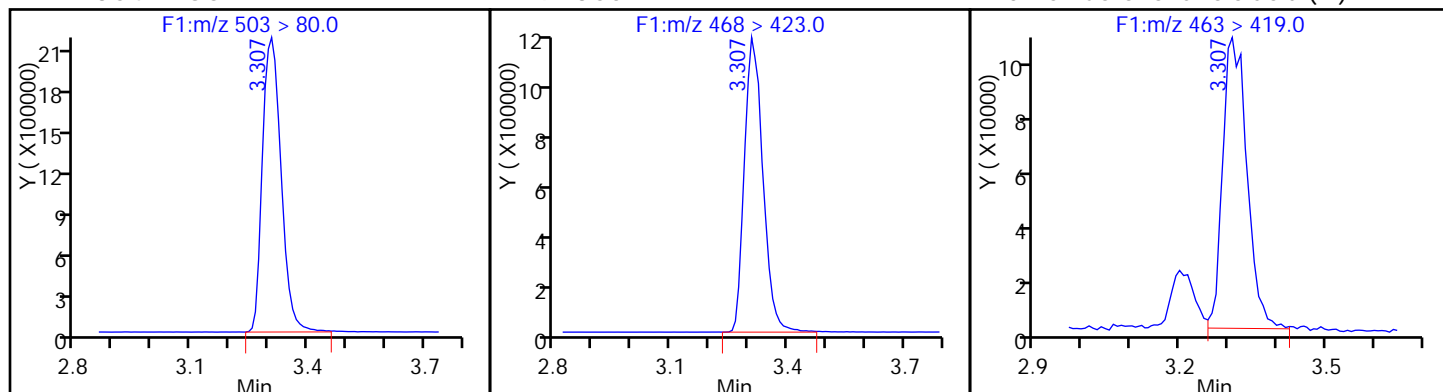
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



TestAmerica Sacramento

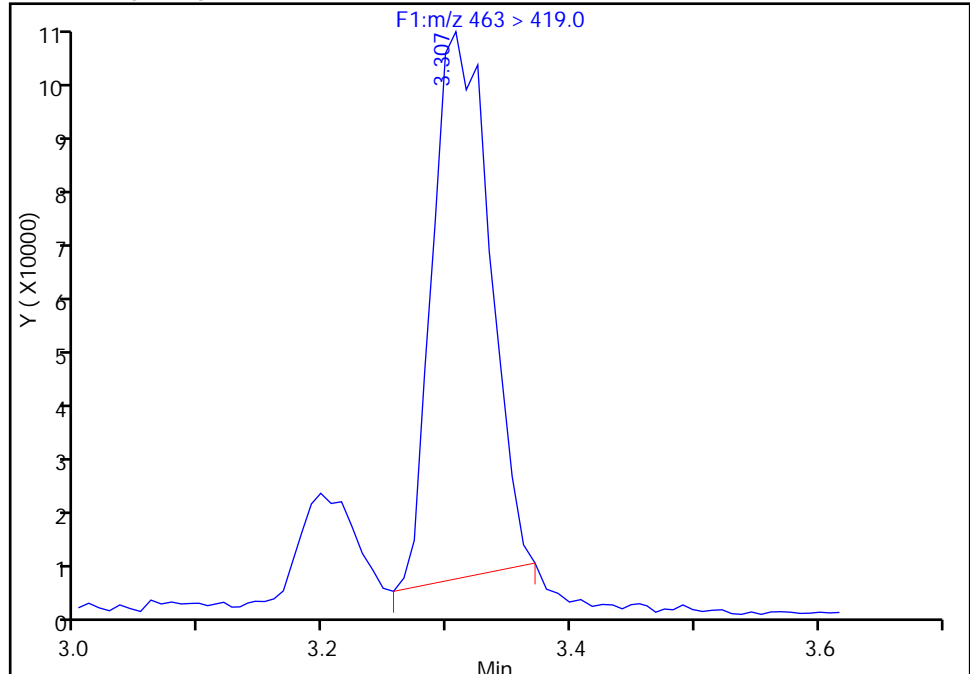
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d
Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8
Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3
Client ID: MCFSMW-3_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

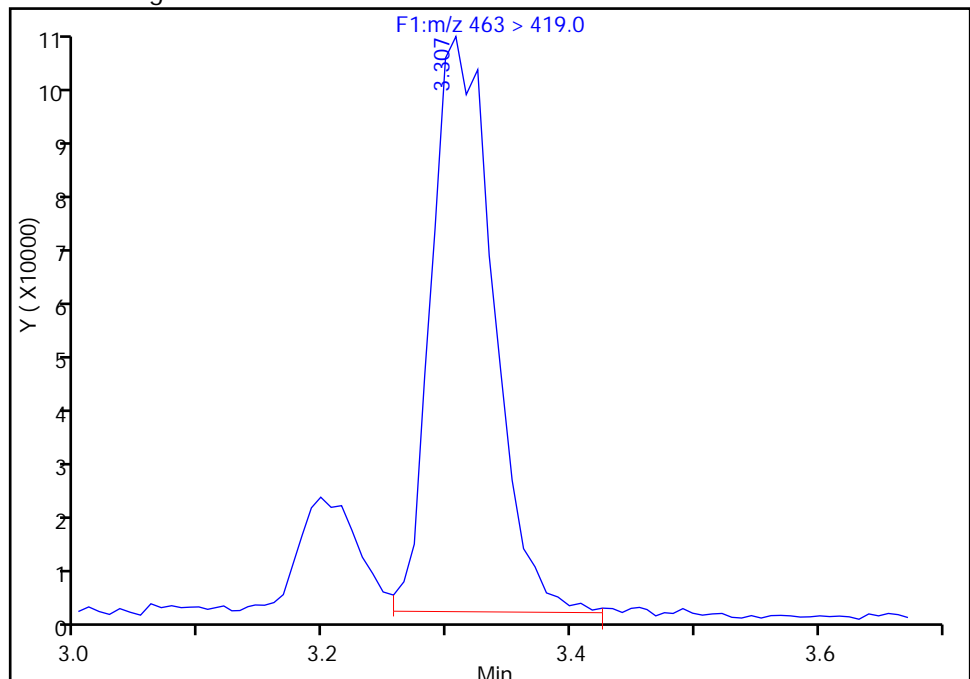
RT: 3.31
Area: 326810
Amount: 4.056850
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 374302
Amount: 4.646391
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:38:55
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

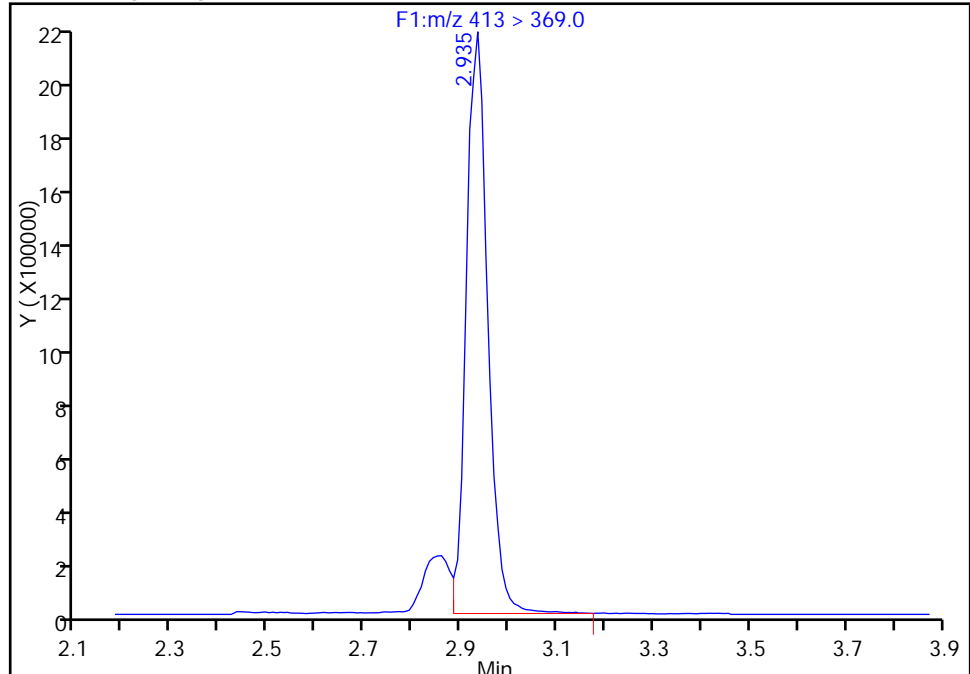
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d
Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8
Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3
Client ID: MCFSMW-3_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

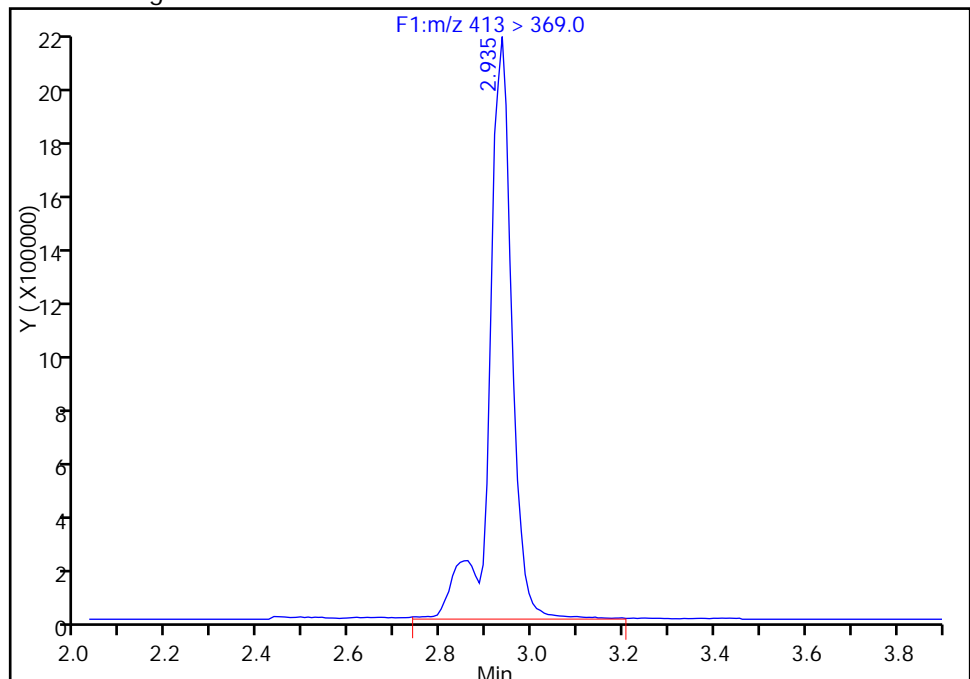
RT: 2.93
Area: 6661701
Amount: 49.260644
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 7572919
Amount: 55.998741
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:38:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

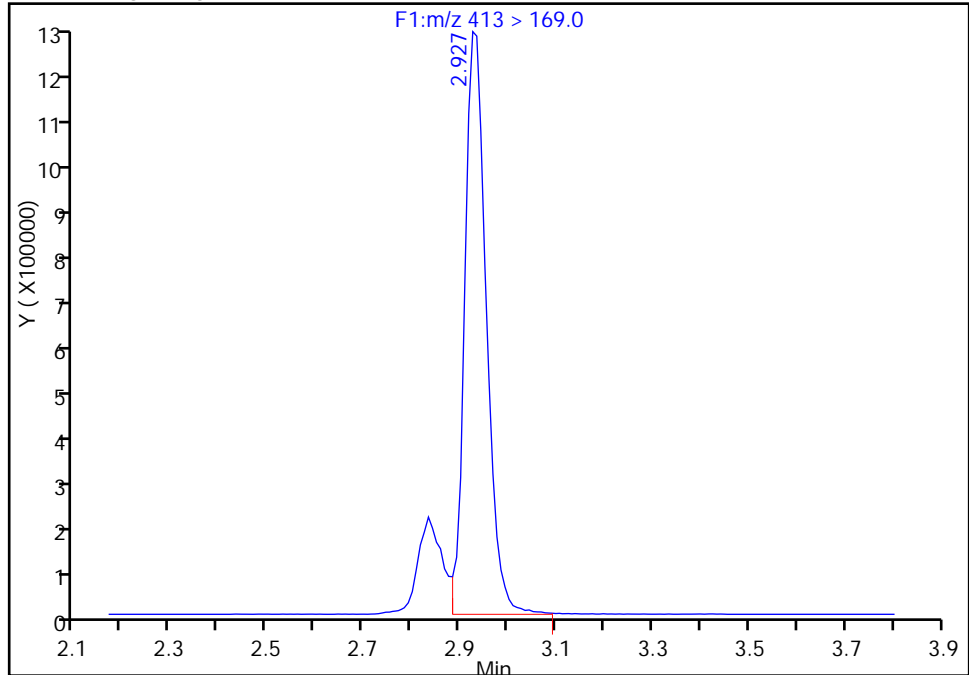
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d
Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8
Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3
Client ID: MCFSMW-3_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

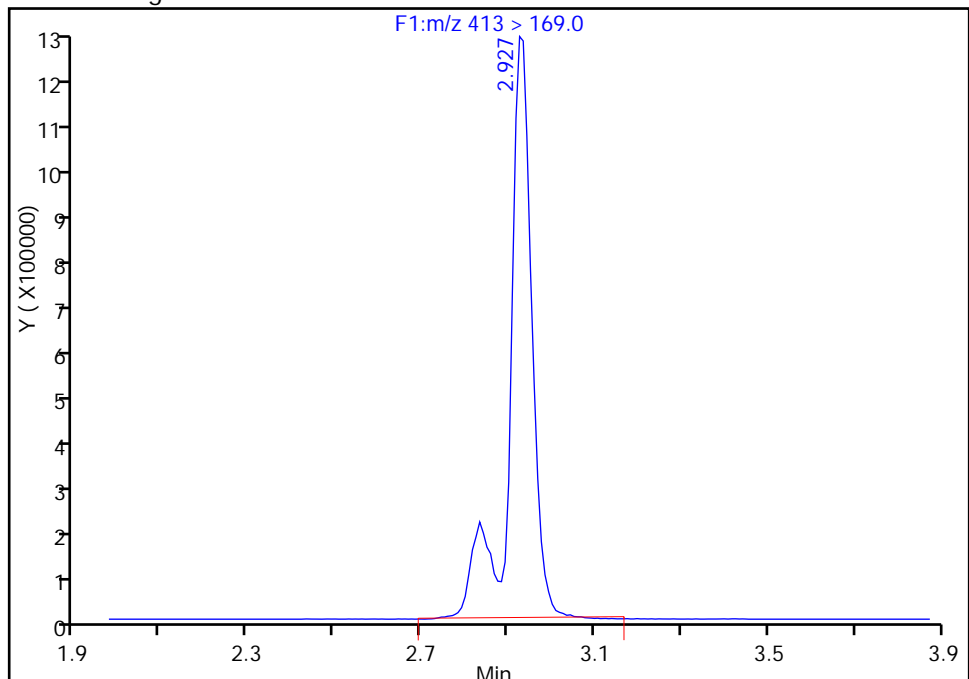
RT: 2.93
Area: 4006021
Amount: 49.260644
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 4653644
Amount: 55.998741
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:38:55

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>MCFSMW-3_0816 DL</u>	Lab Sample ID: <u>320-21044-3 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>19SEP2016B_019_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 11:06</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>533.4 (mL)</u>	Date Analyzed: <u>09/19/2016 20:40</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>2</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>128009</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	<i>Perfluorobutanesulfonic acid (PFBS)</i>	28	D	4.7	3.7	1.7
375-85-9	<i>Perfluoroheptanoic acid (PFHpA)</i>	26	D	4.7	3.7	1.5
355-46-4	<i>Perfluorohexanesulfonic acid (PFHxS)</i>	790	D	4.7	3.7	1.6
375-95-1	<i>Perfluorononanoic acid (PFNA)</i>	9.3	D M	4.7	3.7	1.2
1763-23-1	<i>Perfluorooctanesulfonic acid (PFOS)</i>	710	D	7.5	5.6	2.4
335-67-1	<i>Perfluorooctanoic acid (PFOA)</i>	100	D	4.7	3.7	1.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		25-150
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	113		25-150
STL01892	13C4-PFHpA	91		25-150
STL00995	13C5 PFNA	77		25-150
STL00994	18O2 PFHxS	110		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d
 Lims ID: 320-21044-A-3-A
 Client ID: MCFSMW-3_0816
 Sample Type: Client
 Inject. Date: 19-Sep-2016 20:40:00 ALS Bottle#: 0 Worklist Smp#: 43
 Injection Vol: 2.0 ul Dil. Factor: 2.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 21-Sep-2016 17:20:09 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK048

First Level Reviewer: chandrasenas

Date: 21-Sep-2016 17:20:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.824	1.844	-0.020	1.000	2198721	7.53				
298.9 > 99.0	1.824	1.844	-0.020	1.000	916924		2.40(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.061	2.096	-0.035		3875564	27.4		54.8	374155	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.407	2.415	-0.008	1.000	41258516	210.1				
12 Perfluoroheptanoic acid										
363 > 319.0	2.389	2.438	-0.049	1.000	907896	7.03			5948	
D 11 13C4-PFHpA										
367 > 322.0	2.395	2.438	-0.043		3100854	22.8		45.7	288663	
D 10 18O2 PFHxS										
403 > 84.0	2.407	2.451	-0.044		4520540	26.0		54.9	329553	
15 Perfluorooctanoic acid										
413 > 369.0	2.754	2.802	-0.048	1.000	3787706	27.9			73329	
413 > 169.0	2.754	2.802	-0.048	1.000	2366158		1.60(0.90-1.10)		144544	
D 14 13C4 PFOA										
417 > 372.0	2.754	2.802	-0.048		3239820	24.7		49.5	296905	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.121	3.154	-0.033	1.000	29451370	189.3			1172177	
499 > 99.0	3.115	3.154	-0.039	0.998	6460323		4.56(0.90-1.10)		0.0	
D 17 13C4 PFOS										
503 > 80.0	3.121	3.177	-0.056		3473468	26.9		56.4	136841	
D 19 13C5 PFNA										
468 > 423.0	3.121	3.179	-0.058		2038522	19.3		38.7	115510	
20 Perfluorononanoic acid										
463 > 419.0	3.121	3.180	-0.059	1.000	204518	2.47			1861	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d

Injection Date: 19-Sep-2016 20:40:00

Instrument ID: A8

Lims ID: 320-21044-A-3-A

Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 43

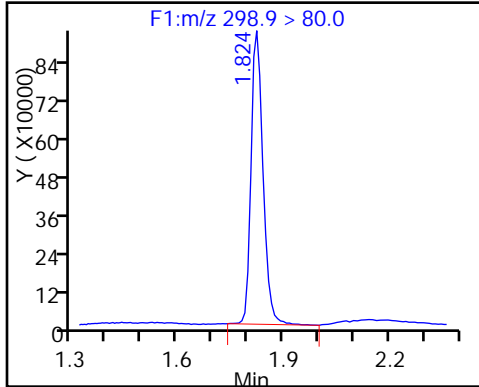
Injection Vol: 2.0 ul

Dil. Factor: 2.0000

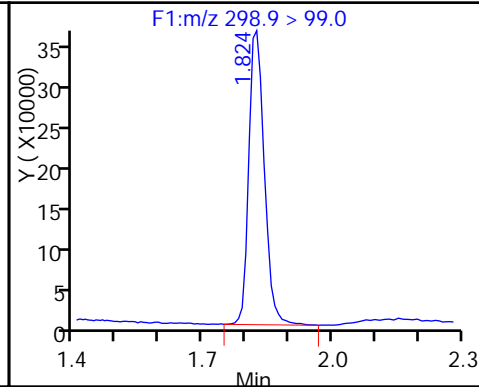
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

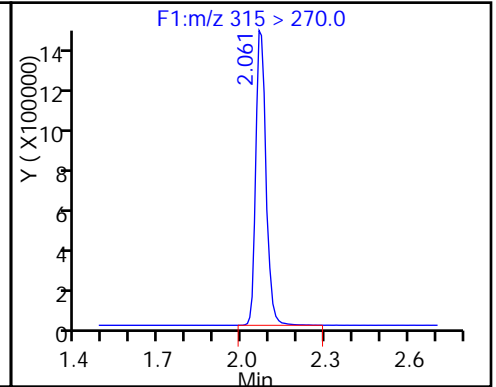
5 Perfluorobutanesulfonic acid



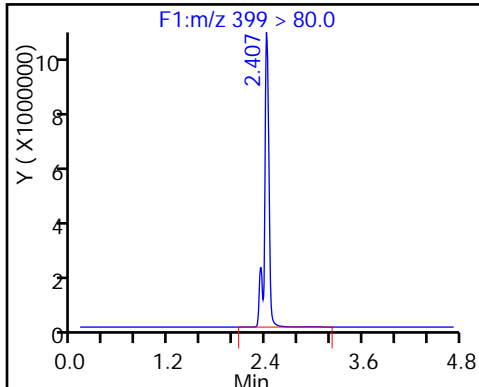
5 Perfluorobutanesulfonic acid



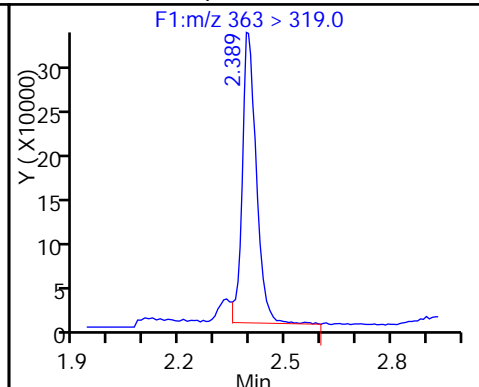
D 6 13C2 PFHxA



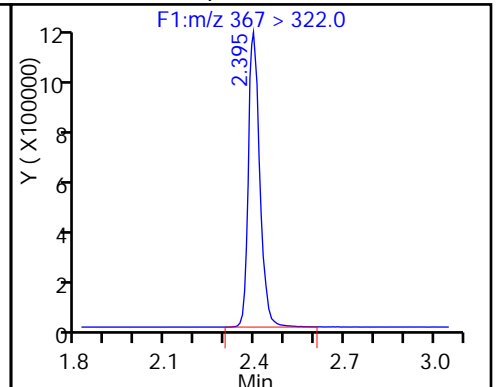
9 Perfluorohexanesulfonic acid



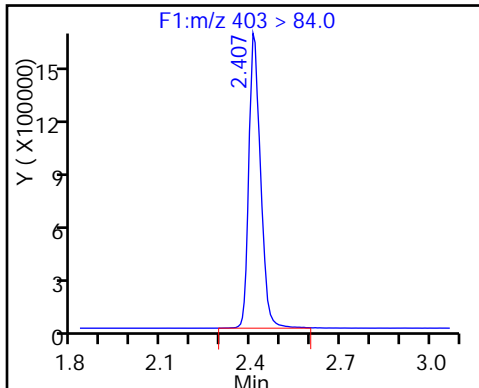
12 Perfluoroheptanoic acid



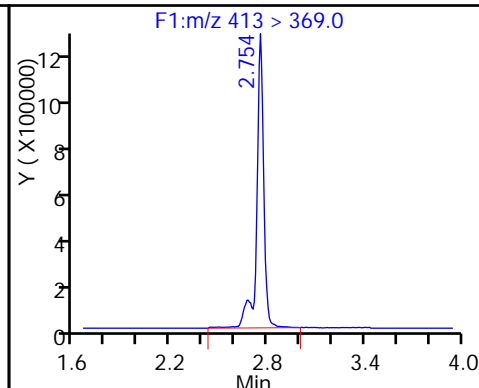
D 11 13C4-PFHpA



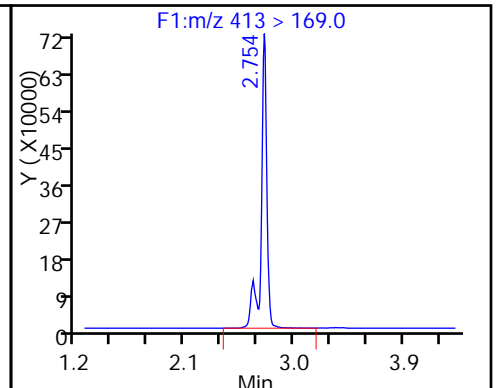
D 10 18O2 PFHxS



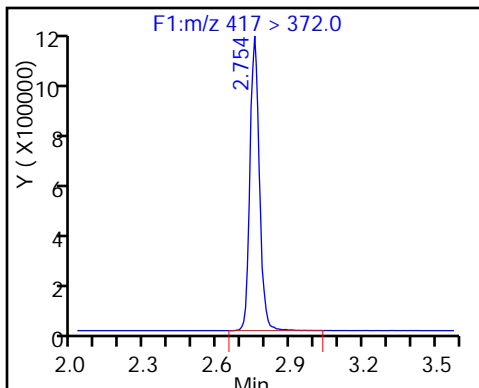
15 Perfluorooctanoic acid



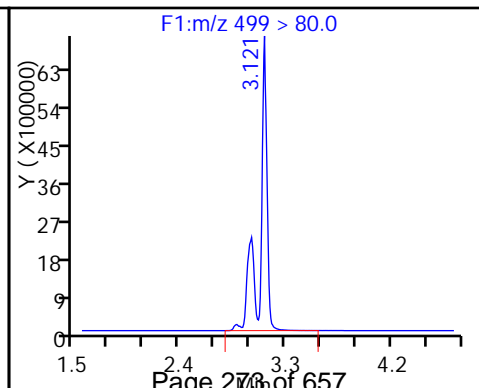
15 Perfluorooctanoic acid



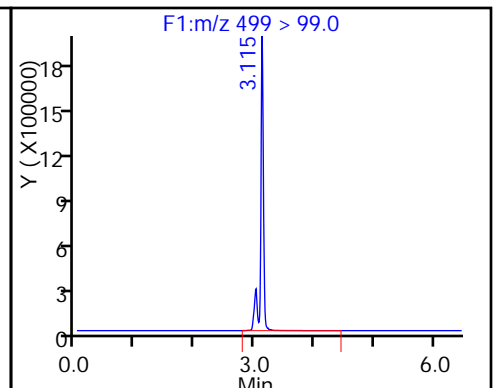
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



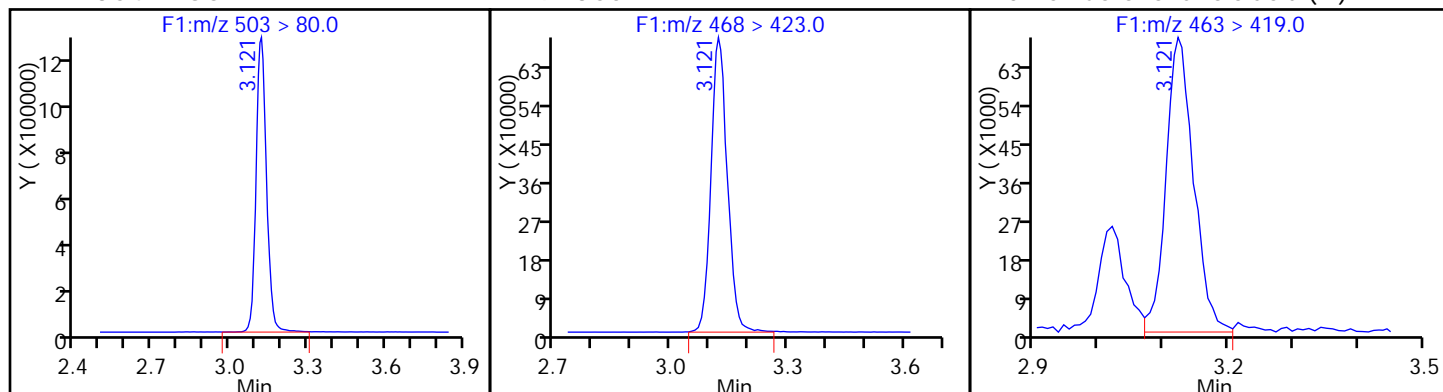
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



TestAmerica Sacramento

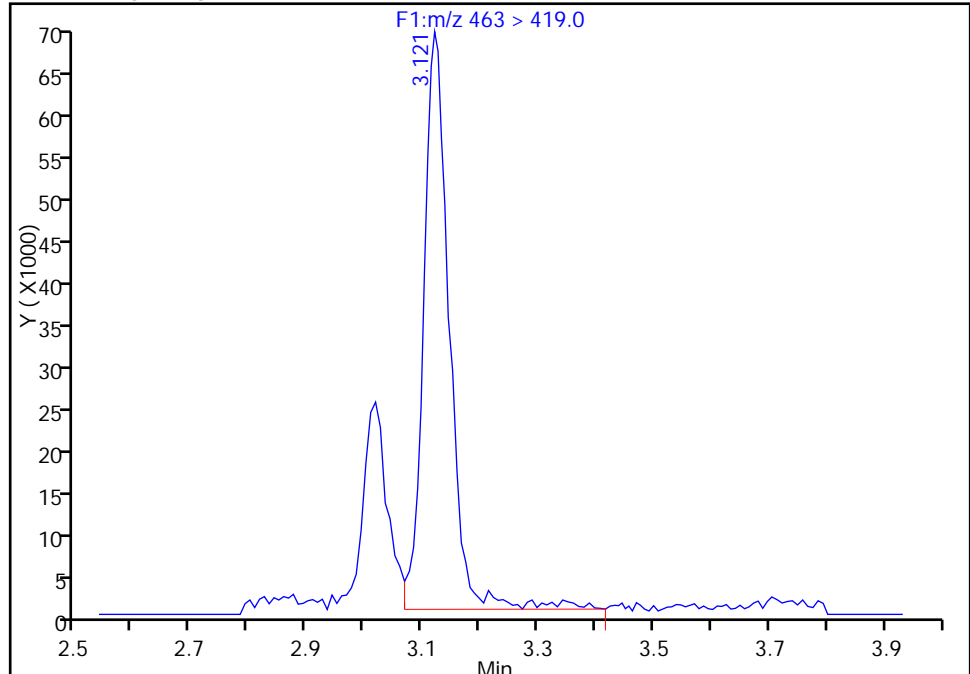
Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d
Injection Date: 19-Sep-2016 20:40:00 Instrument ID: A8
Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3
Client ID: MCFSMW-3_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 43
Injection Vol: 2.0 ul Dil. Factor: 2.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

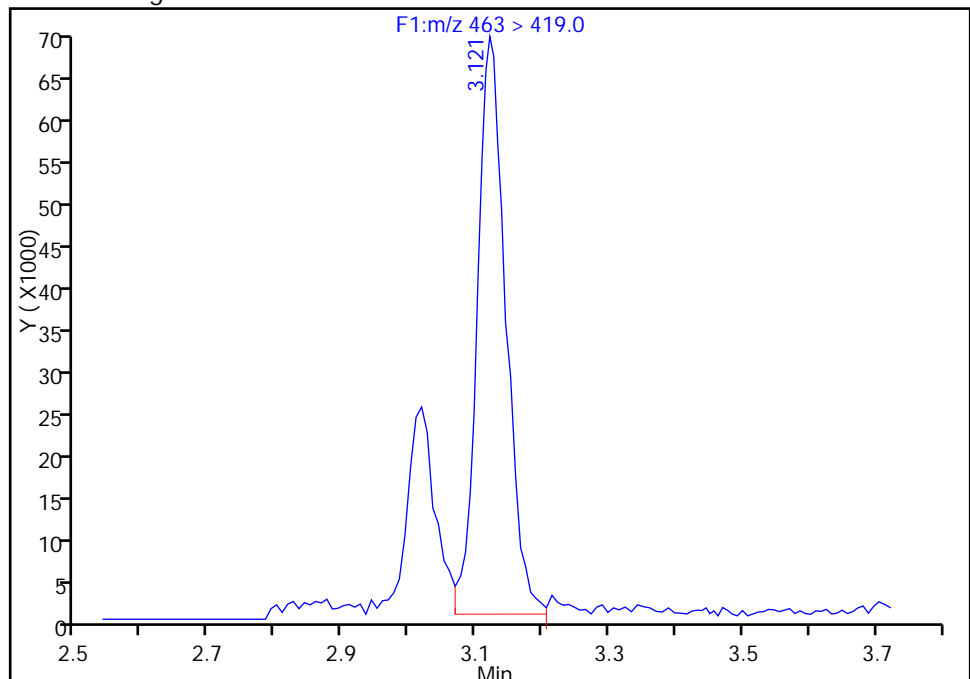
RT: 3.12
Area: 213266
Amount: 2.574657
Amount Units: ng/ml

Processing Integration Results



RT: 3.12
Area: 204518
Amount: 2.469046
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 21-Sep-2016 17:20:09

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>46MW05_0816</u>	Lab Sample ID: <u>320-21044-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_011_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 12:16</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>525.6 (mL)</u>	Date Analyzed: <u>09/04/2016 13:54</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83
375-95-1	Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	82	M	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		25-150
STL00990	13C4 PFOA	91		25-150
STL00991	13C4 PFOS	105		25-150
STL01892	13C4-PFHxA	89		25-150
STL00995	13C5 PFNA	58		25-150
STL00994	18O2 PFHxS	109		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d
 Lims ID: 320-21044-A-4-A
 Client ID: 46MW05_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 13:54:00 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:41:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.953	1.944	0.009	1.000	7304715	24.5				
298.9 > 99.0	1.944	1.944	0.0	0.996	2979525		2.45(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.213	2.213	0.0		6911535	47.9		95.8	802838	
D 11 13C4-PFHpA										
367 > 322.0	2.557	2.556	0.001		5852552	44.7		89.4	693831	
12 Perfluoroheptanoic acid										
363 > 319.0	2.557	2.556	0.001	1.000	1151374	9.45			7623	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.572	2.571	0.001	1.000	57558857	273.2				
D 10 18O2 PFHxS										
403 > 84.0	2.572	2.571	0.001		9277831	51.3		109	605213	
15 Perfluorooctanoic acid										
413 > 369.0	2.937	2.919	0.018	1.000	5953375	42.9			79575	M
413 > 169.0	2.929	2.919	0.010	0.997	4002144		1.49(0.90-1.10)		203554	M
D 14 13C4 PFOA										
417 > 372.0	2.937	2.928	0.009		6661282	45.7		91.4	426362	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.134	3.195	-0.060	1.000	106251658	593.7			51812	E
499 > 99.0	3.200	3.195	0.006	1.021	23125858		4.59(0.90-1.10)		171505	E
D 17 13C4 PFOS										
503 > 80.0	3.309	3.304	0.005		7279733	50.3		105	162164	
D 19 13C5 PFNA										
468 > 423.0	3.317	3.312	0.005		3704422	29.0		58.1	216023	
20 Perfluorononanoic acid										
463 > 419.0	3.309	3.312	-0.003	1.000	39664	0.5282			568	

[QC Flag Legend](#)

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d

Injection Date: 04-Sep-2016 13:54:00

Instrument ID: A8

Lims ID: 320-21044-A-4-A

Lab Sample ID: 320-21044-4

Client ID: 46MW05_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 11

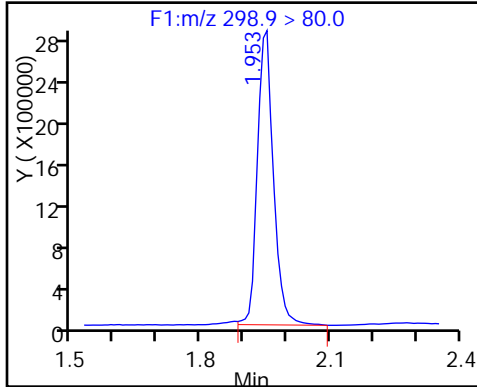
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

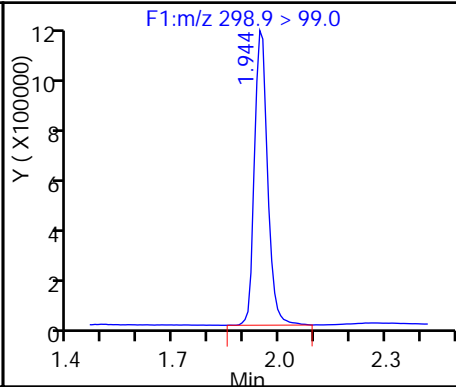
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

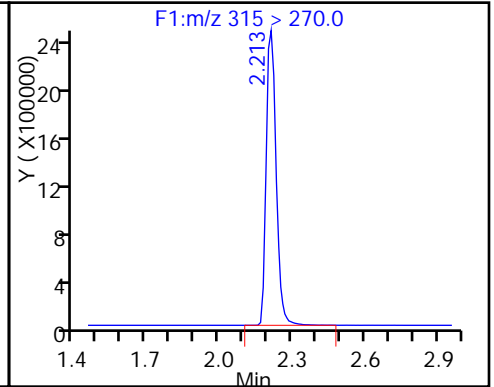
5 Perfluorobutanesulfonic acid



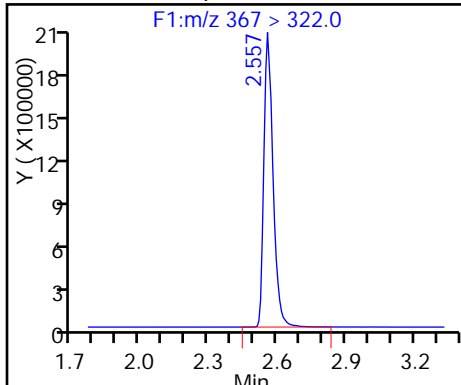
5 Perfluorobutanesulfonic acid



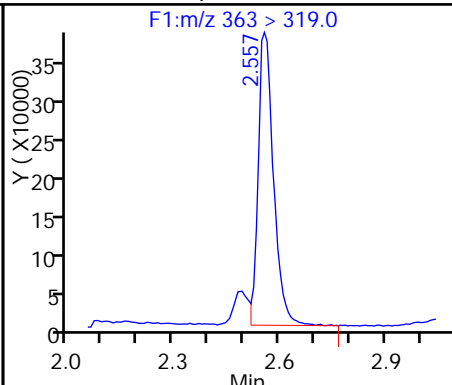
D 6 13C2 PFHxA



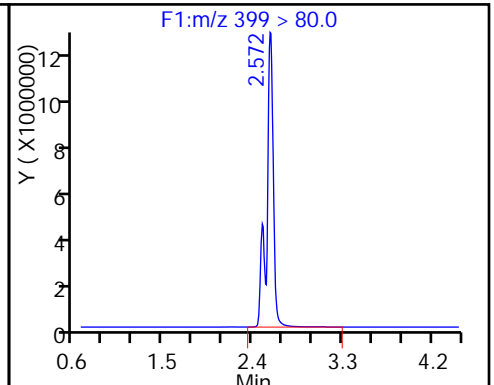
D 11 13C4-PFHpA



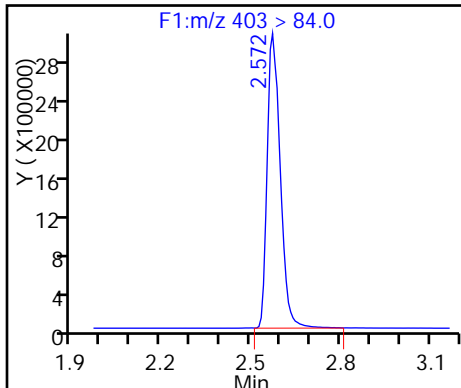
12 Perfluoroheptanoic acid



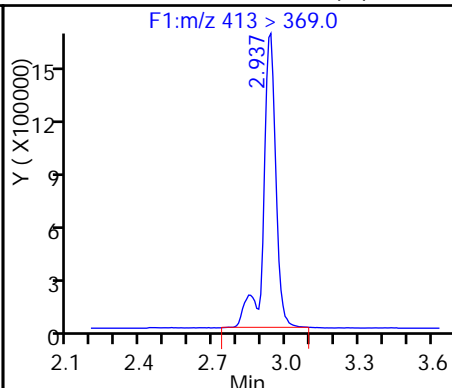
9 Perfluorohexanesulfonic acid



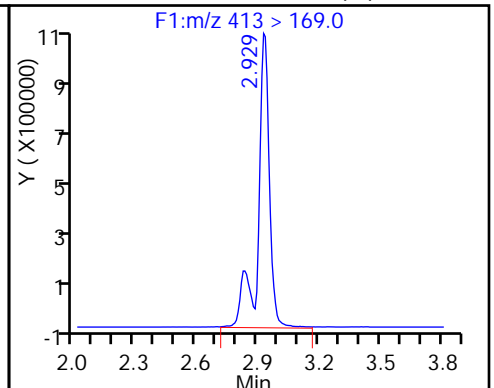
D 10 18O2 PFHxS



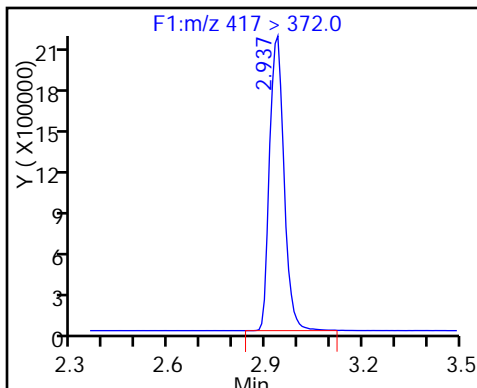
15 Perfluorooctanoic acid (M)



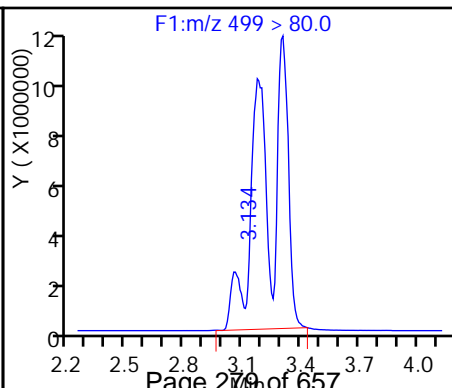
15 Perfluorooctanoic acid (M)



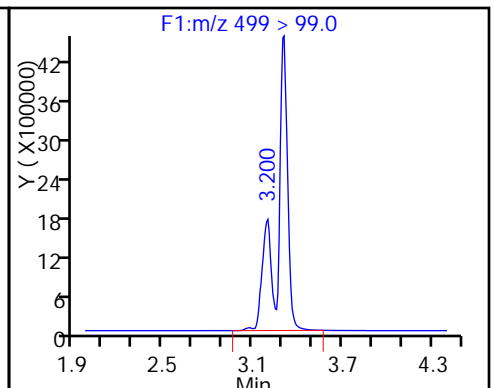
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



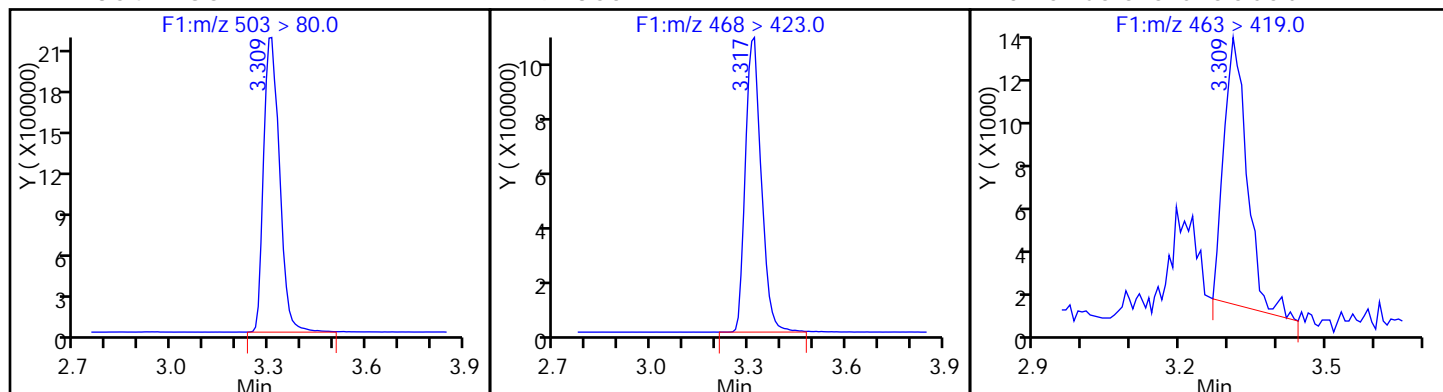
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



TestAmerica Sacramento

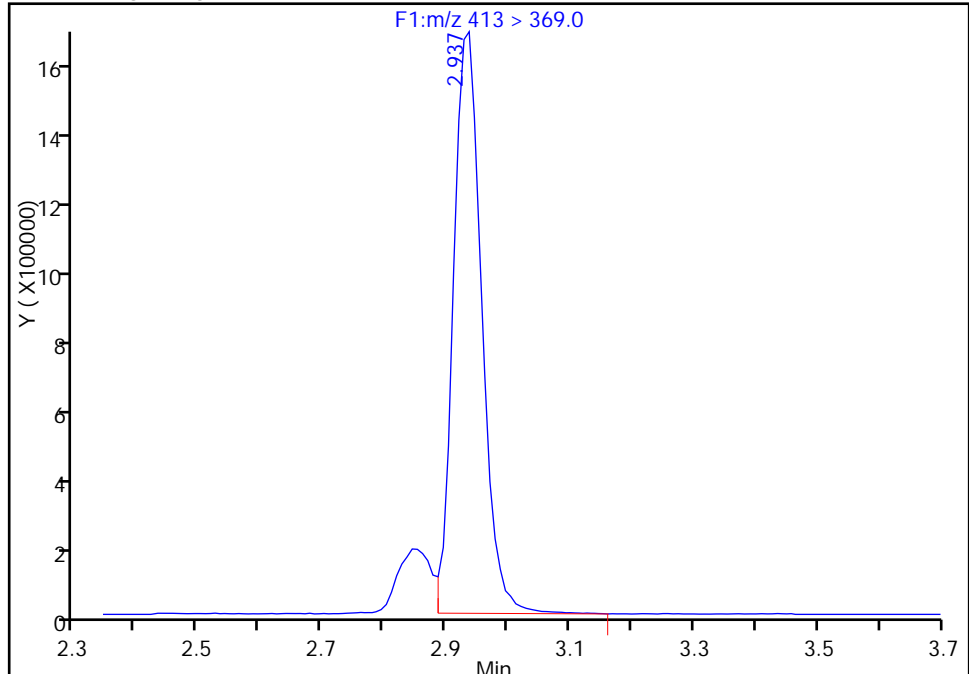
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d
Injection Date: 04-Sep-2016 13:54:00 Instrument ID: A8
Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4
Client ID: 46MW05_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

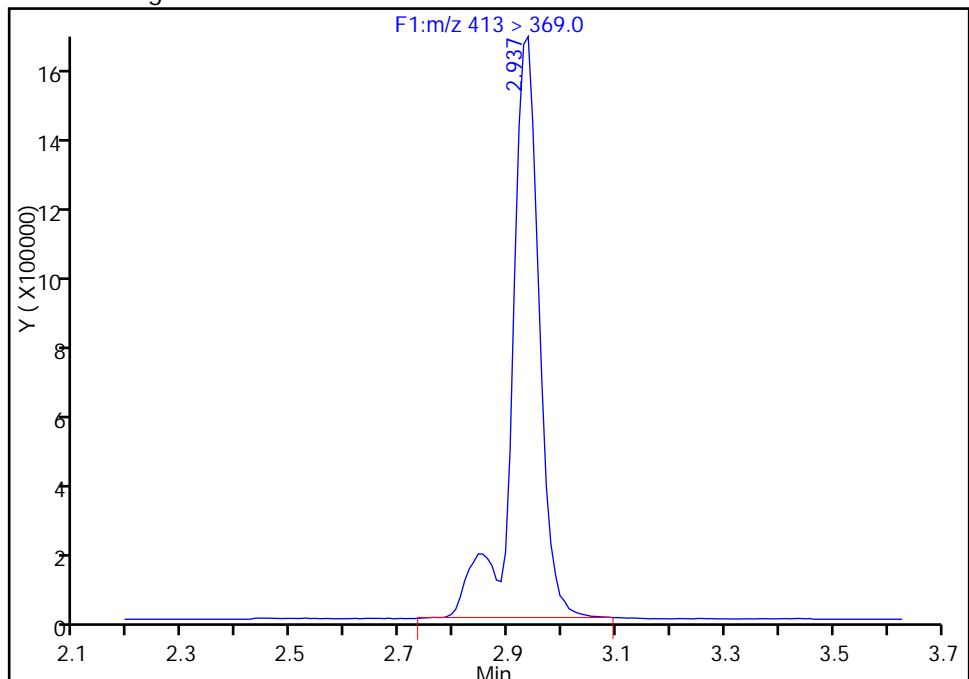
RT: 2.94
Area: 5316304
Amount: 38.353599
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 5953375
Amount: 42.949643
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:41:04

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

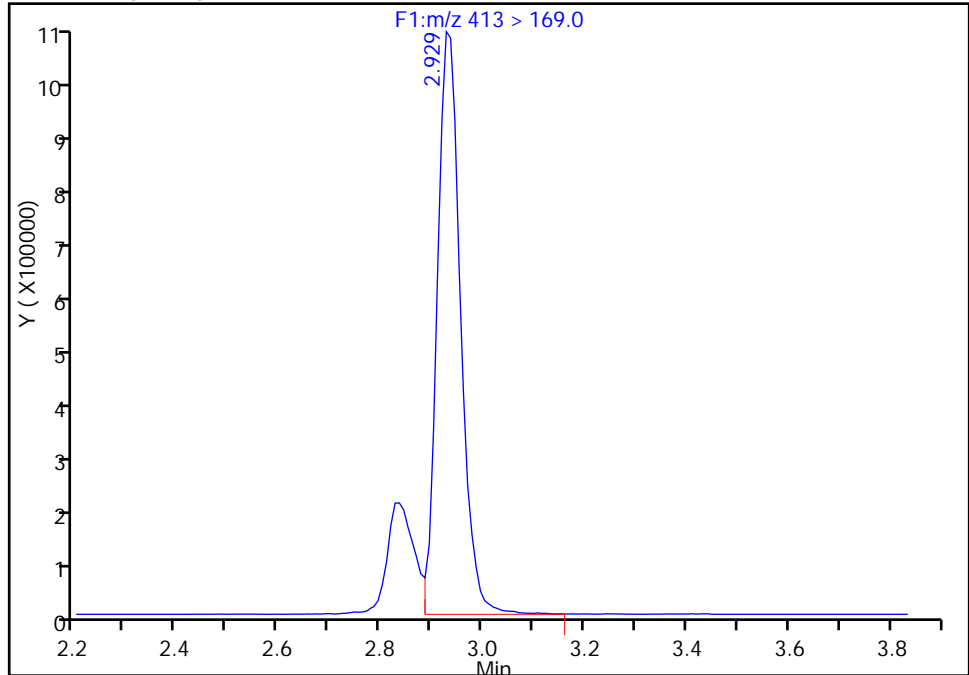
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d
Injection Date: 04-Sep-2016 13:54:00 Instrument ID: A8
Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4
Client ID: 46MW05_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

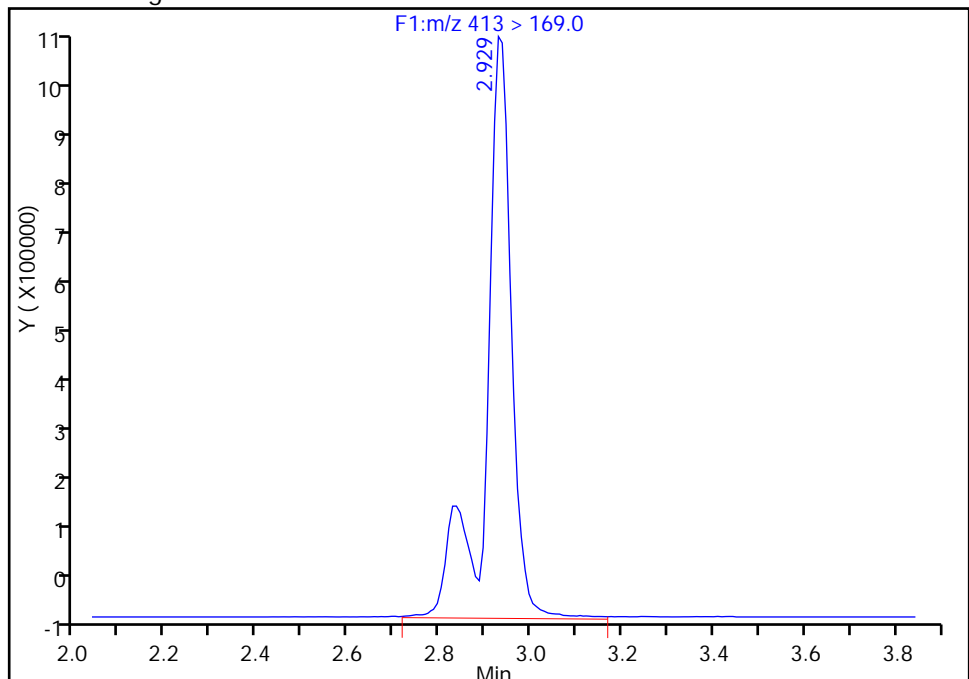
RT: 2.93
Area: 3222425
Amount: 38.353599
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 4002144
Amount: 42.949643
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:41:04

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>46MW05_0816 DL</u>	Lab Sample ID: <u>320-21044-4 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>19SEP2016B_020_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 12:16</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>525.6 (mL)</u>	Date Analyzed: <u>09/19/2016 20:48</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>128009</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	<i>Perfluorobutanesulfonic acid (PFBS)</i>	40	D	12	9.5	4.4
375-85-9	<i>Perfluoroheptanoic acid (PFHpA)</i>	19	D	12	9.5	3.8
355-46-4	<i>Perfluorohexanesulfonic acid (PFHxS)</i>	660	D	12	9.5	4.1
375-95-1	<i>Perfluorononanoic acid (PFNA)</i>	9.5	U	12	9.5	3.1
1763-23-1	<i>Perfluorooctanesulfonic acid (PFOS)</i>	1300	D	19	14	6.1
335-67-1	<i>Perfluorooctanoic acid (PFOA)</i>	84	D	12	9.5	3.6

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	123		25-150
STL00990	13C4 PFOA	117		25-150
STL00991	13C4 PFOS	133		25-150
STL01892	13C4-PFHpA	114		25-150
STL00995	13C5 PFNA	91		25-150
STL00994	18O2 PFHxS	138		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_020_p1_e1.d
 Lims ID: 320-21044-A-4-A
 Client ID: 46MW05_0816
 Sample Type: Client
 Inject. Date: 19-Sep-2016 20:48:00 ALS Bottle#: 0 Worklist Smp#: 44
 Injection Vol: 2.0 ul Dil. Factor: 5.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 21-Sep-2016 17:20:09 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK048

First Level Reviewer: chandrasenas

Date: 21-Sep-2016 12:34:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.824	1.844	-0.020	1.000	1537683	4.18				
298.9 > 99.0	1.824	1.844	-0.020	1.000	652489		2.36(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.061	2.096	-0.035		1740773	12.3		24.6	174826	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.413	2.415	-0.002	1.000	17102468	69.1				
12 Perfluoroheptanoic acid										
363 > 319.0	2.400	2.438	-0.038	1.000	320636	2.00			3861	
D 11 13C4-PFHpA										
367 > 322.0	2.400	2.438	-0.038		1542654	11.4		22.7	285853	
D 10 18O2 PFHxS										
403 > 84.0	2.406	2.451	-0.045		2278079	13.1		27.7	201024	
15 Perfluorooctanoic acid										
413 > 369.0	2.759	2.802	-0.043	1.000	1411876	8.78			48334	
413 > 169.0	2.759	2.802	-0.043	1.000	899724		1.57(0.90-1.10)		1690	
D 14 13C4 PFOA										
417 > 372.0	2.753	2.802	-0.049		1536857	11.7		23.5	294993	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.120	3.154	-0.034	1.000	25614750	139.8			609876	
499 > 99.0	3.120	3.154	-0.034	1.000	4651437		5.51(0.90-1.10)		0.0	
D 17 13C4 PFOS										
503 > 80.0	3.120	3.177	-0.057		1636382	12.7		26.6	101572	
D 19 13C5 PFNA										
468 > 423.0	3.120	3.179	-0.059		955986	9.07		18.1	106888	
20 Perfluorononanoic acid										
463 > 419.0	3.126	3.180	-0.054	1.000	14211	0.1463			282	

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_020_p1_e1.d

Injection Date: 19-Sep-2016 20:48:00

Instrument ID: A8

Lims ID: 320-21044-A-4-A

Lab Sample ID: 320-21044-4

Client ID: 46MW05_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 44

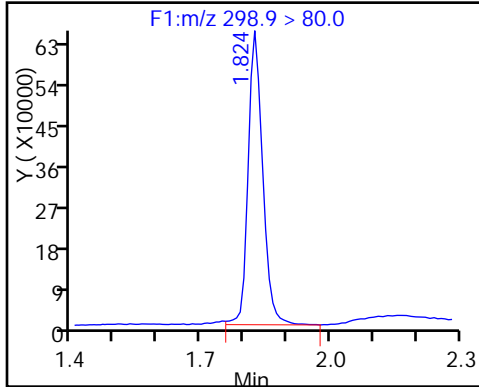
Injection Vol: 2.0 ul

Dil. Factor: 5.0000

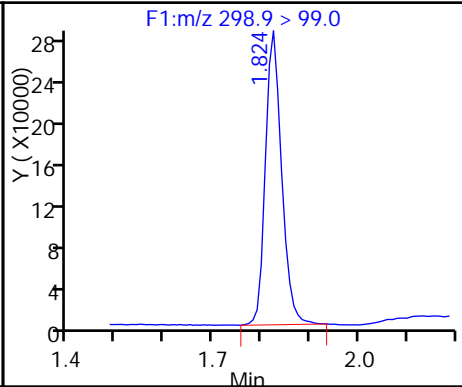
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

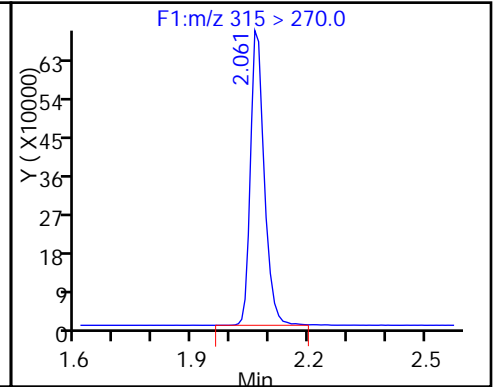
5 Perfluorobutanesulfonic acid



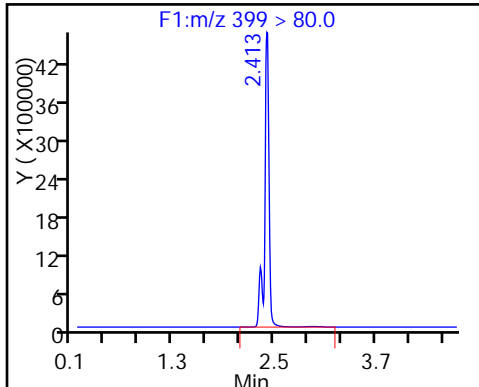
5 Perfluorobutanesulfonic acid



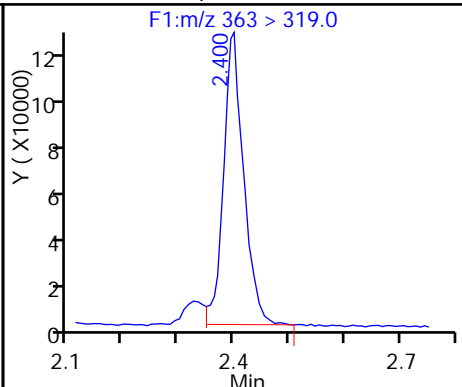
D 6 13C2 PFHxA



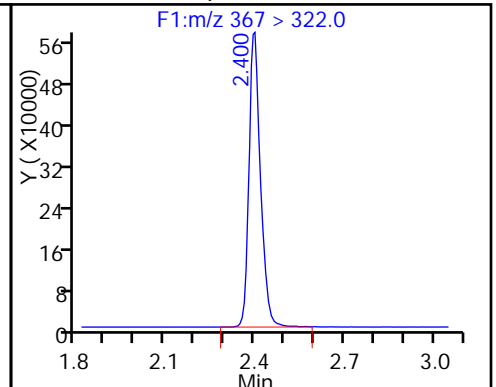
9 Perfluorohexanesulfonic acid



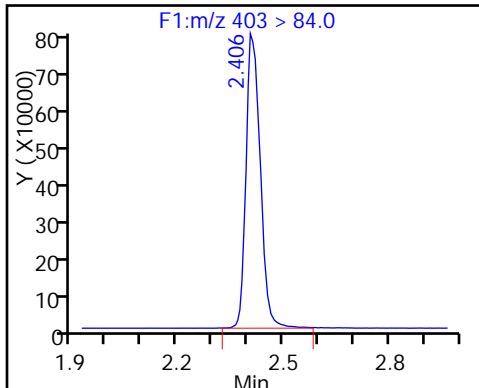
12 Perfluoroheptanoic acid



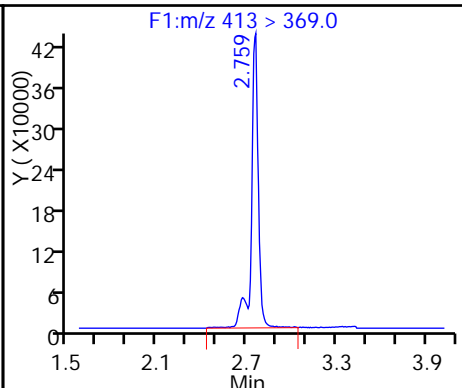
D 11 13C4-PFHpA



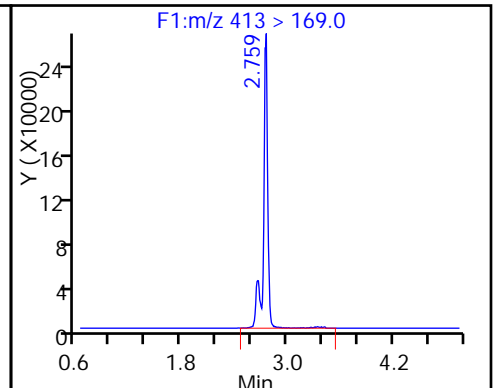
D 10 18O2 PFHxS



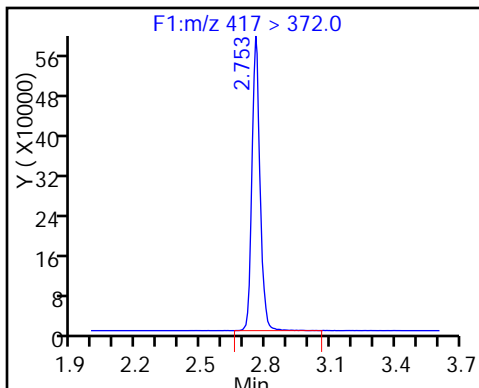
15 Perfluorooctanoic acid



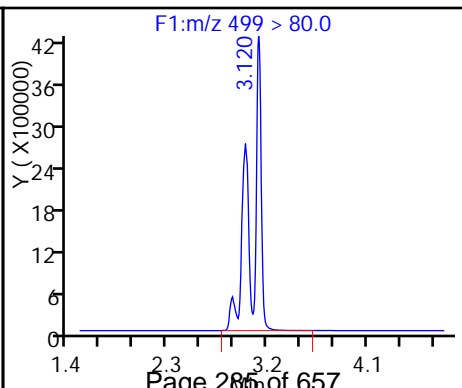
15 Perfluorooctanoic acid



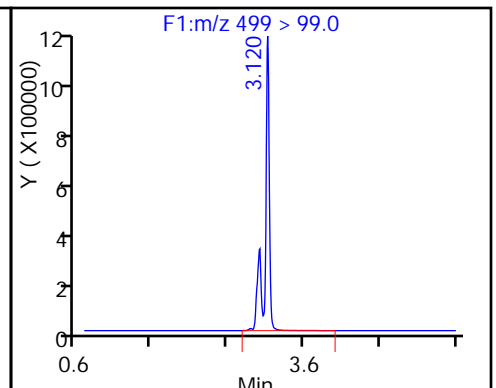
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



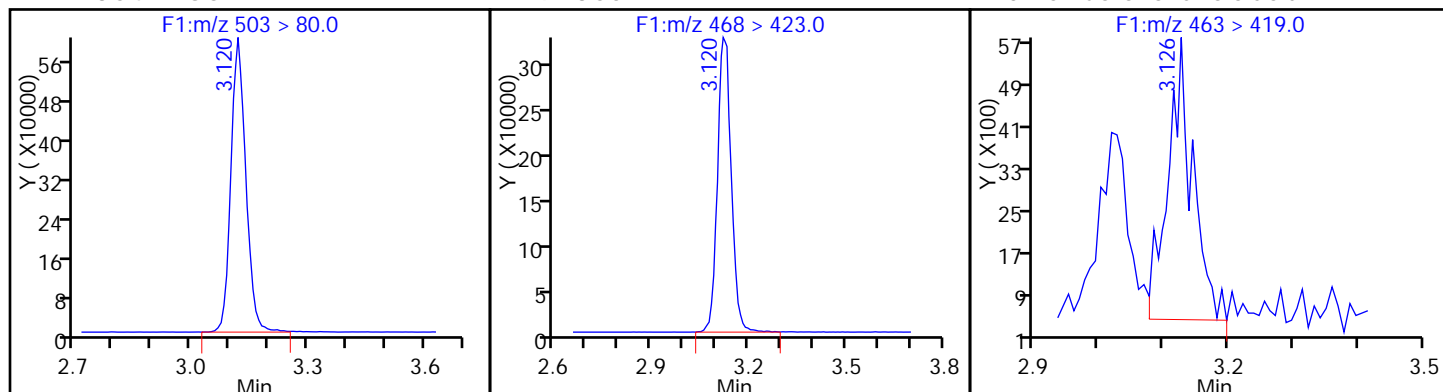
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>46MW03_0816</u>	Lab Sample ID: <u>320-21044-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_012_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 13:31</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>527.5 (mL)</u>	Date Analyzed: <u>09/04/2016 14:01</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.4	M	2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.1	M	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	U M	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		25-150
STL00990	13C4 PFOA	104		25-150
STL00991	13C4 PFOS	132		25-150
STL01892	13C4-PFHpA	109		25-150
STL00995	13C5 PFNA	83		25-150
STL00994	18O2 PFHxS	126		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d
 Lims ID: 320-21044-A-5-A
 Client ID: 46MW03_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 14:01:00 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:43:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.952	1.944	0.008	1.000	60843	0.1752				
298.9 > 99.0	1.944	1.944	0.0	0.996	25649		2.37(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.213	2.213	0.0		7213631	50.0		100.0	380186	
D 11 13C4-PFHpA										
367 > 322.0	2.561	2.556	0.005		7112568	54.4		109	415776	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.568	2.571	-0.003	1.000	441507	1.80				M
D 10 18O2 PFHxS										
403 > 84.0	2.576	2.571	0.005		10792518	59.7		126	539498	
15 Perfluorooctanoic acid										
413 > 369.0	2.933	2.919	0.014	1.000	38681	0.2441			635	M
413 > 169.0	2.933	2.919	0.014	1.000	25405		1.52(0.90-1.10)		1684	M
D 14 13C4 PFOA										
417 > 372.0	2.933	2.928	0.005		7614694	52.2		104	404752	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.200	3.195	0.006	1.000	717624	3.20			11854	M
499 > 99.0	3.309	3.195	0.115	1.034	150632		4.76(0.90-1.10)		4468	M
D 17 13C4 PFOS										
503 > 80.0	3.309	3.304	0.005		9120794	63.0		132	276805	
D 19 13C5 PFNA										
468 > 423.0	3.300	3.312	-0.012		5312496	41.7		83.3	408914	
20 Perfluorononanoic acid										
463 > 419.0	3.326	3.312	0.014	1.000	4596	0.0427			66.7	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d

Injection Date: 04-Sep-2016 14:01:00

Instrument ID: A8

Lims ID: 320-21044-A-5-A

Lab Sample ID: 320-21044-5

Client ID: 46MW03_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 12

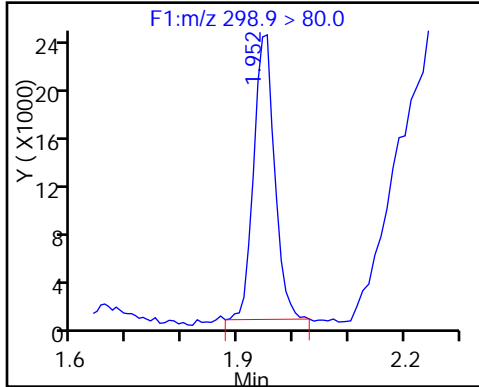
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

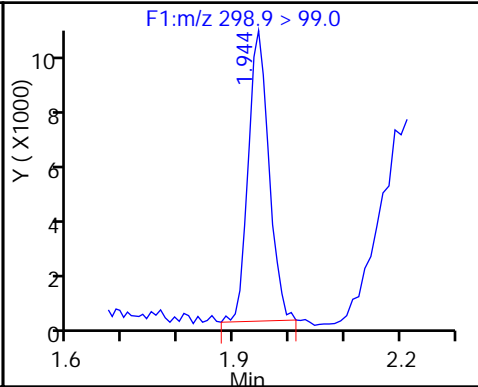
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

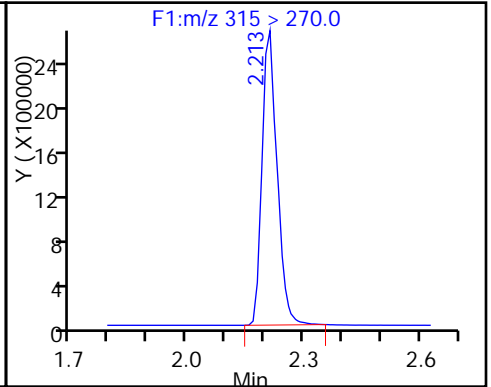
5 Perfluorobutanesulfonic acid



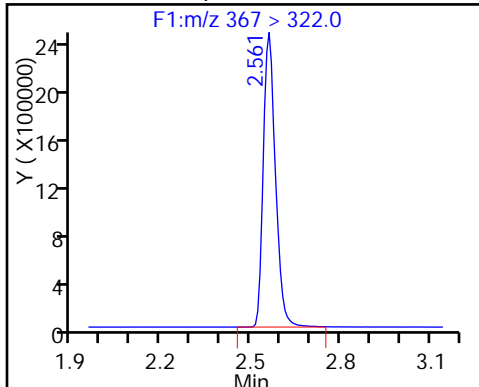
5 Perfluorobutanesulfonic acid



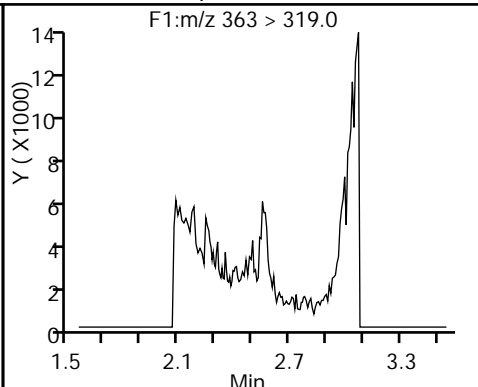
D 6 13C2 PFHxA



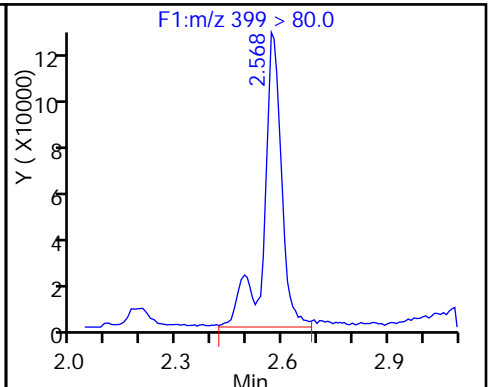
D 11 13C4-PFHpA



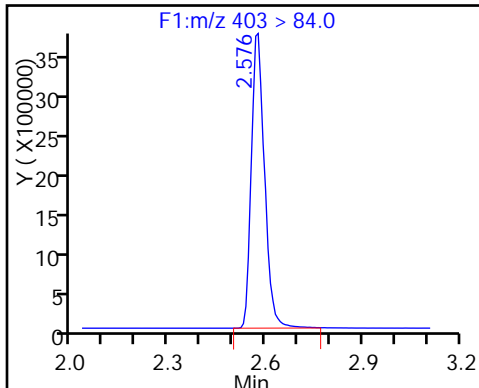
12 Perfluoroheptanoic acid (ND)



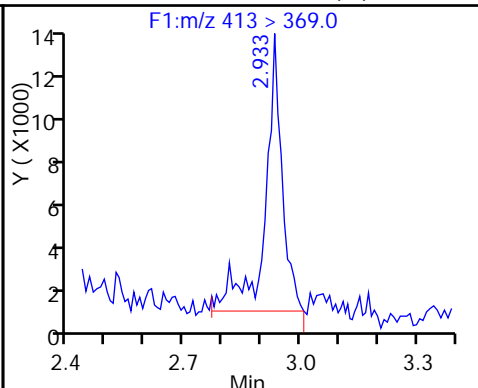
9 Perfluorohexanesulfonic acid (M)



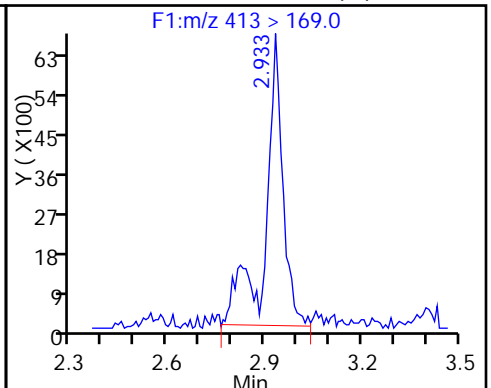
D 10 18O2 PFHxS



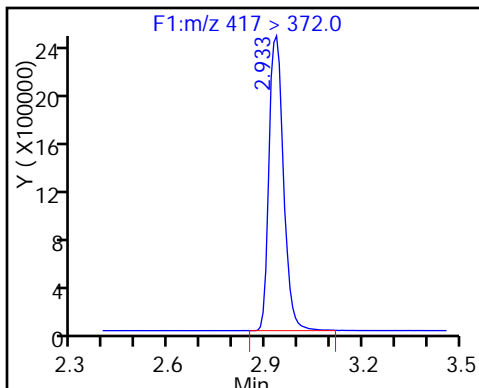
15 Perfluorooctanoic acid (M)



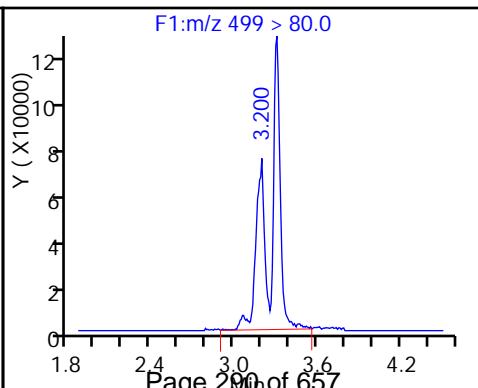
15 Perfluorooctanoic acid (M)



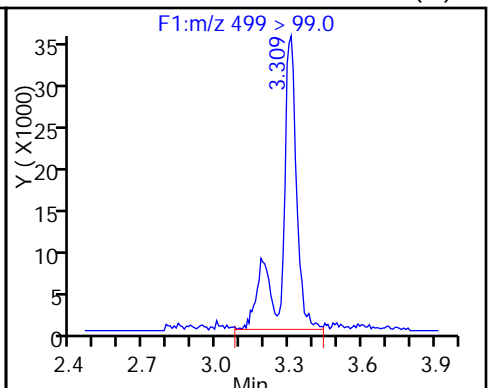
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid



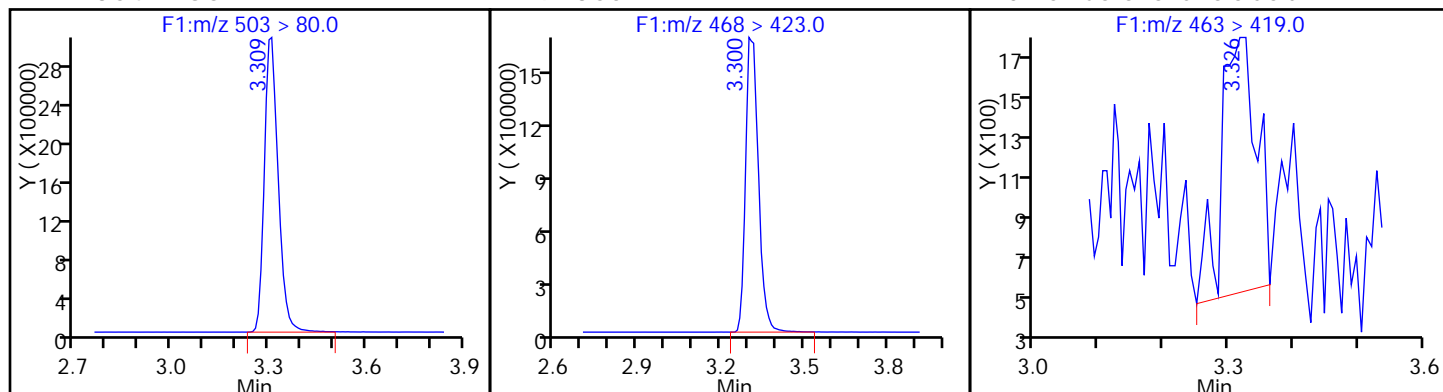
18 Perfluorooctane sulfonic acid (M)



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



TestAmerica Sacramento

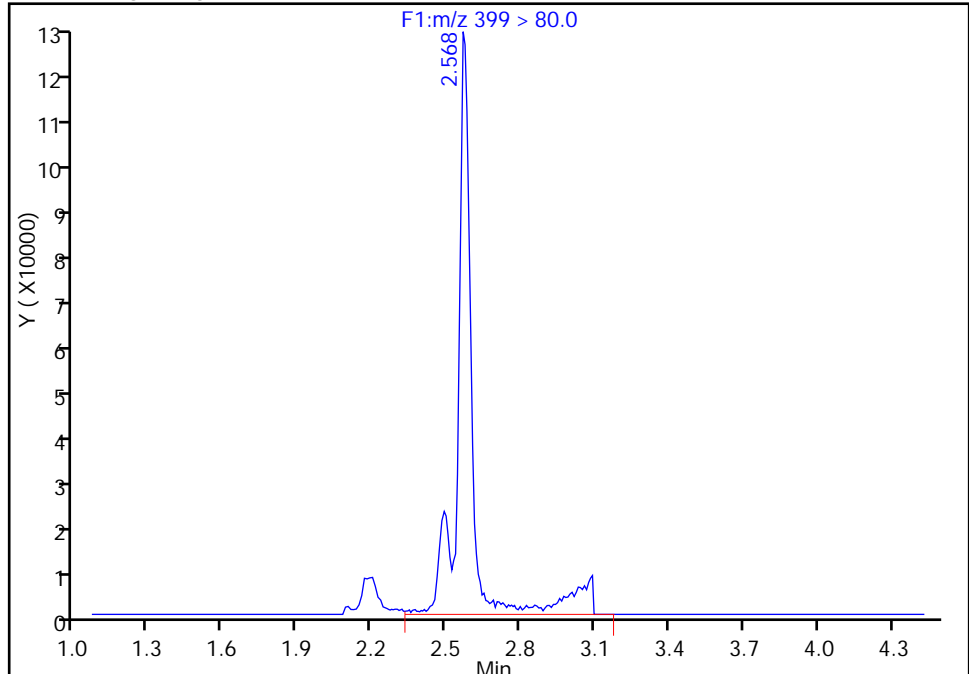
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d
Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8
Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5
Client ID: 46MW03_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

9 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

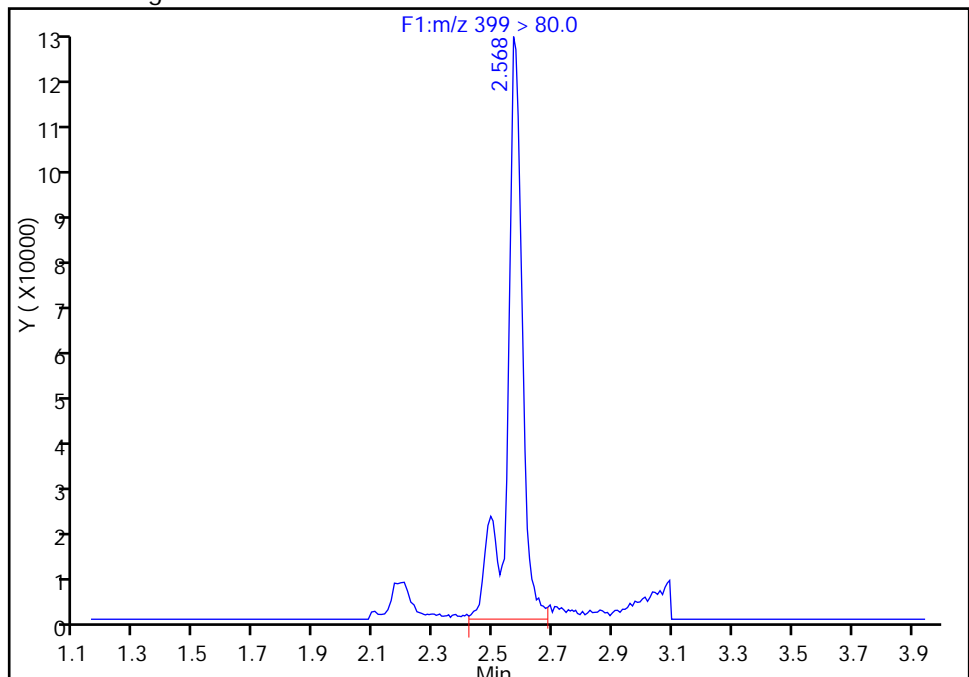
RT: 2.57
Area: 517688
Amount: 2.112634
Amount Units: ng/ml

Processing Integration Results



RT: 2.57
Area: 441507
Amount: 1.801747
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Baseline

TestAmerica Sacramento

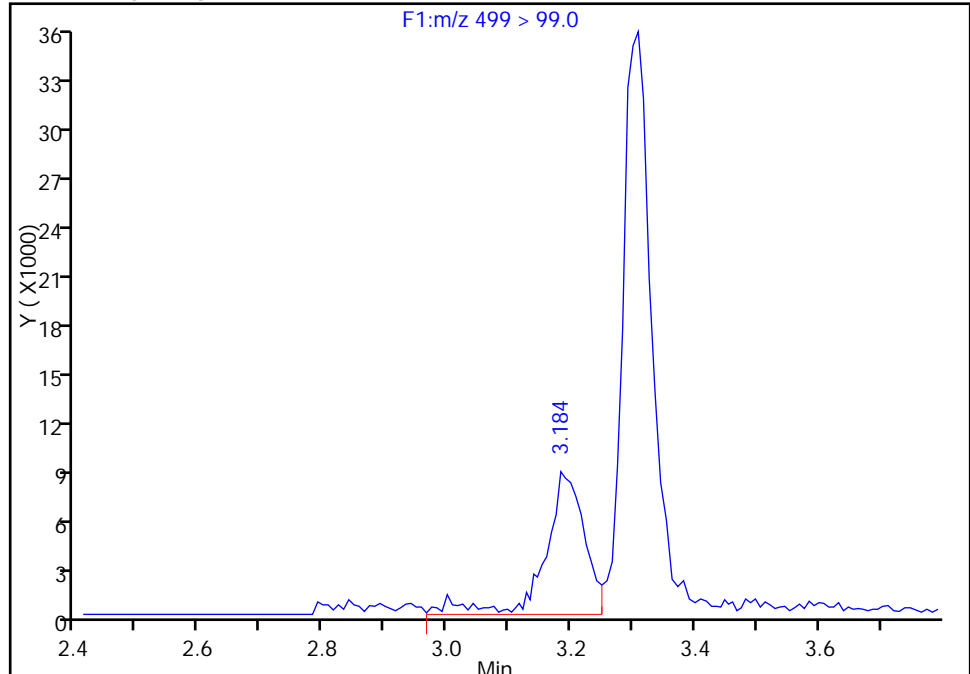
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d
Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8
Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5
Client ID: 46MW03_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 2

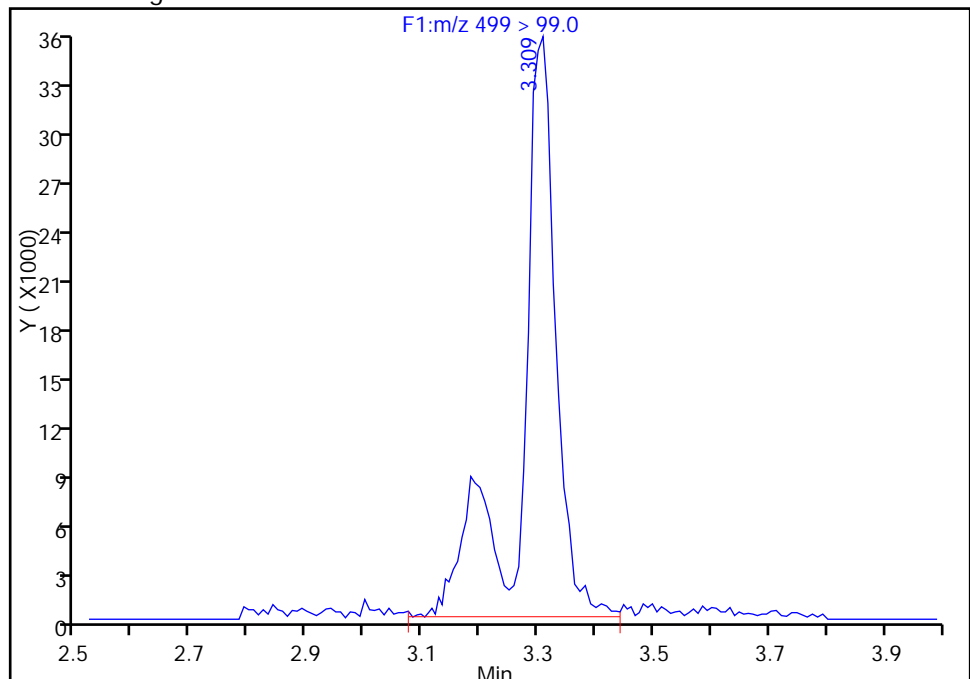
RT: 3.18
Area: 39010
Amount: 3.200242
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 150632
Amount: 3.200242
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

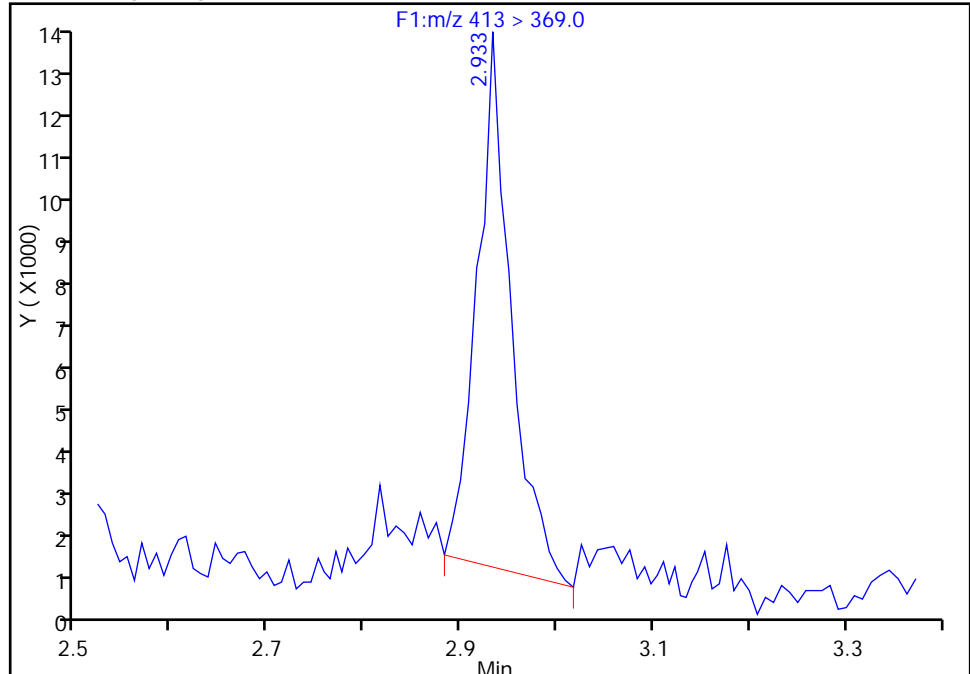
Data File:	\\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d		
Injection Date:	04-Sep-2016 14:01:00	Instrument ID:	A8
Lims ID:	320-21044-A-5-A	Lab Sample ID:	320-21044-5
Client ID:	46MW03_0816		
Operator ID:	A8	ALS Bottle#:	0
Injection Vol:	2.0 ul	Dil. Factor:	1.0000
Method:	PFC_A8_Full	Limit Group:	LC PFC_DOD ICAL
Column:		Detector:	F1(0.00 :6.60)
		Worklist Smp#:	12

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

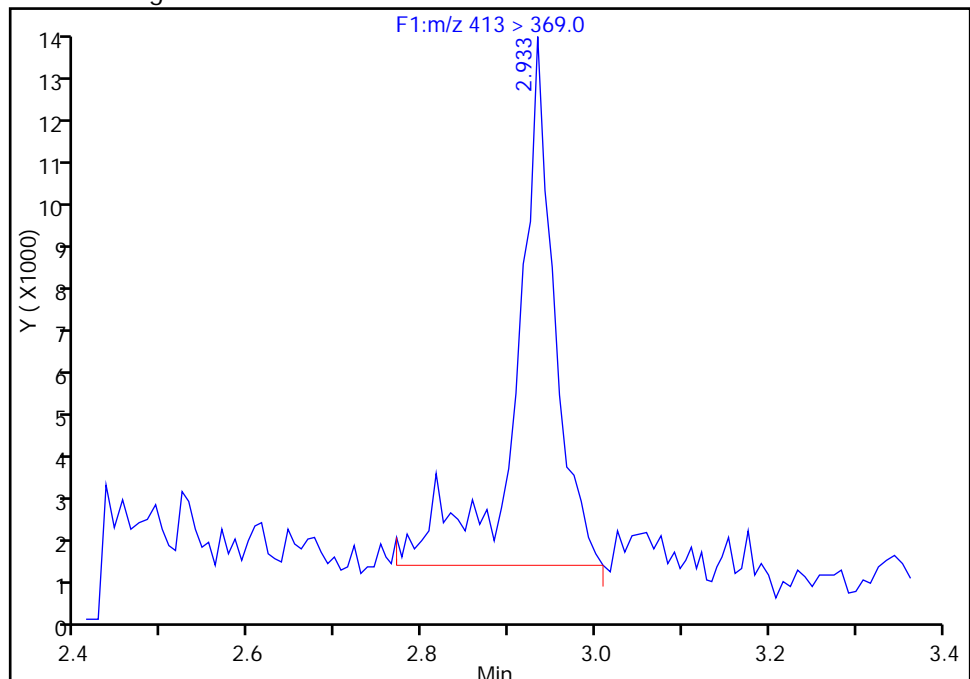
RT: 2.93
Area: 30135
Amount: 0.190184
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 38681
Amount: 0.244118
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

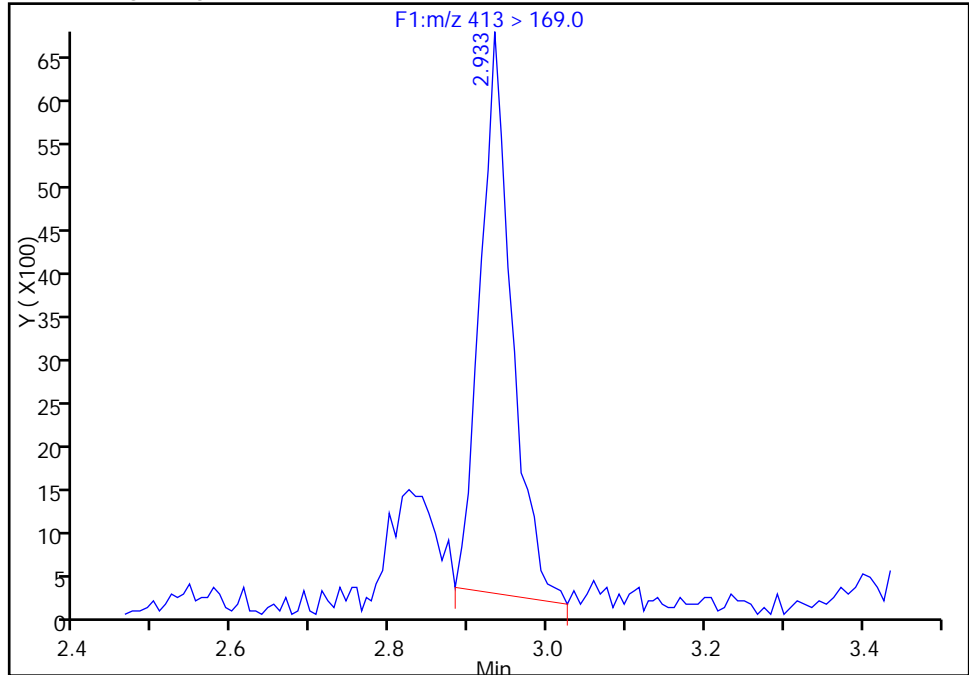
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d
Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8
Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5
Client ID: 46MW03_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

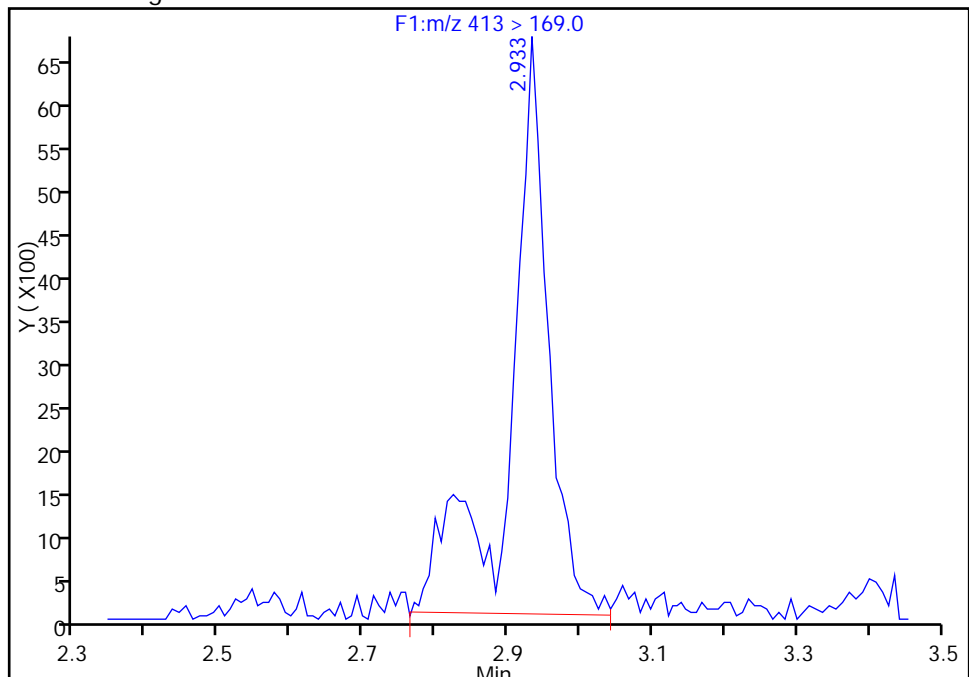
RT: 2.93
Area: 18161
Amount: 0.190184
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 25405
Amount: 0.244118
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>MCFSMW-14_0816</u>	Lab Sample ID: <u>320-21044-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_013_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 09:51</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>530.3 (mL)</u>	Date Analyzed: <u>09/04/2016 14:08</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.0		2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.5	J M	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.1	J M	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	102		25-150
STL00991	13C4 PFOS	128		25-150
STL01892	13C4-PFHpA	109		25-150
STL00995	13C5 PFNA	92		25-150
STL00994	18O2 PFHxS	126		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d
 Lims ID: 320-21044-A-6-A
 Client ID: MCFSMW-14_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 14:08:00 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 11:45:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.941	1.944	-0.003	1.000	79791	0.2310				
298.9 > 99.0	1.941	1.944	-0.003	1.000	35301		2.26(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.208	2.213	-0.005		7275875	50.4		101	382024	
D 11 13C4-PFHpA										
367 > 322.0	2.559	2.556	0.003		7124867	54.4		109	491846	
12 Perfluoroheptanoic acid										
363 > 319.0	2.559	2.556	0.003	1.000	32284	0.2177			295	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.574	2.571	0.003	1.000	644431	2.64				
D 10 18O2 PFHxS										
403 > 84.0	2.574	2.571	0.003		10737961	59.4		126	485297	
15 Perfluorooctanoic acid										
413 > 369.0	2.923	2.919	0.004	1.000	86443	0.5574			1010	M
413 > 169.0	2.931	2.919	0.012	1.003	57725		1.50(0.90-1.10)		2570	M
D 14 13C4 PFOA										
417 > 372.0	2.931	2.928	0.003		7452526	51.1		102	299420	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.306	3.195	0.112	1.000	288556	1.32			5042	
499 > 99.0	3.298	3.195	0.104	0.997	59547		4.85(0.90-1.10)		1557	
D 17 13C4 PFOS										
503 > 80.0	3.298	3.304	-0.006		8879406	61.4		128	251266	
D 19 13C5 PFNA										
468 > 423.0	3.306	3.312	-0.006		5897176	46.2		92.5	312556	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d

Injection Date: 04-Sep-2016 14:08:00

Instrument ID: A8

Lims ID: 320-21044-A-6-A

Lab Sample ID: 320-21044-6

Client ID: MCFSMW-14_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 13

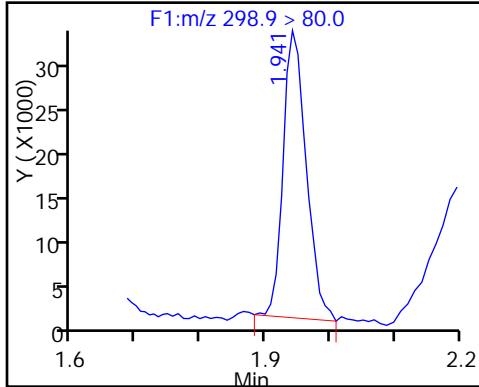
Injection Vol: 2.0 uL

Dil. Factor: 1.0000

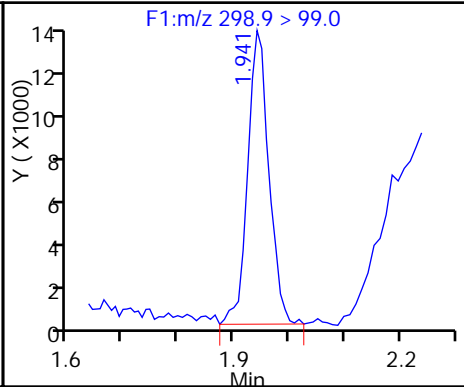
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

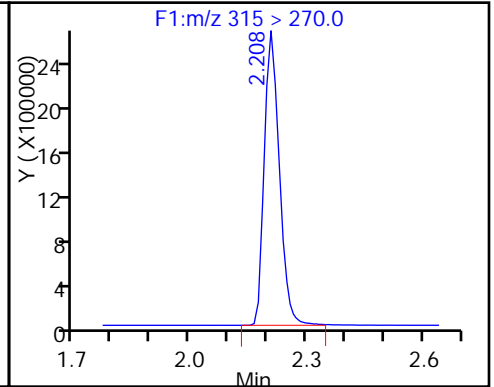
5 Perfluorobutanesulfonic acid



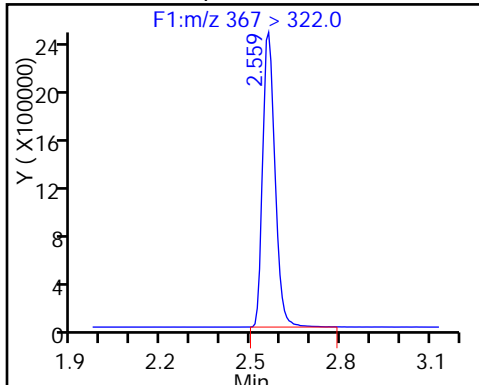
5 Perfluorobutanesulfonic acid



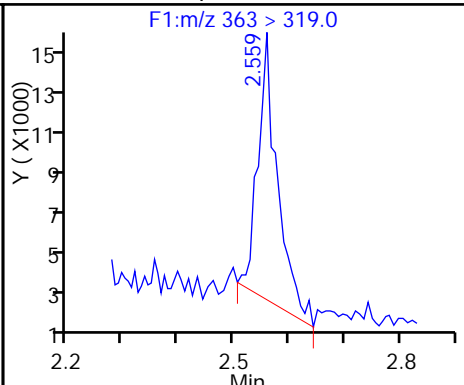
D 6 13C2 PFHxA



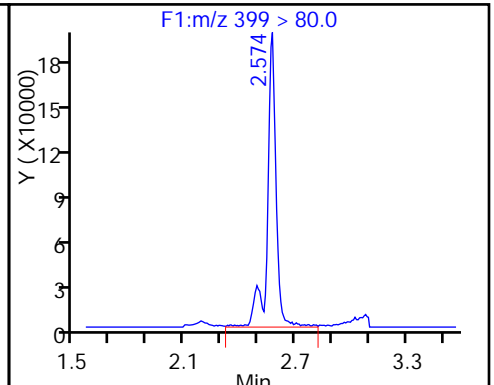
D 11 13C4-PFHpA



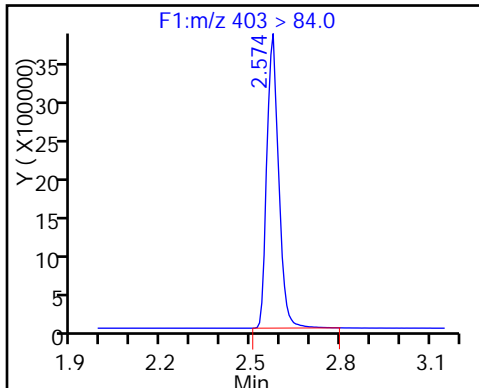
12 Perfluoroheptanoic acid



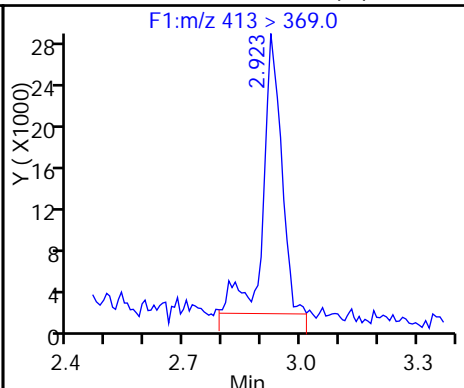
9 Perfluorohexanesulfonic acid



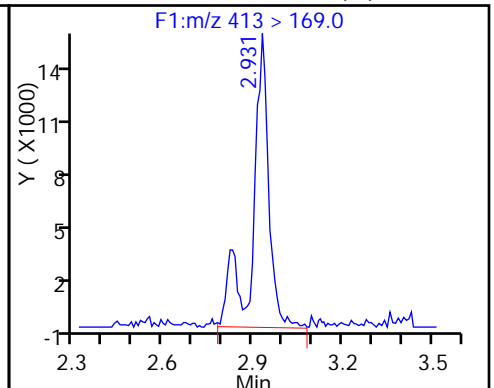
D 10 18O2 PFHxS



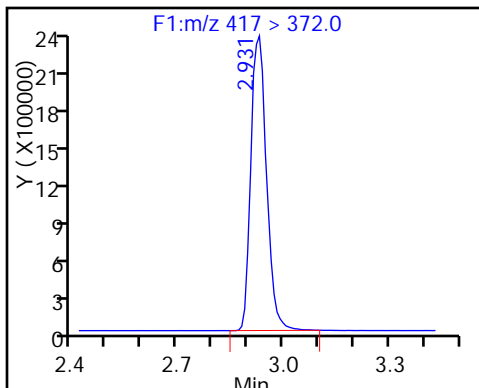
15 Perfluorooctanoic acid (M)



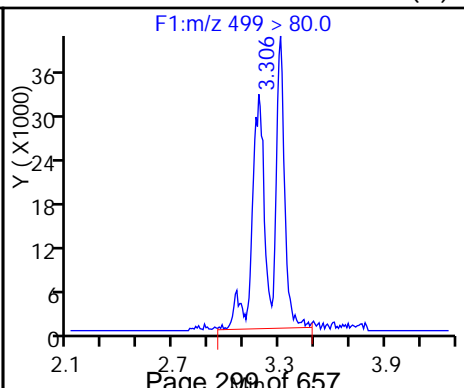
15 Perfluorooctanoic acid (M)



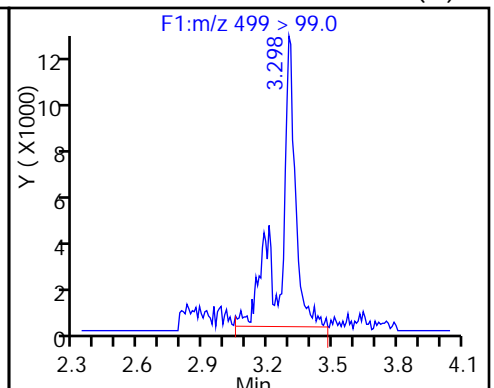
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid (M)



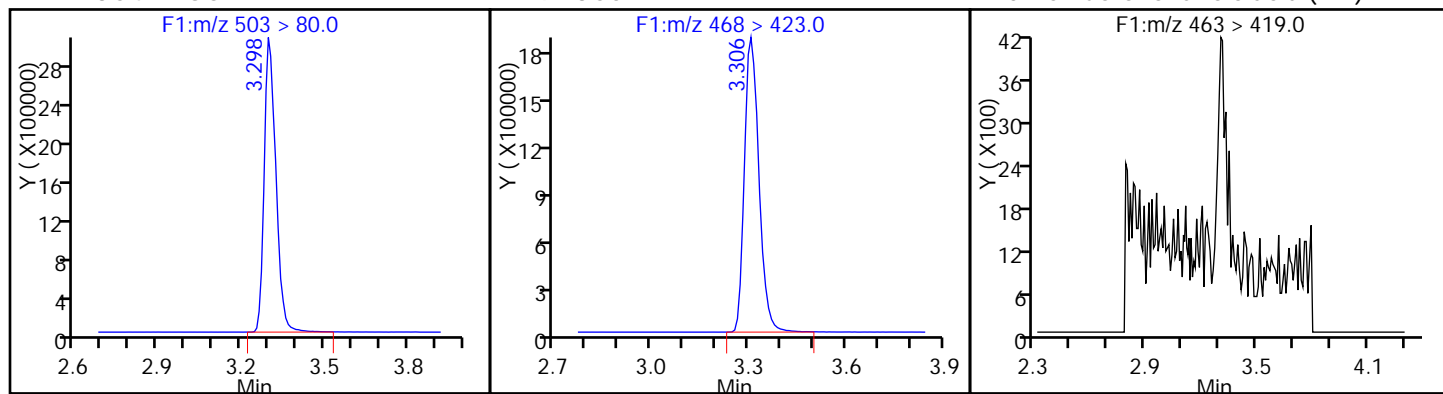
18 Perfluorooctane sulfonic acid (M)



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (ND)



TestAmerica Sacramento

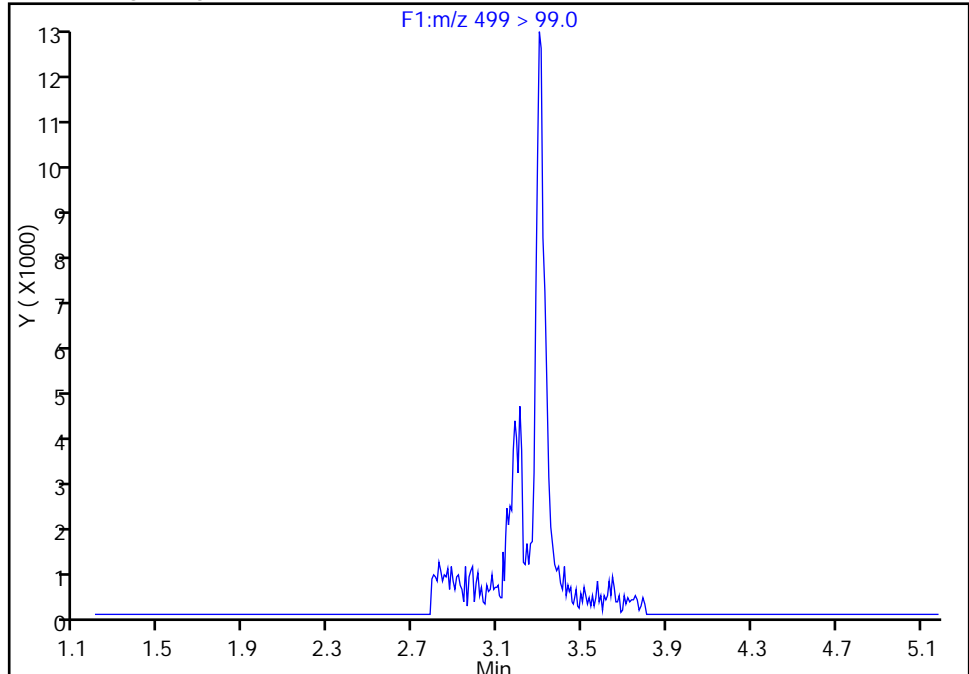
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Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8
Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6
Client ID: MCFSMW-14_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 2

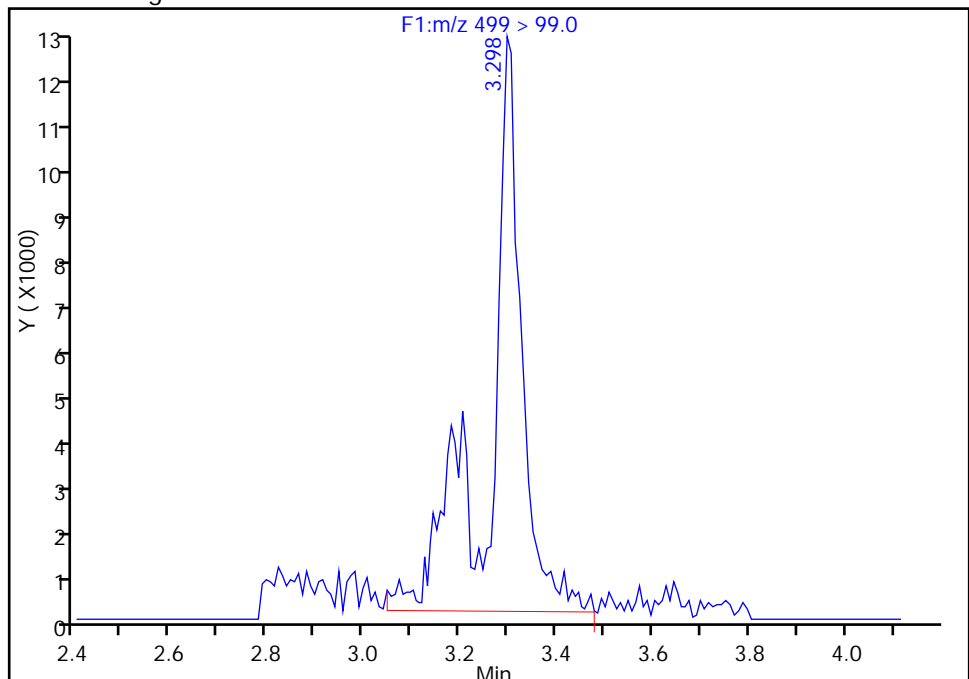
Not Detected
Expected RT: 3.19

Processing Integration Results



RT: 3.30
Area: 59547
Amount: 1.321797
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:45:19
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

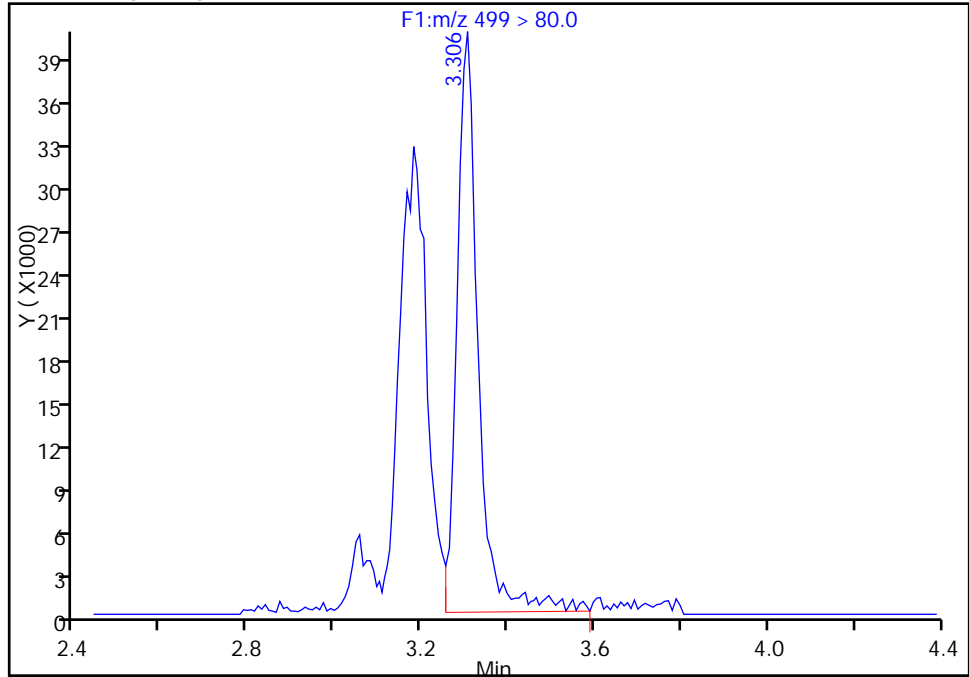
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d
Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8
Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6
Client ID: MCFSMW-14_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 1

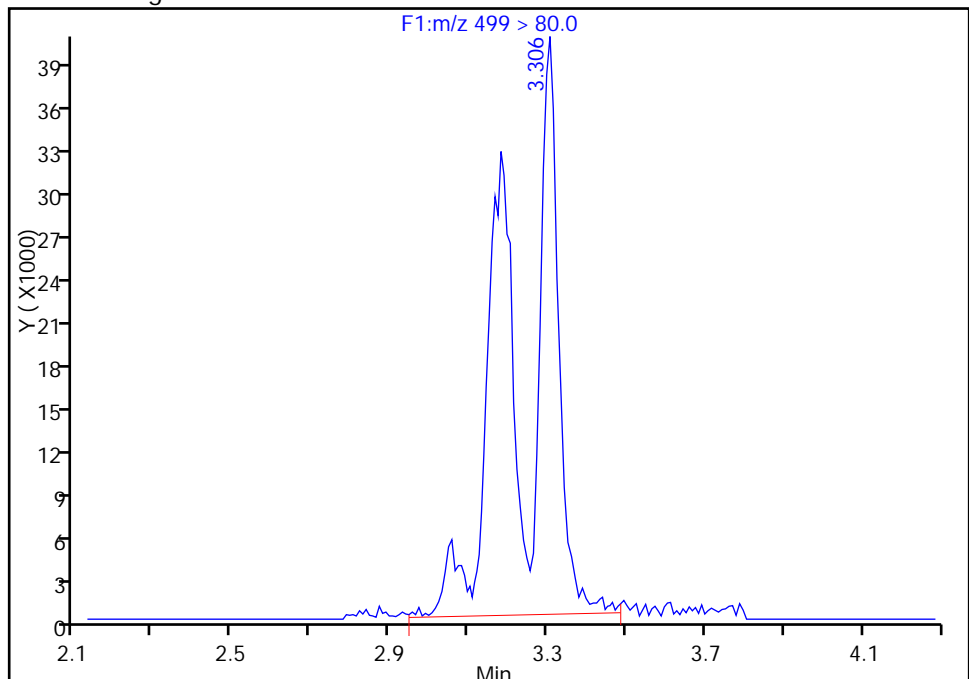
RT: 3.31
Area: 137336
Amount: 0.629099
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 288556
Amount: 1.321797
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:45:58

Audit Action: Manually Integrated/Assigned Compound ID Audit Reason:

TestAmerica Sacramento

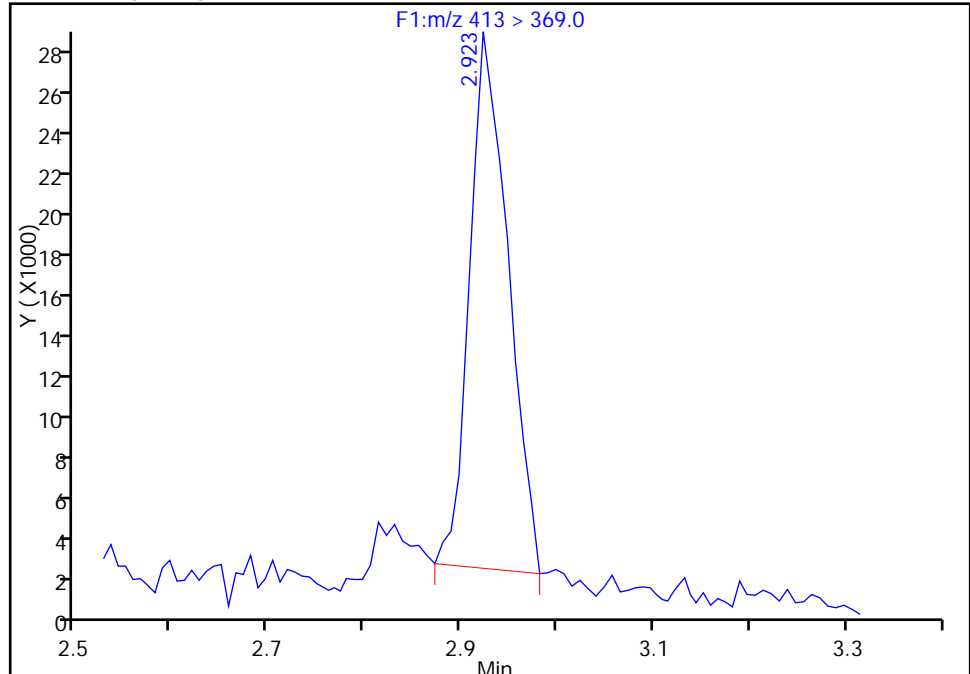
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d
Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8
Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6
Client ID: MCFSMW-14_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

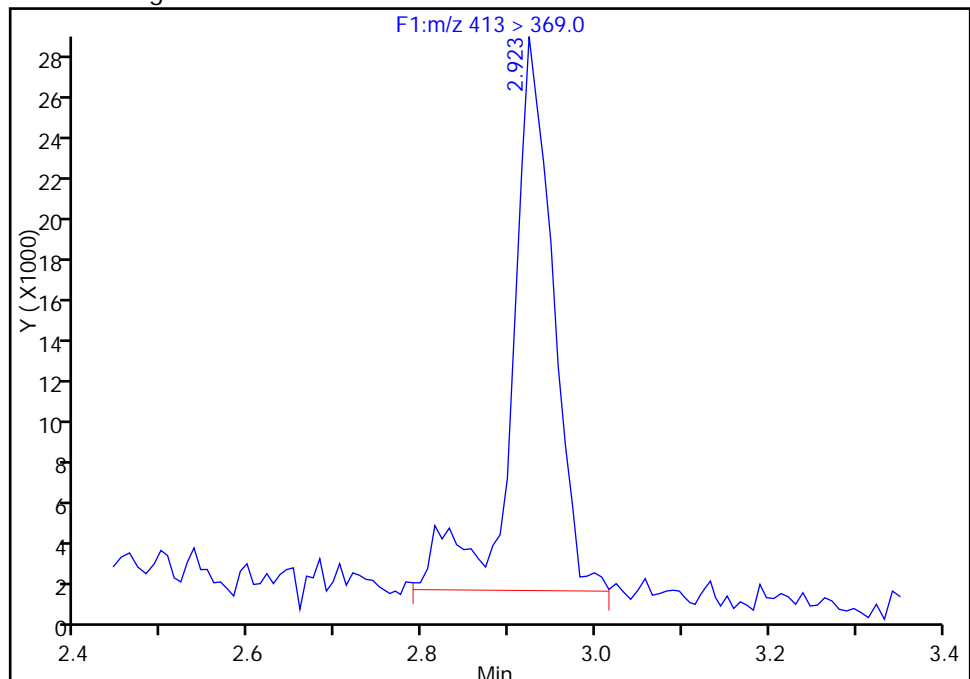
RT: 2.92
Area: 70382
Amount: 0.453850
Amount Units: ng/ml

Processing Integration Results



RT: 2.92
Area: 86443
Amount: 0.557417
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:45:19
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

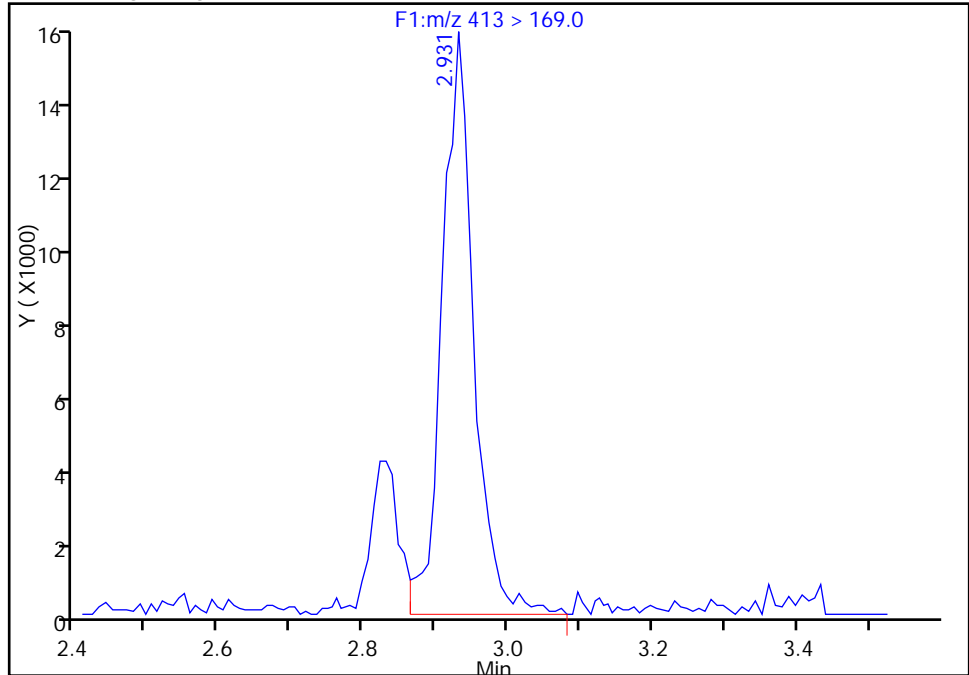
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d
Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8
Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6
Client ID: MCFSMW-14_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

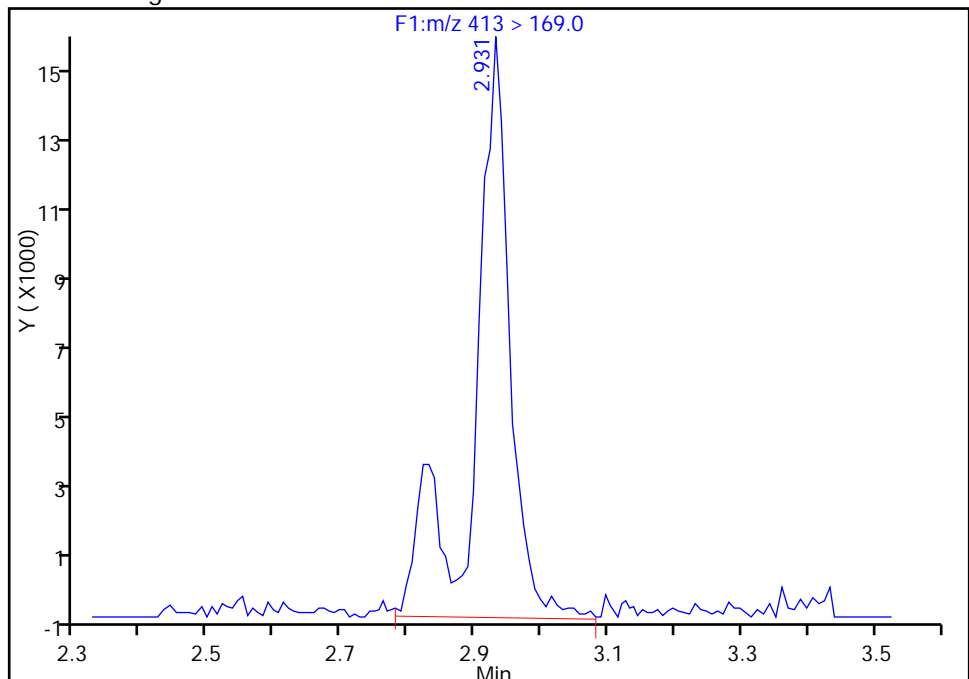
RT: 2.93
Area: 46795
Amount: 0.453850
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 57725
Amount: 0.557417
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:45:19

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>MCFSMW-4_0816</u>	Lab Sample ID: <u>320-21044-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_014_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 11:31</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>528.1 (mL)</u>	Date Analyzed: <u>09/04/2016 14:16</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	26		2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	77		2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	200		2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	21		2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	69	M	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	160	M	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		25-150
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	117		25-150
STL01892	13C4-PFHpA	88		25-150
STL00995	13C5 PFNA	86		25-150
STL00994	18O2 PFHxS	104		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d
 Lims ID: 320-21044-A-7-A
 Client ID: MCFSMW-4_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 14:16:00 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 12:02:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.944	1.944	0.0	1.000	3971549	13.8				
298.9 > 99.0	1.952	1.944	0.008	1.004	1521402		2.61(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.213	2.213	0.0		5603589	38.8		77.7	333329	
D 11 13C4-PFHpA										
367 > 322.0	2.560	2.556	0.004		5746560	43.9		87.8	280552	
12 Perfluoroheptanoic acid										
363 > 319.0	2.560	2.556	0.004	1.000	4852464	40.6			17373	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.576	2.571	0.005	1.000	21065941	104.0				
D 10 18O2 PFHxS										
403 > 84.0	2.576	2.571	0.005		8918885	49.4		104	352521	
15 Perfluorooctanoic acid										
413 > 369.0	2.933	2.919	0.014	1.000	11533280	85.0			65395	M
413 > 169.0	2.933	2.919	0.014	1.000	7554069		1.53(0.90-1.10)		197131	M
D 14 13C4 PFOA										
417 > 372.0	2.933	2.928	0.005		6517704	44.7		89.4	326818	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.313	3.195	0.119	1.000	7236669	36.2			37961	M
499 > 99.0	3.279	3.195	0.085	0.990	1605991		4.51(0.90-1.10)		17173	
D 17 13C4 PFOS										
503 > 80.0	3.313	3.304	0.009		8125996	56.1		117	58626	
D 19 13C5 PFNA										
468 > 423.0	3.322	3.312	0.010		5476169	42.9		85.9	248995	
20 Perfluorononanoic acid										
463 > 419.0	3.313	3.312	0.001	1.000	1244980	11.2			12836	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d

Injection Date: 04-Sep-2016 14:16:00

Instrument ID: A8

Lims ID: 320-21044-A-7-A

Lab Sample ID: 320-21044-7

Client ID: MCFSMW-4_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 14

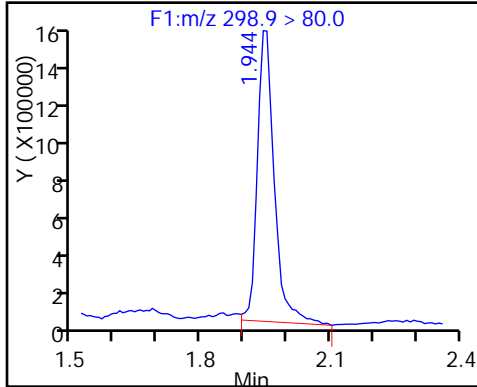
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

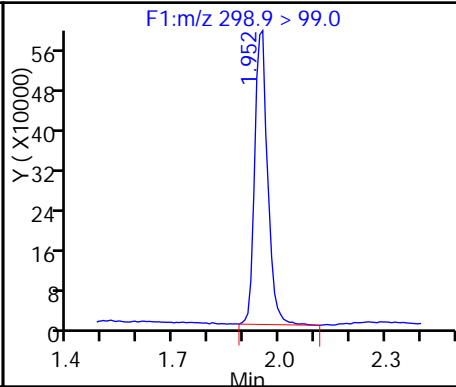
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

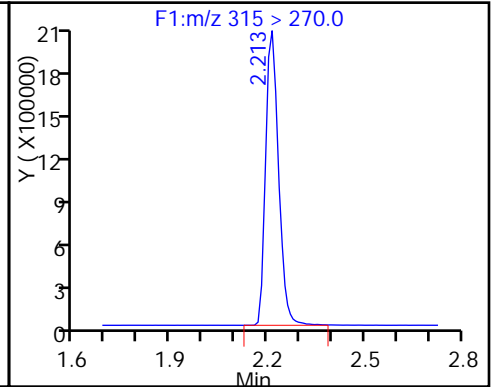
5 Perfluorobutanesulfonic acid



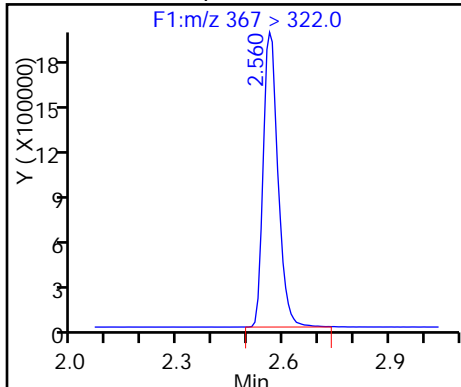
5 Perfluorobutanesulfonic acid



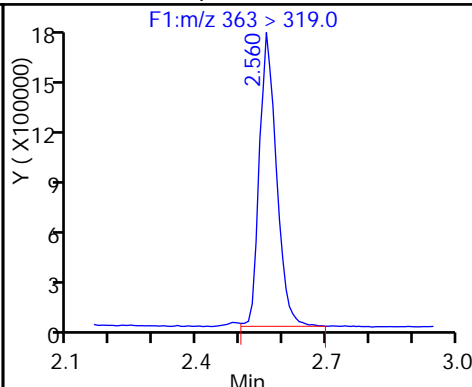
D 6 13C2 PFHxS



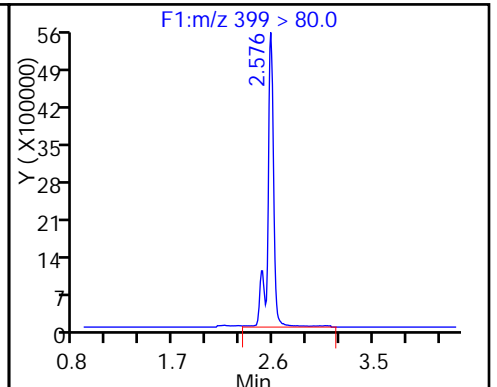
D 11 13C4-PFHpA



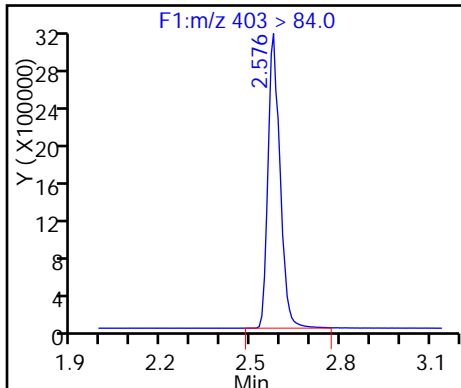
12 Perfluoroheptanoic acid



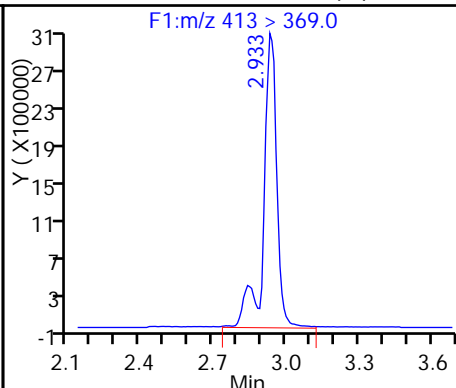
9 Perfluorohexanesulfonic acid



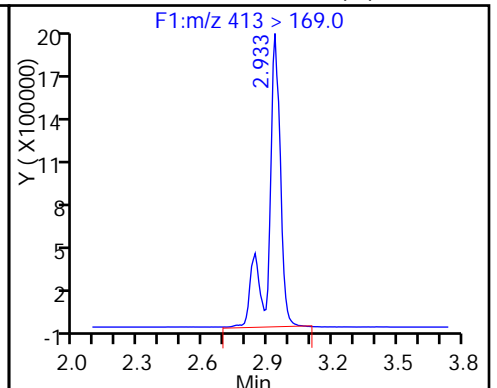
D 10 18O2 PFHxS



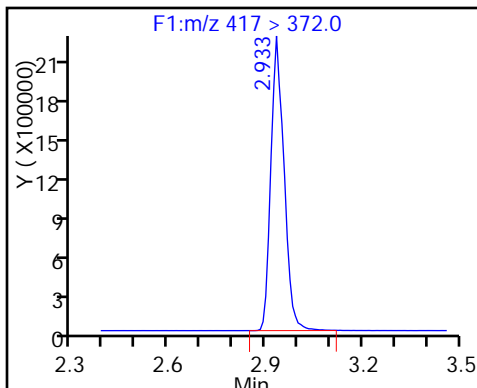
15 Perfluorooctanoic acid (M)



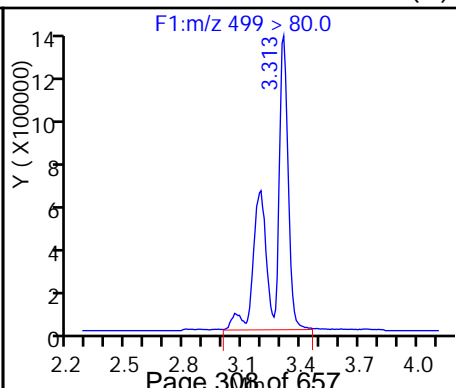
15 Perfluorooctanoic acid (M)



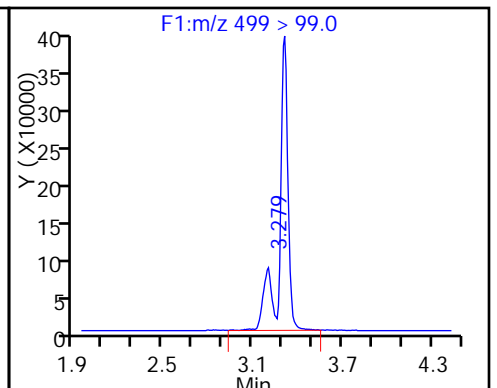
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid (M)



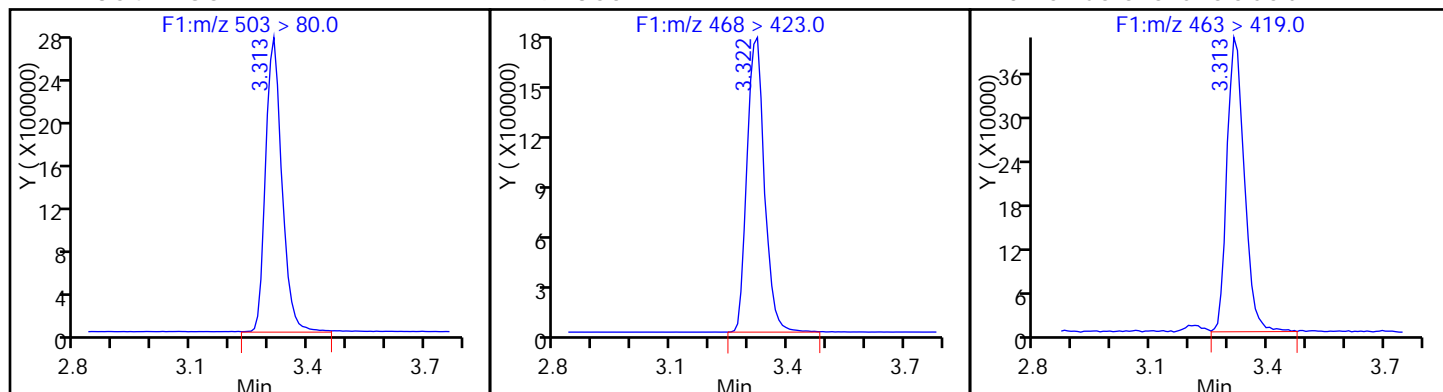
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



TestAmerica Sacramento

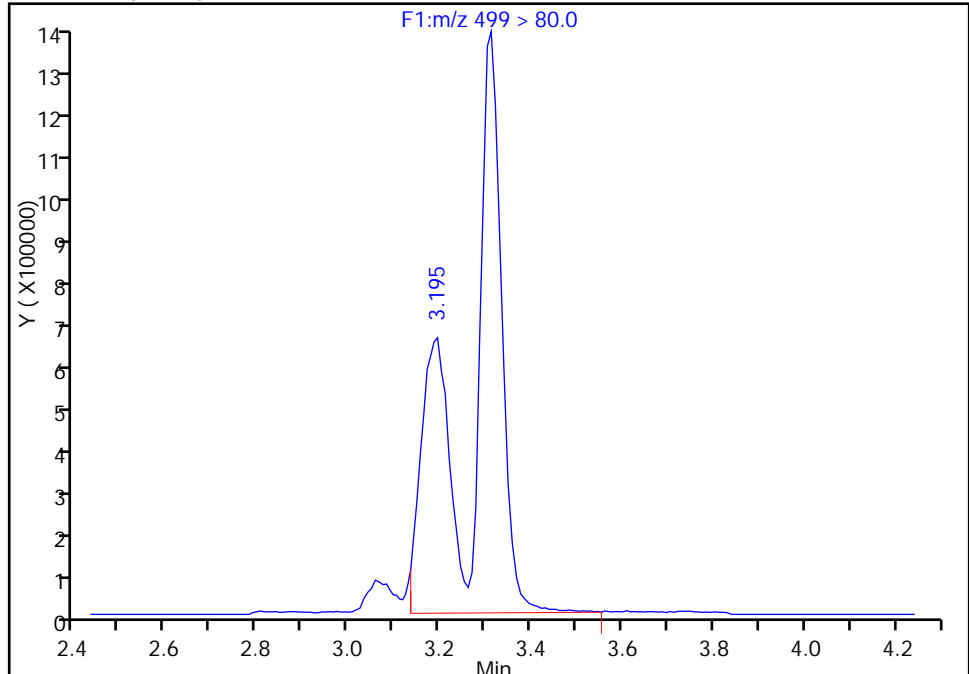
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d
Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8
Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7
Client ID: MCFSMW-4_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 1

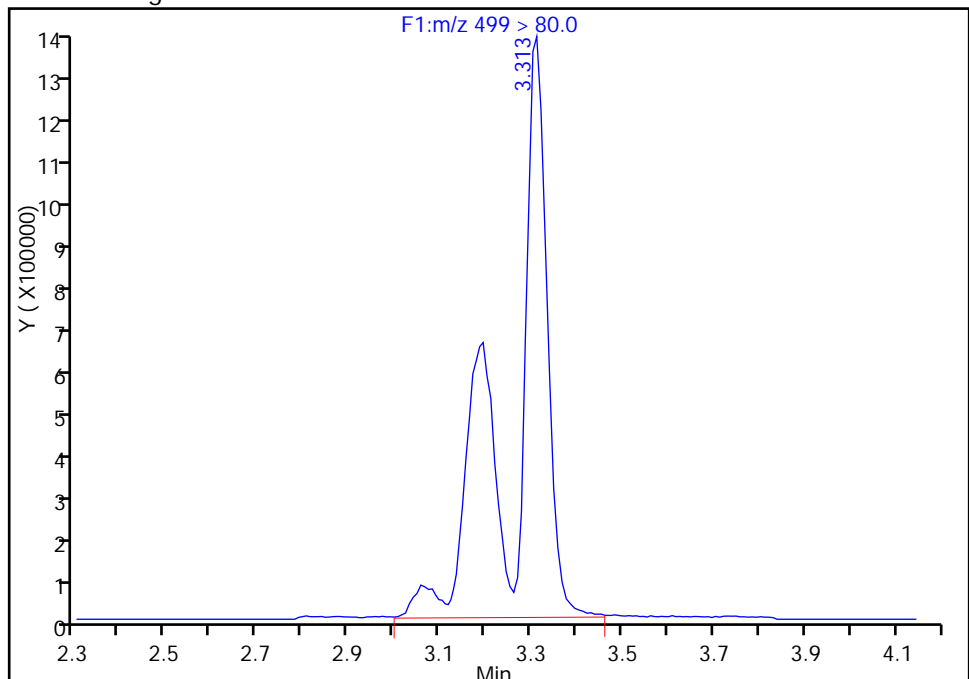
RT: 3.20
Area: 6913368
Amount: 34.604424
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 7236669
Amount: 36.222687
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:36
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

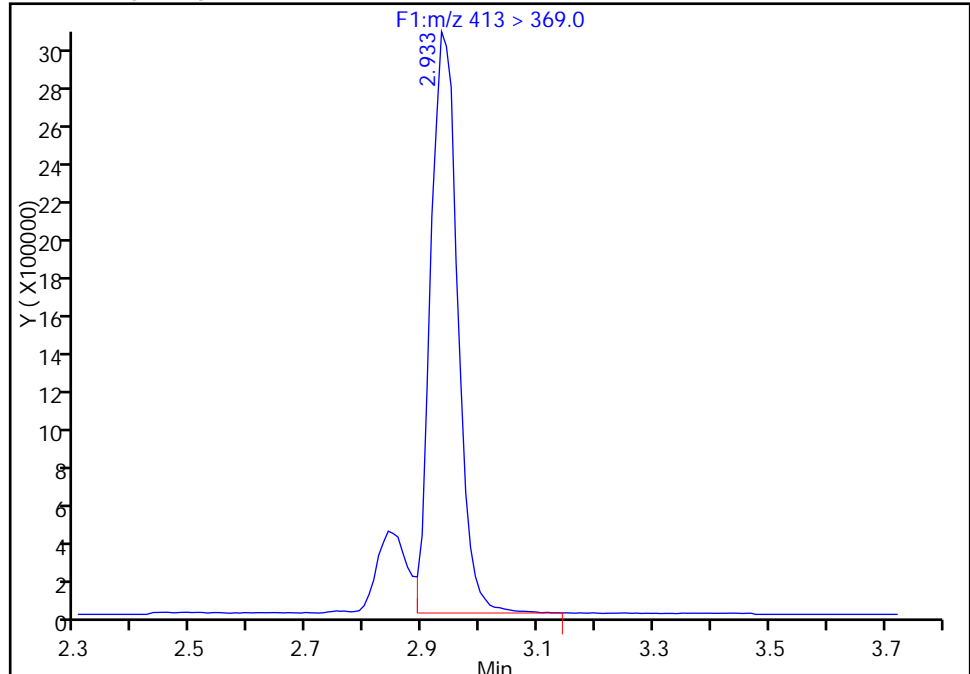
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d
Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8
Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7
Client ID: MCFSMW-4_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

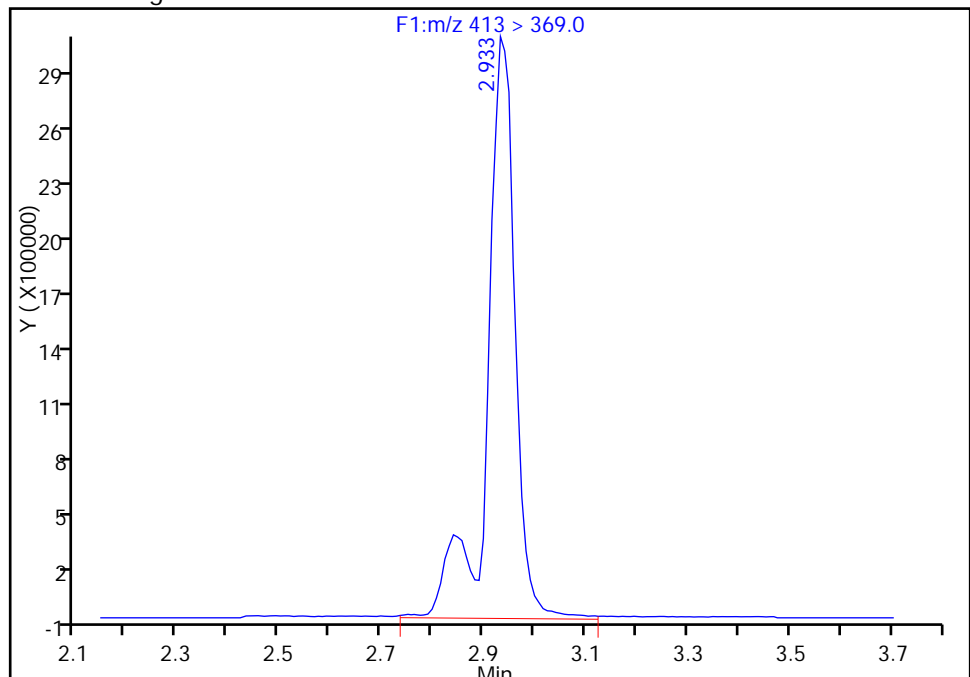
RT: 2.93
Area: 9744527
Amount: 71.848924
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 11533280
Amount: 85.037864
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:36
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

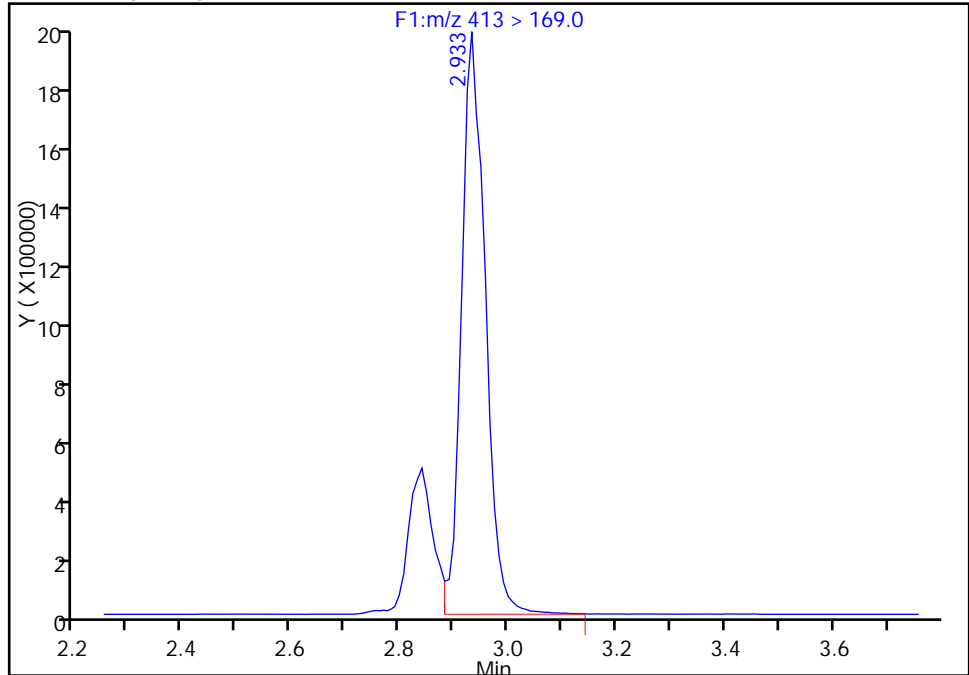
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d
Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8
Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7
Client ID: MCFSMW-4_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

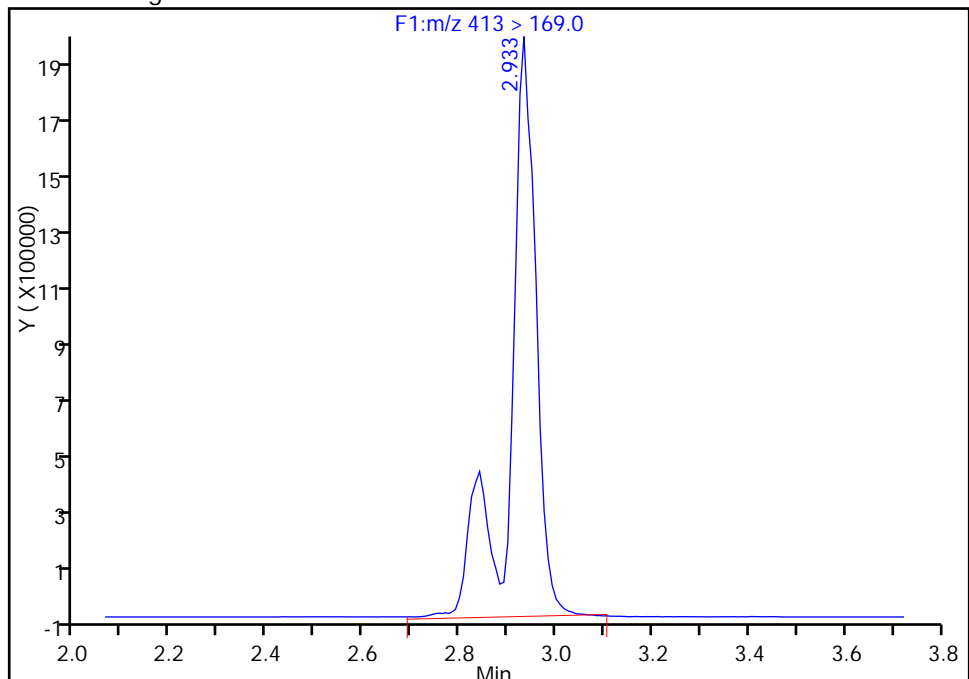
RT: 2.93
Area: 6003964
Amount: 71.848924
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 7554069
Amount: 85.037864
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:36

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: <u>MCFSMW-5_0816</u>	Lab Sample ID: <u>320-21044-8</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_019_p1_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>08/17/2016 13:16</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>533.8 (mL)</u>	Date Analyzed: <u>09/04/2016 14:54</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	12		2.3	1.9	0.86
375-85-9	Perfluoroheptanoic acid (PFHpA)	13		2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	45		2.3	1.9	0.81
375-95-1	Perfluorononanoic acid (PFNA)	0.92	J	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	M	3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	27	M	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		25-150
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	117		25-150
STL01892	13C4-PFHpA	100		25-150
STL00995	13C5 PFNA	75		25-150
STL00994	18O2 PFHxS	119		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d
 Lims ID: 320-21044-A-8-A
 Client ID: MCFSMW-5_0816
 Sample Type: Client
 Inject. Date: 04-Sep-2016 14:54:00 ALS Bottle#: 0 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:48:40 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 12:04:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.942	1.944	-0.002	1.000	2185950	6.67				
298.9 > 99.0	1.951	1.944	0.007	1.004	905095		2.42(0.00-0.00)			
D 6 13C2 PFHxA										
315 > 270.0	2.220	2.213	0.007		6512167	45.1		90.2	581546	
D 11 13C4-PFHpA										
367 > 322.0	2.564	2.556	0.008		6558198	50.1		100	548582	
12 Perfluoroheptanoic acid										
363 > 319.0	2.564	2.556	0.008	1.000	957378	7.01			6214	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.549	2.571	-0.022	1.000	5509717	23.8				
D 10 18O2 PFHxS										
403 > 84.0	2.579	2.571	0.008		10193792	56.4		119	397256	
15 Perfluorooctanoic acid										
413 > 369.0	2.936	2.919	0.017	1.000	2088304	14.5			9011	M
413 > 169.0	2.936	2.919	0.017	1.000	1398490		1.49(0.90-1.10)		6962	M
D 14 13C4 PFOA										
417 > 372.0	2.936	2.928	0.008		6940588	47.6		95.2	580834	
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.314	3.195	0.120	1.000	2303855	11.6			22474	M
499 > 99.0	3.196	3.195	0.002	0.965	627102		3.67(0.90-1.10)		10257	
D 17 13C4 PFOS										
503 > 80.0	3.305	3.304	0.001		8094304	55.9		117	108306	
D 19 13C5 PFNA										
468 > 423.0	3.323	3.312	0.011		4774635	37.4		74.9	195425	
20 Perfluorononanoic acid										
463 > 419.0	3.323	3.312	0.011	1.000	47406	0.4898			651	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d

Injection Date: 04-Sep-2016 14:54:00

Instrument ID: A8

Lims ID: 320-21044-A-8-A

Lab Sample ID: 320-21044-8

Client ID: MCFSMW-5_0816

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 19

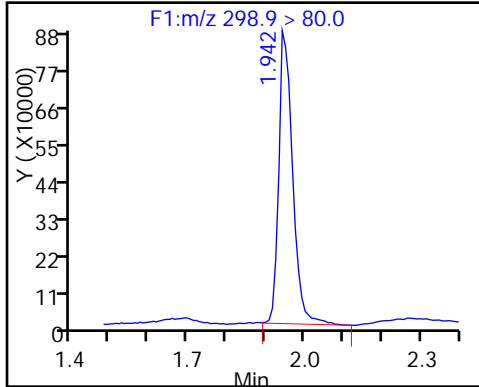
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

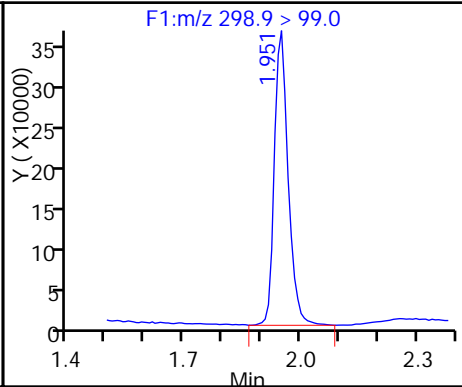
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

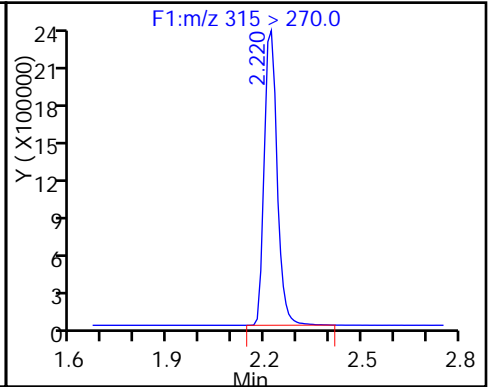
5 Perfluorobutanesulfonic acid



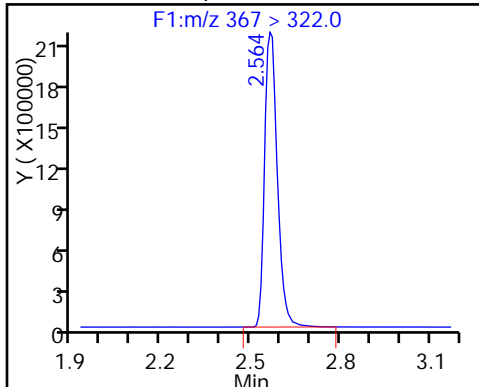
5 Perfluorobutanesulfonic acid



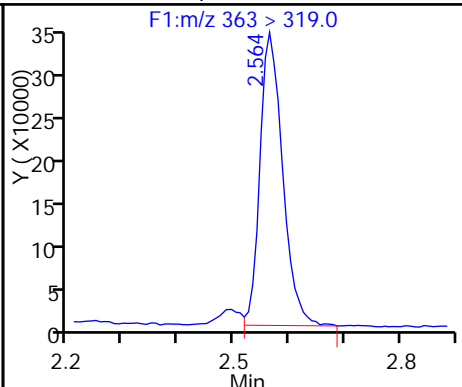
D 6 13C2 PFHxA



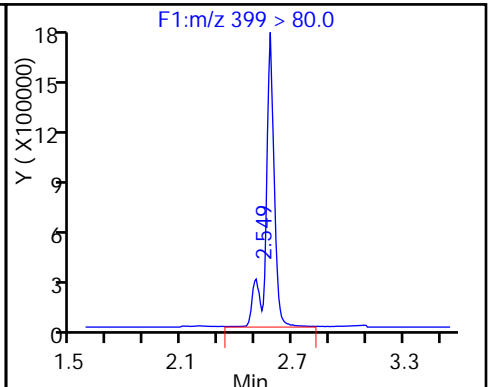
D 11 13C4-PFHpA



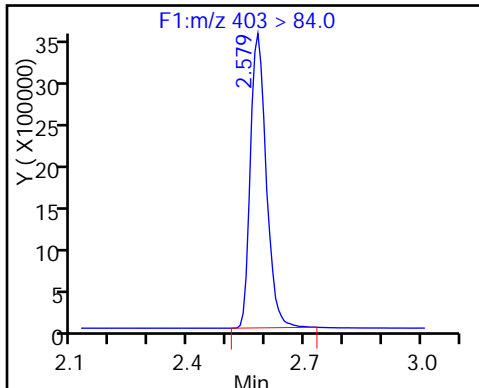
12 Perfluoroheptanoic acid



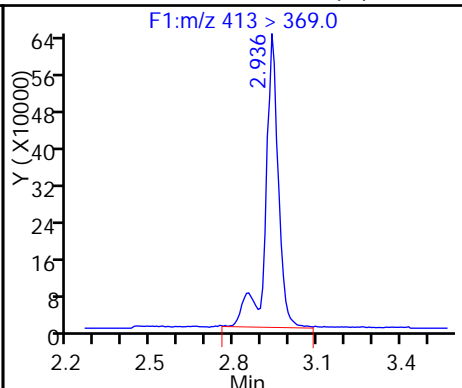
9 Perfluorohexanesulfonic acid



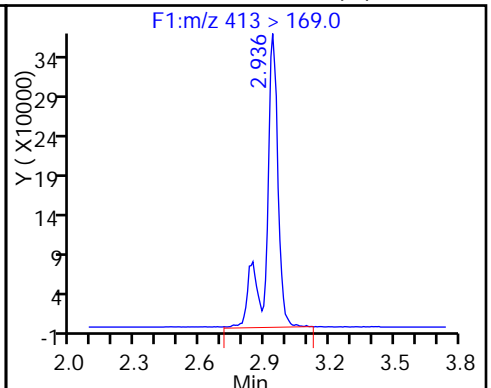
D 10 18O2 PFHxS



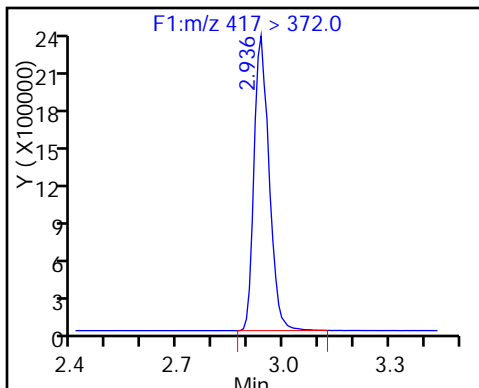
15 Perfluorooctanoic acid (M)



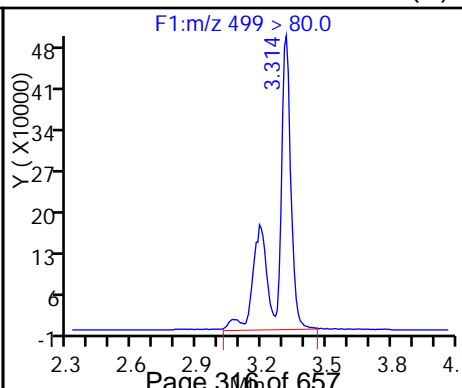
15 Perfluorooctanoic acid (M)



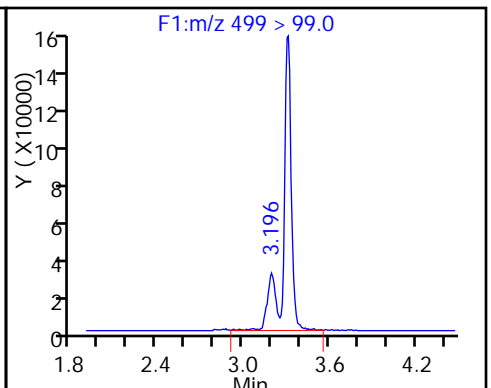
D 14 13C4 PFOA



18 Perfluorooctane sulfonic acid (M)



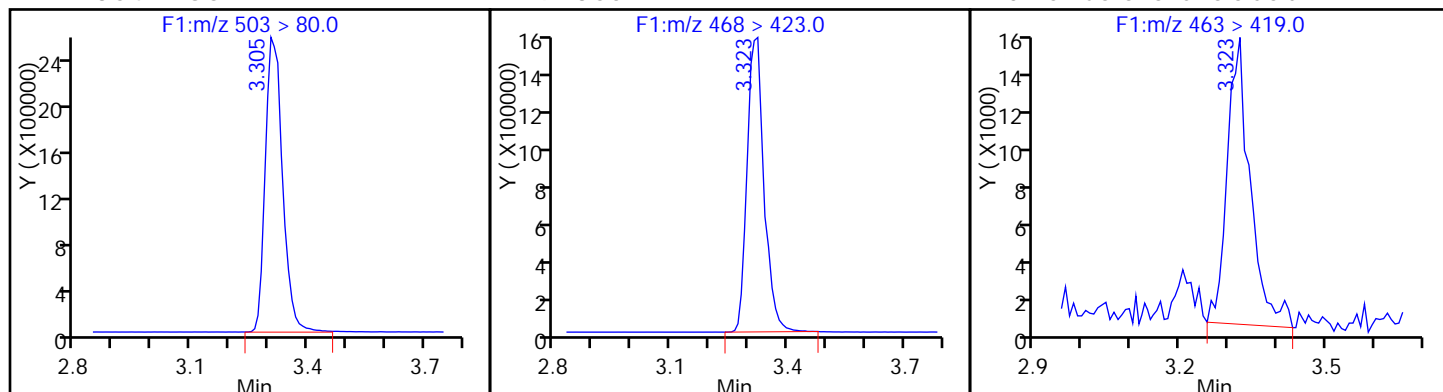
18 Perfluorooctane sulfonic acid



D 17 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



TestAmerica Sacramento

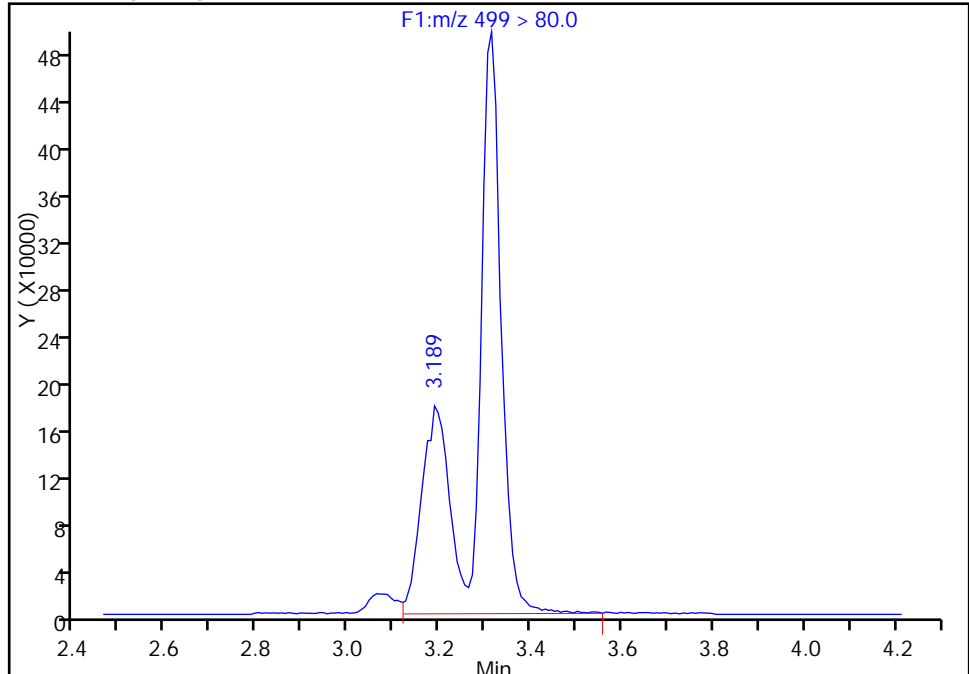
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Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8
Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8
Client ID: MCFSMW-5_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 1

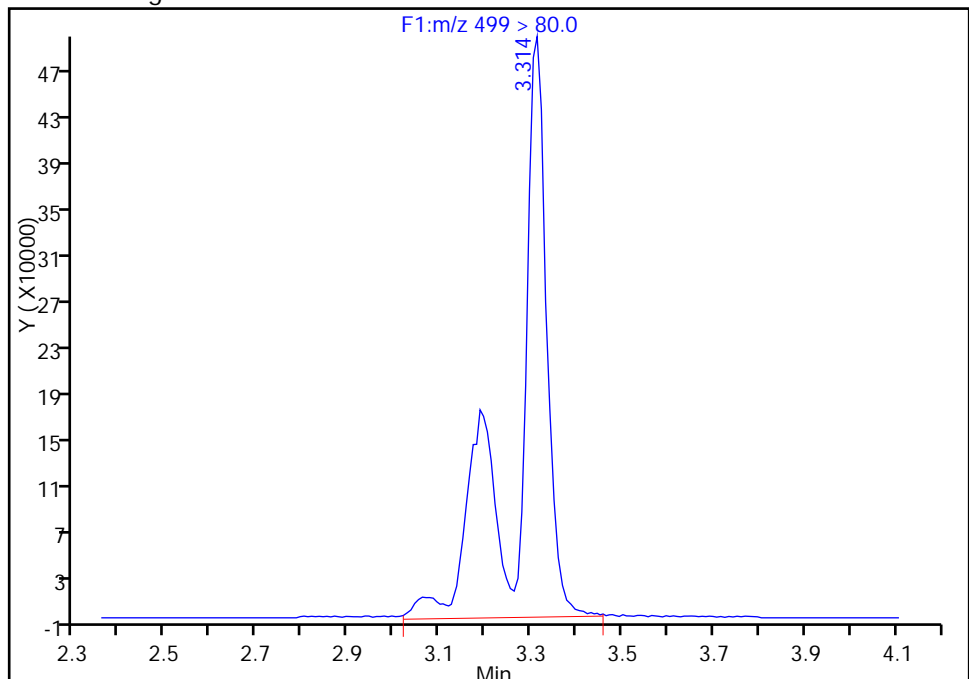
RT: 3.19
Area: 2227502
Amount: 11.193274
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 2303855
Amount: 11.576951
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:55
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

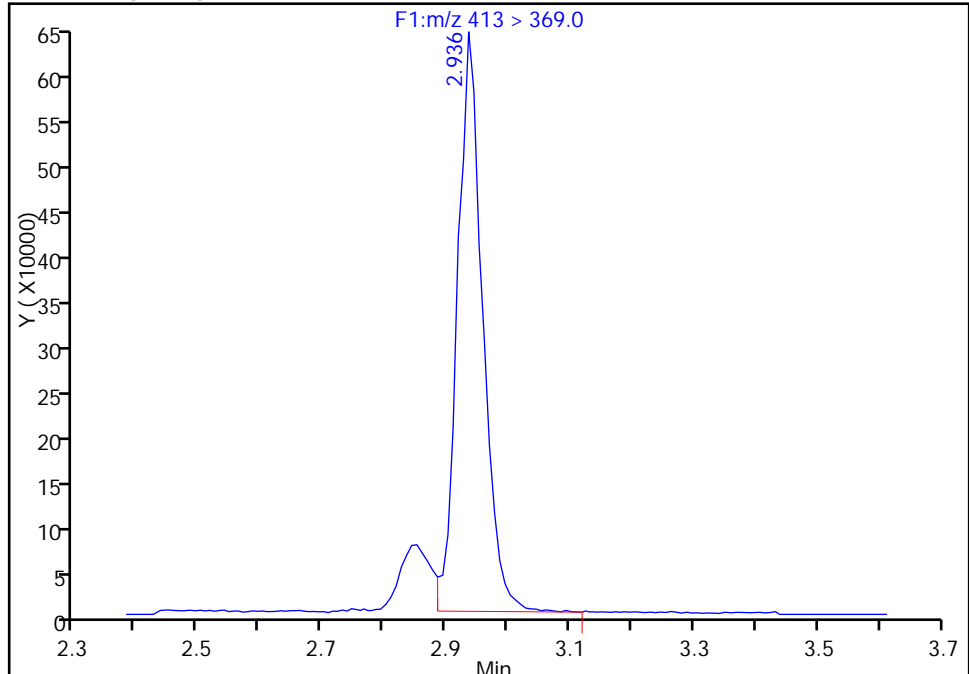
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d
Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8
Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8
Client ID: MCFSMW-5_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

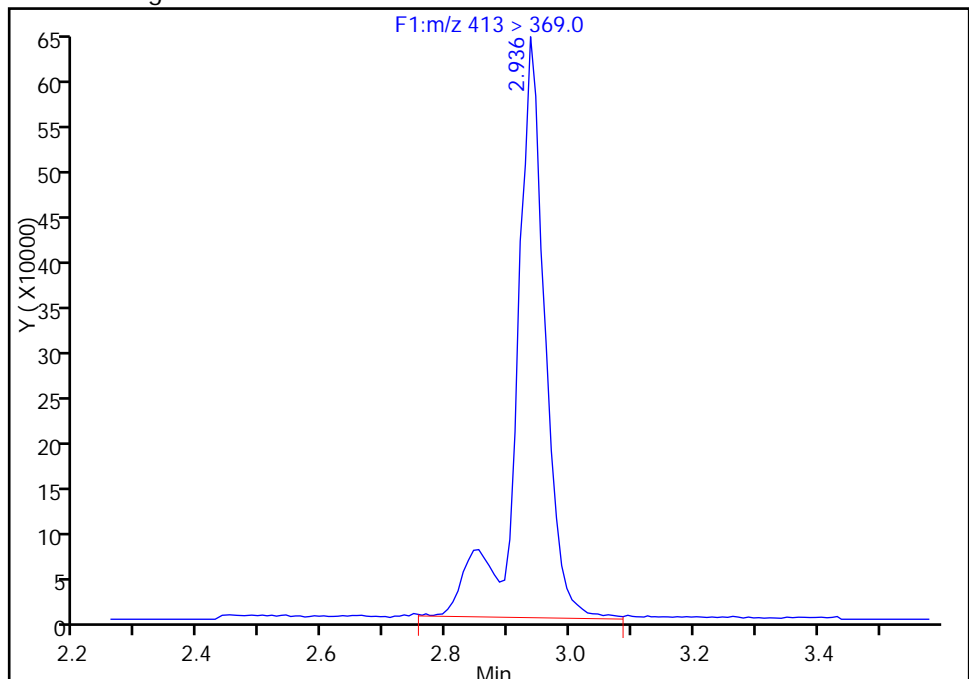
RT: 2.94
Area: 1812128
Amount: 12.547198
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 2088304
Amount: 14.459444
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:55

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

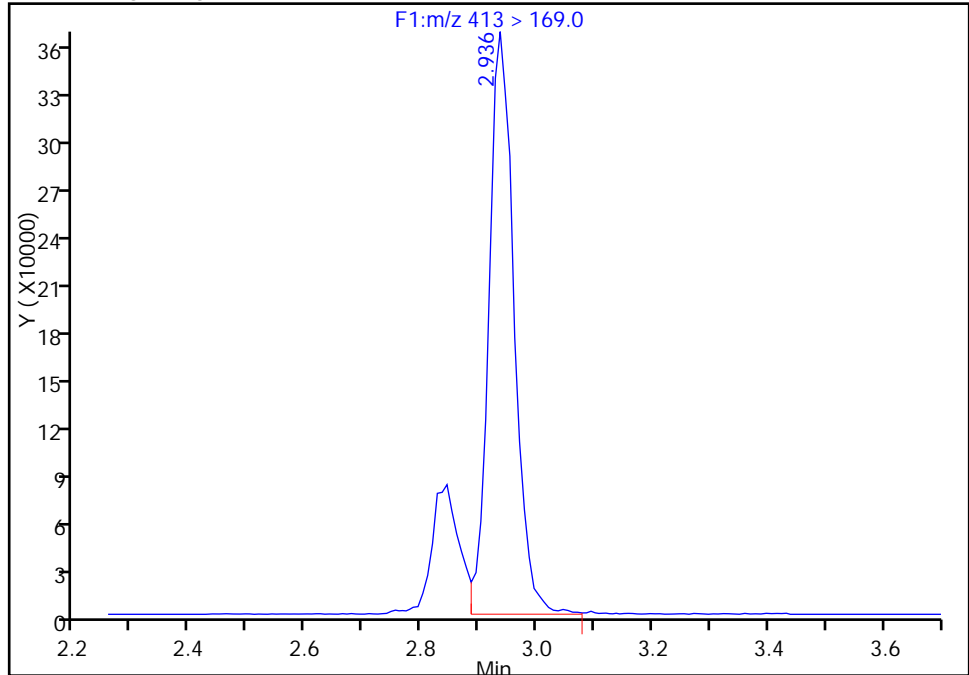
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d
Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8
Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8
Client ID: MCFSMW-5_0816
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

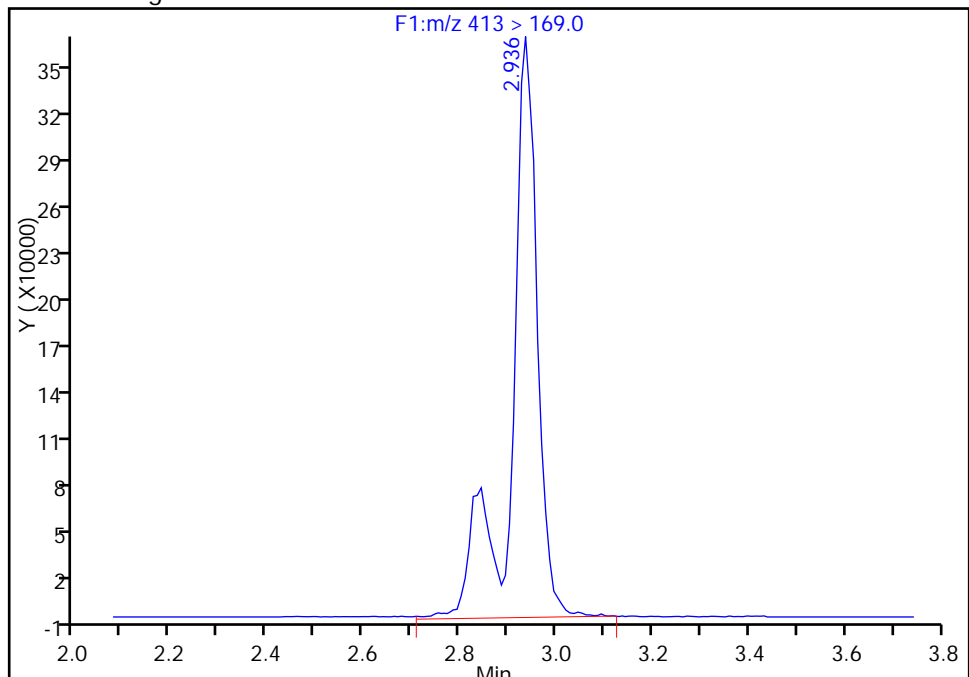
RT: 2.94
Area: 1115804
Amount: 12.547198
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 1398490
Amount: 14.459444
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 12:04:55

Audit Action: Manually Integrated

Audit Reason: Isomers

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-125915/4	03SEP2016A_004_p1_e1.d
Level 2	IC 320-125915/14	03SEP2016A_014_p1_e1.d
Level 3	IC 320-125915/5	03SEP2016A_005_p1_e1.d
Level 4	IC 320-125915/15	03SEP2016A_015_p1_e1.d
Level 5	IC 320-125915/6	03SEP2016A_006_p1_e1.d
Level 6	IC 320-125915/16	03SEP2016A_016_p1_e1.d
Level 7	IC 320-125915/7	03SEP2016A_007_p1_e1.d
Level 8	IC 320-125915/17	03SEP2016A_017_p1_e1.d
Level 9	IC 320-125915/8	03SEP2016A_008_p1_e1.d
Level 10	IC 320-125915/18	03SEP2016A_018_p1_e1.d
Level 11	IC 320-125915/9	03SEP2016A_009_p1_e1.d
Level 12	IC 320-125915/19	03SEP2016A_019_p1_e1.d
Level 13	IC 320-125915/10	03SEP2016A_010_p1_e1.d
Level 14	IC 320-125915/20	03SEP2016A_020_p1_e1.d

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.657 1.643		1.651 ++++		1.623		1.658		1.650		1.395 - 1.895	1.647
Perfluoropentanoic acid (PFPeA)	1.955 1.933		1.936 ++++		1.927		1.953		1.950		1.690 - 2.190	1.942
Perfluorobutanesulfonic acid (PFBS)	1.998 1.967		1.970 ++++		1.961		1.986		1.983		1.796 - 2.156	1.978
Perfluorohexanoic acid (PFHxA)	2.282 2.240		2.245 ++++		2.245		2.262		2.257		2.003 - 2.503	2.255
Perfluorohexanesulfonic acid (PFHxS)	++++ 2.617		2.525 2.614		2.539		2.558		2.623		2.341 - 2.841	2.579
Perfluoroheptanoic acid (PFHpA)	2.643 2.602		2.602 ++++		2.616		2.627		2.615		2.364 - 2.864	2.618
6:2FTS		++++ 2.933		2.941 ++++		2.933		2.933		2.933	2.685 - 3.185	2.935
Perfluorooctanoic acid (PFOA)	++++ 2.977		2.974 2.973		3.004		3.013		2.991		2.746 - 3.246	2.989
Perfluoroheptanesulfonic Acid (PFHpS)	3.038 2.985		2.974 ++++		3.012		3.013		2.991		2.749 - 3.249	3.002
Perfluorooctanesulfonic acid (PFOS)	++++ 3.239		3.233 3.327		3.275		3.273		3.264		3.021 - 3.521	3.269
Perfluorononanoic acid (PFNA)	3.416 3.361		3.363 ++++		3.400		3.398		3.370		3.131 - 3.631	3.385
Perfluorooctane Sulfonamide (FOSA)	3.706 3.665		3.643 ++++		3.684		3.692		3.671		3.424 - 3.924	3.677
8:2FTS		3.699 3.688		3.699 ++++		3.708		3.700		3.692	3.447 - 3.947	3.698

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorodecanoic acid (PFDA)	3.787 3.722		3.724 ++++		3.762		3.753		3.739		3.494 - 3.994	3.748
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		3.874 3.864		3.867 3.865		3.875		3.867		3.867	3.619 - 4.119	3.868
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		4.053 4.031		4.045 4.032		4.045		4.036		4.036	3.789 - 4.289	4.040
Perfluorodecanesulfonic acid (PFDS)	4.100 4.031		4.035 4.033		4.069		4.069		4.052		3.805 - 4.305	4.056
Perfluoroundecanoic acid (PFUnA)	4.129 4.058		4.053 ++++		4.088		4.099		4.071		3.828 - 4.328	4.083
MeFOSA		4.141 4.146		4.142 4.137		4.152		4.152		4.142	3.895 - 4.395	4.145
N-EtFOSA-M		4.331 4.332		4.332 4.324		4.342		4.332		4.334	4.083 - 4.583	4.332
Perfluorododecanoic acid (PFDoA)	4.421 4.354		4.352 ++++		4.390		4.382		4.369		4.124 - 4.624	4.378
Perfluorotridecanoic Acid (PFTriA)	4.689 4.619		4.619 ++++		4.650		4.651		4.637		4.389 - 4.889	4.644
Perfluorotetradecanoic acid (PFTeA)	4.924 4.860		4.866 4.860		4.899		4.899		4.876		4.633 - 5.133	4.883
Perfluoro-n-hexadecanoic acid (PFHxDA)	5.367 5.289		5.288 ++++		5.324		5.318		5.297		5.059 - 5.559	5.314
Perfluoro-n-octadecanoic acid (PFODA)	5.746 5.663		5.678 ++++		5.711		5.707		5.680		5.442 - 5.942	5.698
13C4 PFBA	1.657 1.643		1.644 1.636		1.623		1.651		1.643		1.392 - 1.892	1.642
13C5-PFPeA	1.955 1.933		1.936 ++++		1.927		1.953		1.941		1.688 - 2.188	1.941
13C2 PFHxA	2.282 2.240		2.245 ++++		2.245		2.270		2.257		2.004 - 2.504	2.257
13C4-PFHpA	2.643 2.602		2.594 2.587		2.616		2.627		2.608		2.361 - 2.861	2.611
18O2 PFHxS	2.659 2.610		2.609 2.614		2.623		2.642		2.623		2.376 - 2.876	2.626
M2-6:2FTS		2.933 2.925		2.941 2.933		2.941		2.933		2.933	2.683 - 3.183	2.934
13C4 PFOA	3.038 2.977		2.974 2.973		3.004		3.013		2.983		2.744 - 3.244	2.995
13C4 PFOS	3.416 3.352		3.354 3.355		3.391		3.389		3.370		3.125 - 3.625	3.375
13C5 PFNA	3.424 3.361		3.354 ++++		3.391		3.398		3.370		3.130 - 3.630	3.383
13C8 FOSA	3.706 3.665		3.643 ++++		3.684		3.692		3.671		3.424 - 3.924	3.677

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
M2-8:2FTS		3.699 3.688		3.699 3.689		3.708		3.700		3.700	3.447 - 3.947	3.698
13C2 PFDA	3.787 3.722		3.724 ++++		3.762		3.753		3.739		3.494 - 3.994	3.748
d3-NMeFOSAA		3.866 3.864		3.867 3.857		3.875		3.867		3.860	3.616 - 4.116	3.865
d5-NEtFOSAA		4.035 4.031		4.036 4.023		4.036		4.036		4.027	3.782 - 4.282	4.032
13C2 PFUnA	4.119 4.067		4.053 ++++		4.098		4.099		4.071		3.831 - 4.331	4.085
d-N-MeFOSA-M		4.141 4.146		4.142 4.137		4.152		4.142		4.142	3.893 - 4.393	4.143
d-N-EtFOSA-M		4.322 4.322		4.323 4.324		4.333		4.323		4.325	4.076 - 4.576	4.325
13C2 PFDoA	4.421 4.354		4.352 4.351		4.390		4.382		4.369		4.124 - 4.624	4.374
13C2-PFTeDA	4.924 4.860		4.866 4.860		4.899		4.890		4.876		4.632 - 5.132	4.882
13C2-PFHxDA	5.359 5.289		5.288 5.280		5.315		5.318		5.286		5.055 - 5.555	5.305

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-125915/4	03SEP2016A_004_p1_e1.d
Level 2	IC 320-125915/14	03SEP2016A_014_p1_e1.d
Level 3	IC 320-125915/5	03SEP2016A_005_p1_e1.d
Level 4	IC 320-125915/15	03SEP2016A_015_p1_e1.d
Level 5	IC 320-125915/6	03SEP2016A_006_p1_e1.d
Level 6	IC 320-125915/16	03SEP2016A_016_p1_e1.d
Level 7	IC 320-125915/7	03SEP2016A_007_p1_e1.d
Level 8	IC 320-125915/17	03SEP2016A_017_p1_e1.d
Level 9	IC 320-125915/8	03SEP2016A_008_p1_e1.d
Level 10	IC 320-125915/18	03SEP2016A_018_p1_e1.d
Level 11	IC 320-125915/9	03SEP2016A_009_p1_e1.d
Level 12	IC 320-125915/19	03SEP2016A_019_p1_e1.d
Level 13	IC 320-125915/10	03SEP2016A_010_p1_e1.d
Level 14	IC 320-125915/20	03SEP2016A_020_p1_e1.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 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
13C4 PFBA	211295 204300 201200 170299		225399 211953 188965		Ave		201915.589				8.8		50.0			
13C5-PFPeA	160652 160448 156240 ++++		173028 159250 140737		Ave		158392.537				6.6		50.0			
13C2 PFHxA	150556 146735 138294 ++++		157806 144007 128542		Ave		144323.430				7.0		50.0			
13C4-PFHpA	148554 140445 129583 96280		148443 138648 114088		Ave		130862.771				14.8		50.0			
18O2 PFHxS	189759 187052 185699 145005		198692 188286 170555		Ave		180721.000				9.9		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.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
M2-6:2FTS		72766 73283 79957 90861		73794 75796 81120	Ave		78225.0376				8.3		50.0			
13C4 PFOA	162075 159189 151003 99070		170947 153998 124500		Ave		145825.911				17.3		50.0			
13C4 PFOS	149748 151776 146442 119599		155018 151243 139253		Ave		144725.502				8.4		50.0			
13C5 PFNA	131896 133731 124284 ++++		140104 131280 103865		Ave		127526.510				9.9		50.0			
13C8 FOSA	273826 265940 267370 ++++		277180 270954 242855		Ave		266354.170				4.6		50.0			
M2-8:2FTS		75421 79820 86552 102328		77363 81004 86722	Ave		84172.8691				10.8		50.0			
13C2 PFDA	122847 122015 121540 ++++		128108 123055 107791		Ave		120892.677				5.7		50.0			
d3-NMeFOSAA		46907 49442 53799 47819		49495 52324 51177	Ave		50137.6771				4.9		50.0			
d5-NMeFOSAA		52236 56910 58822 53492		54797 61257 54955	Ave		56066.9000				5.6		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.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
13C2 PFUnA	98422 98434 93655 ++++		104877 95702 80733		Ave		95303.5367				8.5		50.0			
d-N-MeFOSA-M		63922 68789 73116 68877		66917 70563 70686	Ave		68981.6000				4.3		50.0			
d-N-EtFOSA-M		59535 61473 66510 65671		61271 64899 67446	Ave		63829.1686				4.8		50.0			
13C2 PFDoA	92380 92712 88665 72830		96800 93486 82434		Ave		88472.4429				9.3		50.0			
13C2-PFTeDA	173412 180160 176961 141281		182677 179502 159128		Ave		170445.737				8.8		50.0			
13C2-PFHxDA	110511 112997 112089 94266		111953 114879 105293		Ave		108855.329				6.5		50.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 11	LVL 12	LVL 13	LVL 9	LVL 10												
Perfluorobutanoic acid (PFBA)	189608 153057	190304	194481 ++++	182152	181106	AveID		0.8766				4.1		35.0			
Perfluoropentanoic acid (PFPeA)	197376 128014	165007	183410 ++++	160367	166298	AveID		1.0495				9.8		35.0			
Perfluorobutanesulfonic acid (PFBS)	297590 221686	305066	302923 ++++	295194	285731	AveID		1.5217				7.5		50.0			
Perfluorohexanoic acid (PFHxA)	176430 117858	147103	152002 ++++	136737	144205	AveID		1.0075				8.7		35.0			
Perfluorohexanesulfonic acid (PFHxS)	++++ 170423	201040	250612 141053	191855	207534	AveID		1.0739				9.7		35.0			
Perfluoroheptanoic acid (PFHpA)	164102 113457	143669	156657 ++++	133596	143729	AveID		1.0408				3.6		35.0			
6:2FTS	53198	++++ 61356	64806 69837	++++	64528	AveID		0.8178				10.0		35.0			
Perfluorooctanoic acid (PFOA)	++++ 122937	164695	184391 94266	156413	178248	AveID		1.0404				6.0		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	180994 150604	177488	176887 ++++	172118	171130	AveID		1.1513				3.9		50.0			
Perfluorooctanesulfonic acid (PFOS)	++++ 152281	172358	193734 132900	157929	209236	AveID		1.1752				9.9		35.0			
Perfluorononanoic acid (PFNA)	139592 105975	132578	137373 ++++	129679	129600	AveID		1.0136				3.4		35.0			
Perfluorooctane Sulfonamide (FOSA)	258092 192093	261535	255689 ++++	253085	257884	AveID		0.9229				7.2		35.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8GC Column: AcquityID: 2.1(mm)Heated Purge: (Y/N) NCalibration Start Date: 09/03/2016 15:38Calibration End Date: 09/03/2016 17:38Calibration ID: 24991

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6 LVL 11	LVL 7 LVL 12	LVL 8 LVL 13	LVL 9 LVL 14	LVL 10												
8:2FTS	58268	65056 67490	73509	63287 +++++	67244	AveID		0.8122					7.9		35.0		
Perfluorodecanoic acid (PFDA)	127214 103096	119168	124232 +++++	116998	119580	AveID		0.9788					3.0		35.0		
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	36294	42964 45656	46298	39036 48299	44756	AveID		0.8654					10.4		35.0		
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	35956	39230 44889	47734	39793 46341	44143	AveID		0.7603					9.7		35.0		
Perfluorodecanesulfonic acid (PFDS)	96680 91645	99386	92147 76451	97497	93235	AveID		0.6392					4.1		50.0		
Perfluoroundecanoic acid (PFUnA)	126954 80582	99698	115201 +++++	95786	99241	AveID		1.0765					10.3		35.0		
MeFOSA	45926	50876 61334	59628	52546 61671	59310	AveID		0.8097					9.1		35.0		
N-EtFOSA-M	45233	47796 61001	57713	49985 61285	56105	AveID		0.8464					8.0		35.0		
Perfluorododecanoic acid (PFDoA)	92986 79487	90063	90993 +++++	87038	89030	AveID		0.9694					2.3		35.0		
Perfluorotridecanoic Acid (PFTriA)	99930 80952	92692	91651 +++++	91352	90417	AveID		1.0013					4.8		50.0		
Perfluorotetradecanoic acid (PFTeA)	195730 140124	170126	172556 107863	164765	166022	AveID		1.7930					10.6		50.0		
Perfluoro-n-hexadecanoic acid (PFHxDA)	207536 93077	107463	151618 +++++	105000	110651	L1ID	0.5079	1.1343								1.0000	0.9900
Perfluoro-n-octadecanoic acid (PFODA)	92614 84358	90372	87858 +++++	89966	89652	AveID		0.9803					4.4		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.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-125915/4	03SEP2016A_004_p1_e1.d
Level 2	IC 320-125915/14	03SEP2016A_014_p1_e1.d
Level 3	IC 320-125915/5	03SEP2016A_005_p1_e1.d
Level 4	IC 320-125915/15	03SEP2016A_015_p1_e1.d
Level 5	IC 320-125915/6	03SEP2016A_006_p1_e1.d
Level 6	IC 320-125915/16	03SEP2016A_016_p1_e1.d
Level 7	IC 320-125915/7	03SEP2016A_007_p1_e1.d
Level 8	IC 320-125915/17	03SEP2016A_017_p1_e1.d
Level 9	IC 320-125915/8	03SEP2016A_008_p1_e1.d
Level 10	IC 320-125915/18	03SEP2016A_018_p1_e1.d
Level 11	IC 320-125915/9	03SEP2016A_009_p1_e1.d
Level 12	IC 320-125915/19	03SEP2016A_019_p1_e1.d
Level 13	IC 320-125915/10	03SEP2016A_010_p1_e1.d
Level 14	IC 320-125915/20	03SEP2016A_020_p1_e1.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
		LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
		LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
13C4 PFBA	Ave	10564753	10597639	11269933	10059992	10214983	50.0	50.0	50.0	50.0	50.0
		9448230		8514926			50.0		50.0		
13C5-PFPeA	Ave	8032597	7962509	8651414	7811976	8022422	50.0	50.0	50.0	50.0	50.0
		7036843		+++++			50.0		+++++		
13C2 PFHxA	Ave	7527780	7200359	7890315	6914706	7336757	50.0	50.0	50.0	50.0	50.0
		6427112		+++++			50.0		+++++		
13C4-PFHpA	Ave	7427688	6932384	7422156	6479138	7022231	50.0	50.0	50.0	50.0	50.0
		5704395		4813978			50.0		50.0		
18O2 PFHxS	Ave	8975602	8905918	9398124	8783547	8847569	47.3	47.3	47.3	47.3	47.3
		8067246		6858717			47.3		47.3		
M2-6:2FTS	Ave	3456373	3480930	3505211	3797945		47.5	47.5	47.5	47.5	47.5
		3853202		3600290			47.5		47.5		47.5
13C4 PFOA	Ave	8103757	7699889	8547338	7550162	7959440	50.0	50.0	50.0	50.0	50.0
		6224994		4953489			50.0		50.0		

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
13C4 PFOS	Ave	7157954 6656316	7229395	7409872 5716815	6999925	7254876	47.8 47.8	47.8	47.8	47.8	47.8
13C5 PFNA	Ave	6594775 5193244	6564022	7005194 +++++	6214189	6686529	50.0 50.0	50.0	50.0	50.0	50.0
13C8 FOSA	Ave	13691300 12142761	13547695	13858976 +++++	13368523	13296996	50.0 50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	3823389	3612646 4153988	3880074	3705704 4901505	4145857	47.9	47.9 47.9	47.9	47.9	47.9
13C2 PFDA	Ave	6142366 5389574	6152729	6405384 +++++	6077012	6100738	50.0 50.0	50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	2472121	2345360 2558846	2616200	2474737 2390955	2689968	50.0	50.0 50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	2845482	2611814 2747749	3062834	2739854 2674584	2941098	50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	4921076 4036632	4785082	5243840 +++++	4682751	4921680	50.0 50.0	50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	3439446	3196091 3534315	3528172	3345874 3443873	3655789	50.0	50.0 50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	3073658	2976733 3372284	3244967	3063548 3283532	3325487	50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFDoA	Ave	4619008 4121681	4674298	4839992 3641523	4433243	4635610	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	8670614	8975109	9133846	8848037	9007978	50.0	50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	7956388 5525528	5743935	7064036 5597674	5604455	5649829	50.0 50.0	50.0	50.0	50.0	50.0
		5264655		4713289			50.0		50.0		

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915
SDG No.: _____
Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N
Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

Curve Type Legend:

Ave = Average

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) NCalibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-125915/4	03SEP2016A_004_p1_el.d
Level 2	IC 320-125915/14	03SEP2016A_014_p1_el.d
Level 3	IC 320-125915/5	03SEP2016A_005_p1_el.d
Level 4	IC 320-125915/15	03SEP2016A_015_p1_el.d
Level 5	IC 320-125915/6	03SEP2016A_006_p1_el.d
Level 6	IC 320-125915/16	03SEP2016A_016_p1_el.d
Level 7	IC 320-125915/7	03SEP2016A_007_p1_el.d
Level 8	IC 320-125915/17	03SEP2016A_017_p1_el.d
Level 9	IC 320-125915/8	03SEP2016A_008_p1_el.d
Level 10	IC 320-125915/18	03SEP2016A_018_p1_el.d
Level 11	IC 320-125915/9	03SEP2016A_009_p1_el.d
Level 12	IC 320-125915/19	03SEP2016A_019_p1_el.d
Level 13	IC 320-125915/10	03SEP2016A_010_p1_el.d
Level 14	IC 320-125915/20	03SEP2016A_020_p1_el.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
Perfluorobutanoic acid (PFBA)		AveID	94804		194481		905532	0.500		1.00		5.00
			30611454	3806071	+++++	9107590		200	20.0	+++++	50.0	
Perfluoropentanoic acid (PFPeA)		AveID	98688		183410		831490	0.500		1.00		5.00
			25602733	3300147	+++++	8018325		200	20.0	+++++	50.0	
Perfluorobutanesulfonic acid (PFBS)		AveID	131535		267784		1262929	0.442		0.884		4.42
			39194012	5393562	+++++	13047591		177	17.7	+++++	44.2	
Perfluorohexanoic acid (PFHxA)		AveID	88215		152002		721026	0.500		1.00		5.00
			23571653	2942051	+++++	6836853		200	20.0	+++++	50.0	
Perfluorohexanesulfonic acid (PFHxS)		AveID	+++++		228057		944278	+++++		0.910		4.55
			31017014	3658925	51343246	8729401		182	18.2	364	45.5	
Perfluoroheptanoic acid (PFHpA)		AveID	82051		156657		718644	0.500		1.00		5.00
			22691495	2873384	+++++	6679813		200	20.0	+++++	50.0	
6:2FTS		AveID		+++++		61436			+++++		0.948	
			252159	1324103		3058623		4.74		19.0		47.4
				11633026		+++++			190	+++++		

FORM VI

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorooctanoic acid (PFOA)		AveID	+++++ 24587367	3293903	184391 37706543	7820671	891238	+++++ 200	20.0	1.00 400	50.0	5.00
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	86153 28674968	3379364	168396 +++++	8192805	814579	0.476 190	19.0	0.952 +++++	47.6	4.76
Perfluorooctanesulfonic acid (PFOS)		AveID	+++++ 28263326	3198967	179785 49332494	7327912	970855	+++++ 186	18.6	0.928 371	46.4	4.64
Perfluorononanoic acid (PFNA)		AveID	69796 21195062	2651561	137373 +++++	6483970	648001	0.500 200	20.0	1.00 +++++	50.0	5.00
Perfluorooctane Sulfonamide (FOSA)		AveID	129046 38418532	5230694	255689 +++++	12654264	1289420	0.500 200	20.0	1.00 +++++	50.0	5.00
8:2FTS		AveID	279103	31162 12931010	1408431	60629 +++++	3220979	4.79	0.479 192	19.2	0.958 +++++	47.9
Perfluorodecanoic acid (PFDA)		AveID	63607 20619156	2383354	124232 +++++	5849904	597900	0.500 200	20.0	1.00 +++++	50.0	5.00
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	181469	21482 9131219	925966	39036 19319449	2237819	5.00	0.500 200	20.0	1.00 400	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	179781	19615 8977868	954675	39793 18536217	2207162	5.00	0.500 200	20.0	1.00 400	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	46600 17669187	1916161	88830 29479384	4699344	449395	0.482 193	19.3	0.964 386	48.2	4.82
Perfluoroundecanoic acid (PFUnA)		AveID	63477 16116354	1993953	115201 +++++	4789301	496205	0.500 200	20.0	1.00 +++++	50.0	5.00
MeFOSA		AveID	229630	25438 12266767	1192551	52546 24668475	2965510	5.00	0.500 200	20.0	1.00 400	50.0
N-EtFOSA-M		AveID	226164	23898 12200197	1154250	49985 24514043	2805243	5.00	0.500 200	20.0	1.00 400	50.0

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
Perfluorododecanoic acid (PFDoA)		AveID	46493	1801266	90993	4351878	445151	0.500	20.0	1.00	50.0	5.00
			15897471		+++++			200		+++++		
Perfluorotridecanoic Acid (PFTriA)		AveID	49965	1853833	91651	4567596	452087	0.500	20.0	1.00	50.0	5.00
			16190491		+++++			200		+++++		
Perfluorotetradecanoic acid (PFTeA)		AveID	97865	3402523	172556	8238270	830110	0.500	20.0	1.00	50.0	5.00
			28024778		43145369			200		400		
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	103768	2149259	151618	5250014	553254	0.500	20.0	1.00	50.0	5.00
			18615408		+++++			200		+++++		
Perfluoro-n-octadecanoic acid (PFODA)		AveID	46307	1807447	87858	4498275	448259	0.500	20.0	1.00	50.0	5.00
			16871624		+++++			200		+++++		

Curve Type Legend:

AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_004_p1_e1.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 03-Sep-2016 15:38:00 ALS Bottle#: 0 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:35:33 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:13:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.657	1.642	0.015		10564753	52.3		105	755106	
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1 Perfluorobutyric acid

212.9 > 169.0	1.657	1.645	0.012	1.000	94804	0.5118		102	841	
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D 4 13C5-PFPeA

267.9 > 223.0	1.955	1.938	0.017		8032597	50.7		101	951175	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.955	1.940	0.015	1.000	98688	0.5853		117	1461	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.998	1.976	0.022	1.000	131535	0.4555		103		
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298.9 > 99.0	2.006	1.976	0.030	1.004	56032		2.35(0.00-0.00)	103		
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7 Perfluorohexanoic acid

313 > 269.0	2.282	2.253	0.029	1.000	88215	0.5816		116	4263	
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D 6 13C2 PFHxA

315 > 270.0	2.282	2.254	0.028		7527780	52.2		104	1315566	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.659	2.591	0.068	1.000	149977	0.7359		162		
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D 11 13C4-PFHpA

367 > 322.0	2.643	2.611	0.032		7427688	56.8		114	638731	
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12 Perfluoroheptanoic acid

363 > 319.0	2.643	2.614	0.029	1.000	82051	0.5307		106	2280	
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D 10 18O2 PFHxS

403 > 84.0	2.659	2.626	0.033		8975602	49.7		105	597345	
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D 14 13C4 PFOA

417 > 372.0	3.038	2.994	0.044		8103757	55.6		111	673403	
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15 Perfluorooctanoic acid

413 > 369.0	3.038	2.996	0.042	1.000	123622	0.7331		147	2707	
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413 > 169.0	3.038	2.996	0.042	1.000	67771		1.82(0.90-1.10)	147	4644	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	3.038	2.999	0.039	1.000	86153	0.4997		105		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.289	3.271	0.018	1.000	145964	0.8294		179	3773	
499 > 99.0	3.388	3.271	0.117	1.030	36715		3.98(0.90-1.10)	179	917	
D 17 13C4 PFOS										
503 > 80.0	3.416	3.375	0.041		7157954	49.5		103	499990	
D 19 13C5 PFNA										
468 > 423.0	3.424	3.380	0.044		6594775	51.7		103	528837	
20 Perfluorononanoic acid										
463 > 419.0	3.416	3.381	0.035	1.000	69796	0.5221		104	2383	
D 21 13C8 FOSA										
506 > 78.0	3.706	3.674	0.032		13691300	51.4		103	738021	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.706	3.674	0.032	1.000	129046	0.5106		102	9376	
24 Perfluorodecanoic acid										
513 > 469.0	3.787	3.744	0.043	1.000	63607	0.5290		106	4354	
D 23 13C2 PFDA										
515 > 470.0	3.787	3.744	0.043		6142366	50.8		102	321387	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.100	4.055	0.045	1.000	46600	0.4868		101		
28 Perfluoroundecanoic acid										
563 > 519.0	4.129	4.078	0.051	1.000	63477	0.5991		120	2348	
D 27 13C2 PFUnA										
565 > 520.0	4.119	4.081	0.038		4921076	51.6		103	333267	
29 Perfluorododecanoic acid										
613 > 569.0	4.421	4.374	0.047	1.000	46493	0.5192		104	208	
D 30 13C2 PFDaA										
615 > 570.0	4.421	4.374	0.047		4619008	52.2		104	261249	
31 Perfluorotridecanoic acid										
633 > 619.0	4.689	4.639	0.050	1.000	49965	0.5402		108	171	
D 32 13C2-PFTeDA										
715 > 670.0	4.924	4.882	0.042		8670614	50.9		102	998500	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.924	4.883	0.041	1.000	97865	0.5908		118	164	
713 > 169.0	4.924	4.883	0.041	1.000	16095		6.08(0.00-0.00)	118	5760	
D 34 13C2-PFHxDA										
815 > 770.0	5.359	5.305	0.054		5525528	50.8		102	464148	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.367	5.309	0.058	1.000	103768	0.5425		109	301	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.746	5.692	0.054	1.000	46307	0.5113		102	207	

Reagents:

LCPFC-L1_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_004_p1_e1.d

Injection Date: 03-Sep-2016 15:38:00

Instrument ID: A8

Lims ID: IC L1

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

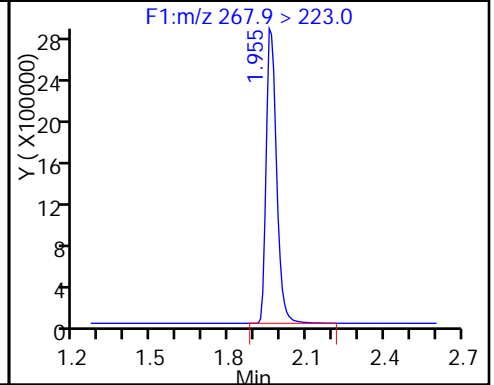
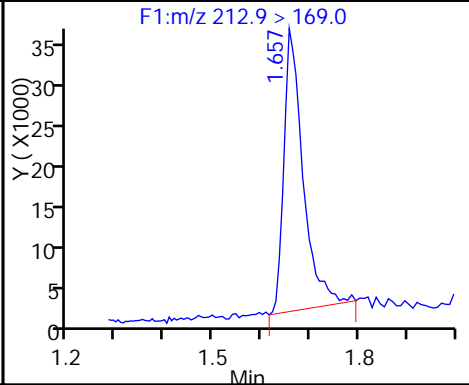
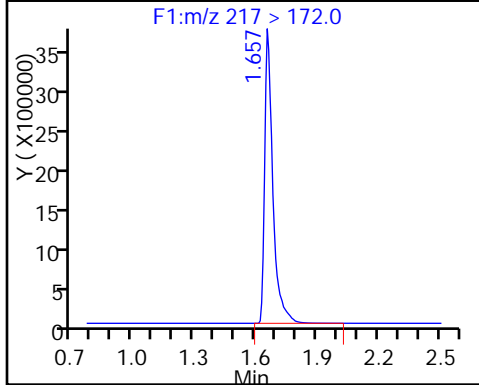
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

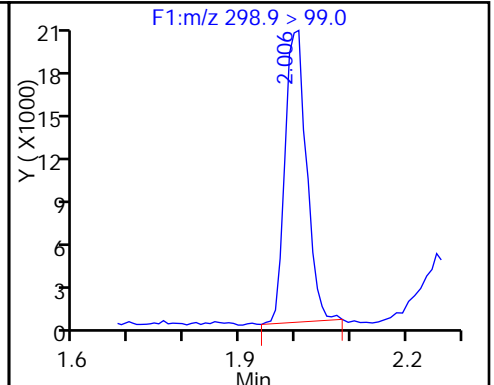
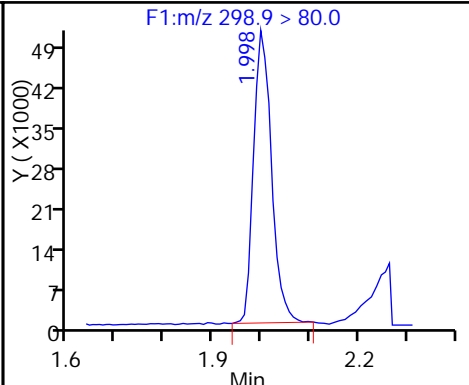
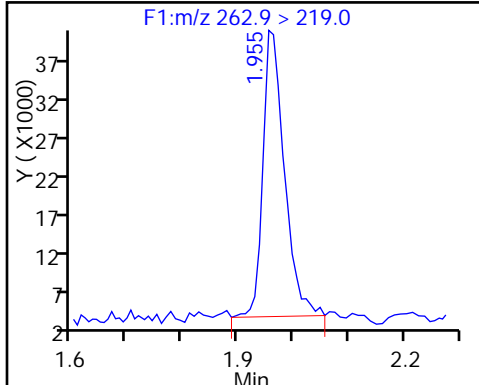
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

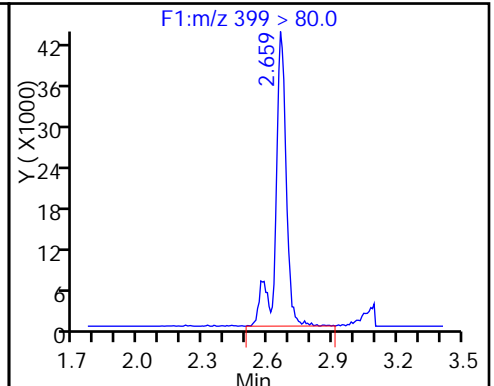
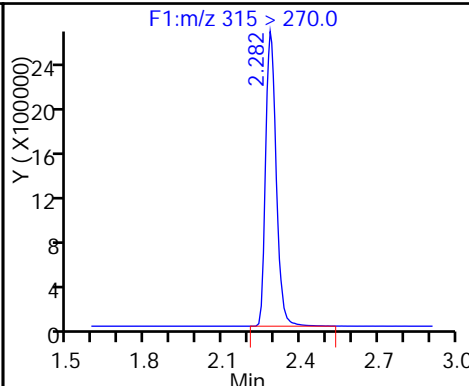
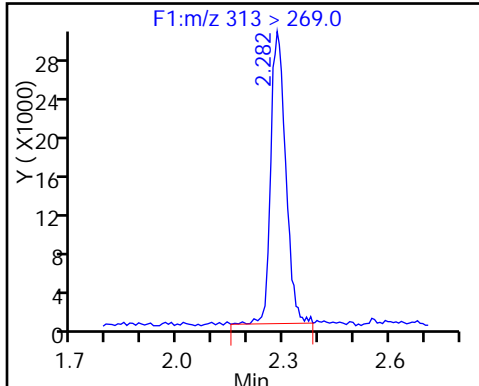
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

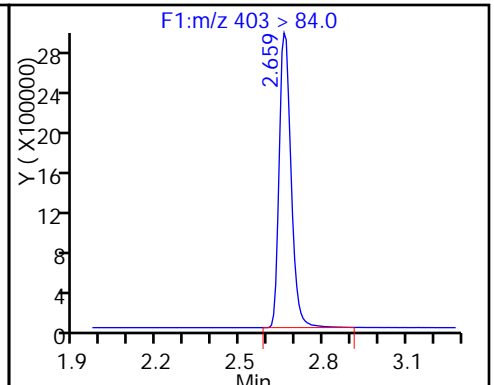
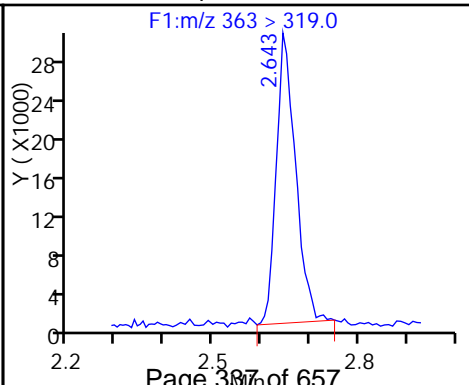
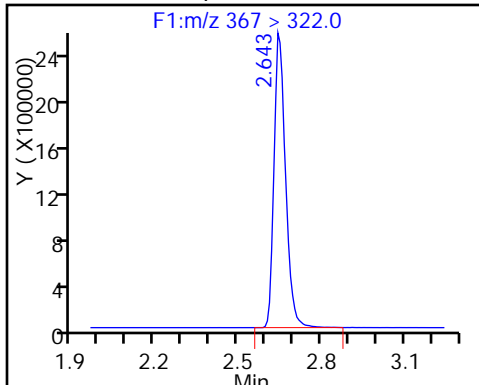
9 Perfluorohexanesulfonic acid



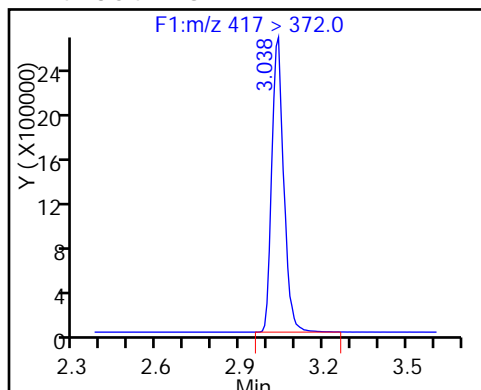
D 11 13C4-PFHpA

12 Perfluoroheptanoic acid

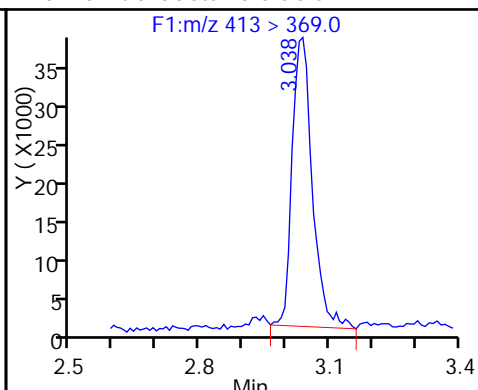
D 10 18O2 PFHxS



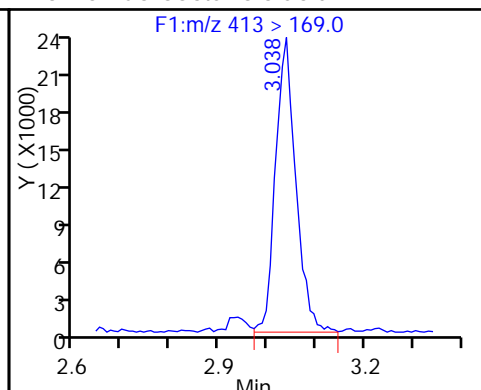
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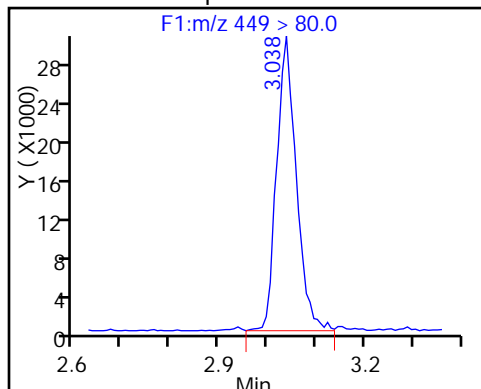
15 Perfluorooctanoic acid



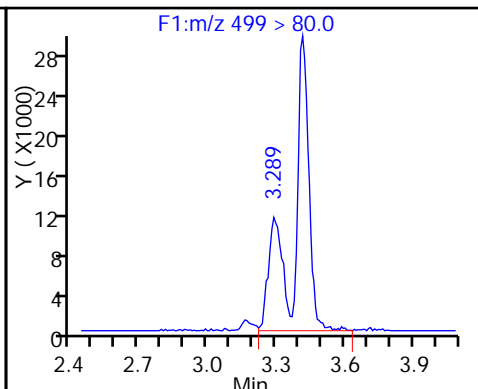
15 Perfluorooctanoic acid



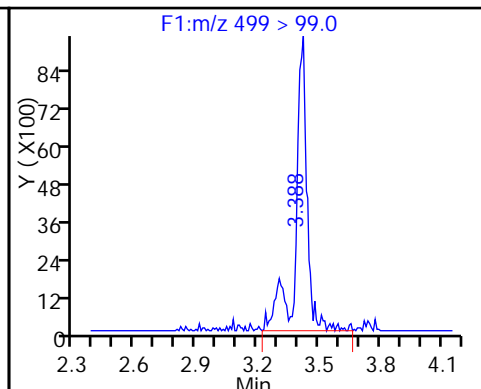
13 Perfluoroheptanesulfonic Acid



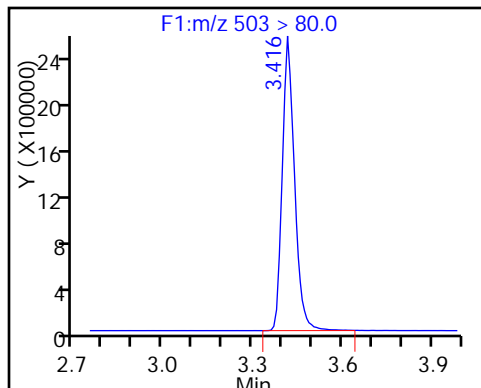
18 Perfluorooctane sulfonic acid



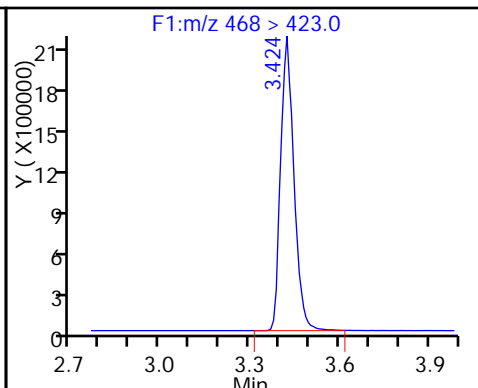
18 Perfluorooctane sulfonic acid



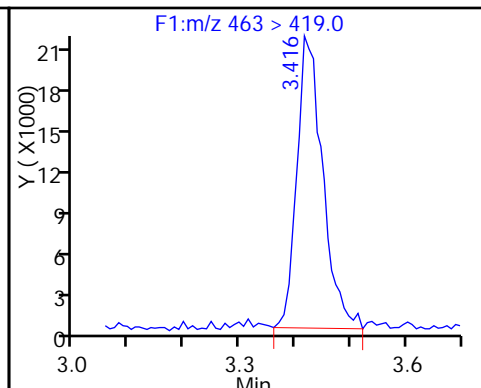
D 17 13C4 PFOS



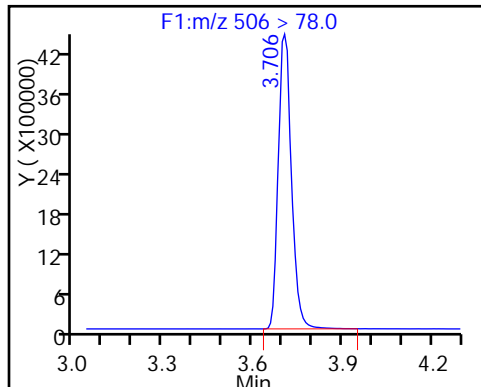
D 19 13C5 PFNA



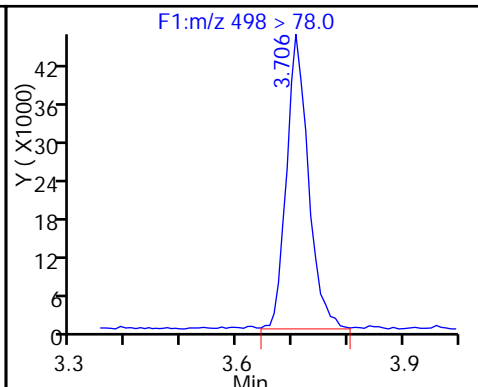
20 Perfluorononanoic acid



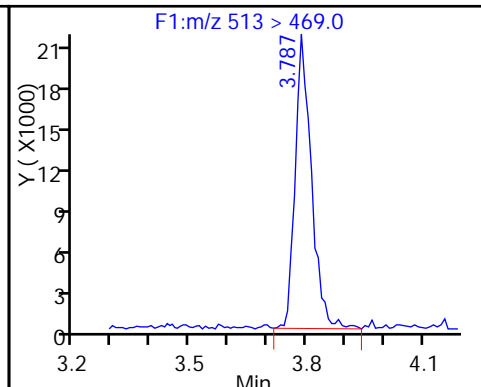
D 21 13C8 FOSA



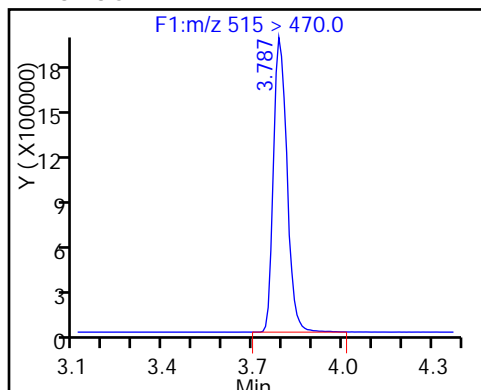
22 Perfluorooctane Sulfonamide



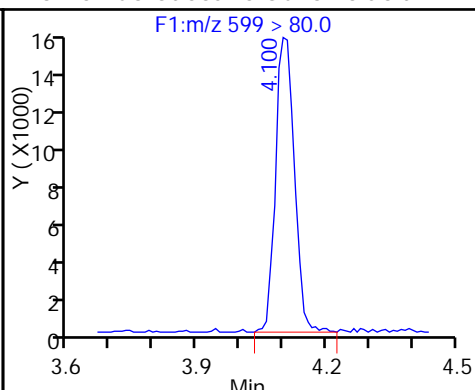
24 Perfluorodecanoic acid



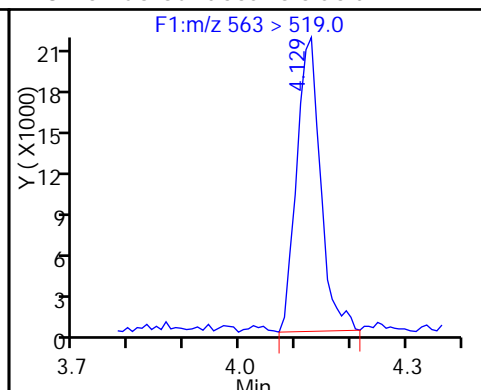
D 23 13C2 PFDA



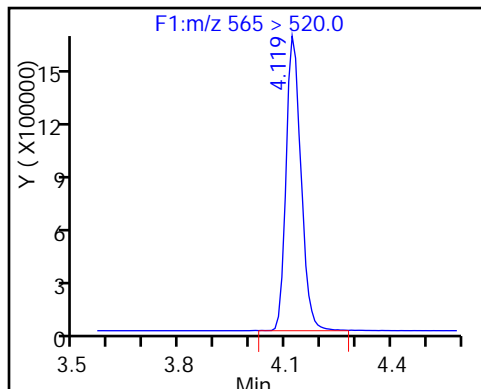
26 Perfluorodecane Sulfonic acid



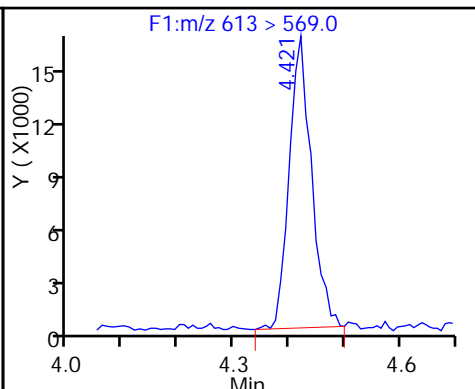
28 Perfluoroundecanoic acid



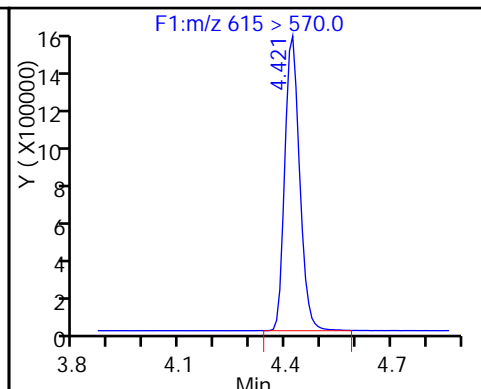
D 27 13C2 PFUnA



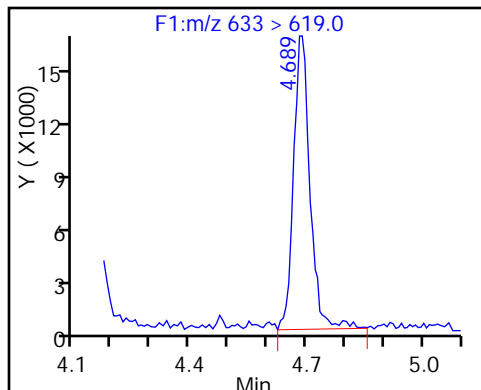
29 Perfluorododecanoic acid



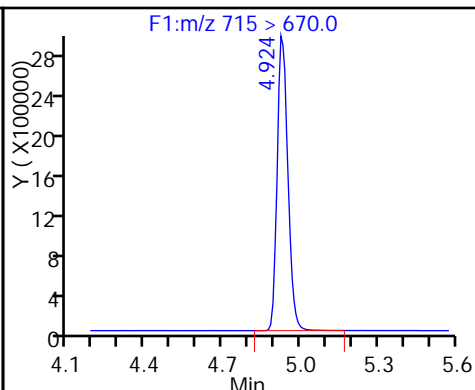
D 30 13C2 PFDaA



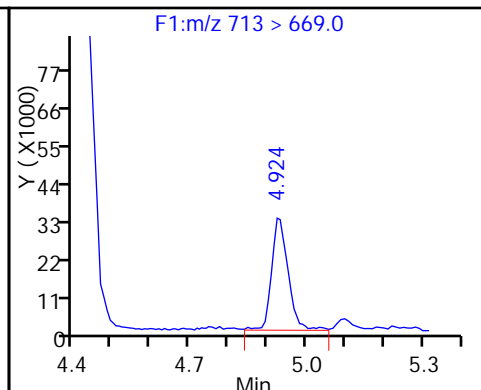
31 Perfluorotridecanoic acid



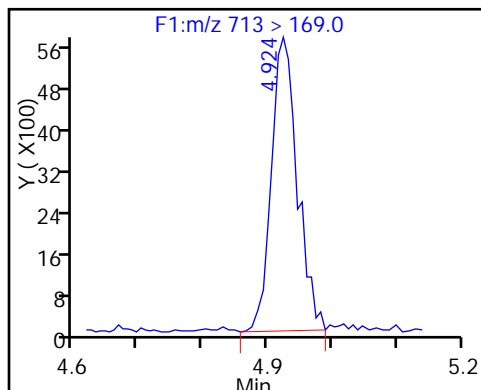
D 32 13C2-PFTeDA



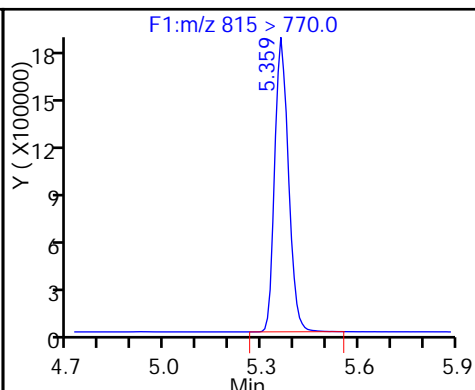
33 Perfluorotetradecanoic acid



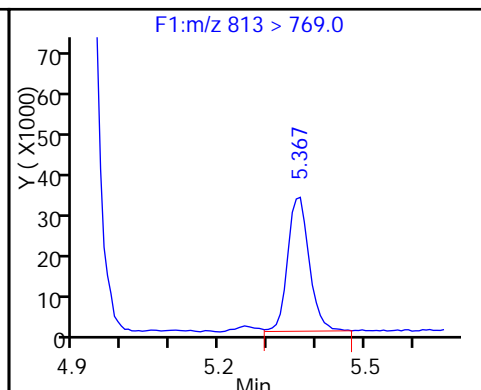
33 Perfluorotetradecanoic acid



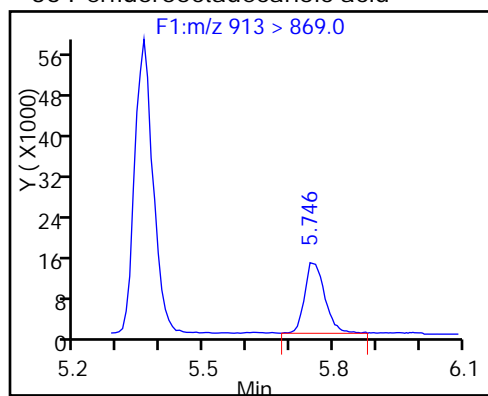
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_005_p1_e1.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 03-Sep-2016 15:46:00 ALS Bottle#: 0 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:35:46 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:16:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.644	1.642	0.002		11269933	55.8		112	513997	
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1 Perfluorobutyric acid

212.9 > 169.0	1.651	1.645	0.006	1.000	194481	0.9842		98.4	1646	
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D 4 13C5-PFPeA

267.9 > 223.0	1.936	1.938	-0.002		8651414	54.6		109	1601274	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.936	1.940	-0.004	1.000	183410	1.01		101	2511	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.970	1.976	-0.006	1.000	267784	0.8857		100		
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298.9 > 99.0	1.970	1.976	-0.006	1.000	111087		2.41(0.00-0.00)	100		
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7 Perfluorohexanoic acid

313 > 269.0	2.245	2.253	-0.008	1.000	152002	0.9561		95.6	7599	
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D 6 13C2 PFHxA

315 > 270.0	2.245	2.254	-0.009		7890315	54.7		109	1496076	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.525	2.591	-0.066	1.000	228057	1.07		117		
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D 11 13C4-PFHpA

367 > 322.0	2.594	2.611	-0.017		7422156	56.7		113	656737	
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12 Perfluoroheptanoic acid

363 > 319.0	2.602	2.614	-0.012	1.000	156657	1.01		101	2660	
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D 10 18O2 PFHxS

403 > 84.0	2.609	2.626	-0.017		9398124	52.0		110	656196	
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D 14 13C4 PFOA

417 > 372.0	2.974	2.994	-0.020		8547338	58.6		117	740847	
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15 Perfluorooctanoic acid

413 > 369.0	2.974	2.996	-0.022	1.000	184391	1.04		104	3847	
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413 > 169.0	2.974	2.996	-0.022	1.000	117624		1.57(0.90-1.10)	104	8392	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.974	2.999	-0.025	1.000	168396	0.9436		99.1		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.233	3.271	-0.038	1.000	179785	0.9869		106	6111	
499 > 99.0	3.241	3.271	-0.030	1.003	44054		4.08(0.90-1.10)	106	812	
D 17 13C4 PFOS										
503 > 80.0	3.354	3.375	-0.021		7409872	51.2		107	486011	
D 19 13C5 PFNA										
468 > 423.0	3.354	3.380	-0.026		7005194	54.9		110	543316	
20 Perfluorononanoic acid										
463 > 419.0	3.363	3.381	-0.018	1.000	137373	0.9674		96.7	5657	
D 21 13C8 FOSA										
506 > 78.0	3.643	3.674	-0.031		13858976	52.0		104	388250	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.643	3.674	-0.031	1.000	255689	1.00		100.0	17223	
24 Perfluorodecanoic acid										
513 > 469.0	3.724	3.744	-0.020	1.000	124232	0.99		99.1	6201	
D 23 13C2 PFDA										
515 > 470.0	3.724	3.744	-0.020		6405384	53.0		106	349701	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.035	4.055	-0.020	1.000	88830	0.8964		93.0		
28 Perfluoroundecanoic acid										
563 > 519.0	4.053	4.078	-0.025	1.000	115201	1.02		102	6102	
D 27 13C2 PFUnA										
565 > 520.0	4.053	4.081	-0.028		5243840	55.0		110	458105	
29 Perfluorododecanoic acid										
613 > 569.0	4.352	4.374	-0.022	1.000	90993	0.9697		97.0	2084	
D 30 13C2 PFDoA										
615 > 570.0	4.352	4.374	-0.022		4839992	54.7		109	340385	
31 Perfluorotridecanoic acid										
633 > 619.0	4.619	4.639	-0.020	1.000	91651	0.9456		94.6	372	
D 32 13C2-PFTeDA										
715 > 670.0	4.866	4.882	-0.016		9133846	53.6		107	450425	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.866	4.883	-0.017	1.000	172556	0.99		99.4	243	
713 > 169.0	4.857	4.883	-0.026	0.998	27478		6.28(0.00-0.00)	99.4	5031	
D 34 13C2-PFHxDA										
815 > 770.0	5.288	5.305	-0.017		5597674	51.4		103	378152	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.288	5.309	-0.021	1.000	151618	0.9331		93.3	467	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.678	5.692	-0.014	1.000	87858	0.9259		92.6	404	

Reagents:

LCPFC-L2_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_005_p1_e1.d

Injection Date: 03-Sep-2016 15:46:00

Instrument ID: A8

Lims ID: IC L2

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

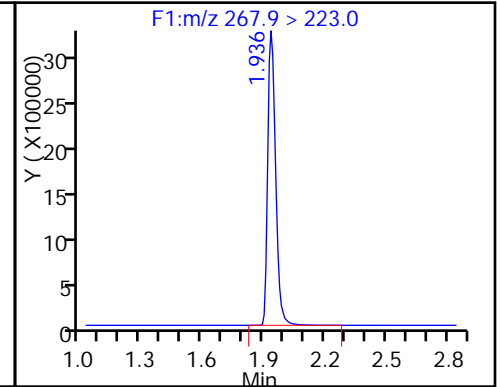
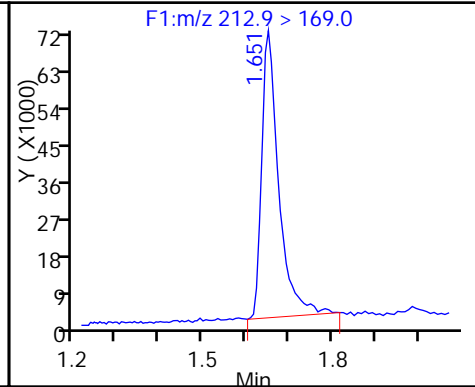
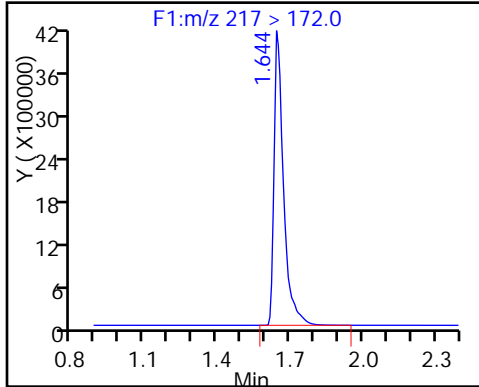
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

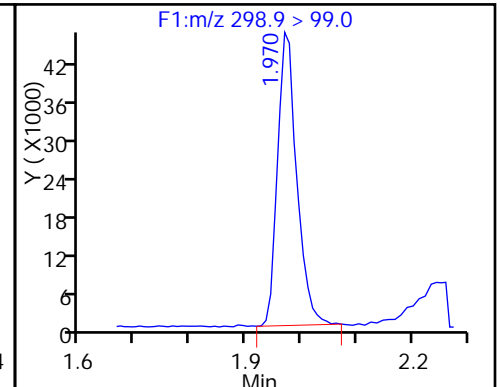
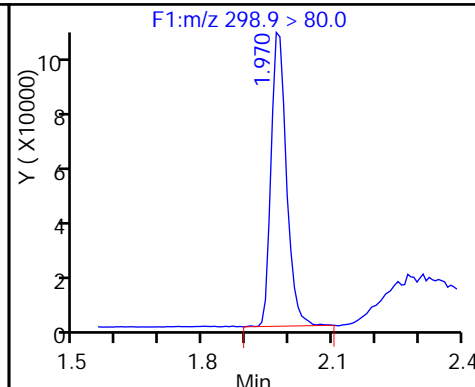
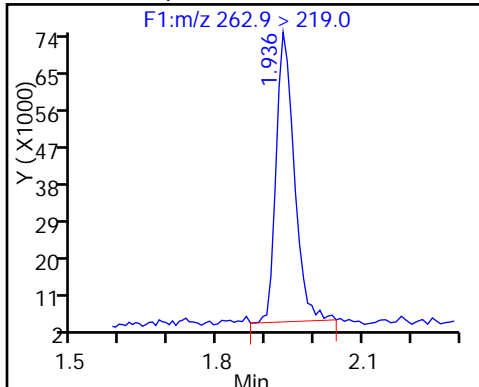
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

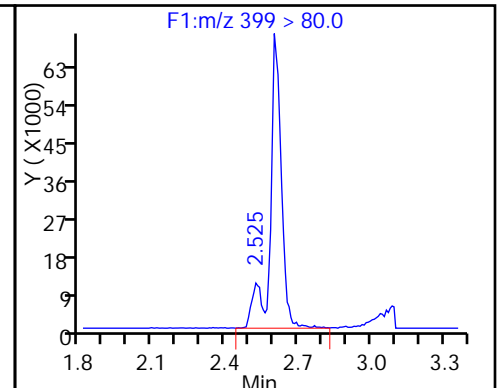
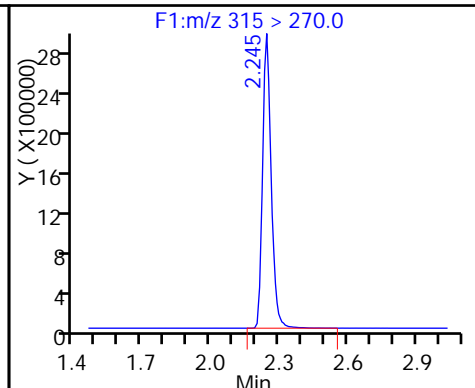
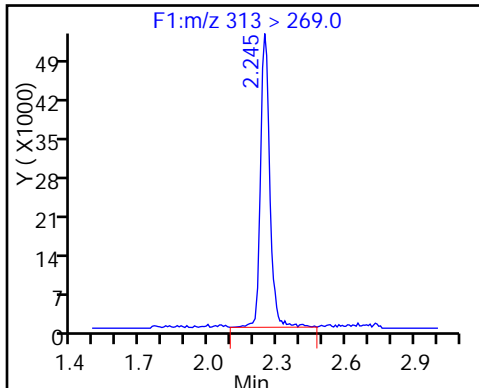
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

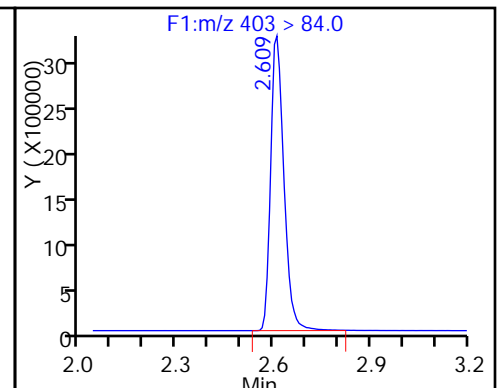
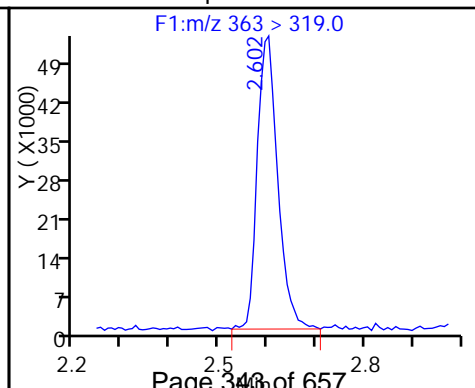
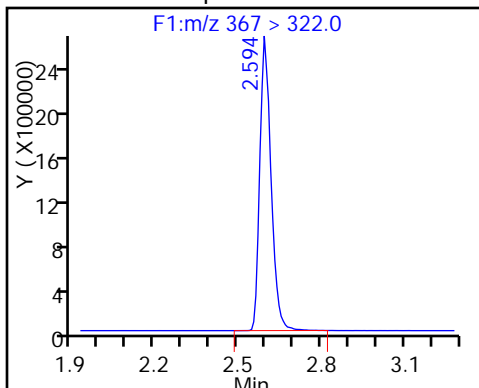
9 Perfluorohexanesulfonic acid



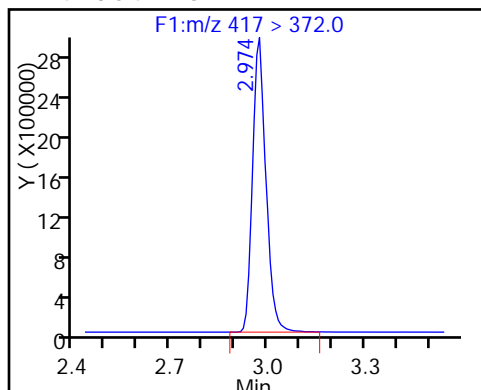
D 11 13C4-PFHpA

12 Perfluoroheptanoic acid

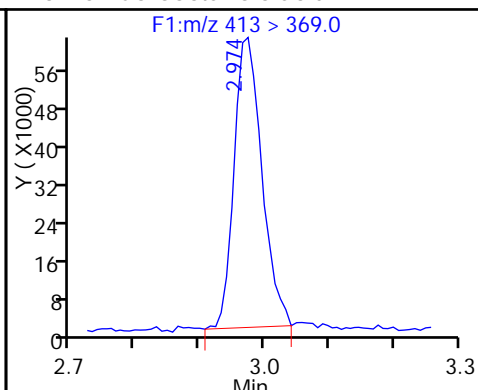
D 10 18O2 PFHxS



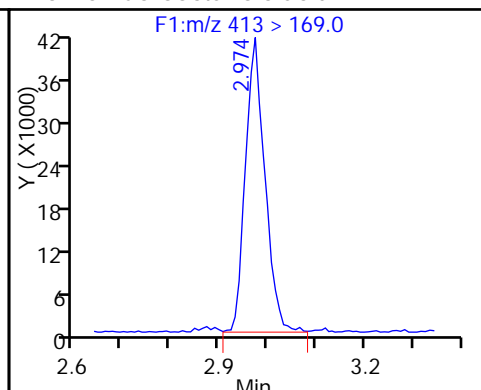
D 14 13C4 PFOA



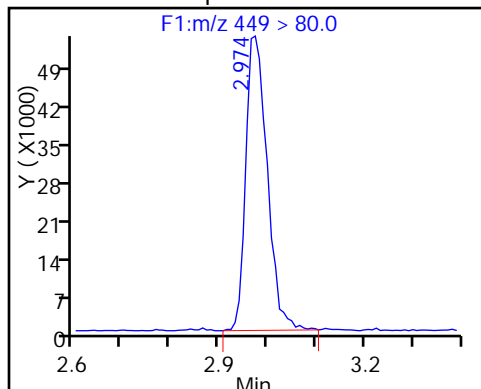
15 Perfluorooctanoic acid



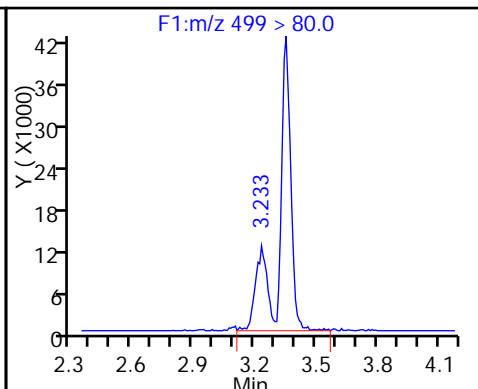
15 Perfluorooctanoic acid



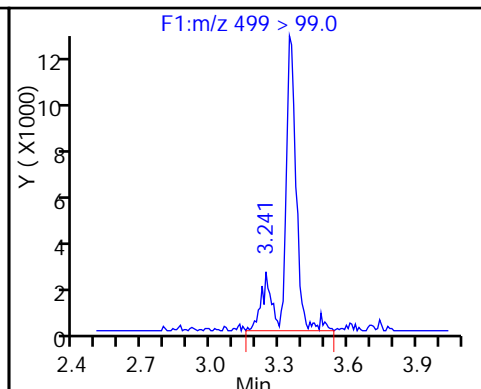
13 Perfluoroheptanesulfonic Acid



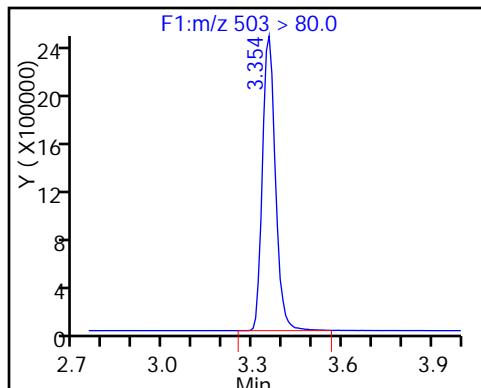
18 Perfluorooctane sulfonic acid



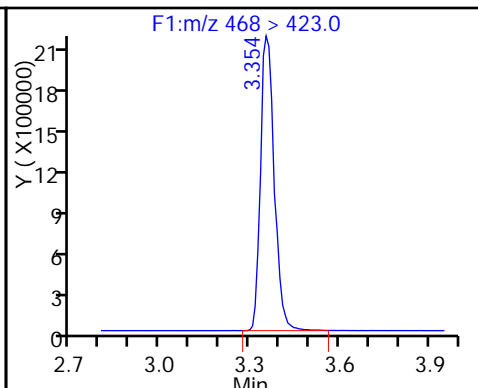
18 Perfluorooctane sulfonic acid



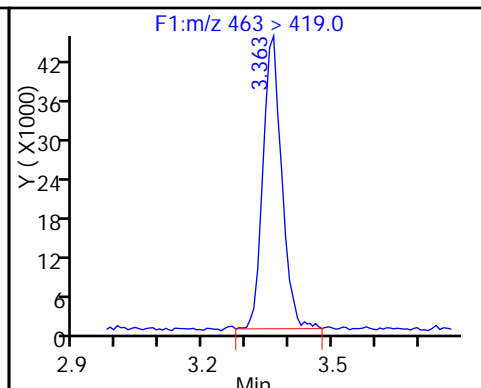
D 17 13C4 PFOS



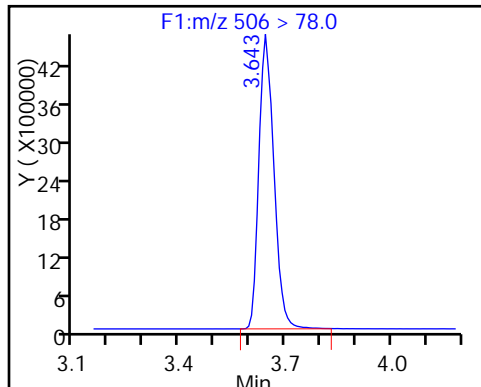
D 19 13C5 PFNA



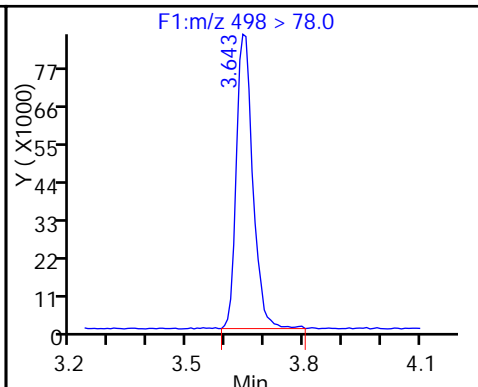
20 Perfluorononanoic acid



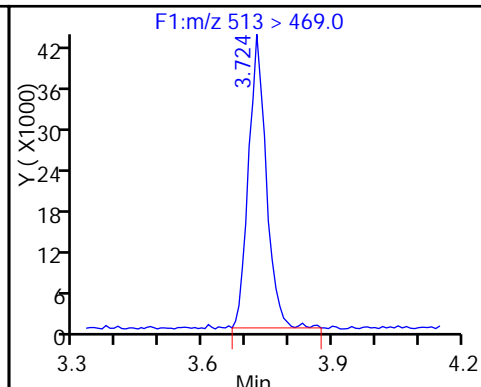
D 21 13C8 FOSA



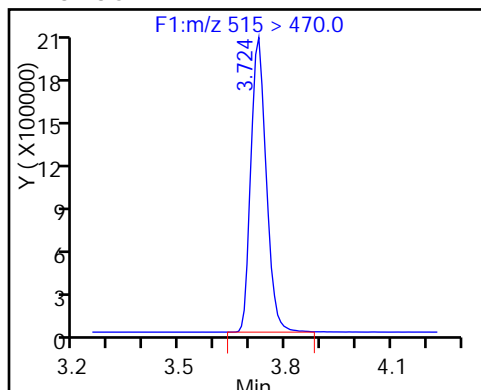
22 Perfluorooctane Sulfonamide



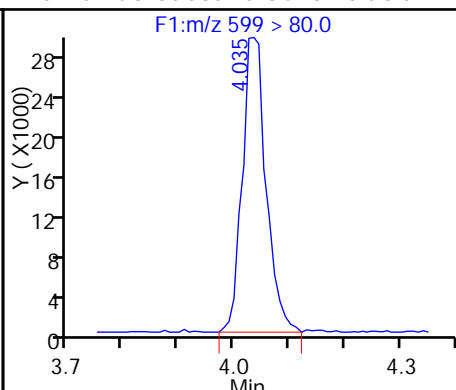
24 Perfluorodecanoic acid



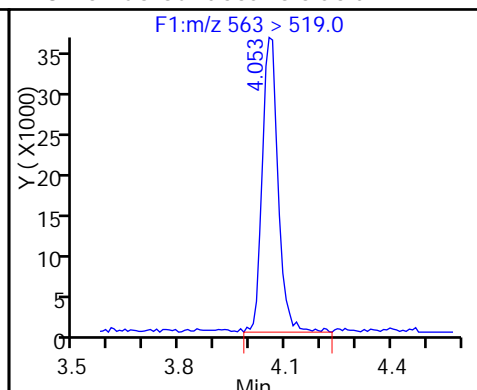
D 23 13C2 PFDA



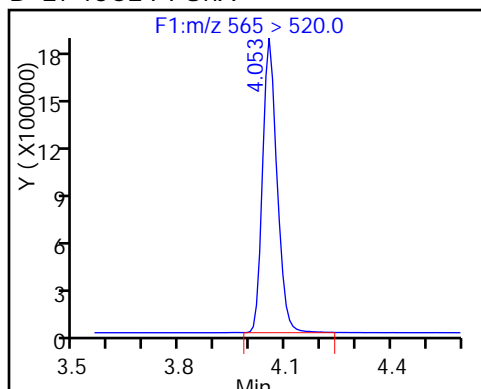
26 Perfluorodecane Sulfonic acid



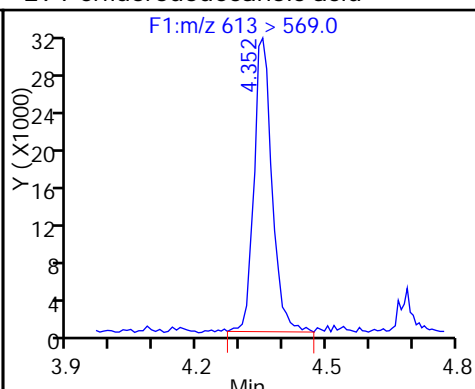
28 Perfluoroundecanoic acid



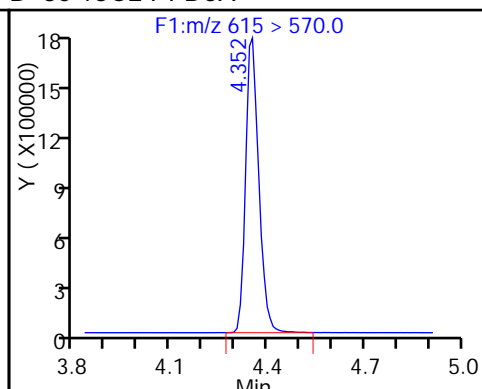
D 27 13C2 PFUnA



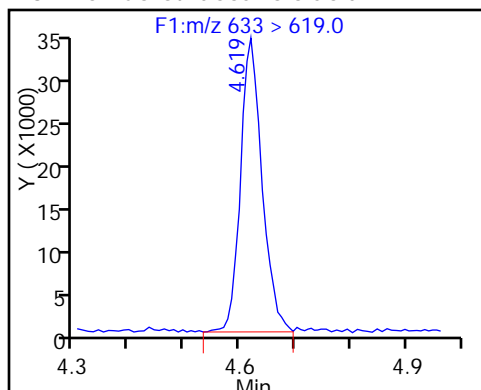
29 Perfluorododecanoic acid



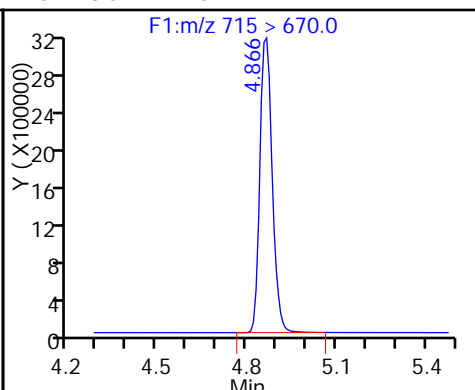
D 30 13C2 PFDaA



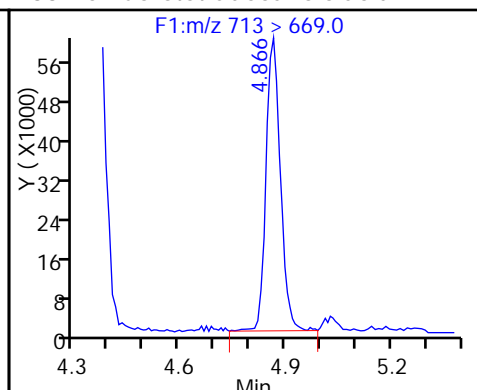
31 Perfluorotridecanoic acid



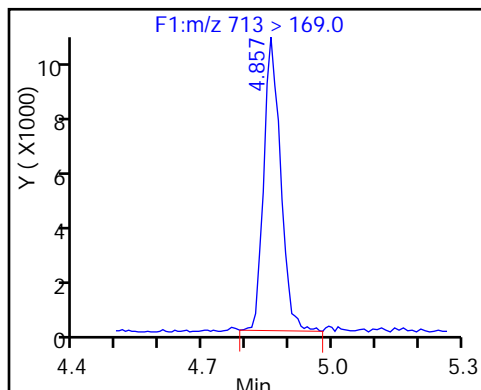
D 32 13C2-PFTeDA



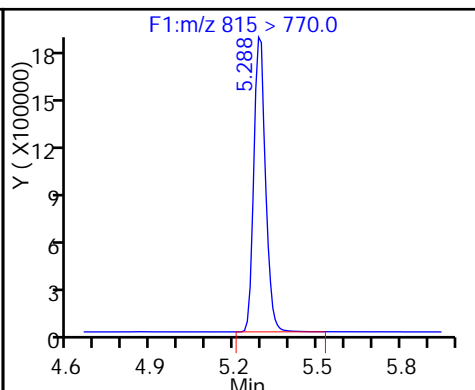
33 Perfluorotetradecanoic acid



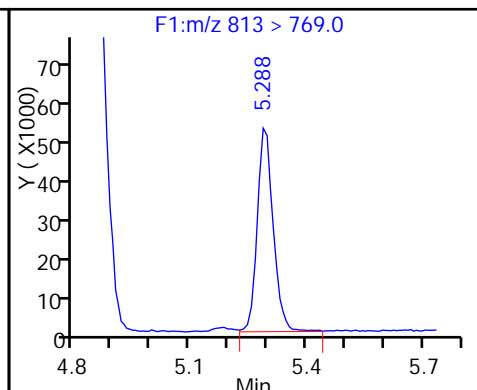
33 Perfluorotetradecanoic acid



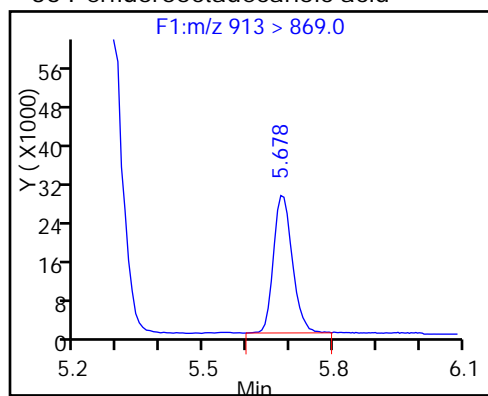
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_006_p1_e1.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 03-Sep-2016 15:53:00 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:35:59 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:18:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.623	1.642	-0.019		10214983	50.6		101	396575	
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1 Perfluorobutyric acid

212.9 > 169.0	1.623	1.645	-0.022	1.000	905532	5.06		101	7160	
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D 4 13C5-PFPeA

267.9 > 223.0	1.927	1.938	-0.011		8022422	50.6		101	1413839	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.927	1.940	-0.013	1.000	831490	4.94		98.8	17018	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.961	1.976	-0.015	1.000	1262929	4.44		100		
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298.9 > 99.0	1.961	1.976	-0.015	1.000	520180		2.43(0.00-0.00)	100		
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7 Perfluorohexanoic acid

313 > 269.0	2.245	2.253	-0.008	1.000	721026	4.88		97.5	35118	
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D 6 13C2 PFHxA

315 > 270.0	2.245	2.254	-0.009		7336757	50.8		102	684201	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.539	2.591	-0.052	1.000	944278	4.70		103		
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D 11 13C4-PFHpA

367 > 322.0	2.616	2.611	0.005		7022231	53.7		107	463404	
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12 Perfluoroheptanoic acid

363 > 319.0	2.616	2.614	0.002	1.000	718644	4.92		98.3	18708	
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D 10 18O2 PFHxS

403 > 84.0	2.623	2.626	-0.003		8847569	49.0		104	589088	
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D 14 13C4 PFOA

417 > 372.0	3.004	2.994	0.010		7959440	54.6		109	416822	
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15 Perfluorooctanoic acid

413 > 369.0	3.004	2.996	0.008	1.000	891238	5.38		108	16677	
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413 > 169.0	3.004	2.996	0.008	1.000	526454		1.69(0.90-1.10)	108	34110	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	3.012	2.999	0.013	1.000	814579	4.66		97.9		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.275	3.271	0.004	1.000	970855	5.44		117	13141	
499 > 99.0	3.283	3.271	0.012	1.003	236652		4.10(0.90-1.10)	117	4465	
D 17 13C4 PFOS										
503 > 80.0	3.391	3.375	0.016		7254876	50.1		105	341175	
D 19 13C5 PFNA										
468 > 423.0	3.391	3.380	0.011		6686529	52.4		105	421064	
20 Perfluorononanoic acid										
463 > 419.0	3.400	3.381	0.019	1.000	648001	4.78		95.6	19601	
D 21 13C8 FOSA										
506 > 78.0	3.684	3.674	0.010		13296996	49.9		99.8	485188	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.684	3.674	0.010	1.000	1289420	5.25		105	107284	
24 Perfluorodecanoic acid										
513 > 469.0	3.762	3.744	0.018	1.000	597900	5.01		100	33429	
D 23 13C2 PFDA										
515 > 470.0	3.762	3.744	0.018		6100738	50.5		101	331578	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.069	4.055	0.014	1.000	449395	4.63		96.1		
28 Perfluoroundecanoic acid										
563 > 519.0	4.088	4.078	0.010	1.000	496205	4.68		93.7	22894	
D 27 13C2 PFUnA										
565 > 520.0	4.098	4.081	0.017		4921680	51.6		103	269103	
29 Perfluorododecanoic acid										
613 > 569.0	4.390	4.374	0.016	1.000	445151	4.95		99.1	6421	
D 30 13C2 PFDaA										
615 > 570.0	4.390	4.374	0.016		4635610	52.4		105	252415	
31 Perfluorotridecanoic acid										
633 > 619.0	4.650	4.639	0.011	1.000	452087	4.87		97.4	1462	
D 32 13C2-PFTeDA										
715 > 670.0	4.899	4.882	0.017		9007978	52.8		106	629709	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.899	4.883	0.016	1.000	830110	4.99		99.9	1360	
713 > 169.0	4.890	4.883	0.007	0.998	133267		6.23(0.00-0.00)	99.9	22527	
D 34 13C2-PFHxDA										
815 > 770.0	5.315	5.305	0.010		5649829	51.9		104	378287	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.324	5.309	0.015	1.000	553254	4.81		96.3	1686	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.711	5.692	0.019	1.000	448259	4.93		98.6	2053	

Reagents:

LCPFC-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_006_p1_e1.d

Injection Date: 03-Sep-2016 15:53:00

Instrument ID: A8

Lims ID: IC L3

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

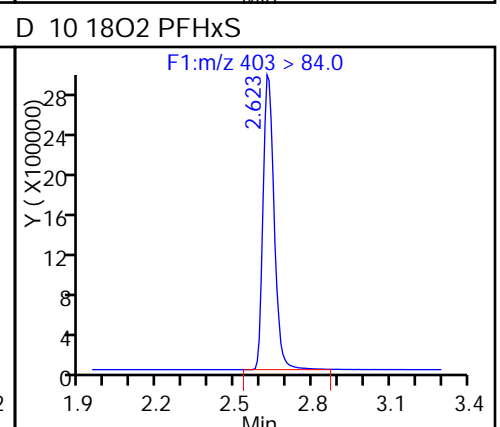
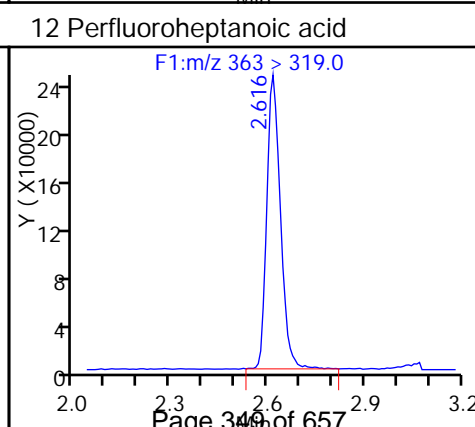
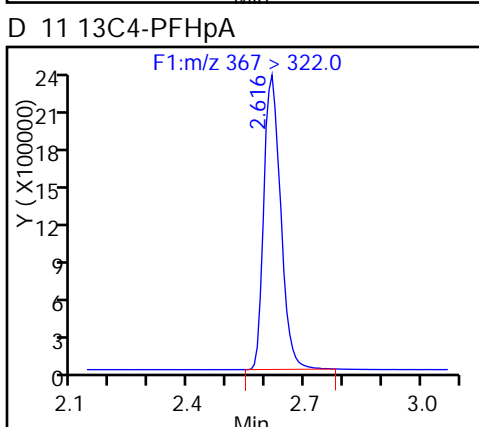
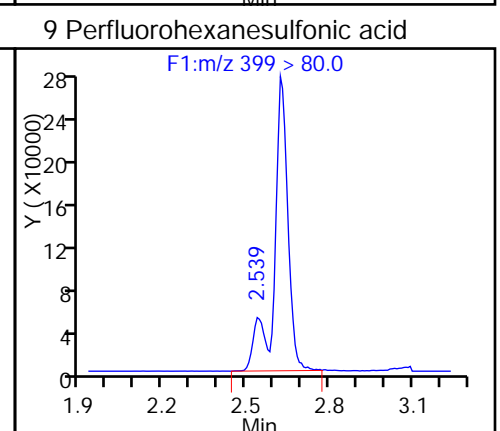
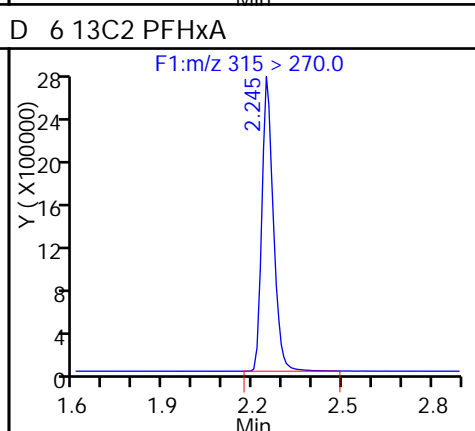
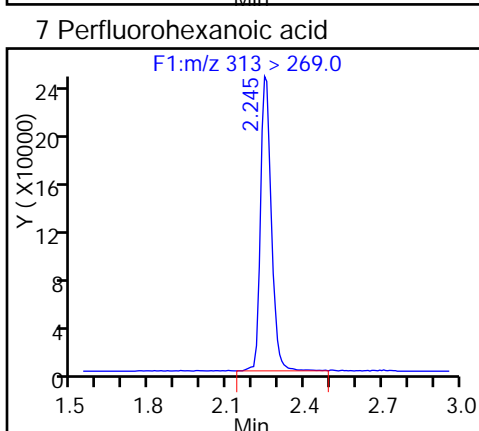
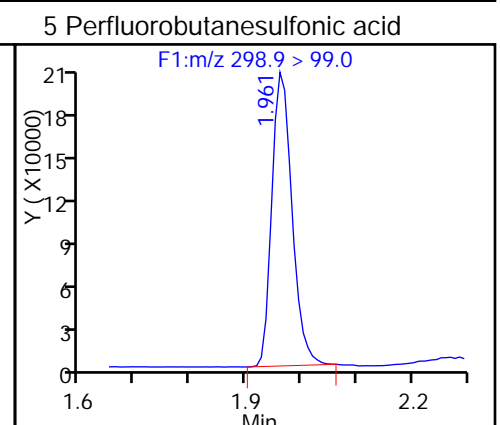
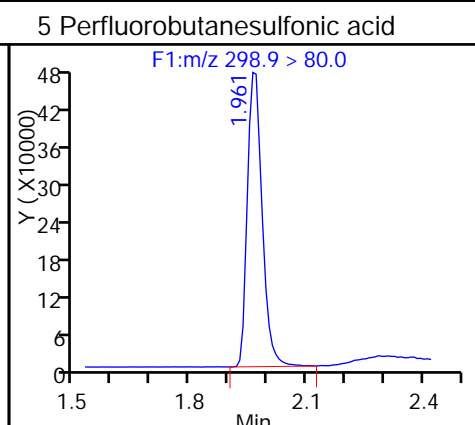
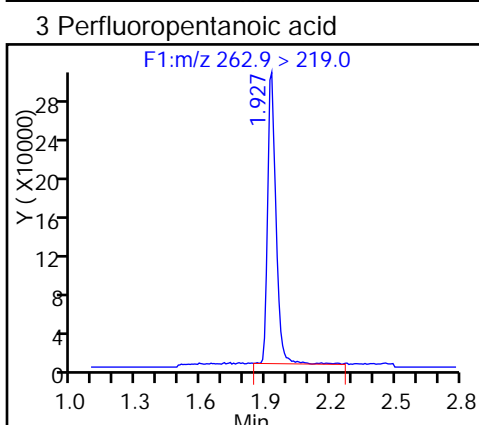
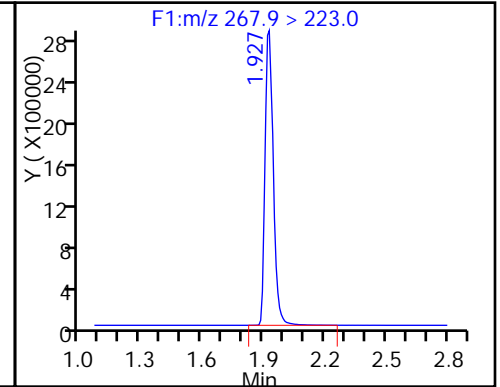
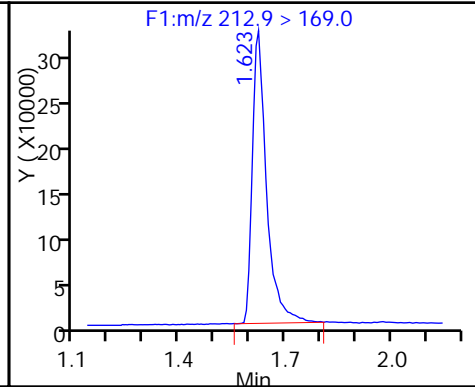
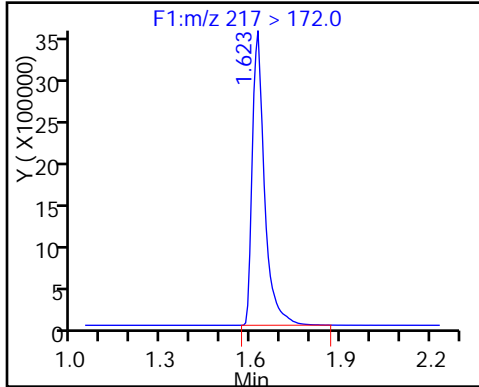
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

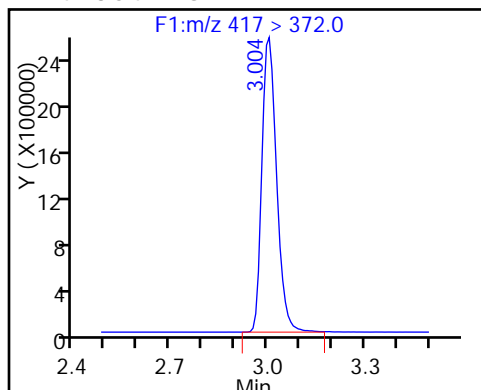
D 2 13C4 PFBA

1 Perfluorobutyric acid

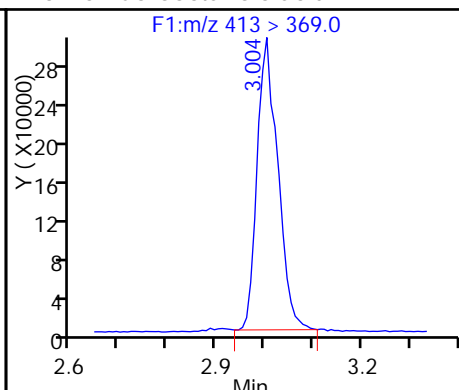
D 4 13C5-PFPeA



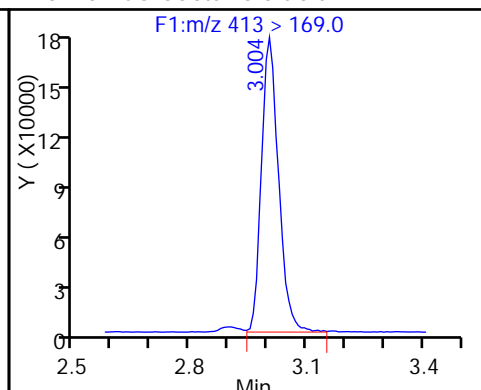
D 14 13C4 PFOA



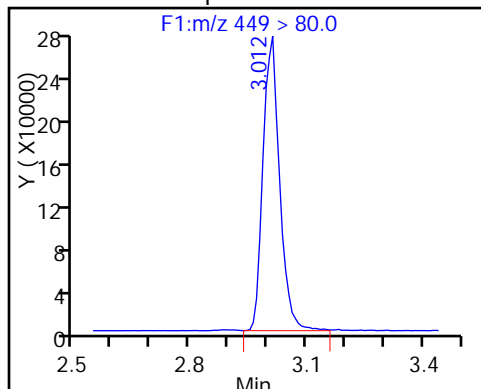
15 Perfluorooctanoic acid



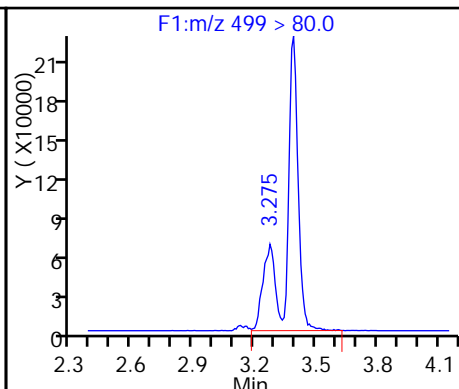
15 Perfluorooctanoic acid



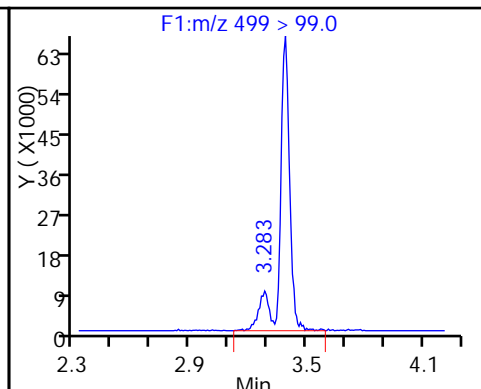
13 Perfluoroheptanesulfonic Acid



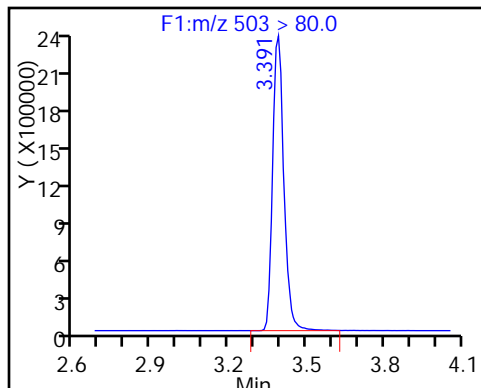
18 Perfluorooctane sulfonic acid



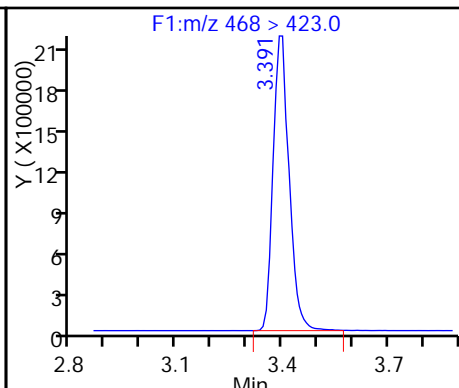
18 Perfluorooctane sulfonic acid



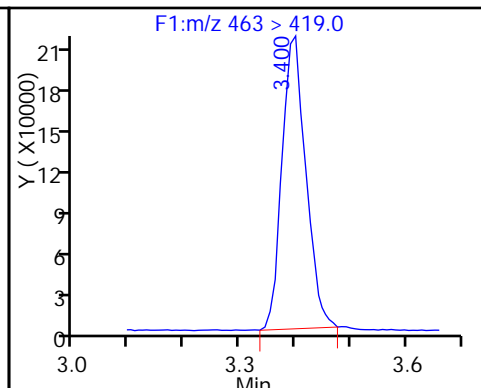
D 17 13C4 PFOS



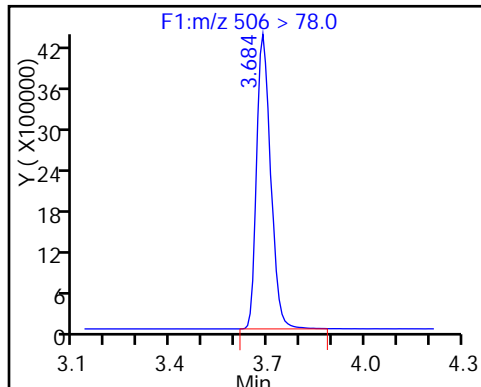
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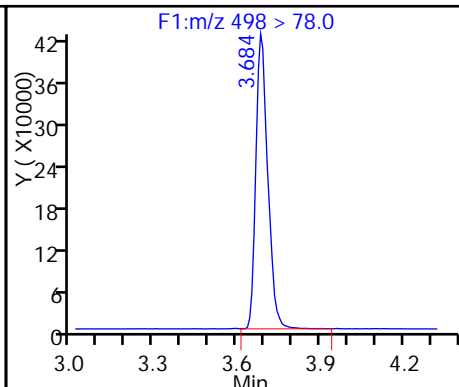
20 Perfluorononanoic acid



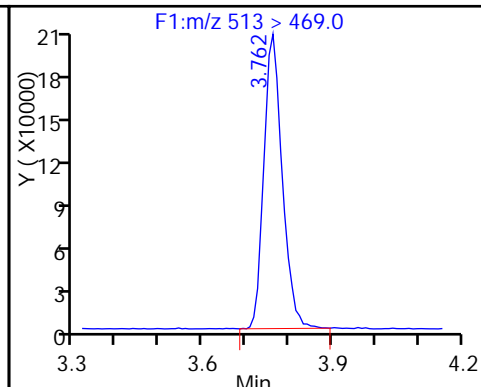
D 21 13C8 FOSA



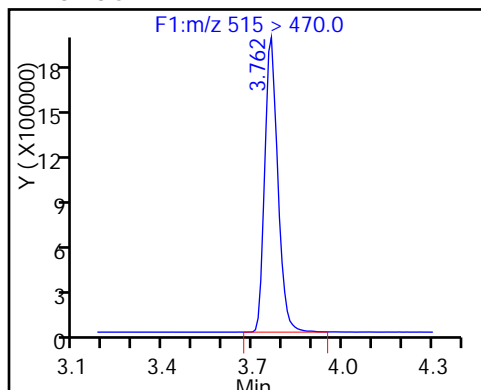
22 Perfluorooctane Sulfonamide



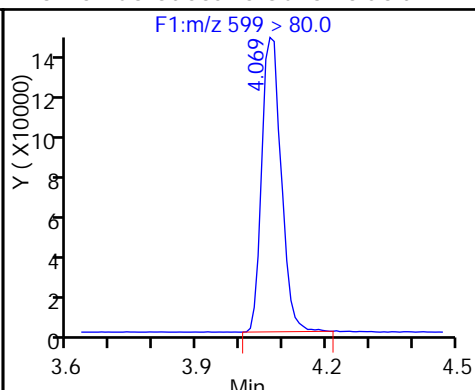
24 Perfluorodecanoic acid



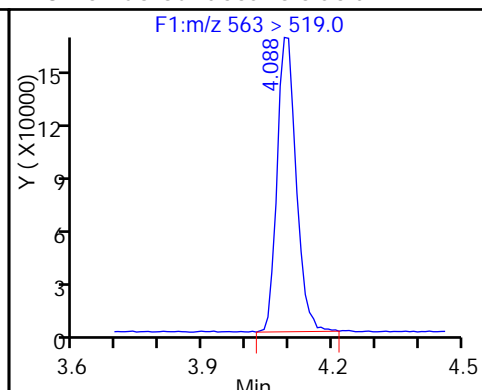
D 23 13C2 PFDA



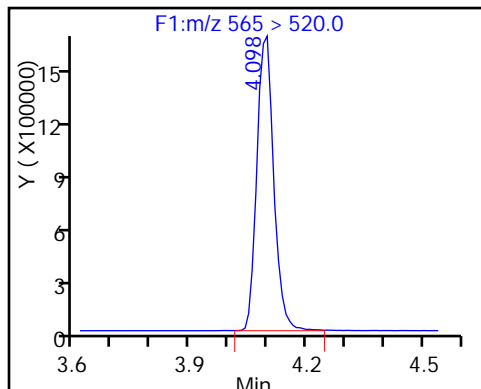
26 Perfluorodecane Sulfonic acid



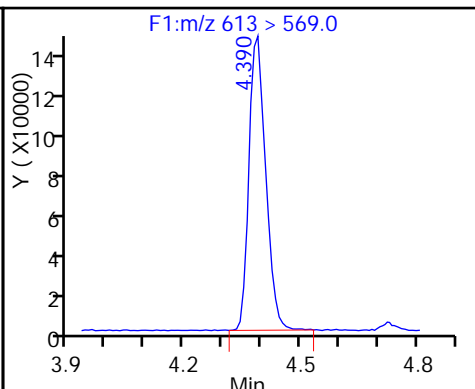
28 Perfluoroundecanoic acid



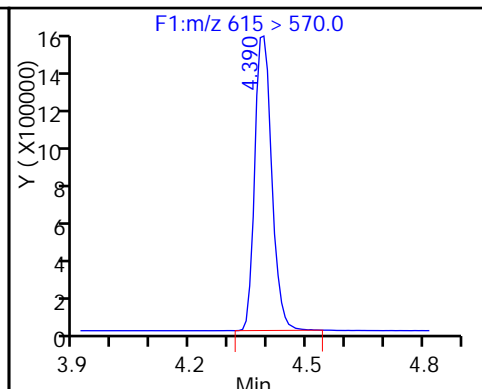
D 27 13C2 PFUnA



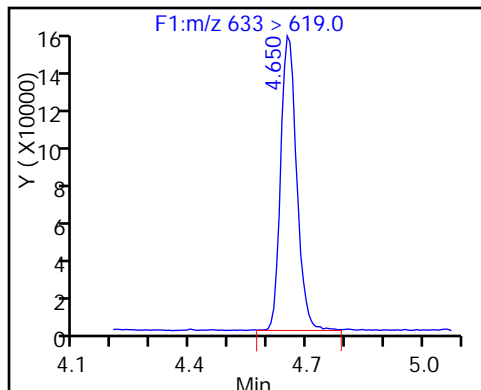
29 Perfluorododecanoic acid



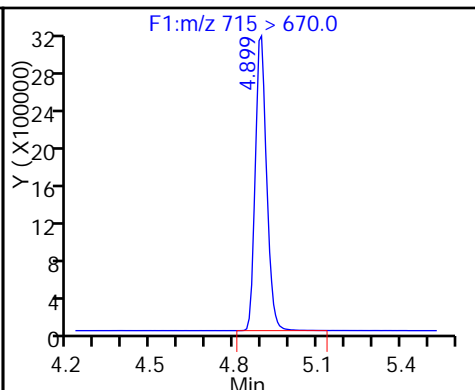
D 30 13C2 PFDaA



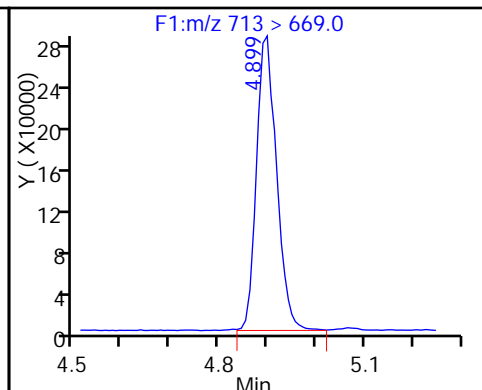
31 Perfluorotridecanoic acid



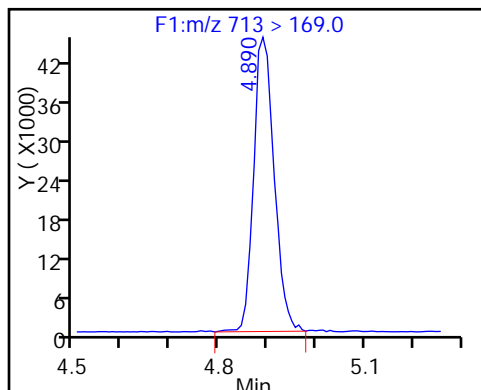
D 32 13C2-PFTeDA



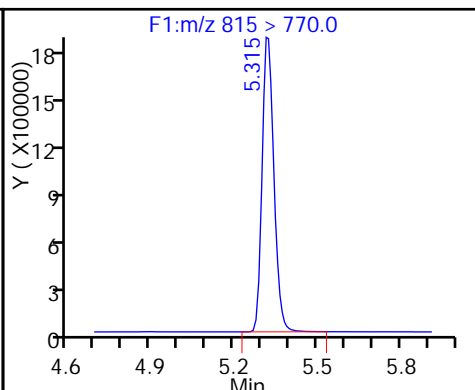
33 Perfluorotetradecanoic acid



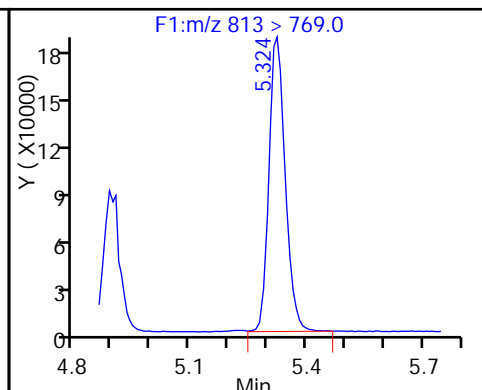
33 Perfluorotetradecanoic acid



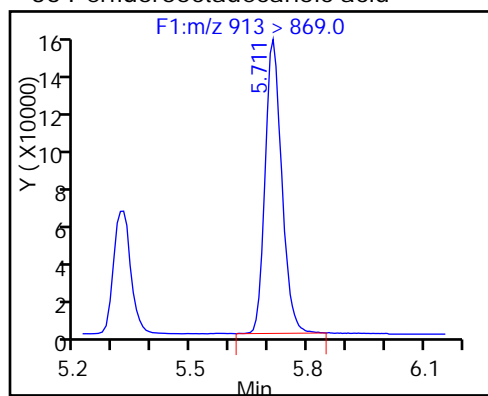
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_007_p1_e1.d
 Lims ID: IC L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 03-Sep-2016 16:01:00 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:36:11 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:06:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.651	1.642	0.009		10597639	52.5		105	448370	
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1 Perfluorobutyric acid

212.9 > 169.0	1.658	1.645	0.013	1.000	3806071	20.5		102	32137	
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D 4 13C5-PFPeA

267.9 > 223.0	1.953	1.938	0.015		7962509	50.3		101	1429016	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.953	1.940	0.013	1.000	3300147	19.7		98.7	55522	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.986	1.976	0.010	1.000	5393562	18.8		106		
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298.9 > 99.0	1.986	1.976	0.010	1.000	2262406		2.38(0.00-0.00)	106		
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7 Perfluorohexanoic acid

313 > 269.0	2.262	2.253	0.009	1.000	2942051	20.3		101	168535	
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D 6 13C2 PFHxA

315 > 270.0	2.270	2.254	0.016		7200359	49.9		99.8	608998	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.558	2.591	-0.033	1.000	3658925	18.1		99.4		
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D 11 13C4-PFHpA

367 > 322.0	2.627	2.611	0.016		6932384	53.0		106	800643	
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12 Perfluoroheptanoic acid

363 > 319.0	2.627	2.614	0.013	1.000	2873384	19.9		99.6	64184	
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D 10 18O2 PFHxS

403 > 84.0	2.642	2.626	0.016		8905918	49.3		104	585765	
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D 14 13C4 PFOA

417 > 372.0	3.013	2.994	0.019		7699889	52.8		106	597811	
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15 Perfluorooctanoic acid

413 > 369.0	3.013	2.996	0.017	1.000	3293903	20.6		103	61137	
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413 > 169.0	3.013	2.996	0.017	1.000	2005923		1.64(0.90-1.10)	103	131910	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	3.013	2.999	0.014	1.000	3379364	19.4		102		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.273	3.271	0.002	1.000	3198967	18.0		97.0	18551	
499 > 99.0	3.361	3.271	0.090	1.027	737316		4.34(0.90-1.10)	97.0	24771	
D 17 13C4 PFOS										
503 > 80.0	3.389	3.375	0.014		7229395	50.0		105	240866	
D 19 13C5 PFNA										
468 > 423.0	3.398	3.380	0.018		6564022	51.5		103	557162	
20 Perfluorononanoic acid										
463 > 419.0	3.398	3.381	0.017	1.000	2651561	19.9		99.6	92965	
D 21 13C8 FOSA										
506 > 78.0	3.692	3.674	0.018		13547695	50.9		102	485893	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.692	3.674	0.018	1.000	5230694	20.9		105	294740	
24 Perfluorodecanoic acid										
513 > 469.0	3.753	3.744	0.009	1.000	2383354	19.8		98.9	111989	
D 23 13C2 PFDA										
515 > 470.0	3.753	3.744	0.009		6152729	50.9		102	289949	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.069	4.055	0.014	1.000	1916161	19.8		103		
28 Perfluoroundecanoic acid										
563 > 519.0	4.099	4.078	0.021	1.000	1993953	19.4		96.8	134409	
D 27 13C2 PFUnA										
565 > 520.0	4.099	4.081	0.018		4785082	50.2		100	250296	
29 Perfluorododecanoic acid										
613 > 569.0	4.382	4.374	0.008	1.000	1801266	19.9		99.4	32804	
D 30 13C2 PFDaA										
615 > 570.0	4.382	4.374	0.008		4674298	52.8		106	265342	
31 Perfluorotridecanoic acid										
633 > 619.0	4.651	4.639	0.012	1.000	1853833	19.8		99.0	6131	
D 32 13C2-PFTeDA										
715 > 670.0	4.890	4.882	0.008		8975109	52.7		105	625660	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.899	4.883	0.016	1.000	3402523	20.3		101	4711	
713 > 169.0	4.890	4.883	0.007	0.998	538546		6.32(0.00-0.00)	101	47433	
D 34 13C2-PFHxDA										
815 > 770.0	5.318	5.305	0.013		5743935	52.8		106	397836	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.318	5.309	0.009	1.000	2149259	19.8		99.1	6665	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.707	5.692	0.015	1.000	1807447	19.7		98.6	6895	

Reagents:

LCPFC-L4_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_007_p1_e1.d

Injection Date: 03-Sep-2016 16:01:00

Instrument ID: A8

Lims ID: IC L4

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

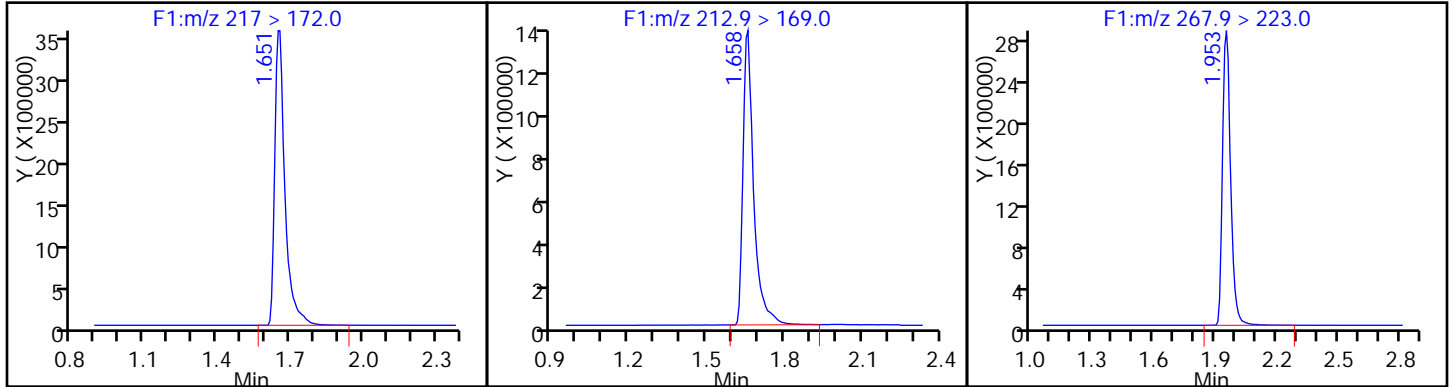
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

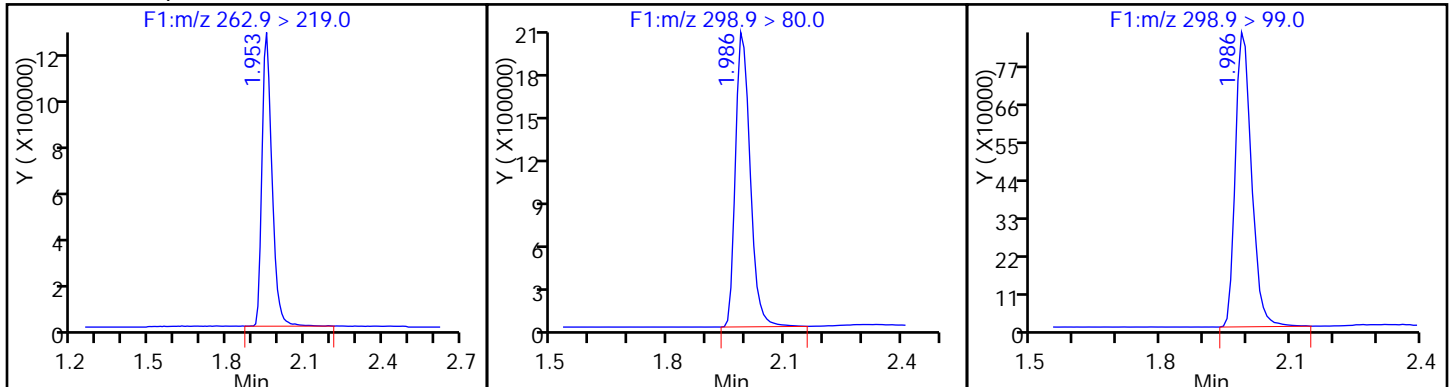
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

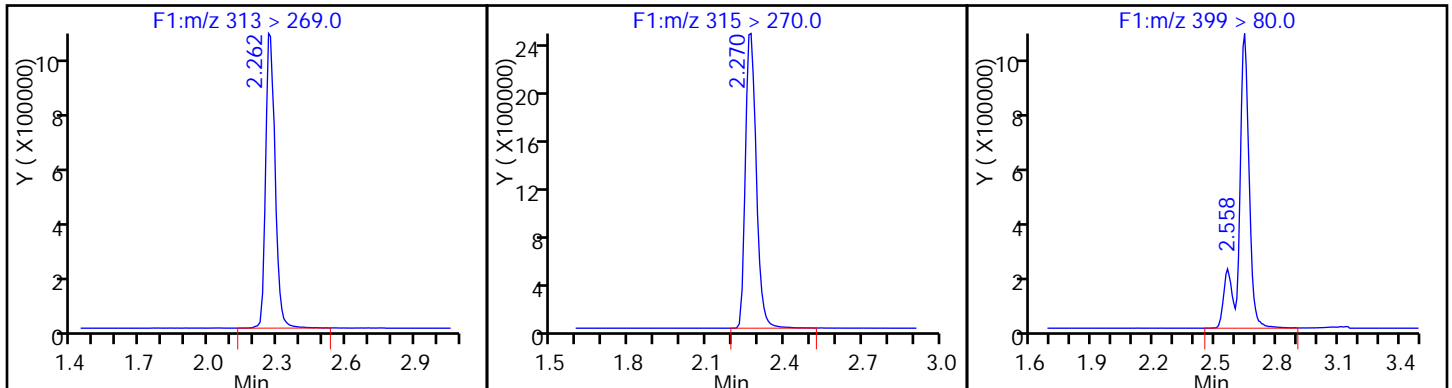
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

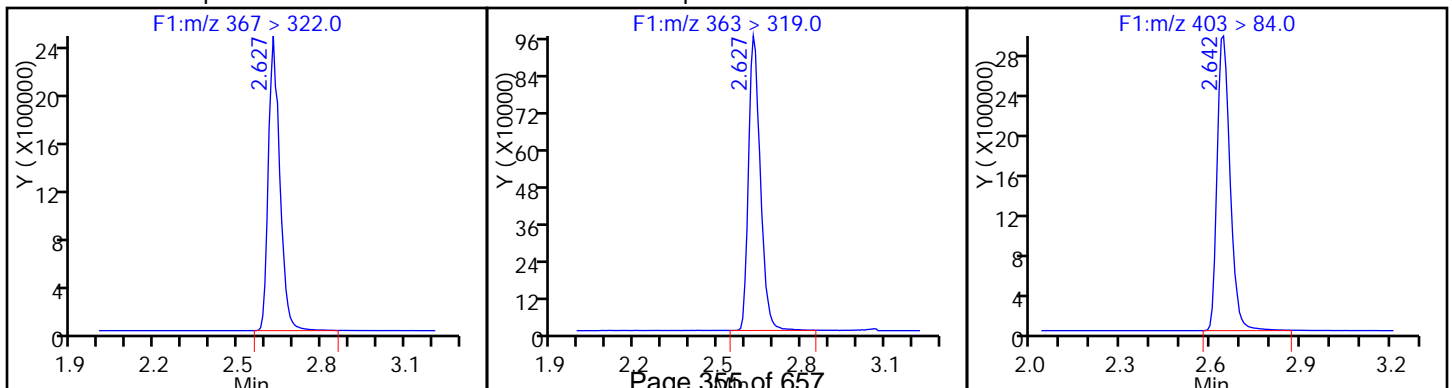
9 Perfluorohexanesulfonic acid



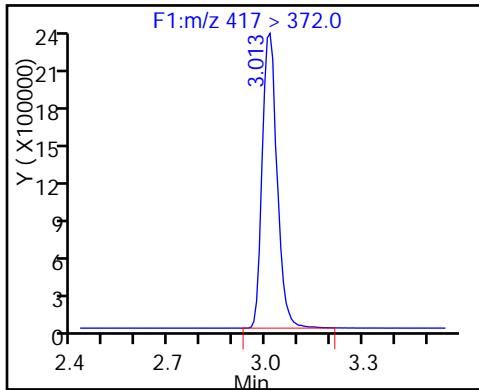
D 11 13C4-PFHpA

12 Perfluoroheptanoic acid

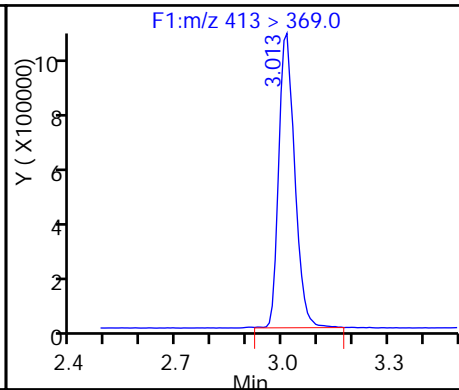
D 10 18O2 PFHxS



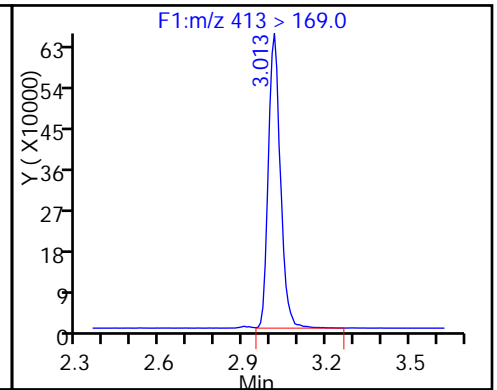
D 14 13C4 PFOA



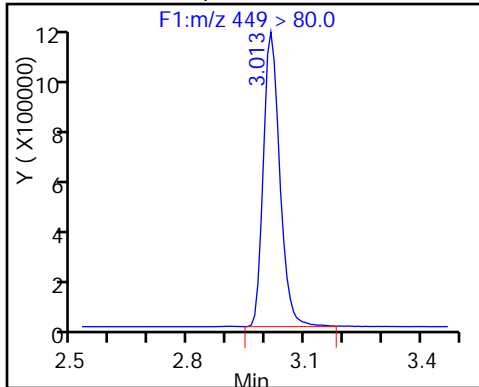
15 Perfluorooctanoic acid



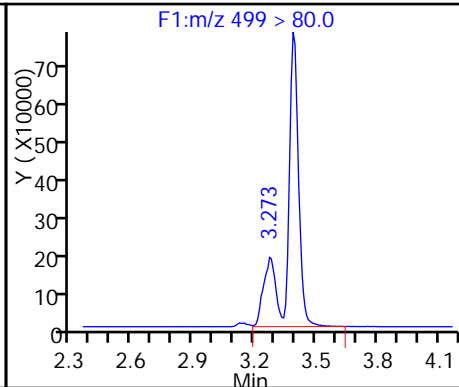
15 Perfluorooctanoic acid



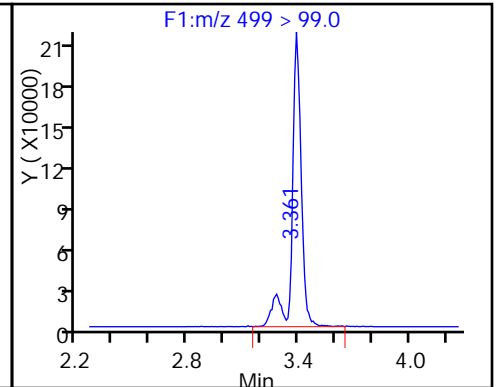
13 Perfluoroheptanesulfonic Acid



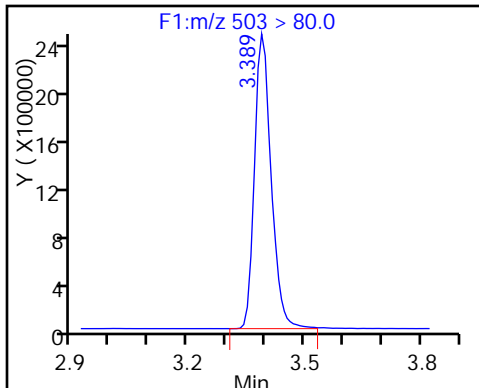
18 Perfluorooctane sulfonic acid



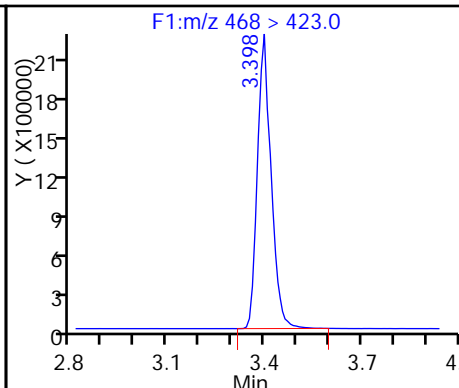
18 Perfluorooctane sulfonic acid



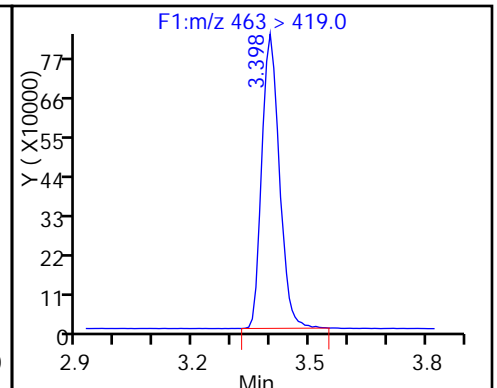
D 17 13C4 PFOS



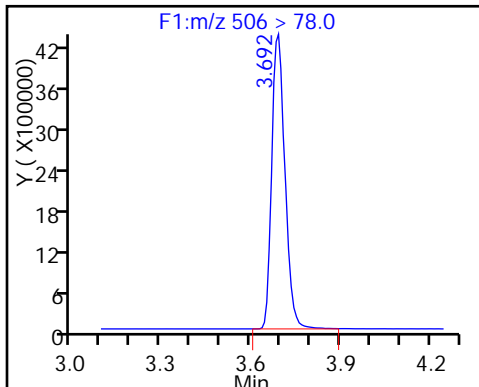
D 19 13C5 PFNA



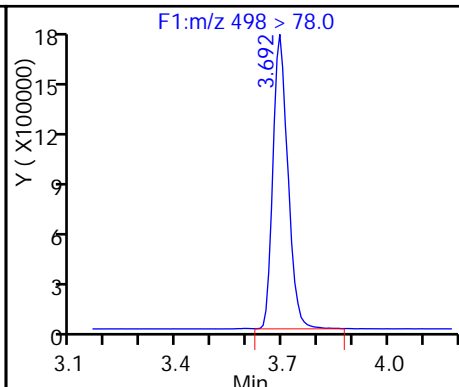
20 Perfluorononanoic acid



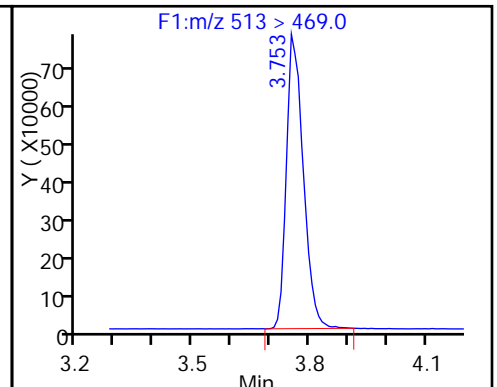
D 21 13C8 FOSA



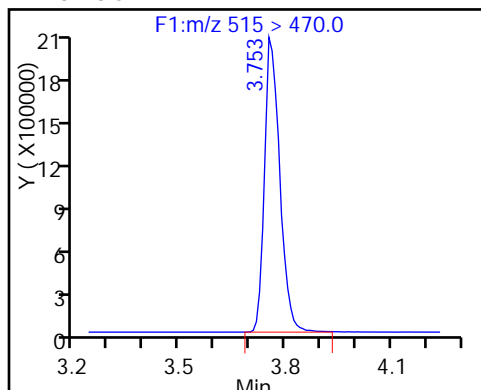
22 Perfluorooctane Sulfonamide



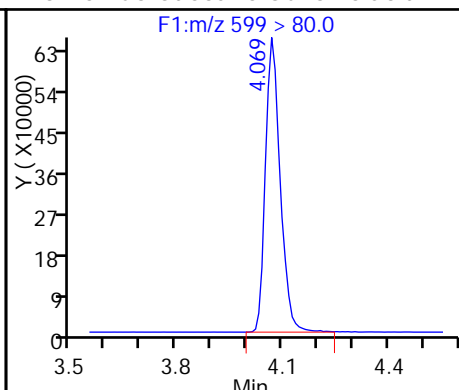
24 Perfluorodecanoic acid



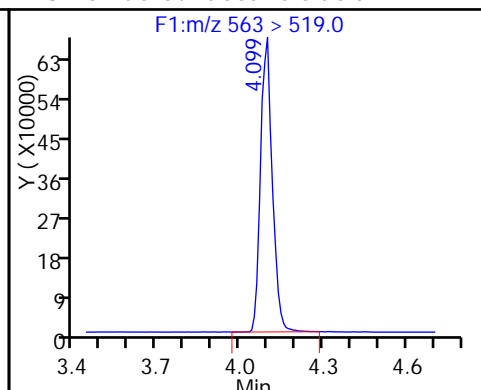
D 23 13C2 PFDA



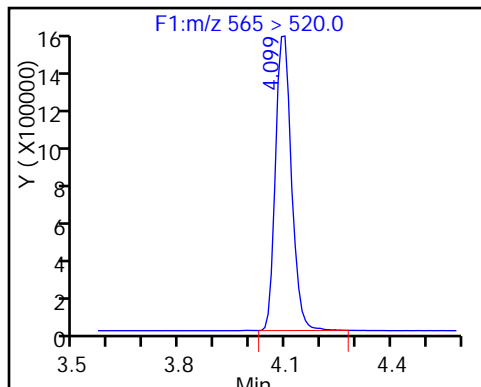
26 Perfluorodecane Sulfonic acid



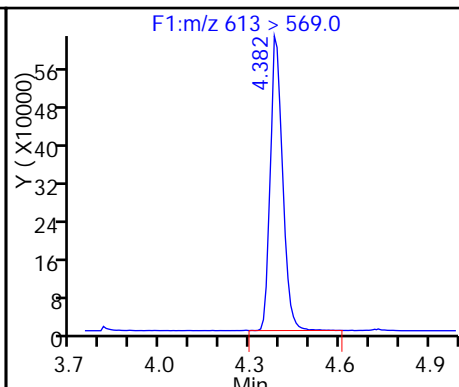
28 Perfluoroundecanoic acid



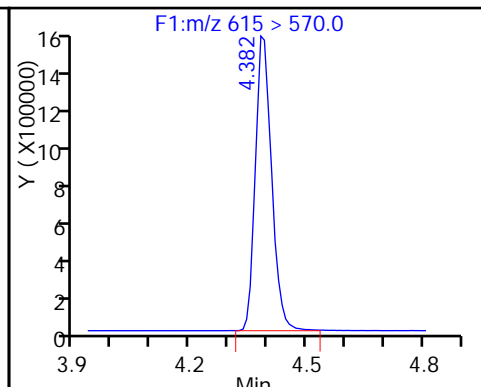
D 27 13C2 PFUnA



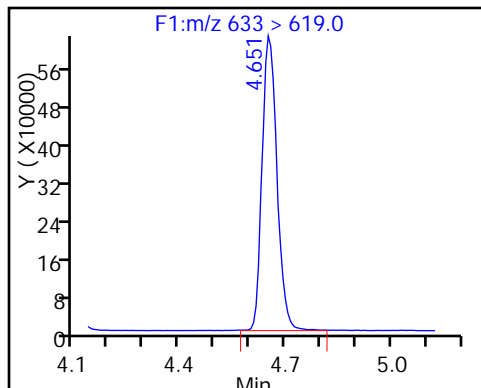
29 Perfluorododecanoic acid



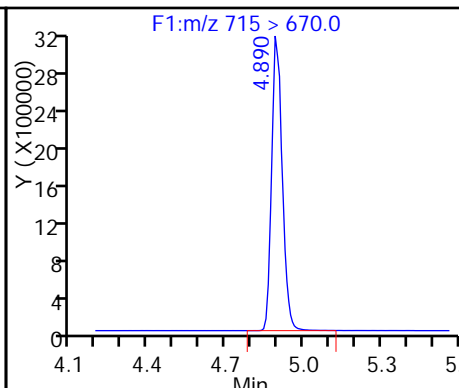
D 30 13C2 PFDaA



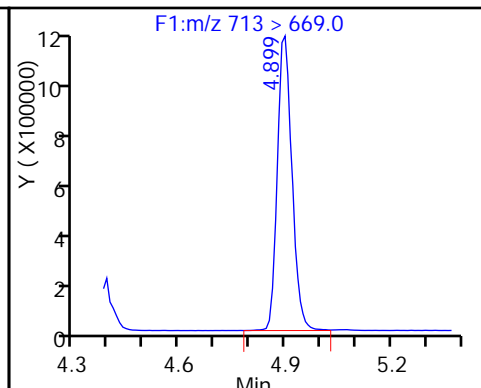
31 Perfluorotridecanoic acid



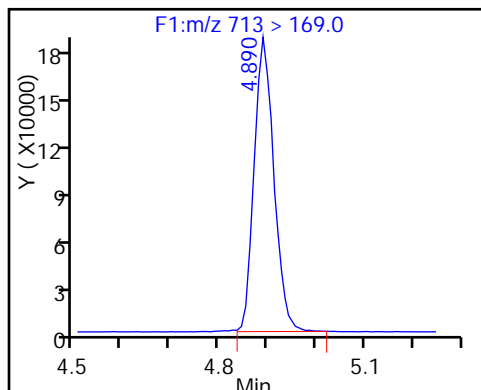
D 32 13C2-PFTeDA



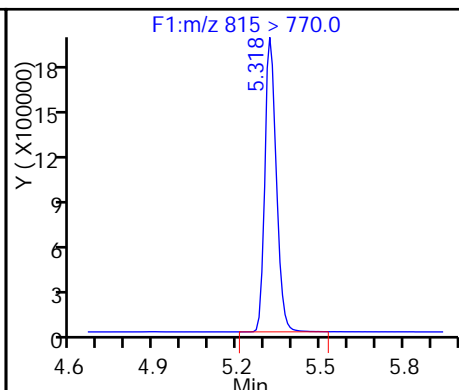
33 Perfluorotetradecanoic acid



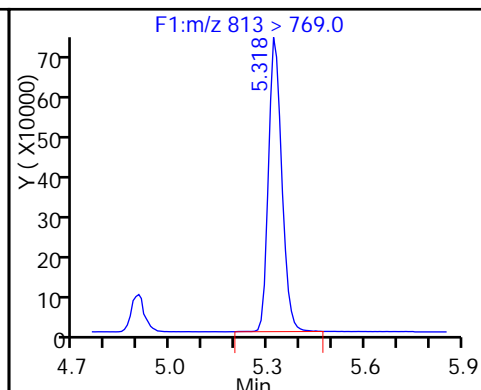
33 Perfluorotetradecanoic acid



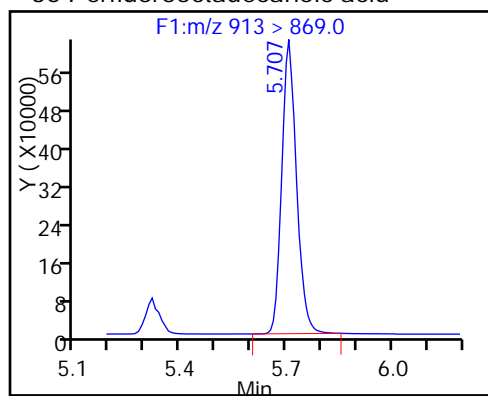
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_008_p1_e1.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 03-Sep-2016 16:08:00 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:36:22 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: westendorfc

Date: 14-Sep-2016 14:34:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.643	1.642	0.001		10059992	49.8		99.6	359378	
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1 Perfluorobutyric acid

212.9 > 169.0	1.650	1.645	0.005	1.000	9107590	51.6		103	150252	
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D 4 13C5-PFPeA

267.9 > 223.0	1.941	1.938	0.003		7811976	49.3		98.6	586647	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.950	1.940	0.010	1.000	8018325	48.9		97.8	130209	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.983	1.976	0.007	1.000	13047591	46.2		104		
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298.9 > 99.0	1.983	1.976	0.007	1.000	5710230		2.28(0.00-0.00)	104		
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7 Perfluorohexanoic acid

313 > 269.0	2.257	2.253	0.004	1.000	6836853	49.1		98.1	382919	
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D 6 13C2 PFHxA

315 > 270.0	2.257	2.254	0.003		6914706	47.9		95.8	622070	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.623	2.591	0.032	1.000	8729401	43.8		96.2		
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D 11 13C4-PFHpA

367 > 322.0	2.608	2.611	-0.003		6479138	49.5		99.0	692456	
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12 Perfluoroheptanoic acid

363 > 319.0	2.615	2.614	0.001	1.000	6679813	49.5		99.1	80918	
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D 10 18O2 PFHxS

403 > 84.0	2.623	2.626	-0.003		8783547	48.6		103	511047	
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D 14 13C4 PFOA

417 > 372.0	2.983	2.994	-0.011		7550162	51.8		104	574715	
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15 Perfluorooctanoic acid

413 > 369.0	2.991	2.996	-0.005	1.000	7820671	49.8		99.6	144542	
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413 > 169.0	2.991	2.996	-0.005	1.000	4776836		1.64(0.90-1.10)	99.6	192842	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.991	2.999	-0.008	1.000	8192805	48.6		102		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.264	3.271	-0.007	1.000	7327912	42.6		91.8	16729	
499 > 99.0	3.255	3.271	-0.016	0.997	1735978		4.22(0.90-1.10)	91.8	28626	
D 17 13C4 PFOS										
503 > 80.0	3.370	3.375	-0.005		6999925	48.4		101	183016	
D 19 13C5 PFNA										
468 > 423.0	3.370	3.380	-0.010		6214189	48.7		97.5	309473	
20 Perfluorononanoic acid										
463 > 419.0	3.370	3.381	-0.011	1.000	6483970	51.5		103	149680	
D 21 13C8 FOSA										
506 > 78.0	3.671	3.674	-0.003		13368523	50.2		100	456851	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.671	3.674	-0.003	1.000	12654264	51.3		103	423760	
24 Perfluorodecanoic acid										
513 > 469.0	3.739	3.744	-0.005	1.000	5849904	49.2		98.3	208835	
D 23 13C2 PFDA										
515 > 470.0	3.739	3.744	-0.005		6077012	50.3		101	376560	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.052	4.055	-0.003	1.000	4699344	50.2		104		
28 Perfluoroundecanoic acid										
563 > 519.0	4.071	4.078	-0.007	1.000	4789301	47.5		95.0	214887	
D 27 13C2 PFUnA										
565 > 520.0	4.071	4.081	-0.010		4682751	49.1		98.3	258038	
29 Perfluorododecanoic acid										
613 > 569.0	4.369	4.374	-0.005	1.000	4351878	50.6		101	92211	
D 30 13C2 PFDaA										
615 > 570.0	4.369	4.374	-0.005		4433243	50.1		100	239298	
31 Perfluorotridecanoic acid										
633 > 619.0	4.637	4.639	-0.002	1.000	4567596	51.4		103	15297	
D 32 13C2-PFTeDA										
715 > 670.0	4.876	4.882	-0.006		8848037	51.9		104	505407	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.876	4.883	-0.007	1.000	8238270	51.8		104	12561	
713 > 169.0	4.867	4.883	-0.016	0.998	1326537		6.21(0.00-0.00)	104	150655	
D 34 13C2-PFHxDA										
815 > 770.0	5.286	5.305	-0.019		5604455	51.5		103	299088	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.297	5.309	-0.012	1.000	5250014	51.8		104	14052	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.680	5.692	-0.012	1.000	4498275	51.8		104	16439	

Reagents:

LCPFC-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_008_p1_e1.d

Injection Date: 03-Sep-2016 16:08:00

Instrument ID: A8

Lims ID: IC L5

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

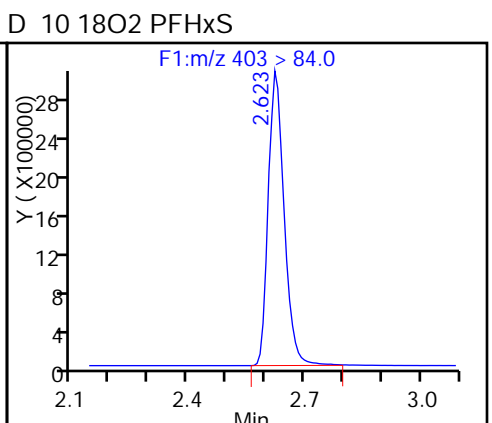
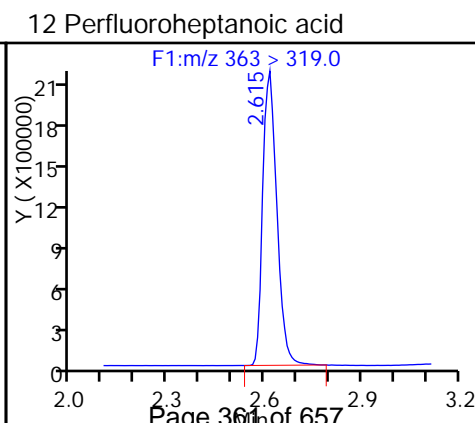
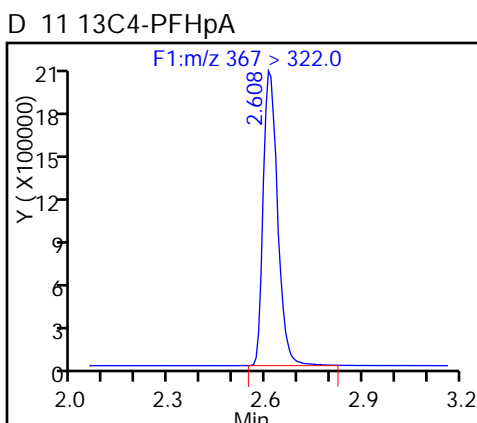
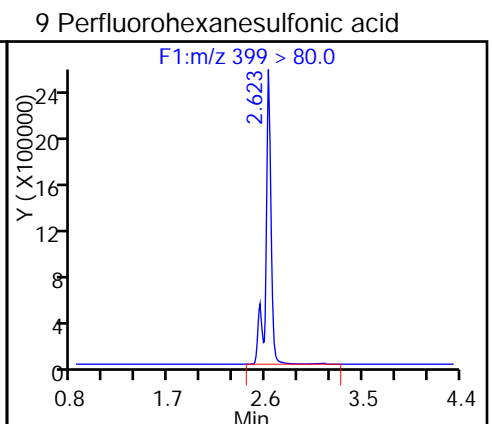
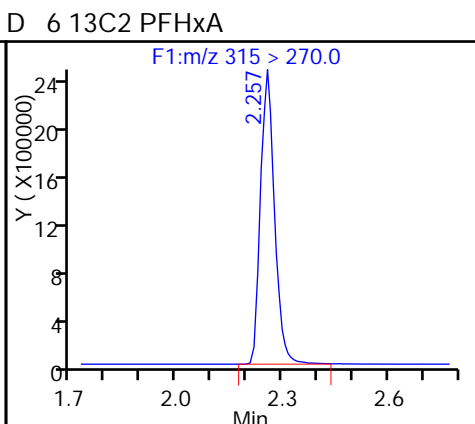
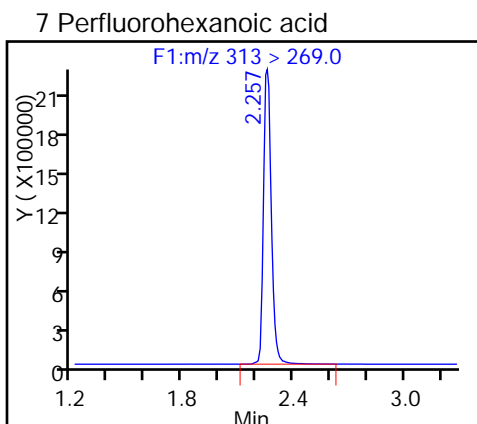
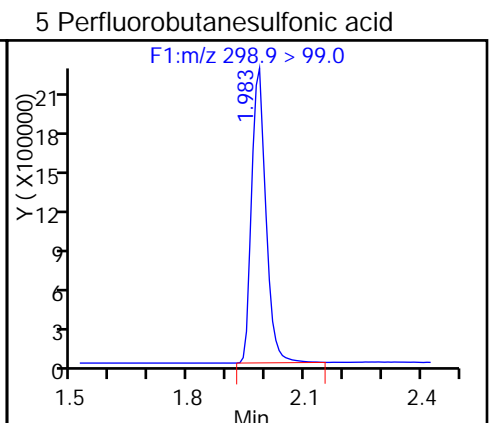
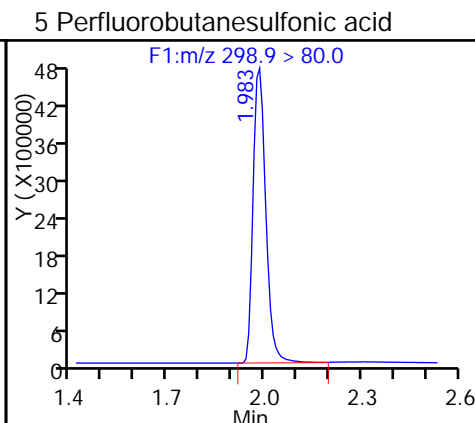
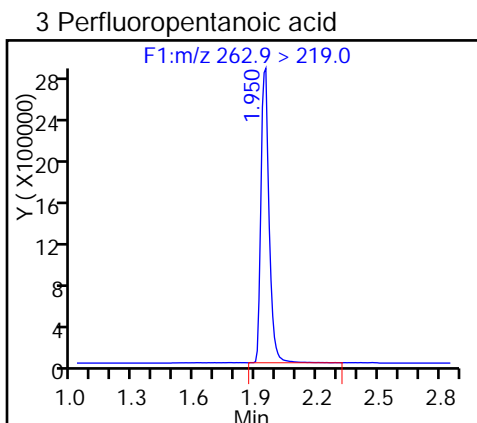
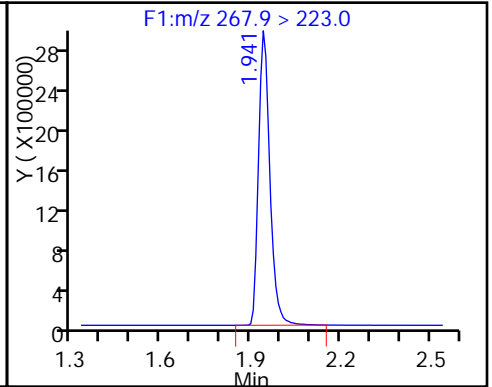
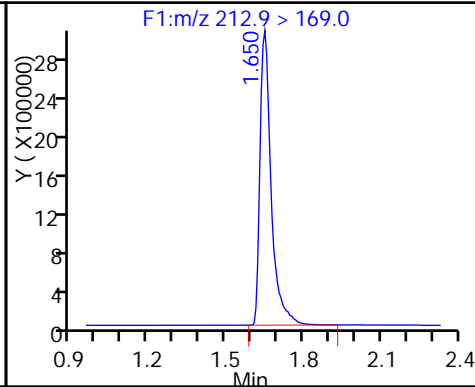
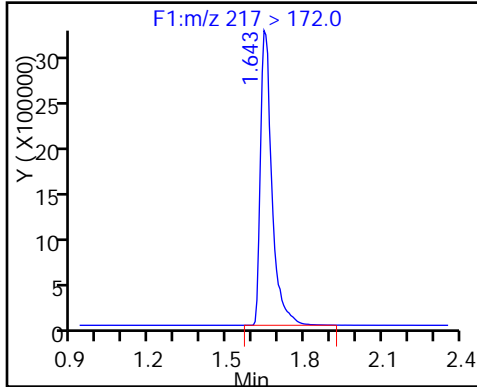
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Limit Group: LC PFC_DOD ICAL

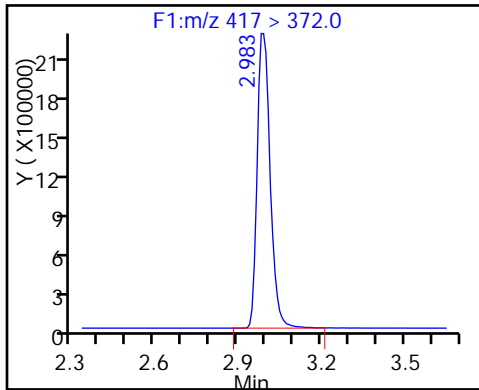
D 2 13C4 PFBA

1 Perfluorobutyric acid

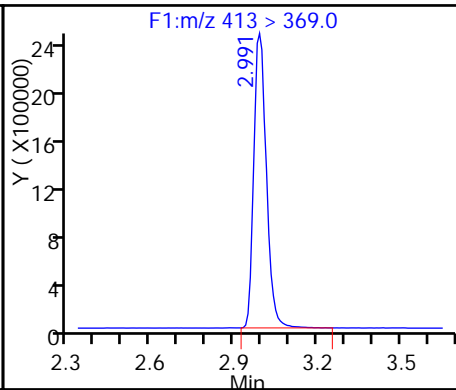
D 4 13C5-PFPeA



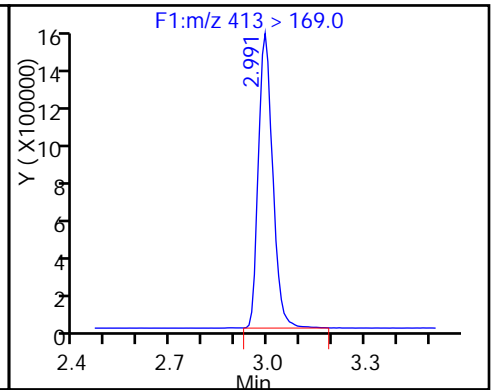
D 14 13C4 PFOA



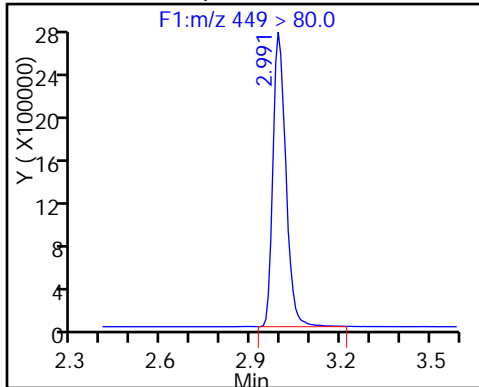
15 Perfluorooctanoic acid



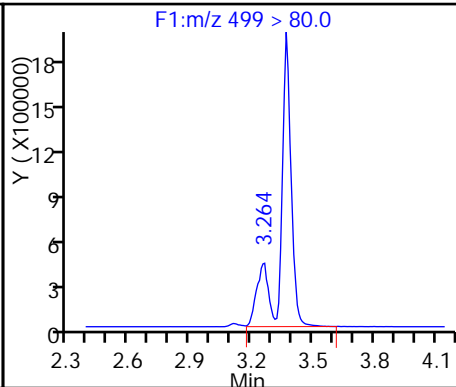
15 Perfluorooctanoic acid



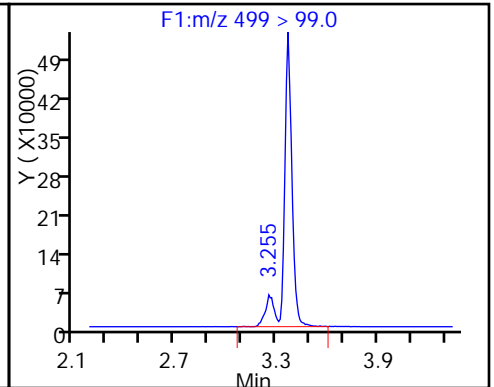
13 Perfluoroheptanesulfonic Acid



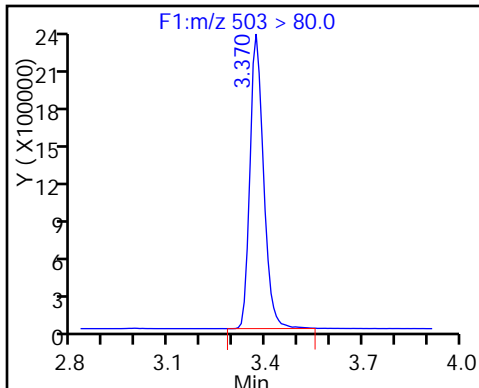
18 Perfluorooctane sulfonic acid



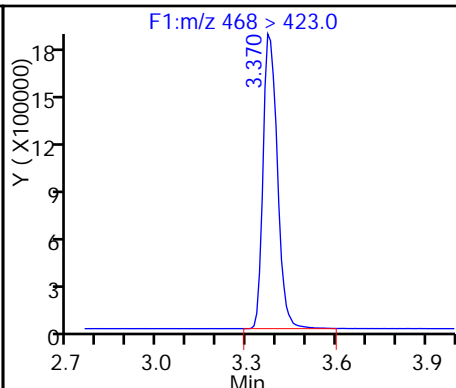
18 Perfluorooctane sulfonic acid



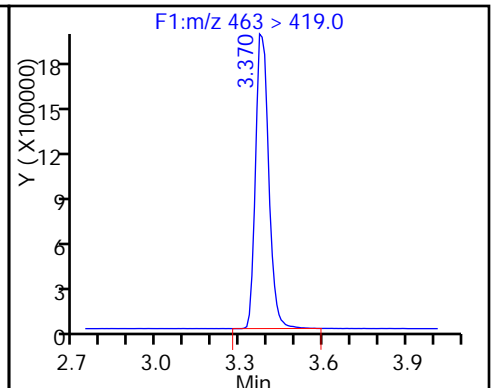
D 17 13C4 PFOS



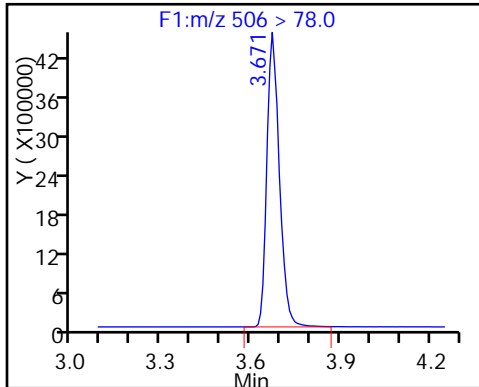
D 19 13C5 PFNA



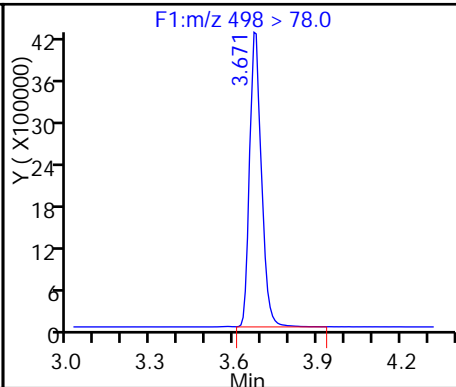
20 Perfluorononanoic acid



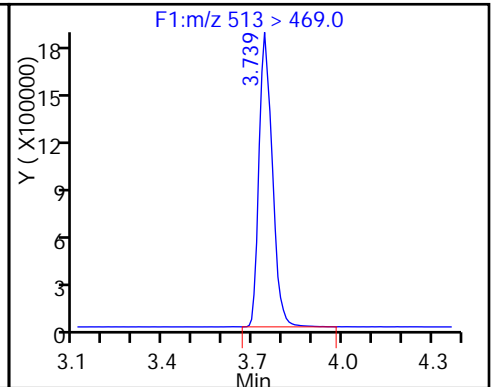
D 21 13C8 FOSA



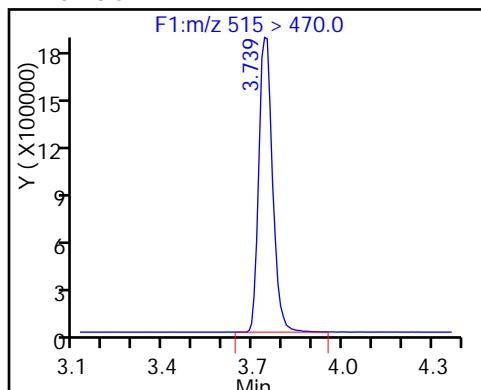
22 Perfluorooctane Sulfonamide



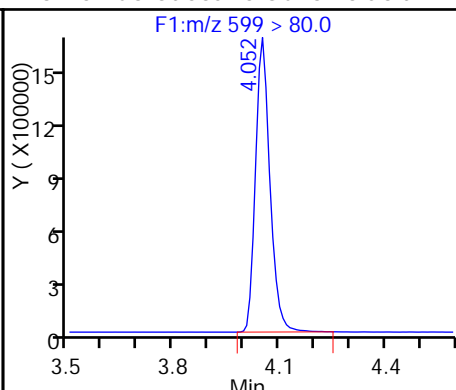
24 Perfluorodecanoic acid



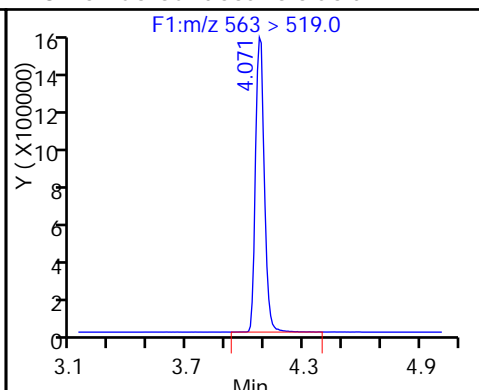
D 23 13C2 PFDA



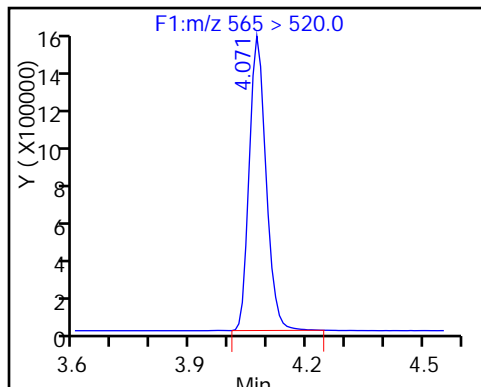
26 Perfluorodecane Sulfonic acid



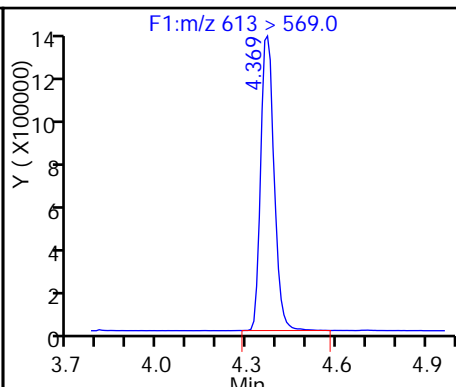
28 Perfluoroundecanoic acid



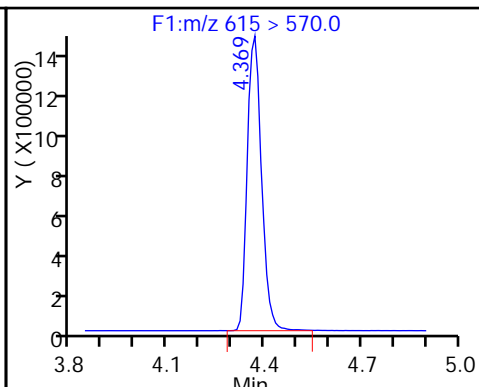
D 27 13C2 PFUnA



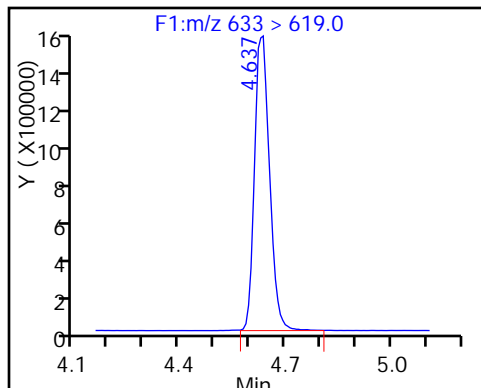
29 Perfluorododecanoic acid



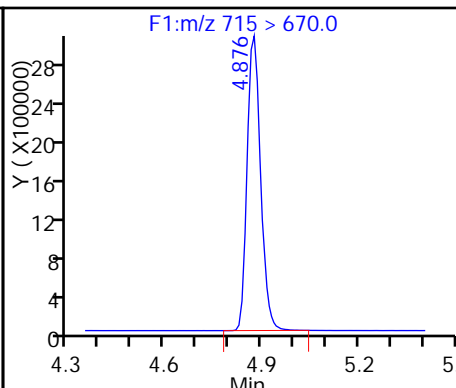
D 30 13C2 PFDaA



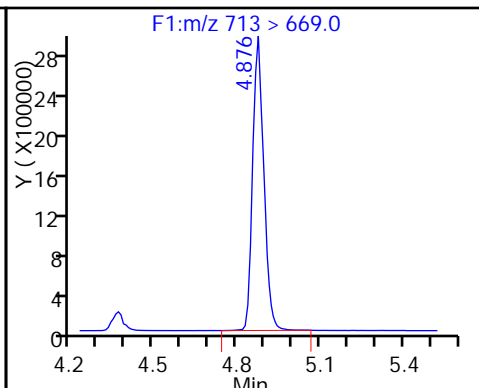
31 Perfluorotridecanoic acid



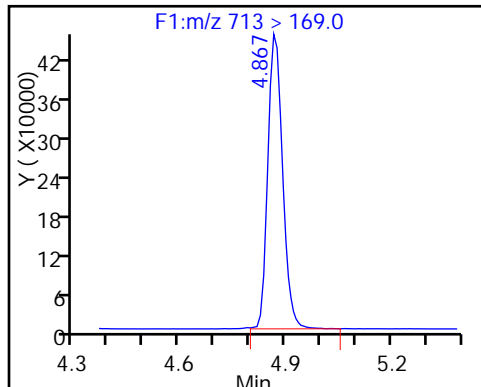
D 32 13C2-PFTeDA



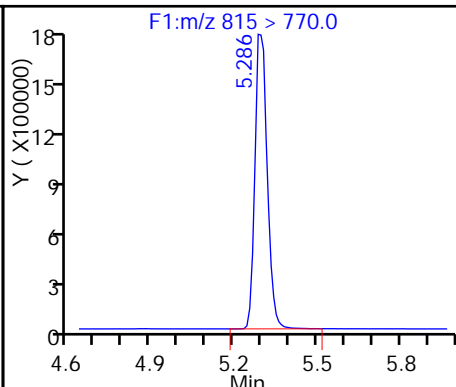
33 Perfluorotetradecanoic acid



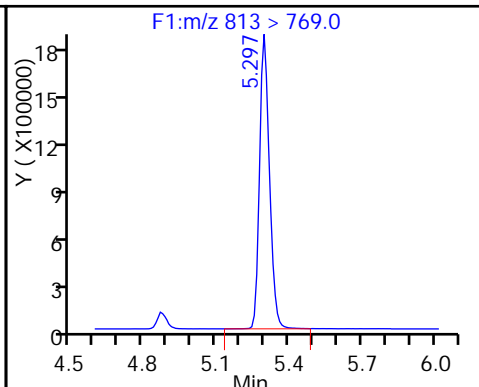
33 Perfluorotetradecanoic acid



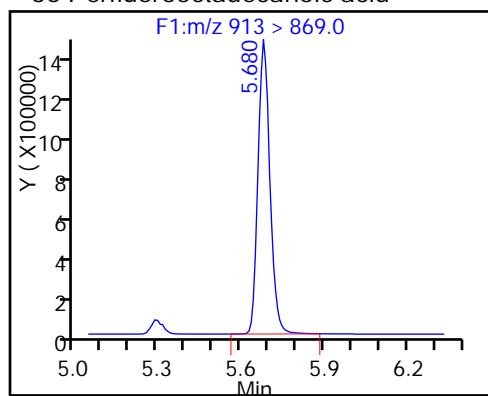
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_009_p1_e1.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 03-Sep-2016 16:16:00 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:36:34 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:20:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.643	1.642	0.001		9448230	46.8		93.6	348463	
1 Perfluorobutyric acid										
212.9 > 169.0	1.643	1.645	-0.002	1.000	30611454	184.8		92.4	556886	
D 4 13C5-PFPeA										
267.9 > 223.0	1.933	1.938	-0.005		7036843	44.4		88.9	851046	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.933	1.940	-0.007	1.000	25602733	173.3		86.7	415320	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.967	1.976	-0.009	1.000	39194012	151.0		85.4		
298.9 > 99.0	1.967	1.976	-0.009	1.000	19923484		1.97(0.00-0.00)	85.4		
7 Perfluorohexanoic acid										
313 > 269.0	2.240	2.253	-0.013	1.000	23571653	182.0		91.0	1435579	
D 6 13C2 PFHxA										
315 > 270.0	2.240	2.254	-0.014		6427112	44.5		89.1	1054215	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.617	2.591	0.026	1.000	31017014	169.3		93.0		
D 11 13C4-PFHpA										
367 > 322.0	2.602	2.611	-0.009		5704395	43.6		87.2	352134	
12 Perfluoroheptanoic acid										
363 > 319.0	2.602	2.614	-0.012	1.000	22691495	191.1		95.5	229921	
D 10 18O2 PFHxS										
403 > 84.0	2.610	2.626	-0.016		8067246	44.6		94.4	647495	
D 14 13C4 PFOA										
417 > 372.0	2.977	2.994	-0.017		6224994	42.7		85.4	387595	
15 Perfluorooctanoic acid										
413 > 369.0	2.977	2.996	-0.019	1.000	24587367	189.8		94.9	415376	
413 > 169.0	2.977	2.996	-0.019	1.000	15473682		1.59(0.90-1.10)	94.9	347888	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.985	2.999	-0.014	1.000	28674968	178.9		93.9		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.239	3.271	-0.032	1.000	28263326	172.7		93.1	20229	
499 > 99.0	3.324	3.271	0.053	1.026	6580583		4.29(0.90-1.10)	93.1	69228	
D 17 13C4 PFOS										
503 > 80.0	3.352	3.375	-0.023		6656316	46.0		96.2	101191	
D 19 13C5 PFNA										
468 > 423.0	3.361	3.380	-0.019		5193244	40.7		81.4	302908	
20 Perfluorononanoic acid										
463 > 419.0	3.361	3.381	-0.020	1.000	21195062	201.3		101	362600	
D 21 13C8 FOSA										
506 > 78.0	3.665	3.674	-0.009		12142761	45.6		91.2	345820	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.665	3.674	-0.009	1.000	38418532	171.4		85.7	347877	
24 Perfluorodecanoic acid										
513 > 469.0	3.722	3.744	-0.022	1.000	20619156	195.4		97.7	691485	
D 23 13C2 PFDA										
515 > 470.0	3.722	3.744	-0.022		5389574	44.6		89.2	338063	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.031	4.055	-0.024	1.000	17669187	198.5		103		
28 Perfluoroundecanoic acid										
563 > 519.0	4.058	4.078	-0.020	1.000	16116354	185.4		92.7	805986	
D 27 13C2 PFUnA										
565 > 520.0	4.067	4.081	-0.014		4036632	42.4		84.7	242552	
29 Perfluorododecanoic acid										
613 > 569.0	4.354	4.374	-0.020	1.000	15897471	198.9		99.5	323061	
D 30 13C2 PFDaA										
615 > 570.0	4.354	4.374	-0.020		4121681	46.6		93.2	274091	
31 Perfluorotridecanoic acid										
633 > 619.0	4.619	4.639	-0.020	1.000	16190491	196.2		98.1	70297	
D 32 13C2-PFTeDA										
715 > 670.0	4.860	4.882	-0.022		7956388	46.7		93.4	443905	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.860	4.883	-0.023	1.000	28024778	189.6		94.8	43942	
713 > 169.0	4.860	4.883	-0.023	1.000	4962959		5.65(0.00-0.00)	94.8	276244	
D 34 13C2-PFHxDA										
815 > 770.0	5.289	5.305	-0.016		5264655	48.4		96.7	277715	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.289	5.309	-0.020	1.000	18615408	198.6		99.3	43107	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.663	5.692	-0.029	1.000	16871624	208.8		104	57601	

Reagents:

LCPFC-L6_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_009_p1_e1.d

Injection Date: 03-Sep-2016 16:16:00

Instrument ID: A8

Lims ID: IC L6

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

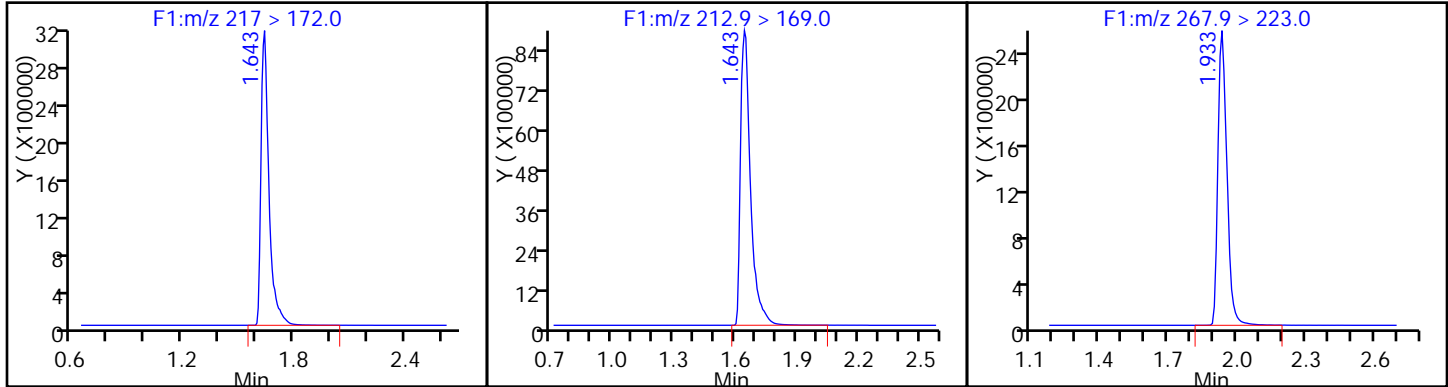
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

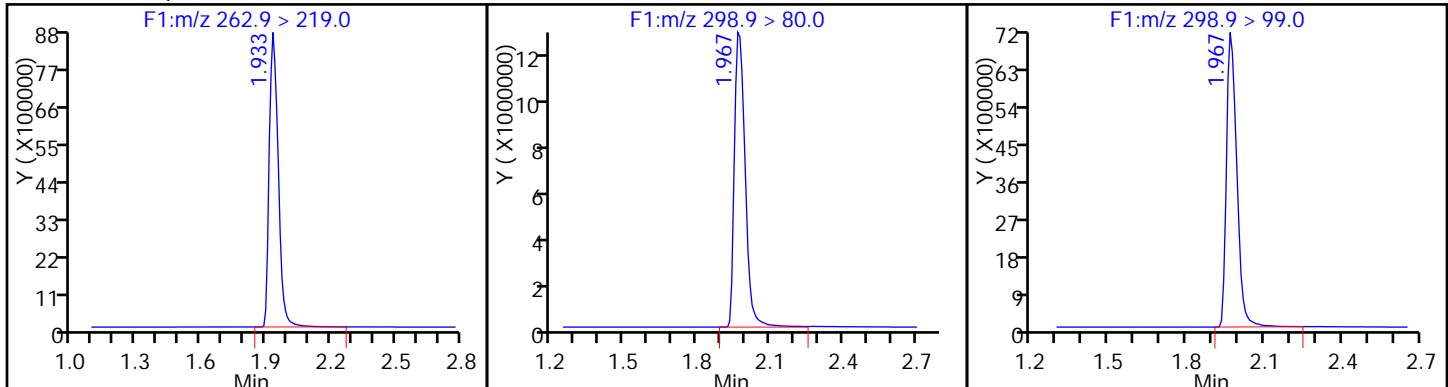
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

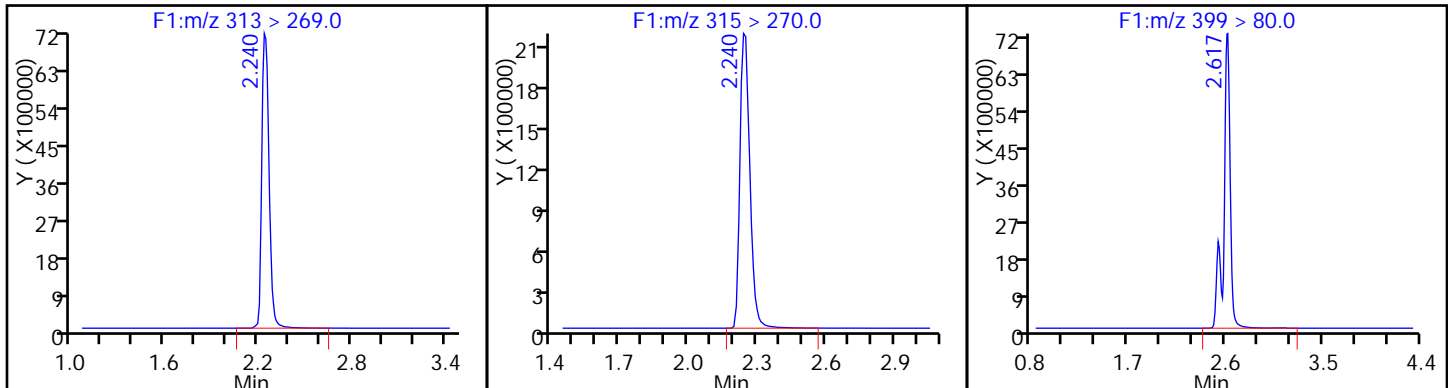
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

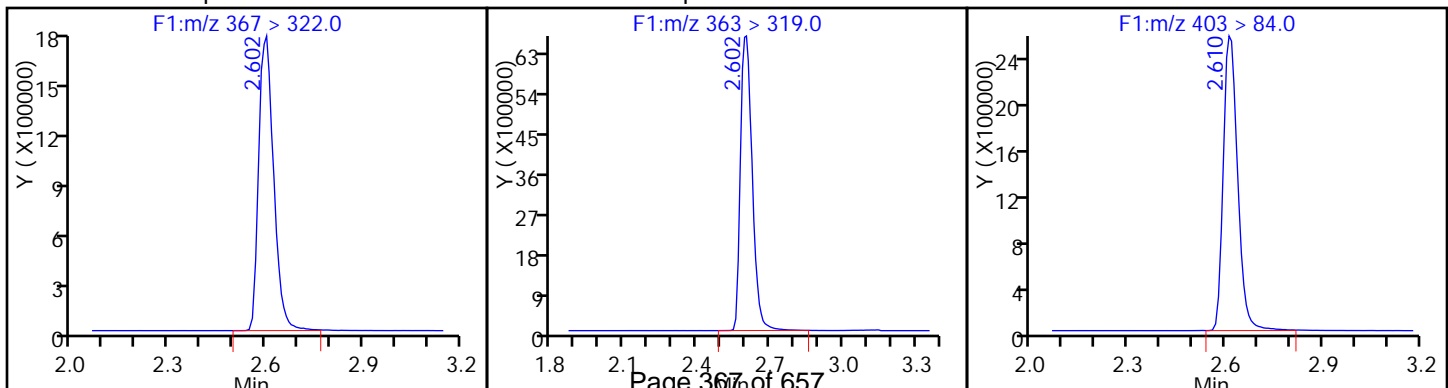
9 Perfluorohexanesulfonic acid



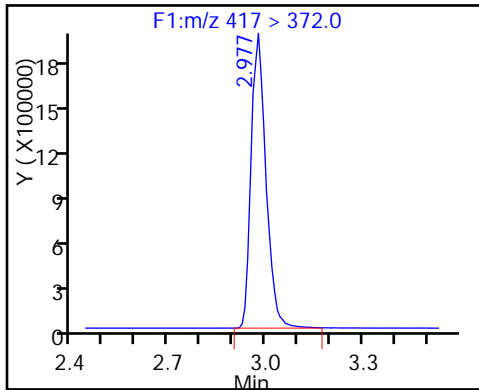
D 11 13C4-PFHpA

12 Perfluoroheptanoic acid

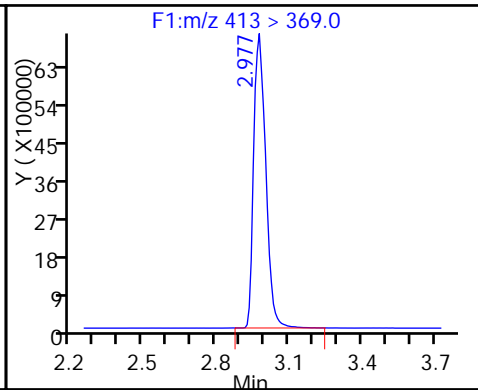
D 10 18O2 PFHxS



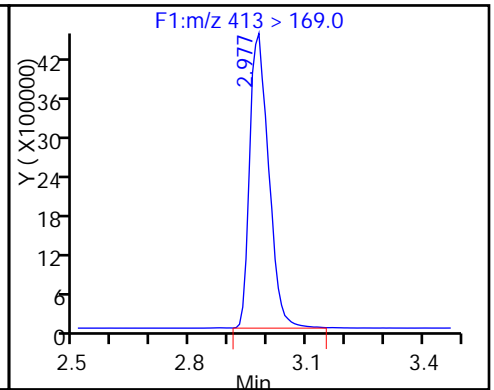
D 14 13C4 PFOA



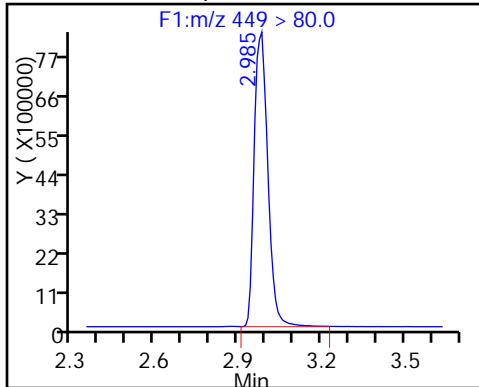
15 Perfluorooctanoic acid



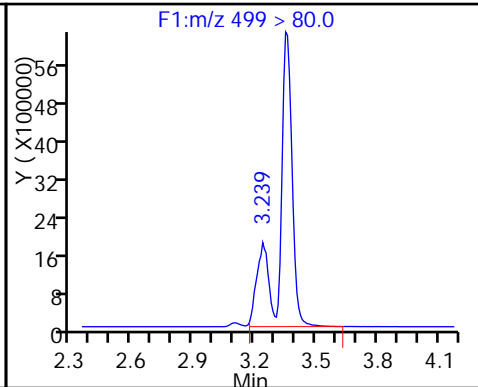
15 Perfluorooctanoic acid



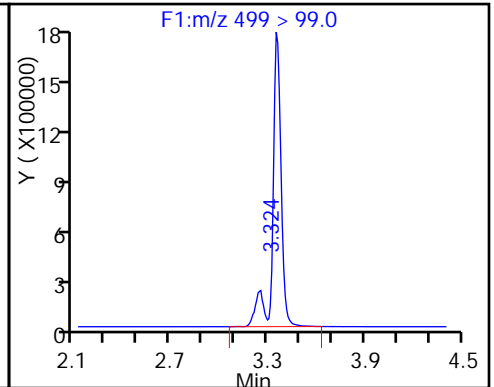
13 Perfluoroheptanesulfonic Acid



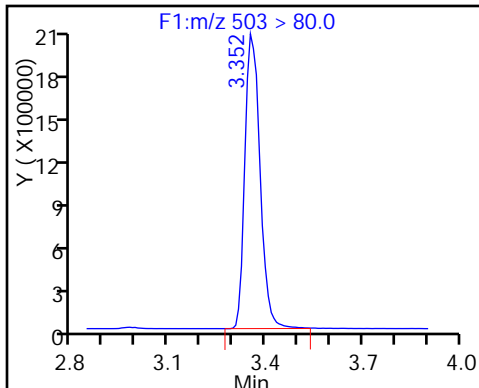
18 Perfluorooctane sulfonic acid



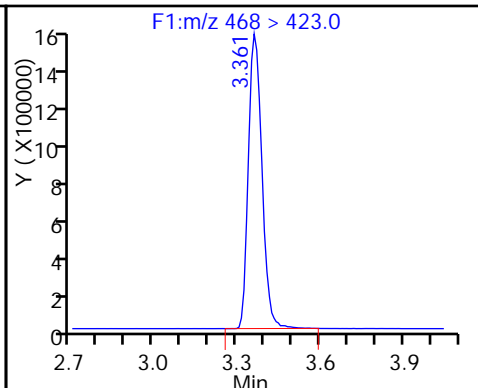
18 Perfluorooctane sulfonic acid



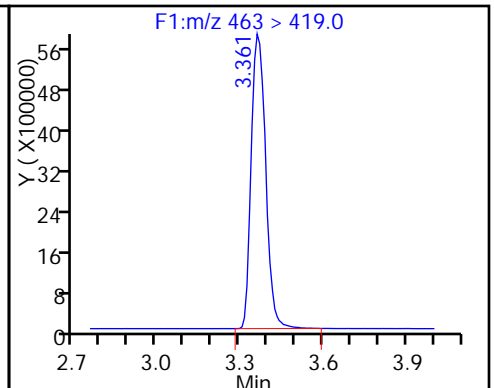
D 17 13C4 PFOS



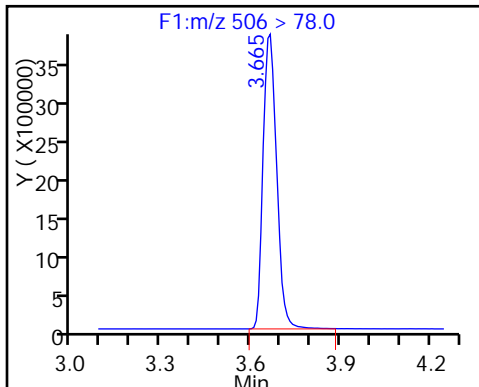
D 19 13C5 PFNA



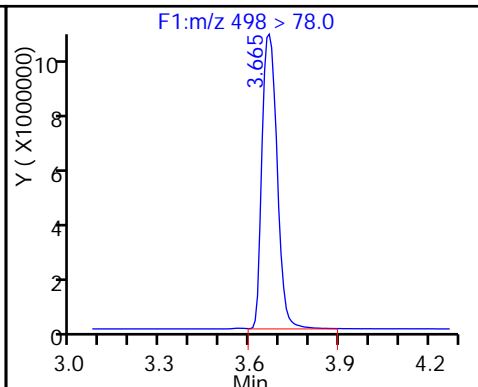
20 Perfluorononanoic acid



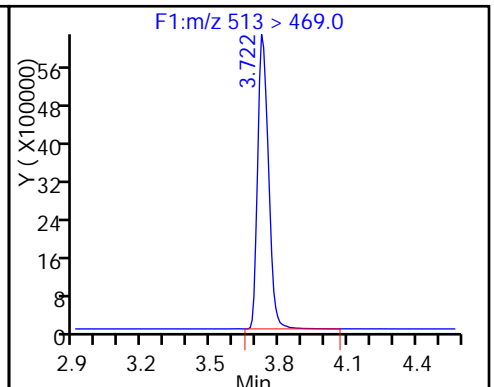
D 21 13C8 FOSA



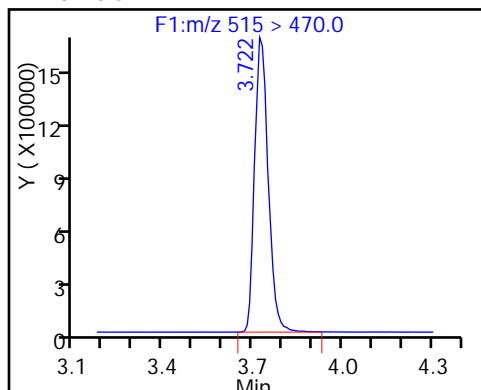
22 Perfluorooctane Sulfonamide



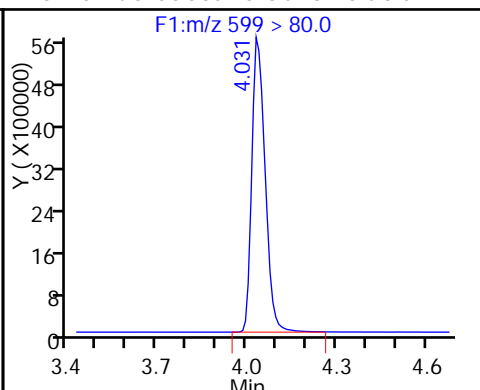
24 Perfluorodecanoic acid



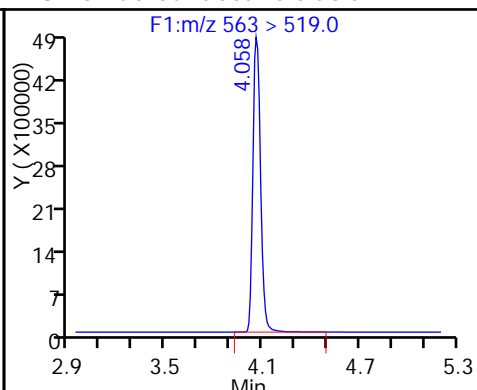
D 23 13C2 PFDA



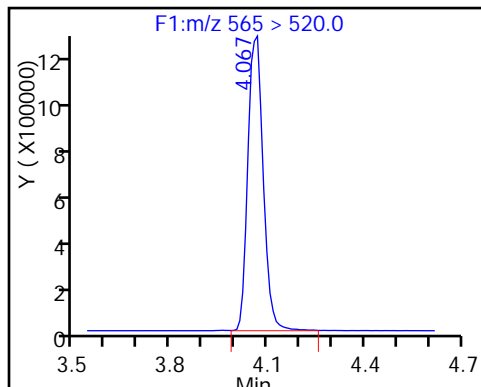
26 Perfluorodecane Sulfonic acid



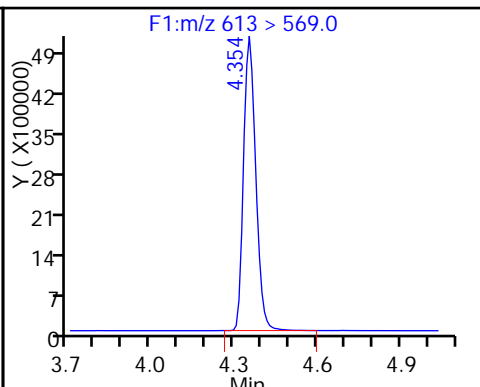
28 Perfluoroundecanoic acid



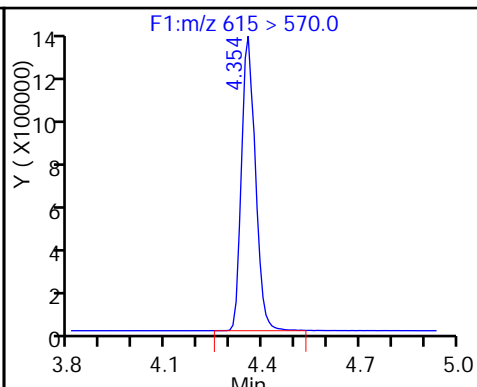
D 27 13C2 PFUnA



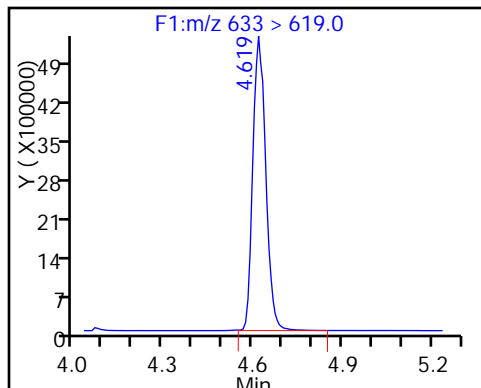
29 Perfluorododecanoic acid



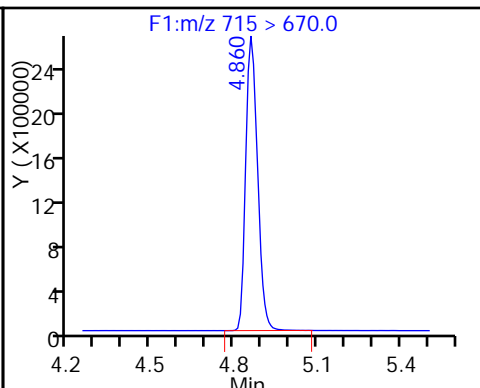
D 30 13C2 PFDa



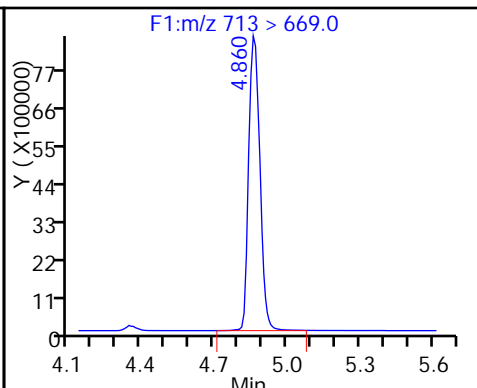
31 Perfluorotridecanoic acid



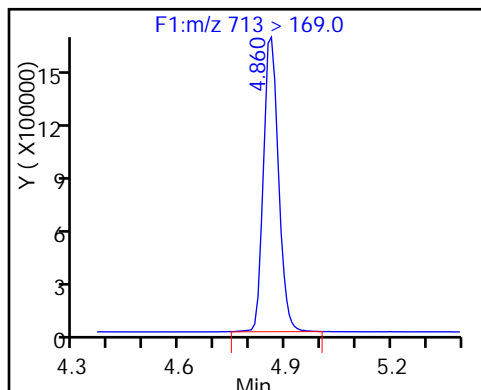
D 32 13C2-PFTeDA



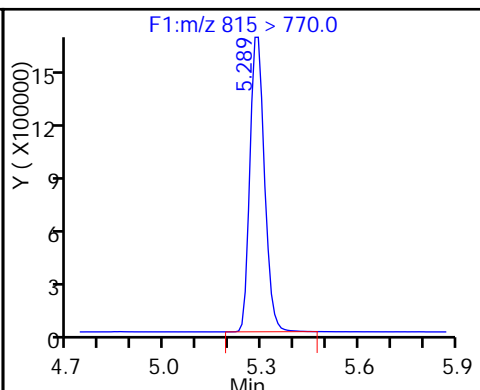
33 Perfluorotetradecanoic acid



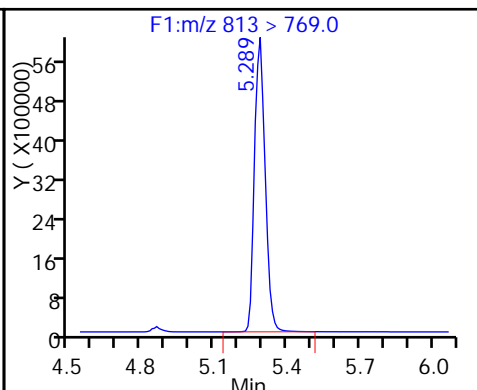
33 Perfluorotetradecanoic acid



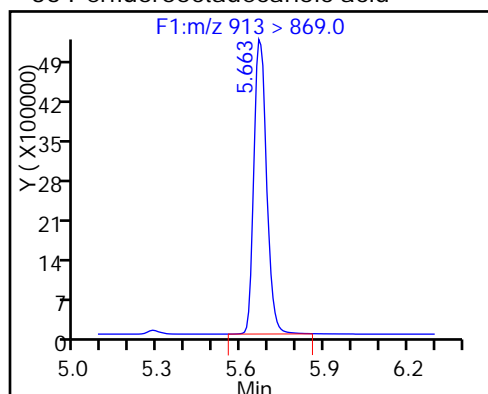
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_010_p1_e1.d
 Lims ID: IC L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 03-Sep-2016 16:23:00 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 14-Sep-2016 14:36:46 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK025

First Level Reviewer: phomsophat

Date: 06-Sep-2016 16:15:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.636	1.642	-0.006		8514926	42.2		84.3	332263	
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1 Perfluorobutyric acid

212.9 > 169.0	1.636	1.645	-0.009	1.000	48100959	322.2		80.5	714747	
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D 4 13C5-PFPeA

267.9 > 223.0	1.925	1.938	-0.013		6176138	39.0		78.0	723286	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.925	1.940	-0.015	1.000	39246308	302.7		75.7	485041	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.967	1.976	-0.009	1.000	56709993	257.0		72.7		
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298.9 > 99.0	1.958	1.976	-0.018	0.996	31464803		1.80(0.00-0.00)	72.7		
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7 Perfluorohexanoic acid

313 > 269.0	2.240	2.253	-0.013	1.000	37700276	328.1		82.0	1326471	
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D 6 13C2 PFHxA

315 > 270.0	2.240	2.254	-0.014		5702806	39.5		79.0	978368	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.614	2.591	0.023	1.000	51343246	329.7		90.6		
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D 11 13C4-PFHpA

367 > 322.0	2.587	2.611	-0.024		4813978	36.8		73.6	501564	
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12 Perfluoroheptanoic acid

363 > 319.0	2.596	2.614	-0.018	1.000	35354804	352.8		88.2	298532	
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D 10 18O2 PFHxS

403 > 84.0	2.614	2.626	-0.012		6858717	38.0		80.2	510523	
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D 14 13C4 PFOA

417 > 372.0	2.973	2.994	-0.022		4953489	34.0		67.9	286821	
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15 Perfluorooctanoic acid

413 > 369.0	2.973	2.996	-0.024	1.000	37706543	365.8		91.5	330394	
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413 > 169.0	2.973	2.996	-0.024	1.000	25189316		1.50(0.90-1.10)	91.5	425412	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.981	2.999	-0.018	1.000	44304186	321.8		84.5		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.327	3.271	0.056	1.000	49332494	351.0		94.6	20949	
499 > 99.0	3.355	3.271	0.084	1.008	12208132		4.04(0.90-1.10)	94.6	24370	
D 17 13C4 PFOS										
503 > 80.0	3.355	3.375	-0.020		5716815	39.5		82.6	74434	
D 19 13C5 PFNA										
468 > 423.0	3.364	3.380	-0.016		4390174	34.4		68.9	304247	
20 Perfluorononanoic acid										
463 > 419.0	3.355	3.381	-0.026	1.000	33608056	377.6		94.4	659447	
D 21 13C8 FOSA										
506 > 78.0	3.659	3.674	-0.015		10560337	39.6		79.3	408115	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.659	3.674	-0.015	1.000	59003099	302.7		75.7	295288	
24 Perfluorodecanoic acid										
513 > 469.0	3.724	3.744	-0.020	1.000	34564419	366.9		91.7	643165	
D 23 13C2 PFDA										
515 > 470.0	3.724	3.744	-0.020		4812836	39.8		79.6	305723	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.033	4.055	-0.022	1.000	29479384	385.6		100		
28 Perfluoroundecanoic acid										
563 > 519.0	4.051	4.078	-0.027	1.000	25948930	372.0		93.0	910425	
D 27 13C2 PFUnA										
565 > 520.0	4.061	4.081	-0.020		3240195	34.0		68.0	240903	
29 Perfluorododecanoic acid										
613 > 569.0	4.351	4.374	-0.024	1.000	26539024	375.9		94.0	402618	
D 30 13C2 PFDaA										
615 > 570.0	4.351	4.374	-0.024		3641523	41.2		82.3	186531	
31 Perfluorotridecanoic acid										
633 > 619.0	4.612	4.639	-0.027	1.000	27198410	373.0		93.2	145301	
D 32 13C2-PFTeDA										
715 > 670.0	4.860	4.882	-0.022		7064036	41.4		82.9	328927	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.860	4.883	-0.023	1.000	43145369	330.4		82.6	64128	
713 > 169.0	4.851	4.883	-0.032	0.998	9060987		4.76(0.00-0.00)	82.6	419036	
D 34 13C2-PFHxDA										
815 > 770.0	5.280	5.305	-0.025		4713289	43.3		86.6	385251	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.280	5.309	-0.029	1.000	31893590	385.6		96.4	90889	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.658	5.692	-0.034	1.000	30512560	427.4		107	95225	

Reagents:

LCPFC-L7_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_010_p1_e1.d

Injection Date: 03-Sep-2016 16:23:00

Instrument ID: A8

Lims ID: IC L7

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

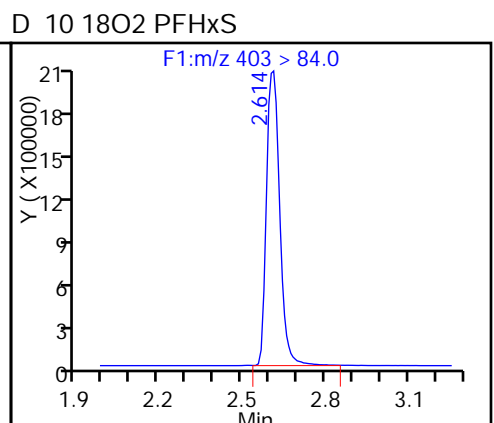
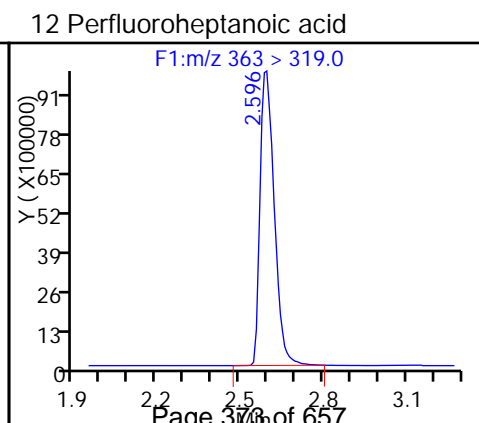
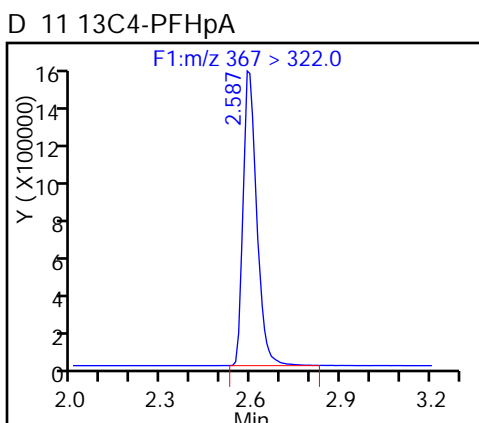
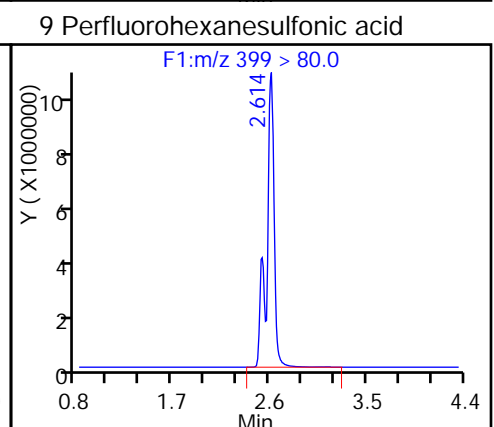
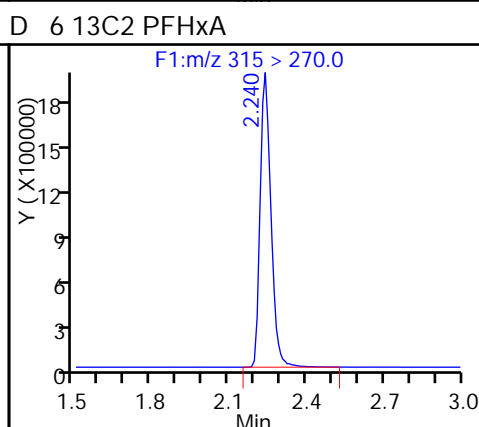
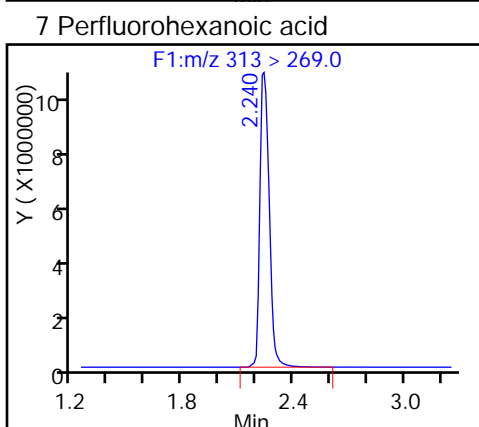
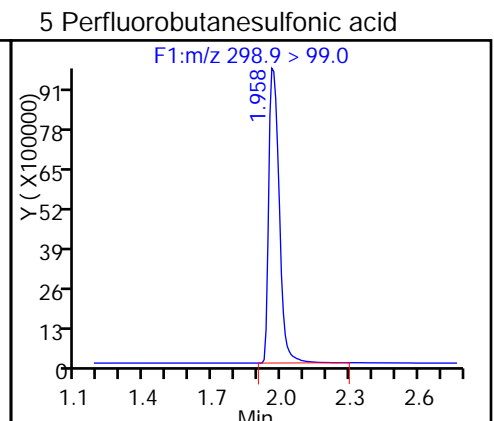
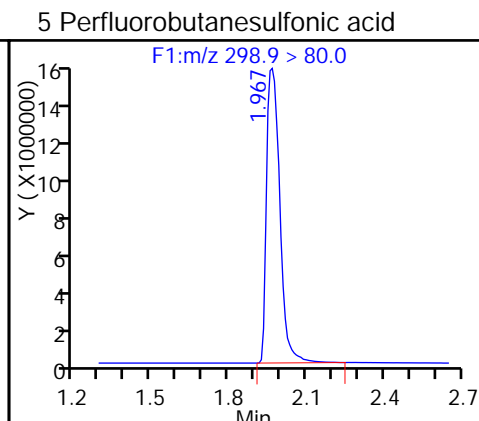
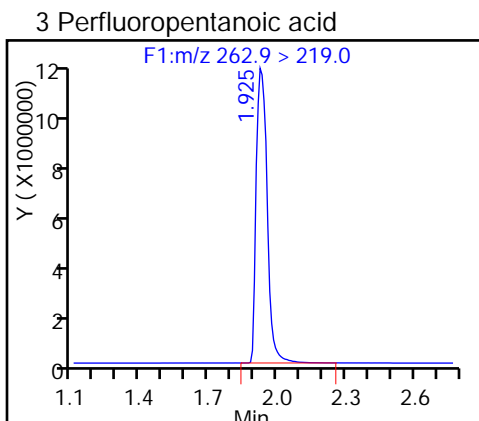
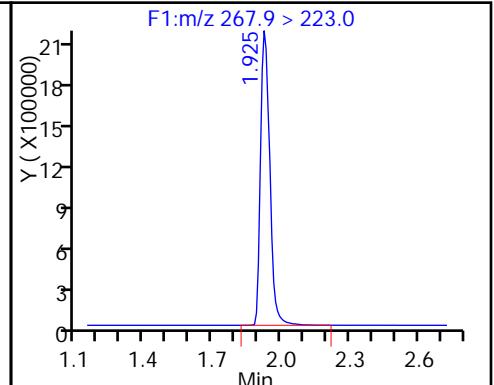
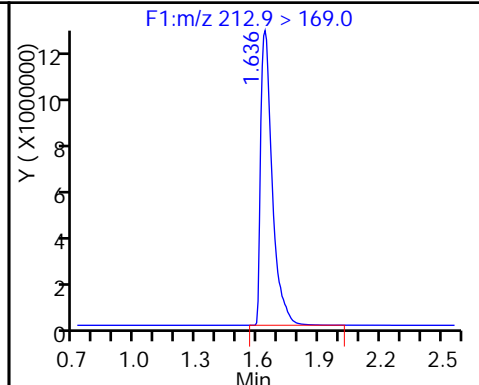
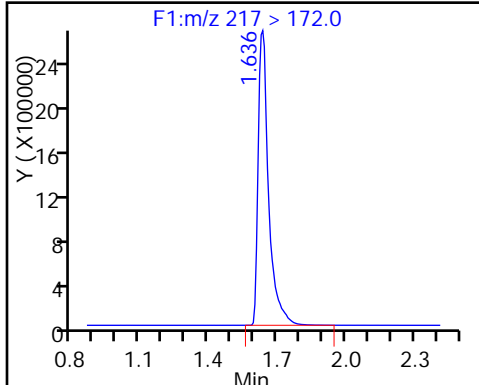
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

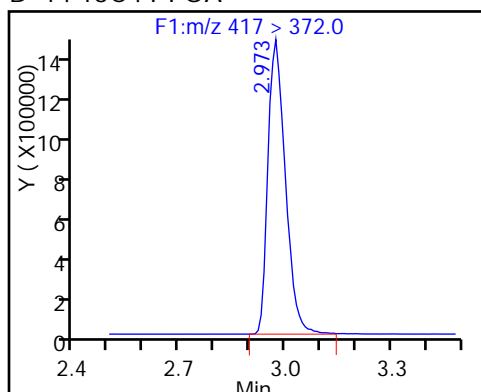
D 2 13C4 PFBA

1 Perfluorobutyric acid

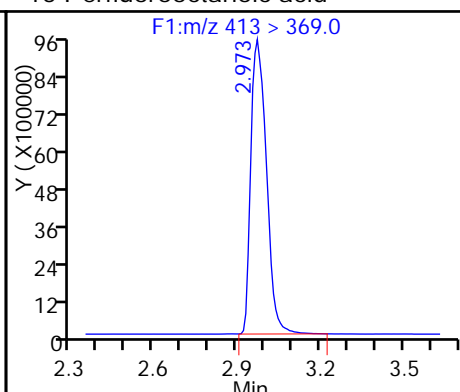
D 4 13C5-PFPeA



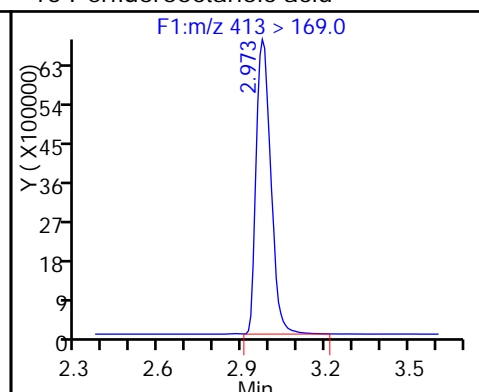
D 14 13C4 PFOA



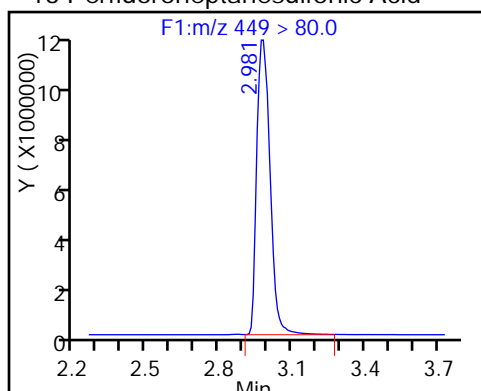
15 Perfluorooctanoic acid



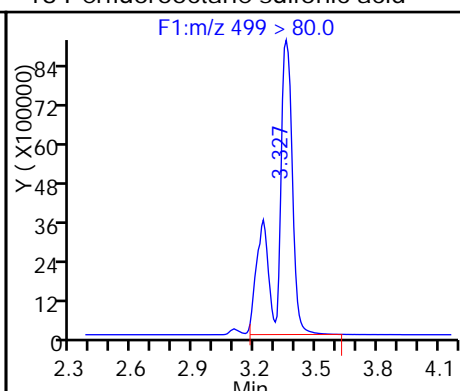
15 Perfluorooctanoic acid



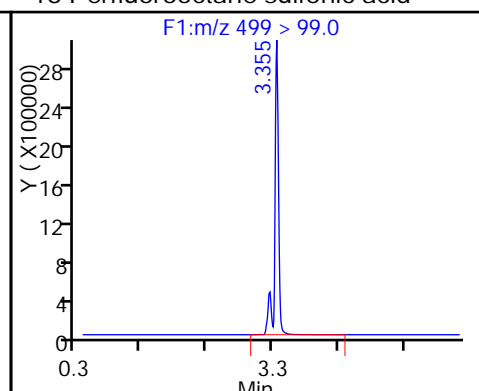
13 Perfluoroheptanesulfonic Acid



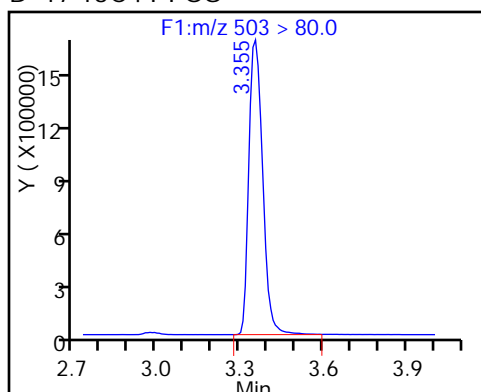
18 Perfluorooctane sulfonic acid



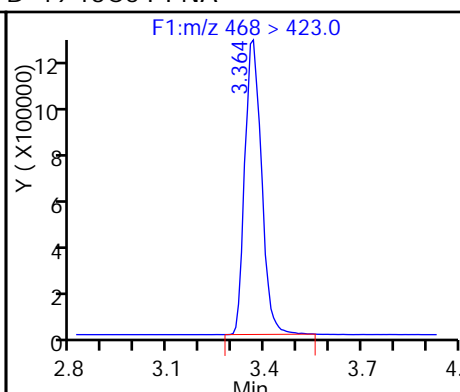
18 Perfluorooctane sulfonic acid



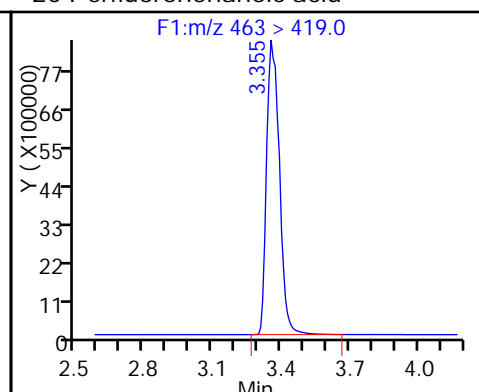
D 17 13C4 PFOS



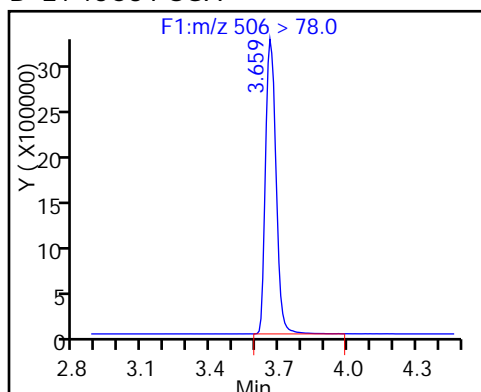
D 19 13C5 PFNA



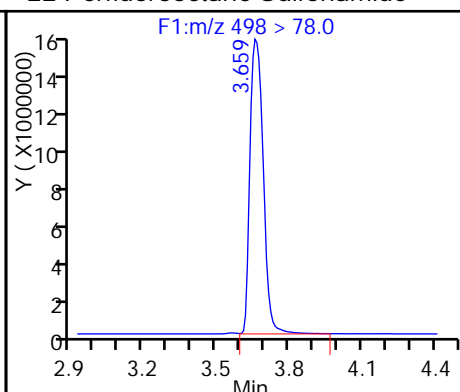
20 Perfluorononanoic acid



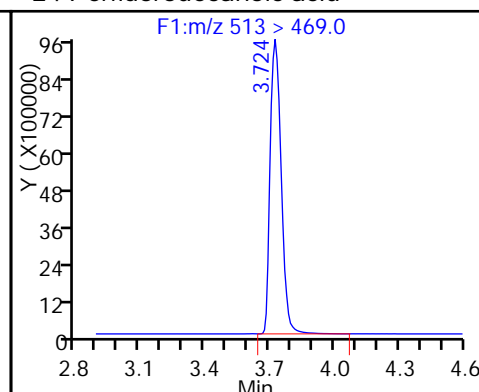
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide



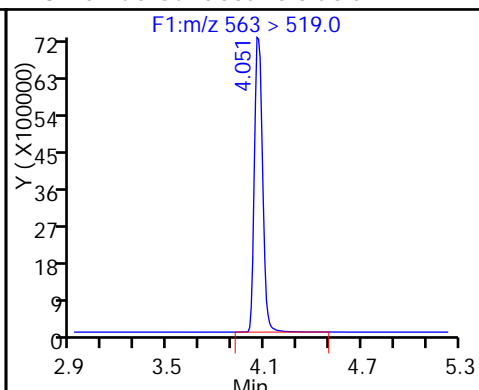
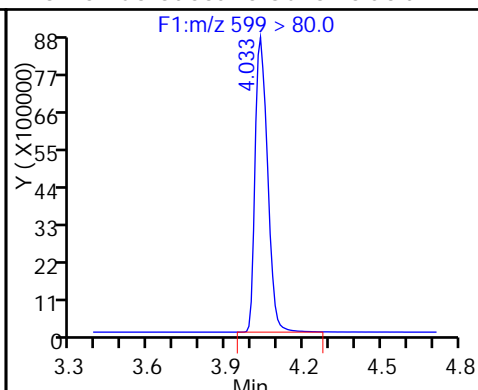
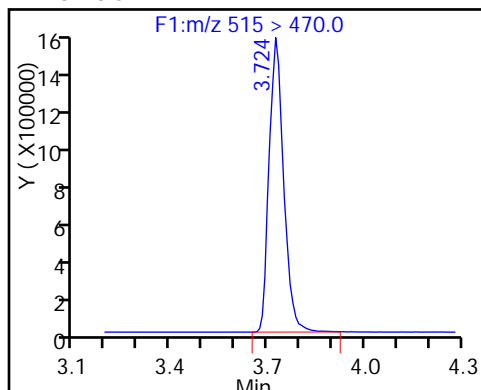
24 Perfluorodecanoic acid



D 23 13C2 PFDA

26 Perfluorodecane Sulfonic acid

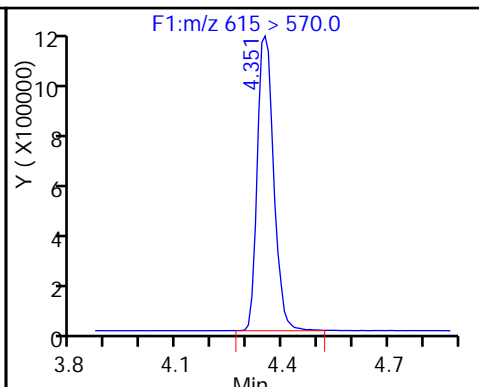
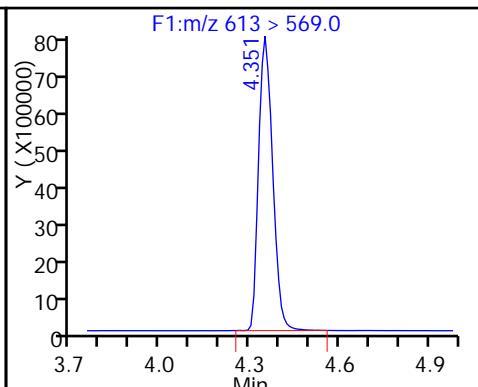
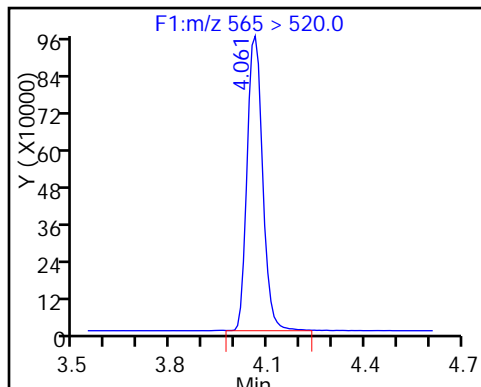
28 Perfluoroundecanoic acid



D 27 13C2 PFUnA

29 Perfluorododecanoic acid

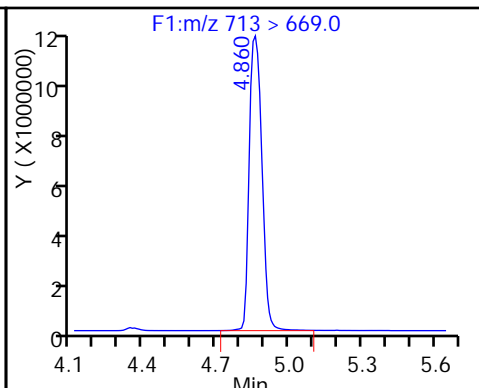
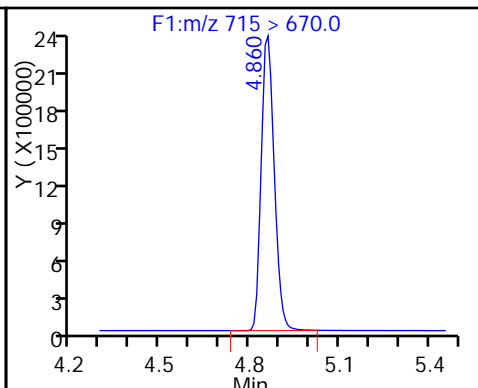
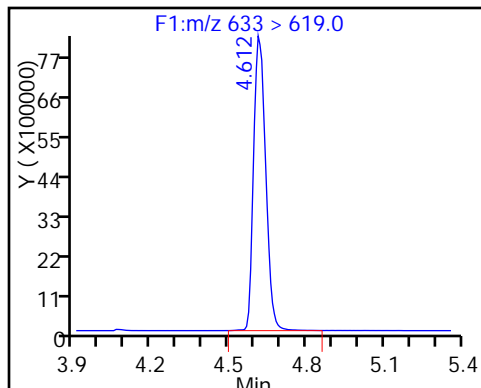
D 30 13C2 PFDaA



31 Perfluorotridecanoic acid

D 32 13C2-PFTeDA

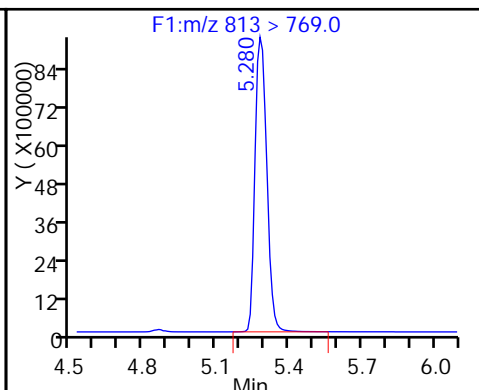
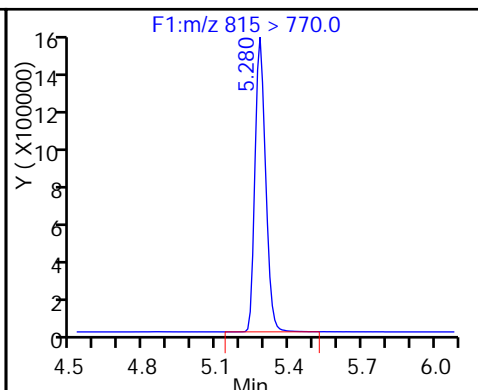
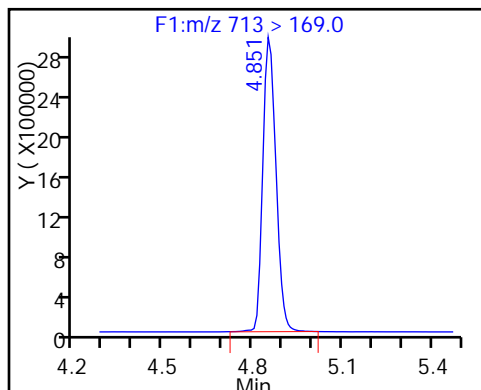
33 Perfluorotetradecanoic acid



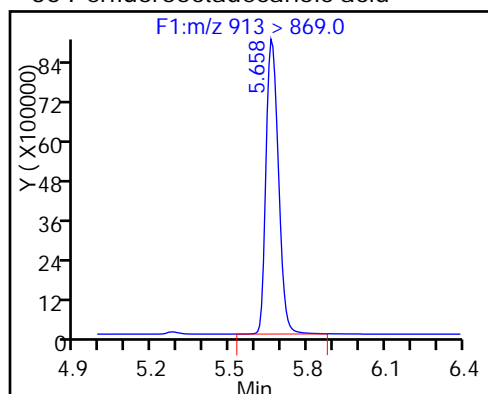
33 Perfluorotetradecanoic acid

D 34 13C2-PFHxDA

35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d
 Lims ID: IC L1 Add-on
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 03-Sep-2016 16:53:00 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:28 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 14:40:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.933	2.933	0.0		3456373	44.2		93.0		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.942	2.935	0.007	1.000	38598	0.6486		137		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.699	3.697	0.002	1.000	31162	0.5087		106		
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D 42 M2-8:2FTS

529 > 509.0	3.699	3.697	0.002		3612646	42.9		89.6		
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D 45 d3-NMeFOSAA

573 > 419.0	3.866	3.866	0.0		2345360	46.8		93.6		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.874	3.869	0.005	1.002	21482	0.5292		106		M
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D 46 d5-NEtFOSAA

589 > 419.0	4.035	4.032	0.003		2611814	46.6		93.2		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.053	4.039	0.014	1.004	19615	0.4939		98.8		M
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D 52 d-N-MeFOSA-M

515 > 169.0	4.141	4.143	-0.002		3196091	46.3		92.7		
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54 MeFOSA

512 > 169.0	4.141	4.145	-0.004	1.000	25438	0.4915		98.3		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.322	4.326	-0.004		2976733	46.6		93.3		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.331	4.333	-0.002	1.000	23898	0.4742		94.8		
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QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC2-L1_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d

Injection Date: 03-Sep-2016 16:53:00

Instrument ID: A8

Lims ID: IC L1 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 14

Injection Vol: 2.0 ul

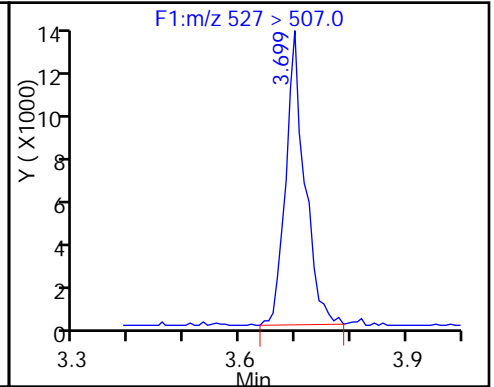
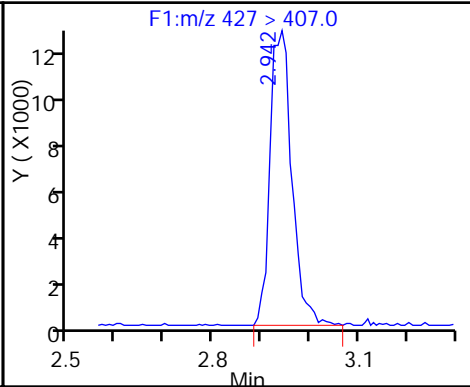
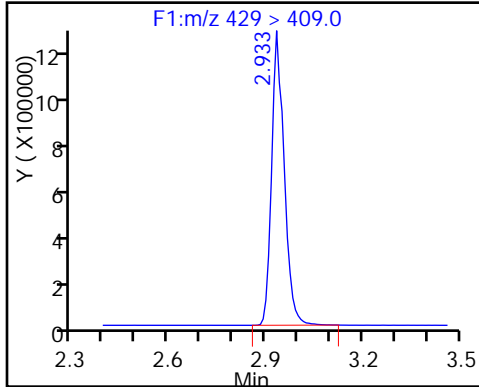
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

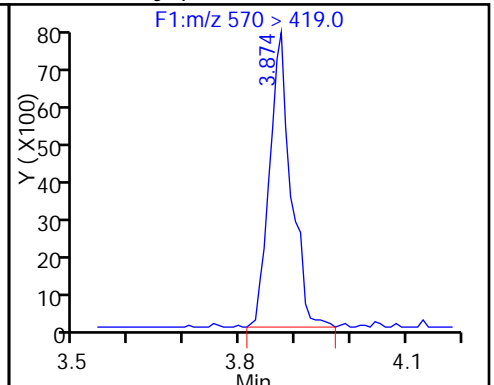
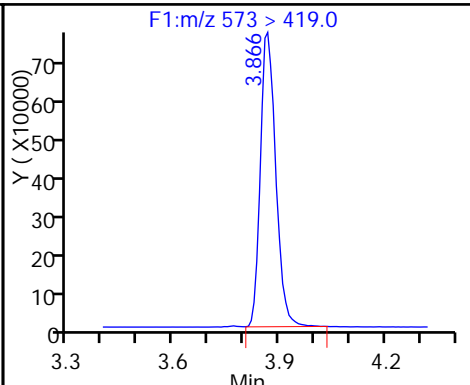
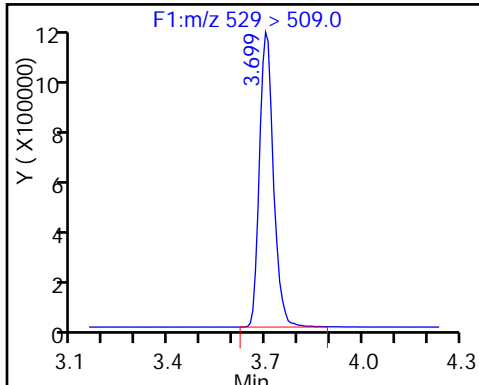
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

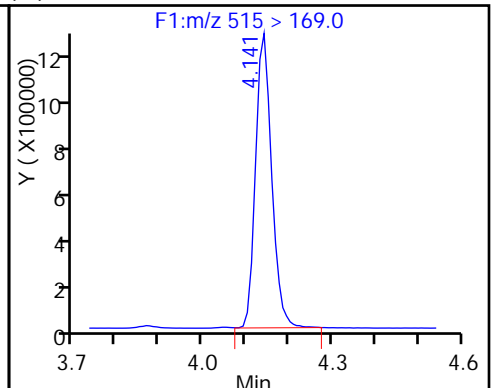
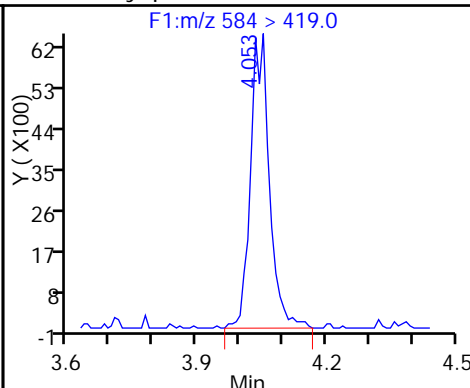
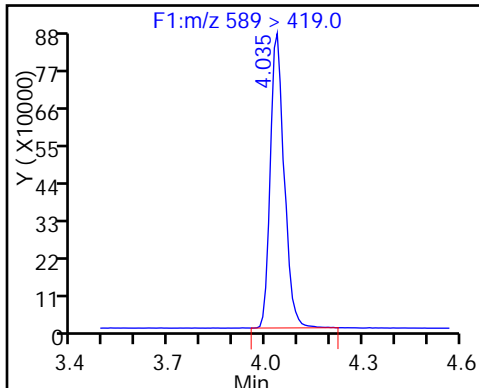
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami (M)



D 46 d5-NEtFOSAA

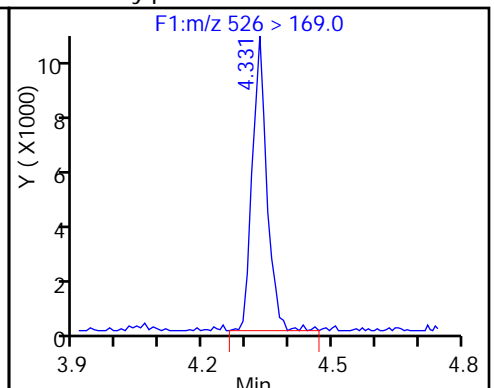
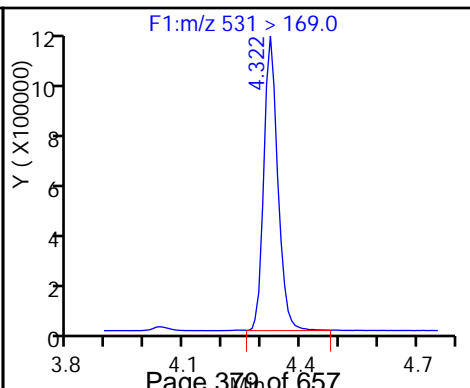
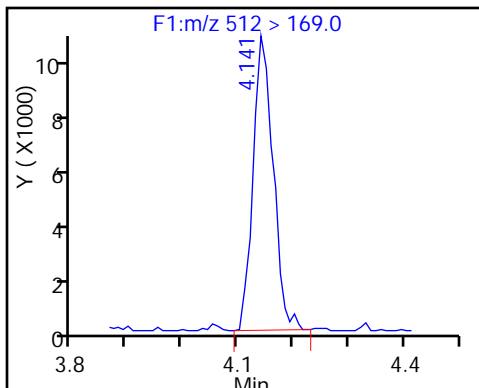
49 N-ethyl perfluorooctane sulfonamid (M) 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento

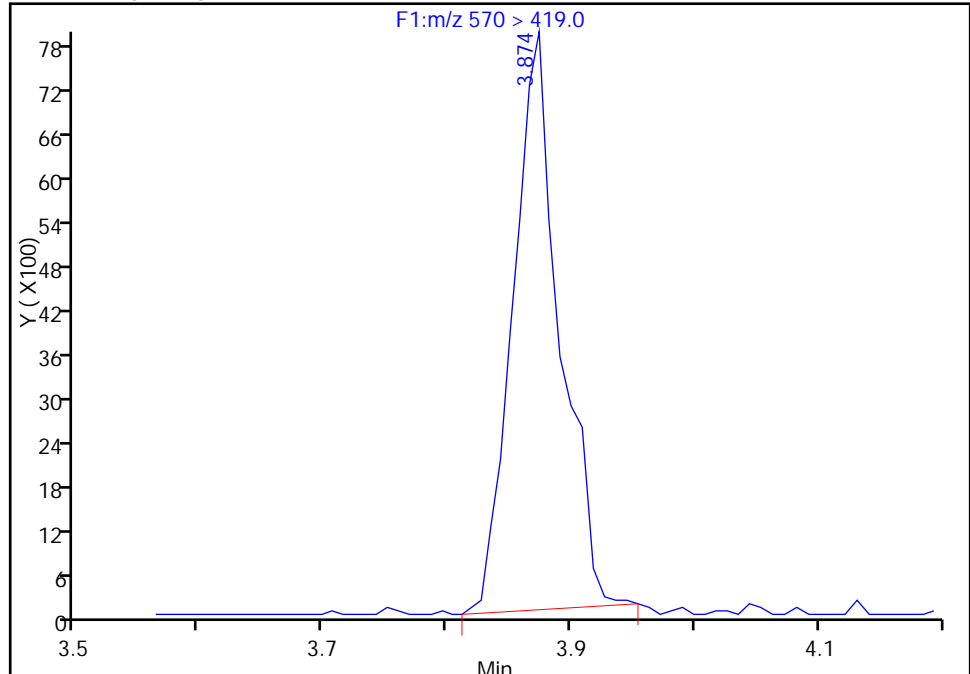
Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d
Injection Date: 03-Sep-2016 16:53:00 Instrument ID: A8
Lims ID: IC L1 Add-on
Client ID:
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

44 N-methyl perfluorooctane sulfonamidoacetic a, CAS: 2355-31-9

Signal: 1

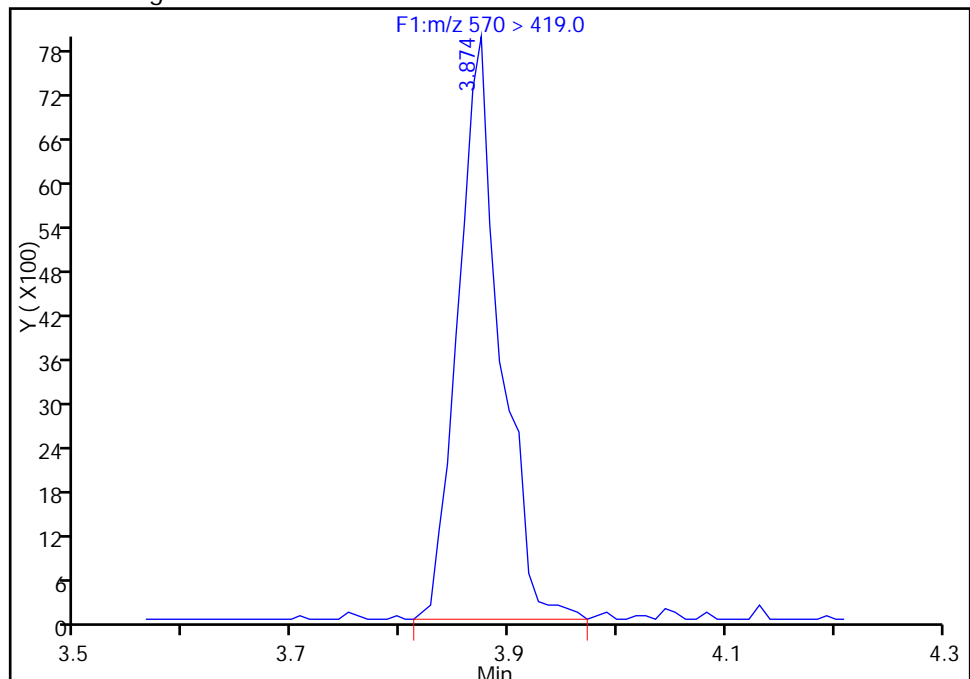
RT: 3.87
Area: 20772
Amount: 2.360546
Amount Units: ng/ml

Processing Integration Results



RT: 3.87
Area: 21482
Amount: 0.529216
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 07-Sep-2016 14:50:04

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

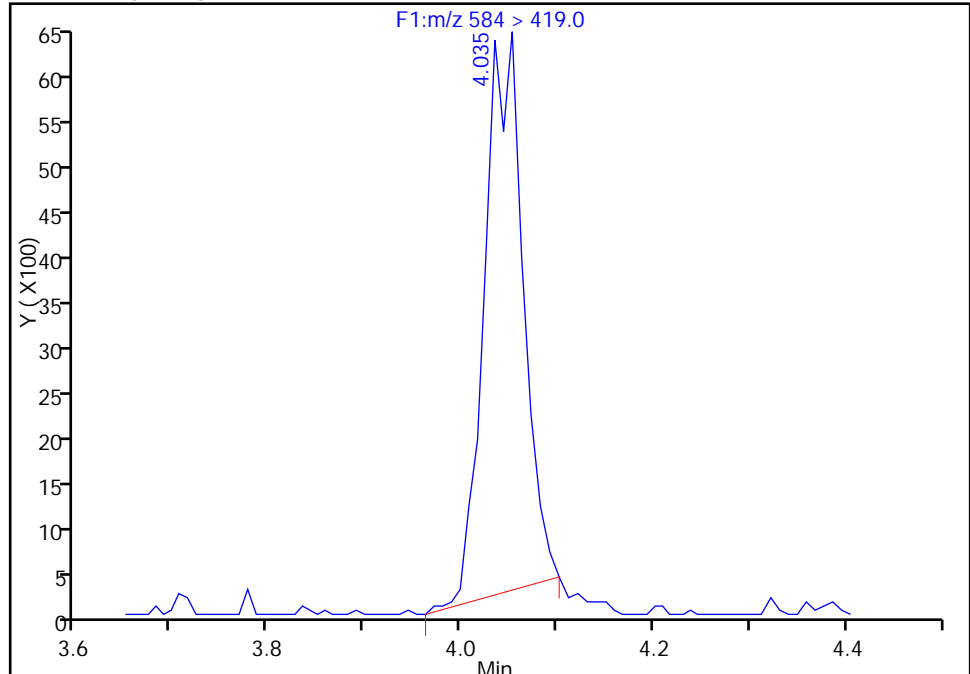
Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d
Injection Date: 03-Sep-2016 16:53:00 Instrument ID: A8
Lims ID: IC L1 Add-on
Client ID:
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

49 N-ethyl perfluorooctane sulfonamidoacetic ac, CAS: 2991-50-6

Signal: 1

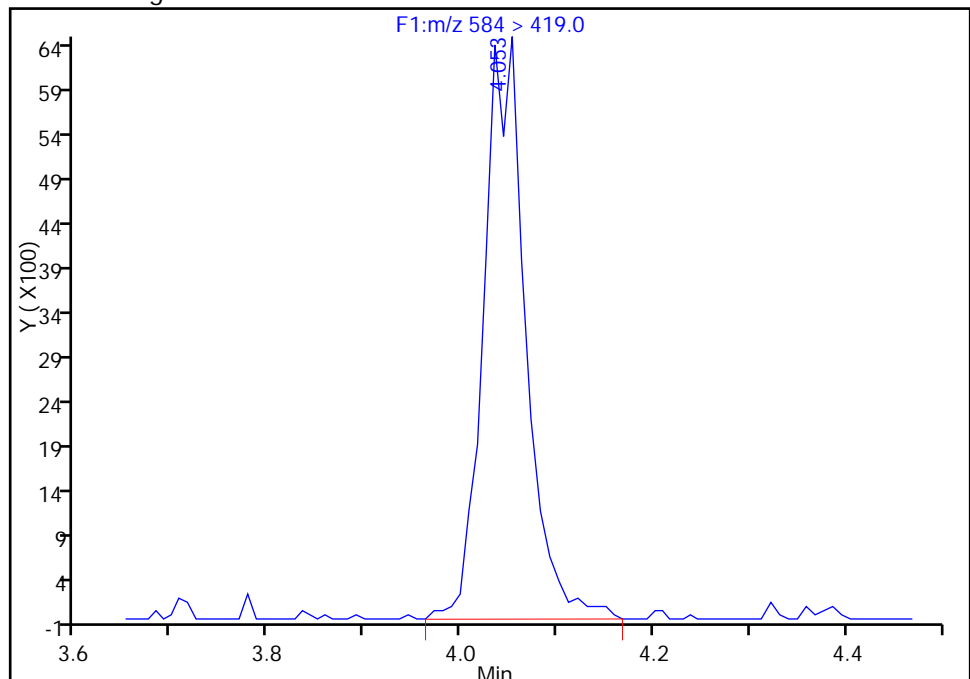
RT: 4.04
Area: 17248
Amount: 0.362080
Amount Units: ng/ml

Processing Integration Results



RT: 4.05
Area: 19615
Amount: 0.493913
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 07-Sep-2016 14:50:04

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_015_p1_e1.d
 Lims ID: IC L2 Add-on
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 03-Sep-2016 17:01:00 ALS Bottle#: 0 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:32 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 14:57:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.941	2.934	0.007		3505211	44.8		94.3		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.941	2.936	0.005	1.000	61436	1.02		107		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.699	3.698	0.001	1.000	60629	0.9649		101		
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D 42 M2-8:2FTS

529 > 509.0	3.699	3.699	0.0		3705704	44.0		91.9		
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D 45 d3-NMeFOSAA

573 > 419.0	3.867	3.870	-0.003		2474737	49.4		98.7		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.867	3.869	-0.002	1.000	39036	0.9114		91.1		
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D 46 d5-NEtFOSAA

589 > 419.0	4.036	4.036	0.0		2739854	48.9		97.7		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.045	4.041	0.004	1.002	39793	0.9552		95.5		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.142	4.145	-0.003		3345874	48.5		97.0		
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54 MeFOSA

512 > 169.0	4.142	4.146	-0.004	1.000	52546	0.9698		97.0		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.323	4.326	-0.003		3063548	48.0		96.0		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.332	4.334	-0.002	1.000	49985	0.9638		96.4		
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Reagents:

LCPFC2-L2_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_015_p1_e1.d

Injection Date: 03-Sep-2016 17:01:00

Instrument ID: A8

Lims ID: IC L2 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 15

Injection Vol: 2.0 ul

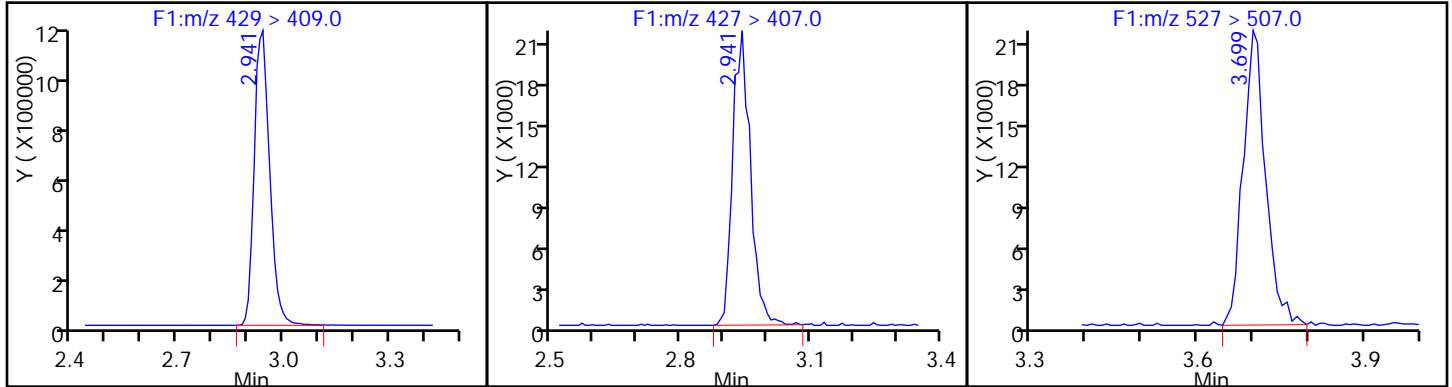
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

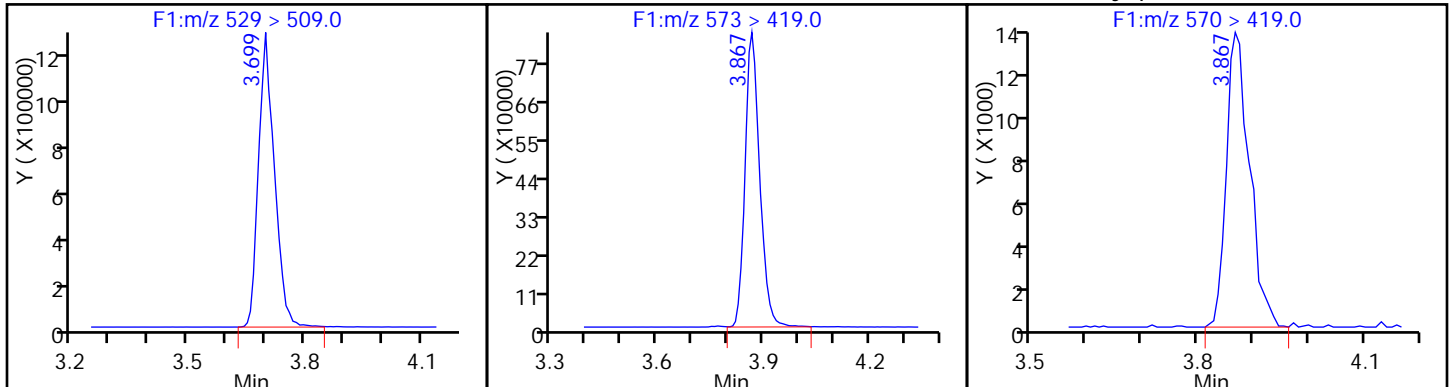
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

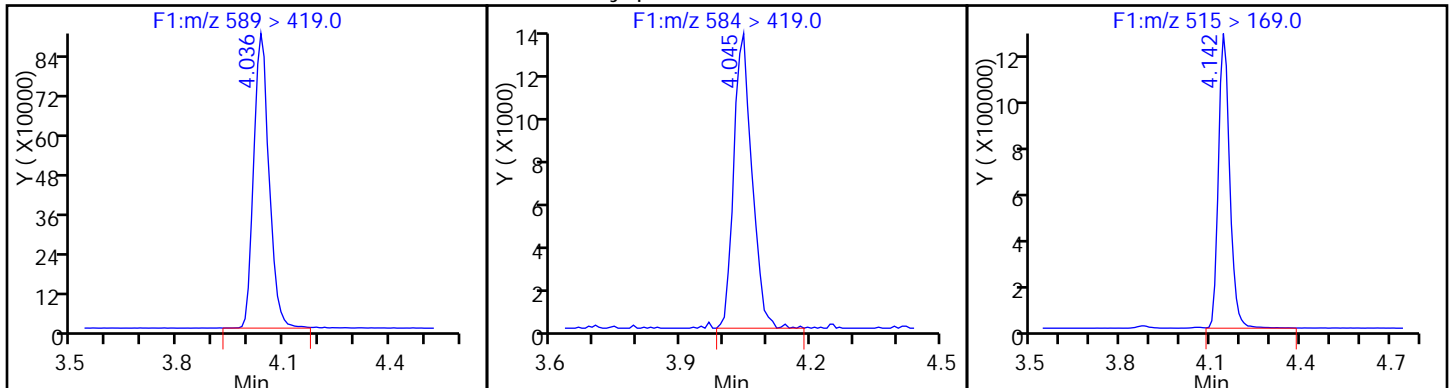
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

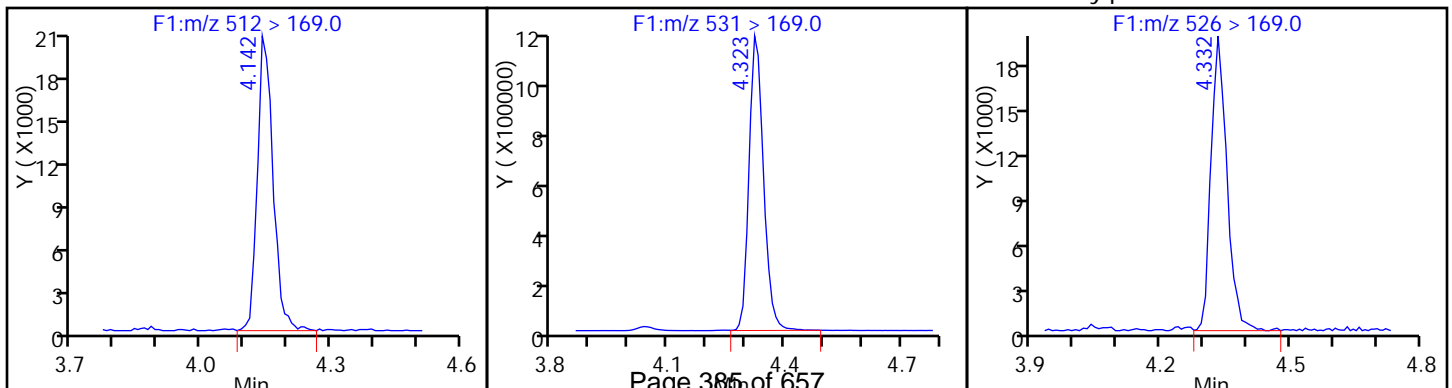
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_016_p1_e1.d
 Lims ID: IC L3 Add-on
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 03-Sep-2016 17:08:00 ALS Bottle#: 0 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:37 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 14:58:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.941	2.934	0.007		3480930	44.5		93.7		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.933	2.936	-0.003	1.000	252159	4.21		88.8		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.708	3.698	0.010	1.000	279103	4.31		89.9		
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D 42 M2-8:2FTS

529 > 509.0	3.708	3.698	0.010		3823389	45.4		94.8		
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D 45 d3-NMeFOSAA

573 > 419.0	3.875	3.866	0.009		2472121	49.3		98.6		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.875	3.869	0.006	1.000	181469	4.24		84.8		
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D 46 d5-NEtFOSAA

589 > 419.0	4.036	4.033	0.003		2845482	50.8		102		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.045	4.040	0.005	1.002	179781	4.16		83.1		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.152	4.143	0.009		3439446	49.9		99.7		
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54 MeFOSA

512 > 169.0	4.152	4.144	0.008	1.000	229630	4.12		82.5		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.333	4.325	0.008		3073658	48.2		96.3		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.342	4.333	0.009	1.000	226164	4.35		86.9		
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Reagents:

LCPFC2-L3_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_016_p1_e1.d

Injection Date: 03-Sep-2016 17:08:00

Instrument ID: A8

Lims ID: IC L3 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 16

Injection Vol: 2.0 uL

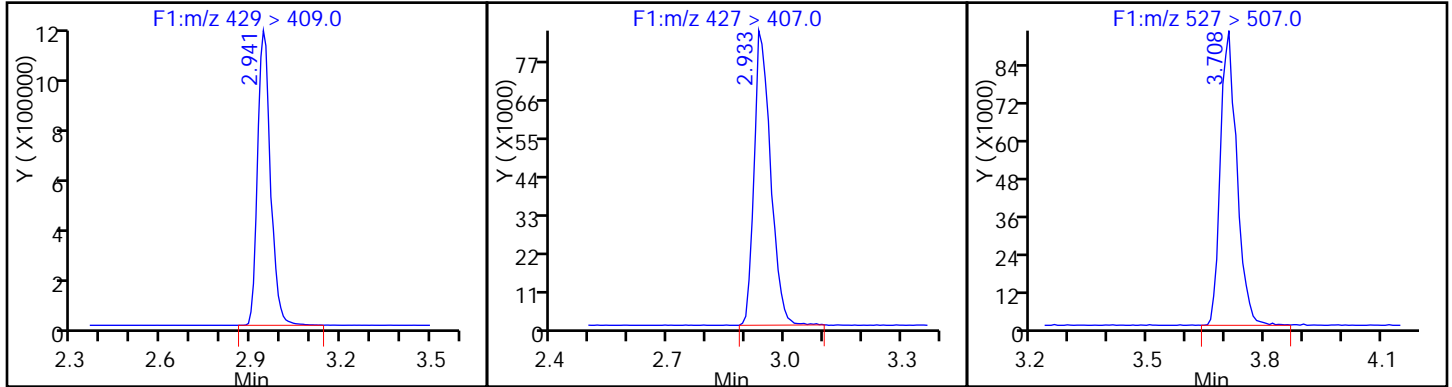
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

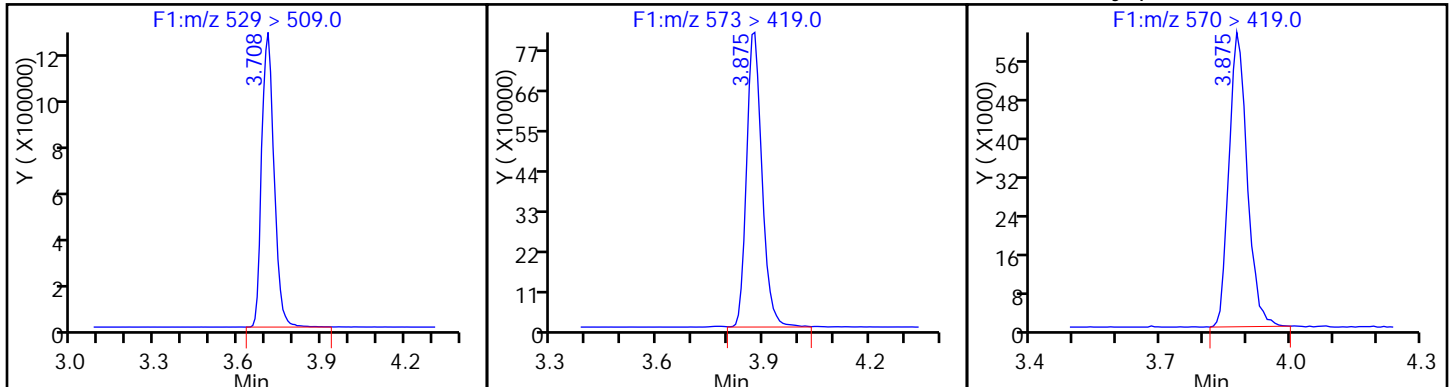
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

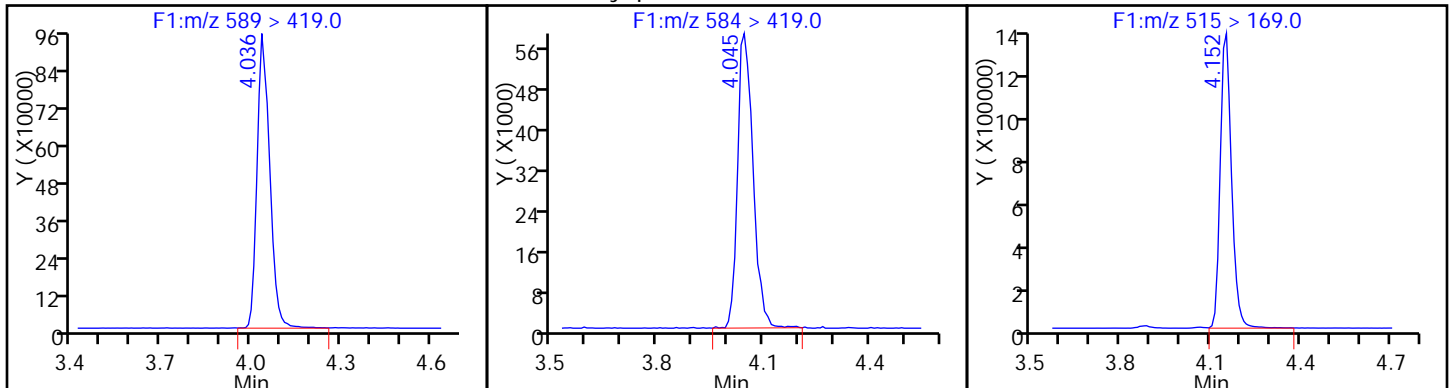
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

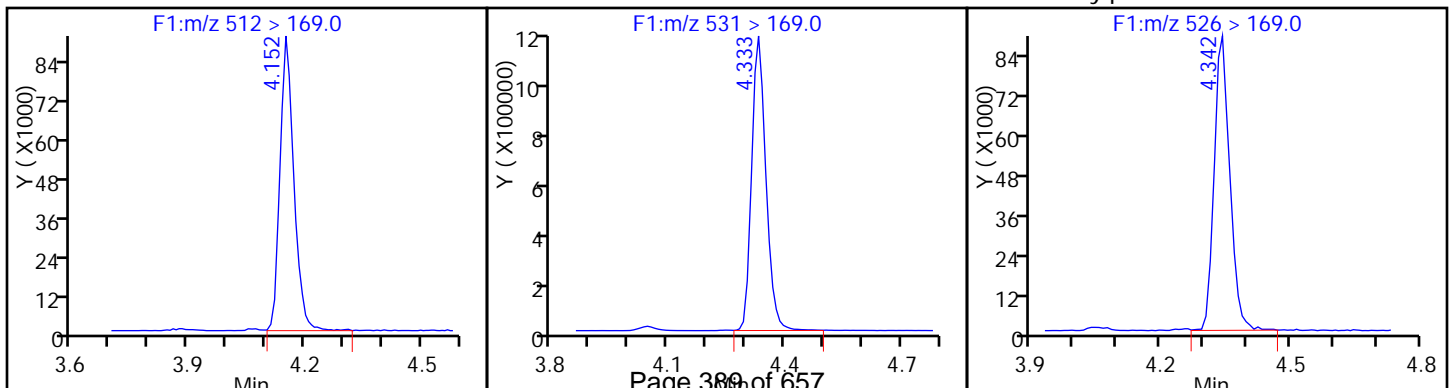
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_017_p1_e1.d
 Lims ID: IC L4 Add-on
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 03-Sep-2016 17:16:00 ALS Bottle#: 0 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:42 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 14:40:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.933	2.934	-0.001		3600290	46.0		96.9		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.933	2.936	-0.003	1.000	1324103	21.4		113		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.700	3.698	0.002	1.000	1408431	21.4		112		
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D 42 M2-8:2FTS

529 > 509.0	3.700	3.698	0.002		3880074	46.1		96.2		
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D 45 d3-NMeFOSAA

573 > 419.0	3.867	3.869	-0.002		2616200	52.2		104		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.867	3.869	-0.002	1.000	925966	20.4		102		
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D 46 d5-NEtFOSAA

589 > 419.0	4.036	4.036	0.0		3062834	54.6		109		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.036	4.040	-0.004	1.000	954675	20.5		102		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.142	4.144	-0.002		3528172	51.1		102		
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54 MeFOSA

512 > 169.0	4.152	4.144	0.008	1.000	1192551	20.9		104		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.323	4.325	-0.002		3244967	50.8		102		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.332	4.333	-0.001	1.000	1154250	21.0		105		
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Reagents:

LCPFC2-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_017_p1_e1.d

Injection Date: 03-Sep-2016 17:16:00

Instrument ID: A8

Lims ID: IC L4 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 17

Injection Vol: 2.0 ul

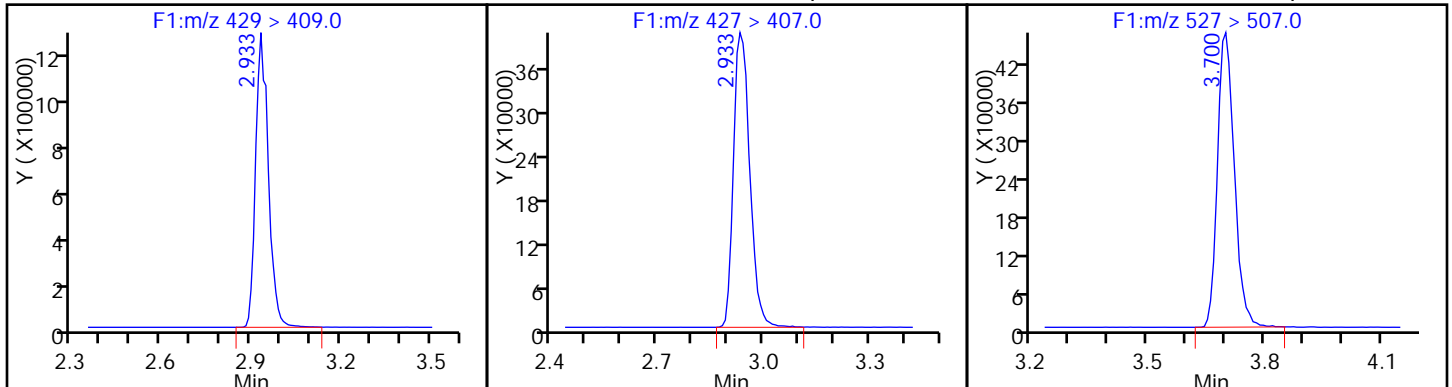
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

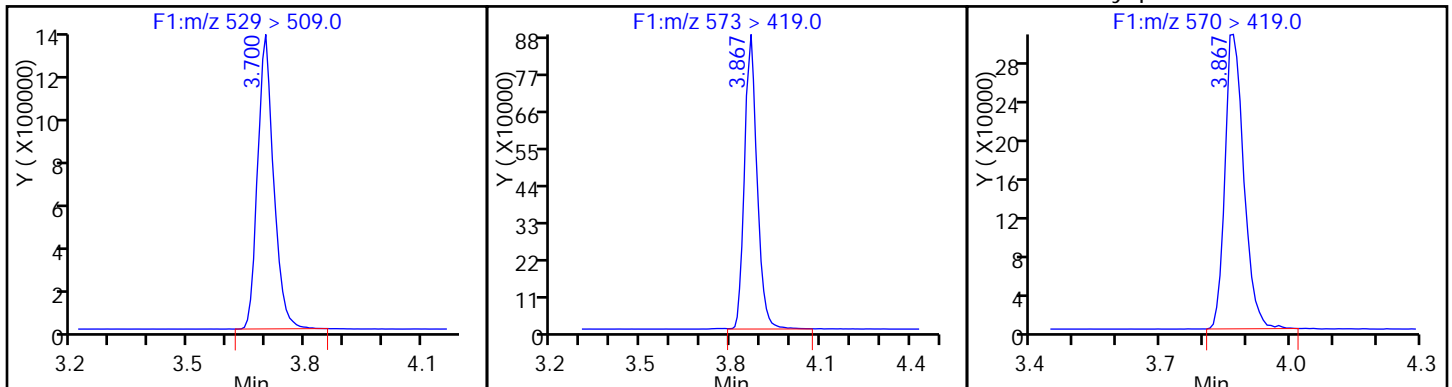
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

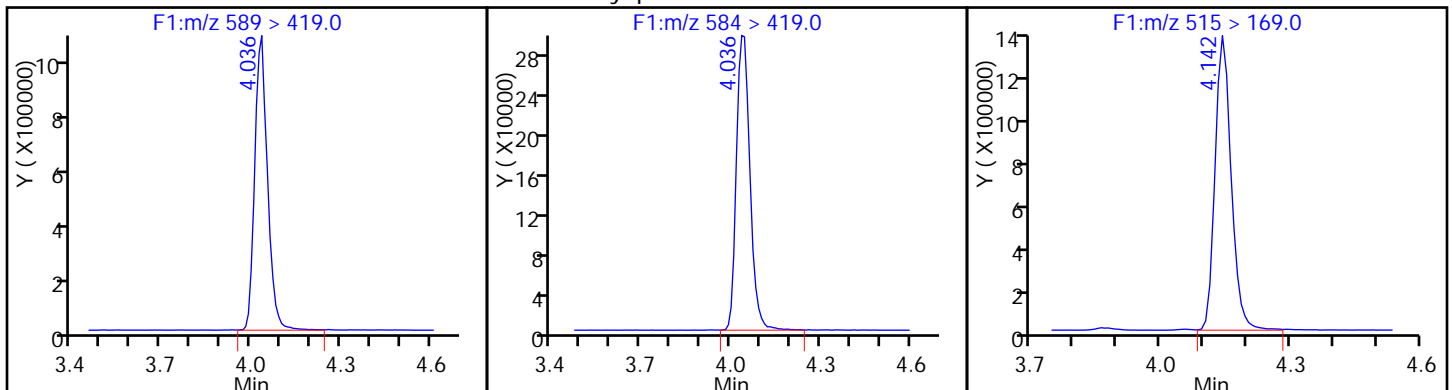
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

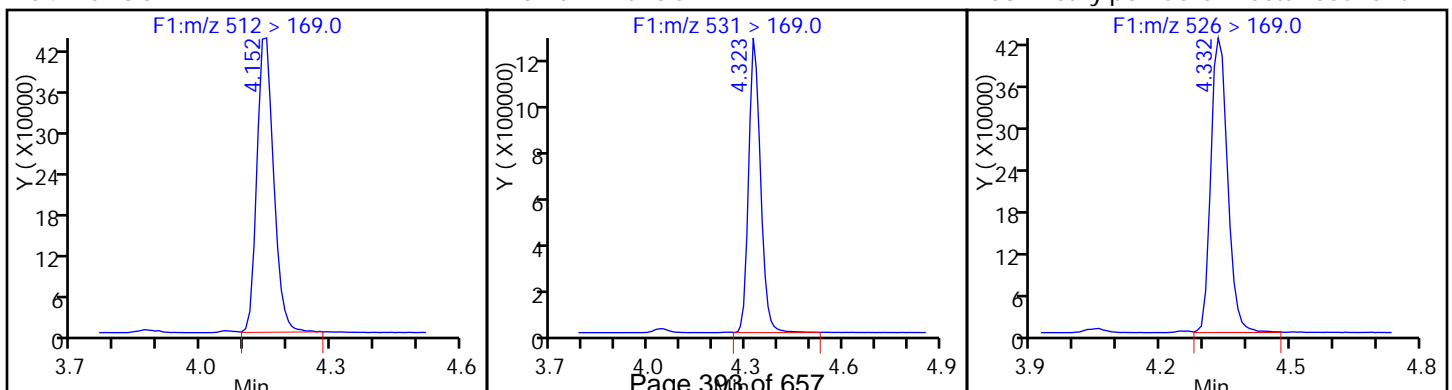
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_018_p1_e1.d
 Lims ID: IC L5 Add-on
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 03-Sep-2016 17:23:00 ALS Bottle#: 0 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:47 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 14:52:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.933	2.934	-0.001		3797945	48.6		102		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.933	2.936	-0.003	1.000	3058623	46.8		98.7		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.692	3.698	-0.006	0.998	3220979	45.8		95.7		
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D 42 M2-8:2FTS

529 > 509.0	3.700	3.698	0.002		4145857	49.3		103		
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D 45 d3-NMeFOSAA

573 > 419.0	3.860	3.867	-0.007		2689968	53.7		107		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.867	3.869	-0.002	1.002	2237819	48.1		96.1		
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D 46 d5-NEtFOSAA

589 > 419.0	4.027	4.034	-0.007		2941098	52.5		105		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.036	4.040	-0.004	1.002	2207162	49.4		98.7		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.142	4.144	-0.002		3655789	53.0		106		
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54 MeFOSA

512 > 169.0	4.142	4.144	-0.002	1.000	2965510	50.1		100		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.325	4.325	0.0		3325487	52.1		104		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.334	4.333	0.001	1.000	2805243	49.8		99.7		
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Reagents:

LCPFC2-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_018_p1_e1.d

Injection Date: 03-Sep-2016 17:23:00

Instrument ID: A8

Lims ID: IC L5 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 18

Injection Vol: 2.0 ul

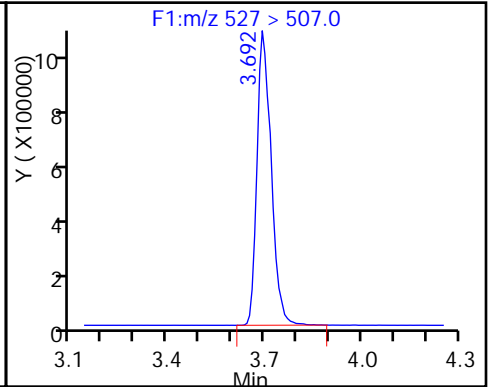
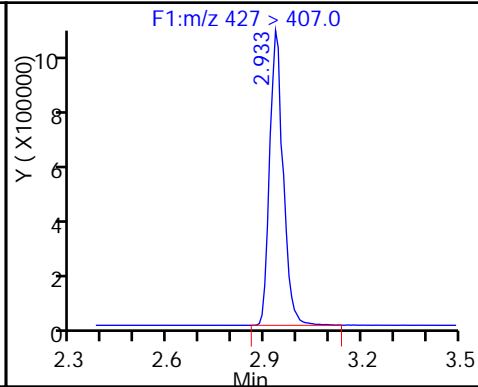
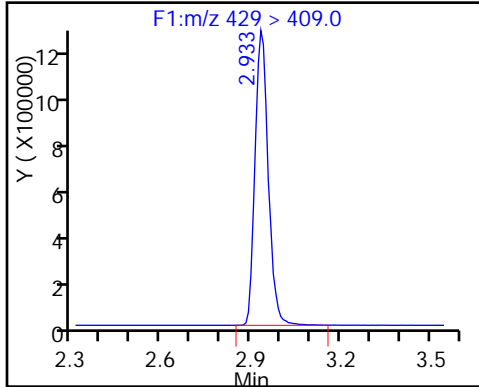
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

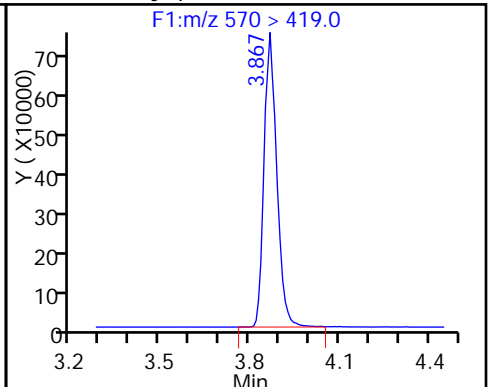
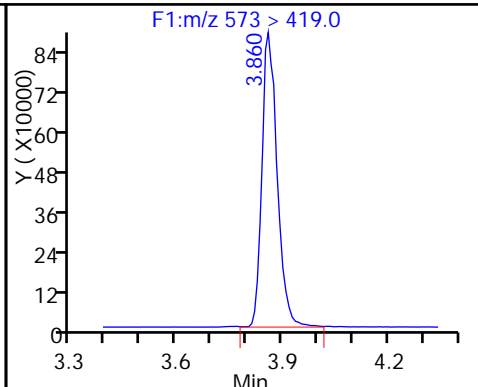
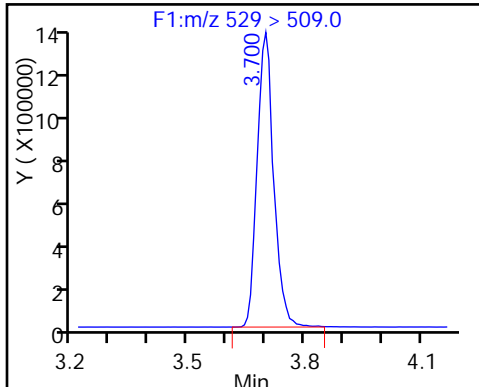
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

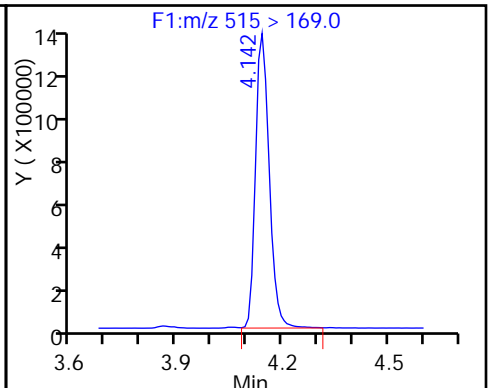
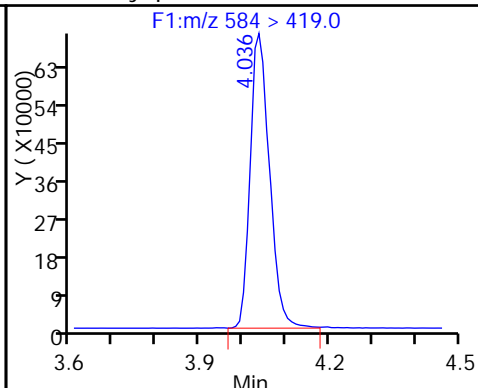
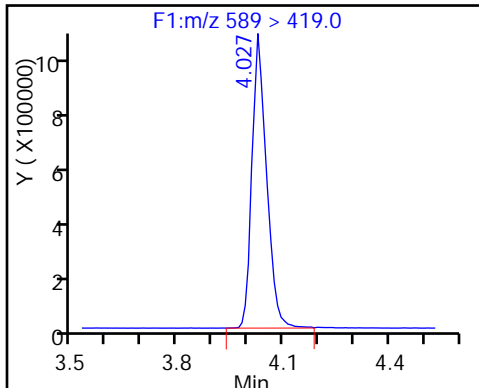
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

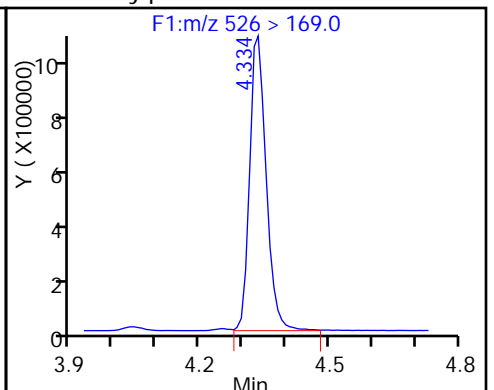
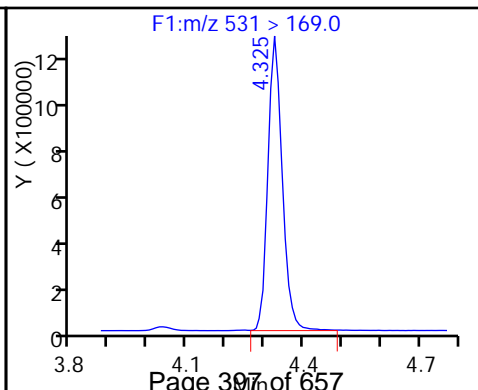
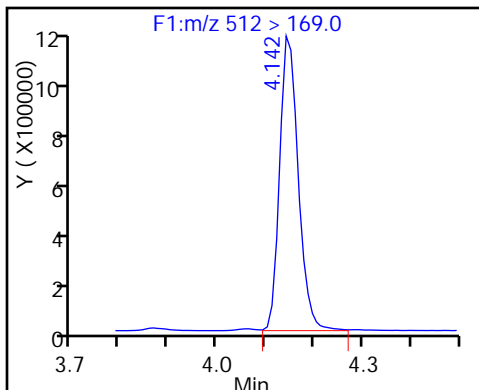
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_019_p1_e1.d
 Lims ID: IC L6 Add-on
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 03-Sep-2016 17:31:00 ALS Bottle#: 0 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:52 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 15:01:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.925	2.934	-0.009		3853202	49.3		104		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.933	2.936	-0.003	1.000	11633026	175.4		92.5		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.688	3.698	-0.010	1.000	12931010	183.6		95.8		
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D 42 M2-8:2FTS

529 > 509.0	3.688	3.698	-0.010		4153988	49.4		103		
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D 45 d3-NMeFOSAA

573 > 419.0	3.864	3.867	-0.003		2558846	51.0		102		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.864	3.869	-0.005	1.000	9131219	206.2		103		
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D 46 d5-NEtFOSAA

589 > 419.0	4.031	4.034	-0.003		2747749	49.0		98.0		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.031	4.040	-0.009	1.000	8977868	214.9		107		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.146	4.144	0.002		3534315	51.2		102		
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54 MeFOSA

512 > 169.0	4.146	4.144	0.002	1.000	12266767	214.3		107		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.322	4.325	-0.003		3372284	52.8		106		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.332	4.333	-0.001	1.000	12200197	213.7		107		
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Reagents:

LCPFC2-L6_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_019_p1_e1.d

Injection Date: 03-Sep-2016 17:31:00

Instrument ID: A8

Lims ID: IC L6 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 19

Injection Vol: 2.0 ul

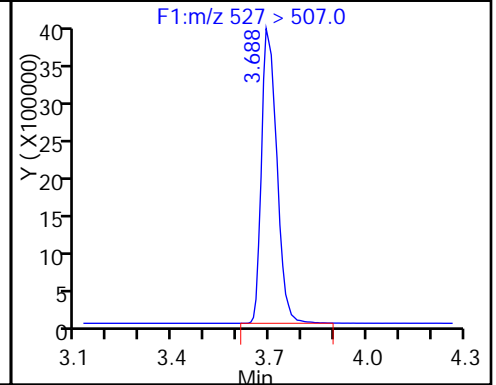
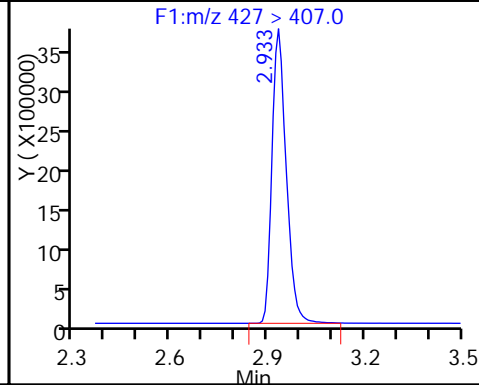
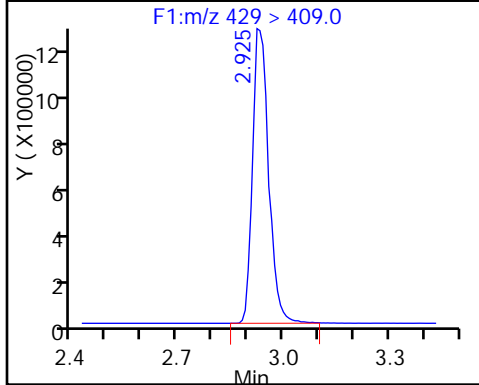
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

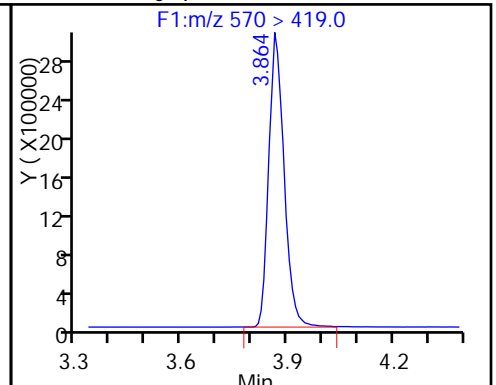
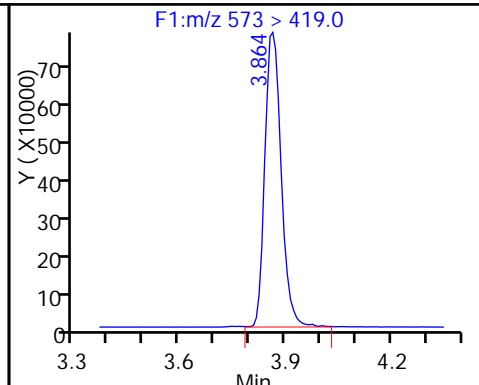
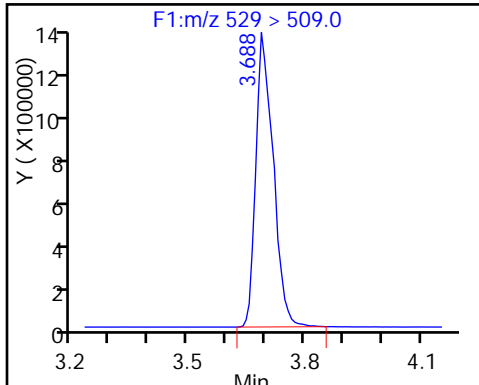
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

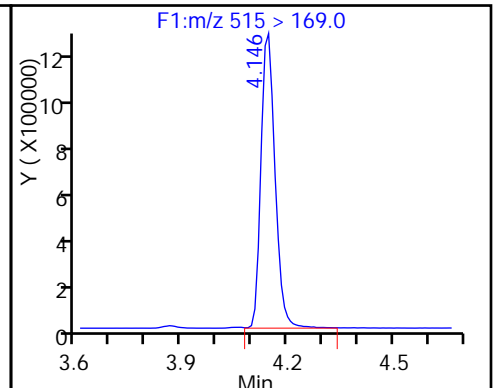
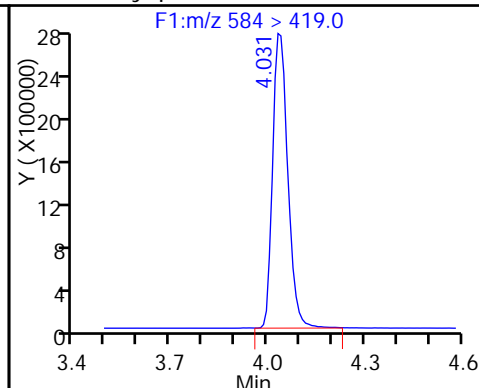
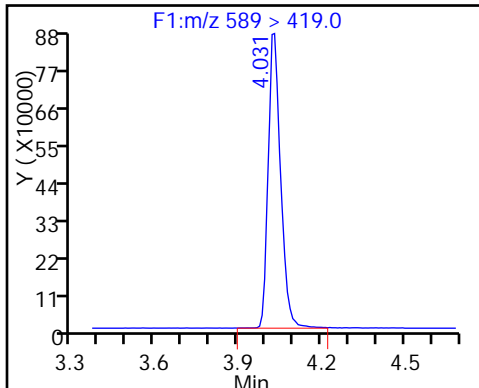
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

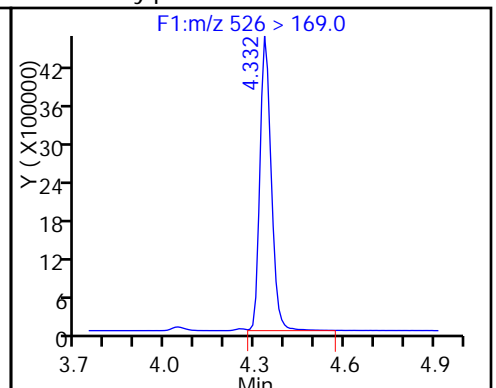
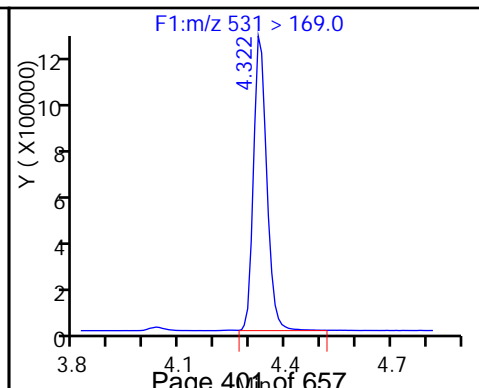
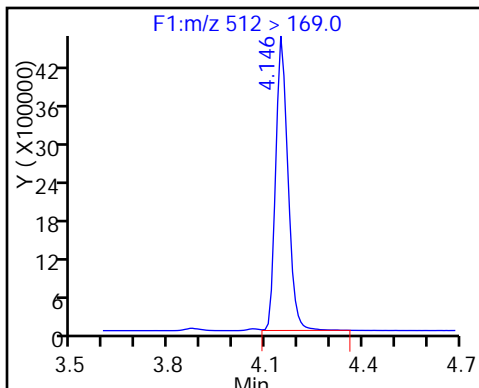
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Lims ID: IC L7 Add-on
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 03-Sep-2016 17:38:00 ALS Bottle#: 0 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:38:56 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 15:02:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 47 M2-6:2FTS

429 > 409.0	2.933	2.934	-0.001		4315874	55.2		116		
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48 Sodium 1H,1H,2H,2H-perfluorooctane

427 > 407.0	2.933	2.936	-0.003	1.000	23130125	311.3		82.1		
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43 Sodium 1H,1H,2H,2H-perfluorooctane

527 > 507.0	3.697	3.698	-0.001	1.002	25721082	309.5		80.8		
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D 42 M2-8:2FTS

529 > 509.0	3.689	3.698	-0.009		4901505	58.2		122		
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D 45 d3-NMeFOSAA

573 > 419.0	3.857	3.865	-0.008		2390955	47.7		95.4		
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44 N-methyl perfluorooctane sulfonami

570 > 419.0	3.865	3.869	-0.004	1.002	19319449	466.9		117		
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D 46 d5-NEtFOSAA

589 > 419.0	4.023	4.032	-0.009		2674584	47.7		95.4		
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49 N-ethyl perfluorooctane sulfonamid

584 > 419.0	4.032	4.040	-0.008	1.002	18536217	455.8		114		
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D 52 d-N-MeFOSA-M

515 > 169.0	4.137	4.143	-0.006		3443873	49.9		99.8		
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54 MeFOSA

512 > 169.0	4.137	4.144	-0.007	1.000	24668475	442.3		111		
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D 51 d-N-EtFOSA-M

531 > 169.0	4.324	4.325	-0.001		3283532	51.4		103		
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53 N-ethylperfluoro-1-octanesulfonami

526 > 169.0	4.324	4.333	-0.009	1.000	24514043	441.0		110		
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Reagents:

LCPFC2-L7_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Injection Date: 03-Sep-2016 17:38:00

Instrument ID: A8

Lims ID: IC L7 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 20

Injection Vol: 2.0 ul

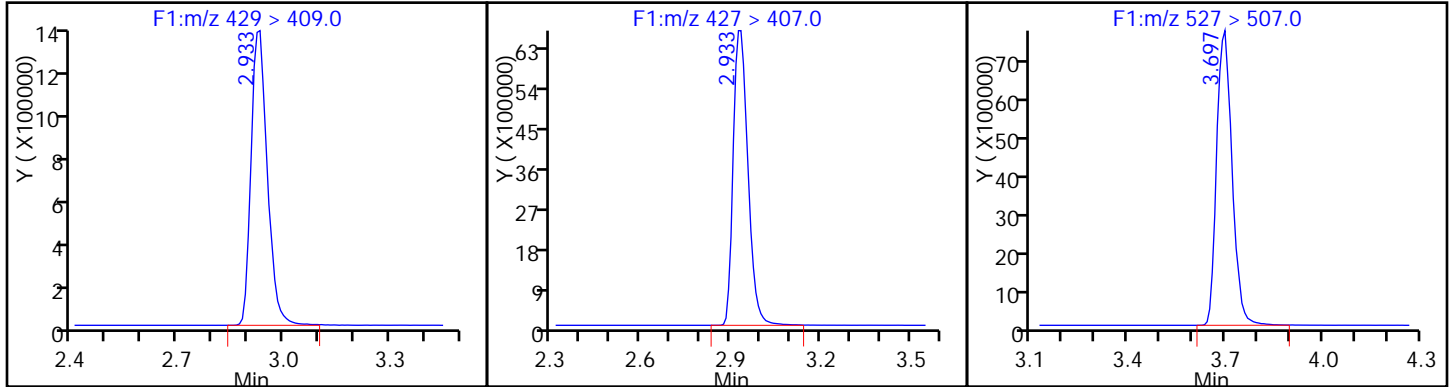
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

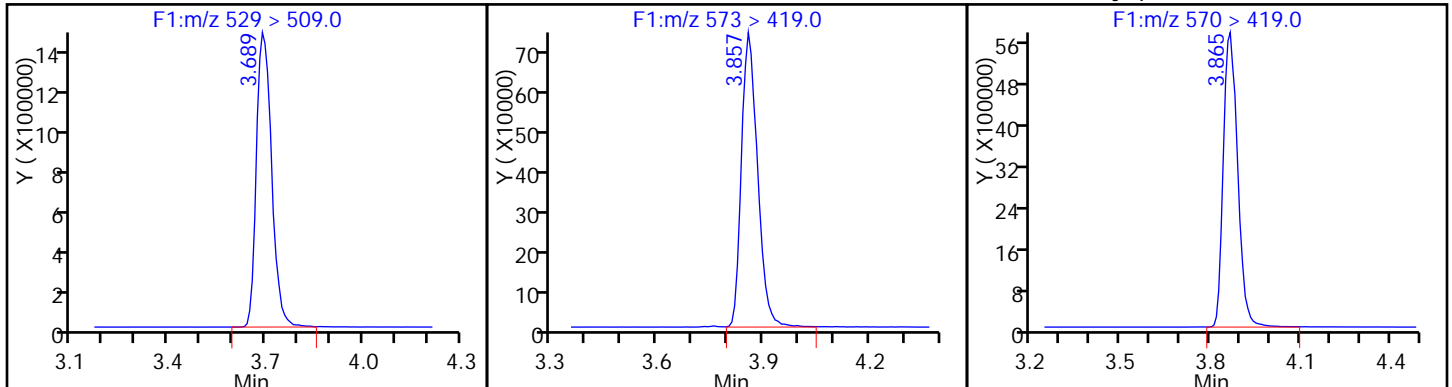
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

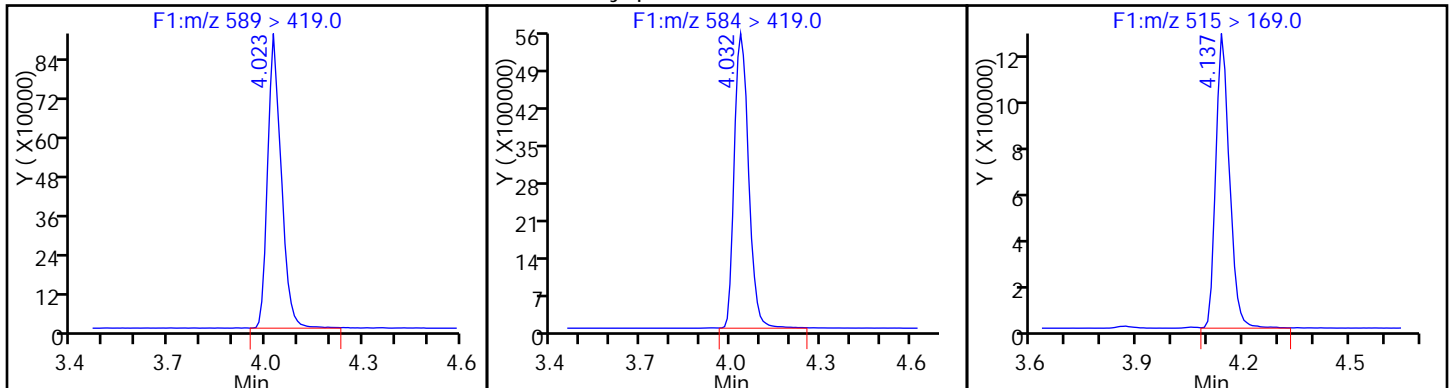
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

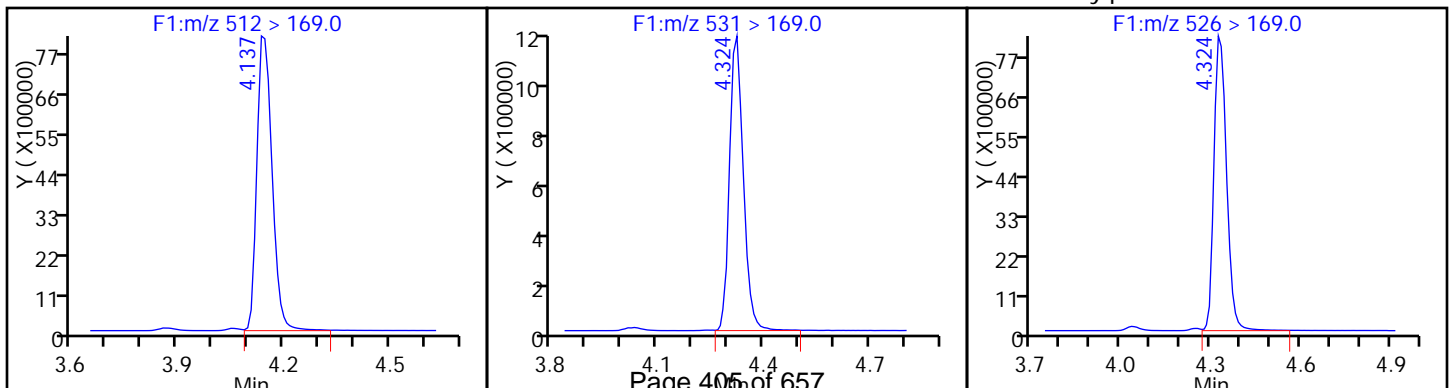
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-128009/4	19SEP2016A_004_p1_el.d
Level 2	IC 320-128009/14	19SEP2016A_014_p1_el.d
Level 3	IC 320-128009/5	19SEP2016A_005_p1_el.d
Level 4	IC 320-128009/15	19SEP2016A_015_p1_el.d
Level 5	IC 320-128009/6	19SEP2016A_006_p1_el.d
Level 6	IC 320-128009/16	19SEP2016A_016_p1_el.d
Level 7	IC 320-128009/7	19SEP2016A_007_p1_el.d
Level 8	IC 320-128009/17	19SEP2016A_017_p1_el.d
Level 9	IC 320-128009/8	19SEP2016A_008_p1_el.d
Level 10	IC 320-128009/18	19SEP2016A_018_p1_el.d
Level 11	IC 320-128009/9	19SEP2016A_009_p1_el.d
Level 12	IC 320-128009/19	19SEP2016A_019_p1_el.d
Level 13	IC 320-128009/10	19SEP2016A_010_p1_el.d
Level 14	IC 320-128009/20	19SEP2016A_020_p1_el.d

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.533 1.532		1.539 ++++		1.539		1.533		1.539		1.285 - 1.785	1.536
Perfluoropentanoic acid (PFPeA)	1.809 1.806		1.806 ++++		1.815		1.807		1.814		1.559 - 2.059	1.810
Perfluorobutanesulfonic acid (PFBS)	1.842 1.848		1.840 ++++		1.849		1.841		1.848		1.664 - 2.024	1.845
Perfluorohexanoic acid (PFHxA)	2.104 2.099		2.099 2.088		2.099		2.089		2.099		1.846 - 2.346	2.097
Perfluorohexanesulfonic acid (PFHxS)	++++ 2.366		2.382 2.417		2.454		2.451		2.375		2.165 - 2.665	2.408
Perfluoroheptanoic acid (PFHpA)	2.444 2.437		2.445 ++++		2.444		2.432		2.439		2.188 - 2.688	2.440
6:2FTS		++++ 2.744		2.757 ++++		2.744		2.744		2.742	2.498 - 2.998	2.746
Perfluorooctanoic acid (PFOA)	++++ 2.798		2.809 2.783		2.808		2.798		2.803		2.552 - 3.052	2.800
Perfluoroheptanesulfonic Acid (PFHpS)	2.816 2.806		2.809 ++++		2.816		2.807		2.803		2.558 - 3.058	2.810
Perfluorooctanesulfonic acid (PFOS)	++++ 3.173		3.182 3.159		3.076		3.143		3.153		2.904 - 3.404	3.148
Perfluorononanoic acid (PFNA)	3.197 3.180		3.182 ++++		3.188		3.173		3.176		2.930 - 3.430	3.183
Perfluorooctane Sulfonamide (FOSA)	3.483 3.490		3.491 ++++		3.498		3.482		3.494		3.239 - 3.739	3.490
8:2FTS		3.502 3.491		3.506 ++++		3.499		3.484		3.494	3.246 - 3.746	3.496

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorodecanoic acid (PFDA)	3.554 3.537		3.546 ++++		3.545		3.538		3.541		3.292 - 3.792	3.544
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		3.683 3.664		3.679 3.664		3.665		3.665		3.667	3.420 - 3.920	3.670
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		3.842 3.832		3.838 3.839		3.839		3.832		3.834	3.587 - 4.087	3.837
Perfluorodecanesulfonic acid (PFDS)	3.870 3.846		3.862 3.832		3.869		3.846		3.850		3.604 - 4.104	3.854
Perfluoroundecanoic acid (PFUnA)	3.886 3.869		3.886 ++++		3.877		3.869		3.873		3.625 - 4.125	3.877
MeFOSA		3.979 3.975		3.983 3.984		3.975		3.966		3.969	3.726 - 4.226	3.976
N-EtFOSA-M		4.159 4.163		4.162 4.163		4.154		4.154		4.157	3.909 - 4.409	4.159
Perfluorododecanoic acid (PFDoA)	4.181 4.153		4.181 ++++		4.180		4.162		4.166		3.918 - 4.418	4.171
Perfluorotridecanoic Acid (PFTriA)	4.454 4.426		4.445 ++++		4.444		4.426		4.430		4.185 - 4.685	4.438
Perfluorotetradecanoic acid (PFTeA)	4.688 4.666		4.688 ++++		4.687		4.674		4.669		4.424 - 4.924	4.679
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 5.088		5.110 ++++		5.109		5.088		5.090		4.848 - 5.348	5.097
Perfluoro-n-octadecanoic acid (PFODA)	5.501 5.453		5.486 5.446		5.478		5.456		5.461		5.219 - 5.719	5.469
13C4 PFBA	1.533 1.532		1.532 1.532		1.539		1.533		1.539		1.284 - 1.784	1.534
13C5-PFPeA	1.809 1.806		1.806 ++++		1.815		1.799		1.806		1.557 - 2.057	1.807
13C2 PFHxA	2.104 2.099		2.099 2.088		2.099		2.089		2.099		1.846 - 2.346	2.097
13C4-PFHpA	2.444 2.437		2.445 ++++		2.444		2.432		2.439		2.188 - 2.688	2.440
18O2 PFHxS	2.454 2.448		2.455 2.450		2.454		2.441		2.458		2.201 - 2.701	2.451
M2-6:2FTS		2.756 2.744		2.757 ++++		2.744		2.752		2.742	2.500 - 3.000	2.749
13C4 PFOA	2.807 2.798		2.809 2.792		2.816		2.798		2.795		2.552 - 3.052	2.802
13C4 PFOS	3.189 3.173		3.182 3.167		3.181		3.173		3.176		2.927 - 3.427	3.177
13C5 PFNA	3.189 3.180		3.182 ++++		3.188		3.173		3.176		2.929 - 3.429	3.181
13C8 FOSA	3.483 3.490		3.483 ++++		3.490		3.475		3.486		3.233 - 3.733	3.485

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
M2-8:2FTS		3.502 3.499		3.506 +++++		3.499		3.491		3.494	3.249 - 3.749	3.499
13C2 PFDA	3.554 3.537		3.546 3.531		3.553		3.530		3.533		3.291 - 3.791	3.541
d3-NMeFOSAA		3.675 3.664		3.663 3.664		3.665		3.665		3.659	3.415 - 3.915	3.665
d5-NEtFOSAA		3.842 3.824		3.838 3.831		3.832		3.832		3.827	3.582 - 4.082	3.832
13C2 PFUnA	3.886 3.869		3.878 +++++		3.877		3.869		3.873		3.622 - 4.122	3.875
d-N-MeFOSA-M		3.970 3.966		3.974 3.975		3.966		3.966		3.969	3.720 - 4.220	3.969
d-N-EtFOSA-M		4.159 4.154		4.153 4.163		4.154		4.154		4.147	3.905 - 4.405	4.155
13C2 PFDoA	4.181 4.153		4.172 4.154		4.171		4.162		4.166		3.915 - 4.415	4.166
13C2-PFTeDA	4.695 4.666		4.688 4.654		4.681		4.667		4.669		4.424 - 4.924	4.674
13C2-PFHxDA	5.120 5.088		5.110 5.068		5.109		5.088		5.090		4.846 - 5.346	5.096

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-128009/4	19SEP2016A_004_p1_e1.d
Level 2	IC 320-128009/14	19SEP2016A_014_p1_e1.d
Level 3	IC 320-128009/5	19SEP2016A_005_p1_e1.d
Level 4	IC 320-128009/15	19SEP2016A_015_p1_e1.d
Level 5	IC 320-128009/6	19SEP2016A_006_p1_e1.d
Level 6	IC 320-128009/16	19SEP2016A_016_p1_e1.d
Level 7	IC 320-128009/7	19SEP2016A_007_p1_e1.d
Level 8	IC 320-128009/17	19SEP2016A_017_p1_e1.d
Level 9	IC 320-128009/8	19SEP2016A_008_p1_e1.d
Level 10	IC 320-128009/18	19SEP2016A_018_p1_e1.d
Level 11	IC 320-128009/9	19SEP2016A_009_p1_e1.d
Level 12	IC 320-128009/19	19SEP2016A_019_p1_e1.d
Level 13	IC 320-128009/10	19SEP2016A_010_p1_e1.d
Level 14	IC 320-128009/20	19SEP2016A_020_p1_e1.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 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
13C4 PFBA	193513 196223 183502 163794		211703 191120 175047		Ave		187843.183				8.3		50.0			
13C5-PFPeA	159161 159424 149548 ++++		180679 156957 135853		Ave		156936.840				9.3		50.0			
13C2 PFHxA	150260 146377 139124 120955		158146 145119 129782		Ave		141394.969				8.9		50.0			
13C4-PFHpA	141064 141796 129341 ++++		156243 136270 109857		Ave		135761.710				11.4		50.0			
18O2 PFHxS	182132 178848 175938 148828		191758 177267 164178		Ave		174135.738				7.9		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.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
M2-6:2FTS		63118 63288 64472 ++++		65371 64816 66368	Ave		64572.0526				1.9		50.0			
13C4 PFOA	144988 144901 131233 92159		156473 137747 109254		Ave		130965.183				17.3		50.0			
13C4 PFOS	137618 131166 132804 108109		144498 127734 120430		Ave		128908.449				9.2		50.0			
13C5 PFNA	110871 112505 99804 ++++		119223 104799 85044		Ave		105374.160				11.4		50.0			
13C8 FOSA	256676 242078 237722 ++++		261080 243875 217013		Ave		243073.877				6.4		50.0			
M2-8:2FTS		52381 54818 55959 ++++		52981 56225 61461	Ave		55637.4530				5.8		50.0			
13C2 PFDA	97690 95870 90022 73438		105293 95960 83140		Ave		91630.4914				11.5		50.0			
d3-NMeFOSAA		31967 34249 34473 32995		33169 35130 31958	Ave		33420.0429				3.7		50.0			
d5-NMeFOSAA		34132 36879 36863 33859		36030 38362 34342	Ave		35781.0343				4.8		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.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
13C2 PFUnA	76026 75441 67988 ++++		82197 72618 58114		Ave		72063.7433				11.5		50.0			
d-N-MeFOSA-M		60010 62768 63639 58499		58119 62687 59463	Ave		60740.6743				3.7		50.0			
d-N-EtFOSA-M		55585 58700 60273 56091		53755 59271 57324	Ave		57285.5571				4.0		50.0			
13C2 PFDoA	70080 71575 66369 54732		73521 68841 60589		Ave		66529.5171				10.0		50.0			
13C2-PFTeDA	131636 139620 131830 106152		136913 137159 122028		Ave		129333.977				9.1		50.0			
13C2-PFHxDA	75847 85707 85082 70343		78702 86793 78068		Ave		80077.4457				7.6		50.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6 LVL 11	LVL 7 LVL 12	LVL 8 LVL 13	LVL 9 LVL 14	LVL 10												
Perfluorobutanoic acid (PFBA)	168522 136337	176516	176685 ++++	168534	172052	AveID		0.8672				6.3		35.0			
Perfluoropentanoic acid (PFPeA)	180426 121858	160123	180499 ++++	152847	163562	AveID		1.0163				7.4		35.0			
Perfluorobutanesulfonic acid (PFBS)	287590 212293	294561	290437 ++++	285428	268168	AveID		1.5283				8.6		50.0			
Perfluorohexanoic acid (PFHxA)	165784 117394	139836	151240 95446	133075	140283	AveID		0.9474				9.8		35.0			
Perfluorohexanesulfonic acid (PFHxS)	++++ 157878	187694	220578 137031	181685	186247	AveID		1.0276				7.8		35.0			
Perfluoroheptanoic acid (PFHpA)	167626 108314	145202	154767 ++++	132121	141621	AveID		1.0418				7.4		35.0			
6:2FTS	46106	++++ 50843	74399 57144 ++++	53316	L1ID	0.3286	0.7799								0.9980		0.9900
Perfluorooctanoic acid (PFOA)	++++ 107797	146053	184926 87842	137453	152101	AveID		1.0465				7.5		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	163328 135405	161905	161825 ++++	159808	155448	AveID		1.1812				4.6		50.0			
Perfluorooctanesulfonic acid (PFOS)	++++ 133461	138342	142908 121649	141153	138345	AveID		1.0705				4.5		35.0			
Perfluorononanoic acid (PFNA)	122824 85321	111114	111920 ++++	101189	109255	AveID		1.0158				6.0		35.0			
Perfluorooctane Sulfonamide (FOSA)	239552 174308	236005	240425 ++++	225937	228318	AveID		0.9198				6.4		35.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8GC Column: AcquityID: 2.1(mm)Heated Purge: (Y/N) NCalibration Start Date: 09/19/2016 15:48Calibration End Date: 09/19/2016 17:48Calibration ID: 25237

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6 LVL 11	LVL 7 LVL 12	LVL 8 LVL 13	LVL 9 LVL 14	LVL 10												
8:2FTS	40061	46689	51695	44649	45693	AveID		0.8231				9.4	35.0				
Perfluorodecanoic acid (PFDA)	98102	45359	96938	+++++	90465	AveID		0.9675				3.3	35.0				
	80234	93494	+++++	89774													
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	24819	25372	31451	26566	29594	AveID		0.8571				10.8	35.0				
		29647		32956													
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	22237	24330	30468	23378	27885	AveID		0.7405				12.6	35.0				
		27159		29707													
Perfluorodecanesulfonic acid (PFDS)	84160		82478		80143	AveID		0.6164				4.4	50.0				
	77305	83543	65146	82761													
Perfluoroundecanoic acid (PFUnA)	101868		86360		76740	AveID		1.0823				11.7	35.0				
	59169	75633	+++++	69761													
MeFOSA	42156	46664	54759	42033	51886	AveID		0.8116				11.5	35.0				
		53279		54032													
N-EtFOSA-M	40797	42480	51011	42626	49449	AveID		0.8242				10.0	35.0				
		51859		52257													
Perfluorododecanoic acid (PFDoA)	71468		70989		66715	AveID		0.9712				3.0	35.0				
	59380	66637	+++++	63819													
Perfluorotridecanoic Acid (PFTriA)	71018		71672		66066	AveID		0.9735				3.0	50.0				
	58629	67819	+++++	64836													
Perfluorotetradecanoic acid (PFTeA)	87292		105900		102053	AveID		1.4280				6.6	50.0				
	88603	104303	+++++	98137													
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++		108661		81862	AveID		1.2218				11.8	50.0				
	69841	79535	+++++	78264													
Perfluoro-n-octadecanoic acid (PFODA)	70216		67690		67467	AveID		1.0747				11.0	50.0				
	73786	76702	63608	77208													

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.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-128009/4	19SEP2016A_004_p1_e1.d
Level 2	IC 320-128009/14	19SEP2016A_014_p1_e1.d
Level 3	IC 320-128009/5	19SEP2016A_005_p1_e1.d
Level 4	IC 320-128009/15	19SEP2016A_015_p1_e1.d
Level 5	IC 320-128009/6	19SEP2016A_006_p1_e1.d
Level 6	IC 320-128009/16	19SEP2016A_016_p1_e1.d
Level 7	IC 320-128009/7	19SEP2016A_007_p1_e1.d
Level 8	IC 320-128009/17	19SEP2016A_017_p1_e1.d
Level 9	IC 320-128009/8	19SEP2016A_008_p1_e1.d
Level 10	IC 320-128009/18	19SEP2016A_018_p1_e1.d
Level 11	IC 320-128009/9	19SEP2016A_009_p1_e1.d
Level 12	IC 320-128009/19	19SEP2016A_019_p1_e1.d
Level 13	IC 320-128009/10	19SEP2016A_010_p1_e1.d
Level 14	IC 320-128009/20	19SEP2016A_020_p1_e1.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
		LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
		LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
13C4 PFBA	Ave	9675649	9556019	10585141	9175100	9811140	50.0	50.0	50.0	50.0	50.0
		8752351		8189714			50.0		50.0		
13C5-PFPeA	Ave	7958050	7847831	9033953	7477399	7971180	50.0	50.0	50.0	50.0	50.0
		6792639		+++++			50.0		+++++		
13C2 PFHxA	Ave	7513020	7255935	7907320	6956218	7318853	50.0	50.0	50.0	50.0	50.0
		6489122		6047771			50.0		50.0		
13C4-PFHpA	Ave	7053184	6813484	7812149	6467052	7089804	50.0	50.0	50.0	50.0	50.0
		5492840		+++++			50.0		+++++		
18O2 PFHxS	Ave	8614867	8384721	9070138	8321889	8459527	47.3	47.3	47.3	47.3	47.3
		7765619		7039582			47.3		47.3		
M2-6:2FTS	Ave	2998083	2998083	3105113	3062423		47.5	47.5	47.5	47.5	47.5
		3006175		3078760			47.5		47.5		47.5
13C4 PFOA	Ave	7249396	6887350	7823661	6561673	7245057	50.0	50.0	50.0	50.0	50.0
		5462704		4607973			50.0		50.0		

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
13C4 PFOS	Ave	6578121 5756563	6105665	6907025 5167591	6348052	6269750	47.8 47.8	47.8	47.8 47.8	47.8	47.8
13C5 PFNA	Ave	5543570 4252184	5239930	5961155 +++++	4990176	5625233	50.0 50.0	50.0	50.0 +++++	50.0	50.0
13C8 FOSA	Ave	12833801 10850645	12193755	13053982 +++++	11886098	12103882	50.0 50.0	50.0	50.0 +++++	50.0	50.0
M2-8:2FTS	Ave	2625785	2509047 2943974	2693162	2537782 +++++	2680454	47.9 47.9	47.9	47.9	47.9 +++++	47.9
13C2 PFDA	Ave	4884485 4156993	4798024	5264647 3671883	4501123	4793517	50.0 50.0	50.0	50.0 50.0	50.0	50.0
d3-NMeFOSAA	Ave	1712456	1598360 1597895	1756513	1658433 1649728	1723630	50.0 50.0	50.0	50.0 50.0	50.0	50.0
d5-NEtFOSAA	Ave	1843945	1706616 1717121	1918112	1801477 1692948	1843143	50.0 50.0	50.0	50.0 50.0	50.0	50.0
13C2 PFUnA	Ave	3801278 2905689	3630899	4109847 +++++	3399378	3772032	50.0 50.0	50.0	50.0 +++++	50.0	50.0
d-N-MeFOSA-M	Ave	3138391	3000484 2973167	3134342	2905963 2924949	3181940	50.0 50.0	50.0	50.0 50.0	50.0	50.0
d-N-EtFOSA-M	Ave	2935000	2779243 2866192	2963542	2687759 2804548	3013661	50.0 50.0	50.0	50.0 50.0	50.0	50.0
13C2 PFDoA	Ave	3503979 3029438	3442030	3676061 2736623	3318471	3578729	50.0 50.0	50.0	50.0 50.0	50.0	50.0
13C2-PFTeDA	Ave	6581781	6857936	6845647	6591504	6981012	50.0 50.0	50.0	50.0 50.0	50.0	50.0
13C2-PFHxDA	Ave	6101402 3792346	4339629	5307610 3935104	4254115	4285360	50.0 50.0	50.0	50.0 50.0	50.0	50.0
		3903423		3517129			50.0		50.0		

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

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009
SDG No.: _____
Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N
Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Curve Type Legend:

Ave = Average

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) NCalibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-128009/4	19SEP2016A_004_p1_e1.d
Level 2	IC 320-128009/14	19SEP2016A_014_p1_e1.d
Level 3	IC 320-128009/5	19SEP2016A_005_p1_e1.d
Level 4	IC 320-128009/15	19SEP2016A_015_p1_e1.d
Level 5	IC 320-128009/6	19SEP2016A_006_p1_e1.d
Level 6	IC 320-128009/16	19SEP2016A_016_p1_e1.d
Level 7	IC 320-128009/7	19SEP2016A_007_p1_e1.d
Level 8	IC 320-128009/17	19SEP2016A_017_p1_e1.d
Level 9	IC 320-128009/8	19SEP2016A_008_p1_e1.d
Level 10	IC 320-128009/18	19SEP2016A_018_p1_e1.d
Level 11	IC 320-128009/9	19SEP2016A_009_p1_e1.d
Level 12	IC 320-128009/19	19SEP2016A_019_p1_e1.d
Level 13	IC 320-128009/10	19SEP2016A_010_p1_e1.d
Level 14	IC 320-128009/20	19SEP2016A_020_p1_e1.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
Perfluorobutanoic acid (PFBA)		AveID	84261	3530324	176685	8426684	860259	0.500	20.0	1.00	50.0	5.00
			27267493		+++++			200		+++++		
Perfluoropentanoic acid (PFPeA)		AveID	90213	3202450	180499	7642341	817808	0.500	20.0	1.00	50.0	5.00
			24371595		+++++			200		+++++		
Perfluorobutanesulfonic acid (PFBS)		AveID	127115	5207839	256746	12615903	1185304	0.442	17.7	0.884	44.2	4.42
			37533339		+++++			177		+++++		
Perfluorohexanoic acid (PFHxA)		AveID	82892	2796722	151240	6653747	701417	0.500	20.0	1.00	50.0	5.00
			23478772		38178367			200		400		
Perfluorohexanesulfonic acid (PFHxS)		AveID	+++++	3416037	200726	8266665	847425	+++++	18.2	0.910	45.5	4.55
			28733822		49879178			182		364		
Perfluoroheptanoic acid (PFHpA)		AveID	83813	2904046	154767	6606063	708103	0.500	20.0	1.00	50.0	5.00
			21662816		+++++			200		+++++		
6:2FTS		L1ID	218541	+++++	1083447	70530	2527202	4.74	+++++	19.0	0.948	47.4
			9639831			+++++			190		+++++	

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8GC Column: AcquityID: 2.1(mm)Heated Purge: (Y/N) NCalibration Start Date: 09/19/2016 15:48Calibration End Date: 09/19/2016 17:48Calibration ID: 25237

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorooctanoic acid (PFOA)		AveID	+++++ 21559473	2921050	184926 35136753	6872664	760505	+++++ 200	20.0	1.00 400	50.0	5.00
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	77744 25781089	3082672	154057 +++++	7606839	739932	0.476 190	19.0	0.952 +++++	47.6	4.76
Perfluorooctanesulfonic acid (PFOS)		AveID	+++++ 24770402	2567636	132619 45156111	6549517	641920	+++++ 186	18.6	0.928 371	46.4	4.64
Perfluorononanoic acid (PFNA)		AveID	61412 17064171	2222271	111920 +++++	5059430	546276	0.500 200	20.0	1.00 +++++	50.0	5.00
Perfluorooctane Sulfonamide (FOSA)		AveID	119776 34861566	4720107	240425 +++++	11296832	1141590	0.500 200	20.0	1.00 +++++	50.0	5.00
8:2FTS		AveID	191894	22364 8690849	990477	42774 +++++	2188716	4.79	0.479 192	19.2	0.958 +++++	47.9
Perfluorodecanoic acid (PFDA)		AveID	49051 16046869	1869881	96938 +++++	4488689	452323	0.500 200	20.0	1.00 +++++	50.0	5.00
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	124094	12686 5929407	629013	26566 13182464	1479720	5.00	0.500 200	20.0	1.00 400	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	111187	12165 5431743	609359	23378 11882750	1394231	5.00	0.500 200	20.0	1.00 400	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	40565 14904378	1610711	79509 25120161	3989096	386289	0.482 193	19.3	0.964 386	48.2	4.82
Perfluoroundecanoic acid (PFUnA)		AveID	50934 11833824	1512661	86360 +++++	3488025	383701	0.500 200	20.0	1.00 +++++	50.0	5.00
MeFOSA		AveID	210779	23332 10655813	1095170	42033 21612713	2594317	5.00	0.500 200	20.0	1.00 400	50.0
N-EtFOSA-M		AveID	203984	21240 10371751	1020213	42626 20902990	2472445	5.00	0.500 200	20.0	1.00 400	50.0

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.: _____

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
Perfluorododecanoic acid (PFDoA)		AveID	35734	1332738	70989	3190971	333574	0.500	20.0	1.00	50.0	5.00
			11876099		+++++			200		+++++		
Perfluorotridecanoic Acid (PFTriA)		AveID	35509	1356380	71672	3241799	330331	0.500	20.0	1.00	50.0	5.00
			11725830		+++++			200		+++++		
Perfluorotetradecanoic acid (PFTeA)		AveID	43646	2086068	105900	4906866	510263	0.500	20.0	1.00	50.0	5.00
			17720647		+++++			200		+++++		
Perfluoro-n-hexadecanoic acid (PFHxDA)		AveID	+++++	1590699	108661	3913210	409310	+++++	20.0	1.00	50.0	5.00
			13968190		+++++			200		+++++		
Perfluoro-n-octadecanoic acid (PFODA)		AveID	35108	1534044	67690	3860401	337334	0.500	20.0	1.00	50.0	5.00
			14757149		25443068			200		400		

Curve Type Legend:

AveID = Average isotope dilution
 L1ID = Linear 1/conc IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 19-Sep-2016 15:48:00 ALS Bottle#: 0 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:49:10 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 08:42:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.533	1.534	-0.001		9675649	51.5		103	640689	
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1 Perfluorobutyric acid

212.9 > 169.0	1.533	1.535	-0.002	1.000	84261	0.5021		100	628	
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D 4 13C5-PFPeA

267.9 > 223.0	1.809	1.807	0.002		7958050	50.7		101	797890	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.809	1.809	0.0	1.000	90213	0.5577		112	1251	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.842	1.844	-0.002	1.000	127115	0.4567		103		
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298.9 > 99.0	1.842	1.844	-0.002	1.000	50287		2.53(0.00-0.00)	103		
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7 Perfluorohexanoic acid

313 > 269.0	2.104	2.096	0.008	1.000	82892	0.5823		116	2910	
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D 6 13C2 PFHxA

315 > 270.0	2.104	2.096	0.008		7513020	53.1		106	585848	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.463	2.415	0.048	1.000	114055	0.6094		134		
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12 Perfluoroheptanoic acid

363 > 319.0	2.444	2.438	0.006	1.000	83813	0.5703		114	901	
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D 11 13C4-PFHpA

367 > 322.0	2.444	2.438	0.006		7053184	52.0		104	616625	
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D 10 18O2 PFHxS

403 > 84.0	2.454	2.451	0.003		8614867	49.5		105	452794	
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15 Perfluorooctanoic acid

413 > 369.0	2.816	2.802	0.014	1.000	110728	0.7298		146	3487	
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D 14 13C4 PFOA

417 > 372.0	2.807	2.802	0.005		7249396	55.4		111	885999	
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13 Perfluoroheptanesulfonic Acid

449 > 80.0	2.816	2.808	0.008	1.000	777441	57.0		100		
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										M
499 > 80.0	3.189	3.154	0.035	1.000	66920	0.4542		97.9	9763	
499 > 99.0	3.182	3.154	0.028	0.998	17493		3.83(0.90-1.10)	97.9	1418	M
D 17 13C4 PFOS										
503 > 80.0	3.189	3.177	0.012		6578121	51.0		107	298332	
D 19 13C5 PFNA										
468 > 423.0	3.189	3.179	0.010		5543570	52.6		105	326593	
20 Perfluorononanoic acid										
463 > 419.0	3.197	3.180	0.017	1.000	61412	0.5453		109	2055	
D 21 13C8 FOSA										
506 > 78.0	3.483	3.483	0.0		12833801	52.8		106	505243	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.483	3.489	-0.006	1.000	119776	0.5073		101	10372	
D 23 13C2 PFDA										
515 > 470.0	3.554	3.541	0.013		4884485	53.3		107	200771	
24 Perfluorodecanoic acid										
513 > 469.0	3.554	3.542	0.012	1.000	49051	0.5190		104	2336	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.870	3.854	0.016	1.000	40565	0.4782		99.2		
D 27 13C2 PFUnA										
565 > 520.0	3.886	3.872	0.014		3801278	52.7		105	484011	
28 Perfluoroundecanoic acid										
563 > 519.0	3.886	3.875	0.011	1.000	50934	0.6190		124	2390	
D 30 13C2 PFDaA										
615 > 570.0	4.181	4.165	0.016		3503979	52.7		105	270267	
29 Perfluorododecanoic acid										
613 > 569.0	4.181	4.168	0.013	1.000	35734	0.5250		105	1853	
31 Perfluorotridecanoic acid										
633 > 619.0	4.454	4.435	0.019	1.000	35509	0.5205		104	2178	
D 32 13C2-PFTeDA										
715 > 670.0	4.695	4.674	0.021		6581781	50.9		102	628927	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.688	4.674	0.014	1.000	43646	0.4361		87.2	73.0	
713 > 169.0	4.702	4.674	0.028	1.003	12347		3.53(0.00-0.00)	87.2	4723	
D 34 13C2-PFHxDA										
815 > 770.0	5.120	5.096	0.024		3792346	47.4		94.7	738978	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.120	5.098	0.022	1.000	70911	0.8282		166	2736	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.501	5.469	0.032	1.000	35108	0.4662		93.2	145	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC-L1_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d

Injection Date: 19-Sep-2016 15:48:00

Instrument ID: A8

Lims ID: IC L1

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

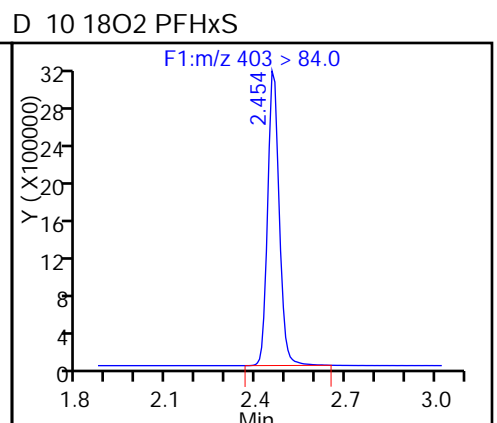
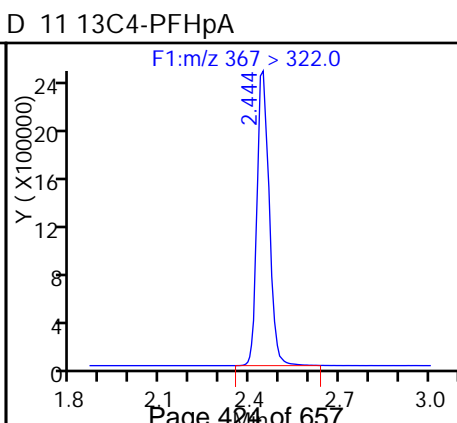
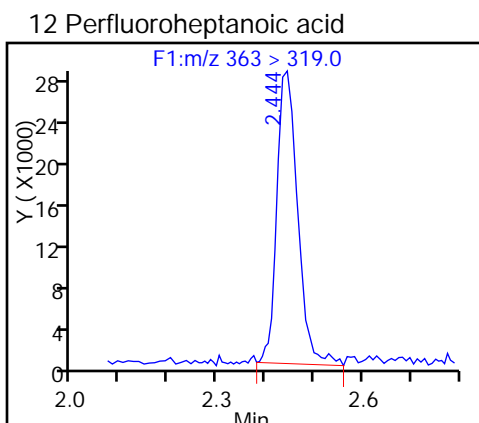
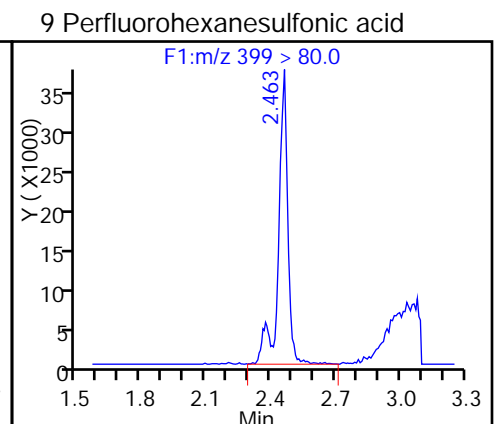
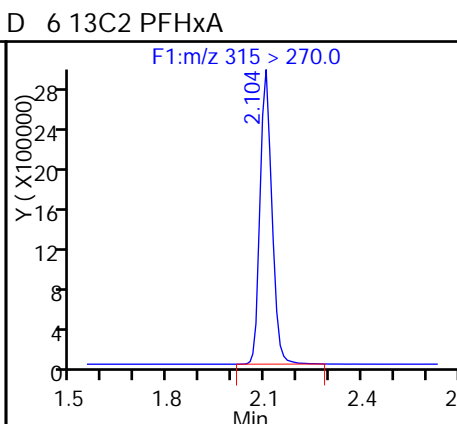
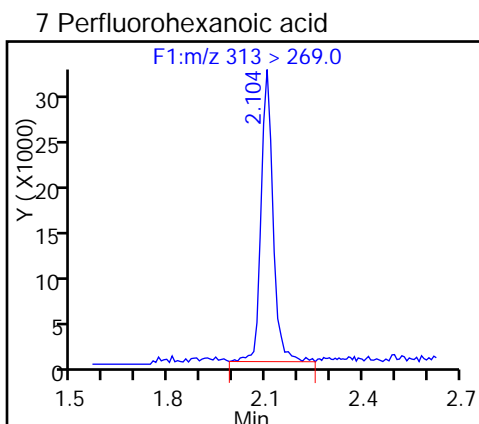
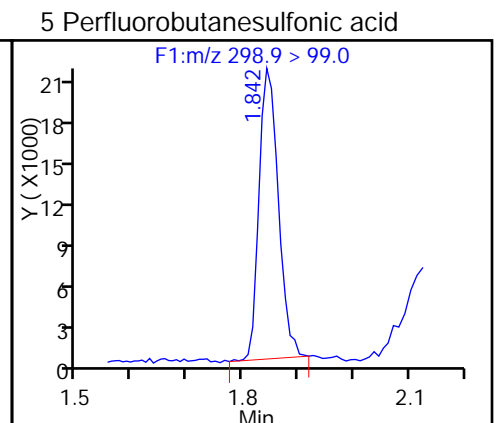
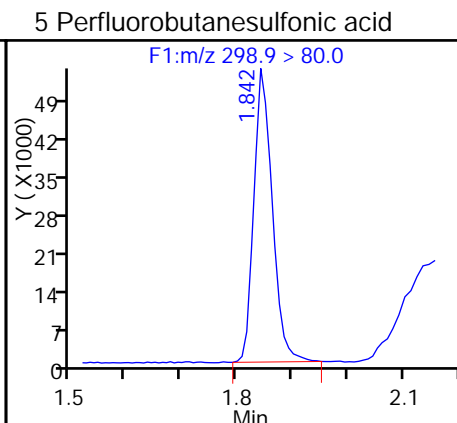
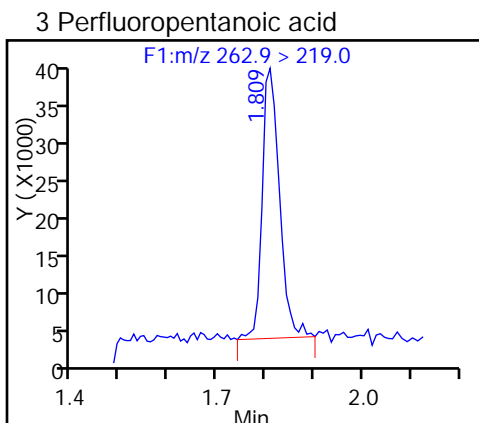
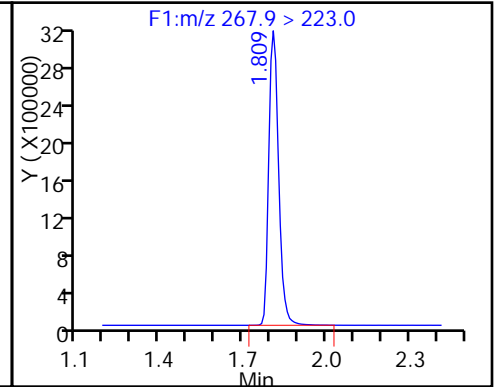
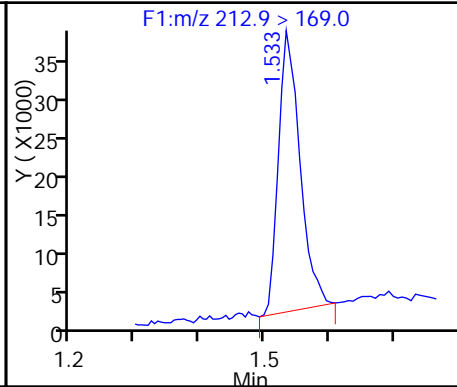
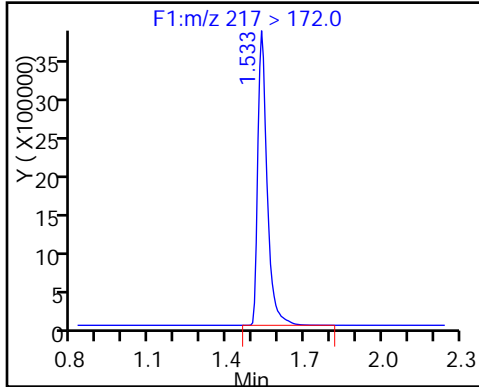
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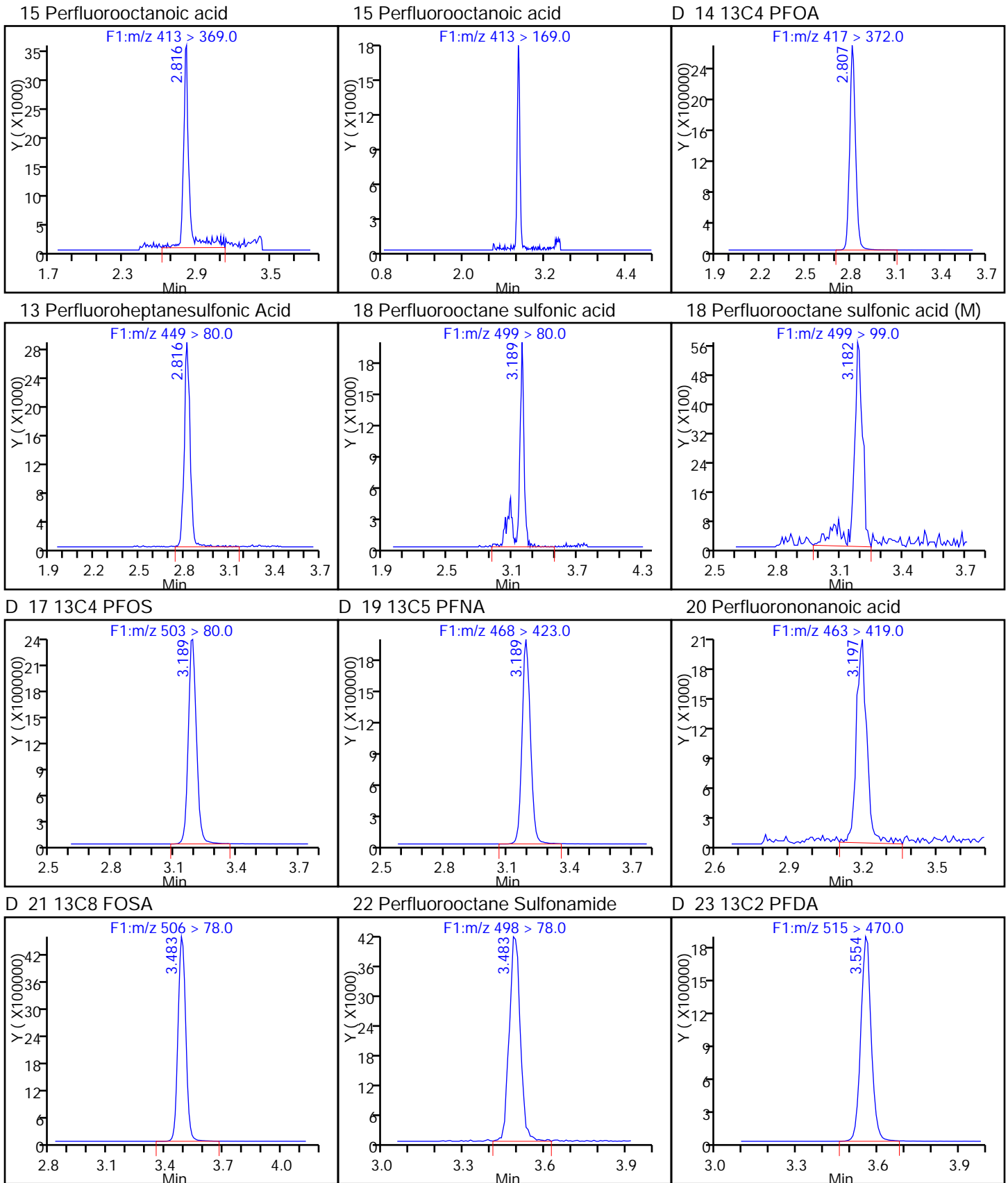
Limit Group: LC PFC_DOD ICAL

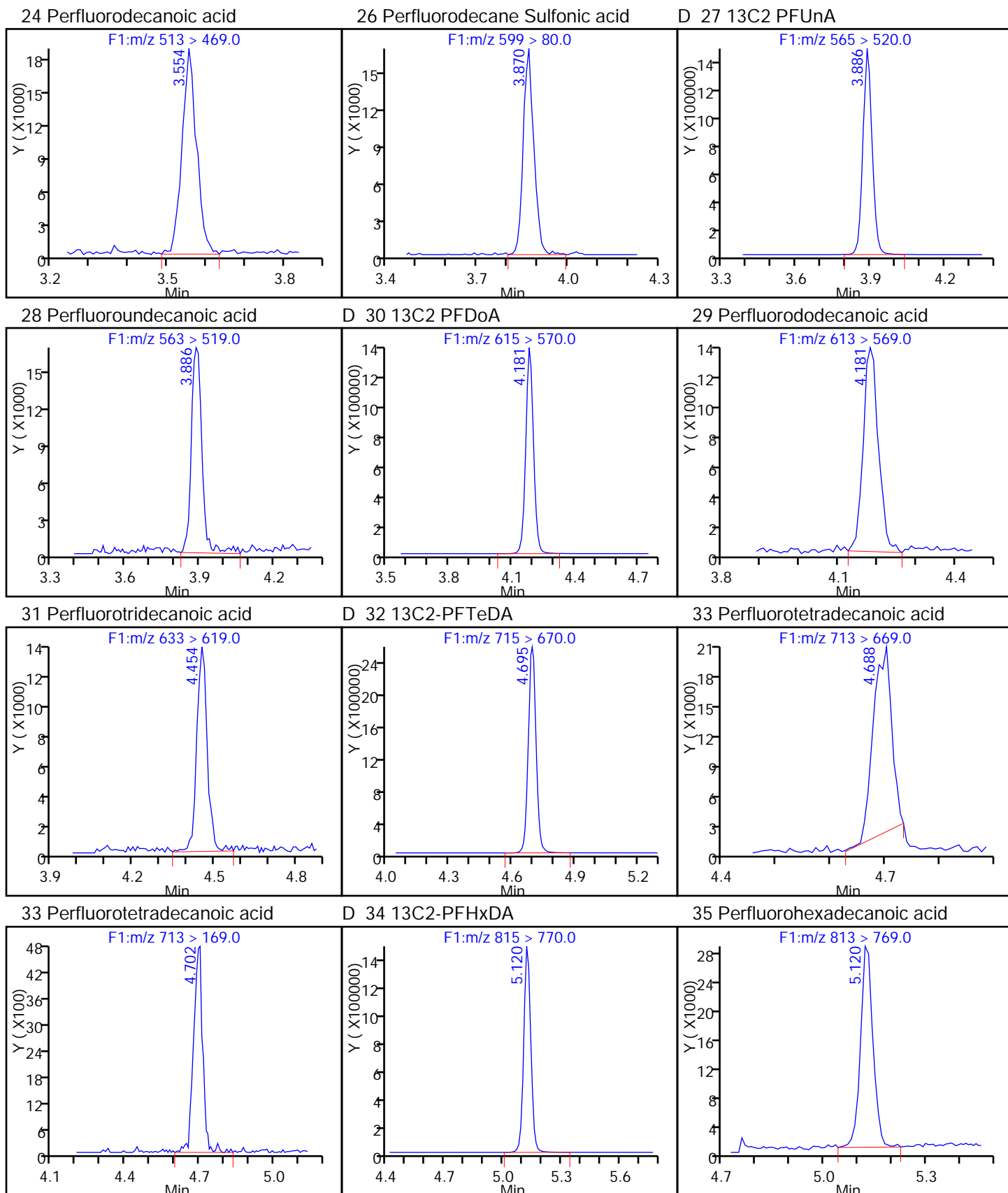
D 2 13C4 PFBA

1 Perfluorobutyric acid

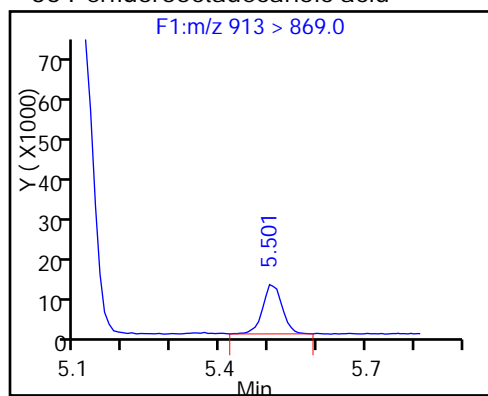
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d

Injection Date: 19-Sep-2016 15:48:00

Instrument ID: A8

Lims ID: IC L1

Client ID:

Operator ID: A8

ALS Bottle#:

0

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

Column:

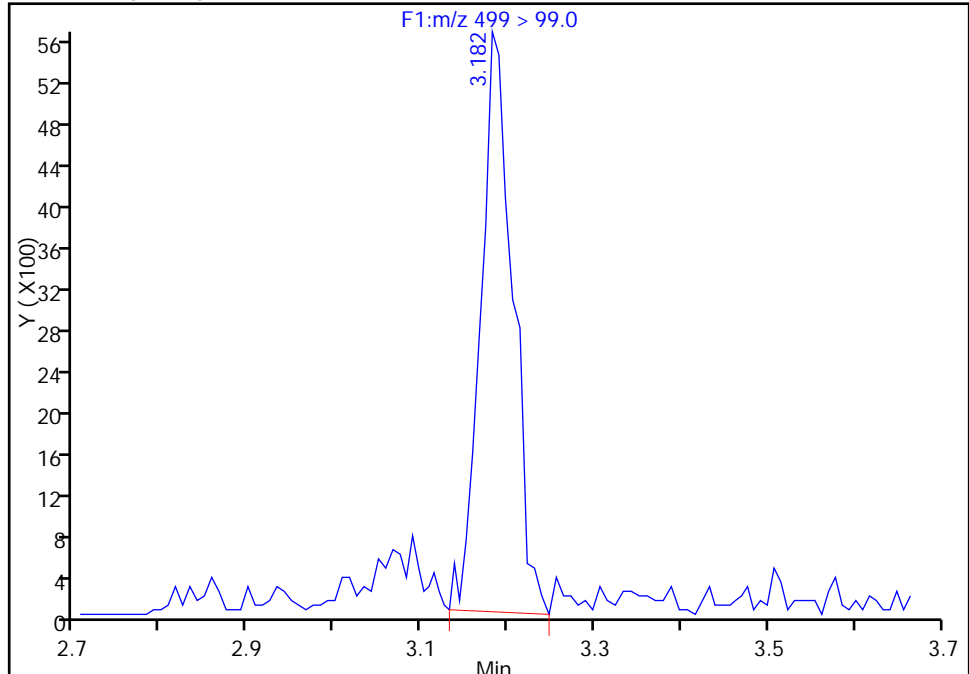
Detector F1(0.00 :6.60)

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

Signal: 2

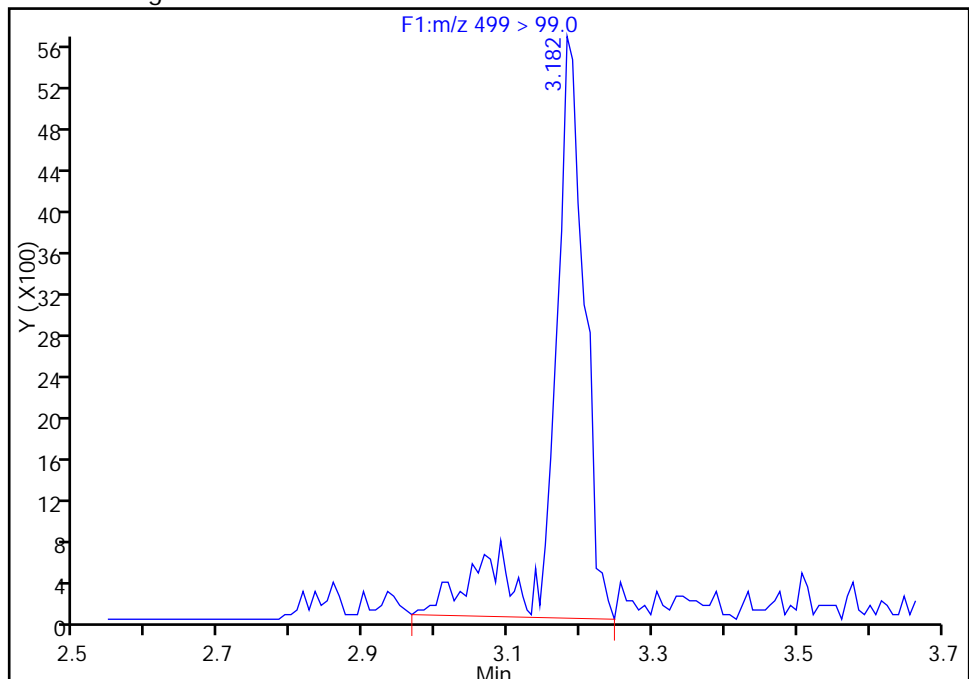
RT: 3.18
Area: 14593
Amount: 0.454243
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 17493
Amount: 0.454243
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 20-Sep-2016 08:42:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 19-Sep-2016 15:55:00 ALS Bottle#: 0 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:49:25 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 08:43:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.532	1.534	-0.002		10585141	56.4		113	407294	
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1 Perfluorobutyric acid

212.9 > 169.0	1.539	1.535	0.004	1.000	176685	0.9624		96.2	1201	
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D 4 13C5-PFPeA

267.9 > 223.0	1.806	1.807	-0.001		9033953	57.6		115	1295137	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.806	1.809	-0.003	1.000	180499	0.9830		98.3	2555	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.840	1.844	-0.004	1.000	256746	0.8760		99.1		
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298.9 > 99.0	1.840	1.844	-0.004	1.000	108960		2.36(0.00-0.00)	99.1		
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7 Perfluorohexanoic acid

313 > 269.0	2.099	2.096	0.003	1.000	151240	1.01		101	5331	
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D 6 13C2 PFHxA

315 > 270.0	2.099	2.096	0.003		7907320	55.9		112	571520	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.382	2.415	-0.033	1.000	200726	1.02		112		
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12 Perfluoroheptanoic acid

363 > 319.0	2.445	2.438	0.007	1.000	154767	0.9508		95.1	2182	
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D 11 13C4-PFHpA

367 > 322.0	2.445	2.438	0.007		7812149	57.5		115	550608	
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D 10 18O2 PFHxS

403 > 84.0	2.455	2.451	0.004		9070138	52.1		110	491490	
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15 Perfluorooctanoic acid

413 > 369.0	2.809	2.802	0.007	1.000	184926	1.13		113	6167	
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413 > 169.0	2.809	2.802	0.007	1.000	112403		1.65(0.90-1.10)	113	33866	
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D 14 13C4 PFOA

417 > 372.0	2.809	2.802	0.007		7823661	59.7		119	553995	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.809	2.808	0.001	1.000	154057	0.9026		94.8		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.182	3.154	0.028	1.000	132619	0.8573		92.4	19279	
499 > 99.0	3.084	3.154	-0.070	0.969	34340		3.86(0.90-1.10)	92.4	1578	
D 17 13C4 PFOS										
503 > 80.0	3.182	3.177	0.005		6907025	53.6		112	309015	
D 19 13C5 PFNA										
468 > 423.0	3.182	3.179	0.003		5961155	56.6		113	260001	
20 Perfluorononanoic acid										
463 > 419.0	3.182	3.180	0.002	1.000	111920	0.9241		92.4	3975	
D 21 13C8 FOSA										
506 > 78.0	3.483	3.483	0.0		13053982	53.7		107	438942	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.491	3.489	0.002	1.000	240425	1.00		100	14524	
D 23 13C2 PFDA										
515 > 470.0	3.546	3.541	0.005		5264647	57.5		115	304362	
24 Perfluorodecanoic acid										
513 > 469.0	3.546	3.542	0.004	1.000	96938	0.9516		95.2	5986	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.862	3.854	0.008	1.000	79509	0.8926		92.6		
D 27 13C2 PFUnA										
565 > 520.0	3.878	3.872	0.006		4109847	57.0		114	250810	
28 Perfluoroundecanoic acid										
563 > 519.0	3.886	3.875	0.011	1.000	86360	0.9708		97.1	3899	
D 30 13C2 PFDoA										
615 > 570.0	4.172	4.165	0.007		3676061	55.3		111	225766	
29 Perfluorododecanoic acid										
613 > 569.0	4.181	4.168	0.013	1.000	70989	0.99		99.4	3446	
31 Perfluorotridecanoic acid										
633 > 619.0	4.445	4.435	0.010	1.000	71672	1.00		100	5465	
D 32 13C2-PFTeDA										
715 > 670.0	4.688	4.674	0.014		6845647	52.9		106	550869	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.688	4.674	0.014	1.000	105900	1.01		101	179	
713 > 169.0	4.681	4.674	0.007	0.999	21558		4.91(0.00-0.00)	101	8764	
D 34 13C2-PFHxDA										
815 > 770.0	5.110	5.096	0.014		3935104	49.1		98.3	767611	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.110	5.098	0.012	1.000	108661	1.21		121	4676	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.486	5.469	0.017	1.000	67690	0.8567		85.7	349	

Reagents:

LCPFC-L2_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d

Injection Date: 19-Sep-2016 15:55:00

Instrument ID: A8

Lims ID: IC L2

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

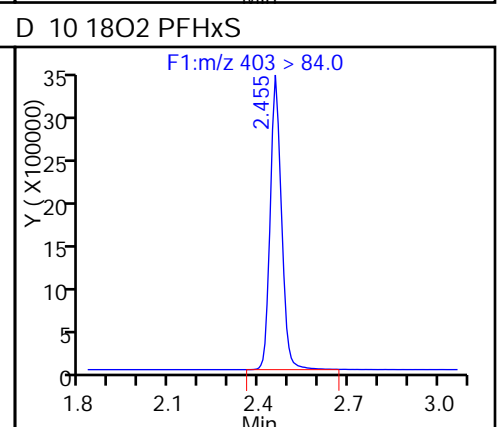
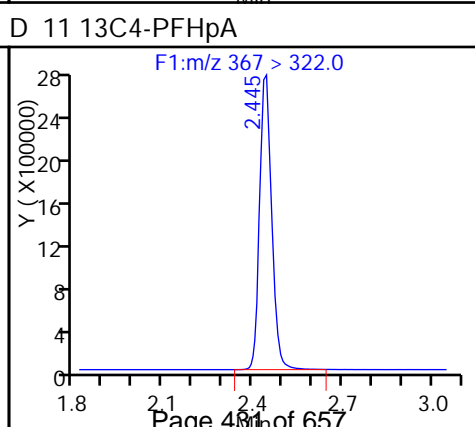
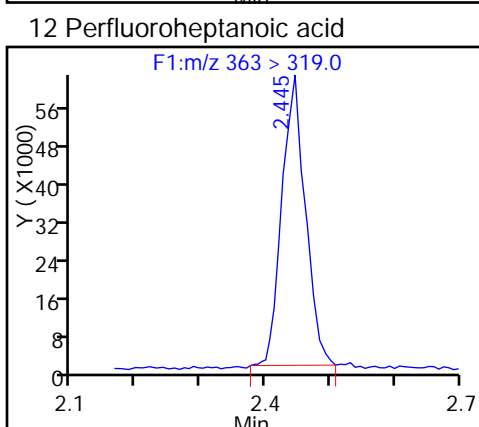
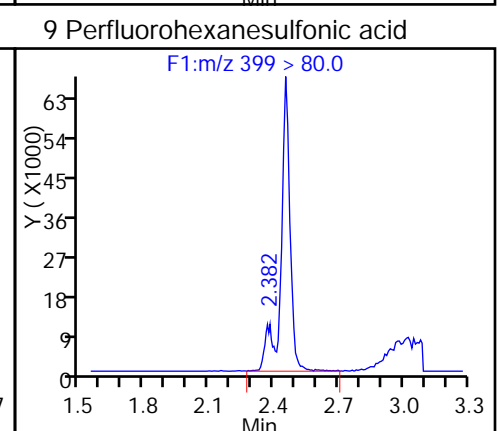
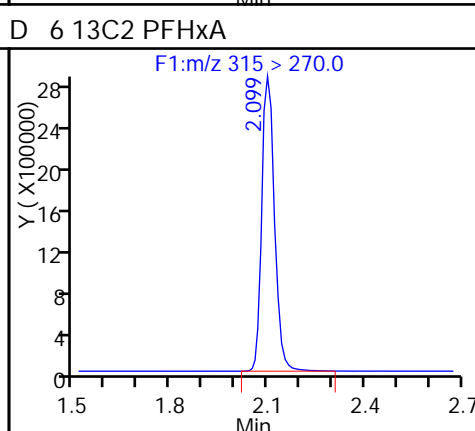
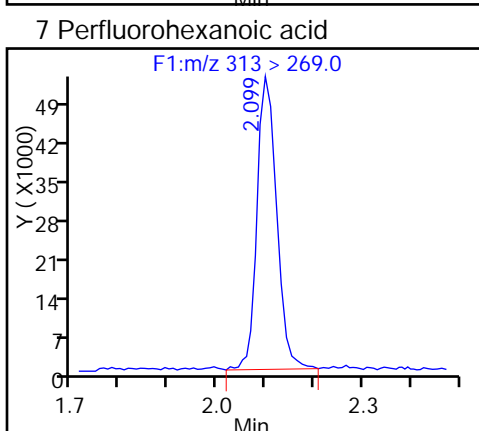
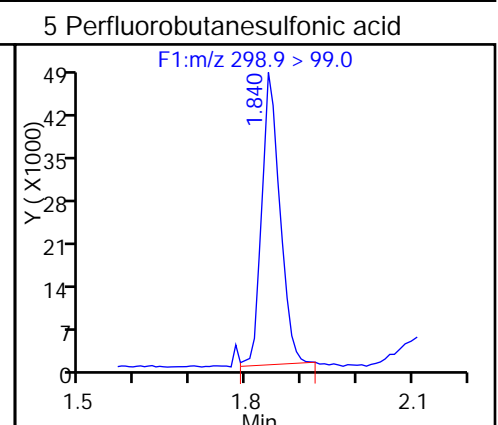
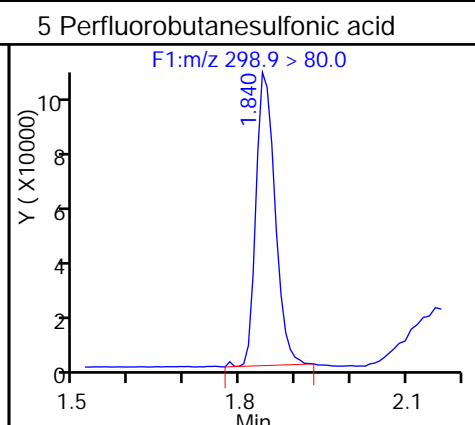
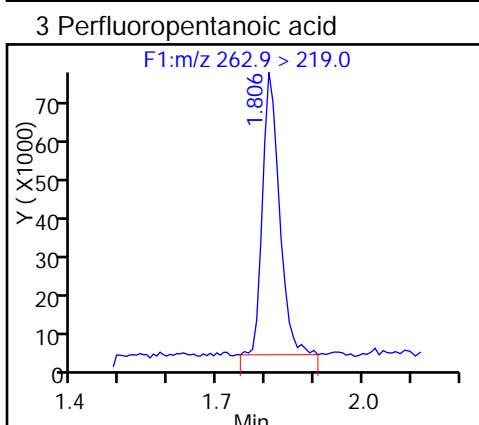
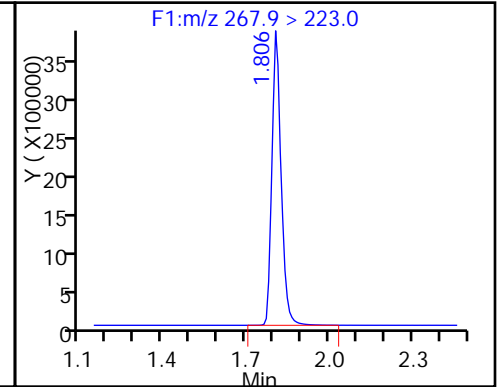
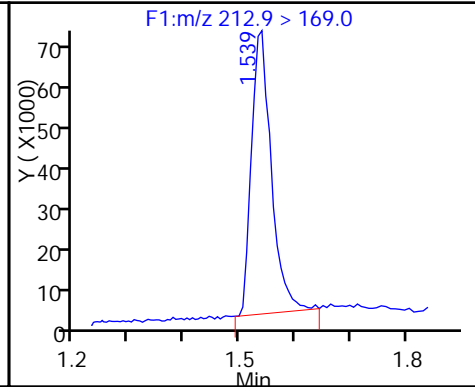
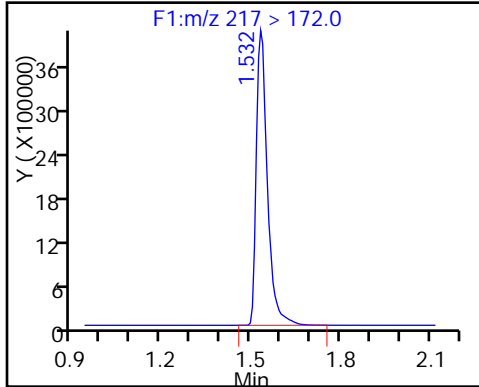
Method: PFC_A8_Full

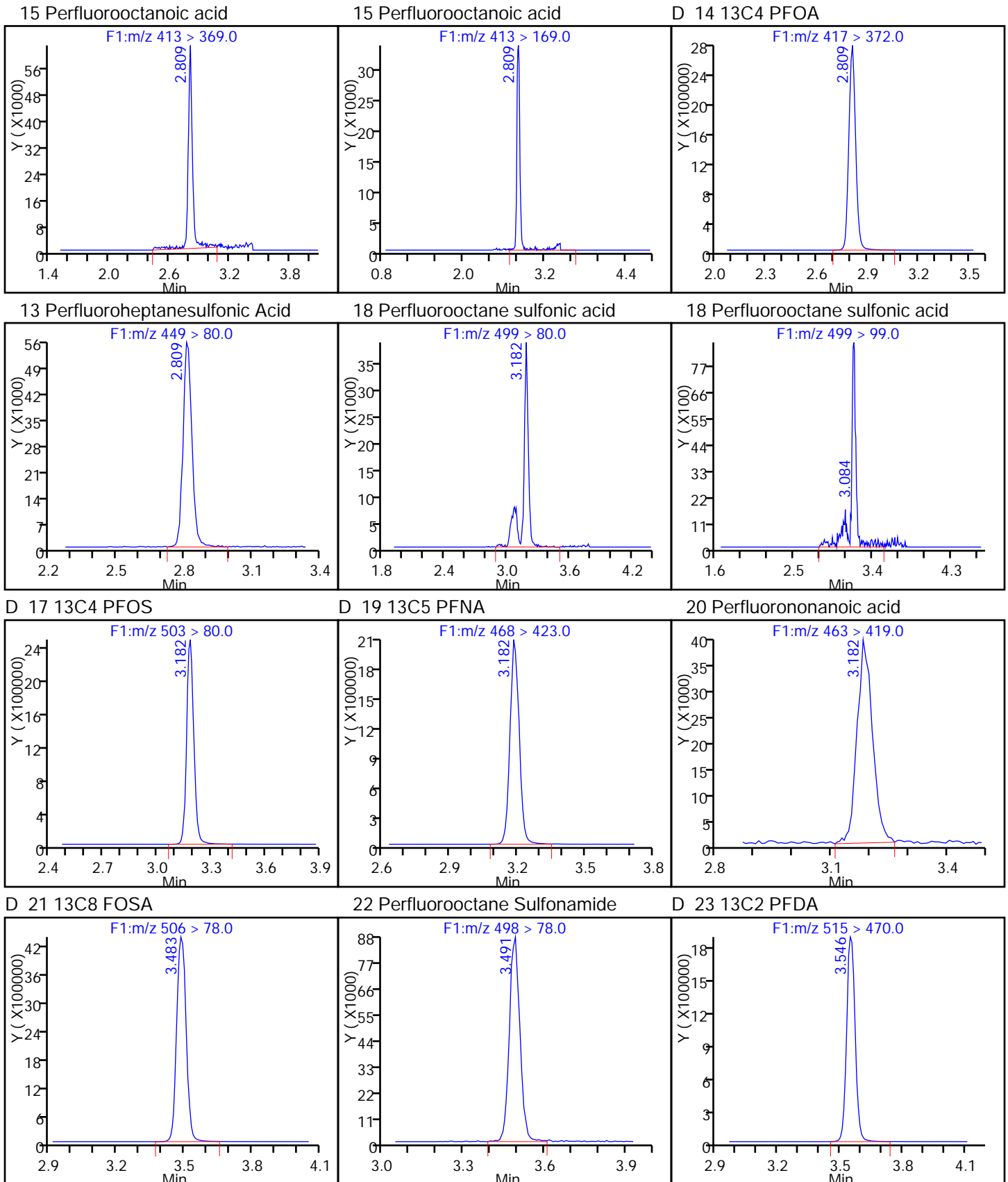
Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

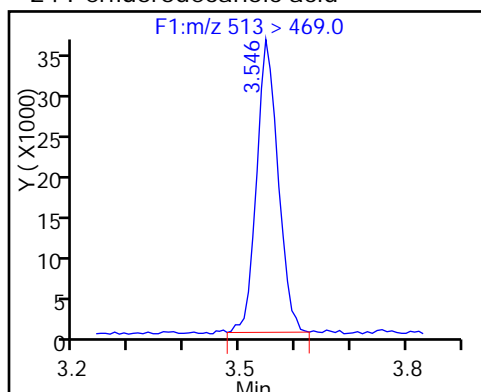
1 Perfluorobutyric acid

D 4 13C5-PFPeA

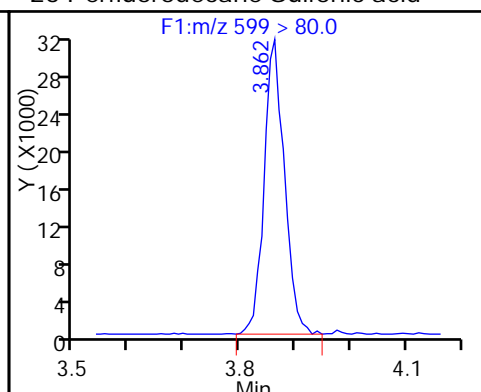




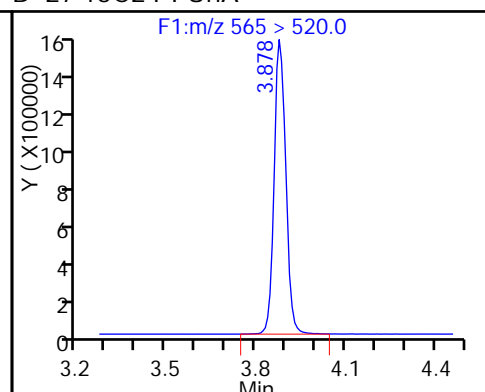
24 Perfluorodecanoic acid



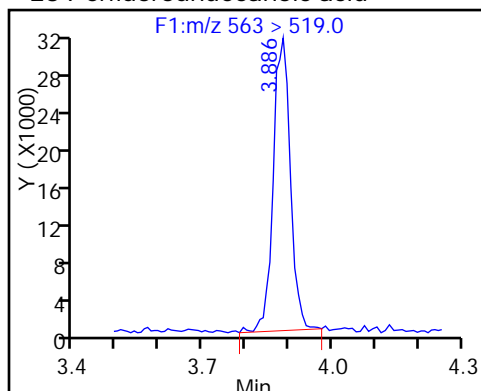
26 Perfluorodecane Sulfonic acid



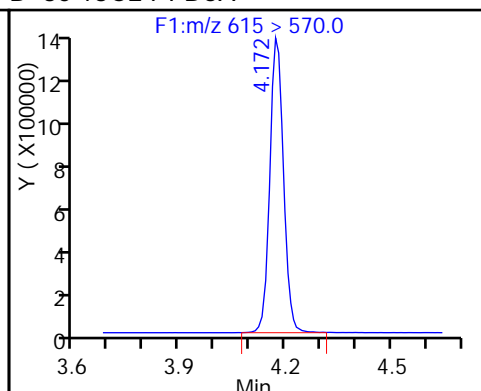
D 27 13C2 PFUnA



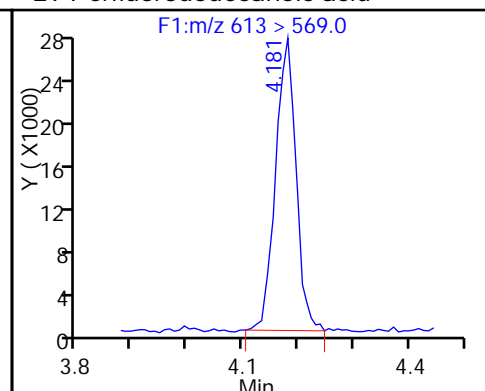
28 Perfluoroundecanoic acid



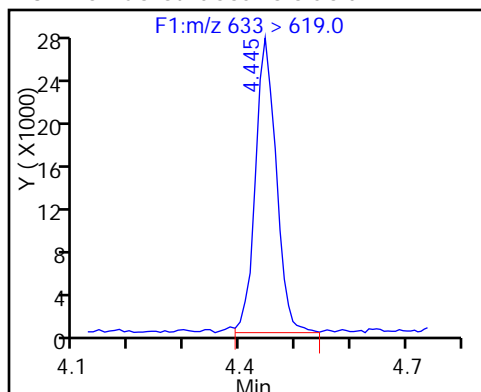
D 30 13C2 PFDaA



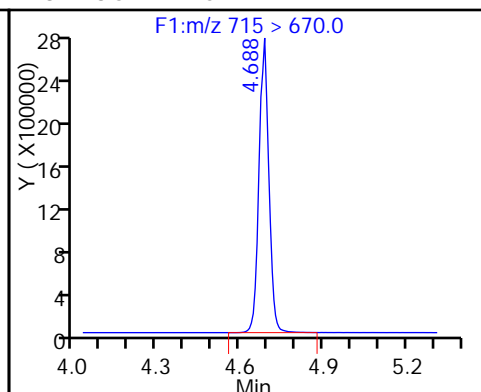
29 Perfluorododecanoic acid



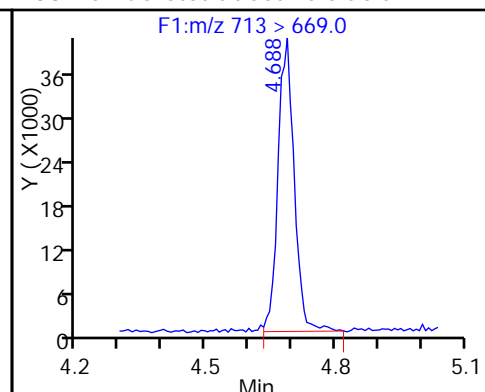
31 Perfluorotridecanoic acid



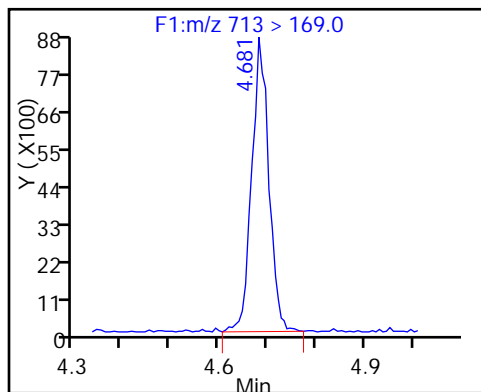
D 32 13C2-PFTeDA



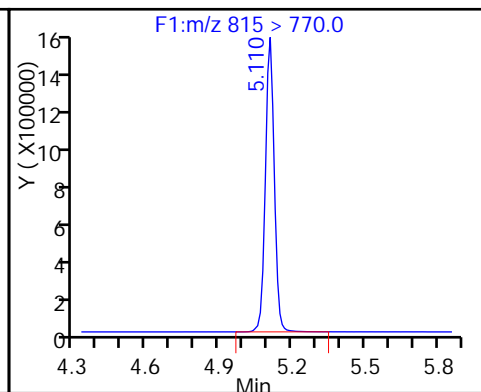
33 Perfluorotetradecanoic acid



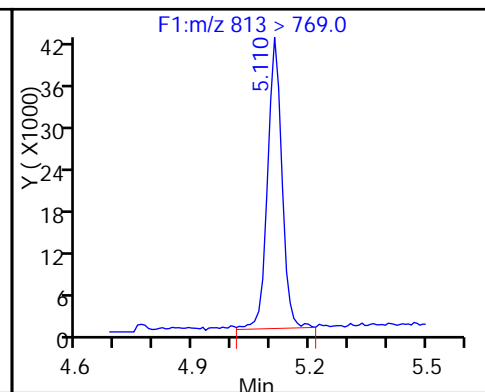
33 Perfluorotetradecanoic acid



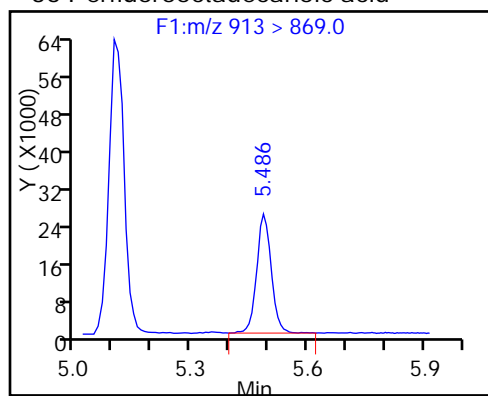
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_006_p1_e1.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 19-Sep-2016 16:03:00 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:49:39 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 08:43:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.539	1.534	0.005		9811140	52.2		104	375846	
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1 Perfluorobutyric acid

212.9 > 169.0	1.539	1.535	0.004	1.000	860259	5.06		101	6366	
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D 4 13C5-PFPeA

267.9 > 223.0	1.815	1.807	0.008		7971180	50.8		102	783287	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.815	1.809	0.006	1.000	817808	5.05		101	13254	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.849	1.844	0.005	1.000	1185304	4.34		98.1		
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298.9 > 99.0	1.849	1.844	0.005	1.000	509888		2.32(0.00-0.00)	98.1		
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7 Perfluorohexanoic acid

313 > 269.0	2.099	2.096	0.003	1.000	701417	5.06		101	25008	
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D 6 13C2 PFHxA

315 > 270.0	2.099	2.096	0.003		7318853	51.8		104	679001	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.454	2.415	0.039	1.000	847425	4.61		101		
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12 Perfluoroheptanoic acid

363 > 319.0	2.444	2.438	0.006	1.000	708103	4.79		95.9	9470	
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D 11 13C4-PFHpA

367 > 322.0	2.444	2.438	0.006		7089804	52.2		104	513711	
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D 10 18O2 PFHxS

403 > 84.0	2.454	2.451	0.003		8459527	48.6		103	454024	
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15 Perfluorooctanoic acid

413 > 369.0	2.808	2.802	0.006	1.000	760505	5.02		100	24980	
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413 > 169.0	2.808	2.802	0.006	1.000	457454		1.66(0.90-1.10)	100	39632	
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D 14 13C4 PFOA

417 > 372.0	2.816	2.802	0.014		7245057	55.3		111	823924	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.816	2.808	0.008	1.000	739932	4.78		100		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.076	3.154	-0.078	1.000	641920	4.57		98.5	18174	
499 > 99.0	3.188	3.154	0.034	1.037	145950		4.40(0.90-1.10)	98.5	22728	
D 17 13C4 PFOS										
503 > 80.0	3.181	3.177	0.004		6269750	48.6		102	316285	
D 19 13C5 PFNA										
468 > 423.0	3.188	3.179	0.009		5625233	53.4		107	344956	
20 Perfluorononanoic acid										
463 > 419.0	3.188	3.180	0.008	1.000	546276	4.78		95.6	20116	
D 21 13C8 FOSA										
506 > 78.0	3.490	3.483	0.007		12103882	49.8		99.6	349014	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.498	3.489	0.009	1.000	1141590	5.13		103	82785	
D 23 13C2 PFDA										
515 > 470.0	3.553	3.541	0.012		4793517	52.3		105	290959	
24 Perfluorodecanoic acid										
513 > 469.0	3.545	3.542	0.003	1.000	452323	4.88		97.5	27459	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.869	3.854	0.015	1.000	386289	4.78		99.1		
D 27 13C2 PFUnA										
565 > 520.0	3.877	3.872	0.005		3772032	52.3		105	471357	
28 Perfluoroundecanoic acid										
563 > 519.0	3.877	3.875	0.002	1.000	383701	4.70		94.0	16623	
D 30 13C2 PFDaA										
615 > 570.0	4.171	4.165	0.006		3578729	53.8		108	327354	
29 Perfluorododecanoic acid										
613 > 569.0	4.180	4.168	0.012	1.000	333574	4.80		96.0	17546	
31 Perfluorotridecanoic acid										
633 > 619.0	4.444	4.435	0.009	1.000	330331	4.74		94.8	20933	
D 32 13C2-PFTeDA										
715 > 670.0	4.681	4.674	0.007		6981012	54.0		108	531574	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.687	4.674	0.013	1.000	510263	4.99		99.8	900	
713 > 169.0	4.687	4.674	0.013	1.000	100116		5.10(0.00-0.00)	99.8	38171	
D 34 13C2-PFHxDA										
815 > 770.0	5.109	5.096	0.013		4285360	53.5		107	816844	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.109	5.098	0.011	1.000	409310	4.68		93.6	19983	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.478	5.469	0.009	1.000	337334	4.39		87.7	1383	

Reagents:

LCPFC-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_006_p1_e1.d

Injection Date: 19-Sep-2016 16:03:00

Instrument ID: A8

Lims ID: IC L3

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

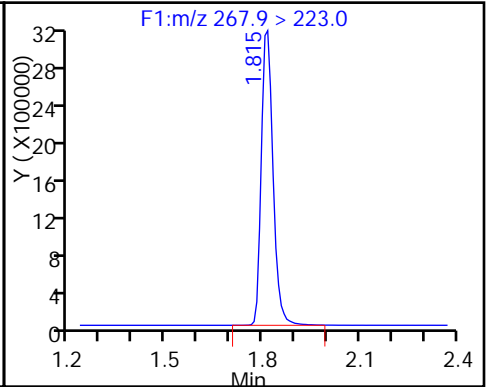
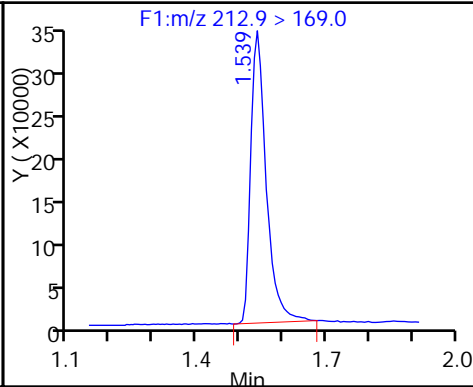
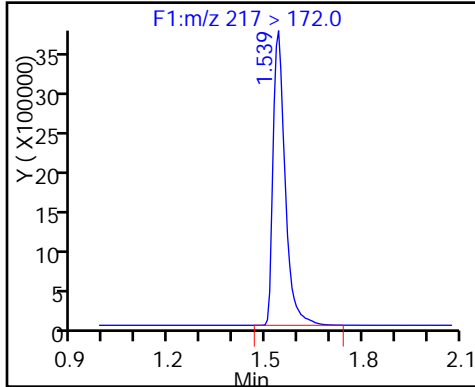
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

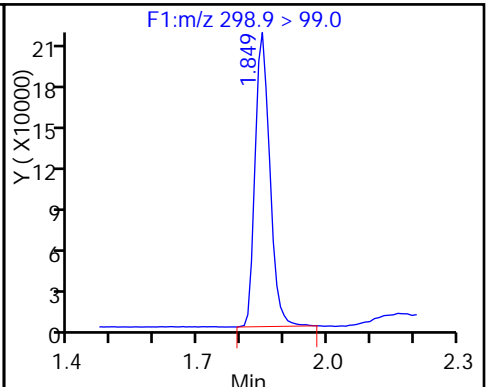
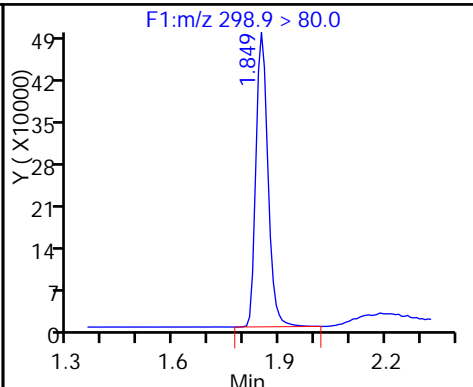
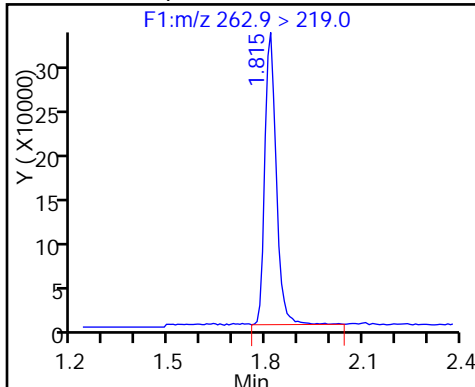
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

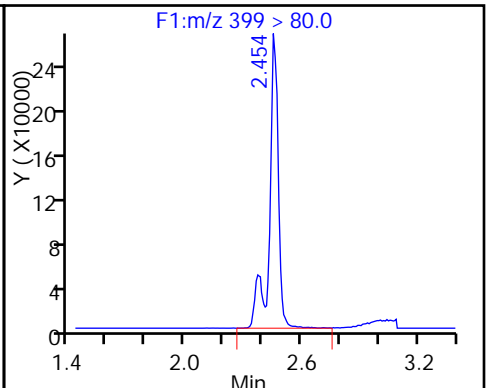
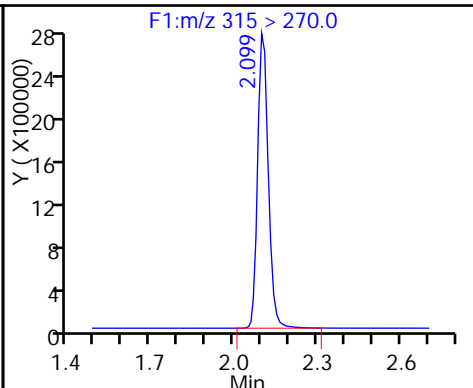
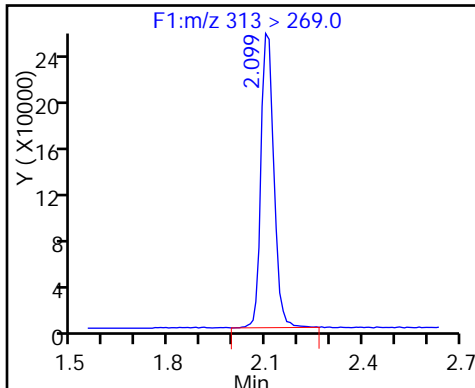
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

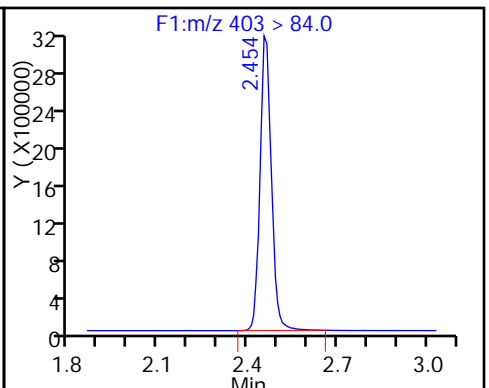
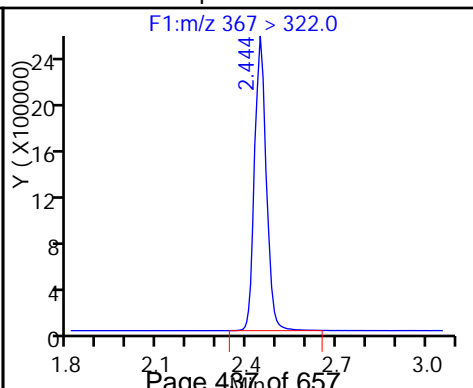
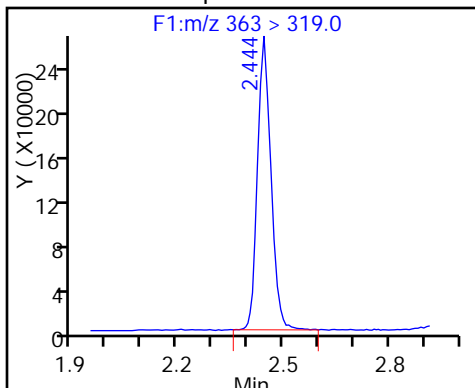
9 Perfluorohexanesulfonic acid

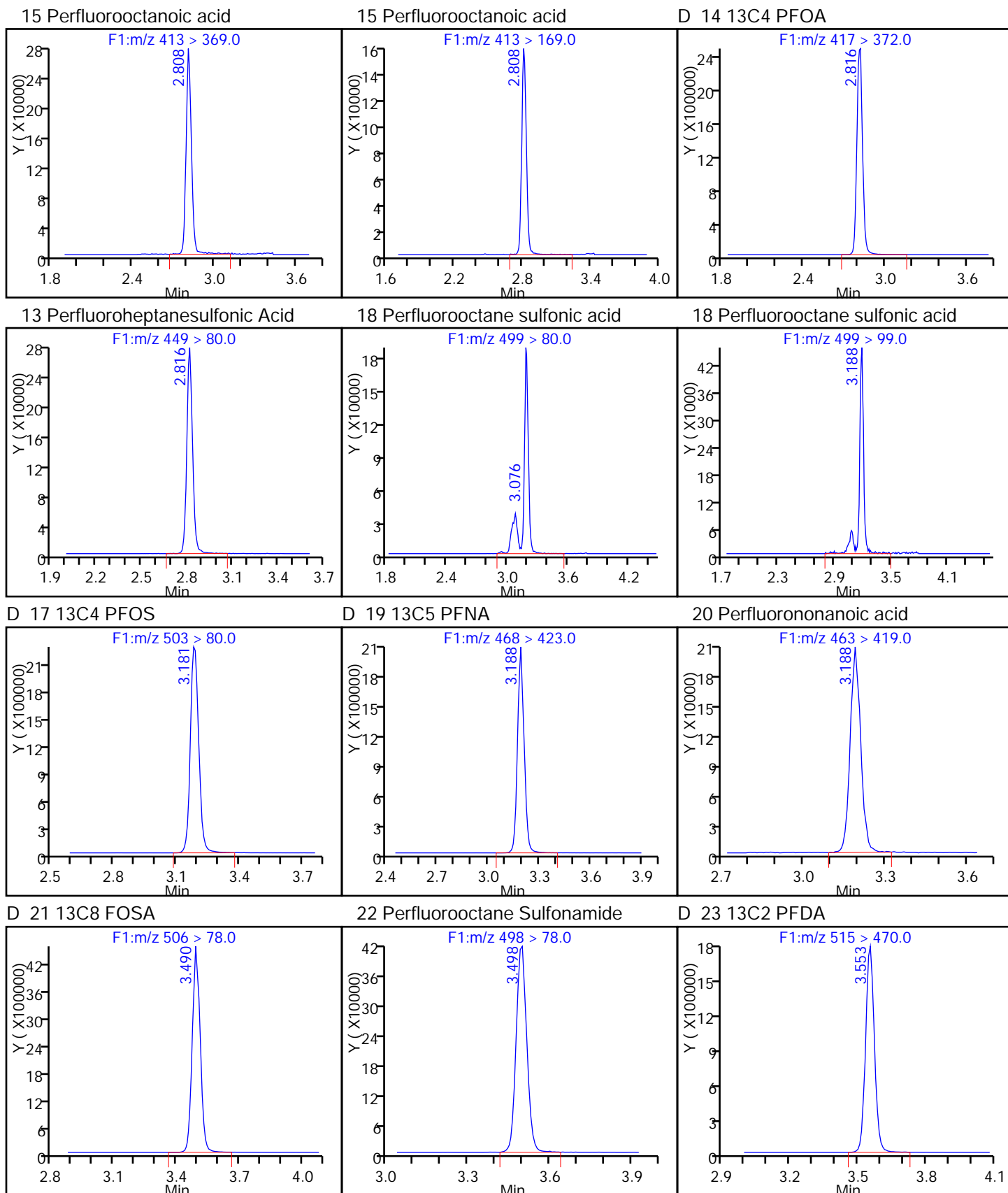


12 Perfluoroheptanoic acid

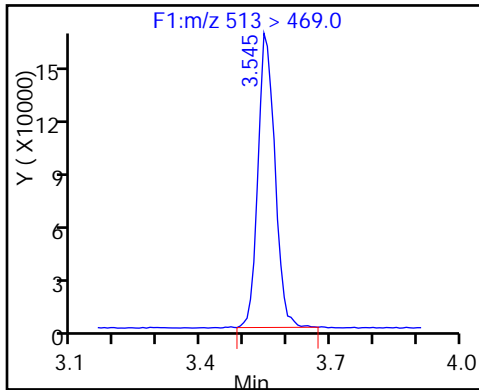
D 11 13C4-PFHpA

D 10 18O2 PFHxS

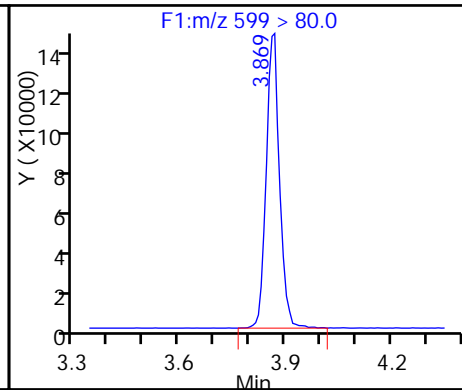




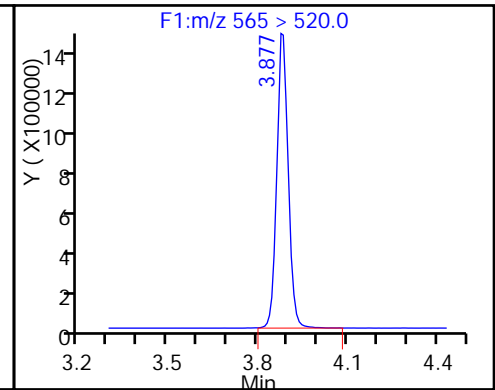
24 Perfluorodecanoic acid



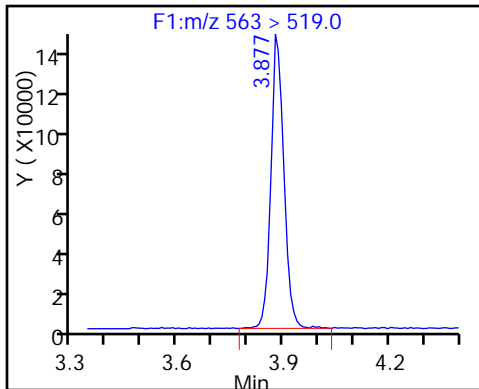
26 Perfluorodecane Sulfonic acid



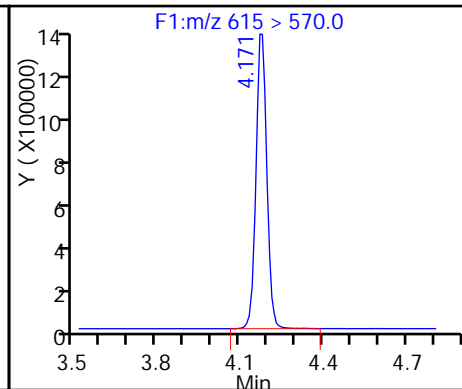
D 27 13C2 PFUnA



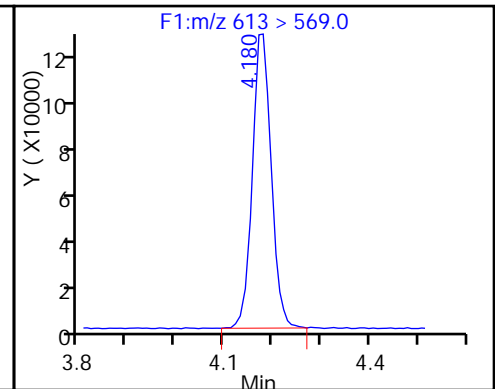
28 Perfluoroundecanoic acid



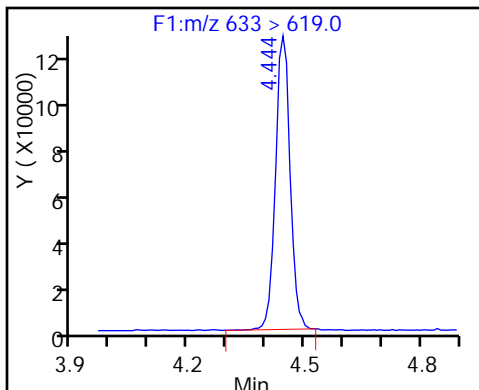
D 30 13C2 PFDaA



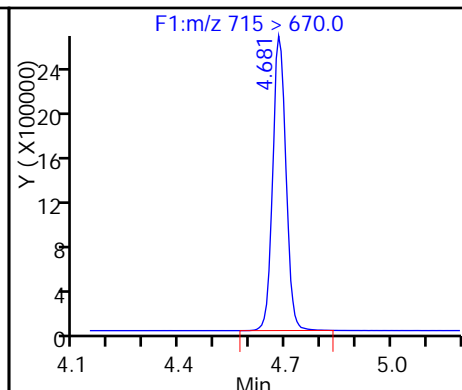
29 Perfluorododecanoic acid



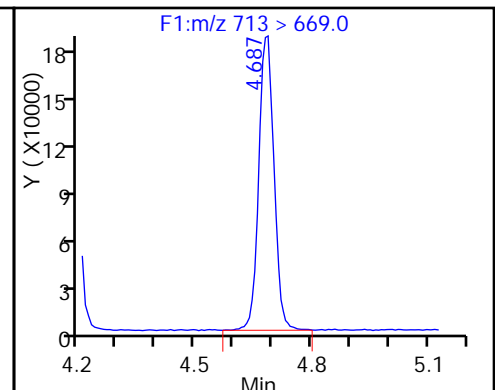
31 Perfluorotridecanoic acid



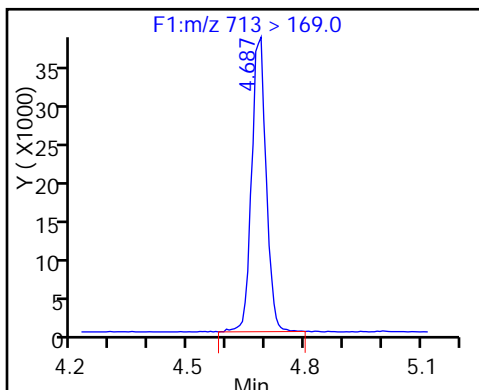
D 32 13C2-PFTeDA



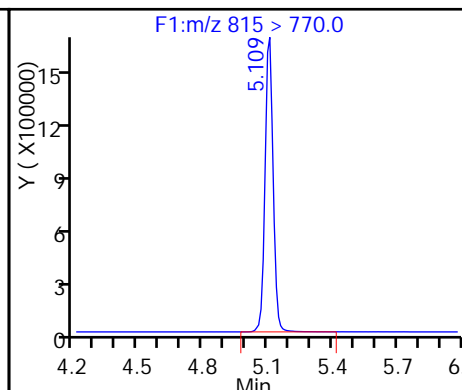
33 Perfluorotetradecanoic acid



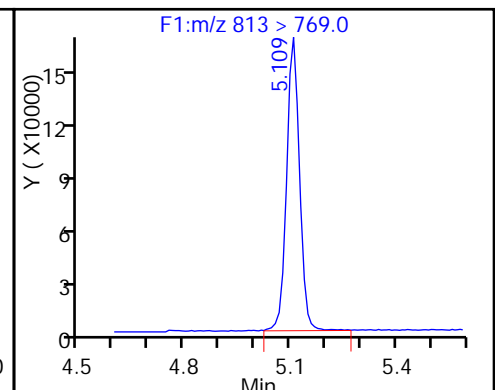
33 Perfluorotetradecanoic acid



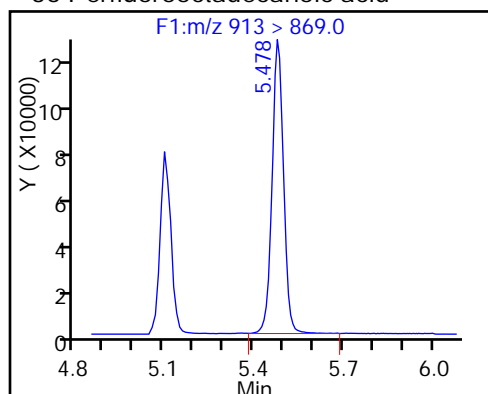
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_007_p1_e1.d
 Lims ID: IC L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 19-Sep-2016 16:10:00 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:49:53 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 08:42:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.533	1.534	-0.001		9556019	50.9		102	333122	
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1 Perfluorobutyric acid

212.9 > 169.0	1.533	1.535	-0.002	1.000	3530324	21.3		107	29342	
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D 4 13C5-PFPeA

267.9 > 223.0	1.799	1.807	-0.008		7847831	50.0		100	739318	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.807	1.809	-0.002	1.000	3202450	20.1		100	56608	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.841	1.844	-0.003	1.000	5207839	19.2		109		
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298.9 > 99.0	1.841	1.844	-0.003	1.000	2173671		2.40(0.00-0.00)	109		
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7 Perfluorohexanoic acid

313 > 269.0	2.089	2.096	-0.007	1.000	2796722	20.3		102	107661	
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D 6 13C2 PFHxA

315 > 270.0	2.089	2.096	-0.007		7255935	51.3		103	526485	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.451	2.415	0.036	1.000	3416037	18.8		103		
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12 Perfluoroheptanoic acid

363 > 319.0	2.432	2.438	-0.006	1.000	2904046	20.5		102	38746	
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D 11 13C4-PFHpA

367 > 322.0	2.432	2.438	-0.006		6813484	50.2		100	487646	
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D 10 18O2 PFHxS

403 > 84.0	2.441	2.451	-0.010		8384721	48.2		102	495641	
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15 Perfluorooctanoic acid

413 > 369.0	2.798	2.802	-0.004	1.000	2921050	20.3		101	142673	
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413 > 169.0	2.798	2.802	-0.004	1.000	1807490		1.62(0.90-1.10)	101	612916	
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D 14 13C4 PFOA

417 > 372.0	2.798	2.802	-0.004		6887350	52.6		105	467791	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.807	2.808	-0.001	1.000	3082672	20.4		107		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.143	3.154	-0.011	1.000	2567636	18.8		101	108703	
499 > 99.0	3.066	3.154	-0.088	0.976	576105		4.46(0.90-1.10)	101	9769	
D 17 13C4 PFOS										
503 > 80.0	3.173	3.177	-0.004		6105665	47.4		99.1	269554	
D 19 13C5 PFNA										
468 > 423.0	3.173	3.179	-0.006		5239930	49.7		99.5	305649	
20 Perfluorononanoic acid										
463 > 419.0	3.173	3.180	-0.007	1.000	2222271	20.9		104	67753	
D 21 13C8 FOSA										
506 > 78.0	3.475	3.483	-0.008		12193755	50.2		100	423250	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.482	3.489	-0.007	1.000	4720107	21.0		105	190804	
D 23 13C2 PFDA										
515 > 470.0	3.530	3.541	-0.011		4798024	52.4		105	343943	
24 Perfluorodecanoic acid										
513 > 469.0	3.538	3.542	-0.004	1.000	1869881	20.1		101	114618	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.846	3.854	-0.008	1.000	1610711	20.5		106		
D 27 13C2 PFUnA										
565 > 520.0	3.869	3.872	-0.003		3630899	50.4		101	329309	
28 Perfluoroundecanoic acid										
563 > 519.0	3.869	3.875	-0.006	1.000	1512661	19.2		96.2	69070	
D 30 13C2 PFDoA										
615 > 570.0	4.162	4.165	-0.003		3442030	51.7		103	215949	
29 Perfluorododecanoic acid										
613 > 569.0	4.162	4.168	-0.006	1.000	1332738	19.9		99.7	65965	
31 Perfluorotridecanoic acid										
633 > 619.0	4.426	4.435	-0.009	1.000	1356380	20.2		101	74409	
D 32 13C2-PFTeDA										
715 > 670.0	4.667	4.674	-0.007		6857936	53.0		106	373630	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.674	4.674	0.0	1.000	2086068	21.2		106	3971	
713 > 169.0	4.667	4.674	-0.007	0.999	415364		5.02(0.00-0.00)	106	164371	
D 34 13C2-PFHxDA										
815 > 770.0	5.088	5.096	-0.008		4339629	54.2		108	547445	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.088	5.098	-0.010	1.000	1590699	18.9		94.6	60572	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.456	5.469	-0.013	1.000	1534044	20.7		104	5986	

Reagents:

LCPFC-L4_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_007_p1_e1.d

Injection Date: 19-Sep-2016 16:10:00

Instrument ID: A8

Lims ID: IC L4

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

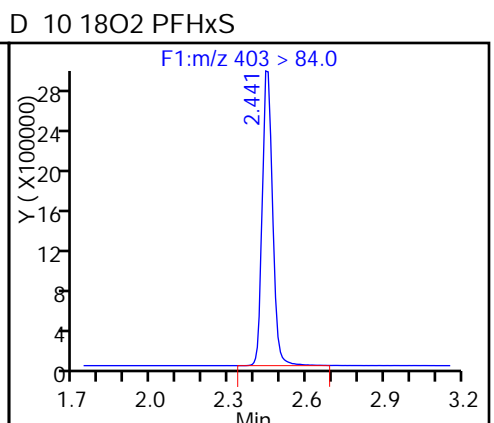
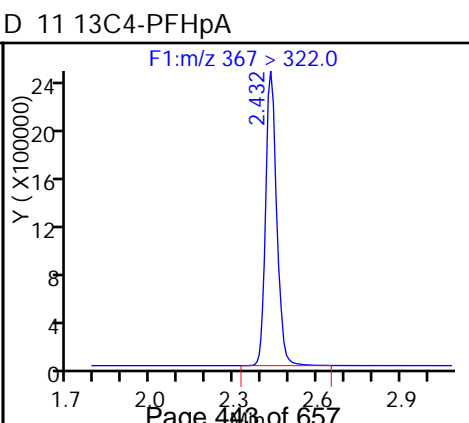
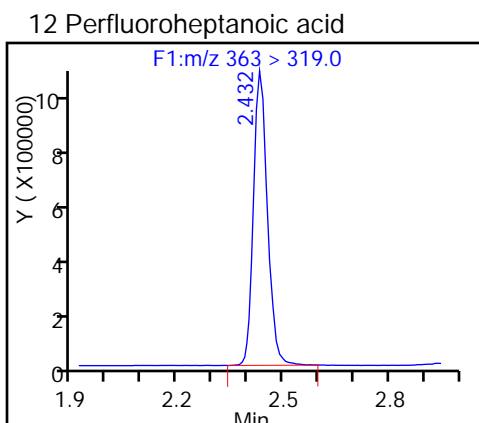
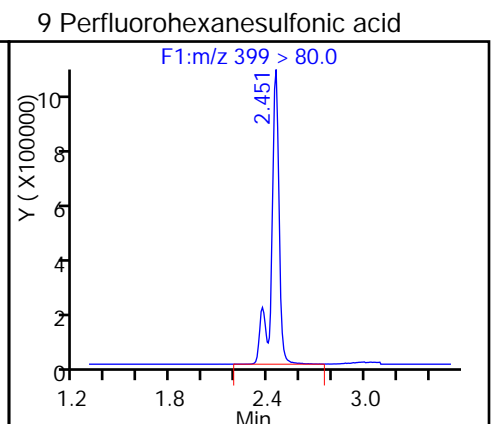
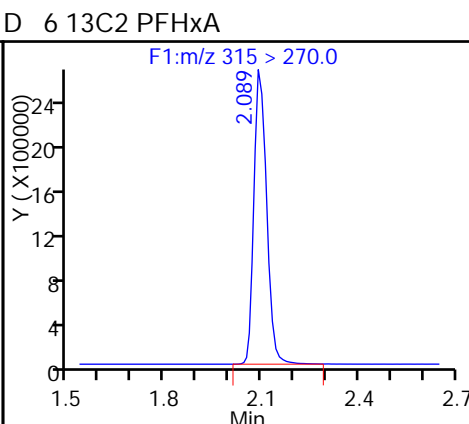
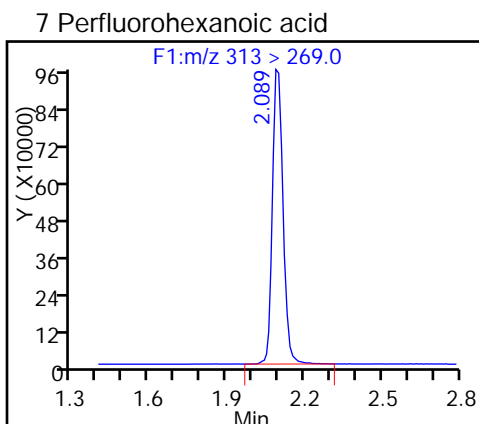
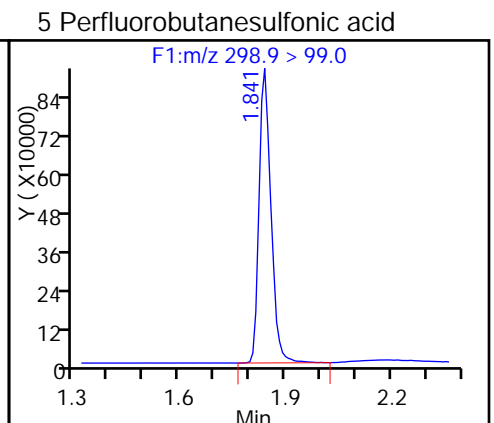
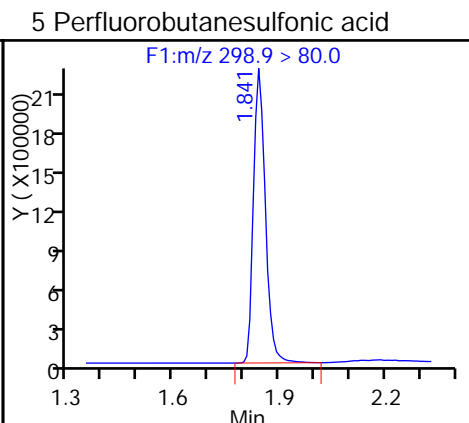
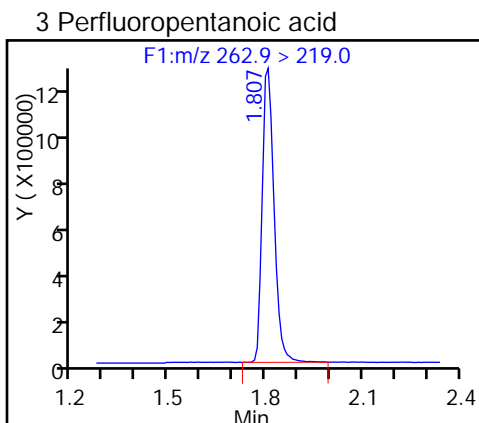
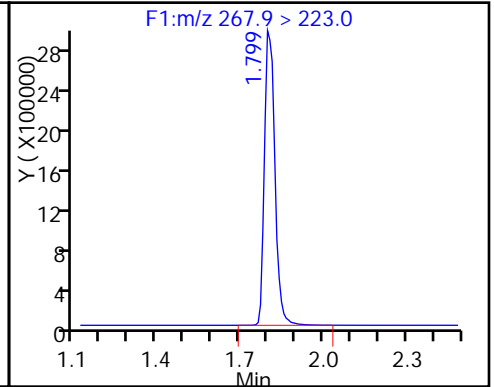
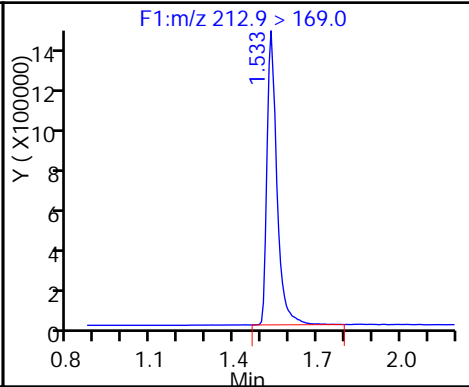
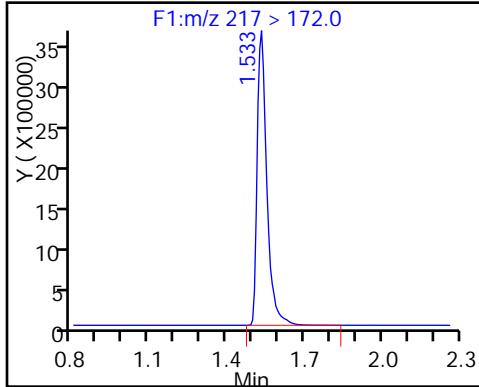
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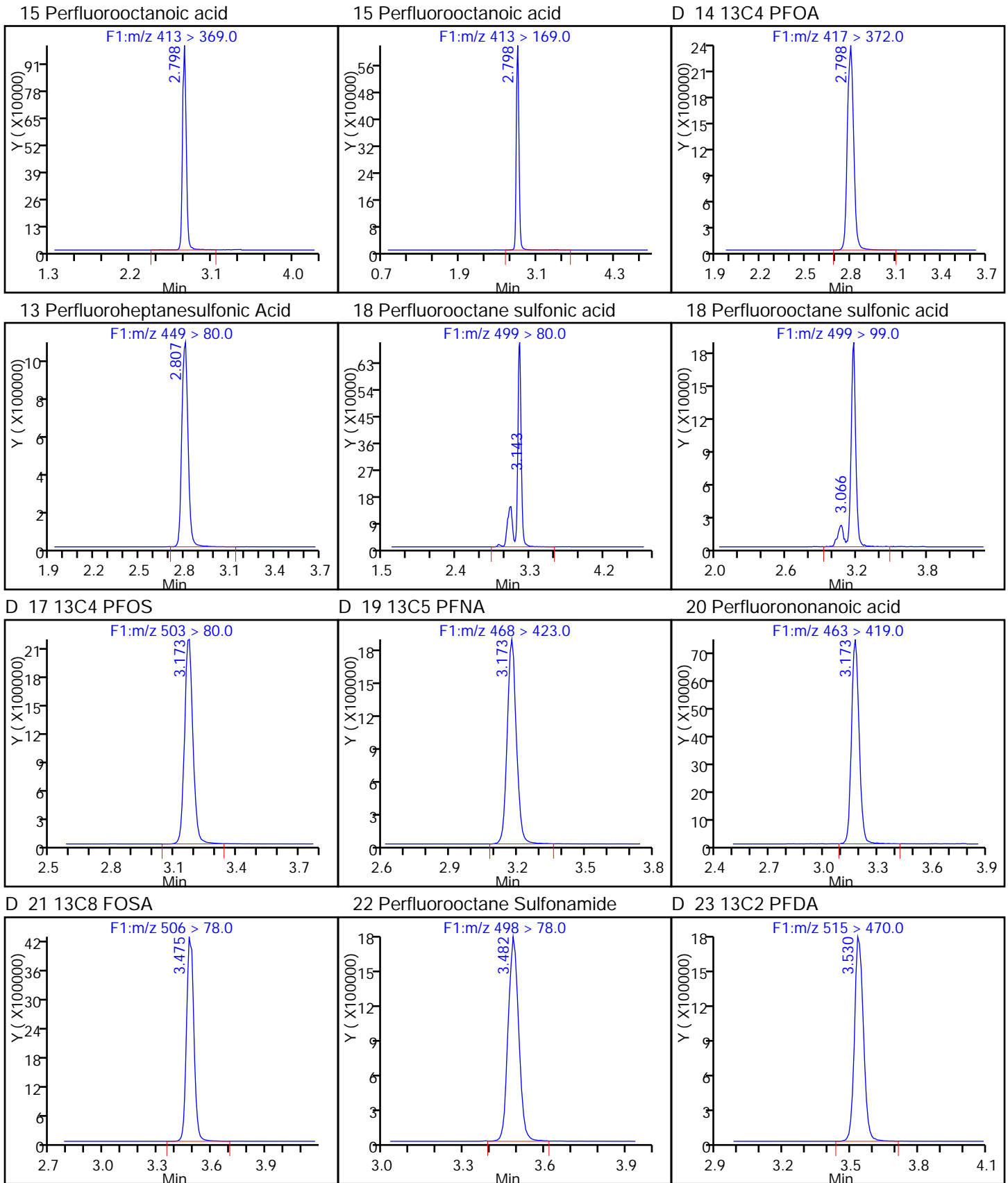
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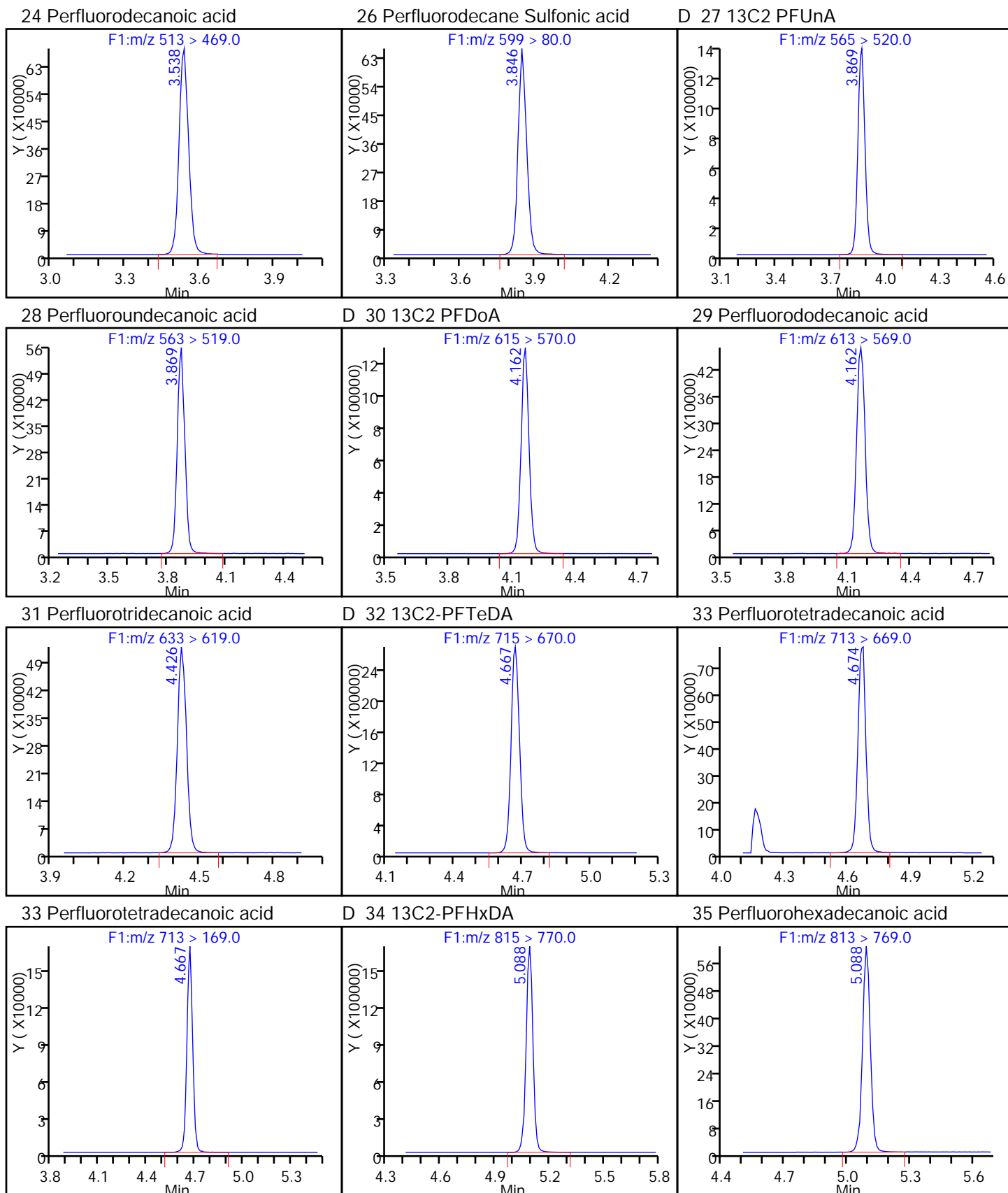
D 2 13C4 PFBA

1 Perfluorobutyric acid

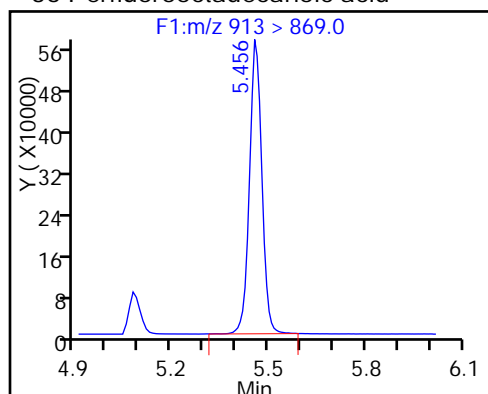
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_008_p1_e1.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 19-Sep-2016 16:18:00 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:50:05 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.539	1.534	0.005		9175100	48.8		97.7	391119	
1 Perfluorobutyric acid										
212.9 > 169.0	1.539	1.535	0.004	1.000	8426684	53.0		106	58494	
D 4 13C5-PFPeA										
267.9 > 223.0	1.806	1.807	-0.001		7477399	47.6		95.3	587669	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.814	1.809	0.005	1.000	7642341	50.3		101	148609	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.848	1.844	0.004	1.000	12615903	46.9		106		
298.9 > 99.0	1.848	1.844	0.004	1.000	5659462		2.23(0.00-0.00)	106		
7 Perfluorohexanoic acid										
313 > 269.0	2.099	2.096	0.003	1.000	6653747	50.5		101	300492	
D 6 13C2 PFHxA										
315 > 270.0	2.099	2.096	0.003		6956218	49.2		98.4	510315	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.375	2.415	-0.040	1.000	8266665	45.7		100		
12 Perfluoroheptanoic acid										
363 > 319.0	2.439	2.438	0.001	1.000	6606063	49.0		98.1	75782	
D 11 13C4-PFHpA										
367 > 322.0	2.439	2.438	0.001		6467052	47.6		95.3	581384	
D 10 18O2 PFHxS										
403 > 84.0	2.458	2.451	0.007		8321889	47.8		101	519490	
15 Perfluorooctanoic acid										
413 > 369.0	2.803	2.802	0.001	1.000	6872664	50.0		100	388230	
413 > 169.0	2.803	2.802	0.001	1.000	4251408		1.62(0.90-1.10)	100	1408146	
D 14 13C4 PFOA										
417 > 372.0	2.795	2.802	-0.007		6561673	50.1		100	556134	
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.803	2.808	-0.005	1.000	7606839	48.5		102		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.153	3.154	-0.001	1.000	6549517	46.1		99.3	442226	
499 > 99.0	3.063	3.154	-0.091	0.971	1486359		4.41(0.90-1.10)	99.3	17463	
D 17 13C4 PFOS										
503 > 80.0	3.176	3.177	-0.001		6348052	49.2		103	169930	
D 19 13C5 PFNA										
468 > 423.0	3.176	3.179	-0.003		4990176	47.4		94.7	277536	
20 Perfluorononanoic acid										
463 > 419.0	3.176	3.180	-0.004	1.000	5059430	49.9		99.8	178394	
D 21 13C8 FOSA										
506 > 78.0	3.486	3.483	0.003		11886098	48.9		97.8	370121	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.494	3.489	0.005	1.000	11296832	51.7		103	280374	
D 23 13C2 PFDA										
515 > 470.0	3.533	3.541	-0.008		4501123	49.1		98.2	267320	
24 Perfluorodecanoic acid										
513 > 469.0	3.541	3.542	-0.001	1.000	4488689	51.5		103	277904	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.850	3.854	-0.004	1.000	3989096	48.7		101		
D 27 13C2 PFUnA										
565 > 520.0	3.873	3.872	0.001		3399378	47.2		94.3	219071	
28 Perfluoroundecanoic acid										
563 > 519.0	3.873	3.875	-0.002	1.000	3488025	47.4		94.8	184810	
D 30 13C2 PFDaA										
615 > 570.0	4.166	4.165	0.001		3318471	49.9		99.8	242638	
29 Perfluorododecanoic acid										
613 > 569.0	4.166	4.168	-0.002	1.000	3190971	49.5		99.0	165676	
31 Perfluorotridecanoic acid										
633 > 619.0	4.430	4.435	-0.005	1.000	3241799	50.2		100	180027	
D 32 13C2-PFTeDA										
715 > 670.0	4.669	4.674	-0.005		6591504	51.0		102	623570	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.669	4.674	-0.005	1.000	4906866	51.8		104	8067	
713 > 169.0	4.669	4.674	-0.005	1.000	988512		4.96(0.00-0.00)	104	380551	
D 34 13C2-PFHxDA										
815 > 770.0	5.090	5.096	-0.006		4254115	53.1		106	403472	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.090	5.098	-0.008	1.000	3913210	48.3		96.5	253692	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.461	5.469	-0.008	1.000	3860401	54.1		108	15168	

Reagents:

LCPFC-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_008_p1_e1.d

Injection Date: 19-Sep-2016 16:18:00

Instrument ID: A8

Lims ID: IC L5

Client ID:

Operator ID: A8

ALS Bottle#:

0

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor:

1.0000

Method: PFC_A8_Full

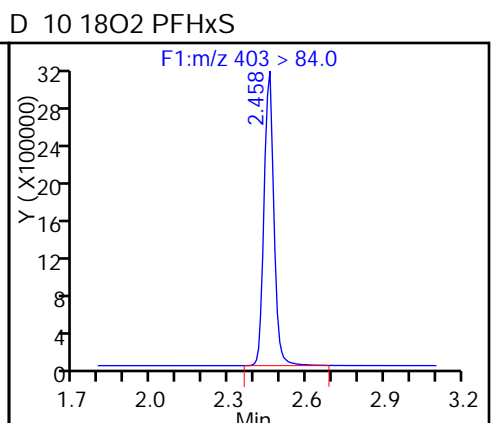
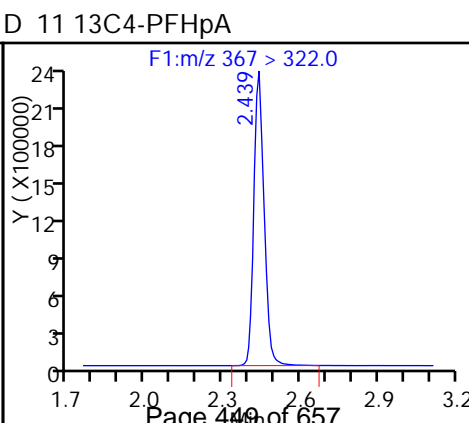
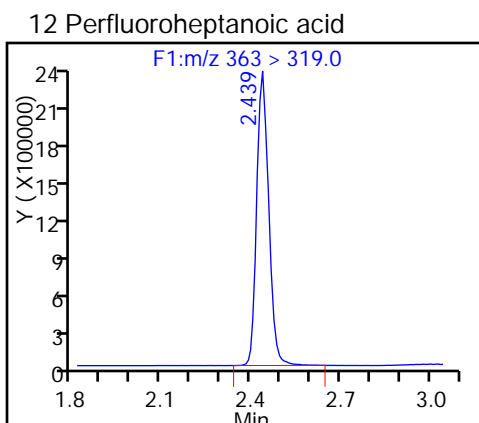
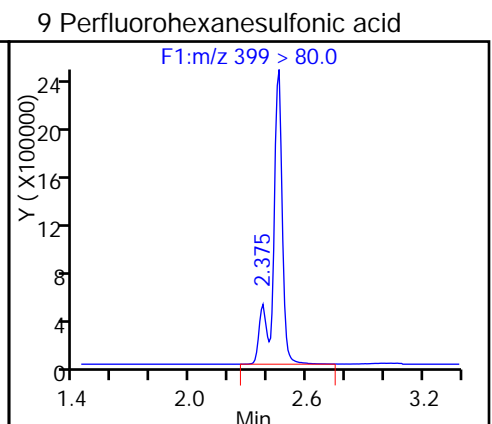
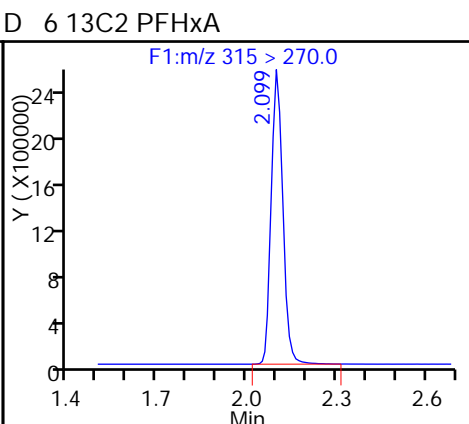
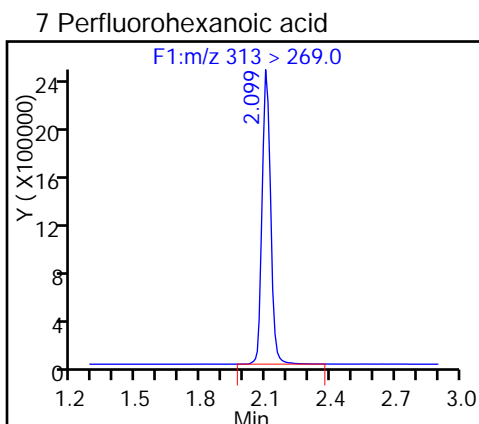
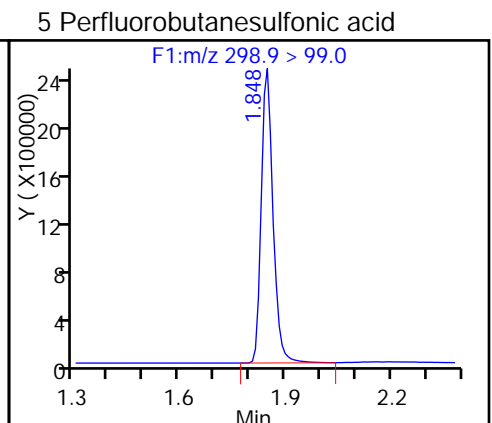
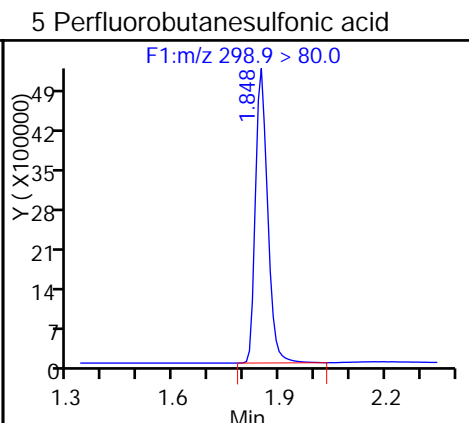
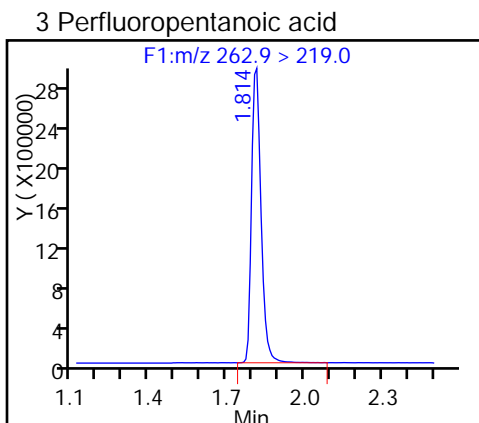
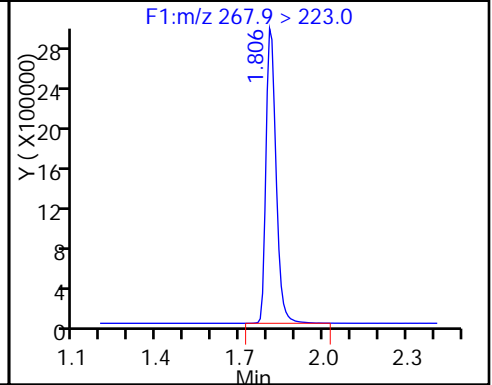
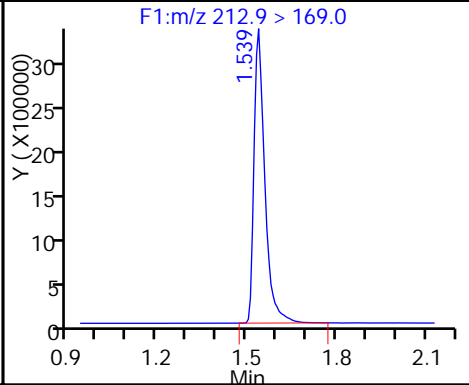
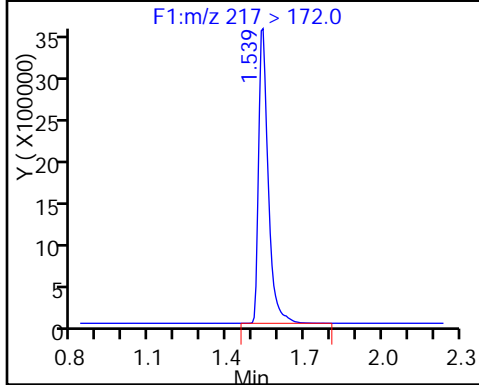
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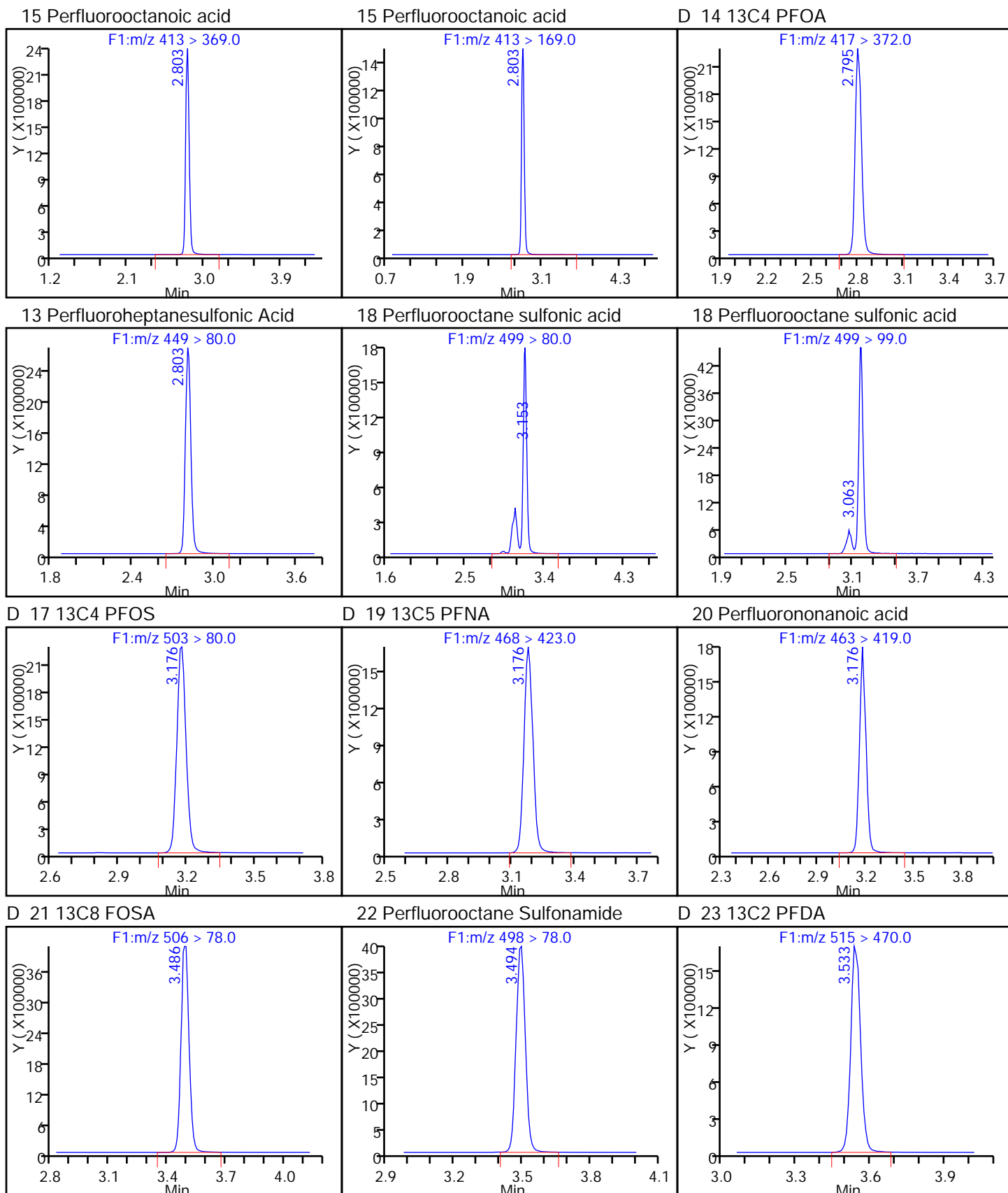
LC PFC_DOD ICAL

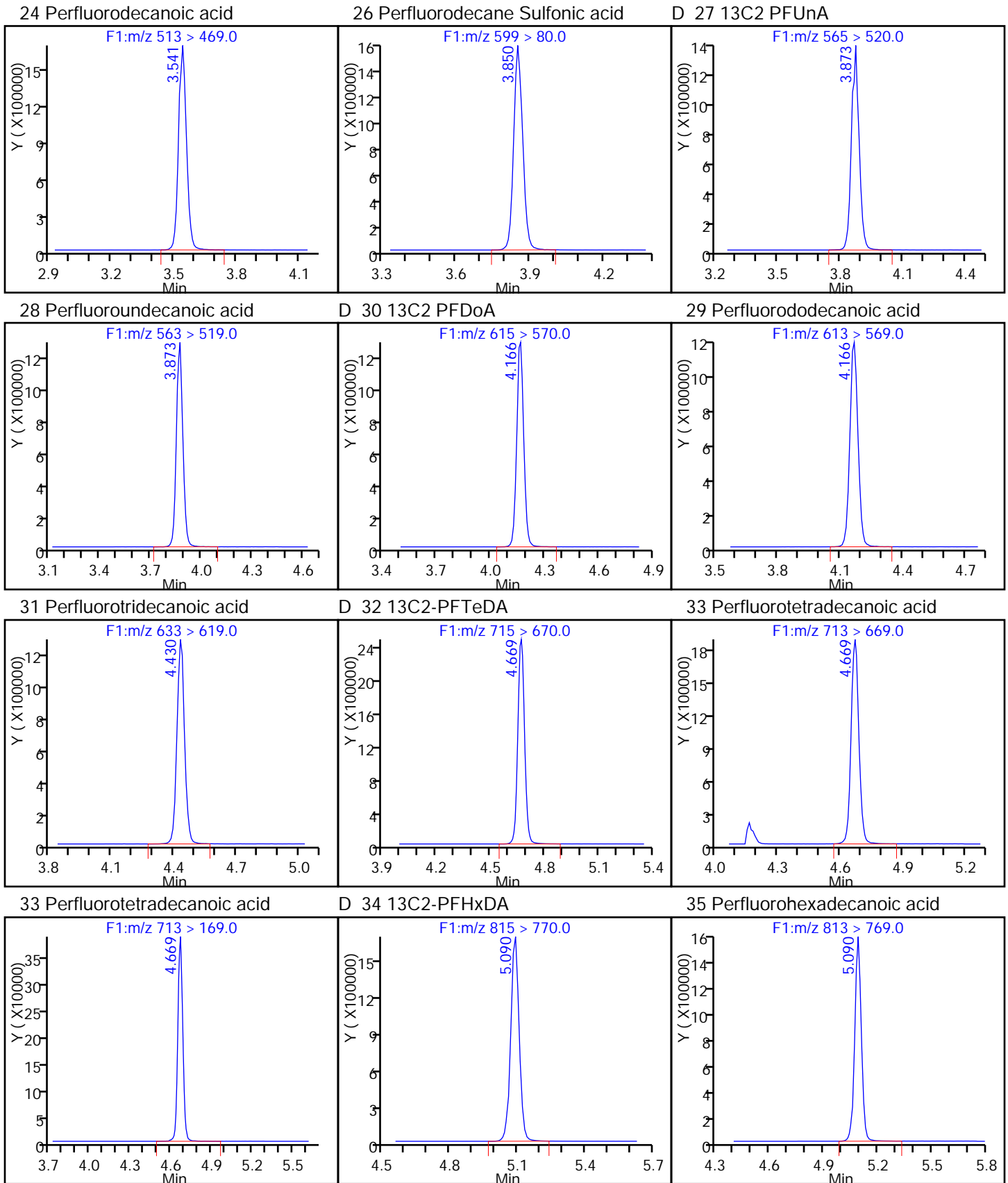
D 2 13C4 PFBA

1 Perfluorobutyric acid

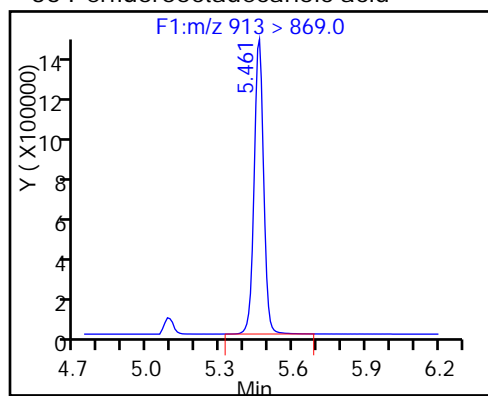
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_009_p1_e1.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 19-Sep-2016 16:25:00 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:50:19 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.532	1.534	-0.002		8752351	46.6		93.2	293104	
1 Perfluorobutyric acid										
212.9 > 169.0	1.532	1.535	-0.003	1.000	27267493	179.6		89.8	150400	
D 4 13C5-PFPeA										
267.9 > 223.0	1.806	1.807	-0.001		6792639	43.3		86.6	644203	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.806	1.809	-0.003	1.000	24371595	176.5		88.3	385255	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.848	1.844	0.004	1.000	37533339	149.6		84.6		
298.9 > 99.0	1.840	1.844	-0.004	0.995	19568444		1.92(0.00-0.00)	84.6		
7 Perfluorohexanoic acid										
313 > 269.0	2.099	2.096	0.003	1.000	23478772	191.0		95.5	832483	
D 6 13C2 PFHxA										
315 > 270.0	2.099	2.096	0.003		6489122	45.9		91.8	433985	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.366	2.415	-0.049	1.000	28733822	170.3		93.6		
12 Perfluoroheptanoic acid										
363 > 319.0	2.437	2.438	-0.001	1.000	21662816	189.3		94.6	297526	
D 11 13C4-PFHpA										
367 > 322.0	2.437	2.438	-0.001		5492840	40.5		80.9	368405	
D 10 18O2 PFHxS										
403 > 84.0	2.448	2.451	-0.003		7765619	44.6		94.3	382445	
15 Perfluorooctanoic acid										
413 > 369.0	2.798	2.802	-0.004	1.000	21559473	188.6		94.3	0.0	
413 > 169.0	2.798	2.802	-0.004	1.000	13874300		1.55(0.90-1.10)	94.3	39884	
D 14 13C4 PFOA										
417 > 372.0	2.798	2.802	-0.004		5462704	41.7		83.4	445311	
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.806	2.808	-0.002	1.000	25781089	181.2		95.2		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.173	3.154	0.019	1.000	24770402	192.1		104	1975076	
499 > 99.0	3.137	3.154	-0.017	0.989	5792804		4.28(0.90-1.10)	104	76337	
D 17 13C4 PFOS										
503 > 80.0	3.173	3.177	-0.004		5756563	44.7		93.4	111826	
D 19 13C5 PFNA										
468 > 423.0	3.180	3.179	0.001		4252184	40.4		80.7	260180	
20 Perfluorononanoic acid										
463 > 419.0	3.180	3.180	0.0	1.000	17064171	197.5		98.8	435096	
D 21 13C8 FOSA										
506 > 78.0	3.490	3.483	0.007		10850645	44.6		89.3	477623	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.490	3.489	0.001	1.000	34861566	174.7		87.3	370752	
D 23 13C2 PFDA										
515 > 470.0	3.537	3.541	-0.004		4156993	45.4		90.7	236371	
24 Perfluorodecanoic acid										
513 > 469.0	3.537	3.542	-0.005	1.000	16046869	199.5		99.7	471914	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.846	3.854	-0.008	1.000	14904378	200.8		104		
D 27 13C2 PFUnA										
565 > 520.0	3.869	3.872	-0.003		2905689	40.3		80.6	261213	
28 Perfluoroundecanoic acid										
563 > 519.0	3.869	3.875	-0.006	1.000	11833824	188.2		94.1	639796	
D 30 13C2 PFDaA										
615 > 570.0	4.153	4.165	-0.012		3029438	45.5		91.1	220417	
29 Perfluorododecanoic acid										
613 > 569.0	4.153	4.168	-0.015	1.000	11876099	201.8		101	511253	
31 Perfluorotridecanoic acid										
633 > 619.0	4.426	4.435	-0.009	1.000	11725830	198.8		99.4	390894	
D 32 13C2-PFTeDA										
715 > 670.0	4.666	4.674	-0.008		6101402	47.2		94.4	453125	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.666	4.674	-0.008	1.000	17720647	204.8		102	34955	
713 > 169.0	4.659	4.674	-0.015	0.999	3694535		4.80(0.00-0.00)	102	454226	
D 34 13C2-PFHxDA										
815 > 770.0	5.088	5.096	-0.008		3903423	48.7		97.5	348907	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.088	5.098	-0.010	1.000	13968190	188.7		94.3	495098	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.453	5.469	-0.016	1.000	14757149	226.6		113	66375	

Reagents:

LCPFC-L6_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_009_p1_e1.d

Injection Date: 19-Sep-2016 16:25:00

Instrument ID: A8

Lims ID: IC L6

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

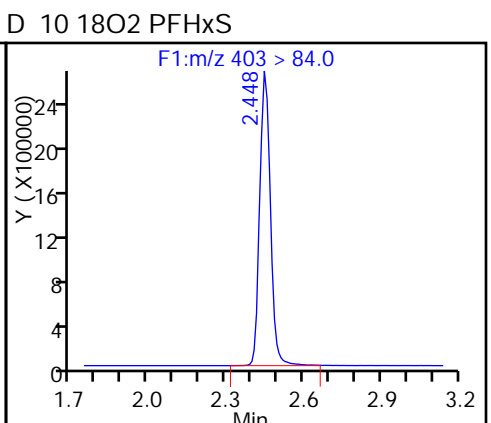
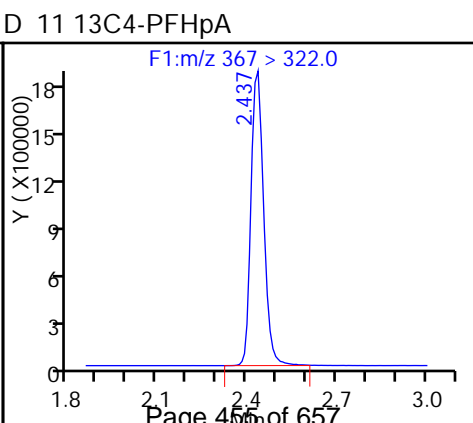
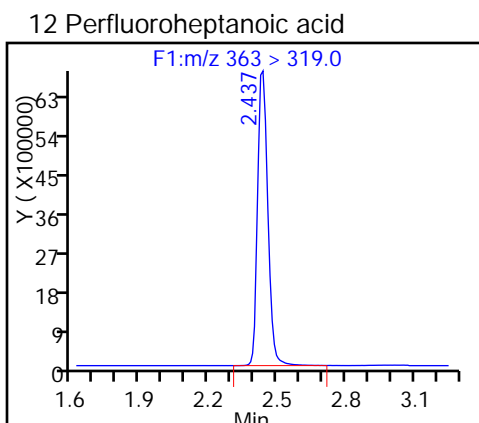
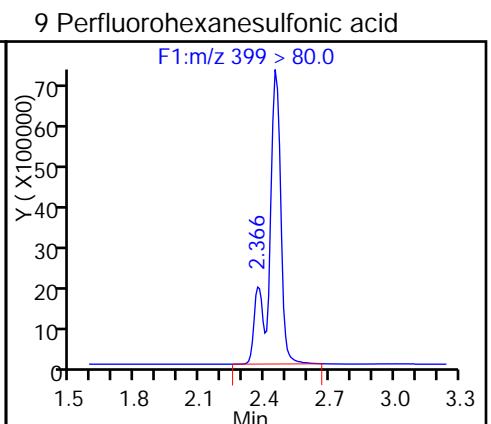
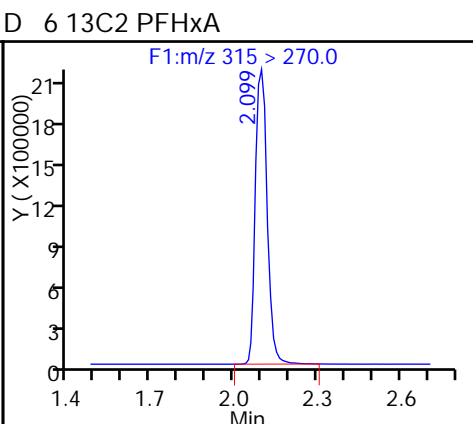
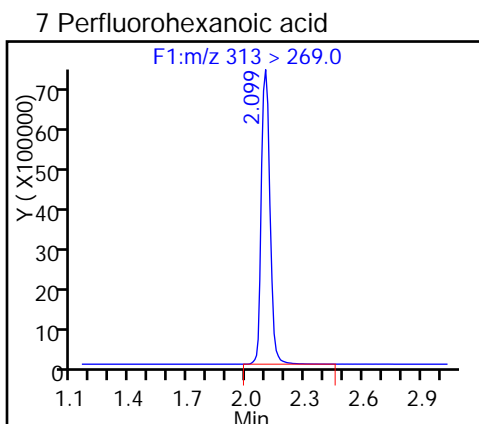
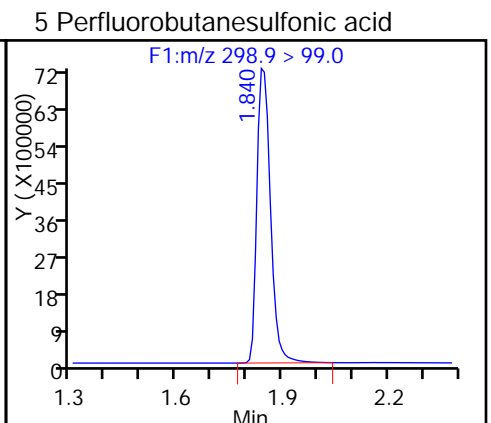
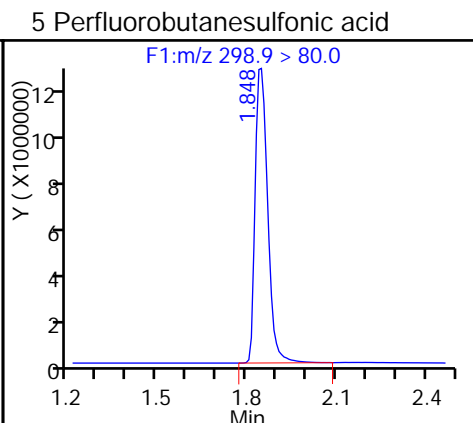
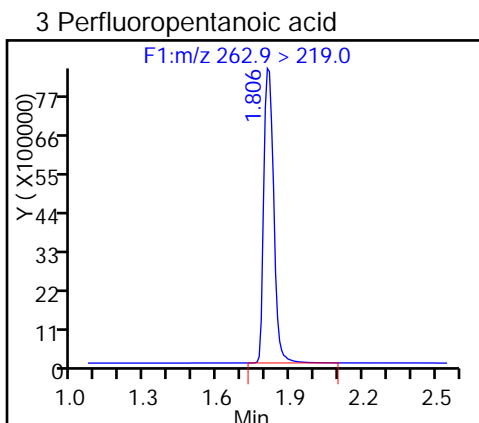
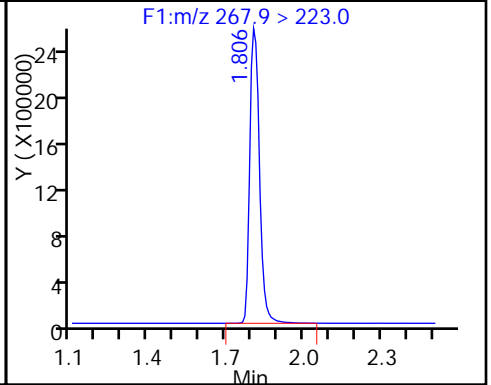
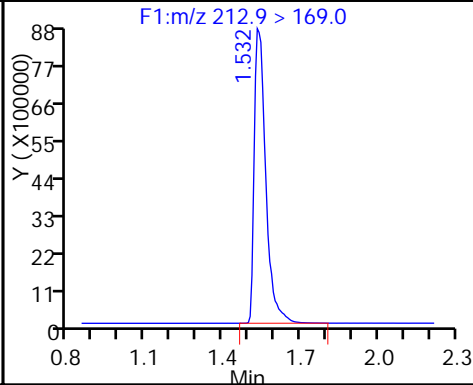
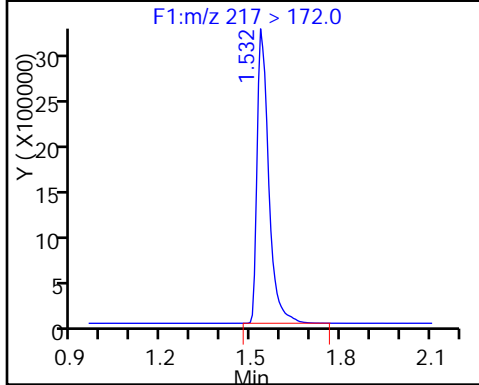
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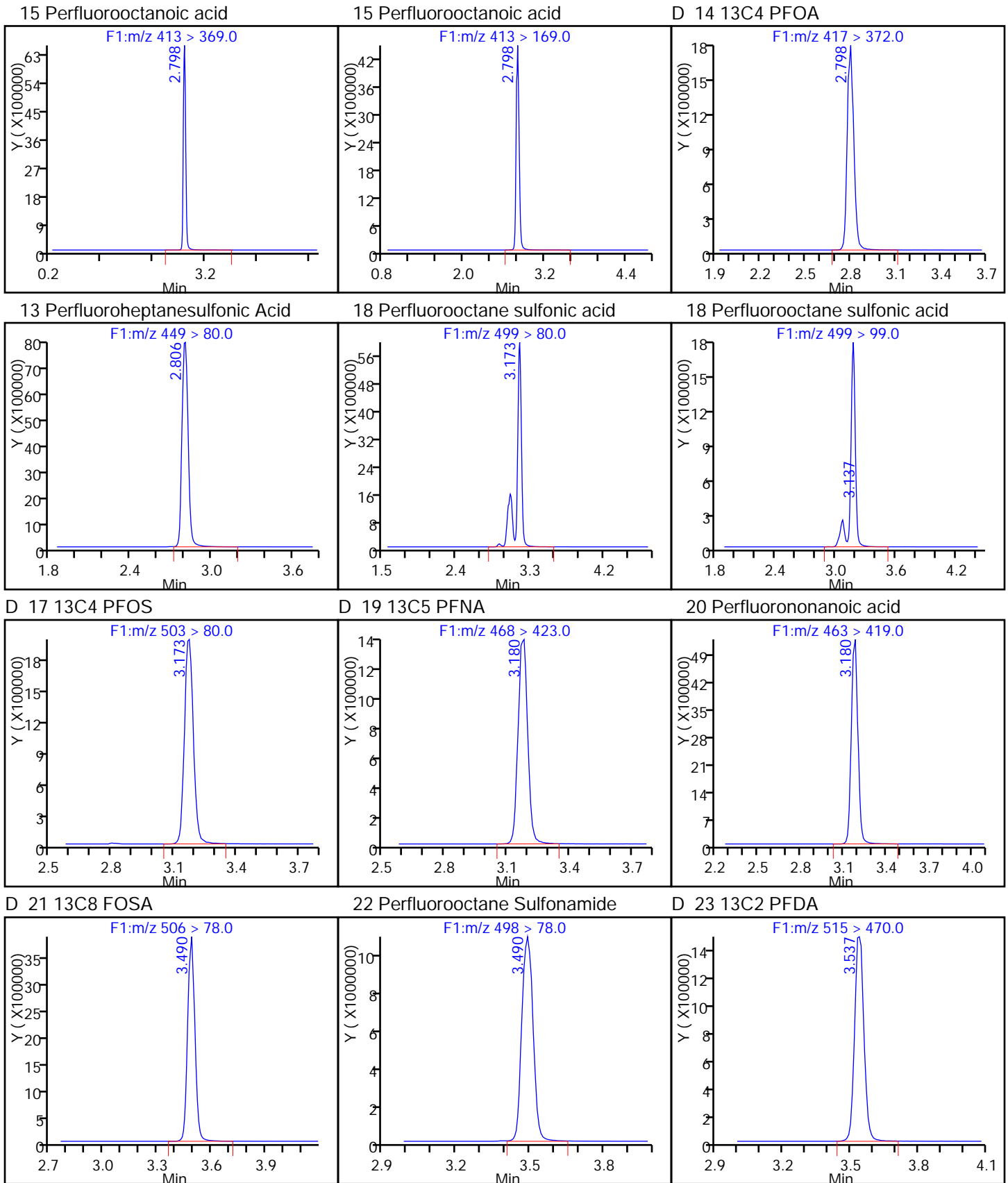
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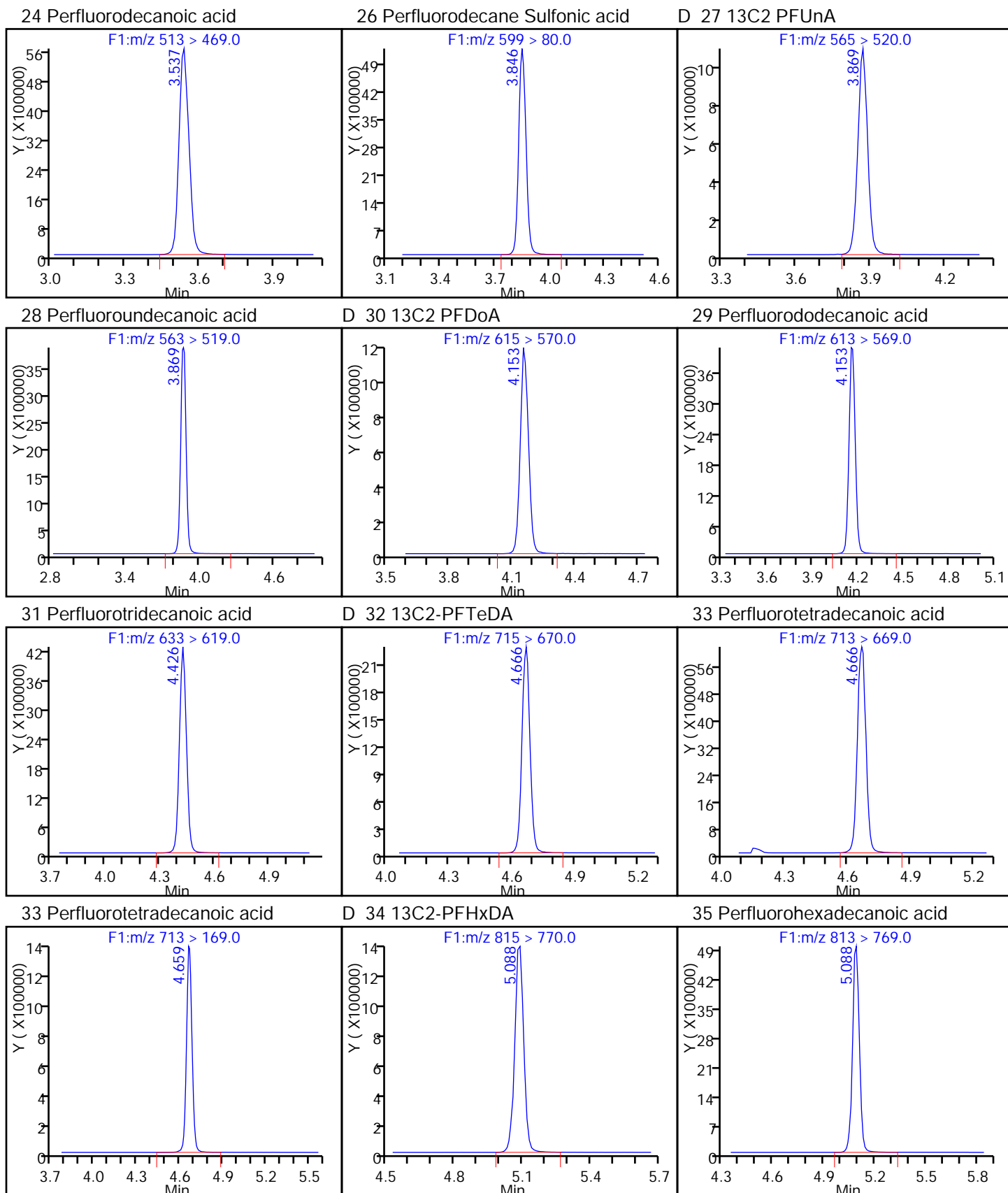
D 2 13C4 PFBA

1 Perfluorobutyric acid

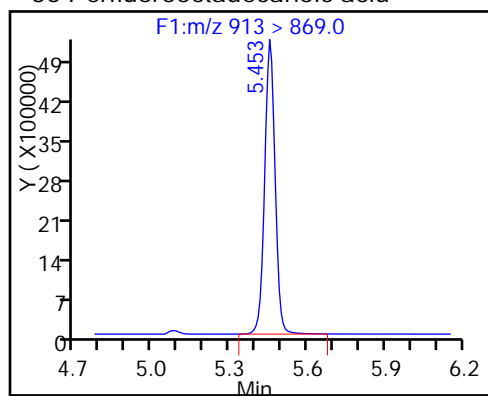
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_010_p1_e1.d
 Lims ID: IC L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 19-Sep-2016 16:33:00 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:18 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.532	1.534	-0.002		8189714	43.6		87.2	256946	
1 Perfluorobutyric acid										
212.9 > 169.0	1.532	1.535	-0.003	1.000	43974039	309.6		77.4	216375	
D 4 13C5-PFPeA										
267.9 > 223.0	1.806	1.807	-0.001		6019692	38.4		76.7	767364	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.806	1.809	-0.003	1.000	37330086	305.1		76.3	711297	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.840	1.844	-0.004	1.000	55197562	242.7		68.6		
298.9 > 99.0	1.831	1.844	-0.013	0.995	30601382		1.80(0.00-0.00)	68.6		
7 Perfluorohexanoic acid										
313 > 269.0	2.088	2.096	-0.008	1.000	38178367	333.2		83.3	765287	
D 6 13C2 PFHxA										
315 > 270.0	2.088	2.096	-0.008		6047771	42.8		85.5	525165	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.417	2.415	0.002	1.000	49879178	326.1		89.6		
12 Perfluoroheptanoic acid										
363 > 319.0	2.427	2.438	-0.011	1.000	34613538	351.3		87.8	393596	
D 11 13C4-PFHpA										
367 > 322.0	2.427	2.438	-0.011		4729204	34.8		69.7	381242	
D 10 18O2 PFHxS										
403 > 84.0	2.450	2.451	-0.001		7039582	40.4		85.5	280749	
15 Perfluorooctanoic acid										
413 > 369.0	2.783	2.802	-0.019	1.000	35136753	364.3		91.1	0.0	
413 > 169.0	2.792	2.802	-0.010	1.003	23600897		1.49(0.90-1.10)	91.1	51394	
D 14 13C4 PFOA										
417 > 372.0	2.792	2.802	-0.010		4607973	35.2		70.4	358346	
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.800	2.808	-0.008	1.000	41282986	323.3		84.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.159	3.154	0.005	1.000	45156111	390.2		105	4503277	
499 > 99.0	3.159	3.154	0.005	1.000	11007030		4.10(0.90-1.10)	105	16276	
D 17 13C4 PFOS										
503 > 80.0	3.167	3.177	-0.010		5167591	40.1		83.9	80380	
D 19 13C5 PFNA										
468 > 423.0	3.167	3.179	-0.012		3723817	35.3		70.7	172580	
20 Perfluorononanoic acid										
463 > 419.0	3.167	3.180	-0.013	1.000	28864551	381.5		95.4	519446	
D 21 13C8 FOSA										
506 > 78.0	3.476	3.483	-0.007		9052575	37.2		74.5	285860	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.483	3.489	-0.006	1.000	53178737	319.3		79.8	384979	
D 23 13C2 PFDA										
515 > 470.0	3.531	3.541	-0.010		3671883	40.1		80.1	255964	
24 Perfluorodecanoic acid										
513 > 469.0	3.531	3.542	-0.011	1.000	26510931	373.1		93.3	686737	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.832	3.854	-0.023	1.000	25120161	376.9		97.8		
D 27 13C2 PFUnA										
565 > 520.0	3.855	3.872	-0.017		2469680	34.3		68.5	205232	
28 Perfluoroundecanoic acid										
563 > 519.0	3.862	3.875	-0.013	1.000	19909092	372.4		93.1	526658	
D 30 13C2 PFDaA										
615 > 570.0	4.154	4.165	-0.011		2736623	41.1		82.3	186791	
29 Perfluorododecanoic acid										
613 > 569.0	4.154	4.168	-0.014	1.000	20472666	385.1		96.3	433434	
31 Perfluorotridecanoic acid										
633 > 619.0	4.418	4.435	-0.017	1.000	20278582	380.6		95.1	500521	
D 32 13C2-PFTeDA										
715 > 670.0	4.654	4.674	-0.020		5307610	41.0		82.1	468710	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.647	4.674	-0.027	1.000	23536478	301.1		75.3	44057	
713 > 169.0	4.654	4.674	-0.020	1.001	6715056		3.51(0.00-0.00)	75.3	587079	
D 34 13C2-PFHxDA										
815 > 770.0	5.068	5.096	-0.028		3517129	43.9		87.8	396574	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.079	5.098	-0.019	1.000	24477967	366.0		91.5	616460	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.446	5.469	-0.023	1.000	25443068	432.6		108	117521	

Reagents:

LCPFC-L7_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_010_p1_e1.d

Injection Date: 19-Sep-2016 16:33:00

Instrument ID: A8

Lims ID: IC L7

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

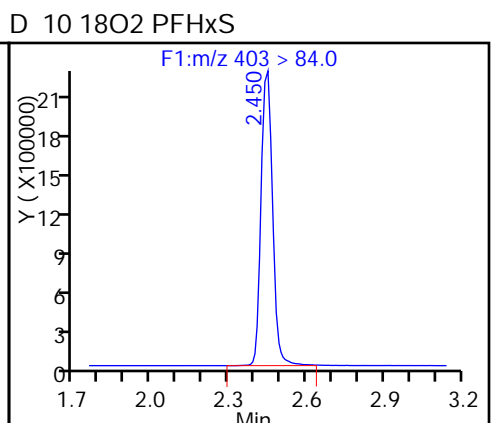
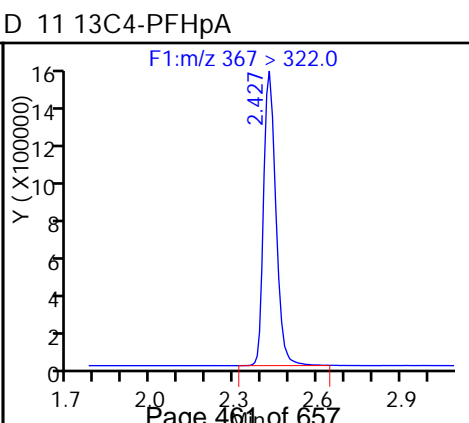
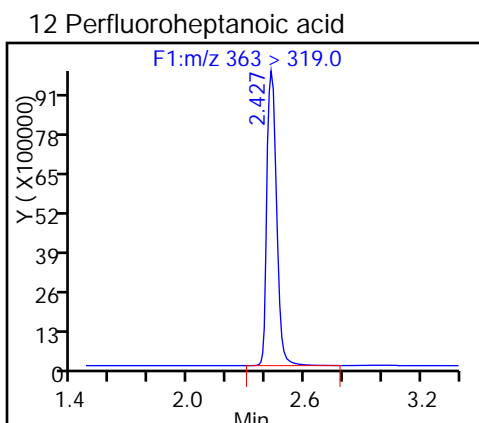
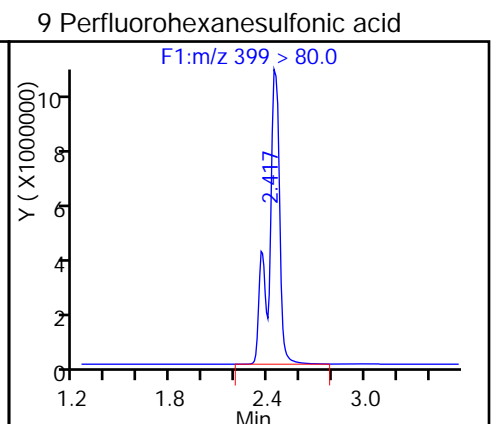
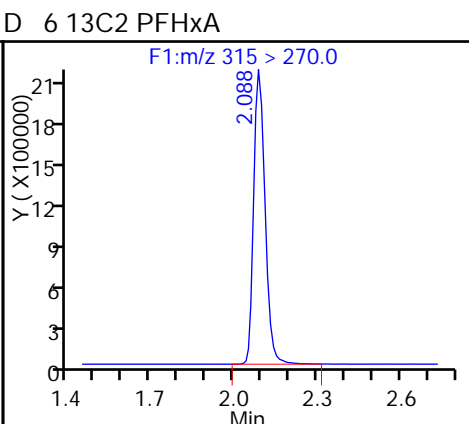
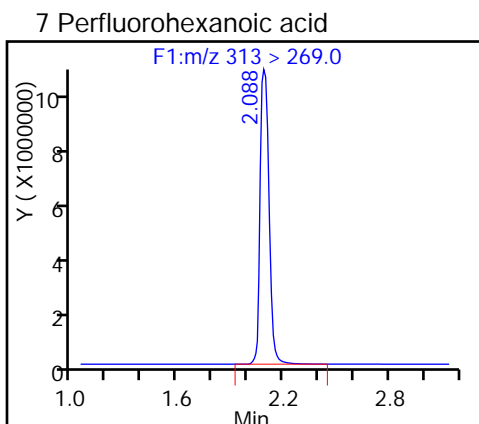
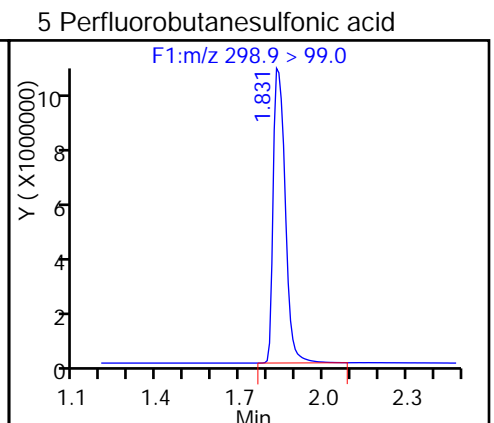
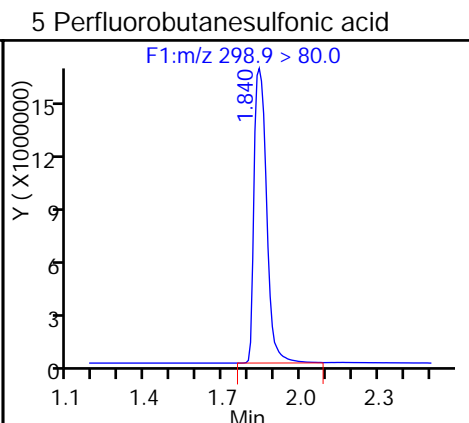
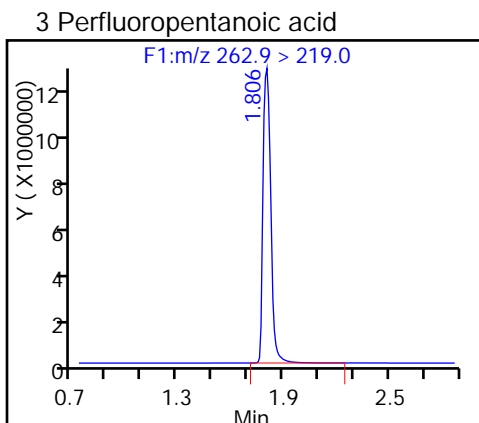
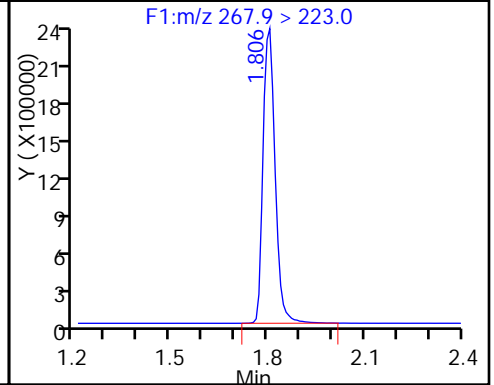
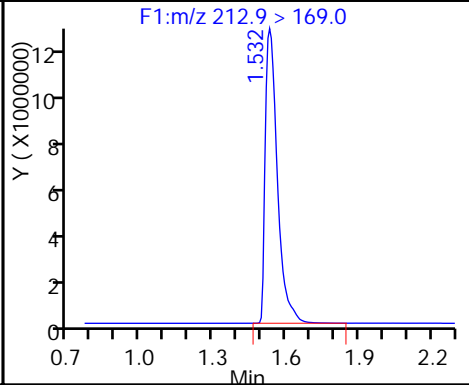
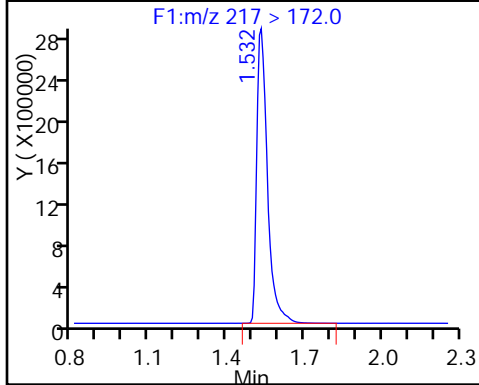
Method: PFC_A8_Full

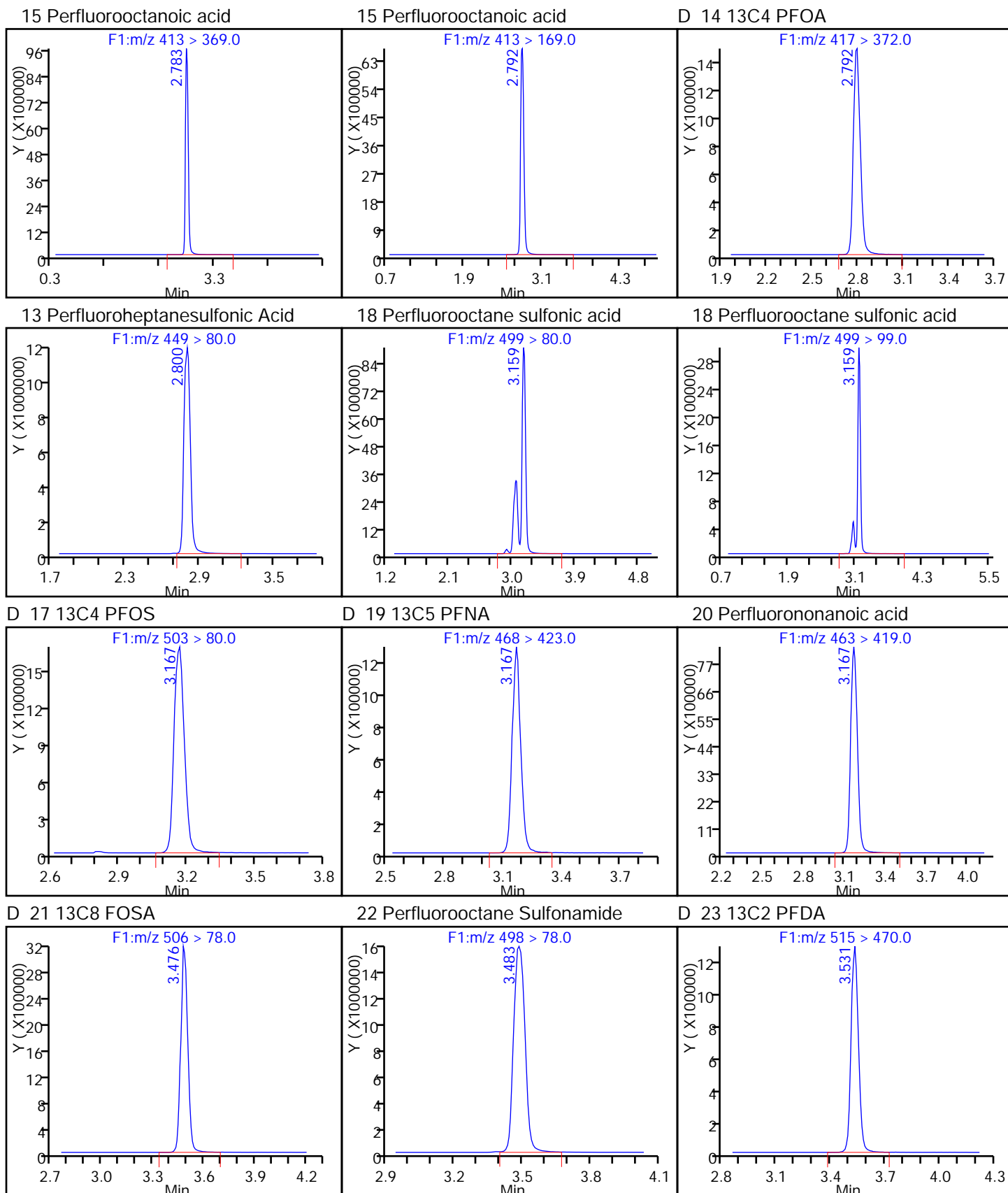
Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

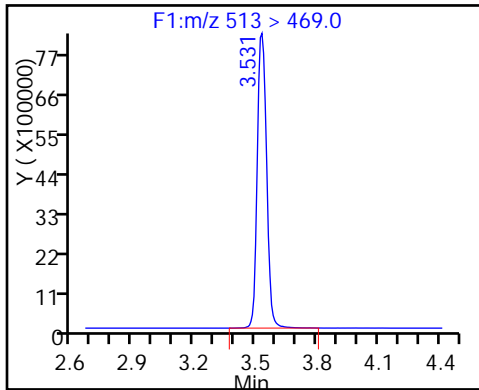
1 Perfluorobutyric acid

D 4 13C5-PFPeA

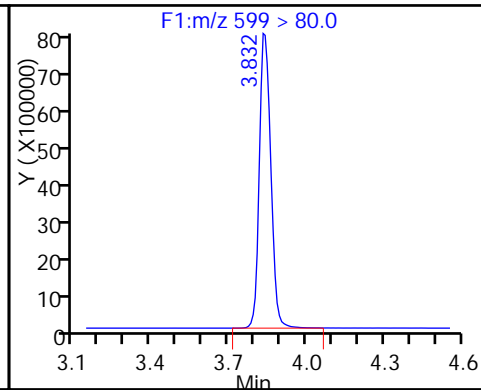




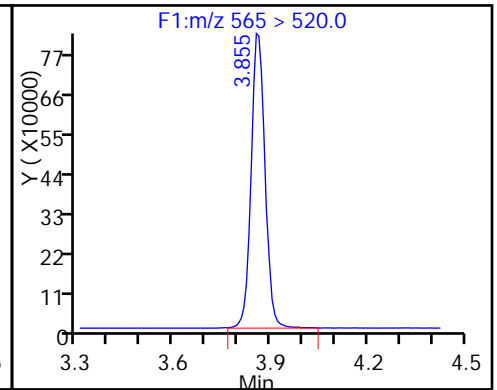
24 Perfluorodecanoic acid



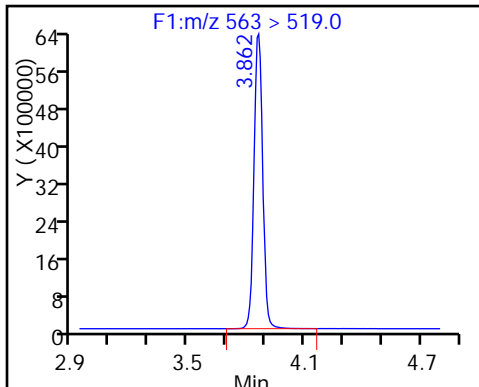
26 Perfluorodecane Sulfonic acid



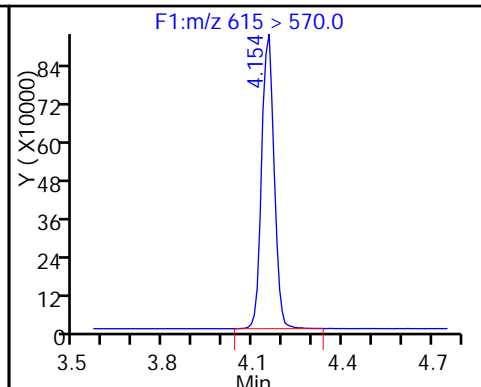
D 27 13C2 PFUnA



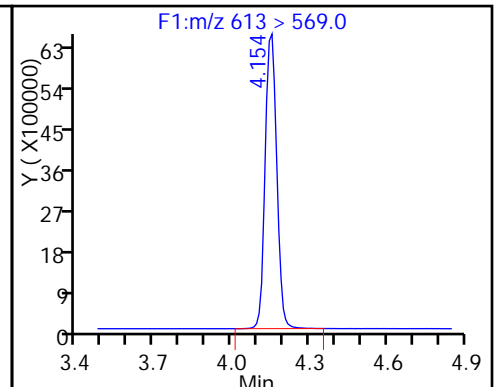
28 Perfluoroundecanoic acid



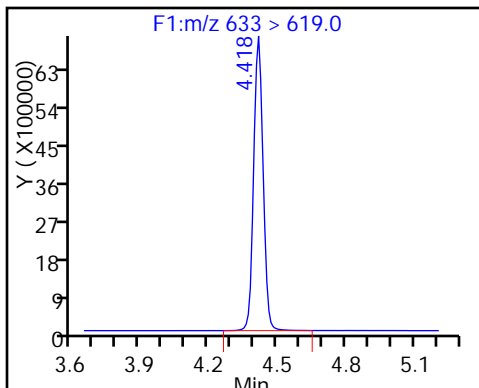
D 30 13C2 PFDaA



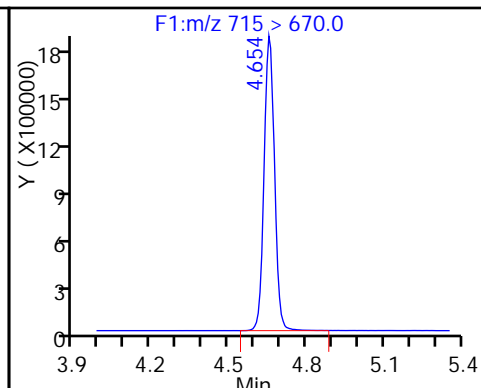
29 Perfluorododecanoic acid



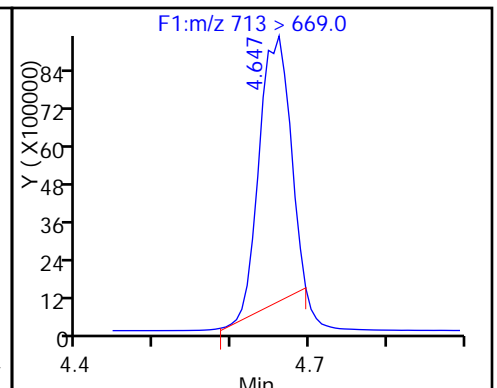
31 Perfluorotridecanoic acid



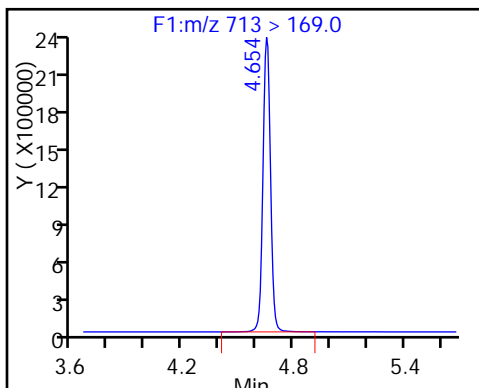
D 32 13C2-PFTeDA



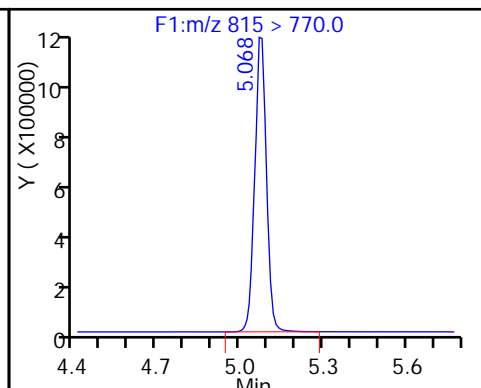
33 Perfluorotetradecanoic acid



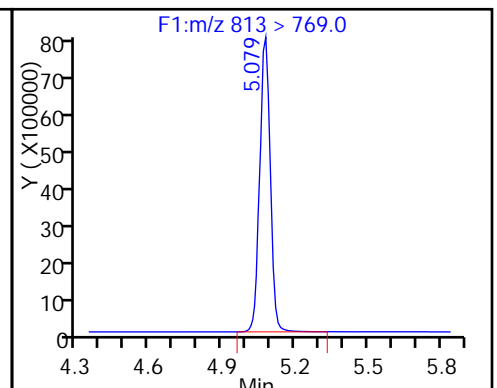
33 Perfluorotetradecanoic acid



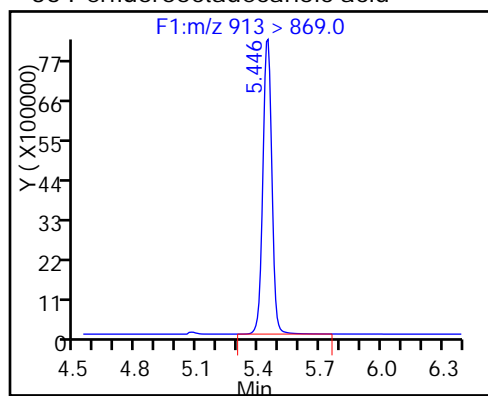
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_014_p1_e1.d
 Lims ID: IC L1 Add-on
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 19-Sep-2016 17:03:00 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:35 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.756	2.748	0.008	1.000	371245	7.12		1502		
D 47 M2-6:2FTS										
429 > 409.0	2.756	2.750	0.006		2998083	46.4		97.7		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.502	3.496	0.006	1.000	22364	0.5187		108		
D 42 M2-8:2FTS										
529 > 509.0	3.502	3.499	0.003		2509047	45.1		94.1		
D 45 d3-NMeFOSAA										
573 > 419.0	3.675	3.665	0.010		1598360	47.8		95.7		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.683	3.670	0.013	1.002	12686	0.4630		92.6		
D 46 d5-NEtFOSAA										
589 > 419.0	3.842	3.832	0.010		1706616	47.7		95.4		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.842	3.837	0.005	1.000	12165	0.4813		96.3		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.970	3.970	0.0		3000484	49.4		98.8		
54 MeFOSA										
512 > 169.0	3.979	3.976	0.003	1.000	23332	0.4791		95.8		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.159	4.155	0.004		2779243	48.5		97.0		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.159	4.159	0.0	1.000	21240	0.4636		92.7		

Reagents:

LCPFC2-L1_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_014_p1_e1.d

Injection Date: 19-Sep-2016 17:03:00

Instrument ID: A8

Lims ID: IC L1 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

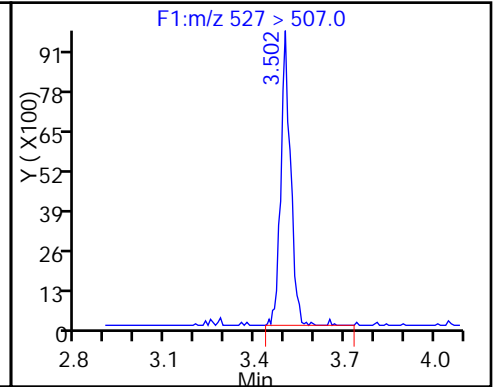
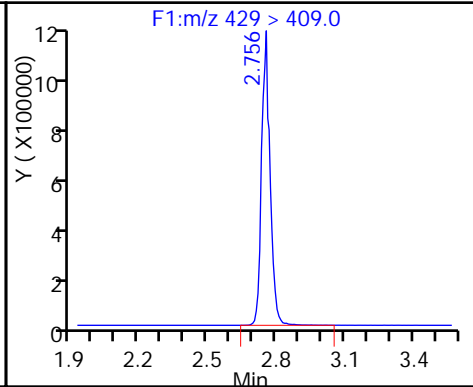
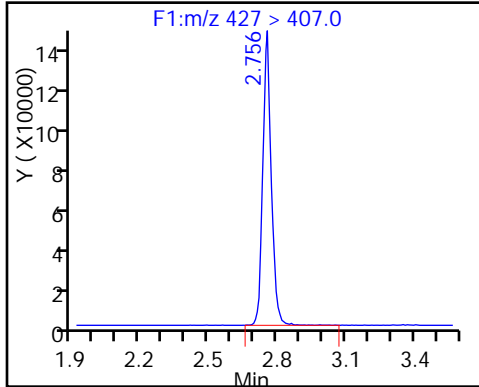
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

48 Sodium 1H,1H,2H,2H-perfluorooctane-1,1,1-trifluoroethane

D 47 M2-6:2FTS

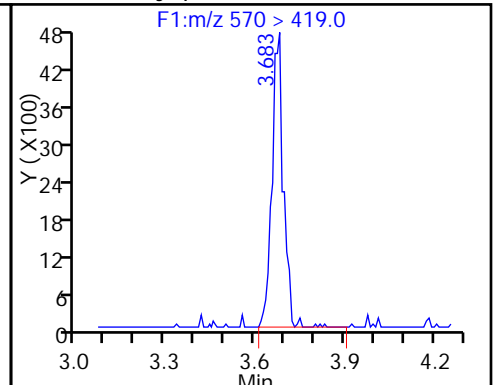
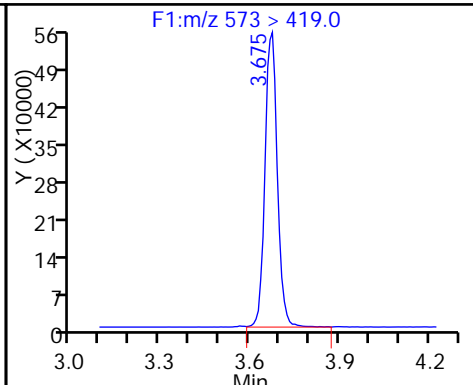
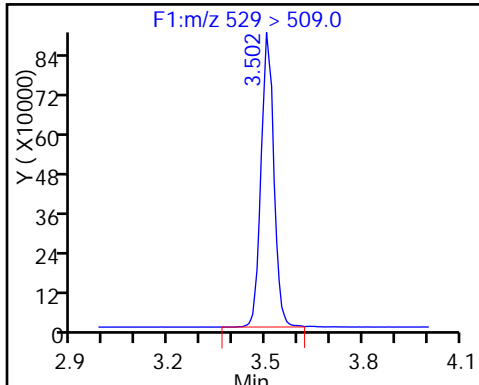
43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

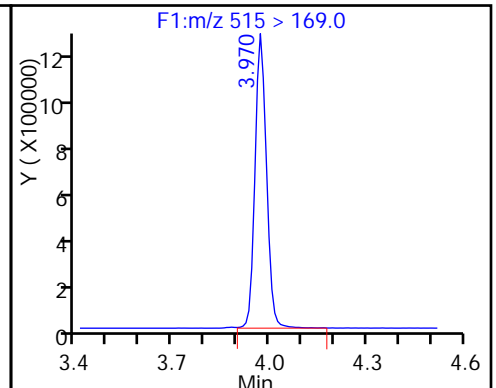
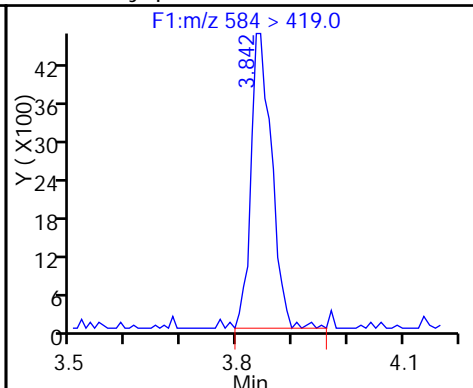
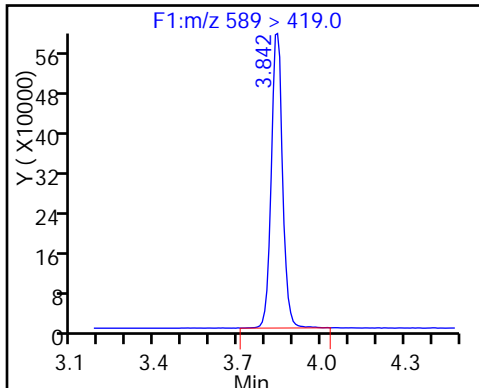
44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamid

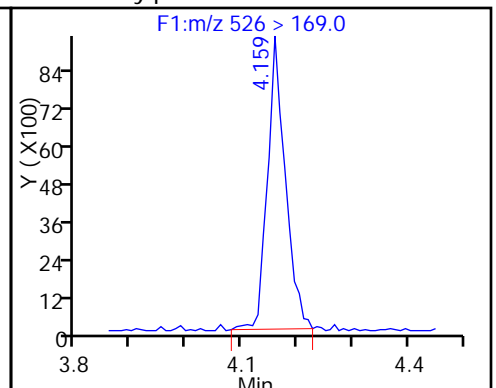
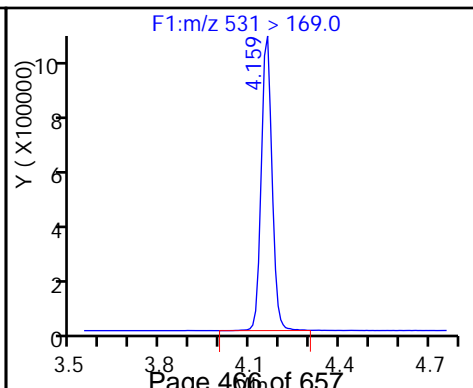
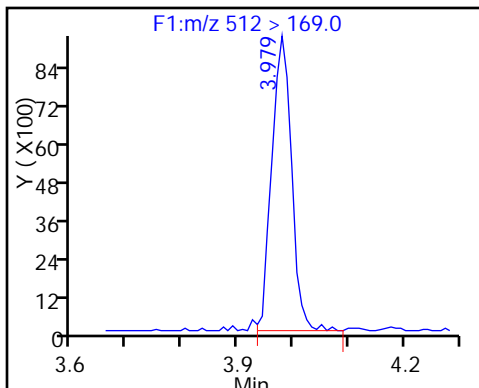
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_015_p1_e1.d
 Lims ID: IC L2 Add-on
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 19-Sep-2016 17:10:00 ALS Bottle#: 0 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:41 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.757	2.748	0.009	1.000	70530	0.9621		101		
D 47 M2-6:2FTS										
429 > 409.0	2.757	2.750	0.007		3105113	48.1		101		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.506	3.496	0.010	1.000	42774	0.9808		102		
D 42 M2-8:2FTS										
529 > 509.0	3.506	3.499	0.007		2537782	45.6		95.2		
D 45 d3-NMeFOSAA										
573 > 419.0	3.663	3.665	-0.002		1658433	49.6		99.2		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.679	3.670	0.009	1.004	26566	0.9345		93.4		
D 46 d5-NEtFOSAA										
589 > 419.0	3.838	3.832	0.006		1801477	50.3		101		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.838	3.837	0.001	1.000	23378	0.8762		87.6		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.974	3.970	0.004		2905963	47.8		95.7		
54 MeFOSA										
512 > 169.0	3.983	3.976	0.007	1.000	42033	0.8911		89.1		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.153	4.155	-0.002		2687759	46.9		93.8		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.162	4.159	0.003	1.000	42626	0.9621		96.2		

Reagents:

LCPFC2-L2_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_015_p1_e1.d

Injection Date: 19-Sep-2016 17:10:00

Instrument ID: A8

Lims ID: IC L2 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

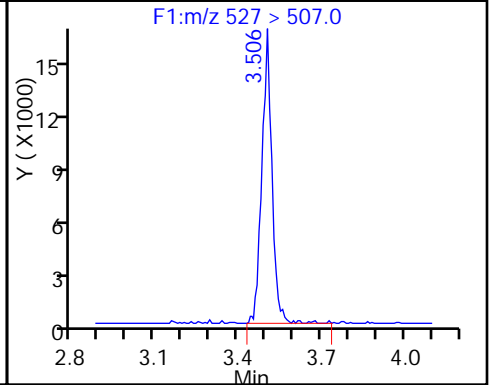
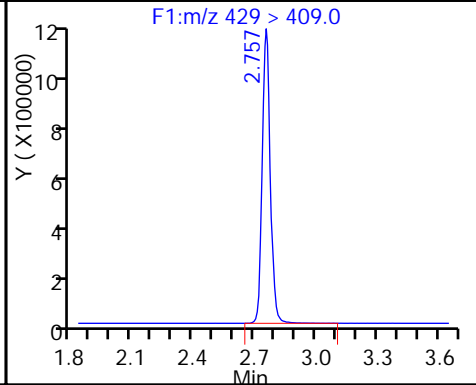
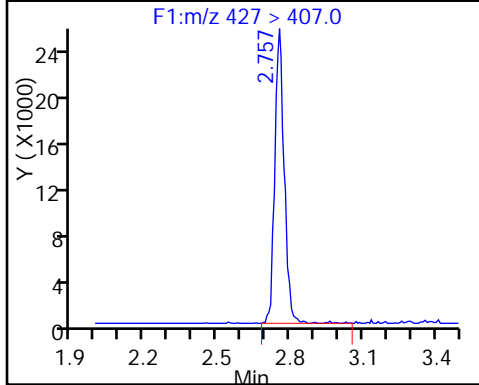
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

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

D 47 M2-6:2FTS

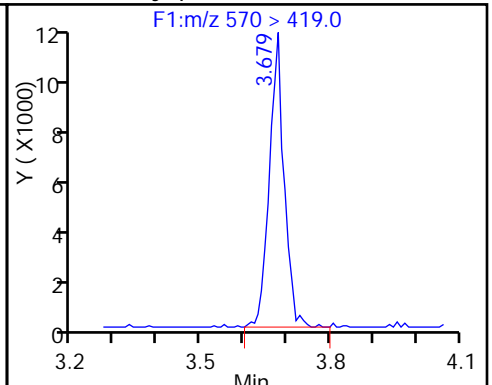
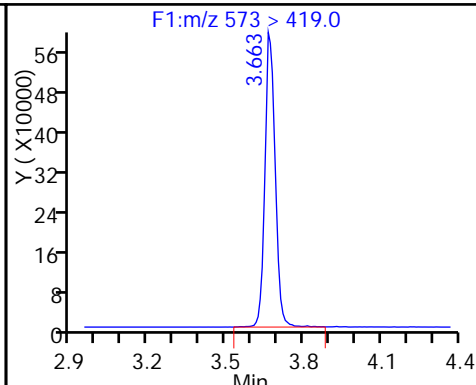
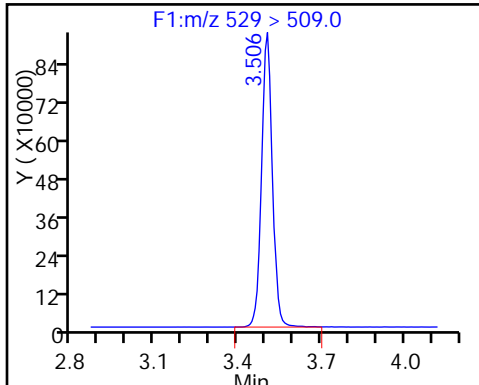
43 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

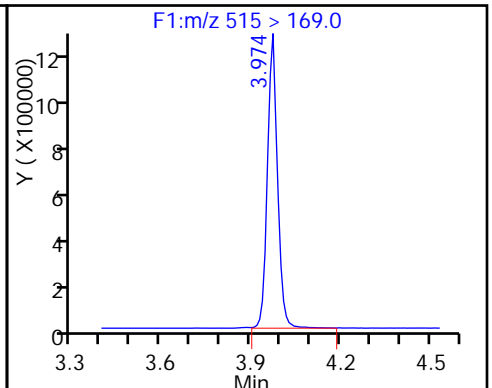
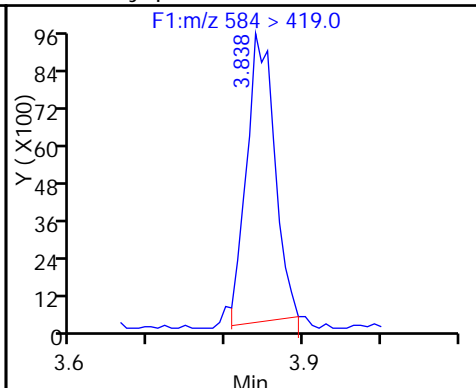
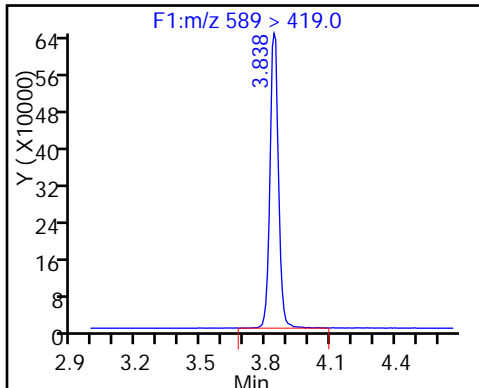
44 N-methyl perfluorooctane sulfonamide



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamide

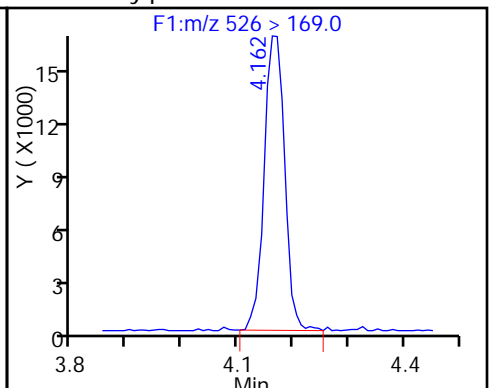
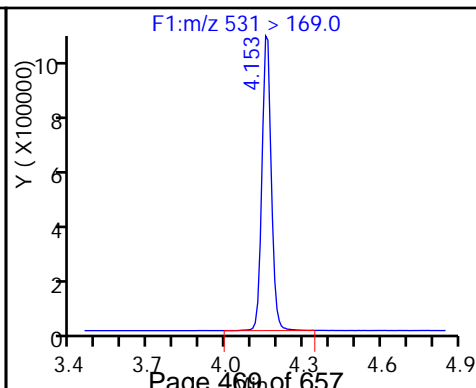
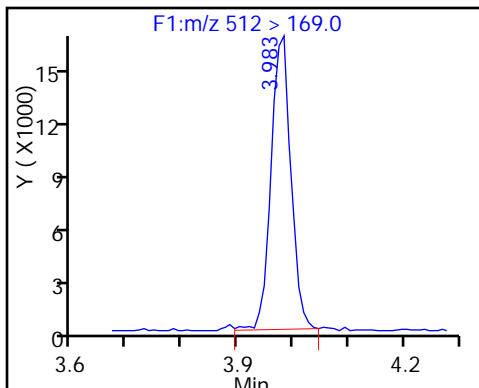
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonamide



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_016_p1_e1.d
 Lims ID: IC L3 Add-on
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 19-Sep-2016 17:18:00 ALS Bottle#: 0 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:47 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.744	2.748	-0.004	1.000	218541	4.01		84.5		
D 47 M2-6:2FTS										
429 > 409.0	2.744	2.750	-0.006		3006175	46.6		98.0		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.499	3.496	0.003	1.000	191894	4.25		88.8		
D 42 M2-8:2FTS										
529 > 509.0	3.499	3.499	0.0		2625785	47.2		98.5		
D 45 d3-NMeFOSAA										
573 > 419.0	3.665	3.665	0.0		1712456	51.2		102		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.665	3.670	-0.005	1.000	124094	4.23		84.5		
D 46 d5-NEtFOSAA										
589 > 419.0	3.832	3.832	0.0		1843945	51.5		103		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.839	3.837	0.002	1.002	111187	4.07		81.4		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.966	3.970	-0.004		3138391	51.7		103		
54 MeFOSA										
512 > 169.0	3.975	3.976	-0.001	1.000	210779	4.14		82.8		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.154	4.155	-0.001		2935000	51.2		102		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.154	4.159	-0.005	1.000	203984	4.22		84.3		

Reagents:

LCPFC2-L3_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_016_p1_e1.d

Injection Date: 19-Sep-2016 17:18:00

Instrument ID: A8

Lims ID: IC L3 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

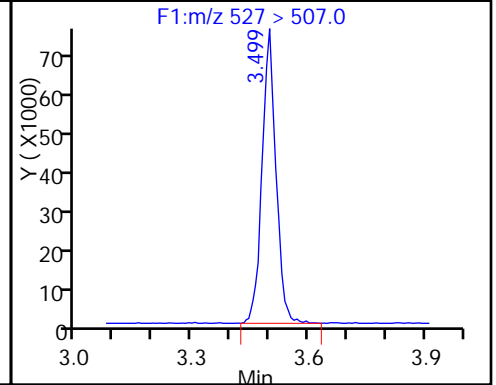
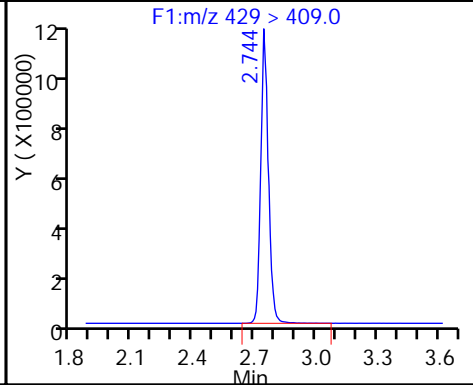
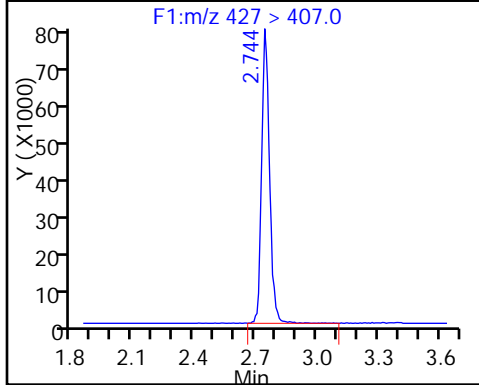
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

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

De 47 M2-6:2FTS

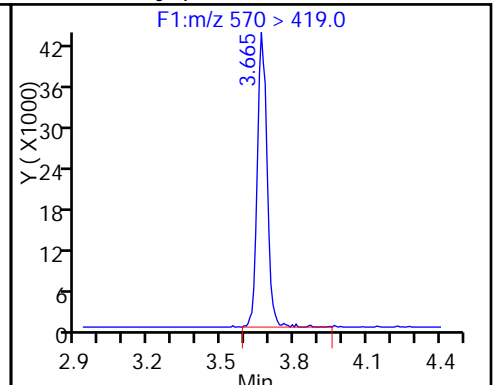
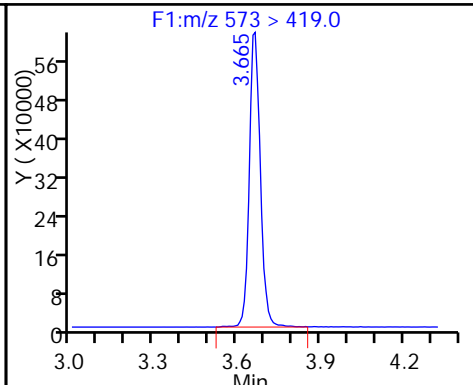
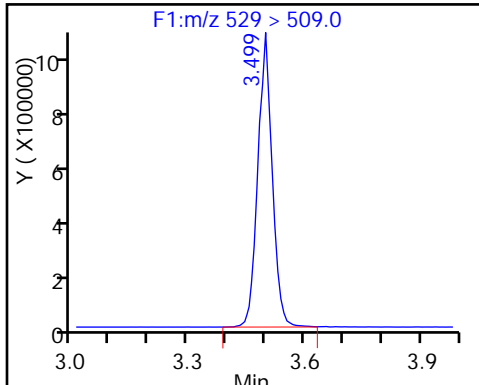
43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

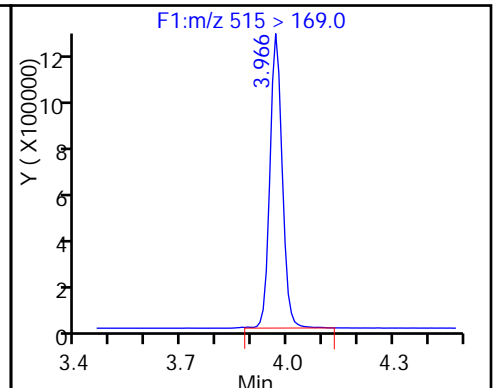
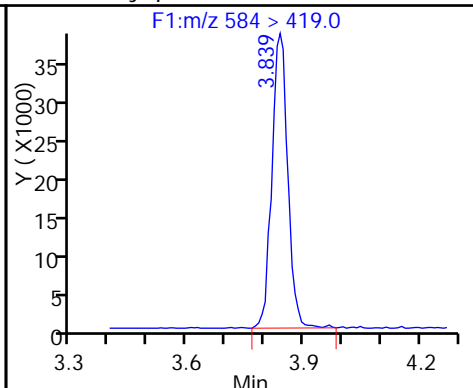
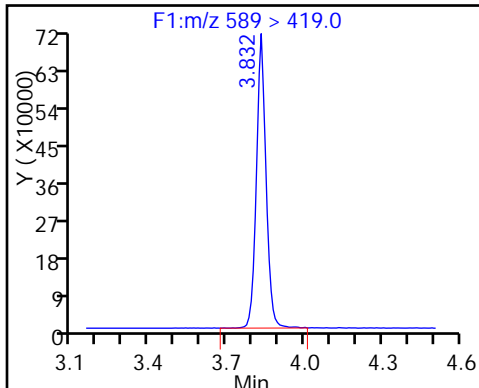
44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamid

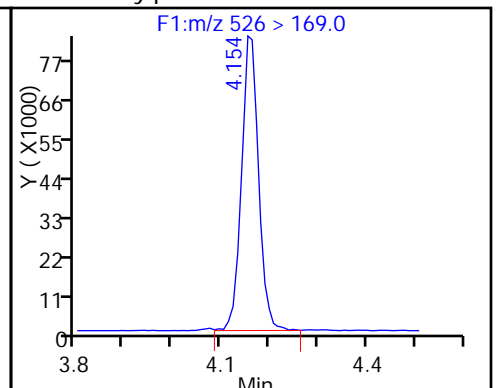
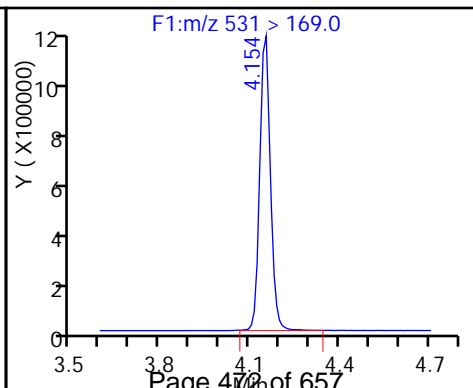
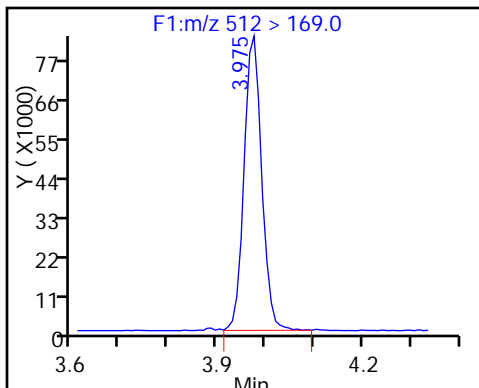
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_017_p1_e1.d
 Lims ID: IC L4 Add-on
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 19-Sep-2016 17:25:00 ALS Bottle#: 0 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:51 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 09:22:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.744	2.748	-0.004	1.000	1083447	21.0		111		
D 47 M2-6:2FTS										
429 > 409.0	2.752	2.750	0.002		3078760	47.7		100		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.484	3.496	-0.012	0.998	990477	21.4		112		
D 42 M2-8:2FTS										
529 > 509.0	3.491	3.499	-0.008		2693162	48.4		101		
D 45 d3-NMeFOSAA										
573 > 419.0	3.665	3.665	0.0		1756513	52.6		105		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.665	3.670	-0.005	1.000	629013	20.9		104		
D 46 d5-NEtFOSAA										
589 > 419.0	3.832	3.832	0.0		1918112	53.6		107		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.832	3.837	-0.005	1.000	609359	21.5		107		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.966	3.970	-0.004		3134342	51.6		103		
54 MeFOSA										
512 > 169.0	3.966	3.976	-0.010	1.000	1095170	21.5		108		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.154	4.155	-0.001		2963542	51.7		103		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.154	4.159	-0.005	1.000	1020213	20.9		104		

Reagents:

LCPFC2-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_017_p1_e1.d

Injection Date: 19-Sep-2016 17:25:00

Instrument ID: A8

Lims ID: IC L4 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

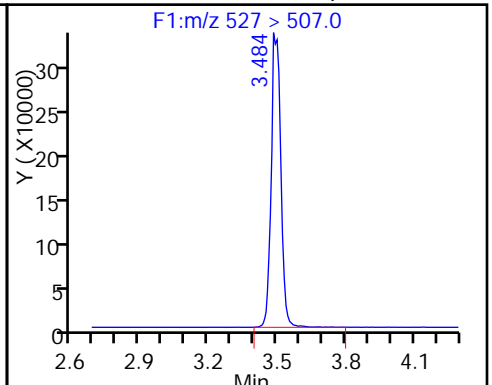
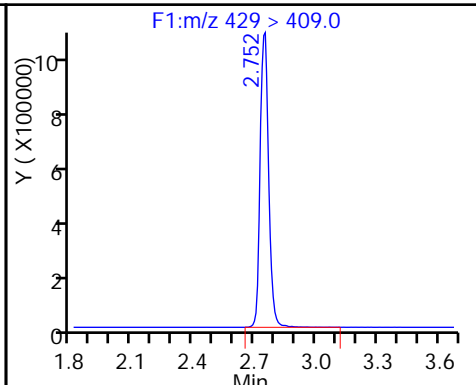
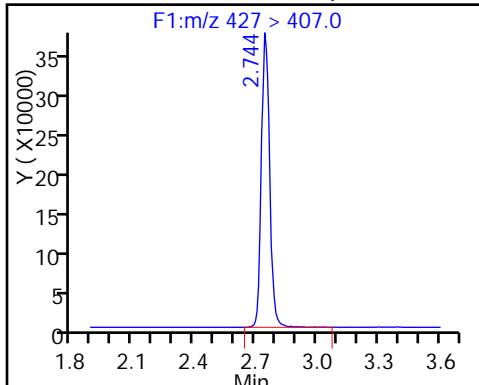
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

48 Sodium 1H,1H,2H,2H-perfluorooctane

D 47 M2-6:2FTS

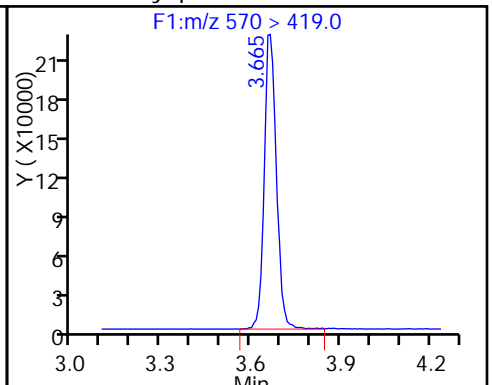
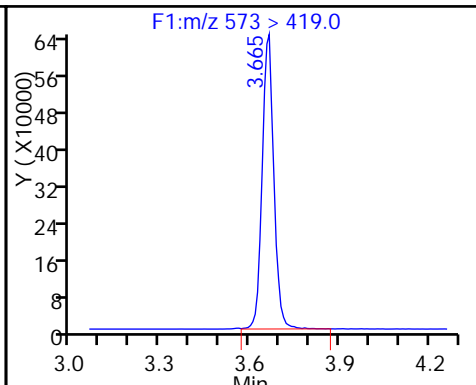
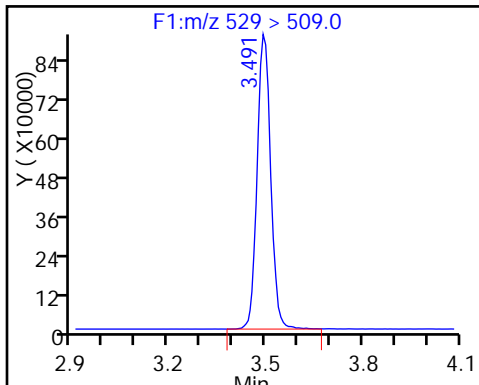
43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

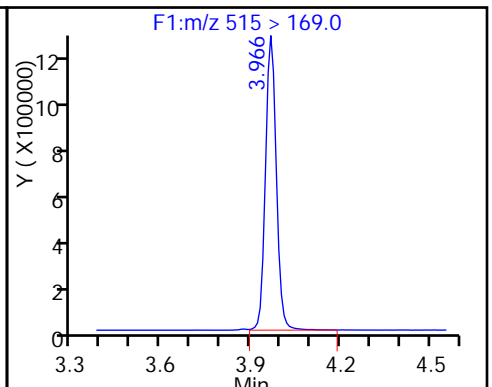
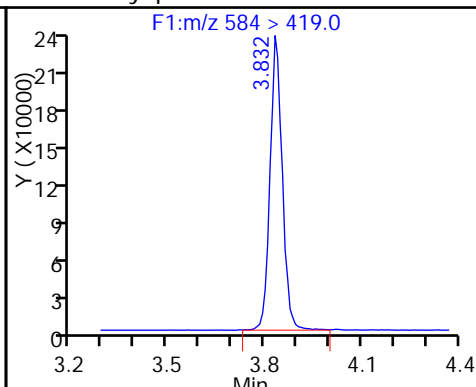
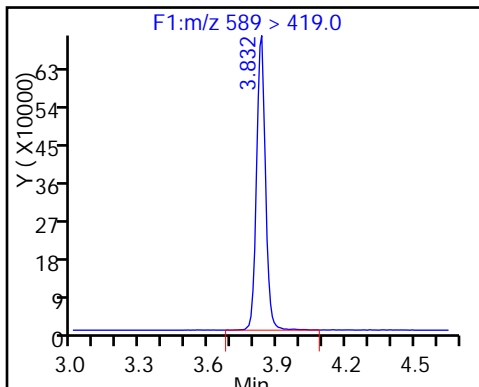
44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamid

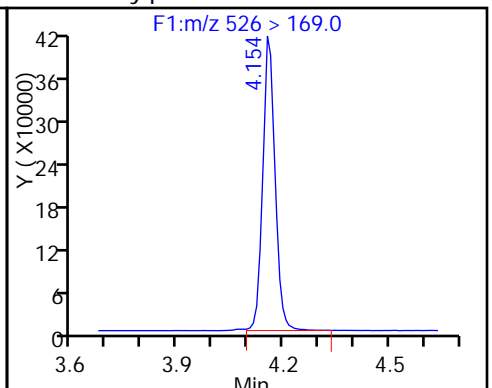
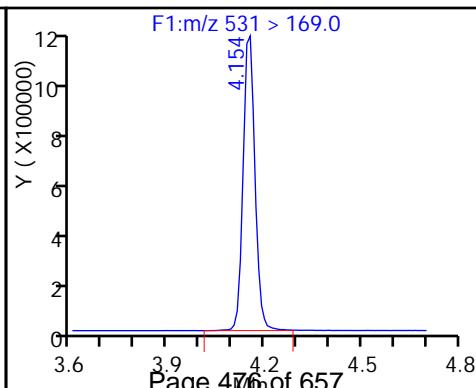
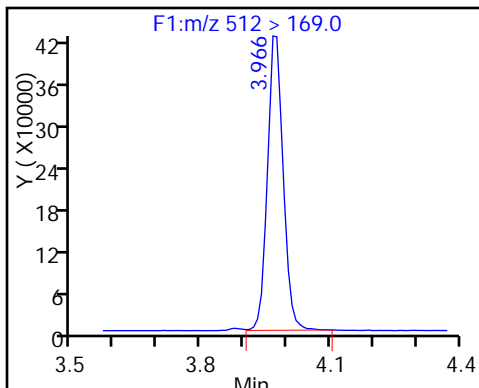
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_018_p1_e1.d
 Lims ID: IC L5 Add-on
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 19-Sep-2016 17:33:00 ALS Bottle#: 0 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:51:56 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK006

First Level Reviewer: westendorfc

Date: 20-Sep-2016 09:19:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.742	2.748	-0.006	1.000	2527202	49.8		105		
D 47 M2-6:2FTS										
429 > 409.0	2.742	2.750	-0.008		3062423	47.4		99.8		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.494	3.496	-0.002	1.000	2188716	47.5		99.2		
D 42 M2-8:2FTS										
529 > 509.0	3.494	3.499	-0.005		2680454	48.2		101		
D 45 d3-NMeFOSAA										
573 > 419.0	3.659	3.665	-0.006		1723630	51.6		103		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.667	3.670	-0.003	1.002	1479720	50.1		100		
D 46 d5-NEtFOSAA										
589 > 419.0	3.827	3.832	-0.005		1843143	51.5		103		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.834	3.837	-0.003	1.002	1394231	51.1		102		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.969	3.970	-0.001		3181940	52.4		105		
54 MeFOSA										
512 > 169.0	3.969	3.976	-0.007	1.000	2594317	50.2		100		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.147	4.155	-0.008		3013661	52.6		105		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.157	4.159	-0.002	1.000	2472445	49.8		99.5		

Reagents:

LCPFC2-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_018_p1_e1.d

Injection Date: 19-Sep-2016 17:33:00

Instrument ID: A8

Lims ID: IC L5 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

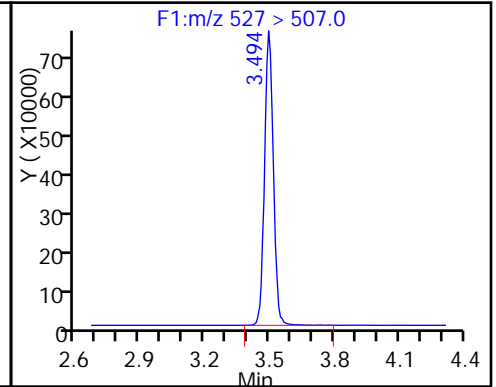
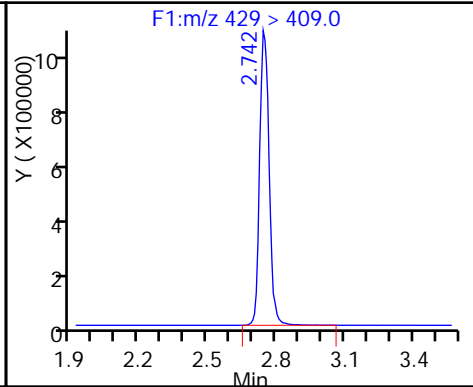
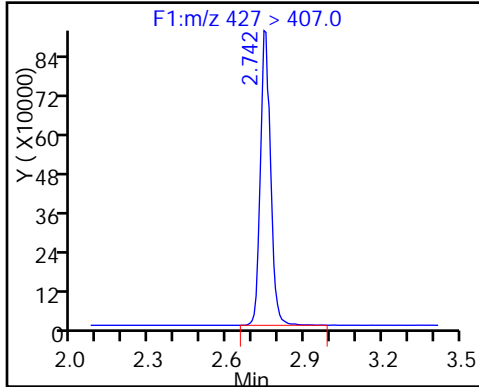
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

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

D 47 M2-6:2FTS

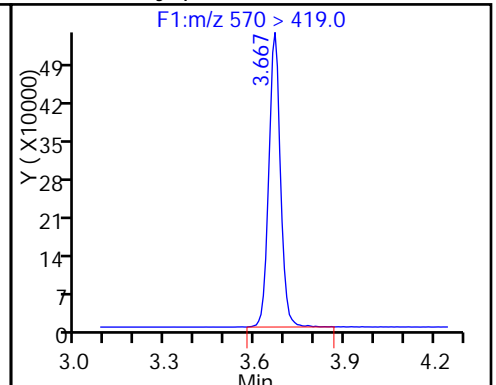
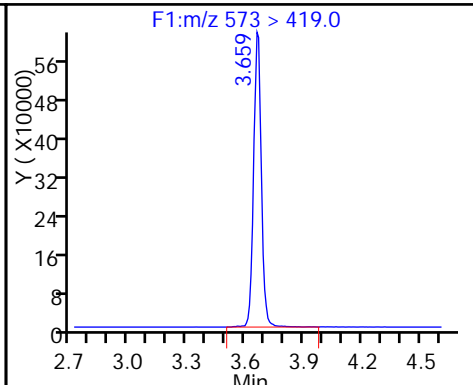
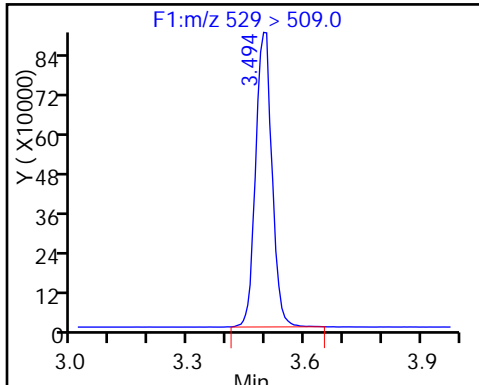
43 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

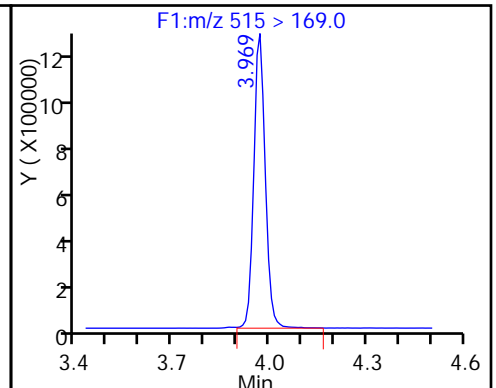
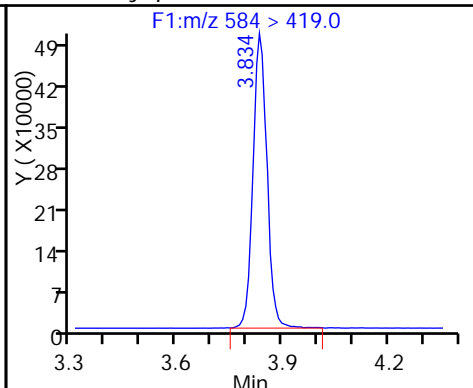
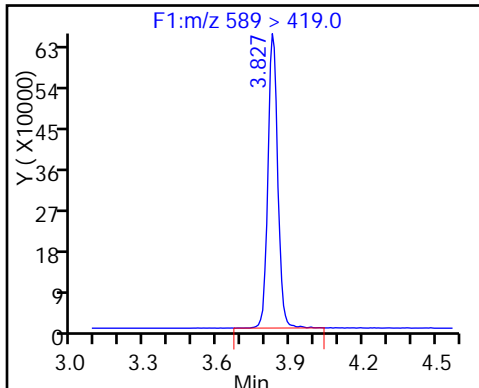
44 N-methyl perfluorooctane sulfonamide



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamide

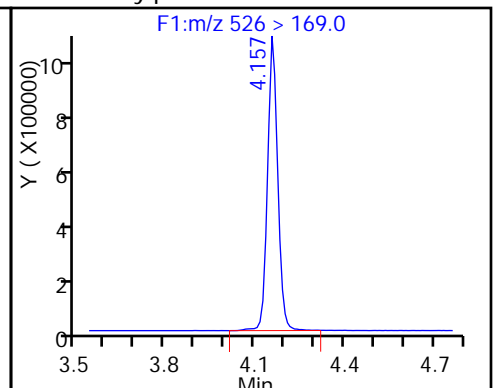
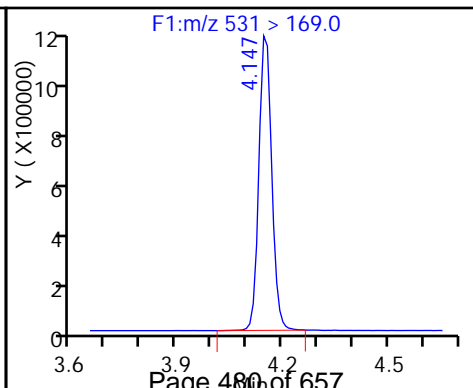
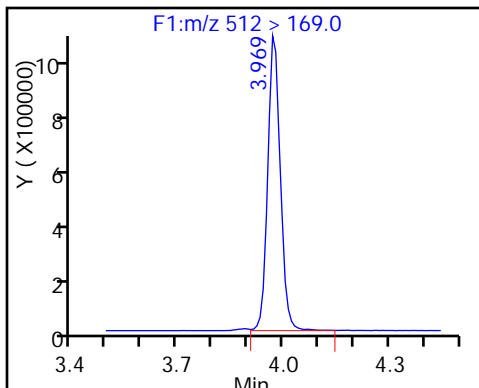
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonamide



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_019_p1_e1.d
 Lims ID: IC L6 Add-on
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 19-Sep-2016 17:40:00 ALS Bottle#: 0 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:52:01 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.744	2.748	-0.004	1.000	9639831	185.8		98.0		
D 47 M2-6:2FTS										
429 > 409.0	2.744	2.750	-0.006		3152481	48.8		103		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.491	3.496	-0.005	0.998	8690849	171.8		89.7		
D 42 M2-8:2FTS										
529 > 509.0	3.499	3.499	0.0		2943974	52.9		110		
D 45 d3-NMeFOSAA										
573 > 419.0	3.664	3.665	-0.001		1597895	47.8		95.6		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.664	3.670	-0.006	1.000	5929407	216.5		108		
D 46 d5-NEtFOSAA										
589 > 419.0	3.824	3.832	-0.008		1717121	48.0		96.0		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.832	3.837	-0.005	1.002	5431743	213.6		107		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.966	3.970	-0.004		2973167	48.9		97.9		
54 MeFOSA										
512 > 169.0	3.975	3.976	-0.001	1.000	10655813	220.8		110		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.154	4.155	-0.001		2866192	50.0		100		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.163	4.159	0.004	1.000	10371751	219.5		110		

Reagents:

LCPFC2-L6_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_019_p1_e1.d

Injection Date: 19-Sep-2016 17:40:00

Instrument ID: A8

Lims ID: IC L6 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 19

Injection Vol: 2.0 uL

Dil. Factor: 1.0000

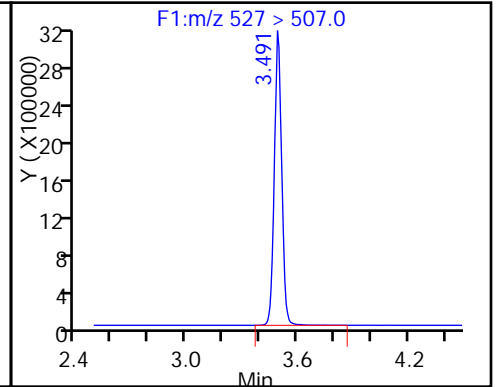
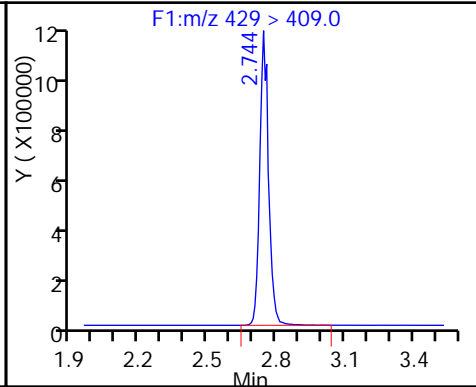
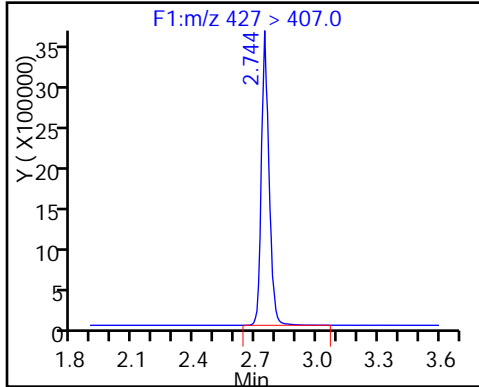
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

48 Sodium 1H,1H,2H,2H-perfluorooctane

D 47 M2-6:2FTS

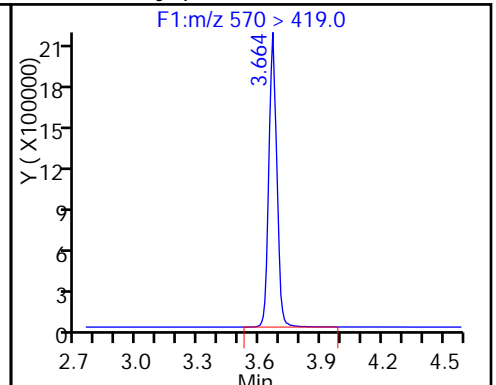
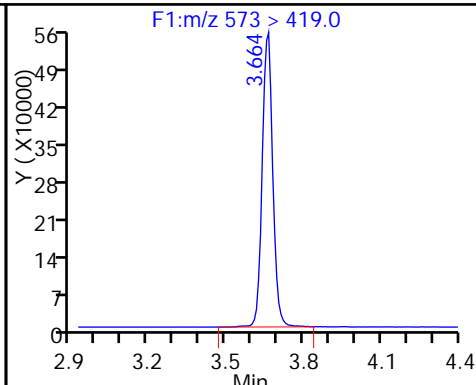
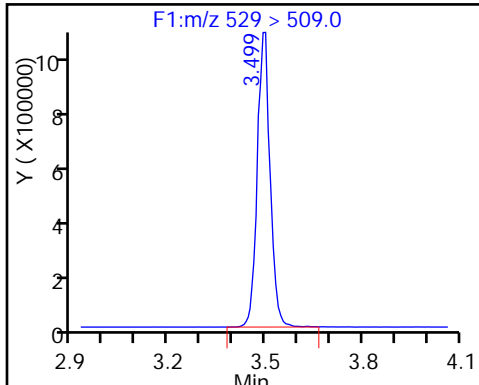
43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

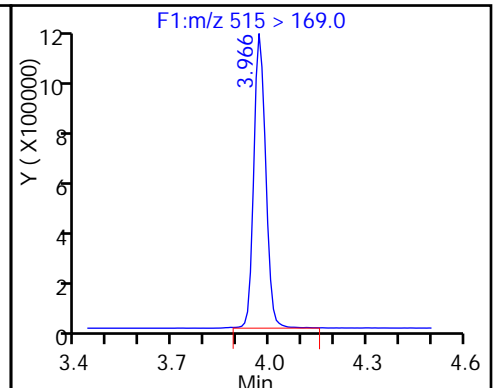
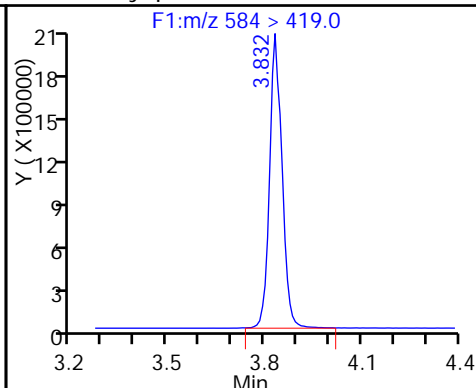
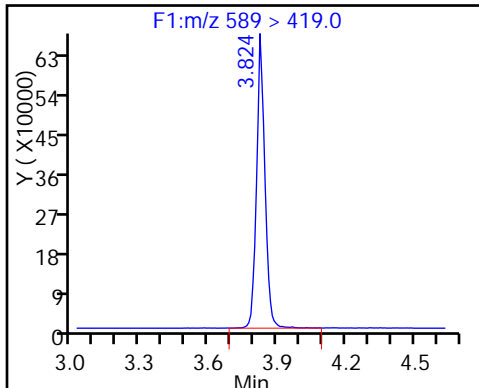
44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamid

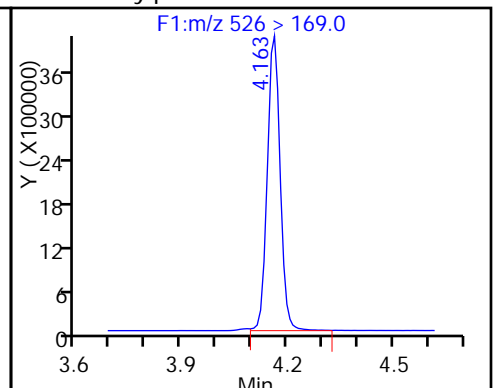
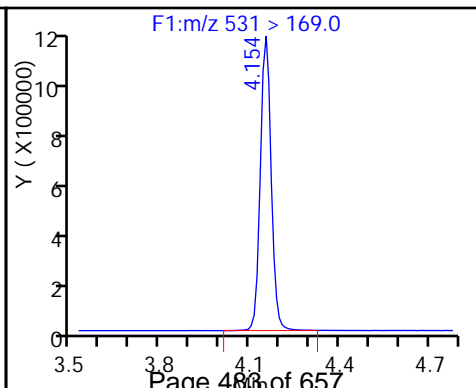
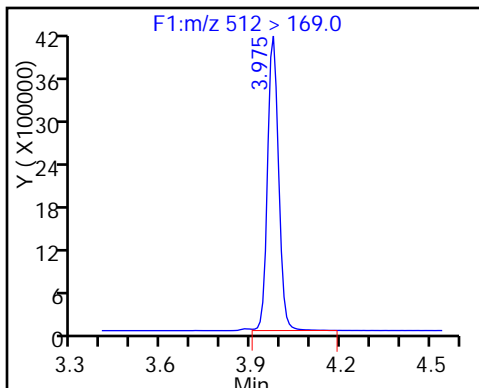
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Lims ID: IC L7 Add-on
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 19-Sep-2016 17:48:00 ALS Bottle#: 0 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub4
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 20-Sep-2016 09:52:06 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.752	2.748	0.004	1.000	19216757	331.1		87.3		
D 47 M2-6:2FTS										
429 > 409.0	2.752	2.750	0.002		3530764	54.7		115		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.499	3.496	0.003	1.000	18404278	322.1		84.1		
D 42 M2-8:2FTS										
529 > 509.0	3.499	3.499	0.0		3324907	59.8		125		
D 45 d3-NMeFOSAA										
573 > 419.0	3.664	3.665	-0.001		1649728	49.4		98.7		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.664	3.670	-0.006	1.000	13182464	466.2		117		
D 46 d5-NEtFOSAA										
589 > 419.0	3.831	3.832	-0.001		1692948	47.3		94.6		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.839	3.837	0.002	1.002	11882750	473.9		118		
D 52 d-N-MeFOSA-M										
515 > 169.0	3.975	3.970	0.005		2924949	48.2		96.3		
54 MeFOSA										
512 > 169.0	3.984	3.976	0.008	1.000	21612713	455.2		114		
D 51 d-N-EtFOSA-M										
531 > 169.0	4.163	4.155	0.008		2804548	49.0		97.9		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.163	4.159	0.004	1.000	20902990	452.1		113		

Reagents:

LCPFC2-L7_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Injection Date: 19-Sep-2016 17:48:00

Instrument ID: A8

Lims ID: IC L7 Add-on

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 20

Injection Vol: 2.0 uL

Dil. Factor: 1.0000

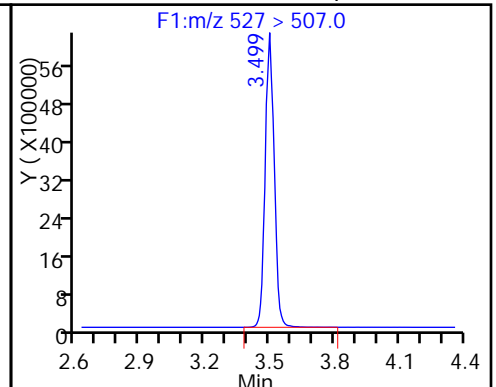
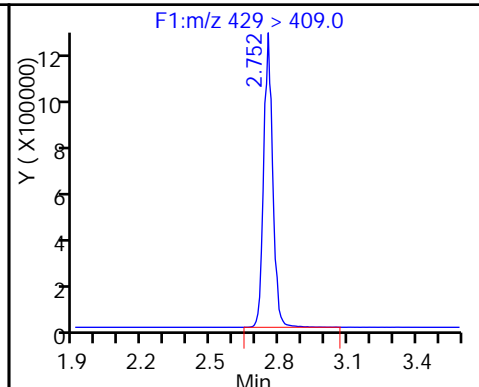
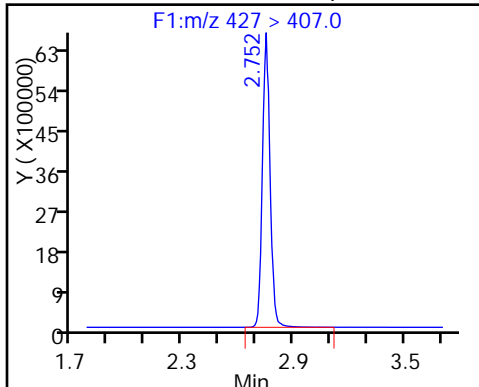
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

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

D 47 M2-6:2FTS

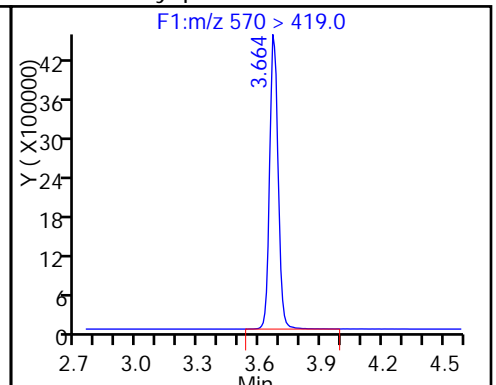
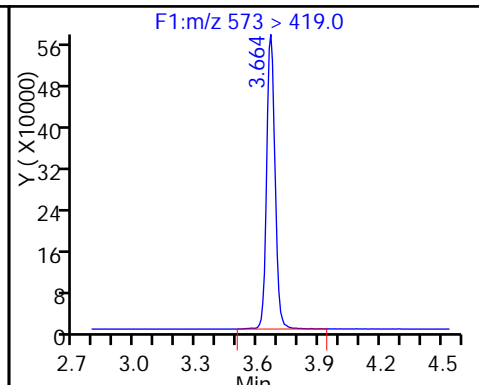
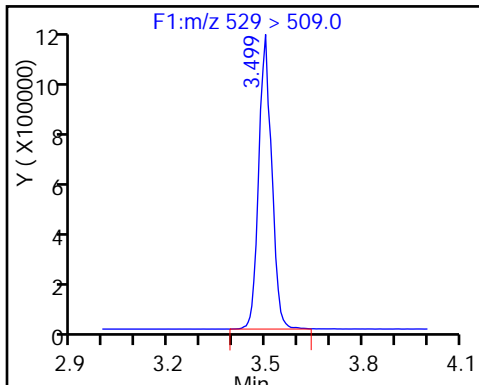
43 Sodium 1H,1H,2H,2H-perfluorooctane-1-sulfonate



D 42 M2-8:2FTS

D 45 d3-NMeFOSAA

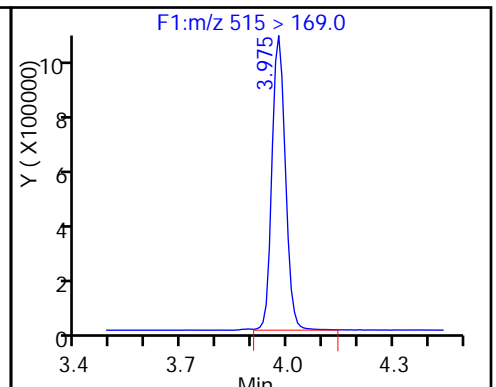
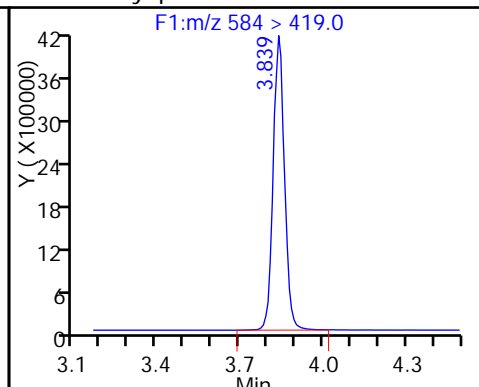
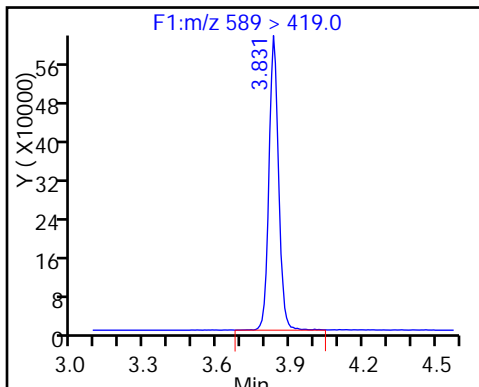
44 N-methyl perfluorooctane sulfonamide



D 46 d5-NEtFOSAA

49 N-ethyl perfluorooctane sulfonamide

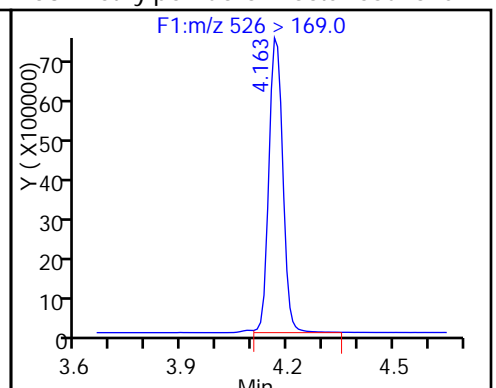
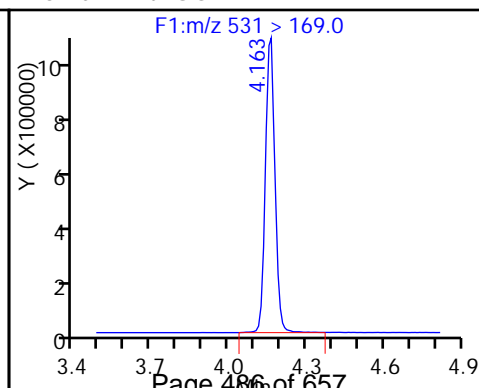
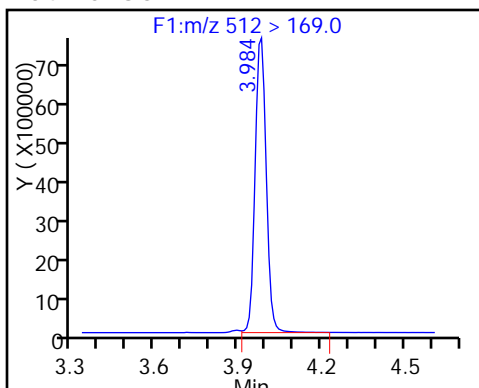
D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonamide



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Lab Sample ID: ICV 320-125915/12 Calibration Date: 09/03/2016 16:38
 Instrument ID: A8 Calib Start Date: 09/03/2016 15:38
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38
 Lab File ID: 03SEP2016A_012_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9430		53.8	50.0	7.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.068		50.9	50.0	1.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.704		49.6	44.3	12.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	1.060		52.6	50.0	5.2	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.168		56.1	50.0	12.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.097		48.3	47.3	2.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.141		47.2	47.6	-0.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.127		54.2	50.0	8.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.023		41.6	47.8	-13.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.112		54.8	50.0	9.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9540		51.7	50.0	3.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	1.045		53.4	50.0	6.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.7003		52.9	48.3	9.6	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.107		51.4	50.0	2.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	1.044		53.9	50.0	7.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	1.065		53.2	50.0	6.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.942		52.6	50.0	8.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.217		53.2	50.0	6.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.097		55.9	50.0	11.9	25.0
13C4 PFBA	Ave	201916	223812		55.4	50.0	10.8	50.0
13C5-PFPeA	Ave	158393	174165		55.0	50.0	10.0	50.0
13C2 PFHxA	Ave	144323	146013		50.6	50.0	1.2	50.0
13C4-PFHpA	Ave	130863	142966		54.6	50.0	9.2	50.0
18O2 PFHxS	Ave	180721	202692		53.1	47.3	12.2	50.0
13C4 PFOA	Ave	145826	165163		56.6	50.0	13.3	50.0
13C5 PFNA	Ave	127527	134128		52.6	50.0	5.2	50.0
13C4 PFOS	Ave	144726	164071		54.2	47.8	13.4	50.0
13C8 FOSA	Ave	266354	284999		53.5	50.0	7.0	50.0
13C2 PFDA	Ave	120893	126524		52.3	50.0	4.7	50.0
13C2 PFUnA	Ave	95304	101082		53.0	50.0	6.1	50.0
13C2 PFDoA	Ave	88472	98930		54.3	50.0	11.8	50.0
13C2-PFTeA	Ave	170446	192241		56.4	50.0	12.8	50.0
13C2-PFHxDA	Ave	108855	124044		57.0	50.0	14.0	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_012_p1_e1.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 03-Sep-2016 16:38:00 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist:
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:39:46 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 06-Sep-2016 18:50:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.629	1.642	-0.013		11190605	55.4		111	559736	
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1 Perfluorobutyric acid

212.9 > 169.0	1.629	1.645	-0.016	1.000	10553144	53.8			134166	
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D 4 13C5-PFPeA

267.9 > 223.0	1.916	1.938	-0.022		8708233	55.0		110	1080893	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.925	1.940	-0.015	1.000	9303863	50.9			167186	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.959	1.976	-0.017	1.000	15285576	49.6				
298.9 > 99.0	1.959	1.976	-0.017	1.000	6667554		2.29(0.00-0.00)			

7 Perfluorohexanoic acid

313 > 269.0	2.230	2.253	-0.023	1.000	7737198	52.6			550398	
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D 6 13C2 PFHxA

315 > 270.0	2.230	2.254	-0.024		7300662	50.6		101	877293	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.604	2.591	0.013	1.000	10510022	48.3				
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D 11 13C4-PFHpA

367 > 322.0	2.581	2.611	-0.030		7148288	54.6		109	405415	
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12 Perfluoroheptanoic acid

363 > 319.0	2.588	2.614	-0.026	1.000	8351650	56.1			137150	
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D 10 18O2 PFHxS

403 > 84.0	2.604	2.626	-0.022		9587353	53.1		112	371076	
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D 14 13C4 PFOA

417 > 372.0	2.966	2.994	-0.028		8258153	56.6		113	527810	
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15 Perfluorooctanoic acid

413 > 369.0	2.966	2.996	-0.030	1.000	9309204	54.2			161347	
413 > 169.0	2.966	2.996	-0.030	1.000	5601607		1.66(0.90-1.10)		300737	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.966	2.999	-0.033	1.000	8912687	47.2				
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.297	3.271	0.026	1.000	8012068	41.6			2493	
499 > 99.0	3.342	3.271	0.071	1.014	2020374		3.97(0.90-1.10)		666291	
D 17 13C4 PFOS										
503 > 80.0	3.351	3.375	-0.024		7842577	54.2		113	266469	
D 19 13C5 PFNA										
468 > 423.0	3.342	3.380	-0.038		6706416	52.6		105	486614	
20 Perfluorononanoic acid										
463 > 419.0	3.351	3.381	-0.030	1.000	7454639	54.8			253208	
D 21 13C8 FOSA										
506 > 78.0	3.659	3.674	-0.015		14249937	53.5		107	478679	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.659	3.674	-0.015	1.000	13594915	51.7			294321	
24 Perfluorodecanoic acid										
513 > 469.0	3.715	3.744	-0.029	1.000	6612687	53.4			294074	
D 23 13C2 PFDA										
515 > 470.0	3.715	3.744	-0.029		6326200	52.3		105	330472	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	4.025	4.055	-0.030	1.000	5544026	52.9				
28 Perfluoroundecanoic acid										
563 > 519.0	4.052	4.078	-0.026	1.000	5594798	51.4			231716	
D 27 13C2 PFUnA										
565 > 520.0	4.043	4.081	-0.038		5054079	53.0		106	408709	
29 Perfluorododecanoic acid										
613 > 569.0	4.339	4.374	-0.035	1.000	5164698	53.9			139291	
D 30 13C2 PFDaA										
615 > 570.0	4.339	4.374	-0.035		4946516	54.3		109	284893	
31 Perfluorotridecanoic acid										
633 > 619.0	4.604	4.639	-0.035	1.000	5267977	53.2			25998	
D 32 13C2-PFTeDA										
715 > 670.0	4.850	4.882	-0.032		9612062	56.4		113	819755	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.850	4.883	-0.033	1.000	9605671	52.6			13108	
713 > 169.0	4.840	4.883	-0.043	0.998	1570961		6.11(0.00-0.00)		112366	
D 34 13C2-PFHxDA										
815 > 770.0	5.263	5.305	-0.042		6202197	57.0		114	418136	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.263	5.309	-0.046	1.000	6021769	53.2			16081	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.642	5.692	-0.050	1.000	5425943	55.9			18401	

Reagents:

LCPFCIC_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_012_p1_e1.d

Injection Date: 03-Sep-2016 16:38:00

Instrument ID: A8

Lims ID: ICV

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

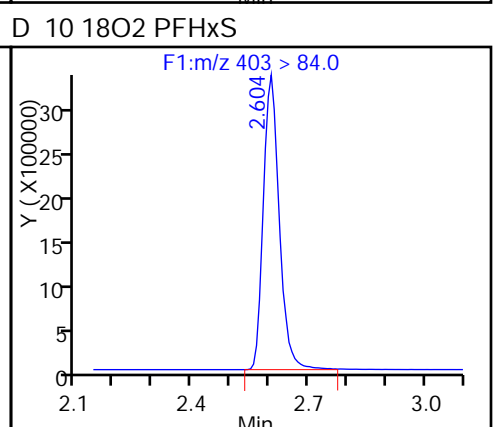
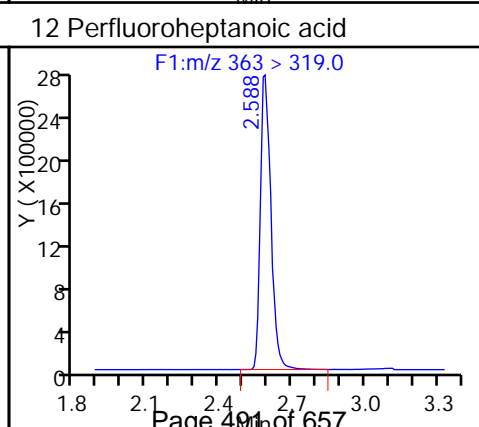
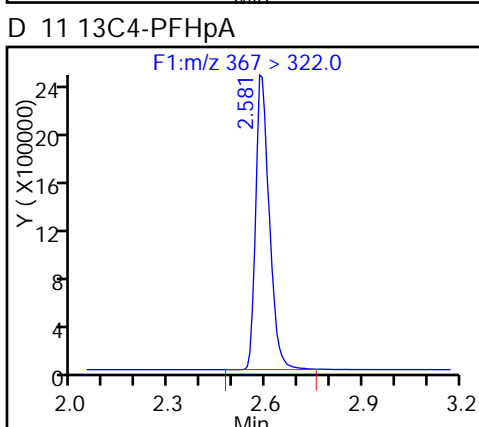
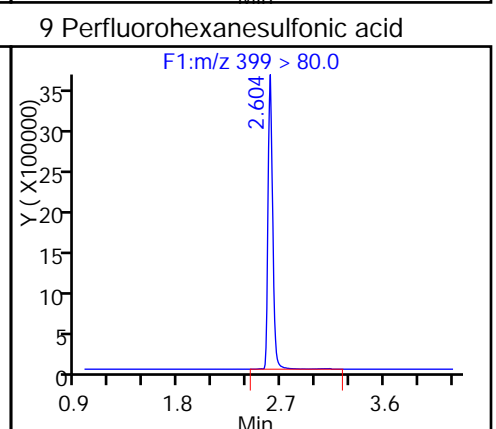
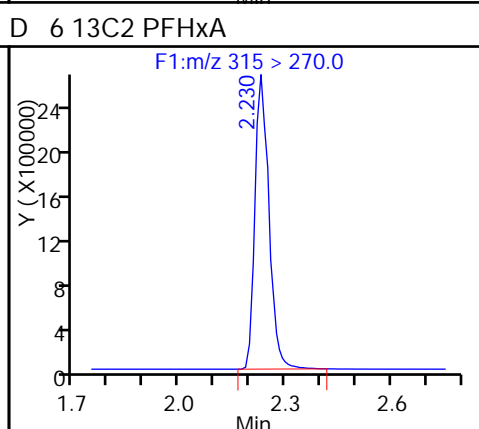
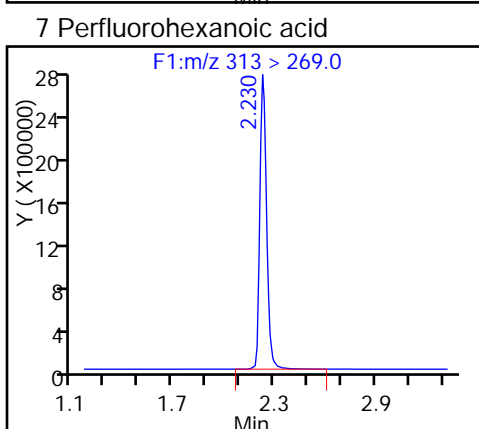
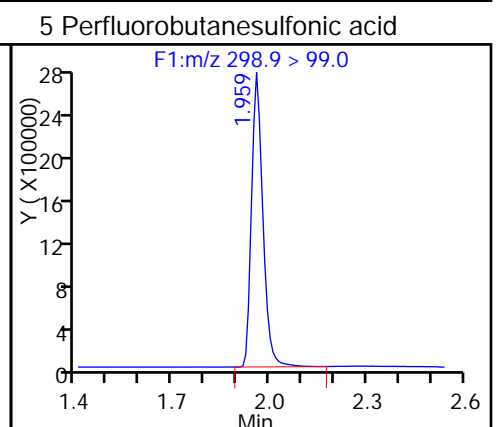
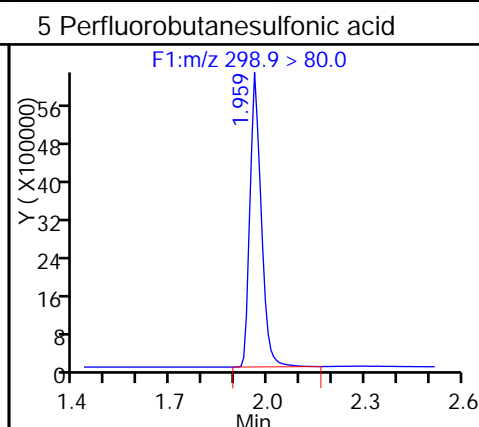
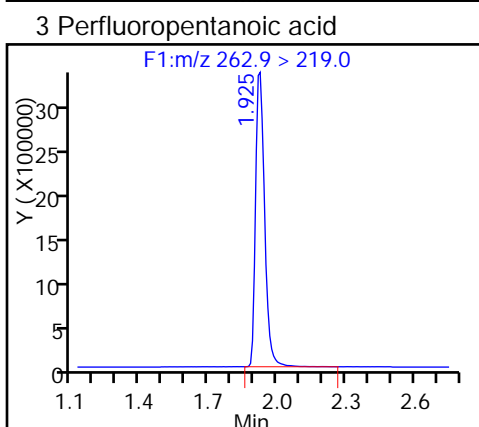
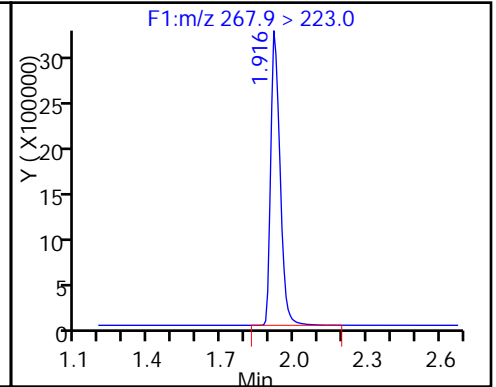
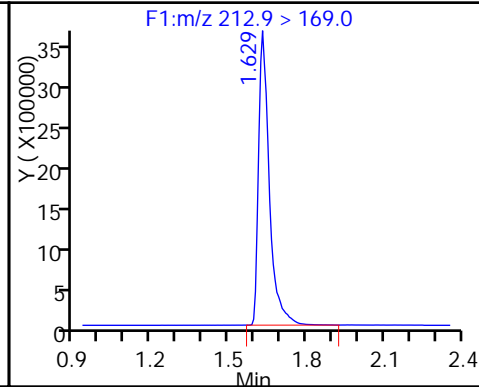
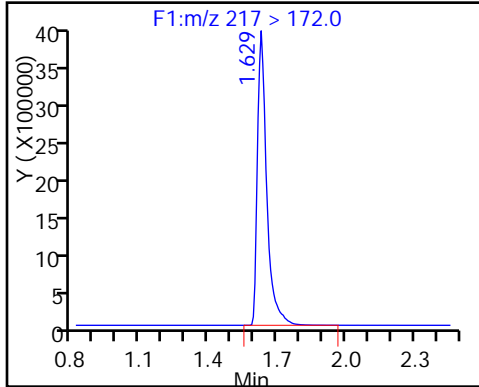
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

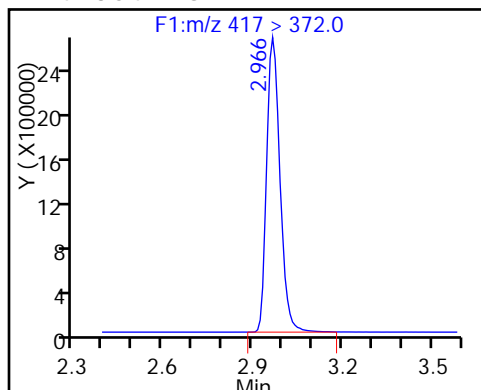
D 2 13C4 PFBA

1 Perfluorobutyric acid

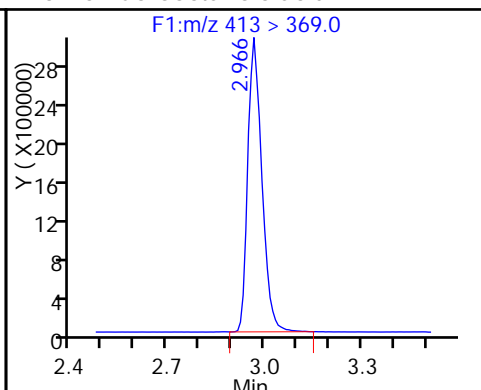
D 4 13C5-PFPeA



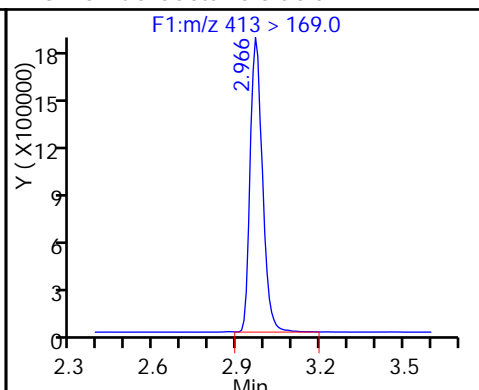
D 14 13C4 PFOA



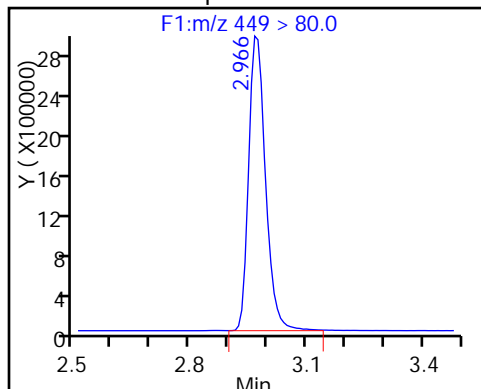
15 Perfluorooctanoic acid



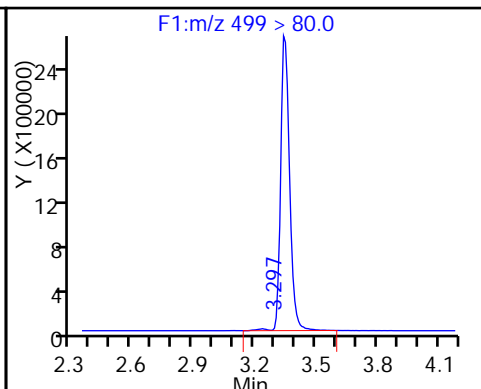
15 Perfluorooctanoic acid



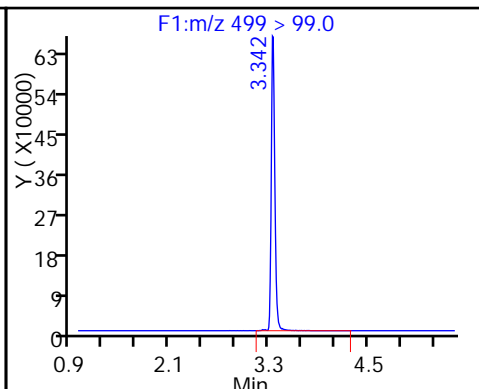
13 Perfluoroheptanesulfonic Acid



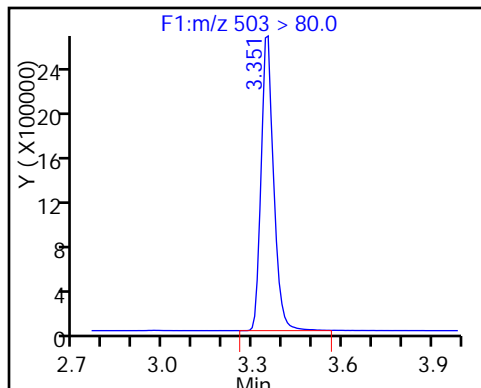
18 Perfluorooctane sulfonic acid



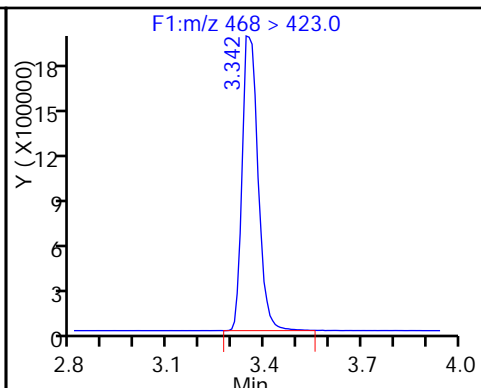
18 Perfluorooctane sulfonic acid



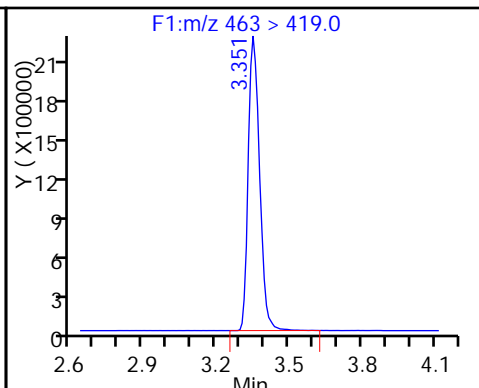
D 17 13C4 PFOS



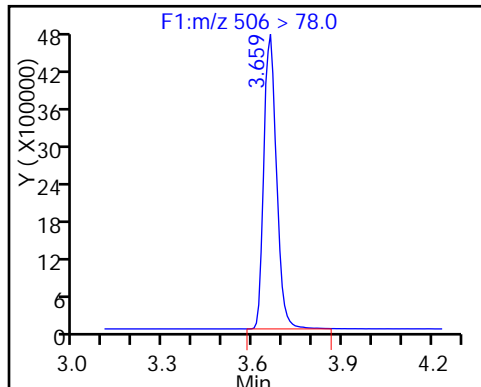
D 19 13C5 PFNA



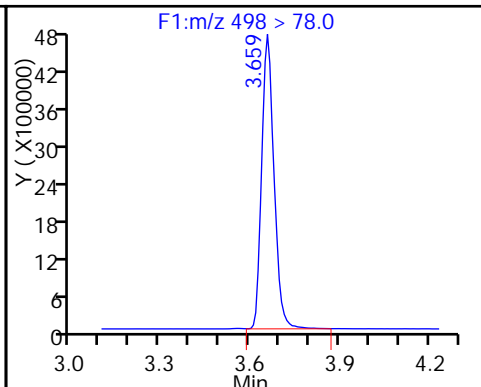
20 Perfluorononanoic acid



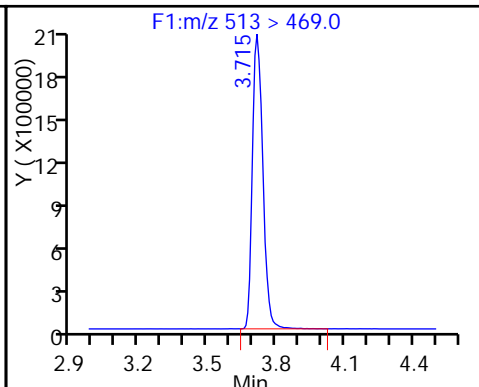
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide



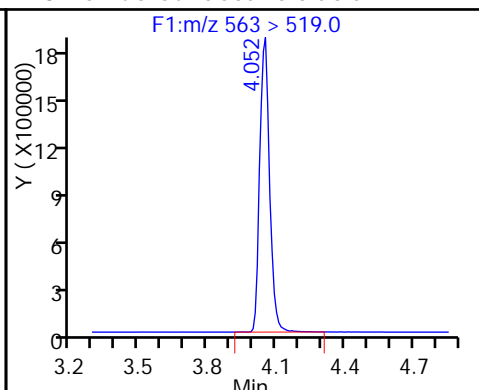
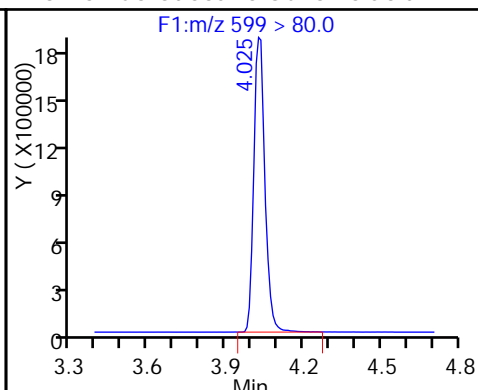
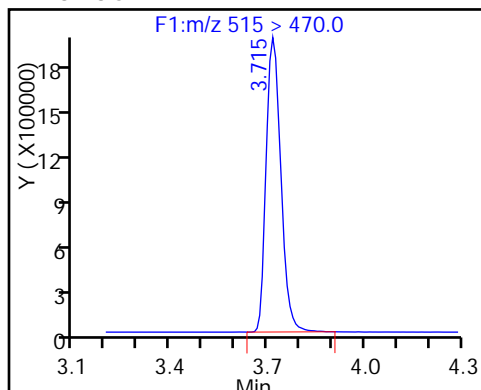
24 Perfluorodecanoic acid



D 23 13C2 PFDA

26 Perfluorodecane Sulfonic acid

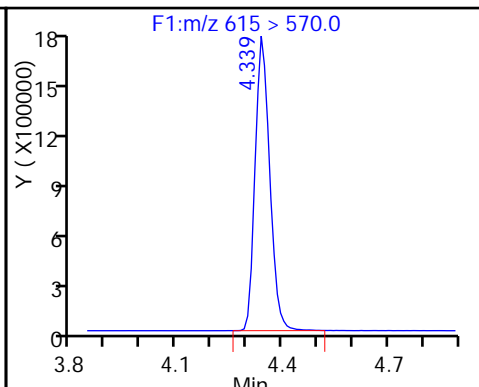
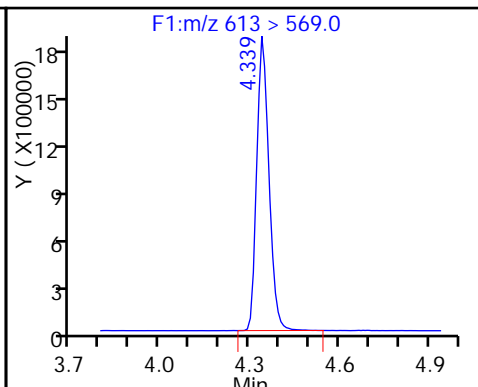
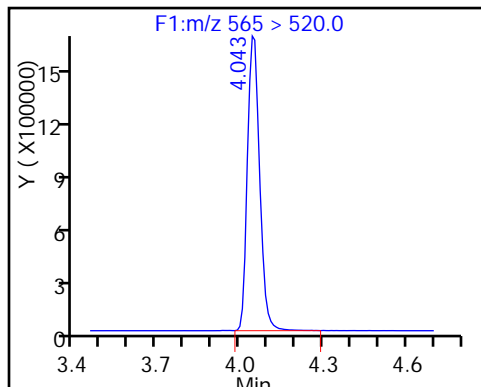
28 Perfluoroundecanoic acid



D 27 13C2 PFUnA

29 Perfluorododecanoic acid

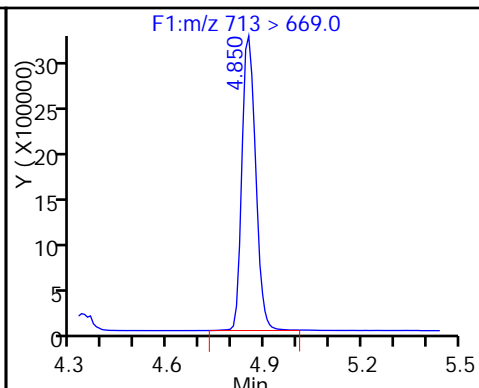
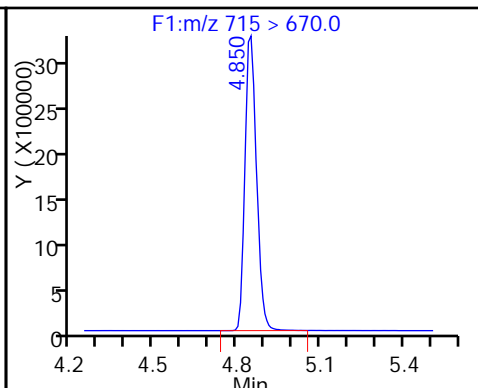
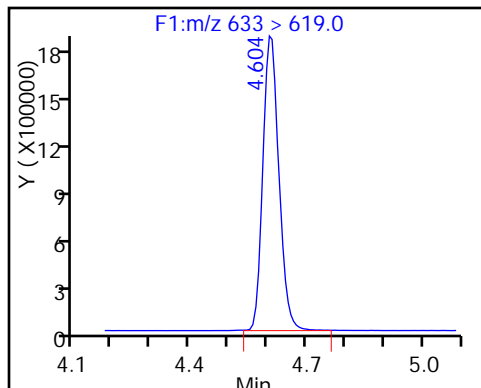
D 30 13C2 PFDaA



31 Perfluorotridecanoic acid

D 32 13C2-PFTeDA

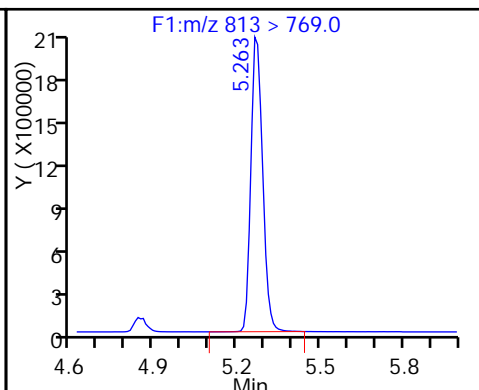
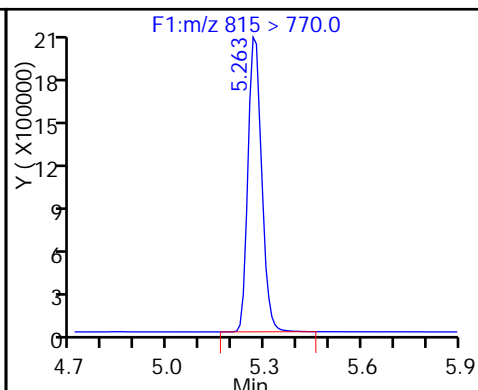
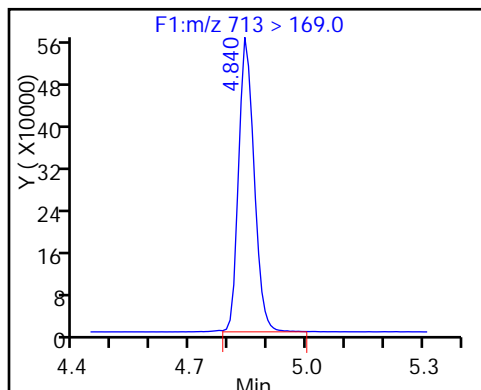
33 Perfluorotetradecanoic acid



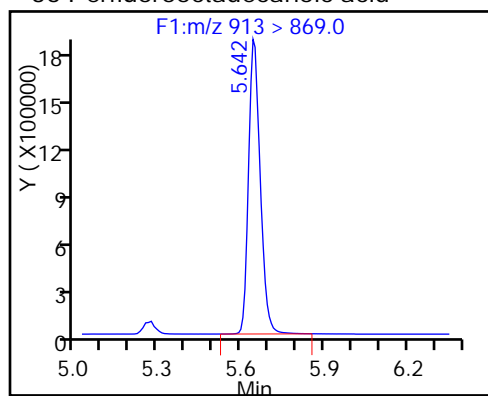
33 Perfluorotetradecanoic acid

D 34 13C2-PFHxDA

35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Lab Sample ID: ICV 320-125915/22 Calibration Date: 09/03/2016 17:53
 Instrument ID: A8 Calib Start Date: 09/03/2016 15:38
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38
 Lab File ID: 03SEP2016A_022_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
6:2FTS	AveID	0.8178	0.7355		17.1	19.0	-10.1	25.0
8:2FTS	AveID	0.8122	0.8026		18.9	19.2	-1.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.8654	0.8588		19.8	20.0	-0.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.7603	0.7772		20.4	20.0	2.2	25.0
MeFOSA	AveID	0.8097	0.8264		20.4	20.0	2.1	25.0
N-EtFOSA-M	AveID	0.8464	0.8543		20.2	20.0	0.9	25.0
M2-6:2FTS	Ave	78225	95627		58.1	47.5	22.2	50.0
M2-8:2FTS	Ave	84173	101793		57.9	47.9	20.9	50.0
d3-NMeFOSAA	Ave	50138	62348		62.2	50.0	24.4	50.0
d5-NEtFOSAA	Ave	56067	69208		61.7	50.0	23.4	50.0
d-N-MeFOSA-M	Ave	68982	79053		57.3	50.0	14.6	50.0
d-N-EtFOSA-M	Ave	63829	74380		58.3	50.0	16.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_022_p1_e1.d
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 Client ID:
 Sample Type: ICV
 Inject. Date: 03-Sep-2016 17:53:00 ALS Bottle#: 0 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist:
 Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 10-Sep-2016 12:39:25 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK053

First Level Reviewer: phomsophat

Date: 07-Sep-2016 15:06:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS										
429 > 409.0	2.937	2.934	0.003		4542300	58.1		122		
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.929	2.936	-0.007	1.000	1333496	17.1				
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.696	3.698	-0.002	1.000	1565406	18.9				
D 42 M2-8:2FTS										
529 > 509.0	3.696	3.698	-0.002		4875866	57.9		121		
D 45 d3-NMeFOSAA										
573 > 419.0	3.863	3.865	-0.002		3117385	62.2		124		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.871	3.869	0.002	1.002	1070876	19.8				
D 46 d5-NEtFOSAA										
589 > 419.0	4.031	4.032	-0.001		3460388	61.7		123		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	4.031	4.040	-0.009	1.000	1075737	20.4				
D 52 d-N-MeFOSA-M										
515 > 169.0	4.145	4.143	0.002		3952666	57.3		115		
54 MeFOSA										
512 > 169.0	4.145	4.144	0.001	1.000	1306604	20.4				
D 51 d-N-EtFOSA-M										
531 > 169.0	4.326	4.325	0.001		3718982	58.3		117		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.336	4.333	0.003	1.000	1270846	20.2				

Reagents:

LCPFC2-IC_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_022_p1_e1.d

Injection Date: 03-Sep-2016 17:53:00

Instrument ID: A8

Lims ID: ICV

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 22

Injection Vol: 2.0 ul

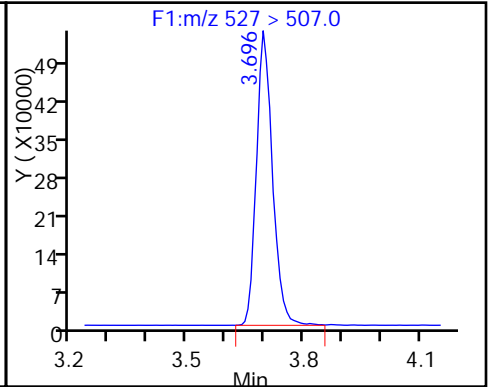
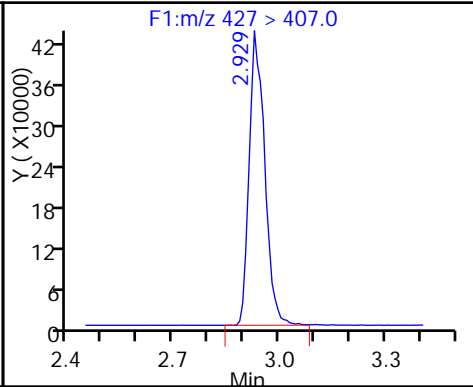
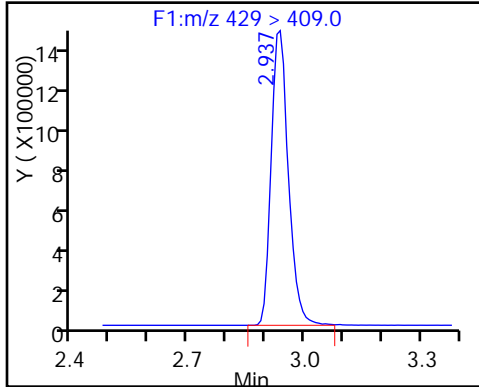
Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 47 M2-6:2FTS

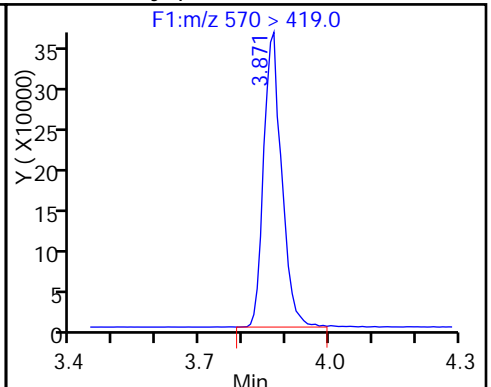
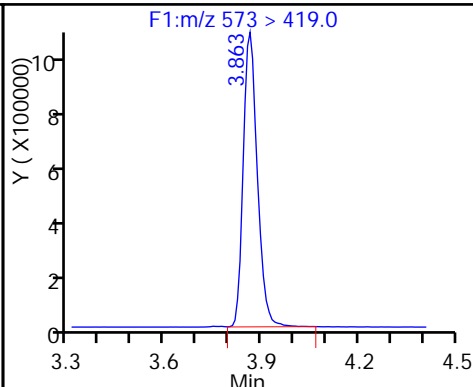
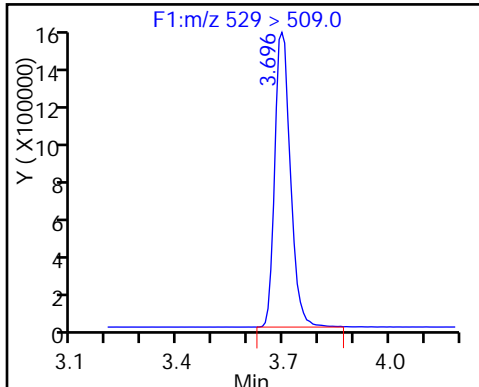
48 Sodium 1H,1H,2H,2H-perfluorooctane-43 Sodium 1H,1H,2H,2H-perfluorooctane



D 42 M2-8:2FTS

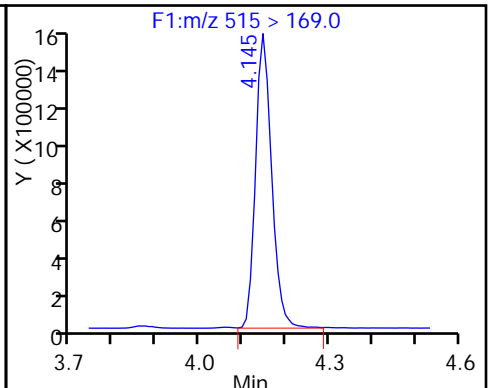
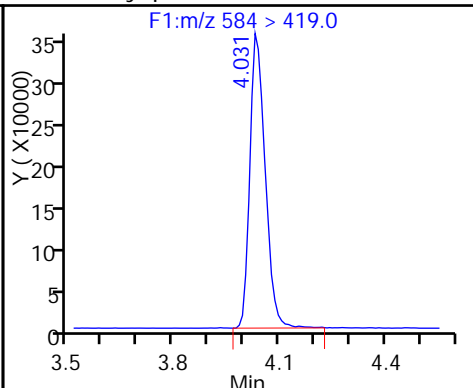
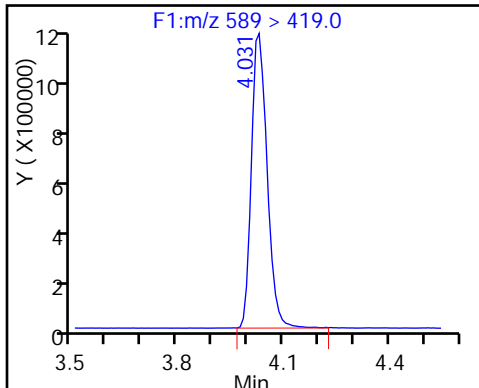
D 45 d3-NMeFOSAA

44 N-methyl perfluorooctane sulfonami



D 46 d5-NEtFOSAA

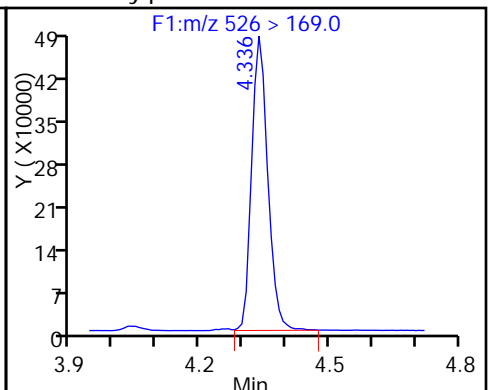
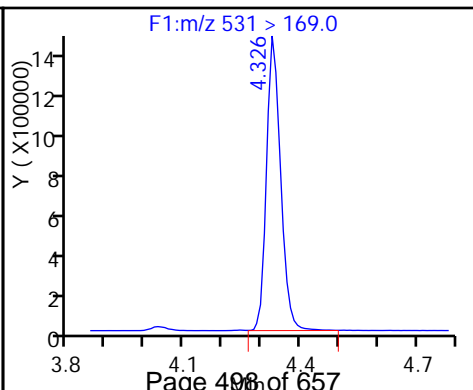
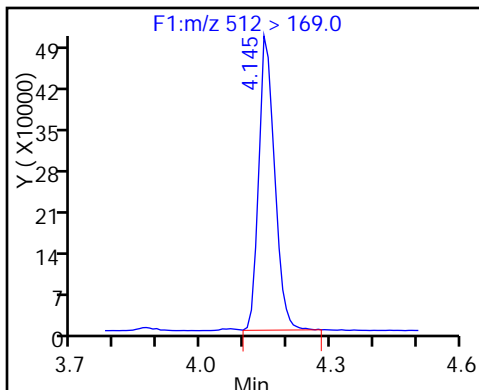
49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M



54 MeFOSA

D 51 d-N-EtFOSA-M

53 N-ethylperfluoro-1-octanesulfonami



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Lab Sample ID: CCV 320-126120/2 Calibration Date: 09/04/2016 12:46

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_002_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9003		20.5	20.0	2.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.034		19.7	20.0	-1.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.590		18.5	17.7	4.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9743		19.3	20.0	-3.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.001		19.2	20.0	-3.8	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.059		18.0	18.2	-1.4	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.164		19.3	19.0	1.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.073		20.6	20.0	3.1	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.072		16.9	18.6	-8.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.021		20.1	20.0	0.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9870		21.4	20.0	6.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	0.9687		19.8	20.0	-1.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.6212		18.7	19.3	-2.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.028		19.1	20.0	-4.5	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	0.9747		20.1	20.0	0.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	0.9661		19.3	20.0	-3.5	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.746		19.5	20.0	-2.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.096		18.9	20.0	-5.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.058		21.6	20.0	7.9	25.0
13C4 PFBA	Ave	201916	217488		53.9	50.0	7.7	50.0
13C5-PFPeA	Ave	158393	171787		54.2	50.0	8.5	50.0
13C2 PFHxA	Ave	144323	163888		56.8	50.0	13.6	50.0
13C4-PFHpA	Ave	130863	155702		59.5	50.0	19.0	50.0
18O2 PFHxS	Ave	180721	199212		52.1	47.3	10.2	50.0
13C4 PFOA	Ave	145826	163597		56.1	50.0	12.2	50.0
13C4 PFOS	Ave	144726	160117		52.9	47.8	10.6	50.0
13C5 PFNA	Ave	127527	139785		54.8	50.0	9.6	50.0
13C8 FOSA	Ave	266354	271232		50.9	50.0	1.8	50.0
13C2 PFDA	Ave	120893	122081		50.5	50.0	1.0	50.0
13C2 PFUnA	Ave	95304	96983		50.9	50.0	1.8	50.0
13C2 PFDoA	Ave	88472	100537		56.8	50.0	13.6	50.0
13C2-PFTeDA	Ave	170446	181555		53.3	50.0	6.5	50.0
13C2-PFHxDA	Ave	108855	117505		54.0	50.0	7.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_002_p1_e1.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 04-Sep-2016 12:46:00 ALS Bottle#: 0 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub2
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:17 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: westendorfc

Date: 10-Sep-2016 10:11:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.623	1.623	0.0		10874402	53.9		108	548672	
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1 Perfluorobutyric acid

212.9 > 169.0	1.623	1.623	0.0	1.000	3915978	20.5		103	43972	
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D 4 13C5-PFPeA

267.9 > 223.0	1.902	1.910	-0.008		8589358	54.2		108	1581325	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.910	1.910	0.0	1.000	3552540	19.7		98.5	69773	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.944	1.944	0.0	1.000	5600105	18.5		104		
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298.9 > 99.0	1.944	1.944	0.0	1.000	2410370		2.32(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.213	2.213	0.0	1.000	3193592	19.3		96.7	223360	
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D 6 13C2 PFHxA

315 > 270.0	2.213	2.213	0.0		8194422	56.8		114	944886	
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D 11 13C4-PFHpA

367 > 322.0	2.562	2.556	0.006		7785078	59.5		119	673039	
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12 Perfluoroheptanoic acid

363 > 319.0	2.562	2.556	0.006	1.000	3117812	19.2		96.2	38291	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.578	2.571	0.007	1.000	3840451	18.0		98.6		
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D 10 18O2 PFHxS

403 > 84.0	2.570	2.571	-0.001		9422727	52.1		110	786590	
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15 Perfluorooctanoic acid

413 > 369.0	2.935	2.919	0.016	1.000	3511080	20.6		103	67934	
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413 > 169.0	2.926	2.919	0.007	0.997	2067619		1.70(0.90-1.10)		113957	
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D 14 13C4 PFOA

417 > 372.0	2.926	2.928	-0.002		8179867	56.1		112	547420	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.935	2.936	-0.001	1.000	3548656	19.3		101		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.201	3.195	0.007	1.000	3185825	16.9		91.2	168670	
499 > 99.0	3.201	3.195	0.007	1.000	731060		4.36(0.90-1.10)		8579	
D 17 13C4 PFOS										
503 > 80.0	3.310	3.304	0.006		7653615	52.9		111	365671	
D 19 13C5 PFNA										
468 > 423.0	3.310	3.312	-0.002		6989240	54.8		110	429551	
20 Perfluorononanoic acid										
463 > 419.0	3.310	3.312	-0.002	1.000	2854725	20.1		101	94047	
D 21 13C8 FOSA										
506 > 78.0	3.650	3.634	0.016		13561576	50.9		102	559791	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.650	3.642	0.008	1.000	5354153	21.4		107	224222	
D 23 13C2 PFDA										
515 > 470.0	3.666	3.658	0.008		6104043	50.5		101	334787	
24 Perfluorodecanoic acid										
513 > 469.0	3.674	3.666	0.008	1.000	2365260	19.8		99.0	200003	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.975	3.975	0.0	1.000	1917814	18.7		97.2		
28 Perfluoroundecanoic acid										
563 > 519.0	4.002	3.993	0.009	1.000	1994691	19.1		95.5	93880	
D 27 13C2 PFUnA										
565 > 520.0	3.993	3.993	0.0		4849153	50.9		102	328791	
D 30 13C2 PFDoA										
615 > 570.0	4.284	4.284	0.0		5026837	56.8		114	267874	
29 Perfluorododecanoic acid										
613 > 569.0	4.294	4.284	0.010	1.000	1959892	20.1		101	101872	
31 Perfluorotridecanoic acid										
633 > 619.0	4.545	4.546	-0.001	1.000	1942659	19.3		96.5	88279	
D 32 13C2-PFTeDA										
715 > 670.0	4.790	4.781	0.009		9077761	53.3		107	533677	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.780	4.790	-0.010	1.000	3510075	19.5		97.4	5750	
713 > 169.0	4.780	4.790	-0.010	1.000	558254		6.29(0.00-0.00)		63786	
D 34 13C2-PFHxDA										
815 > 770.0	5.188	5.188	0.0		5875256	54.0		108	424293	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.188	5.188	0.0	1.000	2204550	18.9		94.4	6140	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.544	5.545	-0.001	1.000	2127331	21.6		108	9263	

Reagents:

LCPFC-L4_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_002_p1_e1.d

Injection Date: 04-Sep-2016 12:46:00

Instrument ID: A8

Lims ID: CCV L4

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

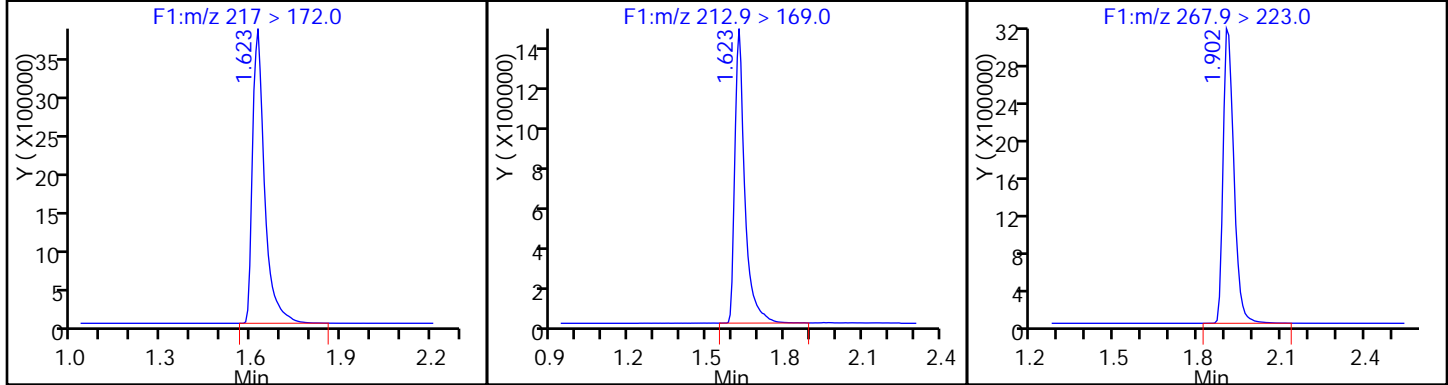
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

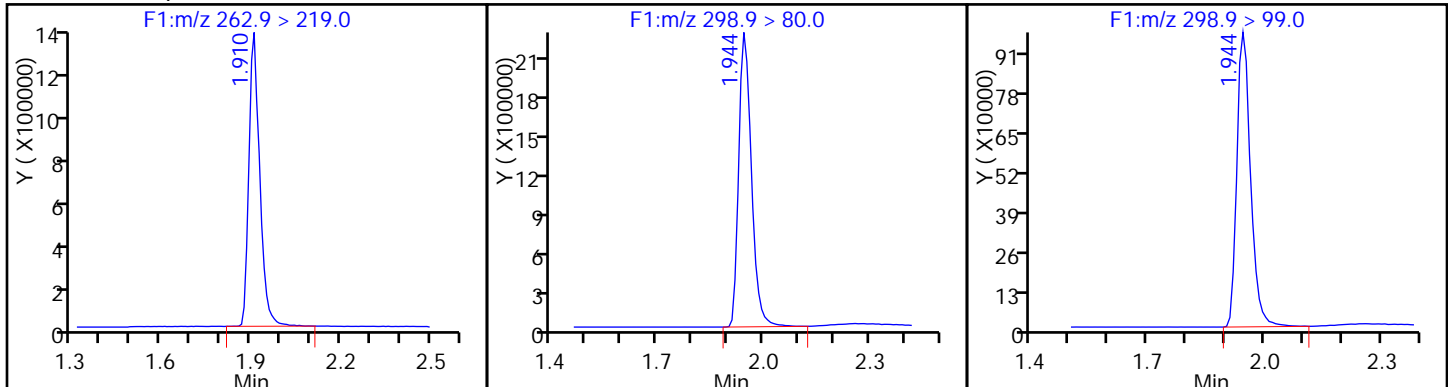
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

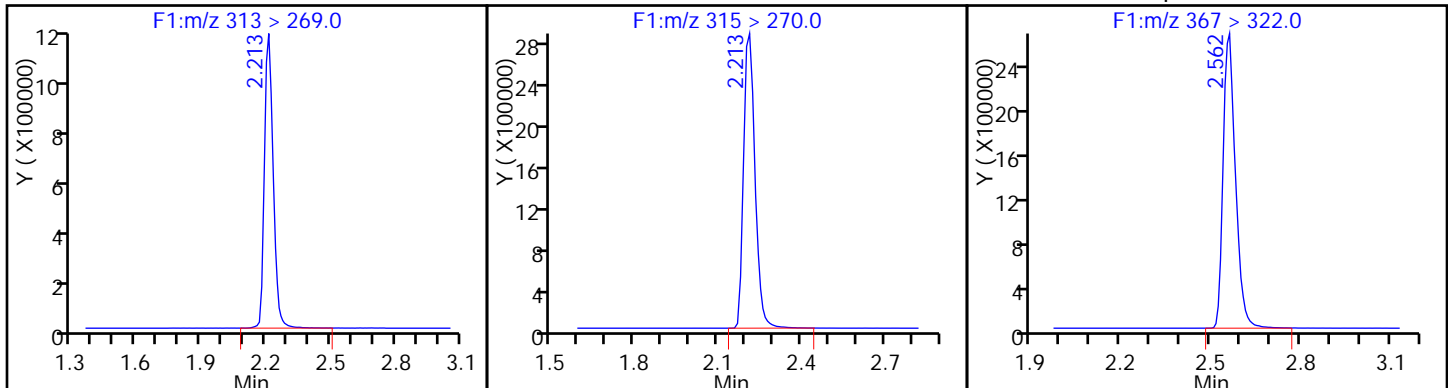
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

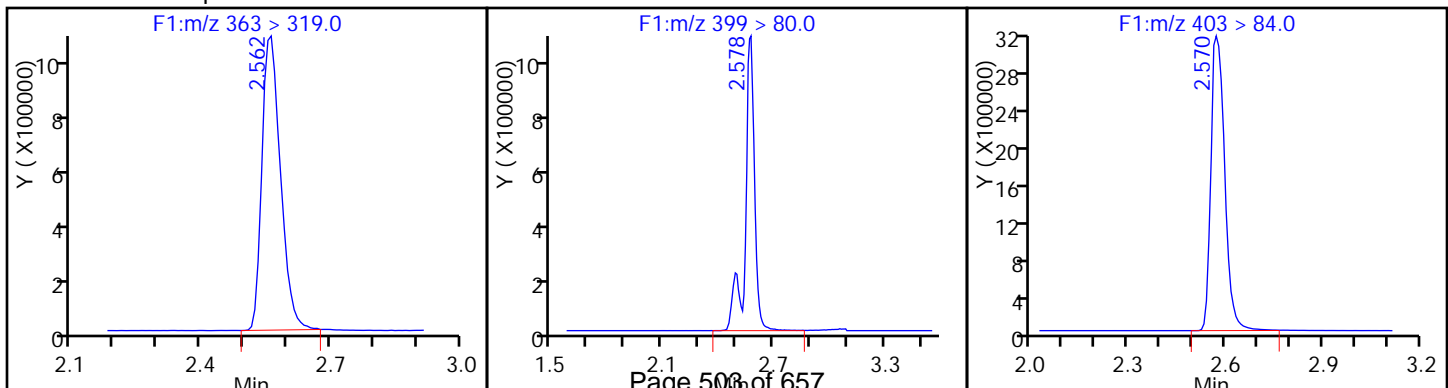
D 11 13C4-PFHpA

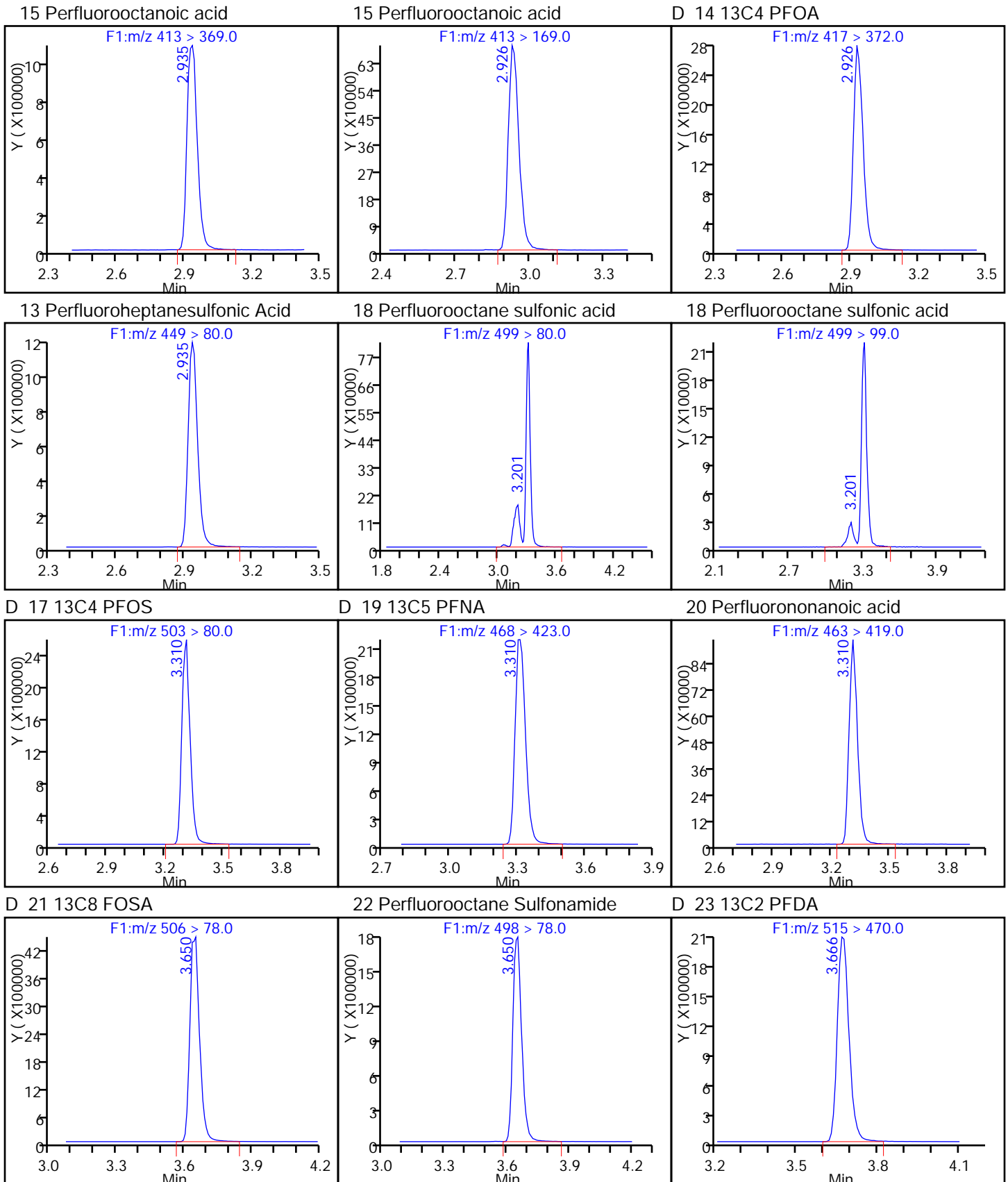


12 Perfluoroheptanoic acid

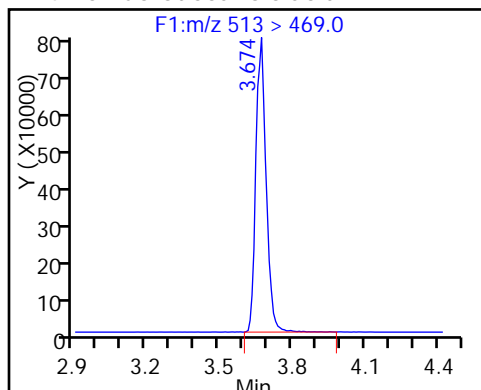
9 Perfluorohexanesulfonic acid

D 10 18O2 PFHxS

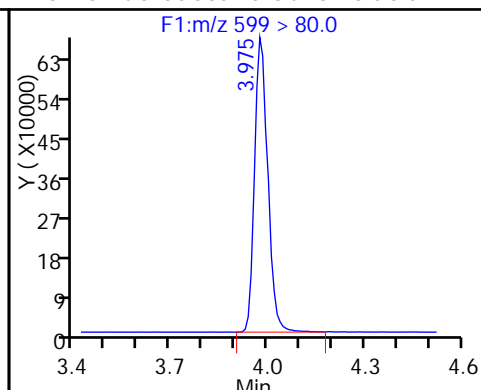




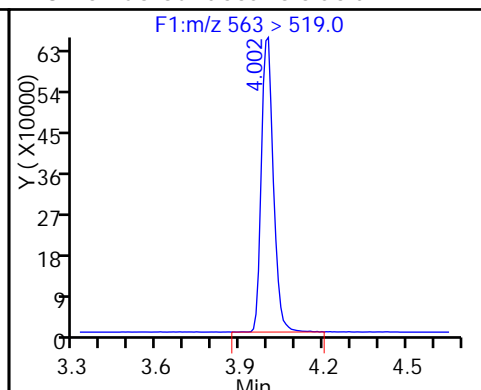
24 Perfluorodecanoic acid



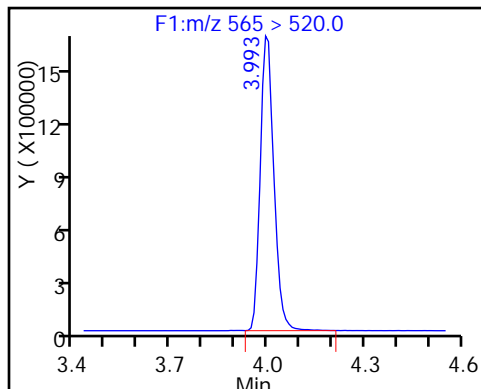
26 Perfluorodecane Sulfonic acid



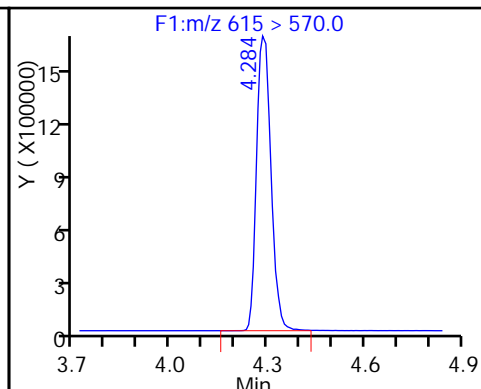
28 Perfluoroundecanoic acid



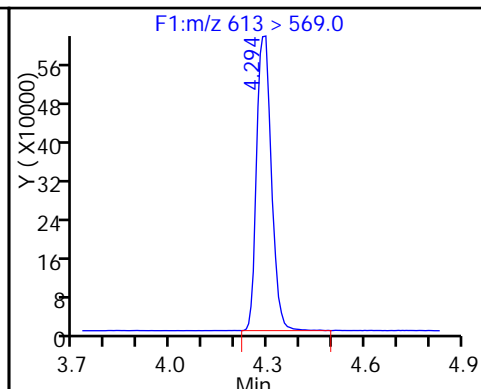
D 27 13C2 PFUnA



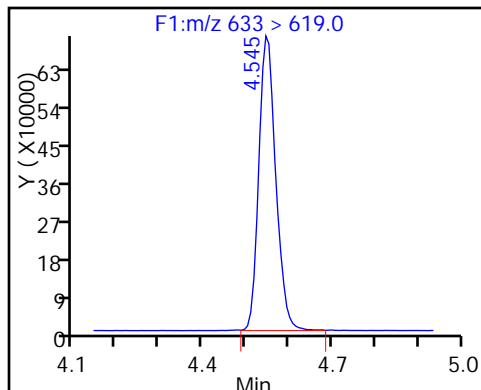
D 30 13C2 PFDaA



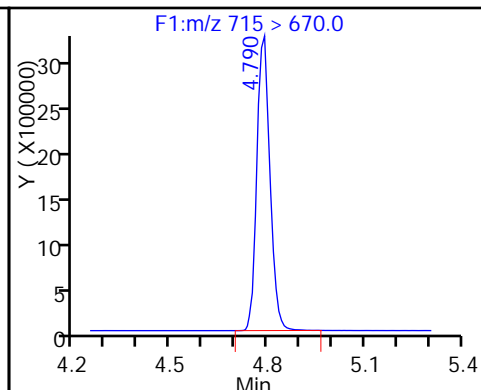
29 Perfluorododecanoic acid



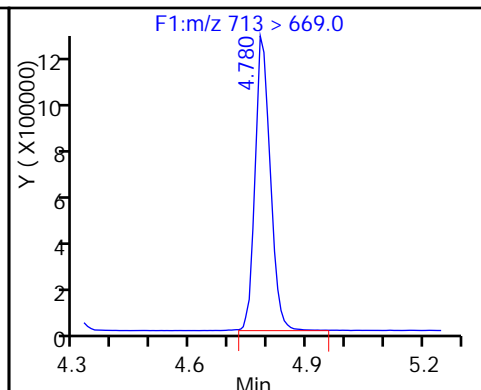
31 Perfluorotridecanoic acid



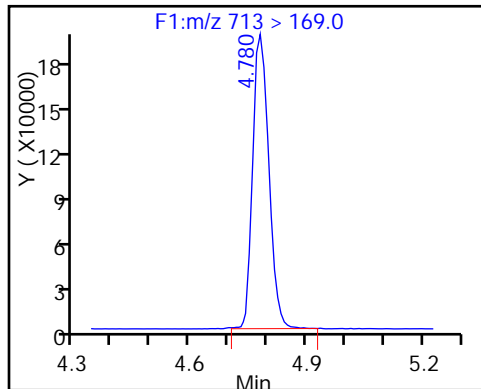
D 32 13C2-PFTeDA



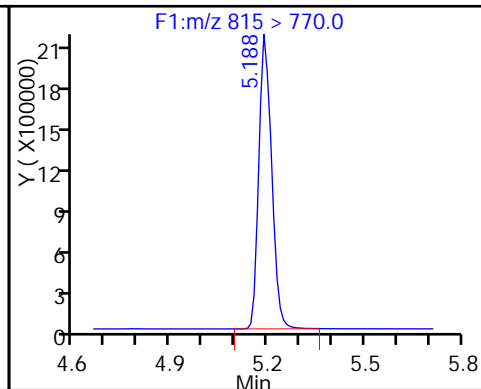
33 Perfluorotetradecanoic acid



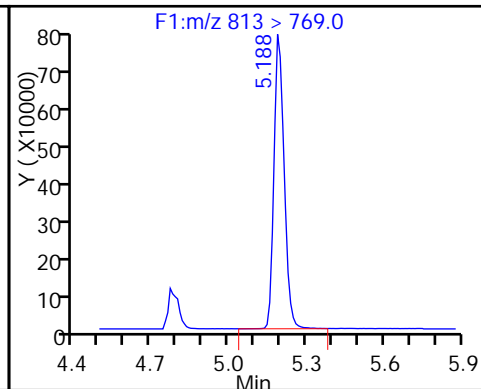
33 Perfluorotetradecanoic acid



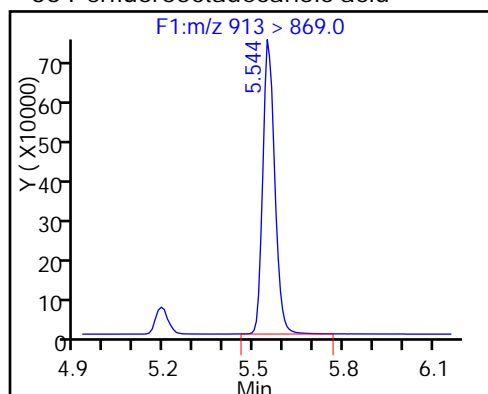
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Lab Sample ID: CCV 320-126120/16 Calibration Date: 09/04/2016 14:31

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_016_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9109		52.0	50.0	3.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.030		49.1	50.0	-1.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.664		48.3	44.2	9.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9329		46.3	50.0	-7.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.033		49.6	50.0	-0.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.050		44.5	45.5	-2.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.150		47.6	47.6	-0.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.017		48.9	50.0	-2.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.064		42.0	46.4	-9.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.044		51.5	50.0	3.0	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9552		51.7	50.0	3.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	0.9837		50.3	50.0	0.5	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.6277		47.3	48.2	-1.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.007		46.8	50.0	-6.4	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	0.9824		50.7	50.0	1.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	0.9775		48.8	50.0	-2.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.788		49.9	50.0	-0.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.141		49.8	50.0	-0.3	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.102		56.2	50.0	12.5	25.0
13C4 PFBA	Ave	201916	212435		52.6	50.0	5.2	50.0
13C5-PFPeA	Ave	158393	169542		53.5	50.0	7.0	50.0
13C2 PFHxA	Ave	144323	156308		54.2	50.0	8.3	50.0
13C4-PFHpA	Ave	130863	145918		55.8	50.0	11.5	50.0
18O2 PFHxS	Ave	180721	197633		51.7	47.3	9.4	50.0
13C4 PFOA	Ave	145826	159675		54.7	50.0	9.5	50.0
13C4 PFOS	Ave	144726	161265		53.3	47.8	11.4	50.0
13C5 PFNA	Ave	127527	132088		51.8	50.0	3.6	50.0
13C8 FOSA	Ave	266354	265841		49.9	50.0	-0.2	50.0
13C2 PFDA	Ave	120893	117554		48.6	50.0	-2.8	50.0
13C2 PFUnA	Ave	95304	93169		48.9	50.0	-2.2	50.0
13C2 PFDoA	Ave	88472	96108		54.3	50.0	8.6	50.0
13C2-PFTeDA	Ave	170446	184209		54.0	50.0	8.1	50.0
13C2-PFHxDA	Ave	108855	120637		55.4	50.0	10.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_016_p1_e1.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 04-Sep-2016 14:31:00 ALS Bottle#: 0 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub2
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 13:26:45 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 13:26:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.616	1.623	-0.007		10621749	52.6		105	452542	
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1 Perfluorobutyric acid

212.9 > 169.0	1.616	1.623	-0.007	1.000	9675635	52.0		104	94472	
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D 4 13C5-PFPeA

267.9 > 223.0	1.904	1.910	-0.006		8477077	53.5		107	1555173	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.904	1.910	-0.006	1.000	8730221	49.1		98.1	169701	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.947	1.944	0.003	1.000	14537419	48.3		109		
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298.9 > 99.0	1.947	1.944	0.003	1.000	6413096		2.27(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.205	2.213	-0.008	1.000	7291135	46.3		92.6	427823	
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D 6 13C2 PFHxA

315 > 270.0	2.205	2.213	-0.008		7815381	54.2		108	917107	
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D 11 13C4-PFHpA

367 > 322.0	2.553	2.556	-0.003		7295901	55.8		112	612707	
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12 Perfluoroheptanoic acid

363 > 319.0	2.553	2.556	-0.003	1.000	7537422	49.6		99.3	102723	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.569	2.571	-0.002	1.000	9439142	44.5		97.7		
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D 10 18O2 PFHxS

403 > 84.0	2.569	2.571	-0.002		9348018	51.7		109	526395	
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15 Perfluorooctanoic acid

413 > 369.0	2.933	2.919	0.014	1.000	8116010	48.9		97.7	169668	
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413 > 169.0	2.925	2.919	0.006	0.997	4982130		1.63(0.90-1.10)		237925	
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D 14 13C4 PFOA

417 > 372.0	2.925	2.928	-0.003		7983750	54.7		109	447858	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.933	2.936	-0.003	1.000	8829612	47.6		99.9		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.275	3.195	0.081	1.000	7961568	42.0		90.5	176220	
499 > 99.0	3.301	3.195	0.107	1.008	1851120		4.30(0.90-1.10)		527176	
D 17 13C4 PFOS										
503 > 80.0	3.292	3.304	-0.012		7708464	53.3		111	316117	
D 19 13C5 PFNA										
468 > 423.0	3.301	3.312	-0.011		6604382	51.8		104	399134	
20 Perfluorononanoic acid										
463 > 419.0	3.301	3.312	-0.011	1.000	6895449	51.5		103	267942	
D 21 13C8 FOSA										
506 > 78.0	3.635	3.634	0.001		13292027	49.9		99.8	769327	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.643	3.642	0.001	1.000	12696418	51.7		103	328492	
D 23 13C2 PFDA										
515 > 470.0	3.659	3.658	0.001		5877718	48.6		97.2	391643	
24 Perfluorodecanoic acid										
513 > 469.0	3.667	3.666	0.001	1.000	5782126	50.3		101	319404	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.978	3.975	0.003	1.000	4879331	47.3		98.2		
28 Perfluoroundecanoic acid										
563 > 519.0	3.987	3.993	-0.006	1.000	4692859	46.8		93.6	257692	
D 27 13C2 PFUnA										
565 > 520.0	3.987	3.993	-0.006		4658457	48.9		97.8	524408	
D 30 13C2 PFDoA										
615 > 570.0	4.280	4.284	-0.004		4805388	54.3		109	269523	
29 Perfluorododecanoic acid										
613 > 569.0	4.280	4.284	-0.004	1.000	4720850	50.7		101	172378	
31 Perfluorotridecanoic acid										
633 > 619.0	4.544	4.546	-0.002	1.000	4697199	48.8		97.6	215833	
D 32 13C2-PFTeDA										
715 > 670.0	4.784	4.781	0.003		9210469	54.0		108	529403	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.784	4.790	-0.006	1.000	8591046	49.9		99.7	18538	
713 > 169.0	4.775	4.790	-0.015	0.998	1358811		6.32(0.00-0.00)		122593	
D 34 13C2-PFHxDA										
815 > 770.0	5.191	5.188	0.003		6031856	55.4		111	417730	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.191	5.188	0.003	1.000	5480930	49.8		99.7	16808	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.547	5.545	0.002	1.000	5297270	56.2		112	21537	

Reagents:

LCPFC-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_016_p1_e1.d

Injection Date: 04-Sep-2016 14:31:00

Instrument ID: A8

Lims ID: CCV L5

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

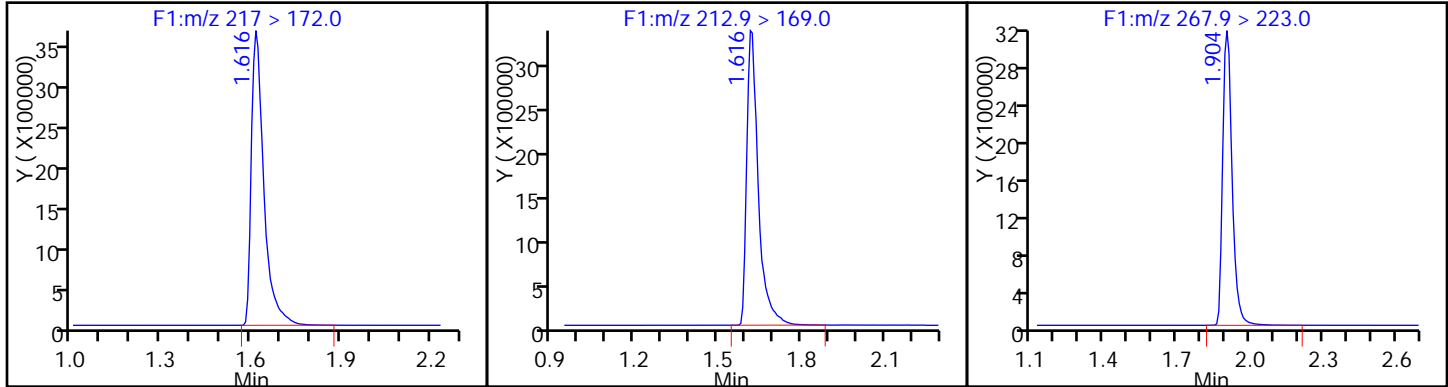
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

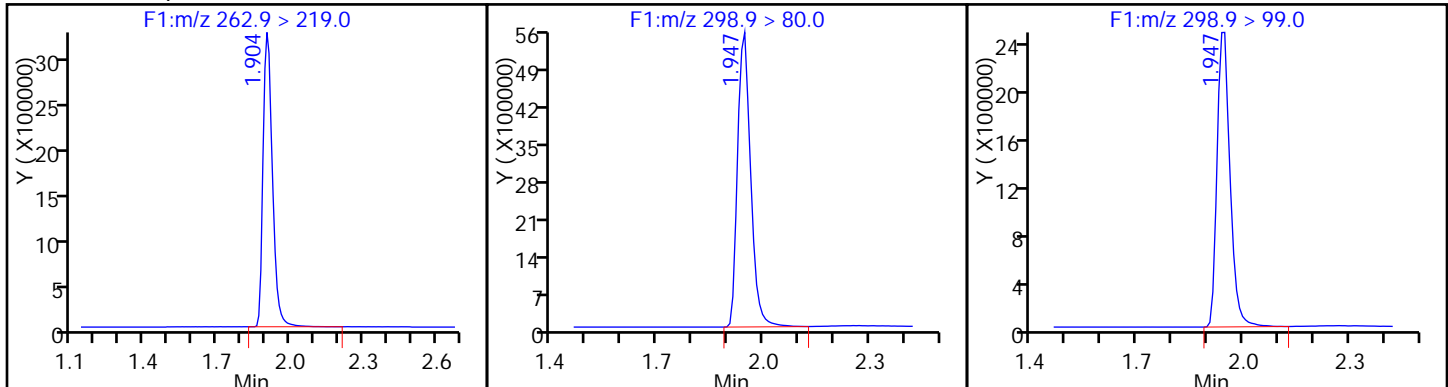
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

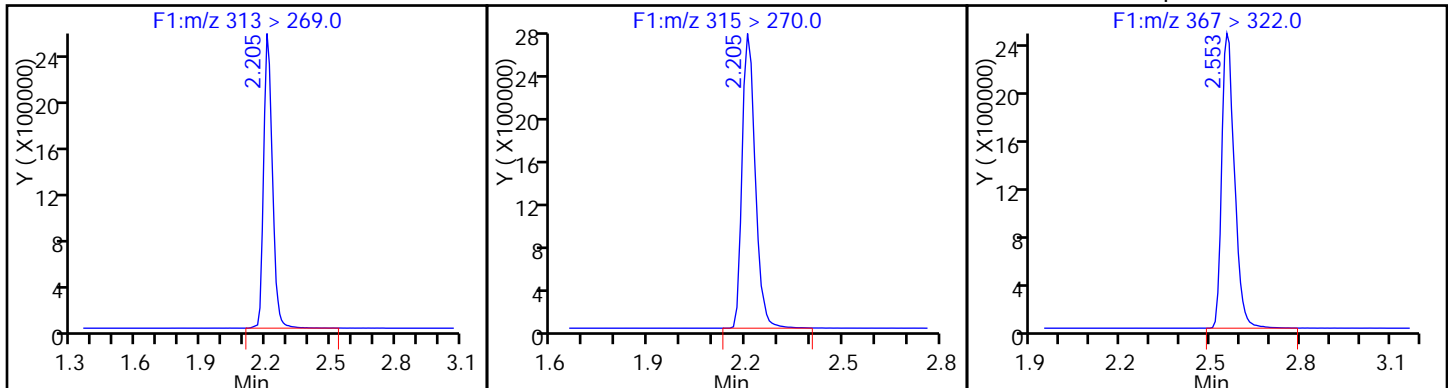
5 Perfluorobutanesulfonic acid



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

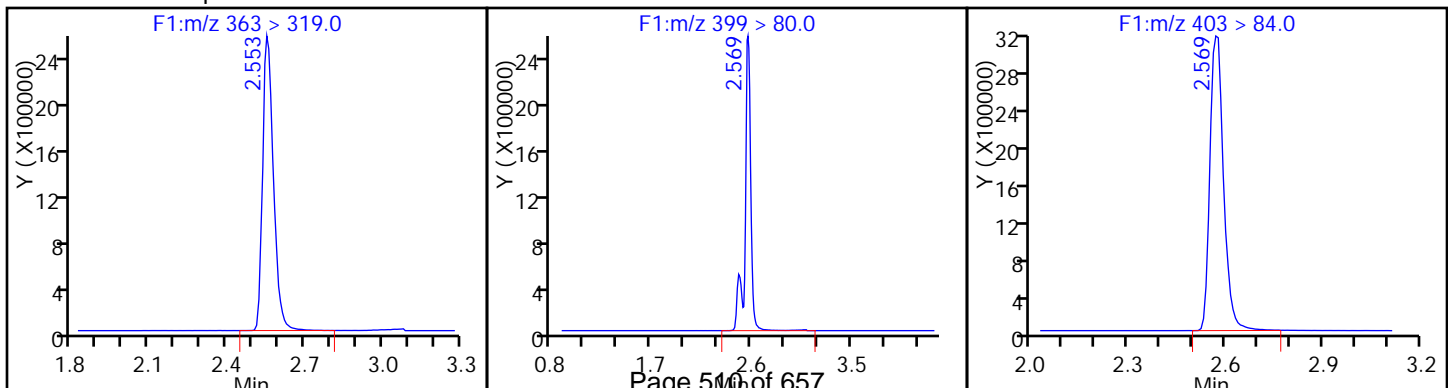
D 11 13C4-PFHpA

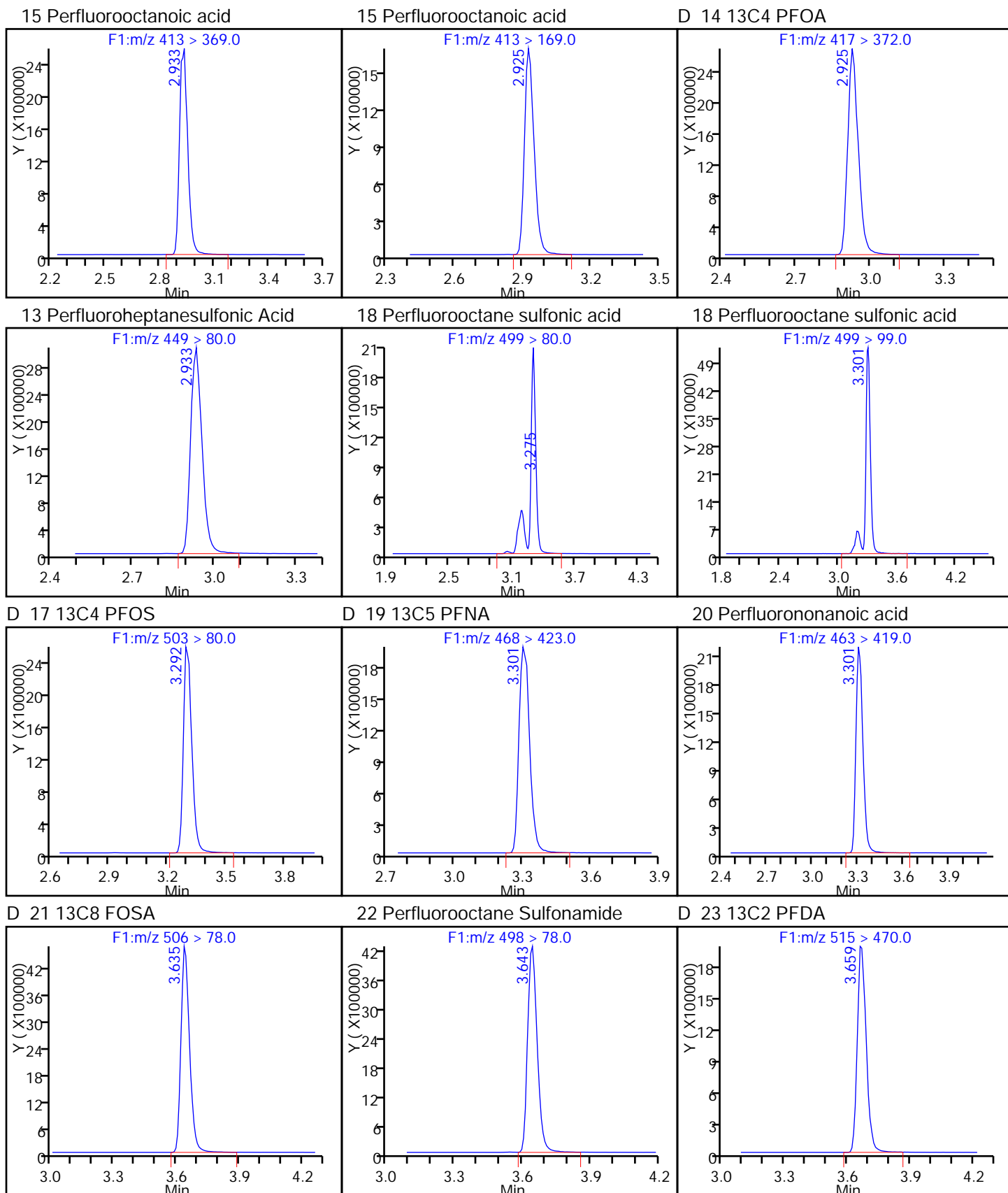


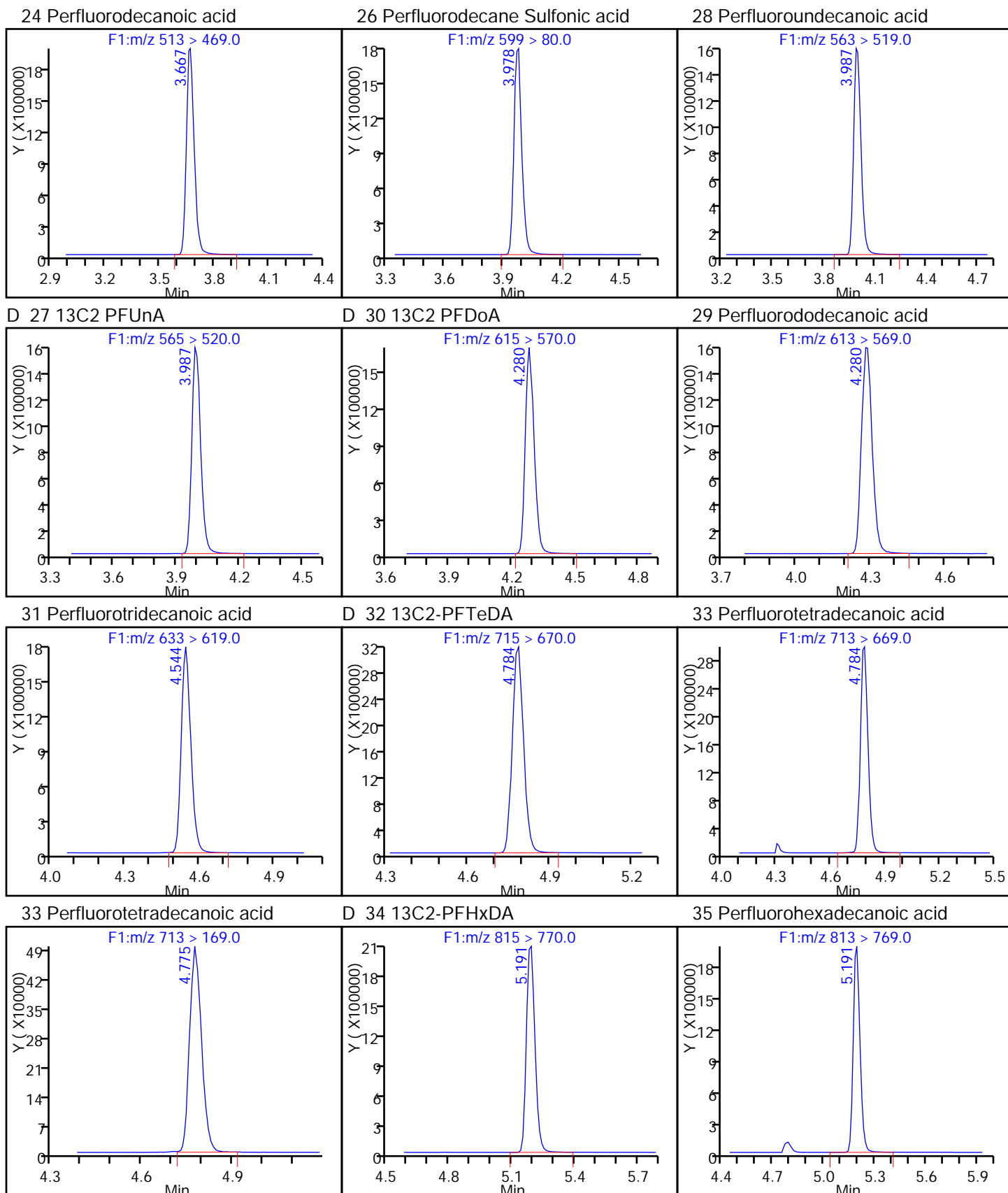
12 Perfluoroheptanoic acid

9 Perfluorohexanesulfonic acid

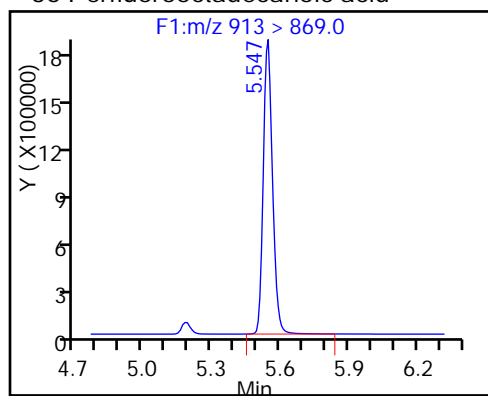
D 10 18O2 PFHxS







36 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Lab Sample ID: CCV 320-126120/30 Calibration Date: 09/04/2016 16:16

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_030_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9138		20.8	20.0	4.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.035		19.7	20.0	-1.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.629		18.9	17.7	7.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9630		19.1	20.0	-4.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.047		20.1	20.0	0.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.065		18.0	18.2	-0.8	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.075		20.7	20.0	3.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.177		19.5	19.0	2.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.077		17.0	18.6	-8.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.023		20.2	20.0	0.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9823		21.3	20.0	6.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	0.8151		16.7	20.0	-16.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.6203		18.7	19.3	-3.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.013		18.8	20.0	-5.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	0.9773		20.2	20.0	0.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	0.9737		19.5	20.0	-2.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.751		19.5	20.0	-2.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.130		19.5	20.0	-2.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.105		22.6	20.0	12.8	25.0
13C4 PFBA	Ave	201916	215516		53.4	50.0	6.7	50.0
13C5-PFPeA	Ave	158393	170073		53.7	50.0	7.4	50.0
13C2 PFHxA	Ave	144323	160954		55.8	50.0	11.5	50.0
13C4-PFHpA	Ave	130863	154056		58.9	50.0	17.7	50.0
18O2 PFHxS	Ave	180721	195950		51.3	47.3	8.4	50.0
13C4 PFOA	Ave	145826	165115		56.6	50.0	13.2	50.0
13C4 PFOS	Ave	144726	155174		51.3	47.8	7.2	50.0
13C5 PFNA	Ave	127527	140512		55.1	50.0	10.2	50.0
13C8 FOSA	Ave	266354	268272		50.4	50.0	0.7	50.0
13C2 PFDA	Ave	120893	124190		51.4	50.0	2.7	50.0
13C2 PFUnA	Ave	95304	100529		52.7	50.0	5.5	50.0
13C2 PFDoA	Ave	88472	101415		57.3	50.0	14.6	50.0
13C2-PFTeA	Ave	170446	185442		54.4	50.0	8.8	50.0
13C2-PFHxDA	Ave	108855	124025		57.0	50.0	13.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_030_p1_e1.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 04-Sep-2016 16:16:00 ALS Bottle#: 0 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub2
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:52:51 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: barnettj

Date: 17-Sep-2016 12:48:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.617	1.623	-0.007		10775777	53.4		107	498752	
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1 Perfluorobutyric acid

212.9 > 169.0	1.623	1.623	0.0	1.000	3938585	20.8		104	34359	
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D 4 13C5-PFPeA

267.9 > 223.0	1.902	1.910	-0.008		8503643	53.7		107	1054704	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.902	1.910	-0.008	1.000	3521520	19.7		98.6	62419	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.944	1.944	0.0	1.000	5642886	18.9		107		
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298.9 > 99.0	1.944	1.944	0.0	1.000	2365871		2.39(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.203	2.213	-0.010	1.000	3099947	19.1		95.6	216538	
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D 6 13C2 PFHxA

315 > 270.0	2.213	2.213	0.0		8047705	55.8		112	688865	
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D 11 13C4-PFHpA

367 > 322.0	2.555	2.556	-0.001		7702796	58.9		118	642392	
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12 Perfluoroheptanoic acid

363 > 319.0	2.555	2.556	-0.001	1.000	3226382	20.1		101	44563	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.570	2.571	-0.001	1.000	3797478	18.0		99.2		
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D 10 18O2 PFHxS

403 > 84.0	2.578	2.571	0.007		9268458	51.3		108	500005	
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15 Perfluorooctanoic acid

413 > 369.0	2.926	2.919	0.007	1.000	3550476	20.7		103	77520	
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413 > 169.0	2.918	2.919	-0.001	0.997	2084806		1.70(0.90-1.10)		108914	
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D 14 13C4 PFOA

417 > 372.0	2.926	2.928	-0.002		8255759	56.6		113	534037	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.935	2.936	-0.001	1.000	3476010	19.5		102		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.185	3.195	-0.009	1.000	3102533	17.0		91.7	56959	
499 > 99.0	3.209	3.195	0.015	1.008	687902		4.51(0.90-1.10)		7260	
D 17 13C4 PFOS										
503 > 80.0	3.302	3.304	-0.002		7417304	51.3		107	280349	
D 19 13C5 PFNA										
468 > 423.0	3.302	3.312	-0.010		7025604	55.1		110	317249	
20 Perfluorononanoic acid										
463 > 419.0	3.310	3.312	-0.002	1.000	2874129	20.2		101	97892	
D 21 13C8 FOSA										
506 > 78.0	3.648	3.634	0.014		13413613	50.4		101	485926	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.641	3.642	-0.001	1.000	5270234	21.3		106	302106	
D 23 13C2 PFDA										
515 > 470.0	3.664	3.658	0.006		6209492	51.4		103	291035	
24 Perfluorodecanoic acid										
513 > 469.0	3.656	3.666	-0.010	1.000	2024459	16.7		83.3	56973	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.973	3.975	-0.002	1.000	1855902	18.7		97.0		
28 Perfluoroundecanoic acid										
563 > 519.0	4.000	3.993	0.007	1.000	2037593	18.8		94.1	99044	
D 27 13C2 PFUnA										
565 > 520.0	3.991	3.993	-0.002		5026468	52.7		105	344509	
D 30 13C2 PFDoA										
615 > 570.0	4.282	4.284	-0.002		5070736	57.3		115	327957	
29 Perfluorododecanoic acid										
613 > 569.0	4.282	4.284	-0.002	1.000	1982149	20.2		101	95201	
31 Perfluorotridecanoic acid										
633 > 619.0	4.544	4.546	-0.002	1.000	1975030	19.5		97.3	92912	
D 32 13C2-PFTeDA										
715 > 670.0	4.785	4.781	0.004		9272086	54.4		109	532710	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.785	4.790	-0.005	1.000	3551850	19.5		97.7	6926	
713 > 169.0	4.775	4.790	-0.015	0.998	557920		6.37(0.00-0.00)		100589	
D 34 13C2-PFHxDA										
815 > 770.0	5.191	5.188	0.003		6201266	57.0		114	440648	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.191	5.188	0.003	1.000	2291545	19.5		97.4	7141	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.547	5.545	0.002	1.000	2242039	22.6		113	8479	

Reagents:

LCPFC-L4_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_030_p1_e1.d

Injection Date: 04-Sep-2016 16:16:00

Instrument ID: A8

Lims ID: CCV L4

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 30

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

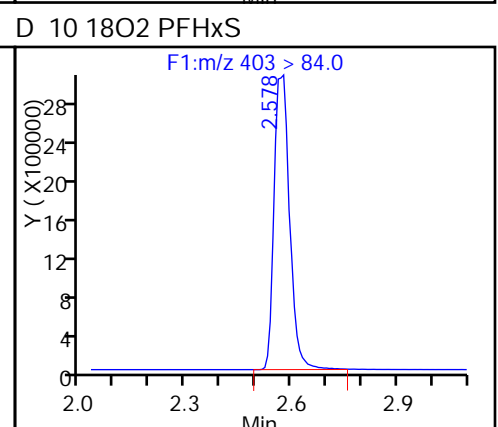
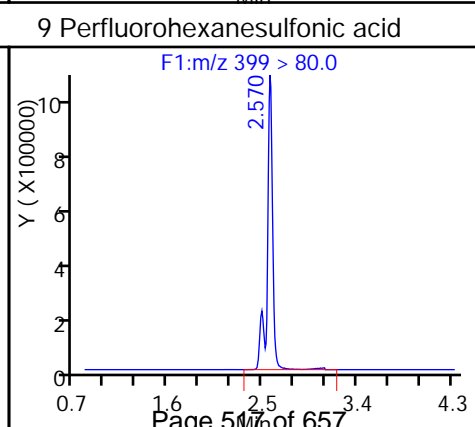
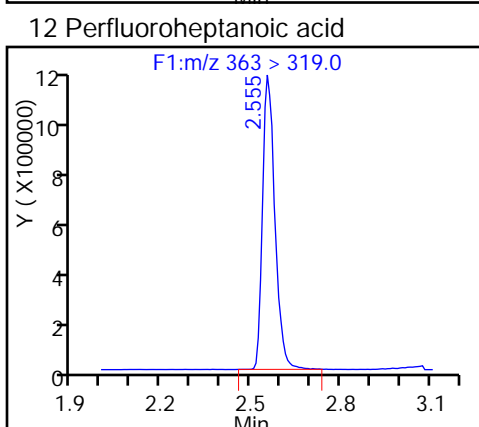
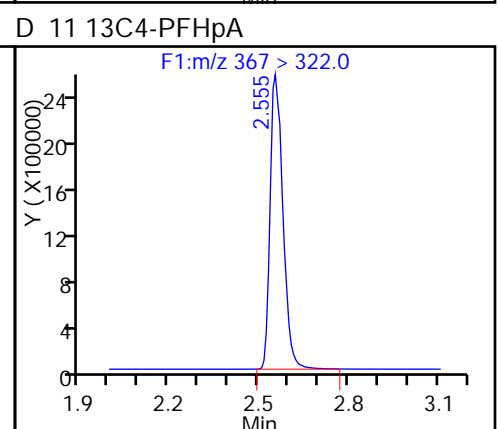
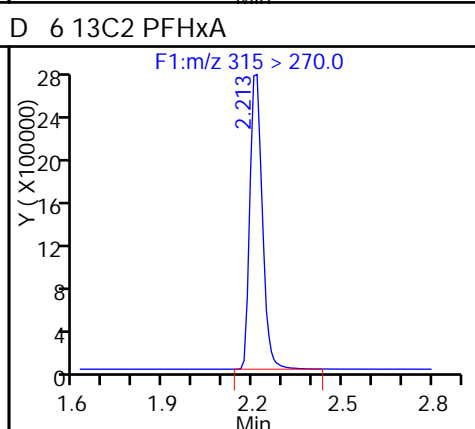
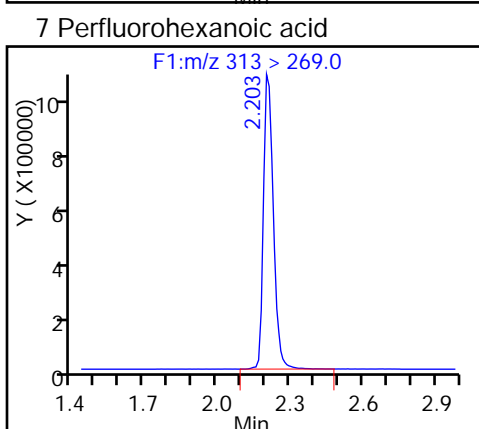
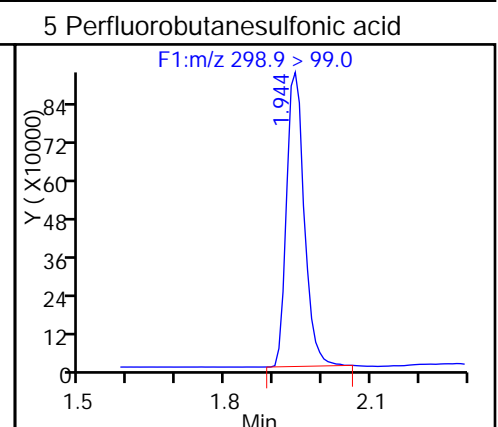
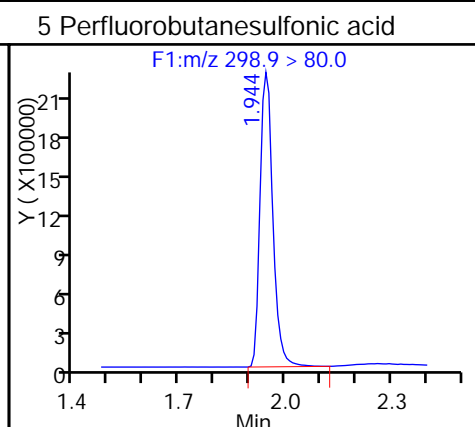
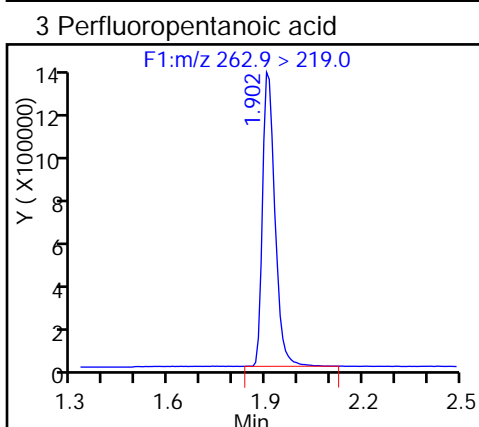
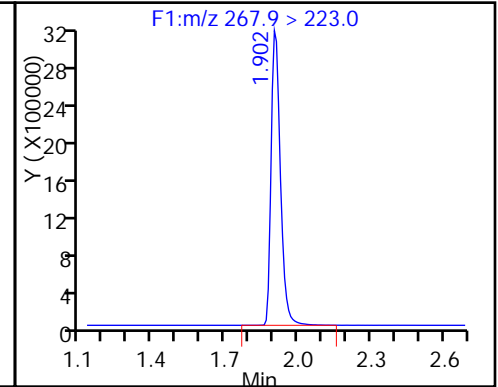
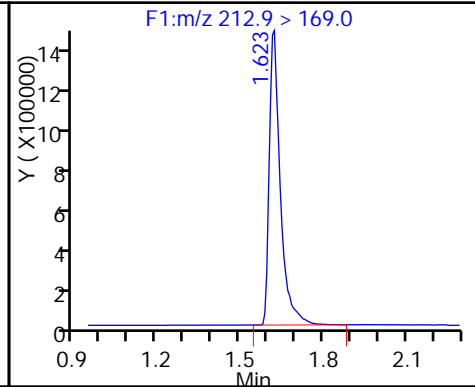
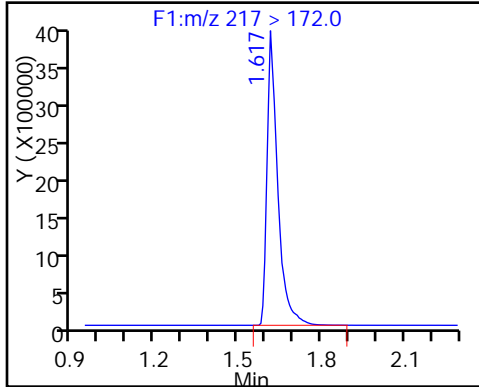
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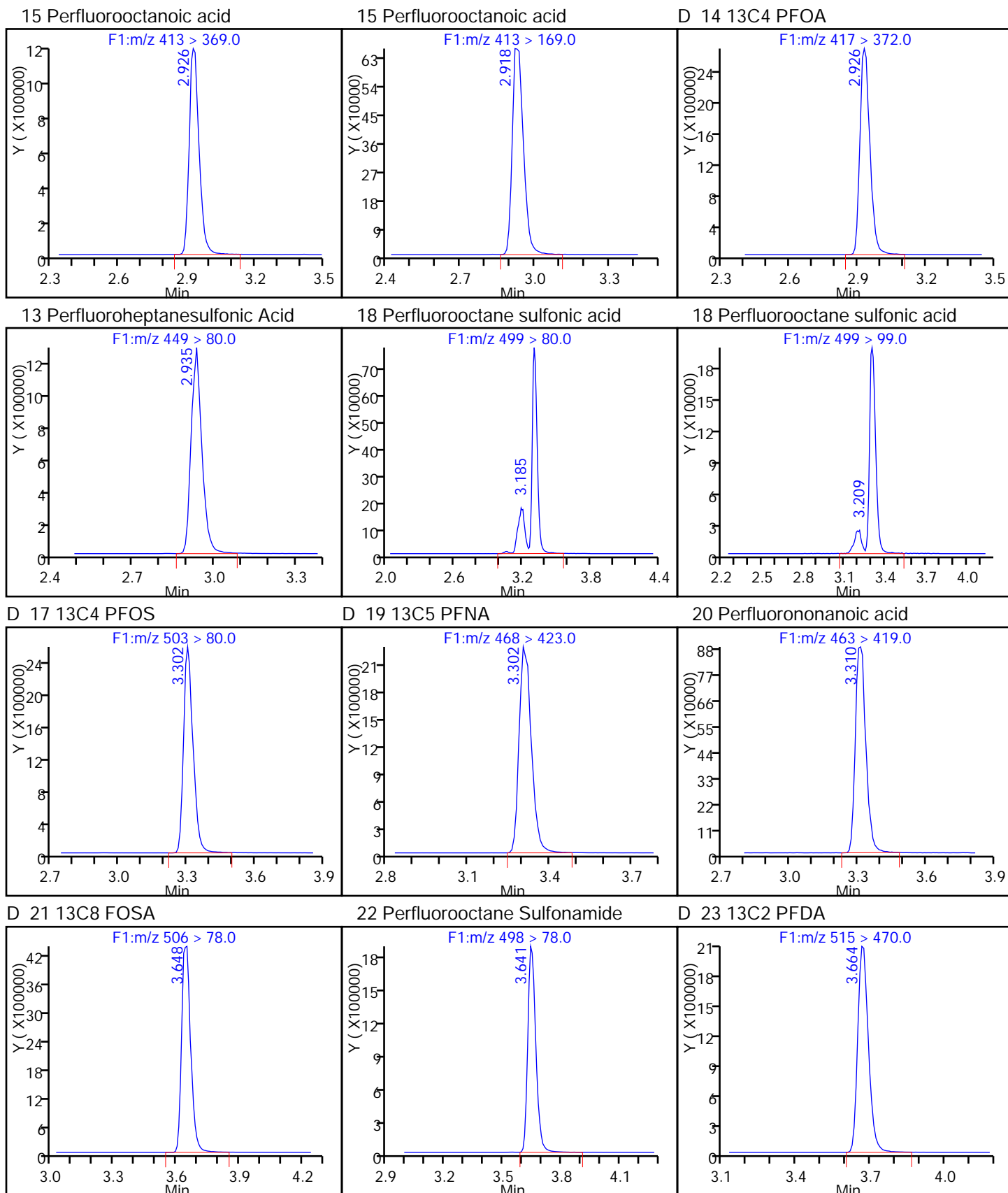
Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

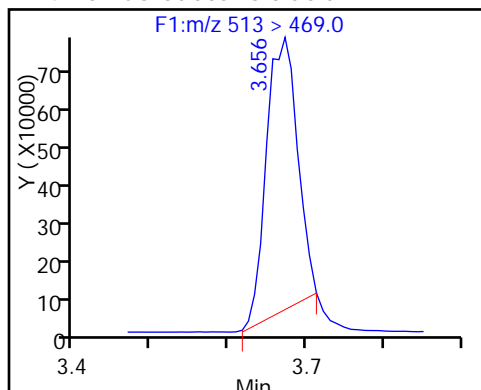
1 Perfluorobutyric acid

D 4 13C5-PFPeA

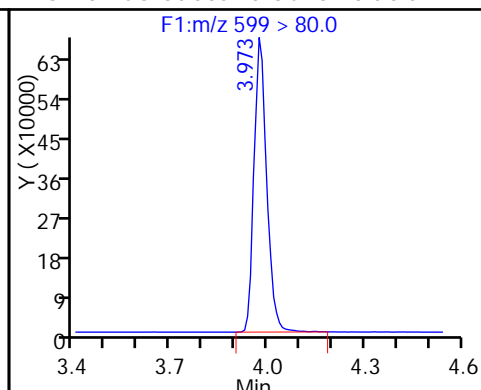




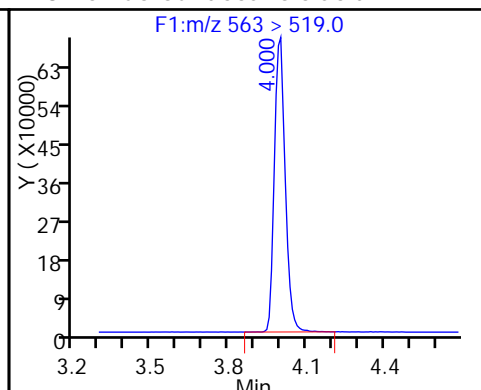
24 Perfluorodecanoic acid



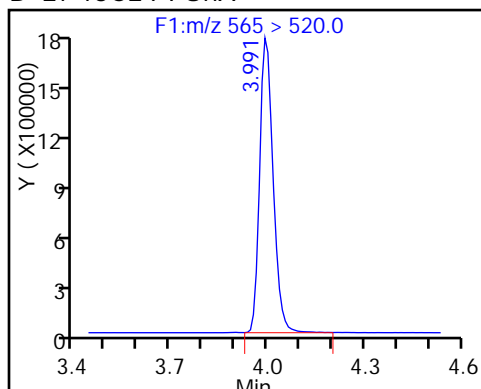
26 Perfluorodecane Sulfonic acid



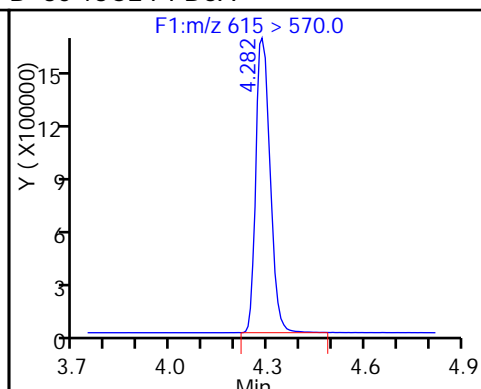
28 Perfluoroundecanoic acid



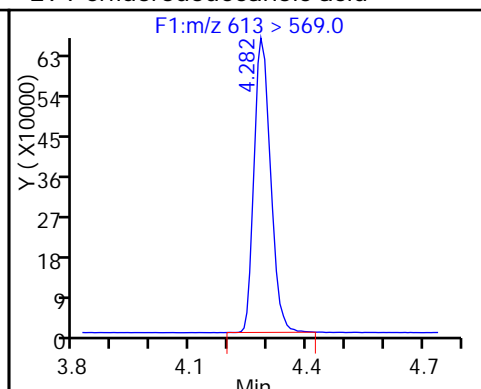
D 27 13C2 PFUnA



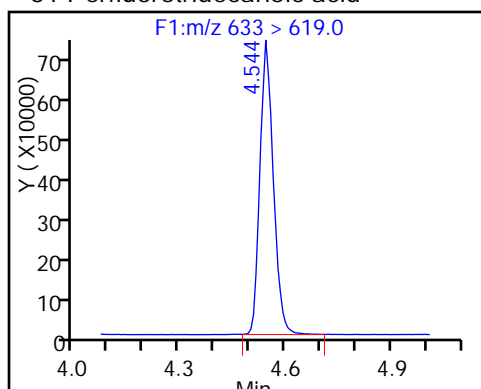
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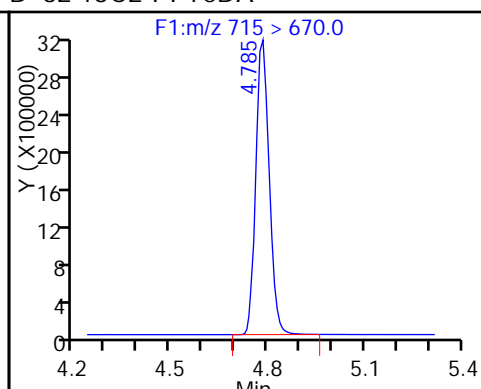
29 Perfluorododecanoic acid



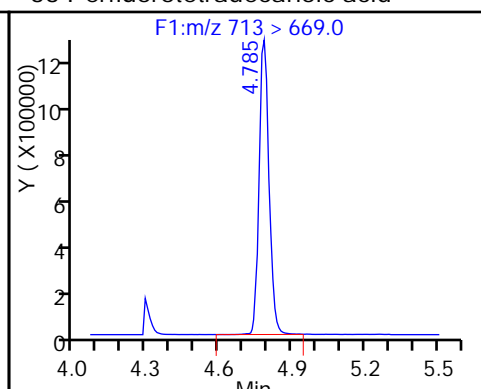
31 Perfluorotridecanoic acid



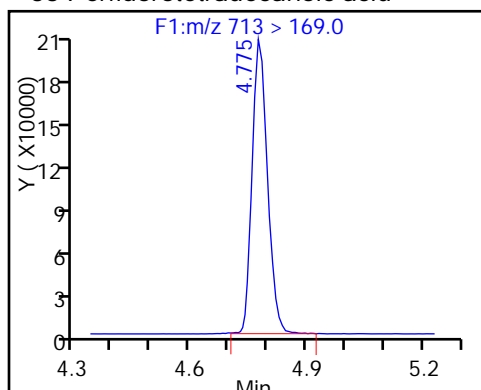
D 32 13C2-PFTeDA



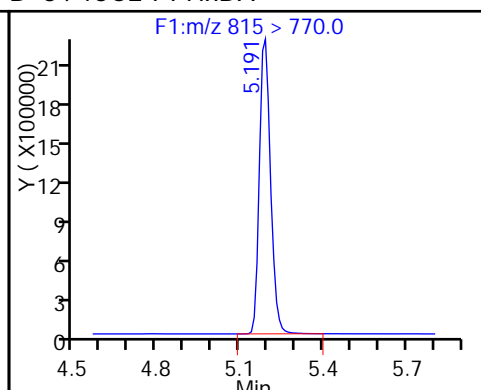
33 Perfluorotetradecanoic acid



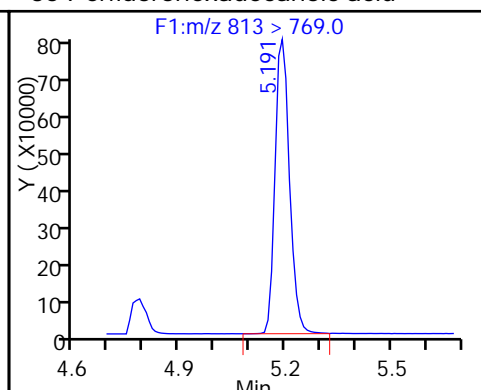
33 Perfluorotetradecanoic acid



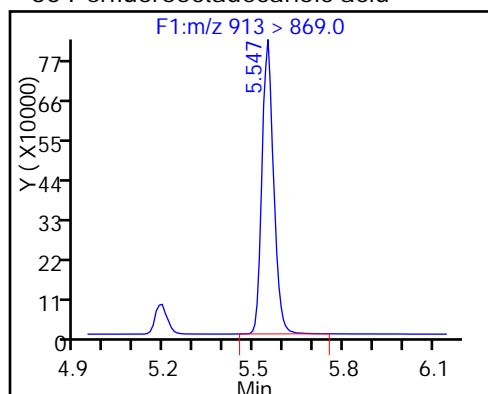
D 34 13C2-PFHxDA



35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Lab Sample ID: CCV 320-128009/36 Calibration Date: 09/19/2016 19:48

Instrument ID: A8 Calib Start Date: 09/19/2016 15:48

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/19/2016 17:48

Lab File ID: 19SEP2016B_012_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8672	0.9339		21.5	20.0	7.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.016	1.042		20.5	20.0	2.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.528	1.521		17.6	17.7	-0.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9474	0.9787		20.7	20.0	3.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.042	1.028		19.7	20.0	-1.3	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.044		18.5	18.2	1.6	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.047	1.094		20.9	20.0	4.5	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.181	1.233		19.9	19.0	4.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.016	1.020		20.1	20.0	0.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.071	1.034		17.9	18.6	-3.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9198	0.9860		21.4	20.0	7.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9675	0.9801		20.3	20.0	1.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6164	0.6356		19.9	19.3	3.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.082	1.026		19.0	20.0	-5.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9712	0.9763		20.1	20.0	0.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9735	1.031		21.2	20.0	5.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.428	1.395		19.5	20.0	-2.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	AveID	1.222	1.246		20.4	20.0	2.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.075	1.235		23.0	20.0	15.0	25.0
13C4 PFBA	Ave	187843	193639		51.5	50.0	3.1	50.0
13C5-PFPeA	Ave	156937	151036		48.1	50.0	-3.8	50.0
13C2 PFHxA	Ave	141395	149977		53.0	50.0	6.1	50.0
13C4-PFHpA	Ave	135762	139941		51.5	50.0	3.1	50.0
18O2 PFHxS	Ave	174136	179848		48.9	47.3	3.3	50.0
13C4 PFOA	Ave	130965	139147		53.1	50.0	6.2	50.0
13C5 PFNA	Ave	105374	110393		52.4	50.0	4.8	50.0
13C4 PFOS	Ave	128908	128118		47.5	47.8	-0.6	50.0
13C8 FOSA	Ave	243074	229565		47.2	50.0	-5.6	50.0
13C2 PFDA	Ave	91630	99481		54.3	50.0	8.6	50.0
13C2 PFUnA	Ave	72064	76819		53.3	50.0	6.6	50.0
13C2 PFDoA	Ave	66530	69268		52.1	50.0	4.1	50.0
13C2-PFTeDA	Ave	129334	134865		52.1	50.0	4.3	50.0
13C2-PFHxDA	Ave	80077	91534		57.2	50.0	14.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_012_p1_e1.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-Sep-2016 19:48:00 ALS Bottle#: 0 Worklist Smp#: 36
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub2
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 21-Sep-2016 12:26:04 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK048

First Level Reviewer: chandrasenas

Date: 21-Sep-2016 12:26:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.526	1.534	-0.008		9681955	51.5		103	528624	
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1 Perfluorobutyric acid

212.9 > 169.0	1.526	1.535	-0.009	1.000	3616780	21.5		108	32173	
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D 4 13C5-PFPeA

267.9 > 223.0	1.792	1.807	-0.015		7551810	48.1		96.2	1001317	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.792	1.809	-0.017	1.000	3147806	20.5		103	59497	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.825	1.844	-0.019	1.000	4835634	17.6		99.5		
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298.9 > 99.0	1.825	1.844	-0.019	1.000	2069565		2.34(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.072	2.096	-0.024	1.000	2935696	20.7		103	138513	
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D 6 13C2 PFHxA

315 > 270.0	2.072	2.096	-0.024		7498858	53.0		106	930403	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.422	2.415	0.007	1.000	3416653	18.5		102		
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12 Perfluoroheptanoic acid

363 > 319.0	2.401	2.438	-0.037	1.000	2877919	19.7		98.7	38090	
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D 11 13C4-PFHpA

367 > 322.0	2.401	2.438	-0.037		6997039	51.5		103	614974	
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D 10 18O2 PFHxS

403 > 84.0	2.415	2.451	-0.036		8506822	48.9		103	442281	
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15 Perfluorooctanoic acid

413 > 369.0	2.756	2.802	-0.046	1.000	3044669	20.9		105	119826	
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413 > 169.0	2.756	2.802	-0.046	1.000	1800125		1.69(0.90-1.10)		4820	
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D 14 13C4 PFOA

417 > 372.0	2.756	2.802	-0.046		6957338	53.1		106	1243771	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.762	2.808	-0.046	1.000	3007387	19.9		104		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.122	3.154	-0.032	1.000	2458804	17.9		96.6	215581	
499 > 99.0	3.128	3.154	-0.026	1.002	564968		4.35(0.90-1.10)		1590	
D 17 13C4 PFOS										
503 > 80.0	3.128	3.177	-0.049		6124058	47.5		99.4	315576	
D 19 13C5 PFNA										
468 > 423.0	3.122	3.179	-0.057		5519645	52.4		105	335465	
20 Perfluorononanoic acid										
463 > 419.0	3.122	3.180	-0.058	1.000	2251115	20.1		100	72390	
D 21 13C8 FOSA										
506 > 78.0	3.465	3.483	-0.018		11478262	47.2		94.4	312213	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.465	3.489	-0.024	1.000	4526904	21.4		107	159099	
D 23 13C2 PFDA										
515 > 470.0	3.486	3.541	-0.055		4974060	54.3		109	305091	
24 Perfluorodecanoic acid										
513 > 469.0	3.486	3.542	-0.056	1.000	1949944	20.3		101	100714	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.795	3.854	-0.059	1.000	1570068	19.9		103		
D 27 13C2 PFUnA										
565 > 520.0	3.811	3.872	-0.061		3840972	53.3		107	234929	
28 Perfluoroundecanoic acid										
563 > 519.0	3.811	3.875	-0.064	1.000	1576123	19.0		94.8	97893	
D 30 13C2 PFDaA										
615 > 570.0	4.097	4.165	-0.068		3463384	52.1		104	182088	
29 Perfluorododecanoic acid										
613 > 569.0	4.107	4.168	-0.061	1.000	1352500	20.1		101	69640	
31 Perfluorotridecanoic acid										
633 > 619.0	4.366	4.435	-0.069	1.000	1428699	21.2		106	72152	
D 32 13C2-PFTeDA										
715 > 670.0	4.601	4.674	-0.073		6743234	52.1		104	544846	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.601	4.674	-0.073	1.000	1932457	19.5		97.7	35975	
713 > 169.0	4.601	4.674	-0.073	1.000	408082		4.74(0.00-0.00)		164662	
D 34 13C2-PFHxDA										
815 > 770.0	5.011	5.096	-0.085		4576714	57.2		114	616329	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.011	5.098	-0.087	1.000	1725957	20.4		102	119392	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.367	5.469	-0.102	1.000	1711428	23.0		115	116615	

Reagents:

LCPFC-L4_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_012_p1_e1.d

Injection Date: 19-Sep-2016 19:48:00

Instrument ID: A8

Lims ID: CCV L4

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 36

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

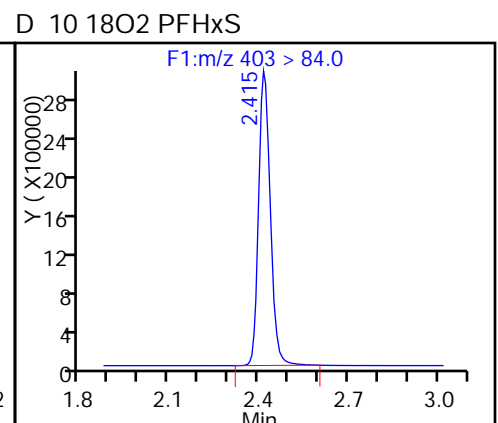
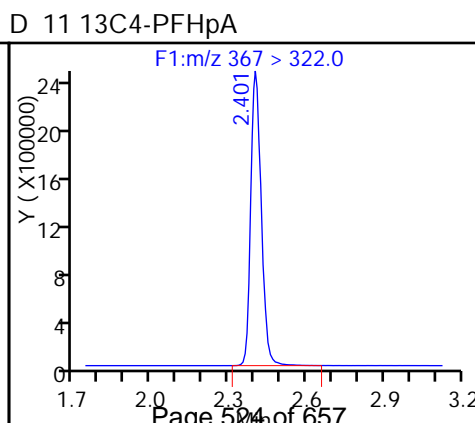
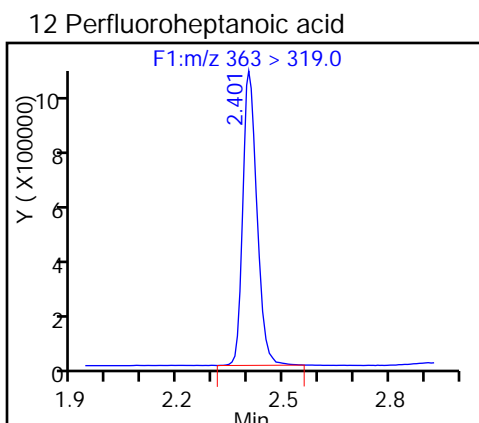
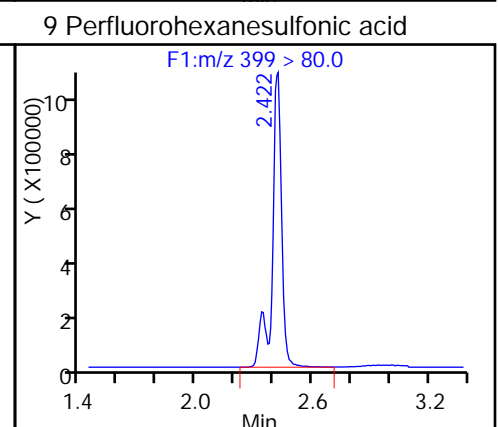
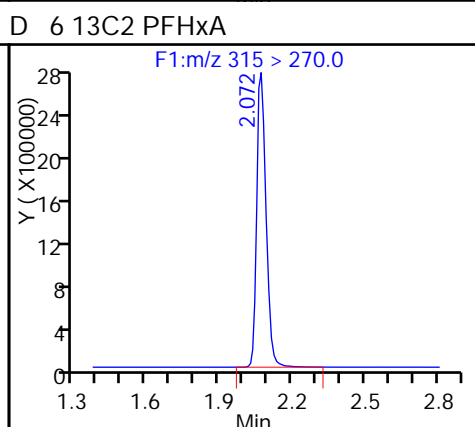
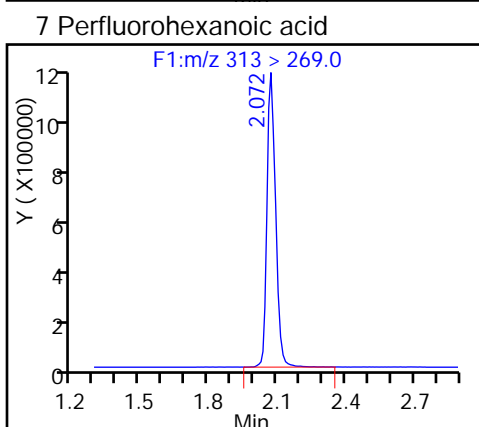
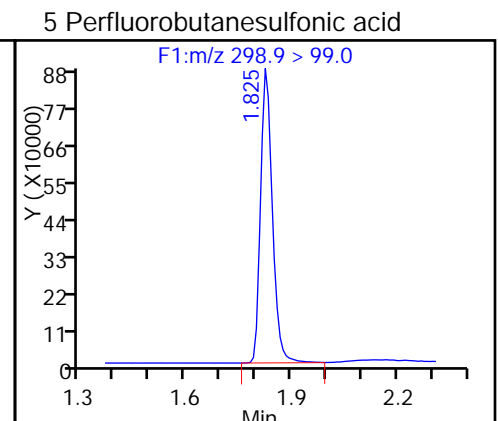
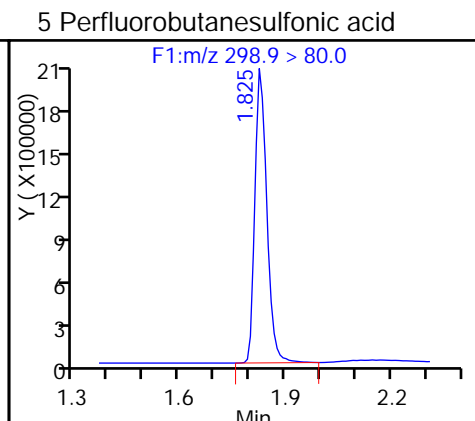
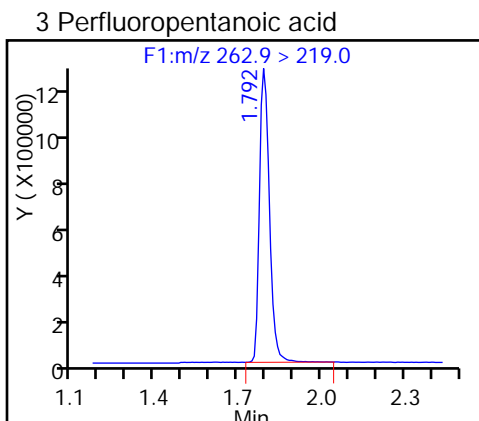
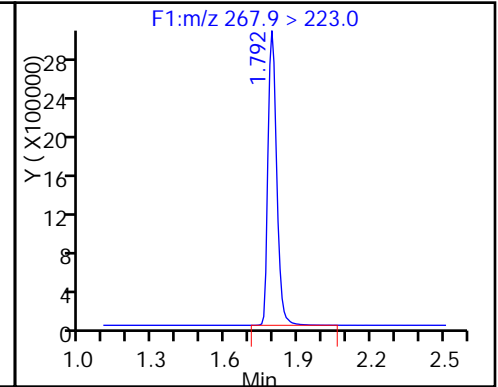
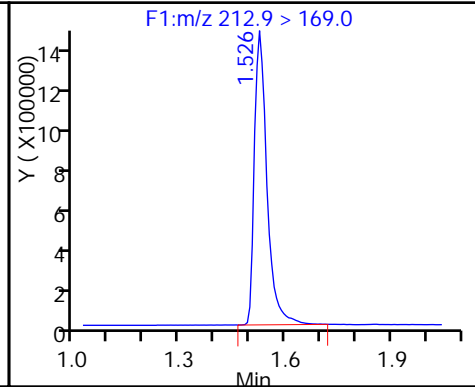
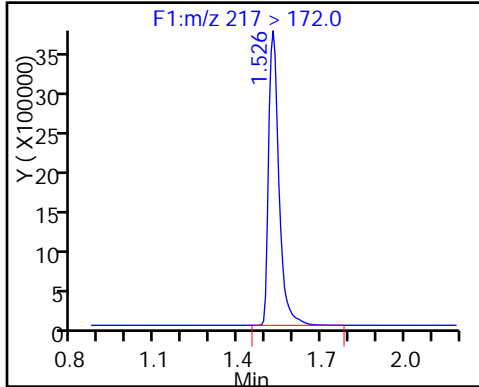
Method: PFC_A8_Full

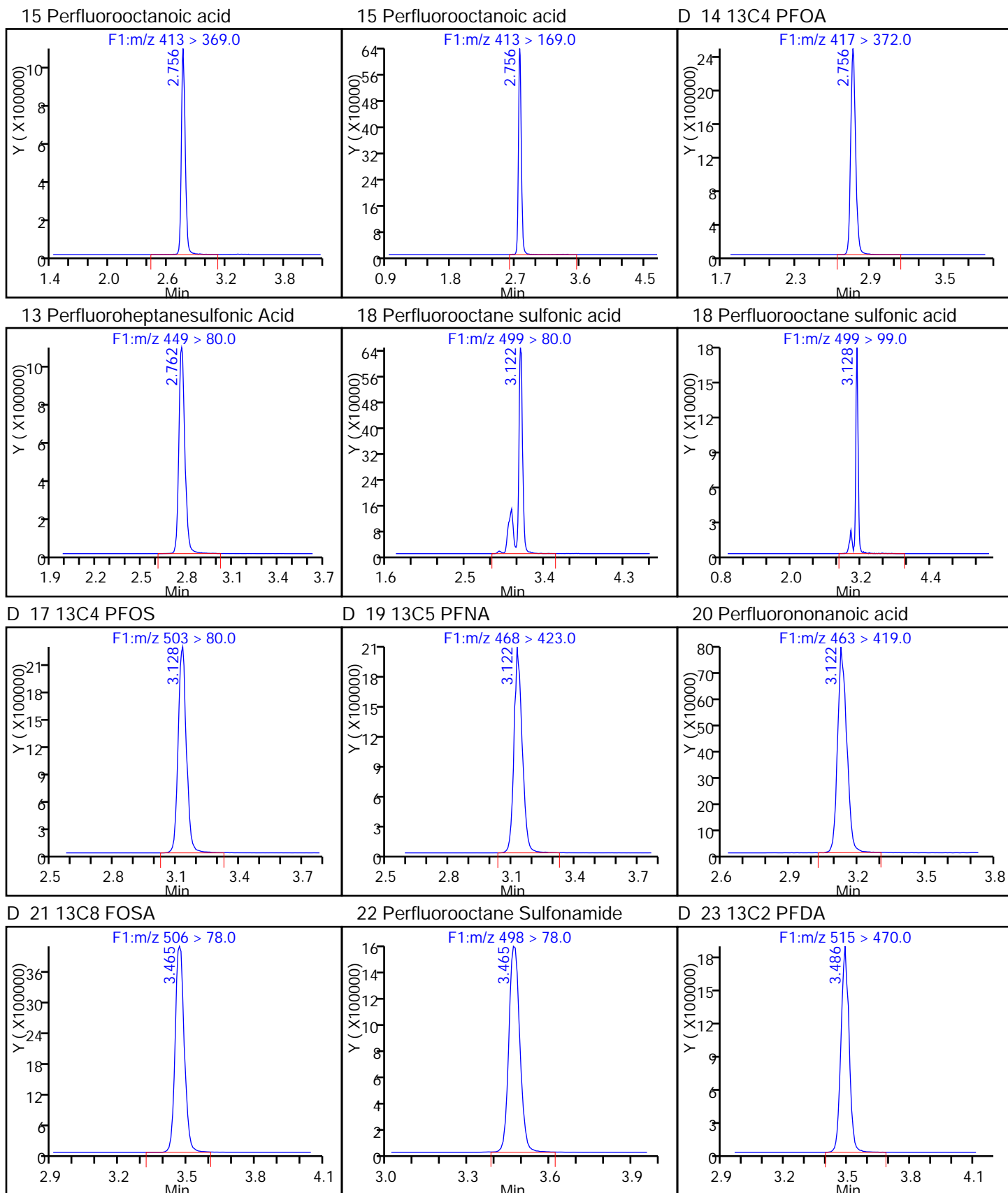
Limit Group: LC PFC_DOD ICAL

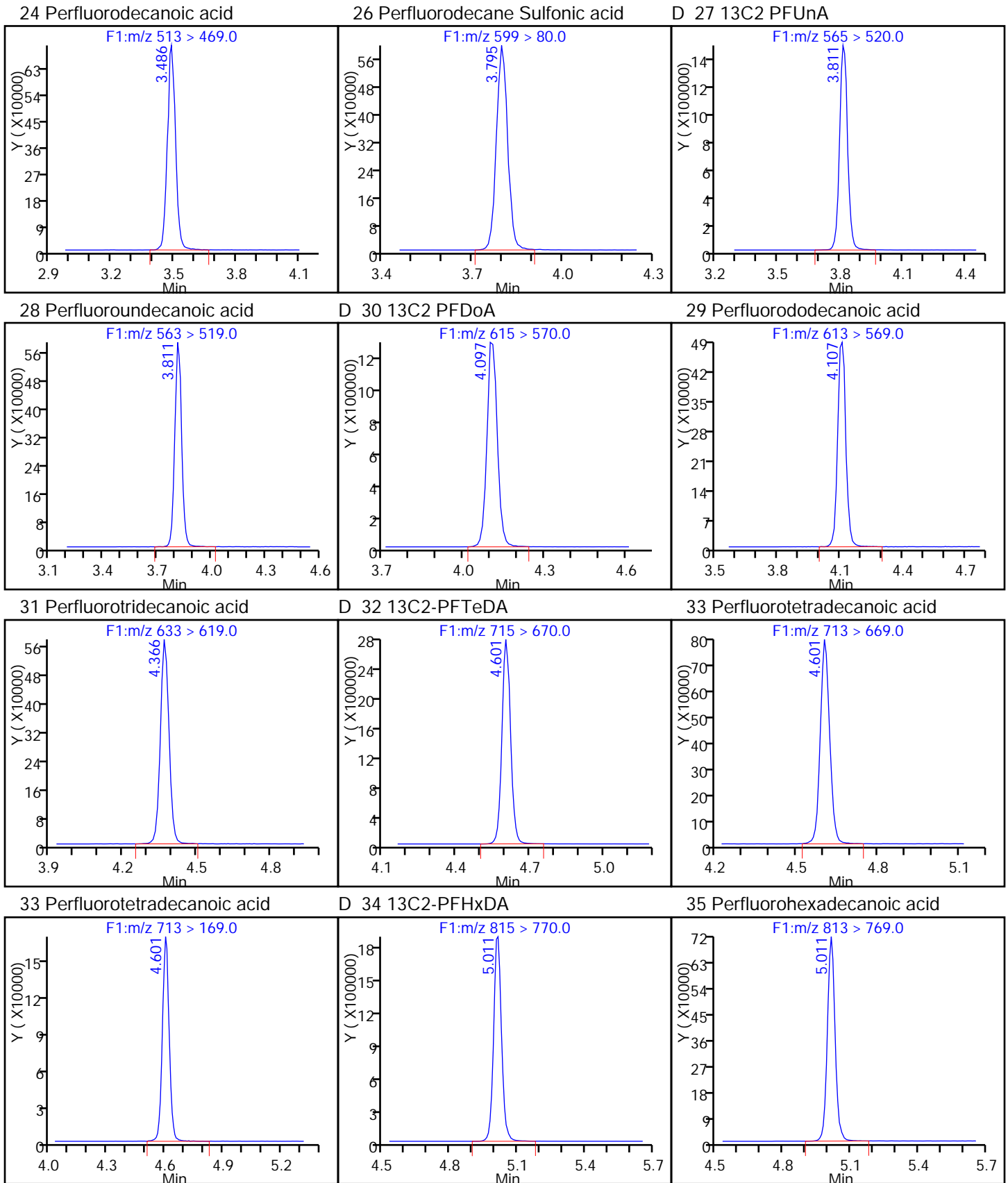
D 2 13C4 PFBA

1 Perfluorobutyric acid

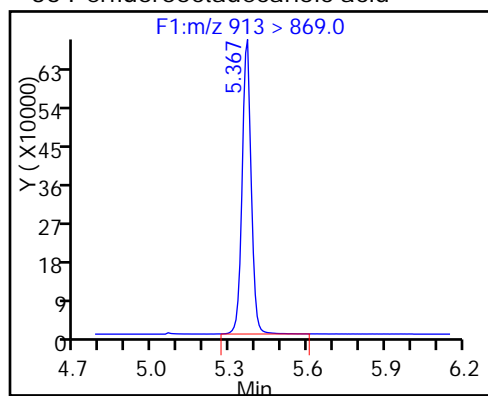
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Lab Sample ID: CCV 320-128009/50 Calibration Date: 09/19/2016 21:33

Instrument ID: A8 Calib Start Date: 09/19/2016 15:48

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/19/2016 17:48

Lab File ID: 19SEP2016B_026_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8672	0.9101		52.5	50.0	4.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.016	1.017		50.0	50.0	0.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.528	1.570		45.4	44.2	2.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9474	0.9634		50.8	50.0	1.7	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.042	1.056		50.7	50.0	1.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.031		45.7	45.5	0.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.047	1.071		51.2	50.0	2.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.181	1.234		49.7	47.6	4.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.016	1.045		51.4	50.0	2.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.071	1.063		46.1	46.4	-0.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9198	0.9815		53.4	50.0	6.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9675	0.9897		51.1	50.0	2.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6164	0.6507		50.9	48.2	5.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.082	1.049		48.5	50.0	-3.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9712	0.9889		50.9	50.0	1.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9735	1.003		51.5	50.0	3.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.428	1.367		47.9	50.0	-4.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	AveID	1.222	1.198		49.0	50.0	-2.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.075	1.199		55.8	50.0	11.6	25.0
13C4 PFBA	Ave	187843	191375		50.9	50.0	1.9	50.0
13C5-PFPeA	Ave	156937	151825		48.4	50.0	-3.3	50.0
13C2 PFHxA	Ave	141395	152579		54.0	50.0	7.9	50.0
13C4-PFHpA	Ave	135762	132530		48.8	50.0	-2.4	50.0
18O2 PFHxS	Ave	174136	183278		49.8	47.3	5.3	50.0
13C4 PFOA	Ave	130965	134510		51.4	50.0	2.7	50.0
13C5 PFNA	Ave	105374	107385		51.0	50.0	1.9	50.0
13C4 PFOS	Ave	128908	131008		48.6	47.8	1.6	50.0
13C8 FOSA	Ave	243074	228269		47.0	50.0	-6.1	50.0
13C2 PFDA	Ave	91630	96339		52.6	50.0	5.1	50.0
13C2 PFUnA	Ave	72064	74761		51.9	50.0	3.7	50.0
13C2 PFDoA	Ave	66530	69702		52.4	50.0	4.8	50.0
13C2-PFTeDA	Ave	129334	134095		51.8	50.0	3.7	50.0
13C2-PFHxDA	Ave	80077	92035		57.5	50.0	14.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 19-Sep-2016 21:33:00 ALS Bottle#: 0 Worklist Smp#: 50
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Sublist: chrom-PFC_A8_Full*sub2
 Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 21-Sep-2016 14:40:07 Calib Date: 19-Sep-2016 17:48:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK023

First Level Reviewer: westendorfc

Date: 21-Sep-2016 14:40:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.519	1.534	-0.015		9568765	50.9		102	538649	
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1 Perfluorobutyric acid

212.9 > 169.0	1.526	1.535	-0.009	1.000	8708244	52.5		105	92668	
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D 4 13C5-PFPeA

267.9 > 223.0	1.792	1.807	-0.015		7591240	48.4		96.7	1004085	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.792	1.809	-0.017	1.000	7718524	50.0		100	126119	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.825	1.844	-0.019	1.000	12716169	45.4		103		
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298.9 > 99.0	1.825	1.844	-0.019	1.000	5615324		2.26(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.062	2.096	-0.034	1.000	7349584	50.8		102	392779	
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D 6 13C2 PFHxA

315 > 270.0	2.062	2.096	-0.034		7628955	54.0		108	710431	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.410	2.415	-0.005	1.000	8600031	45.7		100		
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12 Perfluoroheptanoic acid

363 > 319.0	2.391	2.438	-0.047	1.000	6997067	50.7		101	78994	
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D 11 13C4-PFHpA

367 > 322.0	2.391	2.438	-0.047		6626523	48.8		97.6	468276	
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D 10 18O2 PFHxS

403 > 84.0	2.403	2.451	-0.048		8669060	49.8		105	607513	
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15 Perfluorooctanoic acid

413 > 369.0	2.751	2.802	-0.051	1.000	7201459	51.2		102	368448	
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413 > 169.0	2.751	2.802	-0.051	1.000	4268893		1.69(0.90-1.10)		258174	
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D 14 13C4 PFOA

417 > 372.0	2.751	2.802	-0.051		6725487	51.4		103	788759	
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.757	2.808	-0.051	1.000	7695584	49.7		104		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.119	3.154	-0.035	1.000	6463571	46.1		99.3	448043	
499 > 99.0	3.119	3.154	-0.035	1.000	1435740		4.50(0.90-1.10)		232197	
D 17 13C4 PFOS										
503 > 80.0	3.119	3.177	-0.058		6262185	48.6		102	293262	
D 19 13C5 PFNA										M
468 > 423.0	3.113	3.179	-0.066		5369238	51.0		102	895411	M
20 Perfluorononanoic acid										
463 > 419.0	3.119	3.180	-0.061	1.000	5612292	51.4		103	190994	
D 21 13C8 FOSA										
506 > 78.0	3.468	3.483	-0.015		11413438	47.0		93.9	582991	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.468	3.489	-0.021	1.000	11202719	53.4		107	316569	
D 23 13C2 PFDA										
515 > 470.0	3.482	3.541	-0.059		4816950	52.6		105	248268	
24 Perfluorodecanoic acid										
513 > 469.0	3.482	3.542	-0.060	1.000	4767109	51.1		102	191605	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.792	3.854	-0.062	1.000	4108574	50.9		106		
D 27 13C2 PFUnA										
565 > 520.0	3.807	3.872	-0.065		3738033	51.9		104	339941	
28 Perfluoroundecanoic acid										
563 > 519.0	3.807	3.875	-0.068	1.000	3922273	48.5		97.0	200992	
D 30 13C2 PFDoA										
615 > 570.0	4.093	4.165	-0.072		3485083	52.4		105	163721	
29 Perfluorododecanoic acid										
613 > 569.0	4.093	4.168	-0.075	1.000	3446460	50.9		102	164430	
31 Perfluorotridecanoic acid										
633 > 619.0	4.362	4.435	-0.073	1.000	3497072	51.5		103	173989	
D 32 13C2-PFTeDA										
715 > 670.0	4.597	4.674	-0.077		6704771	51.8		104	429890	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.597	4.674	-0.077	1.000	4763897	47.9		95.7	103871	
713 > 169.0	4.591	4.674	-0.083	0.999	1011982		4.71(0.00-0.00)		204303	
D 34 13C2-PFHxDA										
815 > 770.0	4.995	5.096	-0.101		4601739	57.5		115	456418	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.002	5.098	-0.096	1.000	4174274	49.0		98.0	237955	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.351	5.469	-0.118	1.000	4178436	55.8		112	283490	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d

Injection Date: 19-Sep-2016 21:33:00

Instrument ID: A8

Lims ID: CCV L5

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 50

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

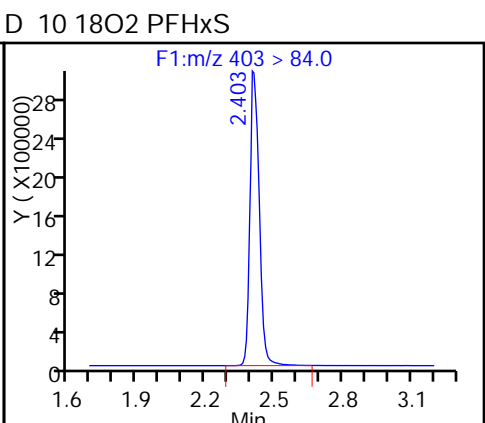
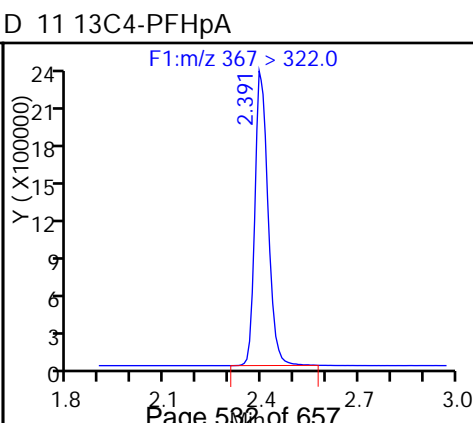
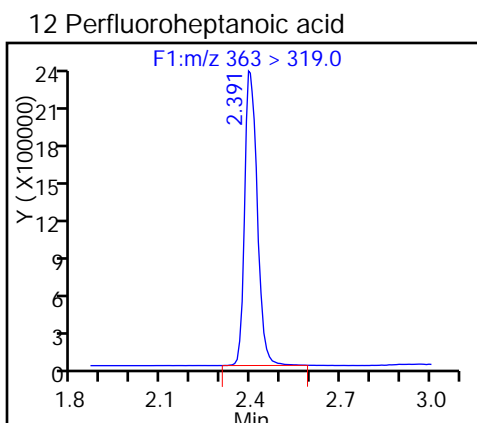
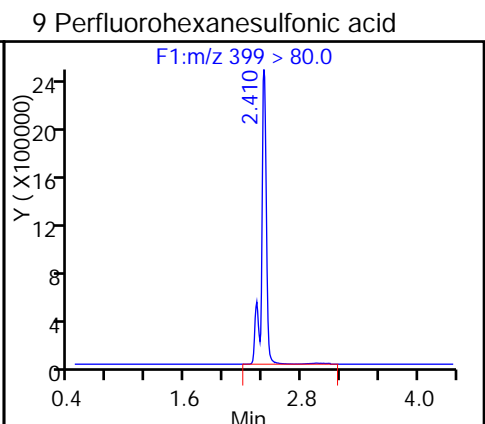
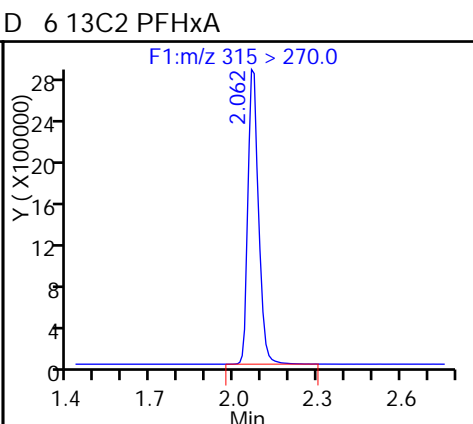
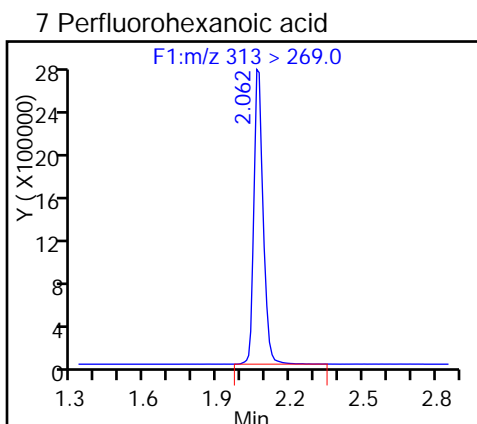
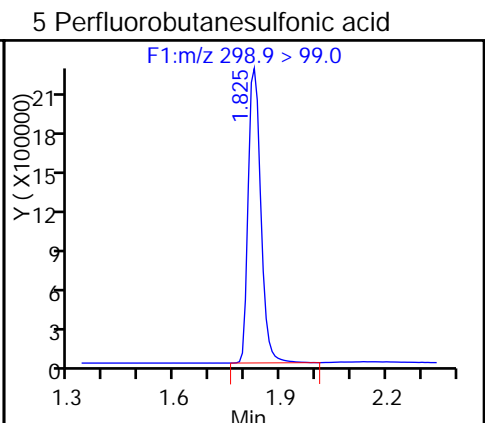
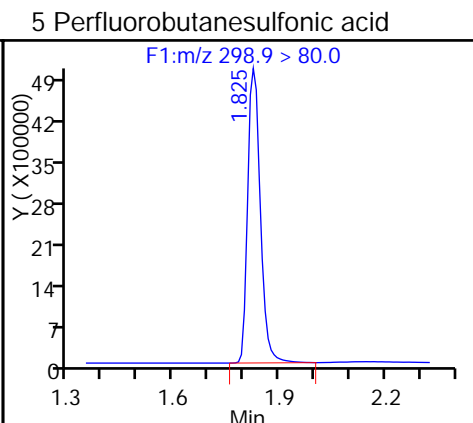
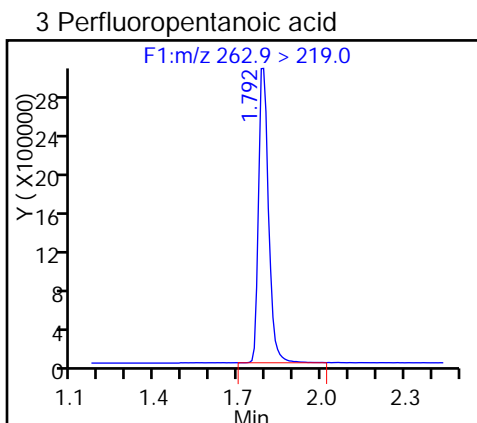
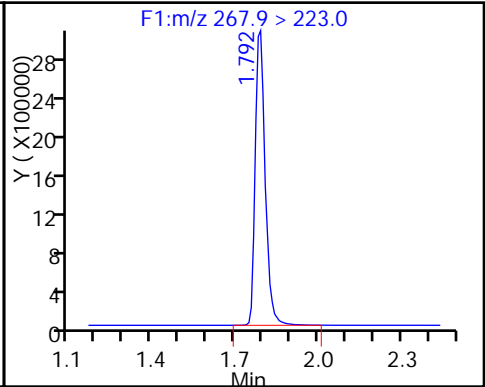
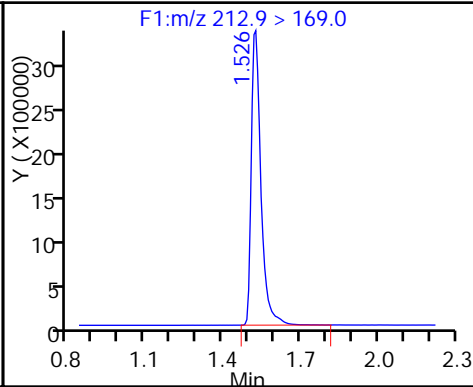
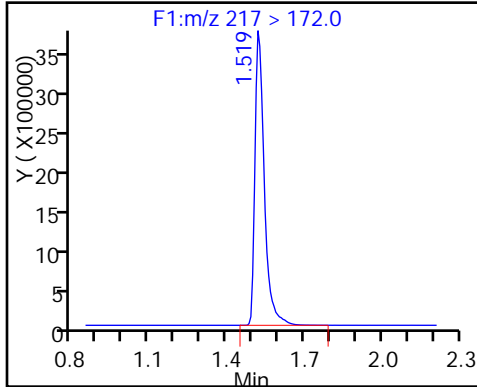
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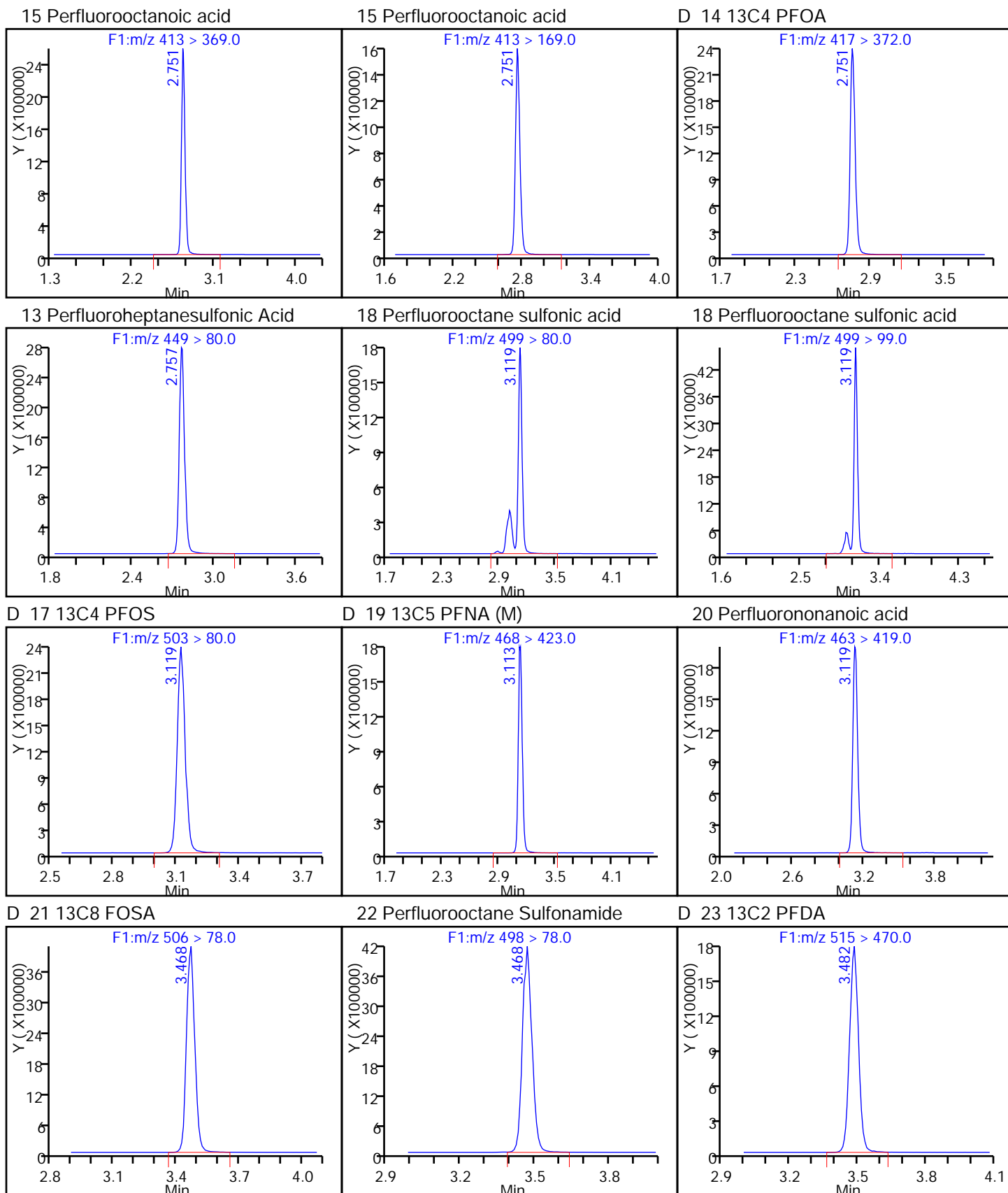
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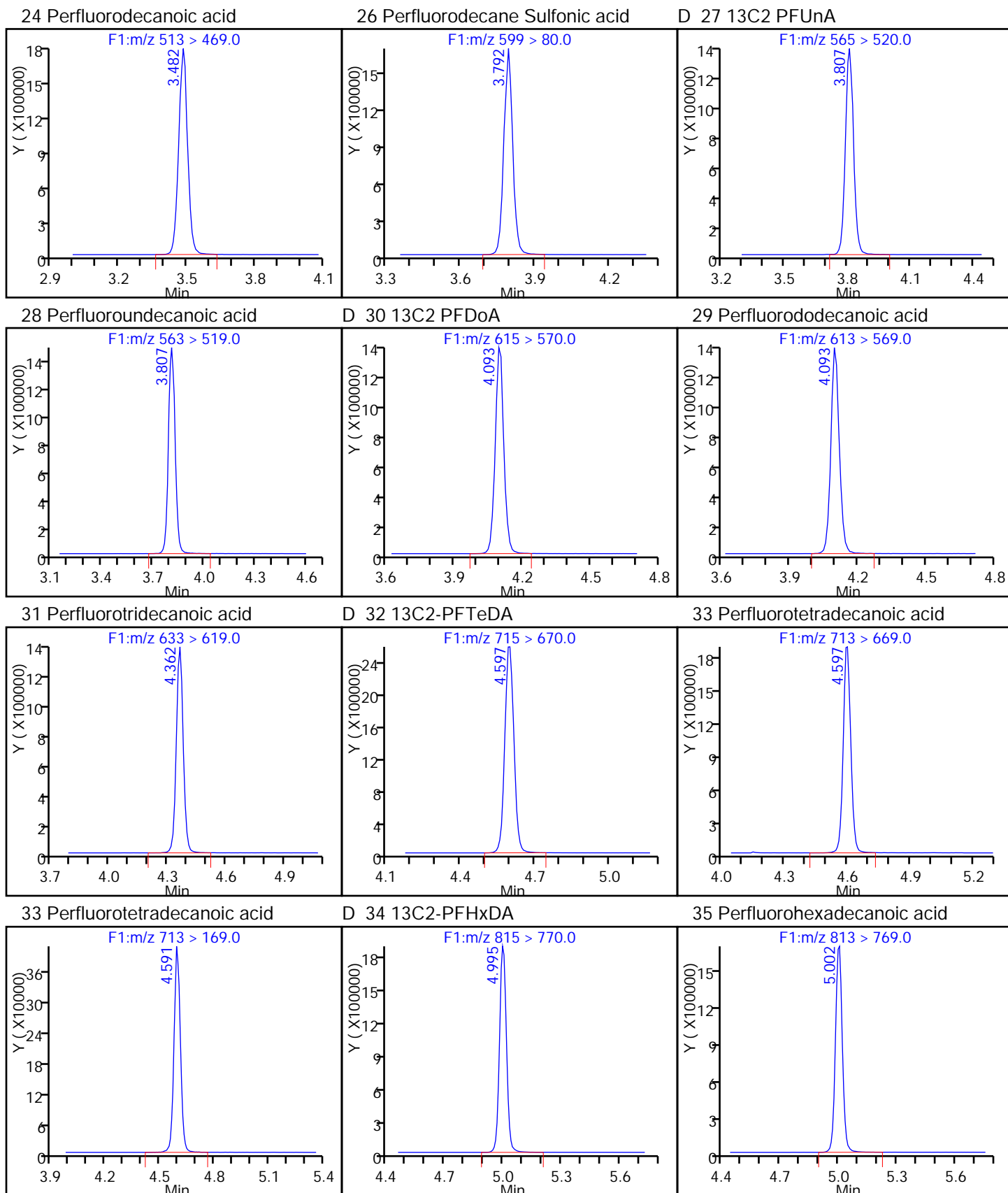
D 2 13C4 PFBA

1 Perfluorobutyric acid

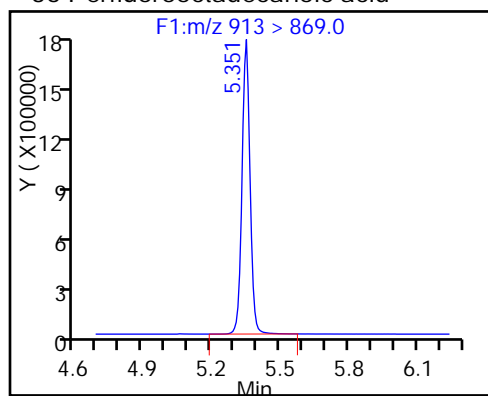
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d

Injection Date: 19-Sep-2016 21:33:00

Instrument ID: A8

Lims ID: CCV L5

Client ID:

Operator ID: A8

ALS Bottle#:

0

Worklist Smp#: 50

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

Column:

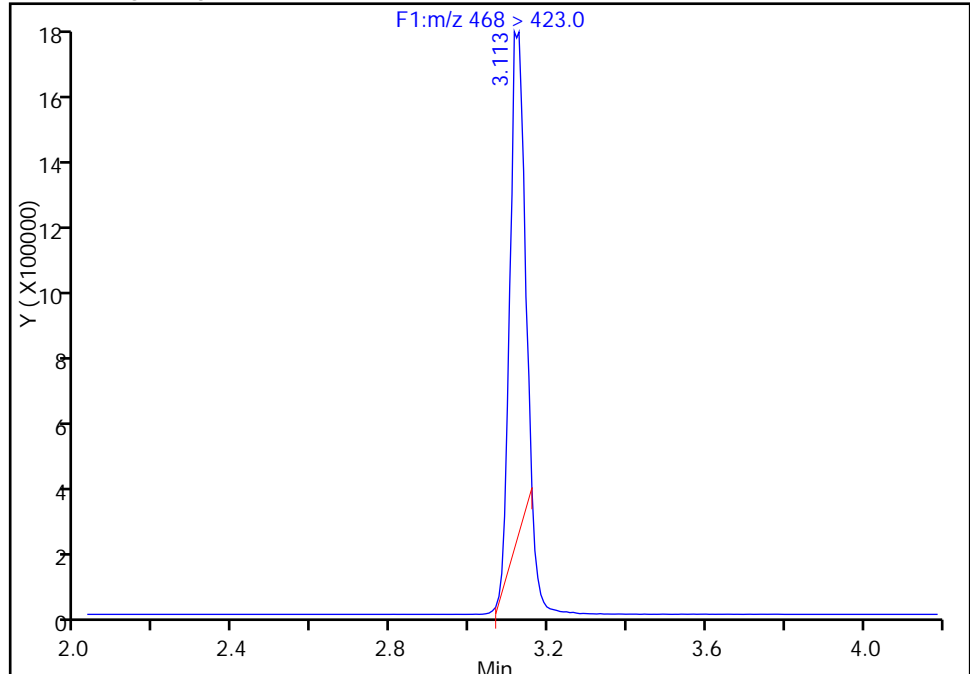
Detector F1(0.00 :6.60)

D 19 13C5 PFNA, CAS: STL00995

Signal: 1

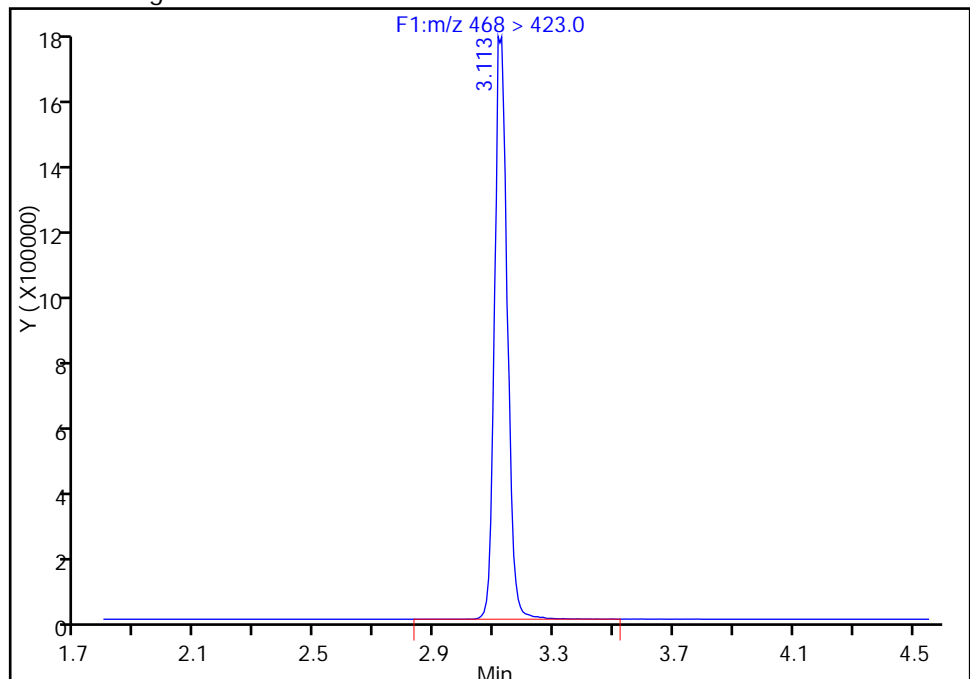
RT: 3.11
Area: 3948087
Amount: 37.467316
Amount Units: ng/ml

Processing Integration Results



RT: 3.11
Area: 5369238
Amount: 50.954029
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 21-Sep-2016 14:40:07

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-21044-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>MB 320-123451/1-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>03SEP2016D_005_pl_e1.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>08/22/2016 13:34</u>
Sample wt/vol: <u>500.00 (mL)</u>	Date Analyzed: <u>09/04/2016 13:08</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>126120</u>	Units: <u>ng/L</u>

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

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	130		25-150
STL00990	13C4 PFOA	139		25-150
STL00991	13C4 PFOS	130		25-150
STL01892	13C4-PFHpA	147		25-150
STL00995	13C5 PFNA	129		25-150
STL00994	18O2 PFHxS	133		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d
 Lims ID: MB 320-123451/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Sep-2016 13:08:00 ALS Bottle#: 0 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: westendorfc

Date: 16-Sep-2016 08:04:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.623	1.623	0.0		15435880	76.4		153	757334	
1 Perfluorobutyric acid										
212.9 > 169.0	1.637	1.623	0.014	1.000	32798	0.1212			226	
D 4 13C5-PFPeA										
267.9 > 223.0	1.902	1.910	-0.008		11015237	69.5		139	851802	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.893	1.910	-0.017	1.000	12972	0.0561			146	
7 Perfluorohexanoic acid										
313 > 269.0	2.202	2.213	-0.011	1.000	20138	0.1066			580	
D 6 13C2 PFHxA										
315 > 270.0	2.202	2.213	-0.011		9378190	65.0		130	849255	
D 11 13C4-PFHpA										
367 > 322.0	2.553	2.556	-0.003		9592615	73.3		147	708760	
12 Perfluoroheptanoic acid										M
363 > 319.0	2.553	2.556	-0.003	1.000	10625	0.0532			148	M
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.568	2.571	-0.003	1.000	47947	0.1853				
D 10 18O2 PFHxS										
403 > 84.0	2.568	2.571	-0.003		11399175	63.1		133	693067	
15 Perfluorooctanoic acid										
413 > 369.0	2.925	2.919	0.006	1.000	27359	0.1295			375	
413 > 169.0	2.916	2.919	-0.003	0.997	14271		1.92(0.90-1.10)		613	
D 14 13C4 PFOA										
417 > 372.0	2.925	2.928	-0.003		10151065	69.6		139	567244	
D 47 M2-6:2FTS										
429 > 409.0	2.883	2.934	-0.051		1491	0.0191		0.0		
48 Sodium 1H,1H,2H,2H-perfluorooctane										
427 > 407.0	2.900	2.936	-0.036	1.000	2666	NR				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.925	2.936	-0.011	1.000	2615	0.0121				
18 Perfluorooctane sulfonic acid										M
499 > 80.0	3.307	3.195	0.113	1.000	28667	0.1301			2690	M
499 > 99.0	3.307	3.195	0.113	1.000	9740		2.94(0.90-1.10)		2074	
D 17 13C4 PFOS										
503 > 80.0	3.299	3.304	-0.005		8959317	61.9		130	417140	
D 19 13C5 PFNA										
468 > 423.0	3.307	3.312	-0.005		8217172	64.4		129	392118	
D 21 13C8 FOSA										
506 > 78.0	3.637	3.634	0.003		5575795	20.9		41.9	244581	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.645	3.642	0.003	1.000	11074	0.1076			1054	
D 23 13C2 PFDA										
515 > 470.0	3.669	3.658	0.011		7528996	62.3		125	495411	
24 Perfluorodecanoic acid										M
513 > 469.0	3.661	3.666	-0.005	1.000	5428	0.0368			460	M
D 42 M2-8:2FTS										
529 > 509.0	3.645	3.698	-0.053		2062	0.0245		0.0		
43 Sodium 1H,1H,2H,2H-perfluorooctane										
527 > 507.0	3.637	3.698	-0.061	0.998	329	NR				
D 45 d3-NMeFOSAA										
573 > 419.0	3.815	3.865	-0.050		2935	0.0585		0.0		
44 N-methyl perfluorooctane sulfonami										
570 > 419.0	3.832	3.869	-0.037	1.005	1159	NR				
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.960	3.975	-0.015	1.000	1305	0.0109				
28 Perfluoroundecanoic acid										
563 > 519.0	3.987	3.993	-0.006	1.000	16865	0.1347			777	
D 27 13C2 PFUnA										
565 > 520.0	3.987	3.993	-0.006		5816859	61.0		122	496469	
D 46 d5-NEtFOSAA										
589 > 419.0	4.078	4.032	0.046		1167	0.0208		0.0		
49 N-ethyl perfluorooctane sulfonamid										
584 > 419.0	3.987	4.040	-0.053	0.978	2013	NR				
D 52 d-N-MeFOSA-M										
515 > 169.0	4.137	4.143	-0.006		2137	0.0310		0.0		
54 MeFOSA										
512 > 169.0	4.127	4.144	-0.017	1.000	2737	NR				
D 30 13C2 PFDoA										
615 > 570.0	4.279	4.284	-0.005		5466455	61.8		124	630438	
29 Perfluorododecanoic acid										M
613 > 569.0	4.307	4.284	0.023	1.000	3856	0.0364			174	
D 51 d-N-EtFOSA-M										
531 > 169.0	4.317	4.325	-0.008		1844	0.0289		0.0		
53 N-ethylperfluoro-1-octanesulfonami										
526 > 169.0	4.317	4.333	-0.016	1.000	2818	NR				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
31 Perfluorotridecanoic acid										
633 > 619.0	4.534	4.546	-0.012	1.000	2941	0.0269			165	
D 32 13C2-PFTeDA										
715 > 670.0	4.782	4.781	0.001		10851349	63.7		127	971214	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.792	4.790	0.002	1.000	74093	0.3780			131	
713 > 169.0	4.773	4.790	-0.017	0.996	3497		21.19(0.00-0.00)		768	
D 34 13C2-PFHxDA										
815 > 770.0	5.178	5.188	-0.010		6531057	60.0		120	467305	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.382	5.188	0.194	1.000	839	-0.4410			3.1	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.536	5.545	-0.009	1.000	4067	0.0379			11.8	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d

Injection Date: 04-Sep-2016 13:08:00

Instrument ID: A8

Lims ID: MB 320-123451/1-A

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

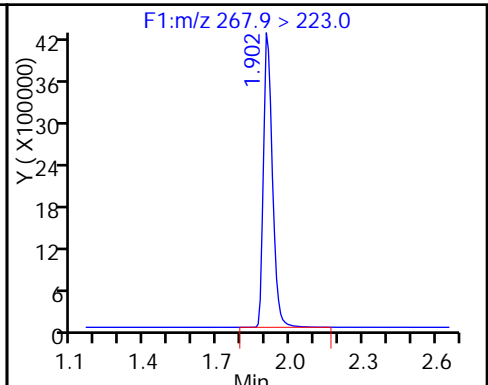
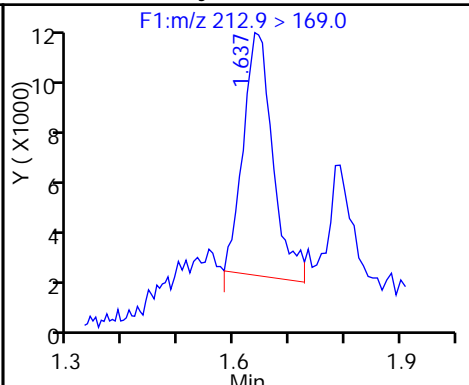
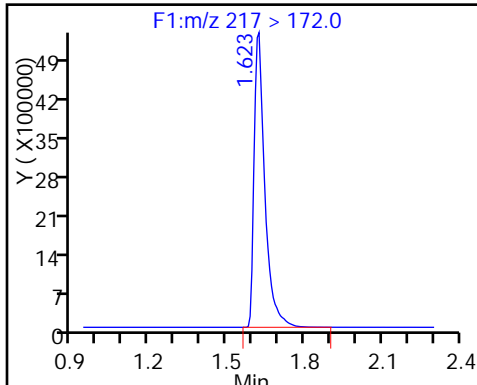
Method: PFC_A8_Full

Limit Group: LC PFC_DOD ICAL

D 2 13C4 PFBA

1 Perfluorobutyric acid

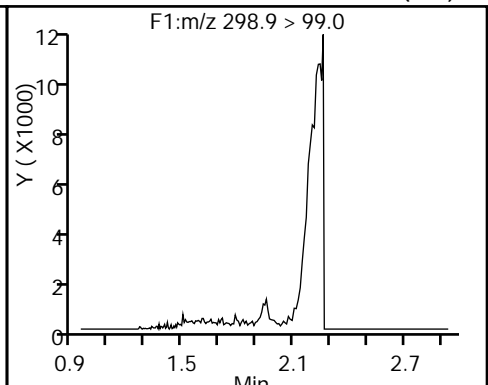
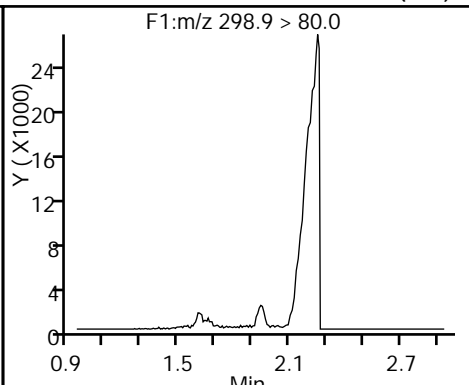
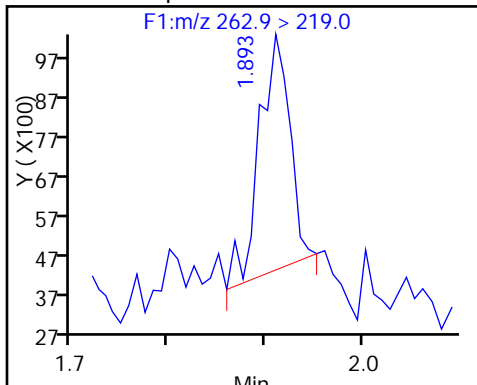
D 4 13C5-PFPeA



3 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid (ND)

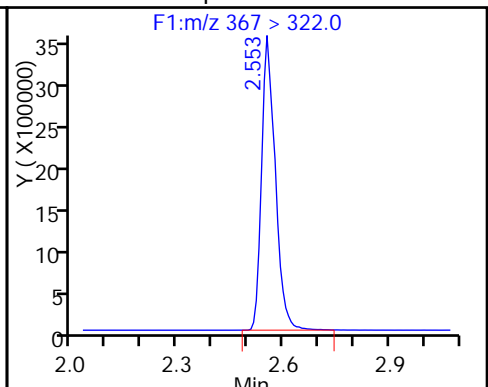
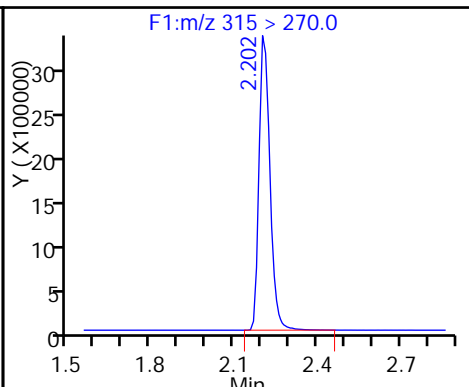
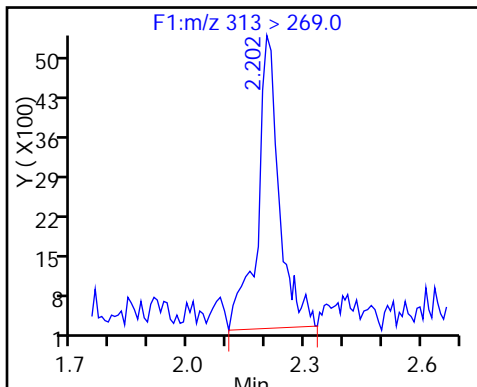
5 Perfluorobutanesulfonic acid (ND)



7 Perfluorohexanoic acid

D 6 13C2 PFHxA

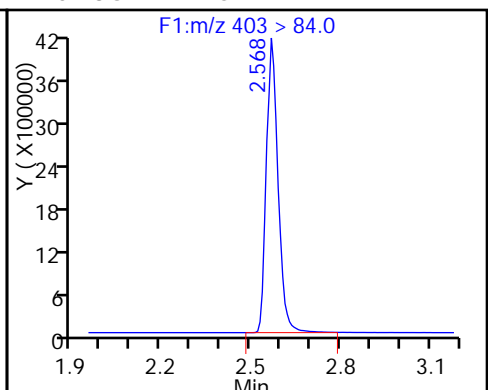
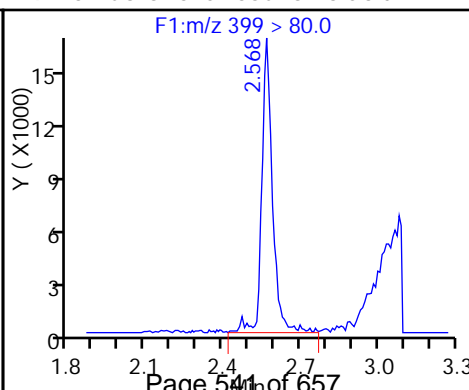
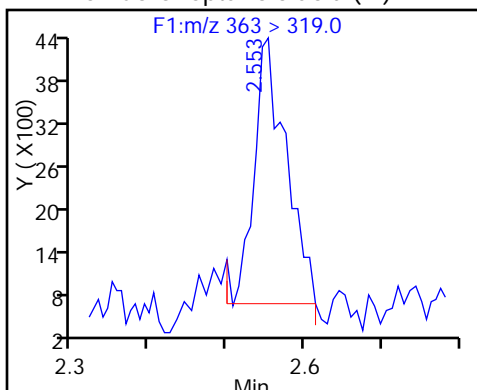
D 11 13C4-PFHpA



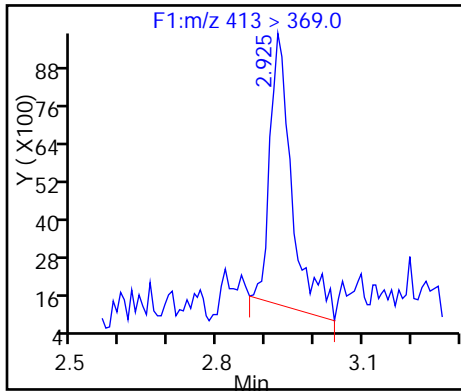
12 Perfluoroheptanoic acid (M)

9 Perfluorohexanesulfonic acid

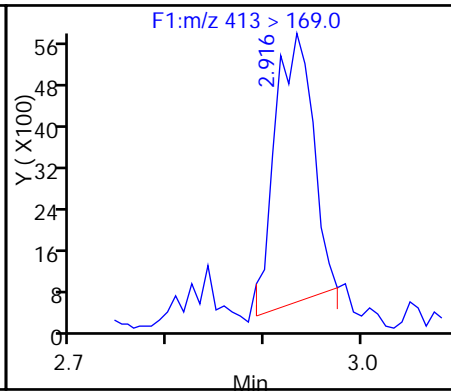
D 10 18O2 PFHxS



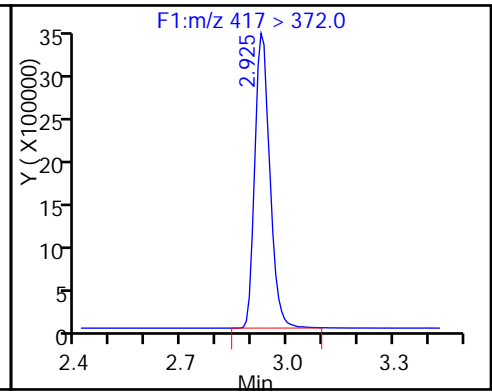
15 Perfluorooctanoic acid



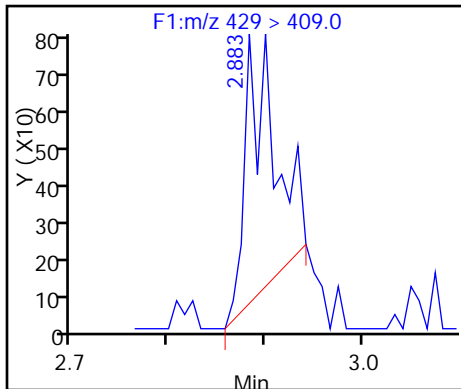
15 Perfluorooctanoic acid



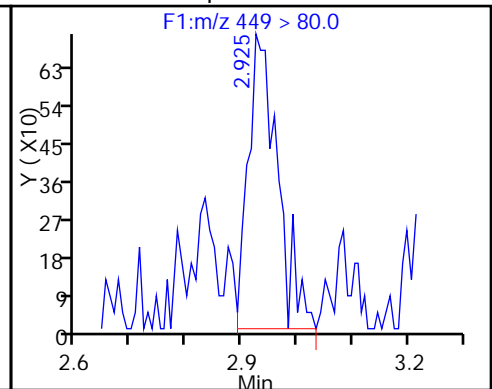
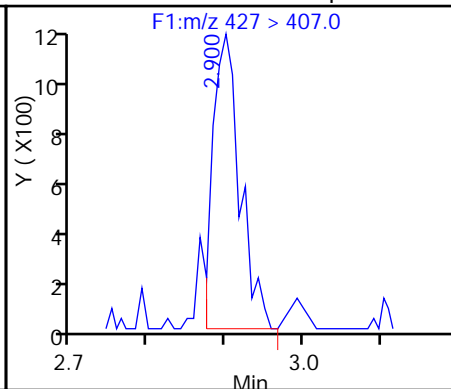
D 14 13C4 PFOA



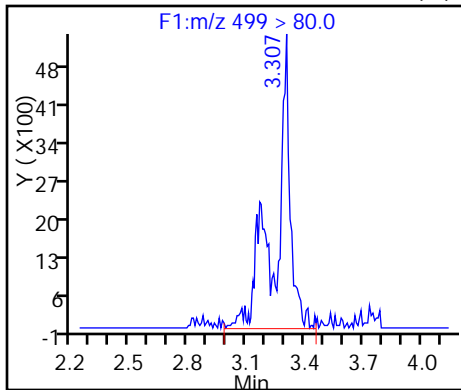
D 47 M2-6:2FTS



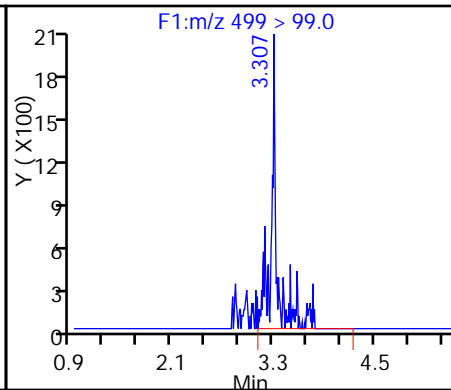
48 Sodium 1H,1H,2H,2H-perfluorooctan-1-ol 3 Perfluoroheptanesulfonic Acid



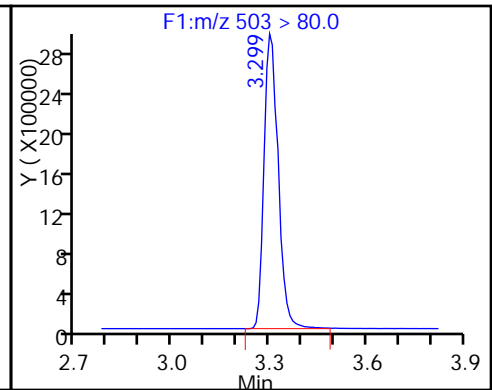
18 Perfluorooctane sulfonic acid (M)



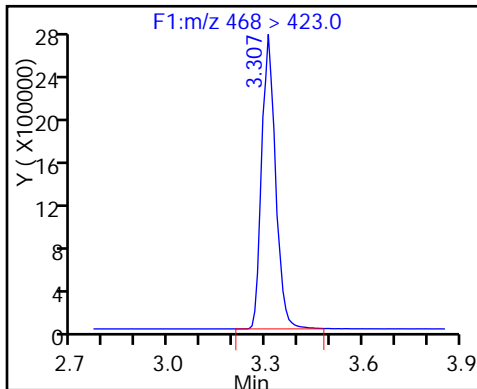
18 Perfluorooctane sulfonic acid



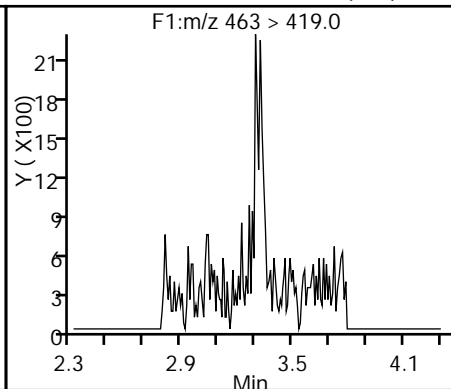
D 17 13C4 PFOS



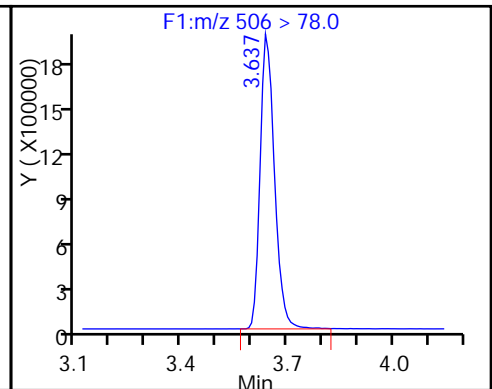
D 19 13C5 PFNA



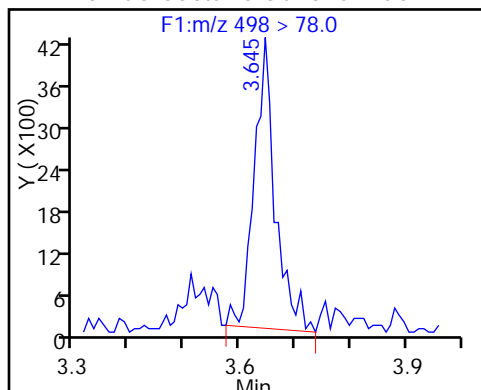
20 Perfluorononanoic acid (ND)



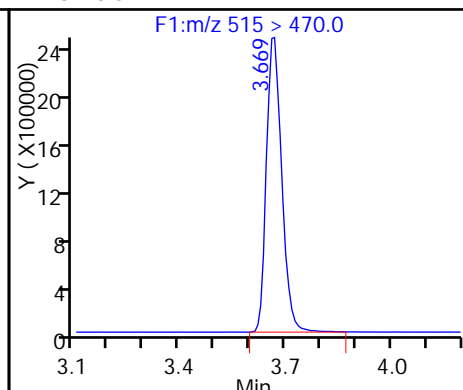
D 21 13C8 FOSA



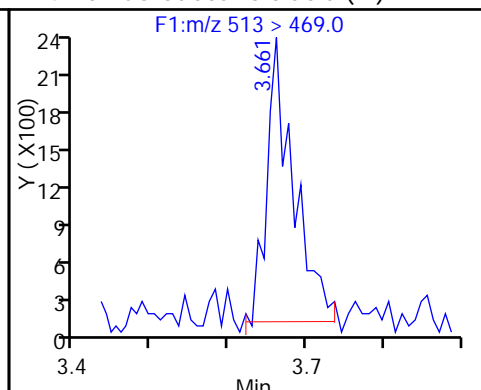
22 Perfluorooctane Sulfonamide



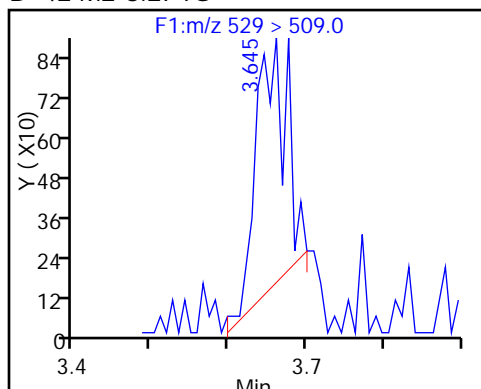
D 23 13C2 PFDA



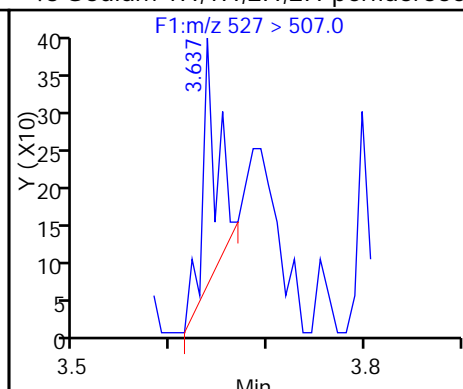
24 Perfluorodecanoic acid (M)



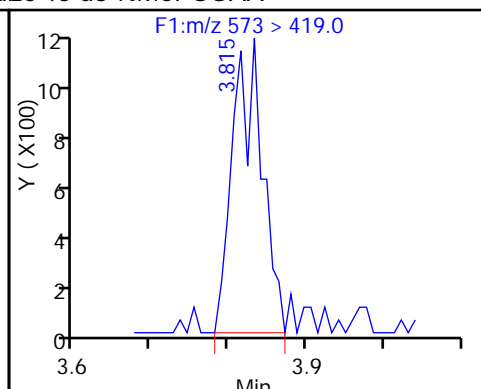
D 42 M2-8:2FTS



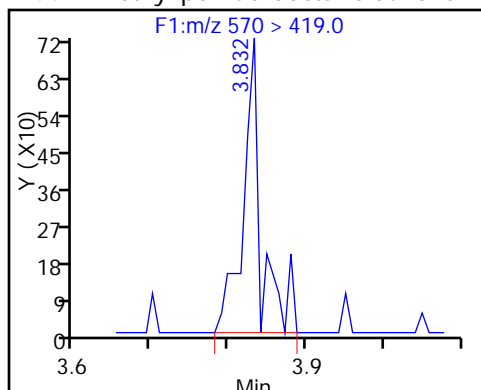
43 Sodium 1H,1H,2H,2H-perfluorooctane



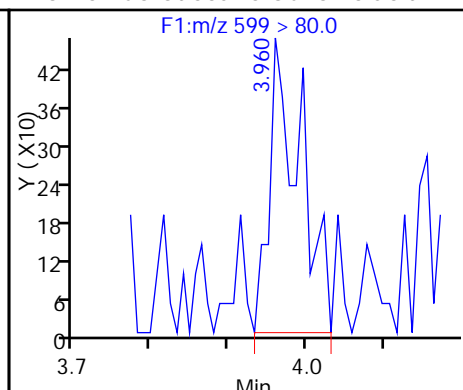
De 45 d3-NMeFOSAA



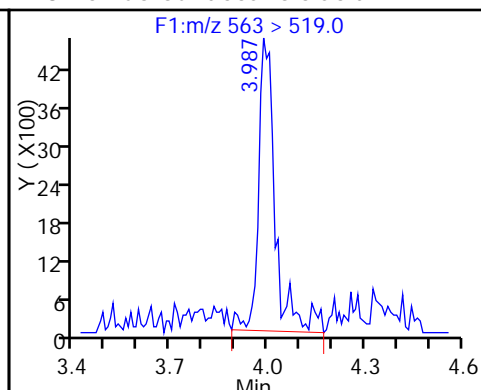
44 N-methyl perfluorooctane sulfonami



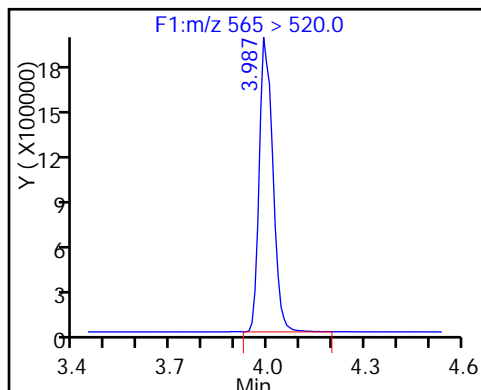
26 Perfluorodecane Sulfonic acid



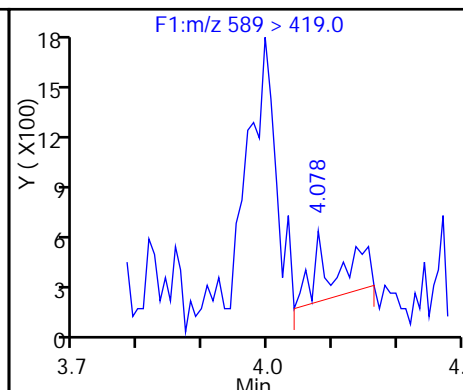
28 Perfluoroundecanoic acid



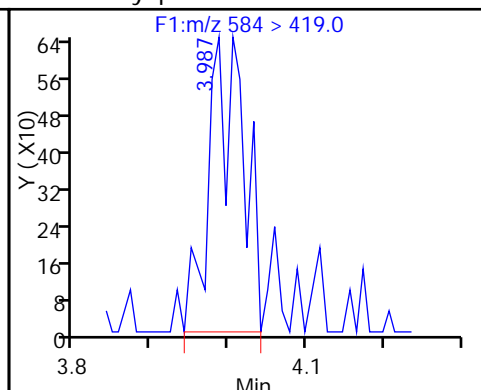
D 27 13C2 PFUnA



D 46 d5-NEtFOSAA



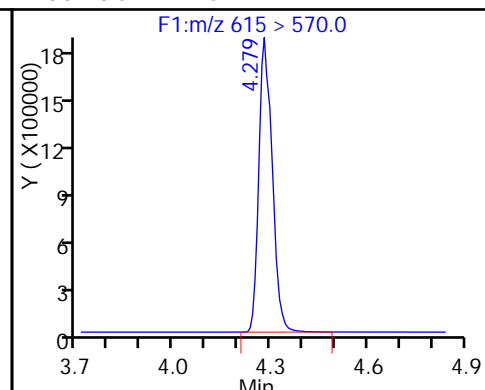
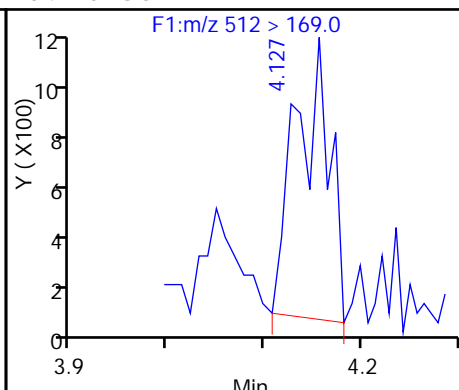
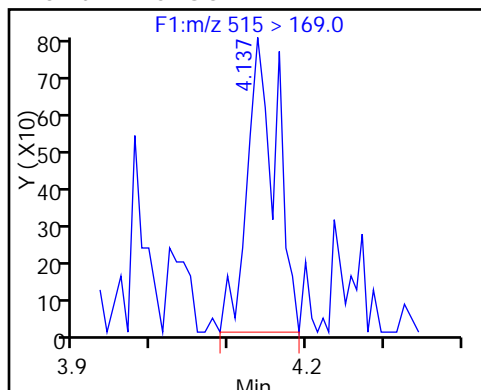
49 N-ethyl perfluorooctane sulfonamid



D 52 d-N-MeFOSA-M

54 MeFOSA

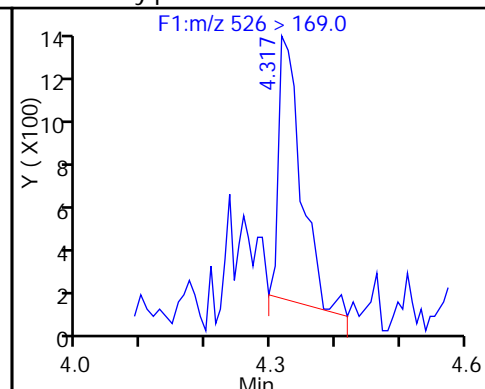
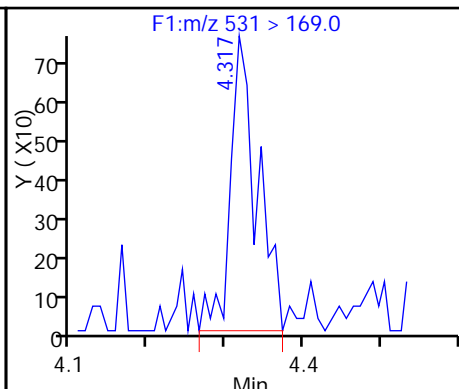
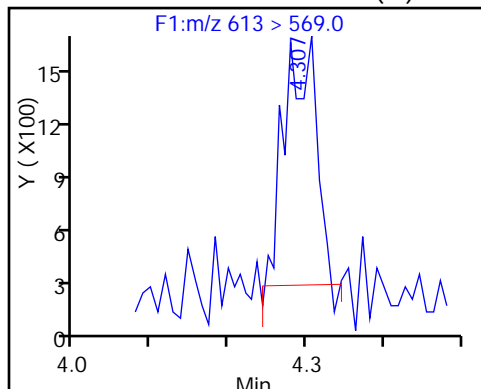
D 30 13C2 PFDaA



29 Perfluorododecanoic acid (M)

D 51 d-N-EtFOSA-M

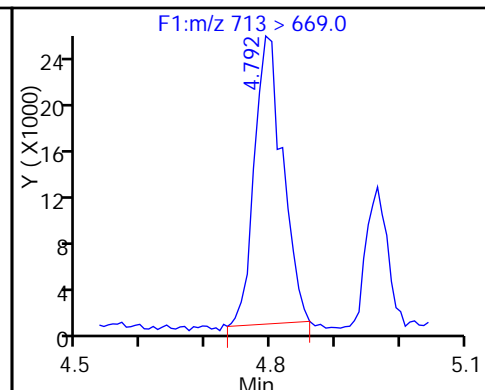
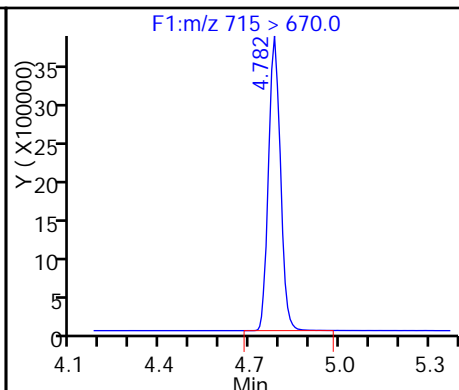
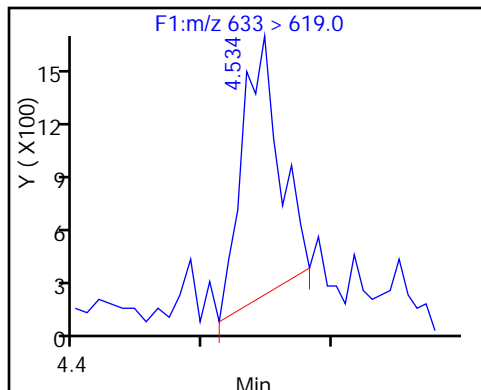
53 N-ethylperfluoro-1-octanesulfonami



31 Perfluorotridecanoic acid

D 32 13C2-PFTeDA

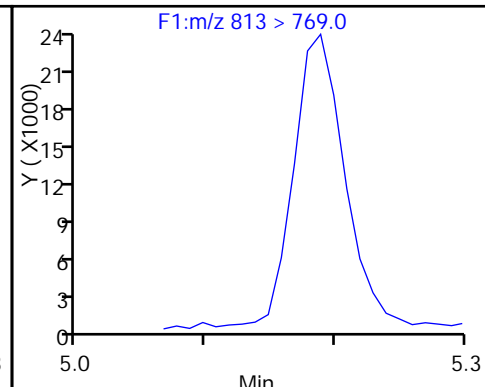
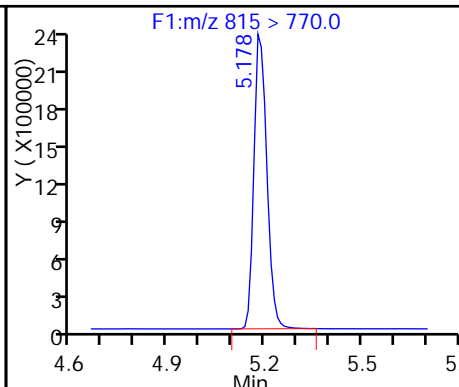
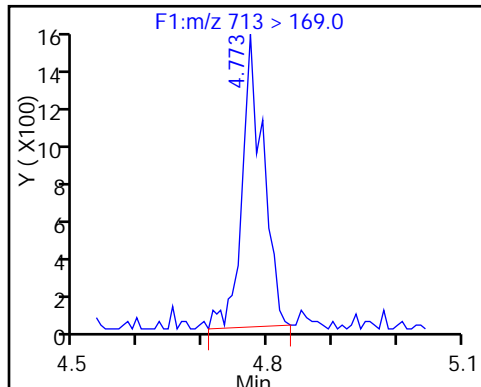
33 Perfluorotetradecanoic acid



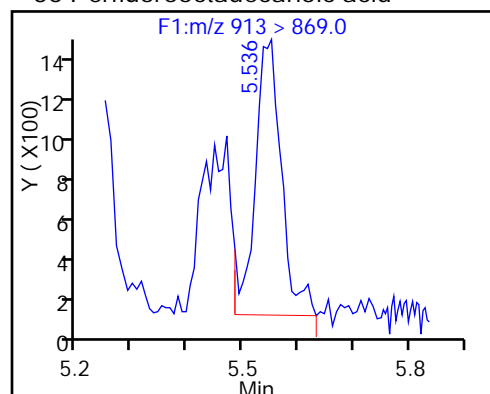
33 Perfluorotetradecanoic acid

D 34 13C2-PFHxDA

35 Perfluorohexadecanoic acid



36 Perfluorooctadecanoic acid



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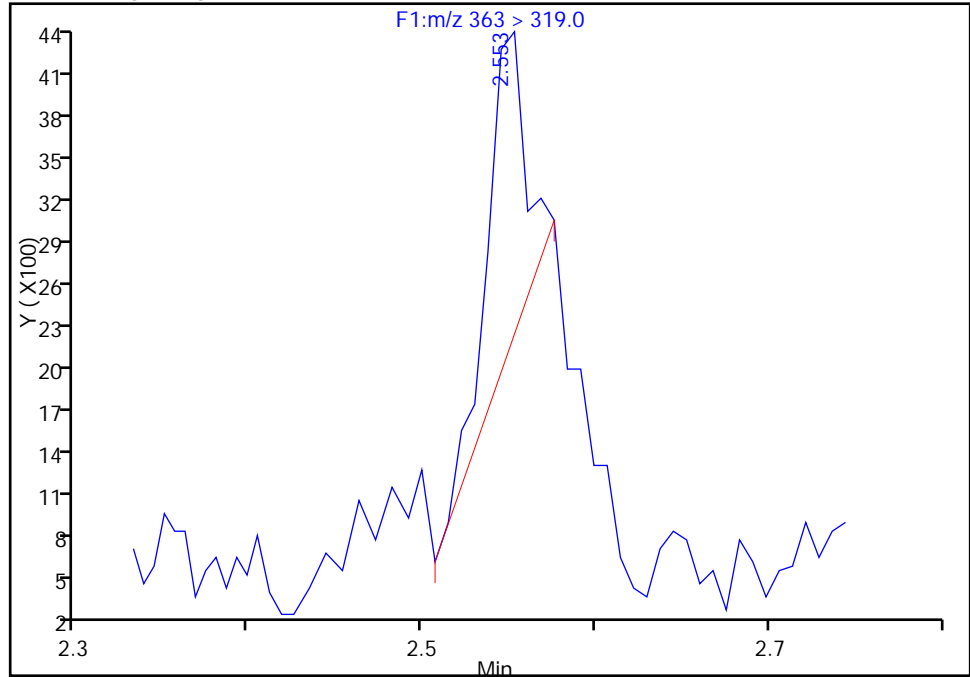
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d
Injection Date: 04-Sep-2016 13:08:00 Instrument ID: A8
Lims ID: MB 320-123451/1-A
Client ID:
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

12 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

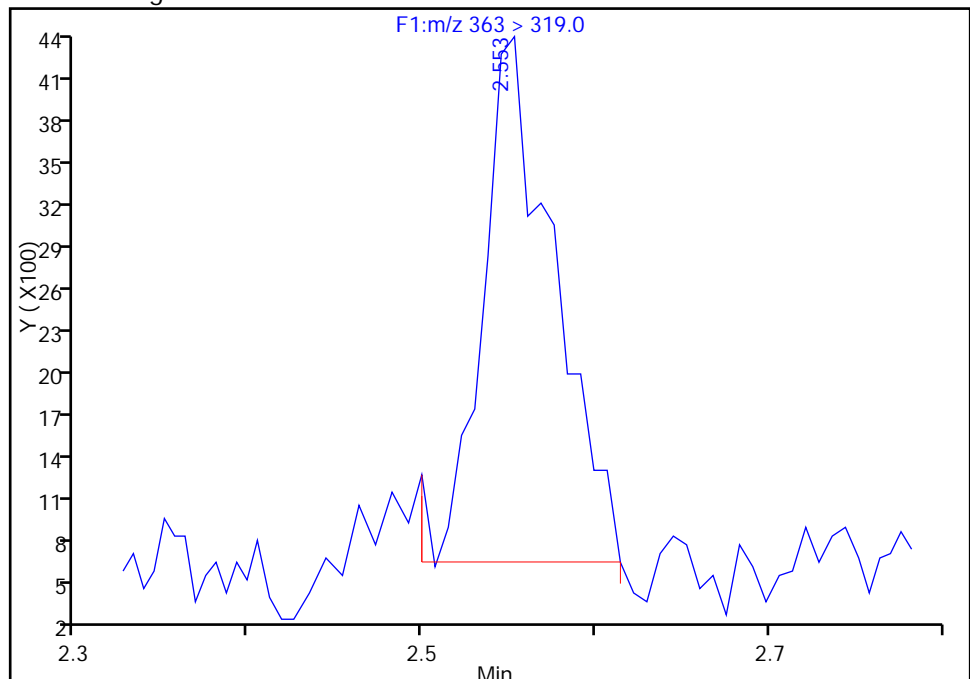
RT: 2.55
Area: 3320
Amount: 0.016626
Amount Units: ng/ml

Processing Integration Results



RT: 2.55
Area: 10625
Amount: 0.053208
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:28:01
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

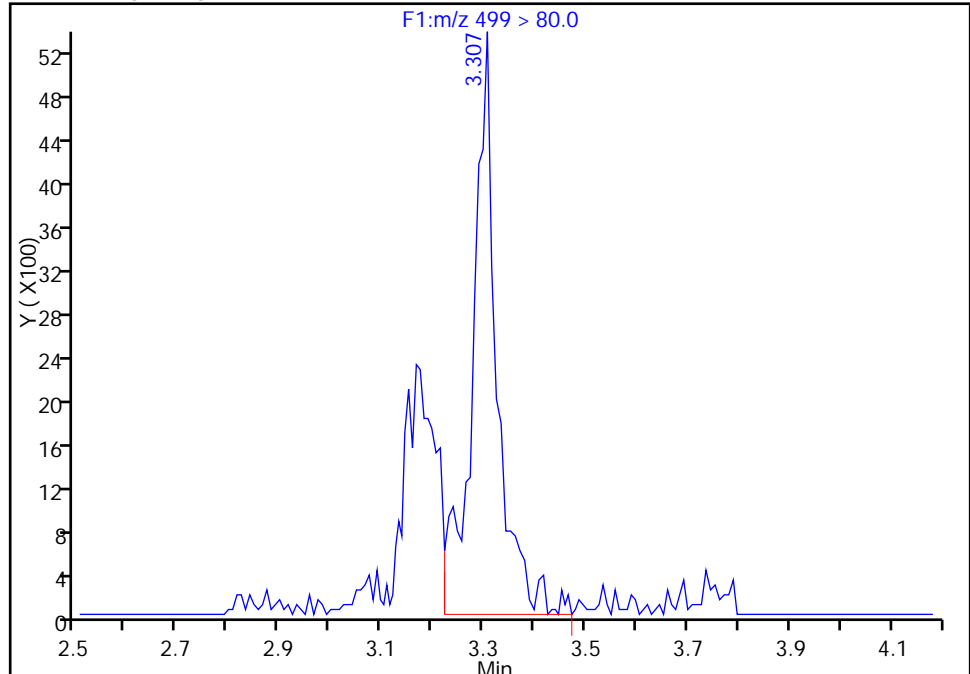
Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d
Injection Date: 04-Sep-2016 13:08:00 Instrument ID: A8
Lims ID: MB 320-123451/1-A
Client ID:
Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL
Column: Detector F1(0.00 :6.60)

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

Signal: 1

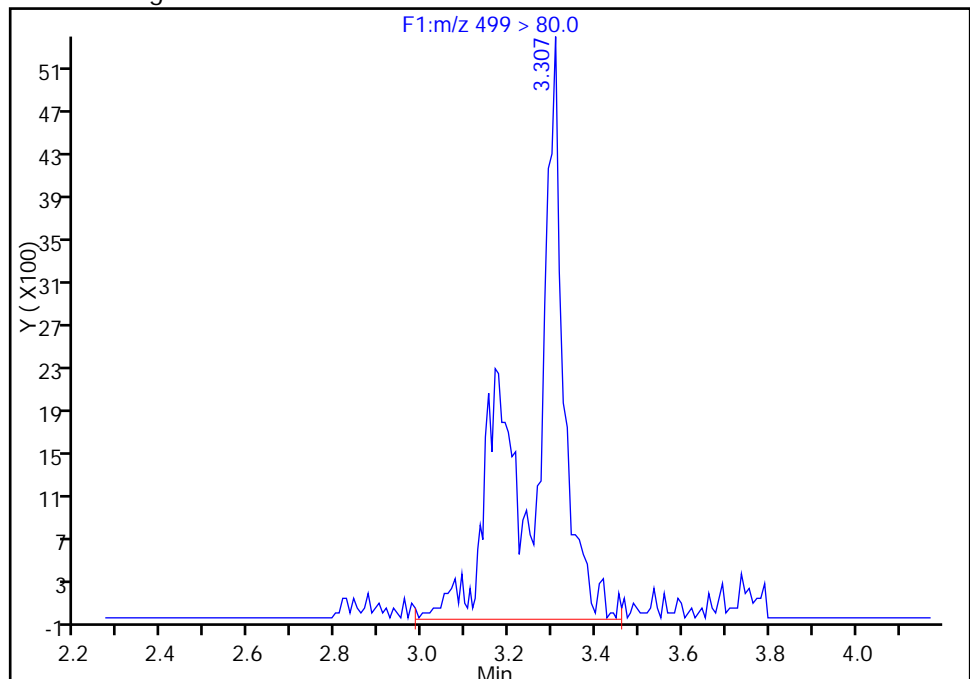
RT: 3.31
Area: 17816
Amount: 0.080882
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 28667
Amount: 0.130145
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Sep-2016 11:28:01
Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-123451/2-A
 Matrix: Water Lab File ID: 03SEP2016D_006_pl_e1.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 08/22/2016 13:34
 Sample wt/vol: 500.00 (mL) Date Analyzed: 09/04/2016 13:16
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34.2		2.5	2.0	0.92
375-85-9	Perfluoroheptanoic acid (PFHpA)	36.6		2.5	2.0	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.2		2.5	2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	36.5		2.5	2.0	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29.5		4.0	3.0	1.3
335-67-1	Perfluorooctanoic acid (PFOA)	37.9		2.5	2.0	0.75

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	123		25-150
STL00990	13C4 PFOA	131		25-150
STL00991	13C4 PFOS	125		25-150
STL01892	13C4-PFHpA	131		25-150
STL00995	13C5 PFNA	120		25-150
STL00994	18O2 PFHxS	128		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_006_p1_e1.d
 Lims ID: LCS 320-123451/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Sep-2016 13:16:00 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d
 Column 1 : Det: F1(0.00 :6.60)
 Process Host: XAWRK003

First Level Reviewer: westendorfc

Date: 16-Sep-2016 08:05:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 2 13C4 PFBA

217 > 172.0	1.623	1.623	0.0		12824450	63.5		127	512180	
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1 Perfluorobutyric acid

212.9 > 169.0	1.623	1.623	0.0	1.000	4156417	18.5		92.4	46300	
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D 4 13C5-PFPeA

267.9 > 223.0	1.910	1.910	0.0		10109975	63.8		128	1244410	
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3 Perfluoropentanoic acid

262.9 > 219.0	1.910	1.910	0.0	1.000	3585117	16.9		84.5	55493	
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5 Perfluorobutanesulfonic acid

298.9 > 80.0	1.944	1.944	0.0	1.000	6020076	17.1		96.7		
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298.9 > 99.0	1.944	1.944	0.0	1.000	2634225		2.29(0.00-0.00)			
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7 Perfluorohexanoic acid

313 > 269.0	2.213	2.213	0.0	1.000	3150669	17.6		88.1	155570	
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D 6 13C2 PFHxA

315 > 270.0	2.213	2.213	0.0		8878586	61.5		123	748951	
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D 11 13C4-PFHpA

367 > 322.0	2.556	2.556	0.0		8546221	65.3		131	725576	
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12 Perfluoroheptanoic acid

363 > 319.0	2.556	2.556	0.0	1.000	3251492	18.3		91.4	51262	
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9 Perfluorohexanesulfonic acid

399 > 80.0	2.571	2.571	0.0	1.000	3881059	15.6		85.8		
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D 10 18O2 PFHxS

403 > 84.0	2.571	2.571	0.0		10948235	60.6		128	424733	
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15 Perfluorooctanoic acid

413 > 369.0	2.919	2.919	0.0	1.000	3777003	19.0		94.8	69560	
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413 > 169.0	2.928	2.919	0.009	1.003	2199077		1.72(0.90-1.10)		126245	
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D 14 13C4 PFOA

417 > 372.0	2.928	2.928	0.0		9576337	65.7		131	803328	
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13 Perfluoroheptanesulfonic Acid

449 > 80.0	2.936	2.936	0.0	1.000	2788120	18.2		95.6		
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Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.195	3.195	0.0	1.000	3130445	14.7		79.4	59208	
499 > 99.0	3.270	3.195	0.076	1.024	714166		4.38(0.90-1.10)		16509	
D 17 13C4 PFOS										
503 > 80.0	3.304	3.304	0.0		8641022	59.7		125	472109	
D 19 13C5 PFNA										
468 > 423.0	3.312	3.312	0.0		7674475	60.2		120	398121	
20 Perfluorononanoic acid										
463 > 419.0	3.312	3.312	0.0	1.000	2835518	18.2		91.1	98122	
D 21 13C8 FOSA										
506 > 78.0	3.634	3.634	0.0		4878063	18.3		36.6	279246	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.642	3.642	0.0	1.000	1677114	18.6		93.1	114144	
D 23 13C2 PFDA										
515 > 470.0	3.658	3.658	0.0		7084786	58.6		117	389133	
24 Perfluorodecanoic acid										
513 > 469.0	3.666	3.666	0.0	1.000	2417409	17.4		87.2	105462	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.975	3.975	0.0	1.000	1866304	16.2		83.8		
28 Perfluoroundecanoic acid										
563 > 519.0	3.993	3.993	0.0	1.000	2051938	16.8		83.8	89158	
D 27 13C2 PFUnA										
565 > 520.0	3.993	3.993	0.0		5683569	59.6		119	394139	
D 30 13C2 PFDaA										
615 > 570.0	4.284	4.284	0.0		5564932	62.9		126	365678	
29 Perfluorododecanoic acid										
613 > 569.0	4.284	4.284	0.0	1.000	1946540	18.0		90.2	97435	
31 Perfluorotridecanoic acid										
633 > 619.0	4.546	4.546	0.0	1.000	1921891	17.2		86.2	87142	
D 32 13C2-PFTeDA										
715 > 670.0	4.781	4.781	0.0		11093805	65.1		130	505152	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.790	4.790	0.0	1.000	3856521	19.3		96.6	8162	
713 > 169.0	4.781	4.790	-0.009	0.998	586656		6.57(0.00-0.00)		69760	
D 34 13C2-PFHxDA										
815 > 770.0	5.188	5.188	0.0		6684383	61.4		123	581645	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.188	5.188	0.0	1.000	2211991	17.1		85.4	8565	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.545	5.545	0.0	1.000	2109806	19.3		96.7	8759	

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_006_p1_e1.d

Injection Date: 04-Sep-2016 13:16:00

Instrument ID: A8

Lims ID: LCS 320-123451/2-A

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 2.0 uL

Dil. Factor: 1.0000

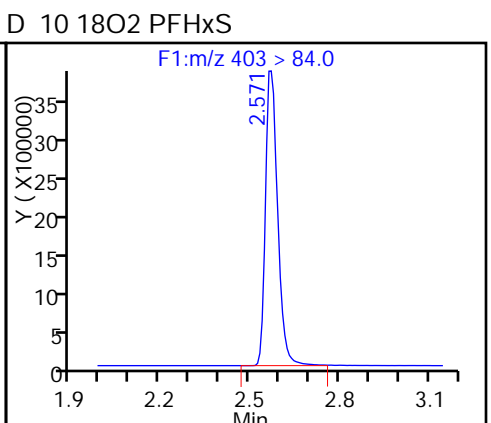
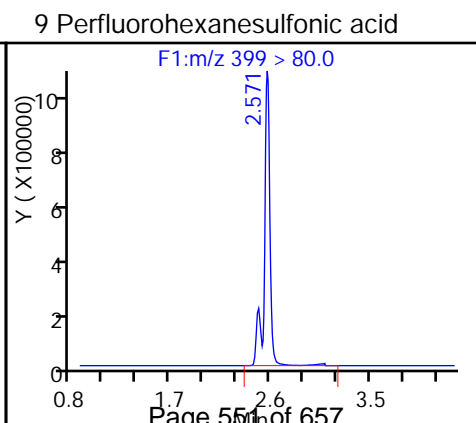
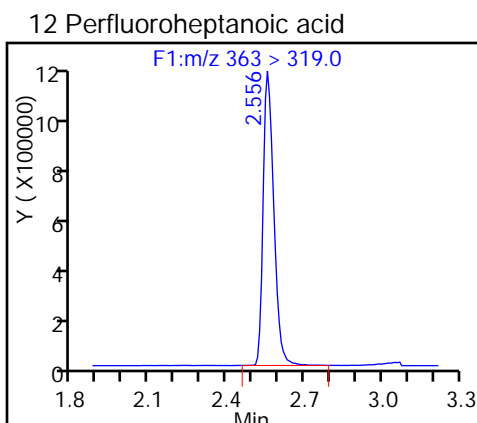
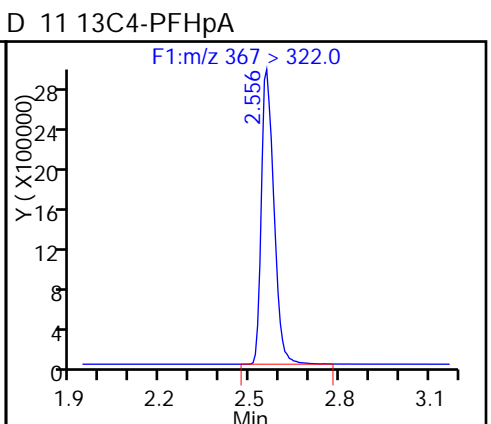
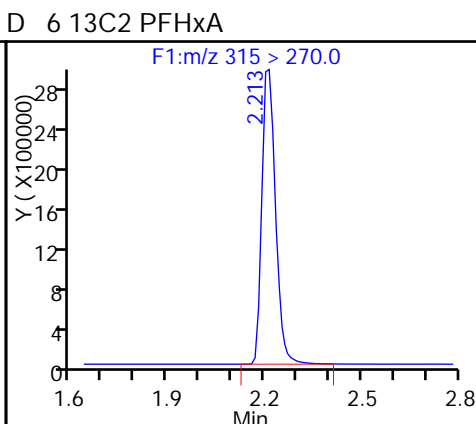
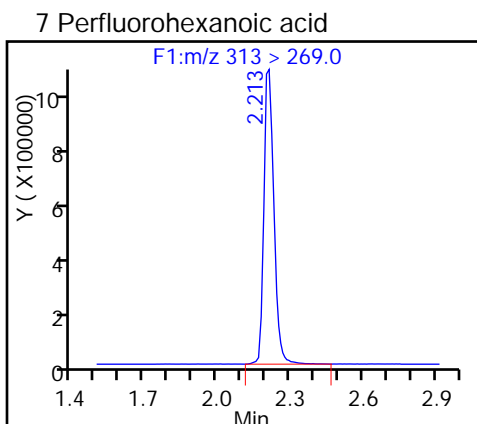
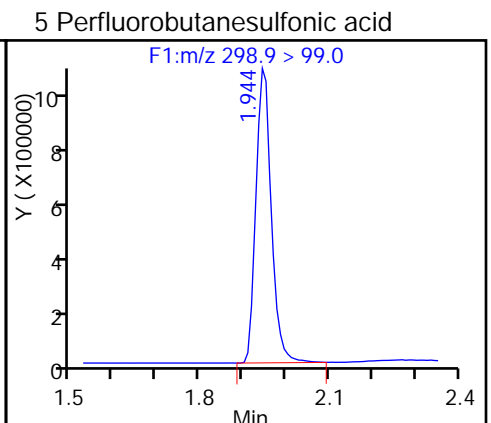
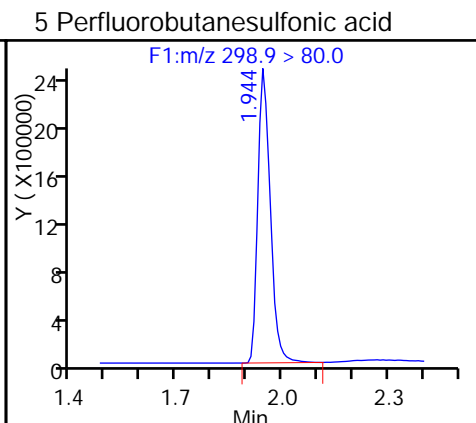
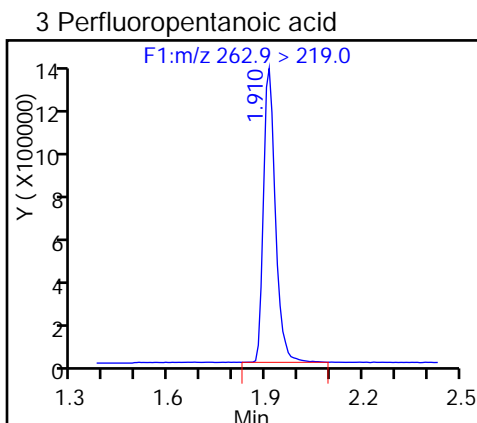
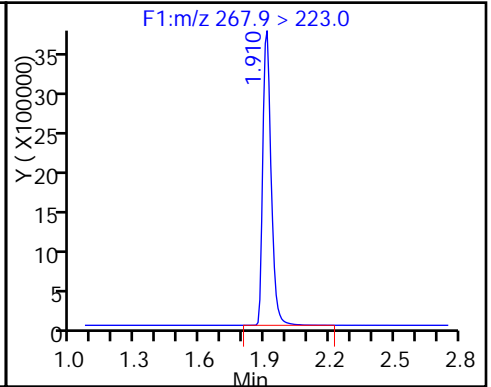
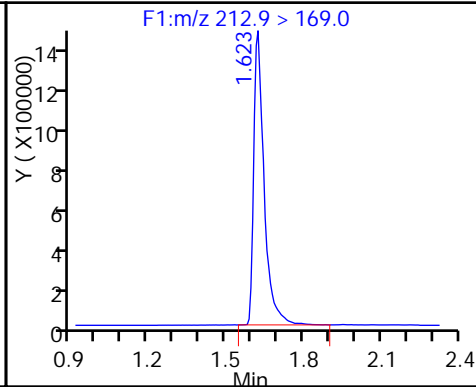
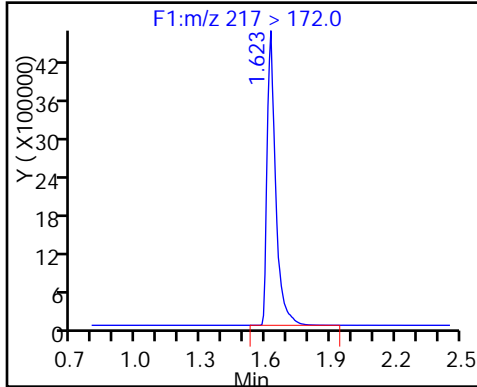
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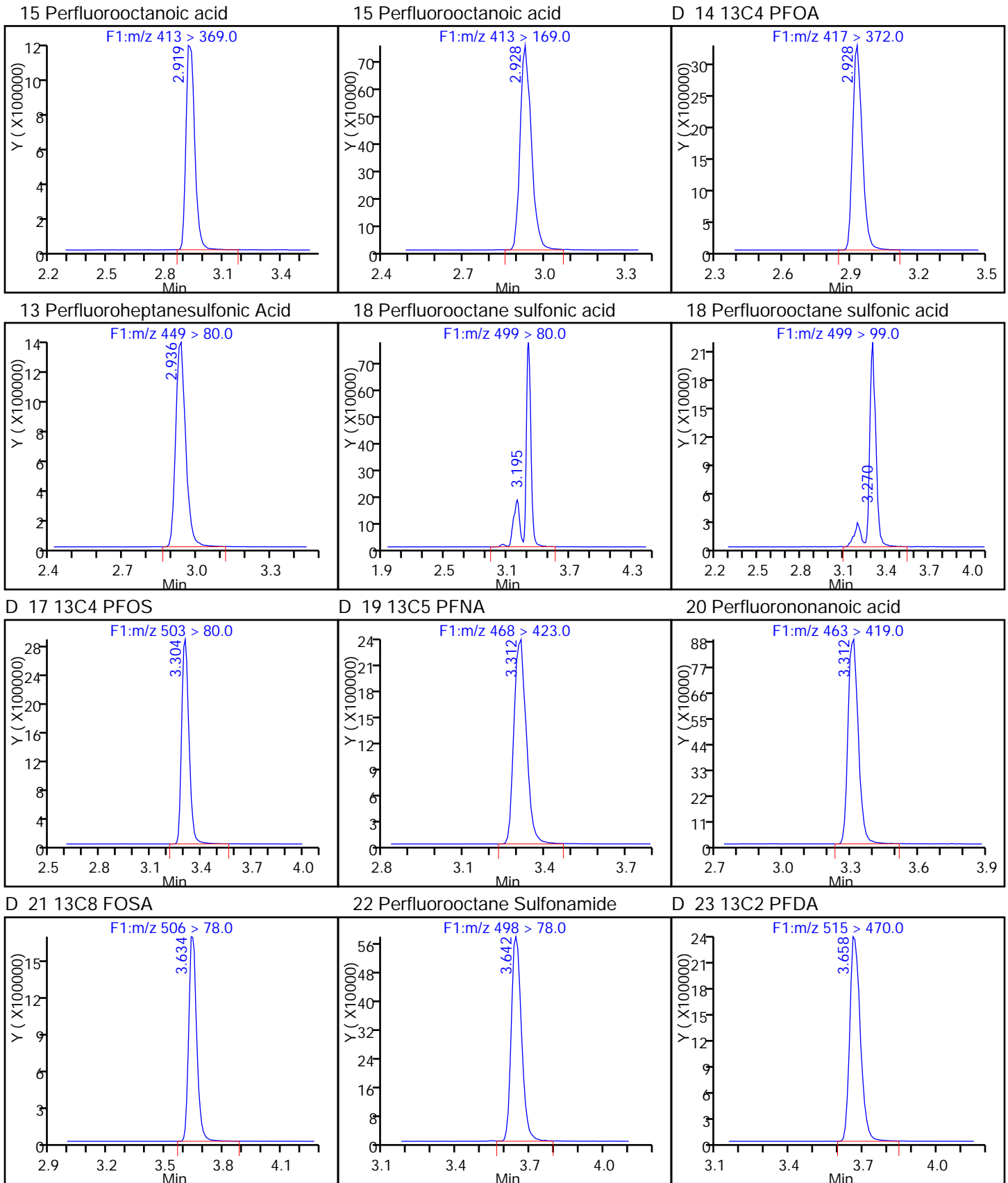
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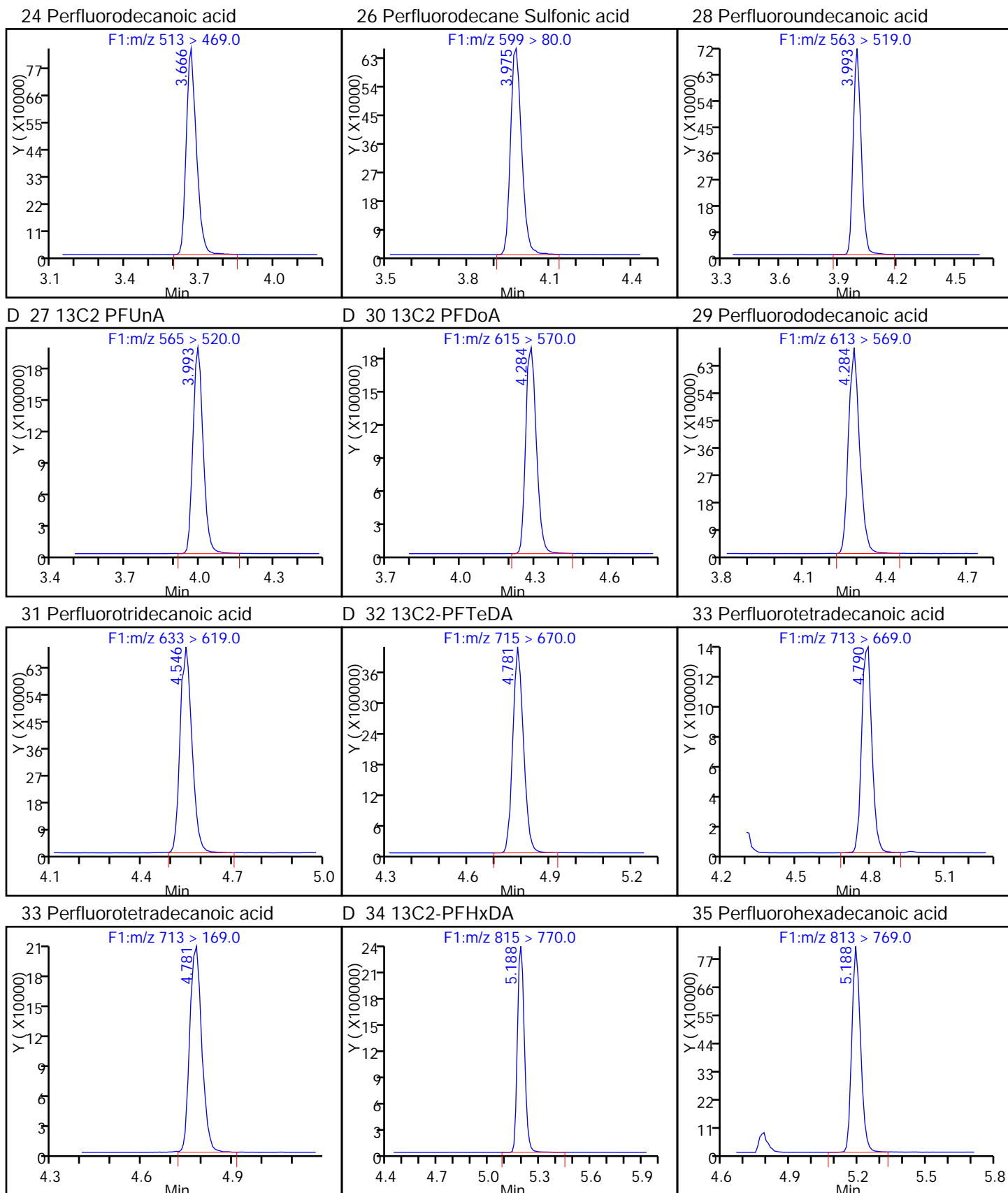
D 2 13C4 PFBA

1 Perfluorobutyric acid

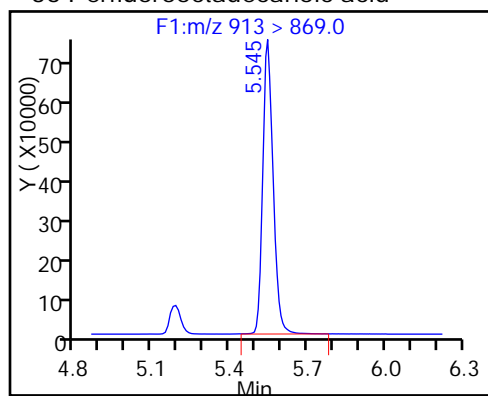
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-123451/3-A
 Matrix: Water Lab File ID: 03SEP2016D_007_pl_e1.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 08/22/2016 13:34
 Sample wt/vol: 500.00 (mL) Date Analyzed: 09/04/2016 13:23
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34.6		2.5	2.0	0.92
375-85-9	Perfluoroheptanoic acid (PFHpA)	35.4		2.5	2.0	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.8		2.5	2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	36.6		2.5	2.0	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30.0		4.0	3.0	1.3
335-67-1	Perfluorooctanoic acid (PFOA)	36.6		2.5	2.0	0.75

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	128		25-150
STL00990	13C4 PFOA	135		25-150
STL00991	13C4 PFOS	128		25-150
STL01892	13C4-PFHpA	137		25-150
STL00995	13C5 PFNA	122		25-150
STL00994	18O2 PFHxS	132		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_007_p1_e1.d
 Lims ID: LCSD 320-123451/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 04-Sep-2016 13:23:00 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info:
 Operator ID: A8 Instrument ID: A8
 Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK003

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.616	1.623	-0.007		12806947	63.4		127	447551	
1 Perfluorobutyric acid										
212.9 > 169.0	1.616	1.623	-0.007	1.000	4188723	18.7		93.3	44038	
D 4 13C5-PFPeA										
267.9 > 223.0	1.902	1.910	-0.008		10256860	64.8		130	1250415	
3 Perfluoropentanoic acid										
262.9 > 219.0	1.902	1.910	-0.008	1.000	3687803	17.1		85.6	63681	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.944	1.944	0.0	1.000	6266449	17.3		97.8		
298.9 > 99.0	1.944	1.944	0.0	1.000	2687413		2.33(0.00-0.00)			
7 Perfluorohexanoic acid										
313 > 269.0	2.202	2.213	-0.011	1.000	3190523	17.1		85.6	190370	
D 6 13C2 PFHxA										
315 > 270.0	2.202	2.213	-0.011		9248845	64.1		128	814472	
D 11 13C4-PFHpA										
367 > 322.0	2.554	2.556	-0.002		8990253	68.7		137	1064120	
12 Perfluoroheptanoic acid										
363 > 319.0	2.554	2.556	-0.002	1.000	3314871	17.7		88.6	45089	
9 Perfluorohexanesulfonic acid										
399 > 80.0	2.562	2.571	-0.009	1.000	4060520	15.9		87.2		
D 10 18O2 PFHxS										
403 > 84.0	2.562	2.571	-0.009		11263676	62.3		132	380851	
15 Perfluorooctanoic acid										
413 > 369.0	2.926	2.919	0.007	1.000	3749086	18.3		91.4	72234	
413 > 169.0	2.918	2.919	-0.001	0.997	2294410		1.63(0.90-1.10)		98345	
D 14 13C4 PFOA										
417 > 372.0	2.918	2.928	-0.010		9858018	67.6		135	459512	
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.926	2.936	-0.010	1.000	3817146	17.8		93.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.184	3.195	-0.010	1.000	3272538	15.0		80.7	58240	
499 > 99.0	3.267	3.195	0.073	1.026	742702		4.41(0.90-1.10)		15729	
D 17 13C4 PFOS										
503 > 80.0	3.292	3.304	-0.012		8886905	61.4		128	314382	
D 19 13C5 PFNA										
468 > 423.0	3.301	3.312	-0.011		7766613	60.9		122	301235	
20 Perfluorononanoic acid										
463 > 419.0	3.301	3.312	-0.011	1.000	2877515	18.3		91.4	96871	
D 21 13C8 FOSA										
506 > 78.0	3.629	3.634	-0.005		6328792	23.8		47.5	303893	
22 Perfluorooctane Sulfonamide										
498 > 78.0	3.637	3.642	-0.005	1.000	2146609	18.4		91.9	95216	
D 23 13C2 PFDA										
515 > 470.0	3.661	3.658	0.003		7404315	61.2		122	489798	
24 Perfluorodecanoic acid										
513 > 469.0	3.661	3.666	-0.005	1.000	2567034	17.7		88.6	130543	
26 Perfluorodecane Sulfonic acid										
599 > 80.0	3.968	3.975	-0.007	1.000	1978986	16.7		86.4		
28 Perfluoroundecanoic acid										
563 > 519.0	3.986	3.993	-0.007	1.000	2058941	17.2		86.0	95941	
D 27 13C2 PFUnA										
565 > 520.0	3.986	3.993	-0.007		5560277	58.3		117	313763	
D 30 13C2 PFDaA										
615 > 570.0	4.279	4.284	-0.005		5443711	61.5		123	373705	
29 Perfluorododecanoic acid										
613 > 569.0	4.279	4.284	-0.005	1.000	1976304	18.7		93.6	84174	
31 Perfluorotridecanoic acid										
633 > 619.0	4.540	4.546	-0.006	1.000	1960190	18.0		89.9	91214	
D 32 13C2-PFTeDA										
715 > 670.0	4.782	4.781	0.001		11673386	68.5		137	557467	
33 Perfluorotetradecanoic acid										
713 > 669.0	4.782	4.790	-0.008	1.000	3953598	20.3		101	8919	
713 > 169.0	4.772	4.790	-0.018	0.998	627394		6.30(0.00-0.00)		235099	
D 34 13C2-PFHxDA										
815 > 770.0	5.188	5.188	0.0		6816253	62.6		125	598843	
35 Perfluorohexadecanoic acid										
813 > 769.0	5.188	5.188	0.0	1.000	2243240	17.7		88.6	9843	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.537	5.545	-0.008	1.000	2168831	20.3		102	7760	

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_007_p1_e1.d

Injection Date: 04-Sep-2016 13:23:00

Instrument ID: A8

Lims ID: LCSD 320-123451/3-A

Client ID:

Operator ID: A8

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

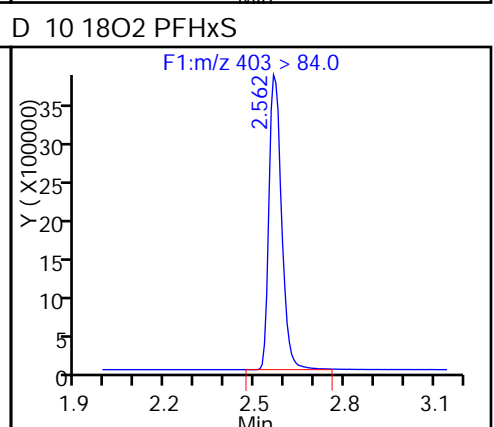
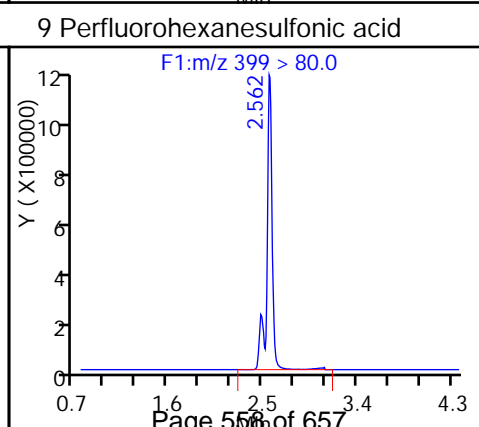
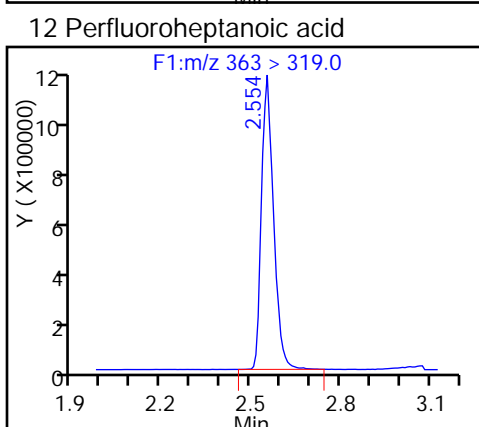
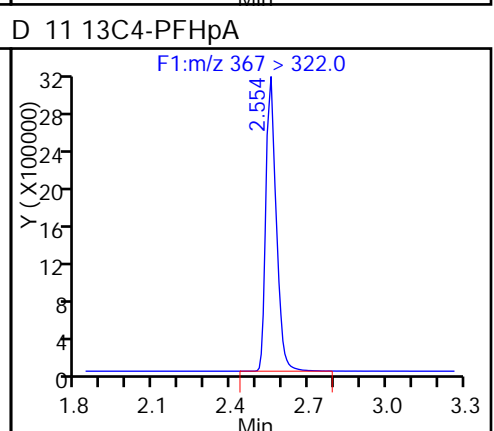
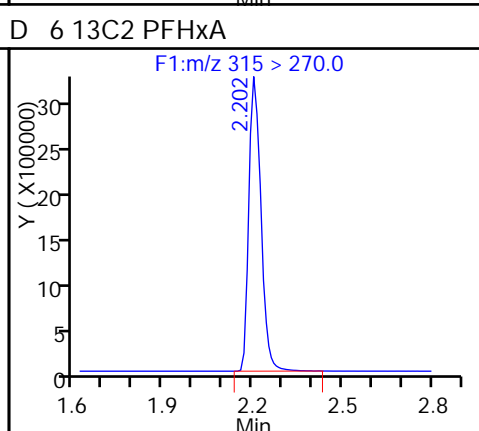
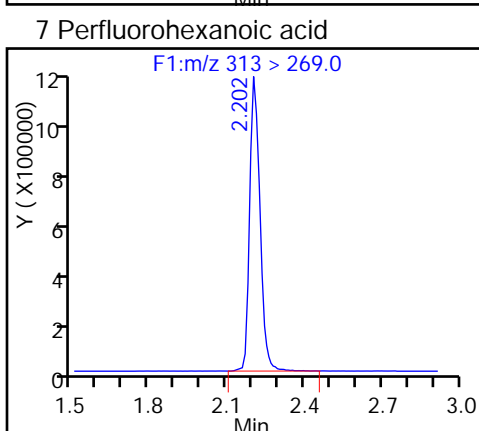
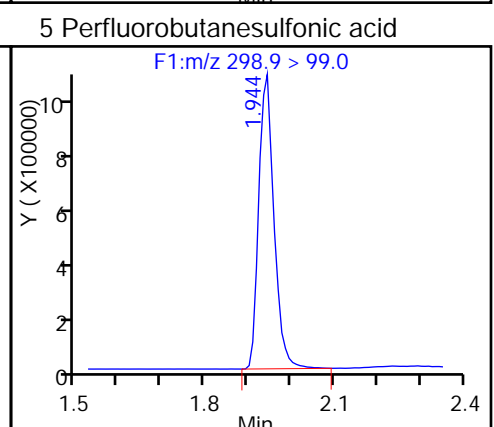
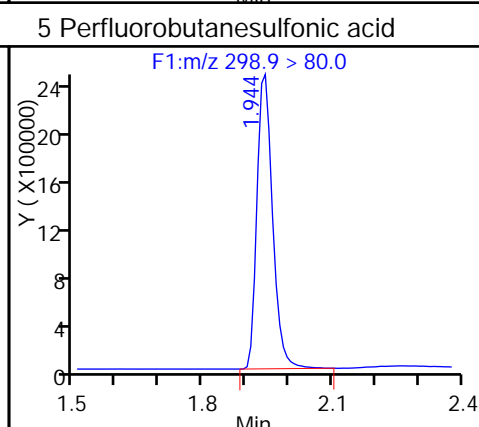
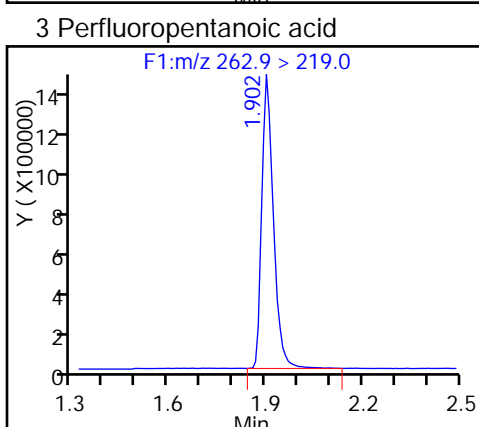
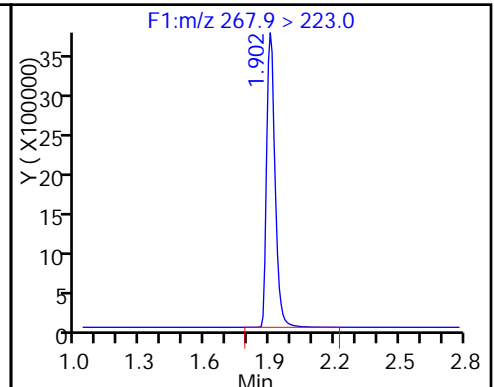
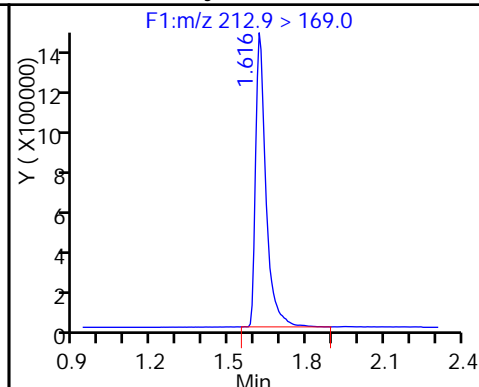
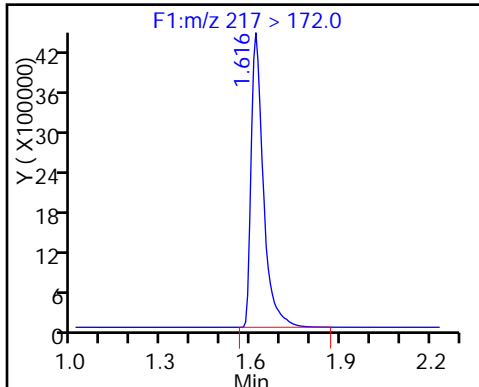
Method: PFC_A8_Full

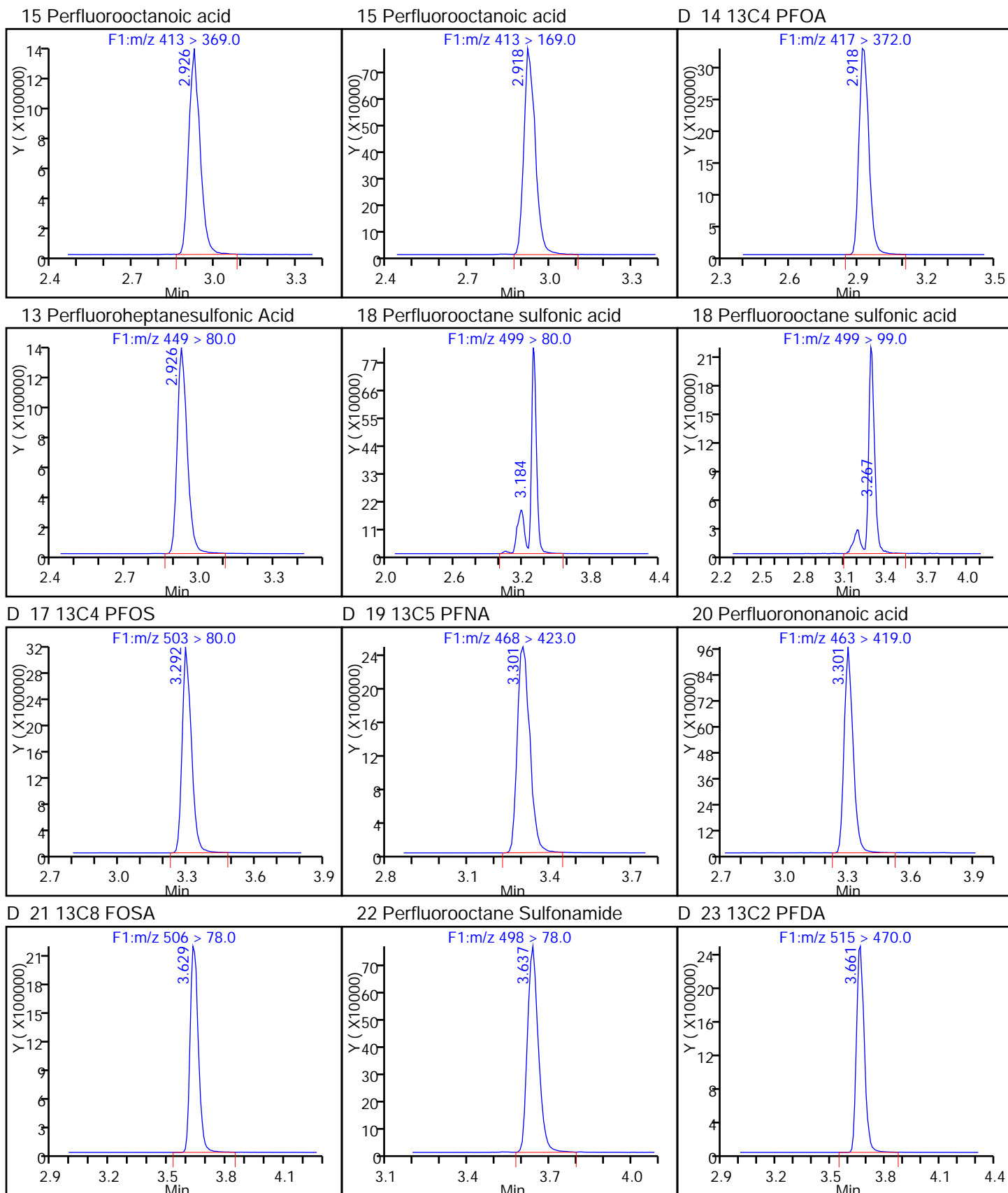
Limit Group: LC PFC_DOD ICAL

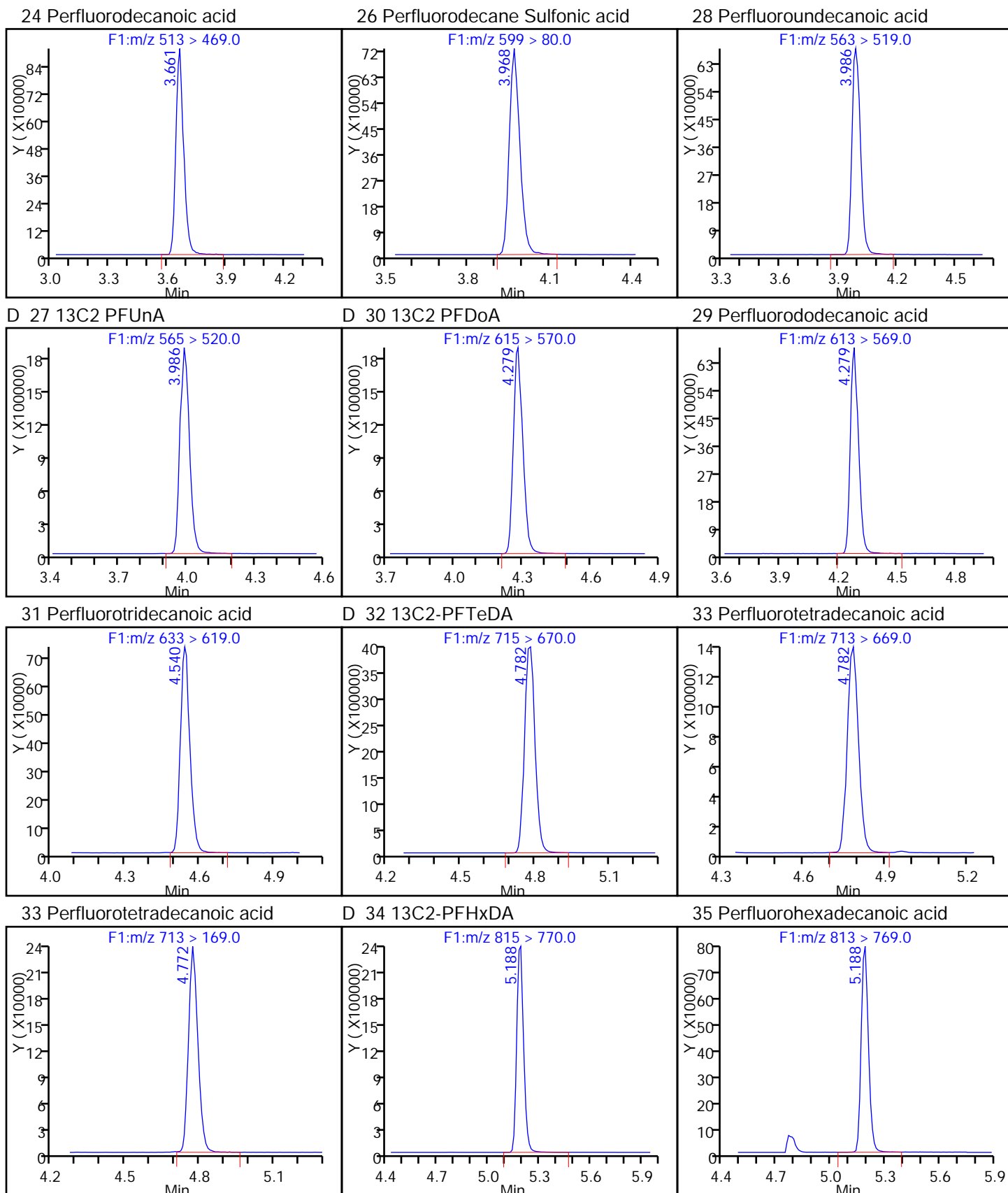
D 2 13C4 PFBA

1 Perfluorobutyric acid

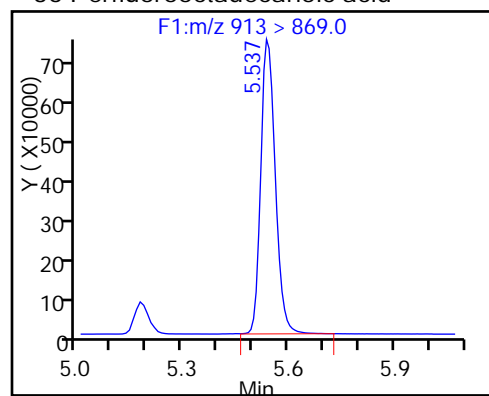
D 4 13C5-PFPeA







36 Perfluorooctadecanoic acid



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1

SDG No.: _____

Instrument ID: A8Start Date: 09/03/2016 15:38Analysis Batch Number: 125915End Date: 09/03/2016 21:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-125915/4		09/03/2016 15:38	1	03SEP2016A_004_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/5		09/03/2016 15:46	1	03SEP2016A_005_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/6		09/03/2016 15:53	1	03SEP2016A_006_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/7		09/03/2016 16:01	1	03SEP2016A_007_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/8		09/03/2016 16:08	1	03SEP2016A_008_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/9		09/03/2016 16:16	1	03SEP2016A_009_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/10		09/03/2016 16:23	1	03SEP2016A_010_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/03/2016 16:31	1		Acquity 2.1(mm)
ICV 320-125915/12		09/03/2016 16:38	1	03SEP2016A_012_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/03/2016 16:46	1		Acquity 2.1(mm)
IC 320-125915/14		09/03/2016 16:53	1	03SEP2016A_014_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/15		09/03/2016 17:01	1	03SEP2016A_015_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/16		09/03/2016 17:08	1	03SEP2016A_016_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/17		09/03/2016 17:16	1	03SEP2016A_017_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/18		09/03/2016 17:23	1	03SEP2016A_018_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/19		09/03/2016 17:31	1	03SEP2016A_019_ p1 el.d	Acquity 2.1(mm)
IC 320-125915/20		09/03/2016 17:38	1	03SEP2016A_020_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/03/2016 17:46	1		Acquity 2.1(mm)
ICV 320-125915/22		09/03/2016 17:53	1	03SEP2016A_022_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:01	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:08	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:16	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:23	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:31	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:38	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:46	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 18:53	1		Acquity 2.1(mm)
CCV 320-125915/31		09/03/2016 19:01	1		Acquity 2.1(mm)
CCV 320-125915/32		09/03/2016 19:08	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:16	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:23	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:31	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:38	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:46	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 19:53	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 20:01	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 20:08	1		Acquity 2.1(mm)
ZZZZZ		09/03/2016 20:16	10		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Start Date: 09/03/2016 15:38Analysis Batch Number: 125915 End Date: 09/03/2016 21:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/03/2016 20:23	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:31	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:38	1		Acquity 2.1 (mm)
CCV 320-125915/45		09/03/2016 20:46	1		Acquity 2.1 (mm)
CCV 320-125915/46		09/03/2016 20:53	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 21:01	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 21:08	10		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 21:16	1		Acquity 2.1 (mm)
CCV 320-125915/50		09/03/2016 21:23	1		Acquity 2.1 (mm)
CCV 320-125915/51		09/03/2016 21:31	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1

SDG No.: _____

Instrument ID: A8Start Date: 09/04/2016 12:38Analysis Batch Number: 126120End Date: 09/04/2016 17:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/04/2016 12:38	1		Acquity 2.1(mm)
CCV 320-126120/2		09/04/2016 12:46	1	03SEP2016D_002_ p1 el.d	Acquity 2.1(mm)
CCV 320-126120/3		09/04/2016 12:53	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 13:01	1		Acquity 2.1(mm)
MB 320-123451/1-A		09/04/2016 13:08	1	03SEP2016D_005_ p1 el.d	Acquity 2.1(mm)
LCS 320-123451/2-A		09/04/2016 13:16	1	03SEP2016D_006_ p1 el.d	Acquity 2.1(mm)
LCSD 320-123451/3-A		09/04/2016 13:23	1	03SEP2016D_007_ p1 el.d	Acquity 2.1(mm)
320-21044-1		09/04/2016 13:31	1	03SEP2016D_008_ p1 el.d	Acquity 2.1(mm)
320-21044-2		09/04/2016 13:38	1	03SEP2016D_009_ p1 el.d	Acquity 2.1(mm)
320-21044-3		09/04/2016 13:46	1	03SEP2016D_010_ p1 el.d	Acquity 2.1(mm)
320-21044-4		09/04/2016 13:54	1	03SEP2016D_011_ p1 el.d	Acquity 2.1(mm)
320-21044-5		09/04/2016 14:01	1	03SEP2016D_012_ p1 el.d	Acquity 2.1(mm)
320-21044-6		09/04/2016 14:08	1	03SEP2016D_013_ p1 el.d	Acquity 2.1(mm)
320-21044-7		09/04/2016 14:16	1	03SEP2016D_014_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/04/2016 14:24	1		Acquity 2.1(mm)
CCV 320-126120/16		09/04/2016 14:31	1	03SEP2016D_016_ p1 el.d	Acquity 2.1(mm)
CCV 320-126120/17		09/04/2016 14:39	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 14:46	1		Acquity 2.1(mm)
320-21044-8		09/04/2016 14:54	1	03SEP2016D_019_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:01	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:09	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:16	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:24	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:31	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:39	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:46	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:54	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:01	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:09	1		Acquity 2.1(mm)
CCV 320-126120/30		09/04/2016 16:16	1	03SEP2016D_030_ p1 el.d	Acquity 2.1(mm)
CCV 320-126120/31		09/04/2016 16:24	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:31	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:39	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:46	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:54	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 17:01	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 17:09	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 17:16	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 17:24	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Start Date: 09/04/2016 12:38Analysis Batch Number: 126120 End Date: 09/04/2016 17:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/04/2016 17:31	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 17:39	1		Acquity 2.1(mm)
CCV 320-126120/42		09/04/2016 17:46	1		Acquity 2.1(mm)
CCV 320-126120/43		09/04/2016 17:54	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-21044-1

SDG No.: _____

Instrument ID: A8Start Date: 09/19/2016 15:33Analysis Batch Number: 128009End Date: 09/20/2016 00:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/19/2016 15:33	1		Acquity 2.1(mm)
ZZZZZ		09/19/2016 15:40	1		Acquity 2.1(mm)
IC 320-128009/4		09/19/2016 15:48	1	19SEP2016A_004_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/5		09/19/2016 15:55	1	19SEP2016A_005_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/6		09/19/2016 16:03	1	19SEP2016A_006_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/7		09/19/2016 16:10	1	19SEP2016A_007_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/8		09/19/2016 16:18	1	19SEP2016A_008_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/9		09/19/2016 16:25	1	19SEP2016A_009_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/10		09/19/2016 16:33	1	19SEP2016A_010_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/19/2016 16:40	1		Acquity 2.1(mm)
ICV 320-128009/12		09/19/2016 16:48	1		Acquity 2.1(mm)
ZZZZZ		09/19/2016 16:55	1		Acquity 2.1(mm)
IC 320-128009/14		09/19/2016 17:03	1	19SEP2016A_014_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/15		09/19/2016 17:10	1	19SEP2016A_015_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/16		09/19/2016 17:18	1	19SEP2016A_016_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/17		09/19/2016 17:25	1	19SEP2016A_017_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/18		09/19/2016 17:33	1	19SEP2016A_018_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/19		09/19/2016 17:40	1	19SEP2016A_019_ p1 el.d	Acquity 2.1(mm)
IC 320-128009/20		09/19/2016 17:48	1	19SEP2016A_020_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/19/2016 17:55	1		Acquity 2.1(mm)
ICV 320-128009/22		09/19/2016 18:03	1		Acquity 2.1(mm)
ZZZZZ		09/19/2016 18:10	1		Acquity 2.1(mm)
CCV 320-128009/36		09/19/2016 19:48	1	19SEP2016B_012_ p1 el.d	Acquity 2.1(mm)
CCV 320-128009/37		09/19/2016 19:55	1		Acquity 2.1(mm)
320-21044-3 DL		09/19/2016 20:40	2	19SEP2016B_019_ p1 el.d	Acquity 2.1(mm)
320-21044-4 DL		09/19/2016 20:48	5	19SEP2016B_020_ p1 el.d	Acquity 2.1(mm)
ZZZZZ		09/19/2016 20:55	5		Acquity 2.1(mm)
ZZZZZ		09/19/2016 21:03	10		Acquity 2.1(mm)
ZZZZZ		09/19/2016 21:10	5		Acquity 2.1(mm)
ZZZZZ		09/19/2016 21:18	5		Acquity 2.1(mm)
CCV 320-128009/50		09/19/2016 21:33	1	19SEP2016B_026_ p1 el.d	Acquity 2.1(mm)
CCV 320-128009/51		09/19/2016 21:40	1		Acquity 2.1(mm)
ZZZZZ		09/19/2016 21:55	5		Acquity 2.1(mm)
ZZZZZ		09/19/2016 22:03	100		Acquity 2.1(mm)
ZZZZZ		09/19/2016 22:10	10		Acquity 2.1(mm)
ZZZZZ		09/19/2016 22:18	100		Acquity 2.1(mm)
ZZZZZ		09/19/2016 22:25	10		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Instrument ID: A8 Start Date: 09/19/2016 15:33Analysis Batch Number: 128009 End Date: 09/20/2016 00:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/19/2016 22:33	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:40	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:48	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:55	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:03	100		Acquity 2.1 (mm)
CCV 320-128009/64		09/19/2016 23:18	1		Acquity 2.1 (mm)
CCV 320-128009/65		09/19/2016 23:25	1		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:40	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:48	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:55	10		Acquity 2.1 (mm)
CCV 320-128009/71		09/20/2016 00:10	1		Acquity 2.1 (mm)
CCV 320-128009/72		09/20/2016 00:18	1		Acquity 2.1 (mm)

Sample Name	Acquisition Date & Time
RB	9/19/2016 14:40
RB	9/19/2016 15:05
RB	9/19/2016 15:13
RB	9/19/2016 15:20
L1_b	9/19/2016 15:28
L2_b	9/19/2016 15:35
L3_b	9/19/2016 15:43
L4_b	9/19/2016 15:50
L5_b	9/19/2016 15:58
L6_b	9/19/2016 16:05
L7_b	9/19/2016 16:13
CCB	9/19/2016 16:20
ICV_b	9/19/2016 16:28
RB_b	9/19/2016 16:35
L1 ADD ON	9/19/2016 16:43
L2 ADD ON	9/19/2016 16:50
L3 ADD ON	9/19/2016 16:58
L4 ADD ON	9/19/2016 17:05
L5 ADD ON	9/19/2016 17:13
L6 ADD ON	9/19/2016 17:20
L7 ADD ON	9/19/2016 17:28
CCB	9/19/2016 17:35
ICV ADD ON	9/19/2016 17:43
RB	9/19/2016 17:50
TPFOA	9/19/2016 17:58
500-116565-A-1-A 10X	9/19/2016 18:05
500-116565-A-1-B MS 10X	9/19/2016 18:13
500-116565-A-1-C MSD 10X	9/19/2016 18:20
500-116565-A-4-A 10X	9/19/2016 18:28
500-116565-A-5-A 10X	9/19/2016 18:35
500-116565-A-6-A 100X	9/19/2016 18:43
500-116565-A-7-A 10X	9/19/2016 18:50
500-116565-A-9-A 10X	9/19/2016 18:58
500-116565-A-10-A 100X	9/19/2016 19:05
500-116565-A-13-A 10X	9/19/2016 19:13
RB	9/19/2016 19:20
CCV L4	9/19/2016 19:28
CCV L4 ADD ON	9/19/2016 19:35
RB	9/19/2016 19:43
500-116565-A-14-A 10X	9/19/2016 19:50
500-116565-A-15-A 10X	9/19/2016 19:58
500-116565-A-16-A 10X	9/19/2016 20:05
500-116566-A-3-A 10X	9/19/2016 20:13
320-21044-A-3-A 2X	9/19/2016 20:20
320-21044-A-4-A 5X	9/19/2016 20:28
320-21084-A-1-A 5X	9/19/2016 20:35

320-21084-A-3-A 10X	9/19/2016 20:43
320-21084-A-6-A 5X	9/19/2016 20:50
320-21084-A-6-B MS 5X	9/19/2016 20:58
RB	9/19/2016 21:05
CCV L5	9/19/2016 21:13
CCV L5 ADD ON	9/19/2016 21:20
RB	9/19/2016 21:28
320-21084-A-6-C MSD 5X	9/19/2016 21:35
320-21174-A-1-A 100X	9/19/2016 21:43
320-21174-A-2-A 10X	9/19/2016 21:50
320-21174-A-2-A 100X	9/19/2016 21:58
320-21174-A-3-A 10X	9/19/2016 22:05
320-21174-A-4-A 10X	9/19/2016 22:13
320-21174-A-5-A 10X	9/19/2016 22:20
320-21174-A-6-A 10X	9/19/2016 22:28
320-21190-B-1-A 10X	9/19/2016 22:35
320-21190-A-9-A 100X	9/19/2016 22:43
RB	9/19/2016 22:50
CCV L4	9/19/2016 22:58
CCV L4 ADD ON	9/19/2016 23:05
RB	9/19/2016 23:13
320-21174-B-1-A 10X	9/19/2016 23:20
320-21174-B-4-A 10X	9/19/2016 23:28
320-21190-B-9-A 10X	9/19/2016 23:35
RB	9/19/2016 23:43
CCV L5	9/19/2016 23:50
CCV L5 ADD ON	9/19/2016 23:58
RB	9/20/2016 0:05
RB	9/20/2016 0:13
CCV L4	9/20/2016 0:20
CCV L4 ADD ON	9/20/2016 0:28
RB	9/20/2016 0:35
Cartridge QC MB	9/20/2016 0:43
Cartridge QC LCS	9/20/2016 0:50
MB 320-127865/1-A	9/20/2016 0:58
LCS 320-127865/2-A	9/20/2016 1:05
LCSD 320-127865/3-A	9/20/2016 1:13
320-21289-B-1-A	9/20/2016 1:20
320-21289-A-4-A	9/20/2016 1:28
320-21289-B-13-A	9/20/2016 1:35
320-21289-B-15-A	9/20/2016 1:43
RB	9/20/2016 1:51
CCV L5	9/20/2016 1:58
CCV L5 ADD ON	9/20/2016 2:06
RB	9/20/2016 2:13
RB	9/20/2016 2:21
CCV L4	9/20/2016 2:28

CCV L4 ADD ON	9/20/2016 2:36
RB	9/20/2016 2:43
MB 320-127423/1-A	9/20/2016 2:51
LCS 320-127423/2-A	9/20/2016 2:58
LCSD 320-127423/3-A	9/20/2016 3:06
320-21041-B-1-A	9/20/2016 3:13
320-21041-B-2-A	9/20/2016 3:21
320-21041-B-3-A	9/20/2016 3:28
320-21041-B-4-A	9/20/2016 3:36
320-21041-B-5-A	9/20/2016 3:43
320-21041-B-6-A	9/20/2016 3:51
RB	9/20/2016 3:58
CCV L5	9/20/2016 4:06
CCV L5 ADD ON	9/20/2016 4:13
RB	9/20/2016 4:21
320-21041-B-7-A	9/20/2016 4:28
320-21041-B-8-A	9/20/2016 4:36
RB	9/20/2016 4:43
MB 320-127453/1-A	9/20/2016 4:51
LCS 320-127453/2-A	9/20/2016 4:58
LCSD 320-127453/3-A	9/20/2016 5:06
320-21103-B-1-A	9/20/2016 5:13
320-21103-B-2-A	9/20/2016 5:21
320-21103-B-3-A	9/20/2016 5:28
320-21103-B-4-A	9/20/2016 5:36
RB	9/20/2016 5:43
CCV L4	9/20/2016 5:51
CCV L4 ADD ON	9/20/2016 5:58
RB	9/20/2016 6:06
320-21103-B-5-A	9/20/2016 6:13
320-21103-B-6-A	9/20/2016 6:21
320-21103-B-7-A	9/20/2016 6:28
320-21103-B-8-A	9/20/2016 6:36
320-21103-B-9-A	9/20/2016 6:43
320-21097-B-1-A	9/20/2016 6:51
320-21097-B-2-A	9/20/2016 6:58
320-21097-B-3-A	9/20/2016 7:06
320-21097-B-4-A	9/20/2016 7:13
320-21097-B-5-A	9/20/2016 7:21
RB	9/20/2016 7:28
CCV L5	9/20/2016 7:36
CCV L5 ADD ON	9/20/2016 7:43
RB	9/20/2016 7:51
320-21097-B-6-A	9/20/2016 7:58
320-21097-B-7-A	9/20/2016 8:06
320-21097-B-8-A	9/20/2016 8:13
320-21097-B-9-A	9/20/2016 8:21

MB 320-127452/1-A	9/20/2016 8:28
LCS 320-127452/2-A	9/20/2016 8:36
LCSD 320-127452/3-A	9/20/2016 8:43
320-21371-B-5-A	9/20/2016 8:51
320-21371-B-7-A	9/20/2016 8:58
320-21371-B-8-A	9/20/2016 9:06
RB	9/20/2016 9:13
CCV L4	9/20/2016 9:21
CCV L4 ADD ON	9/20/2016 9:28
RB	9/20/2016 9:36

Sample Name	Acquisition Date & Time
RB	9/3/2016 14:56
RB	9/3/2016 15:03
RB_b	9/3/2016 15:11
L1_b	9/3/2016 15:18
L2_b	9/3/2016 15:26
L3_b	9/3/2016 15:33
L4_b	9/3/2016 15:41
L5_b	9/3/2016 15:48
L6_b	9/3/2016 15:56
L7_b	9/3/2016 16:03
RB_b	9/3/2016 16:11
ICV_b	9/3/2016 16:18
RB_b	9/3/2016 16:26
L1 ADD ON	9/3/2016 16:33
L2 ADD ON	9/3/2016 16:41
L3 ADD ON	9/3/2016 16:48
L4 ADD ON	9/3/2016 16:56
L5 ADD ON	9/3/2016 17:03
L6 ADD ON	9/3/2016 17:11
L7 ADD ON	9/3/2016 17:18
RB	9/3/2016 17:26
ICV ADD ON	9/3/2016 17:33
RB	9/3/2016 17:41
LCPFC2SP_00017	9/3/2016 17:48
Manifold QC (7)	9/3/2016 17:56
MB 320-125349/1-A	9/3/2016 18:03
LCS 320-125349/2-A	9/3/2016 18:11
LCSD 320-125349/3-A	9/3/2016 18:18
320-20838-B-5-A	9/3/2016 18:26
RB	9/3/2016 18:33
CCV L4	9/3/2016 18:41
CCV L4 ADD ON	9/3/2016 18:48
RB	9/3/2016 18:56
MB 320-124781/1-A	9/3/2016 19:03
LCS 320-124781/2-A	9/3/2016 19:11
320-21226-A-1-A	9/3/2016 19:18
320-21226-A-1-B MS	9/3/2016 19:26
320-21226-A-1-C MSD	9/3/2016 19:33
320-21226-A-3-A	9/3/2016 19:41
320-21226-A-4-A	9/3/2016 19:48
320-21226-A-6-A 10X	9/3/2016 19:56
320-21226-A-10-A	9/3/2016 20:03
320-21226-A-13-A	9/3/2016 20:11
RB	9/3/2016 20:18
CCV L5	9/3/2016 20:26
CCV L5 ADD ON	9/3/2016 20:33

RB	9/3/2016 20:41
320-21226-a-15-a 10X	9/3/2016 20:48
RB	9/3/2016 20:56
CCV L4	9/3/2016 21:03
CCV L4 ADD ON	9/3/2016 21:11
RB	9/3/2016 21:18
RB	9/3/2016 21:26
CCV L5	9/3/2016 21:33
CCV L5 ADD ON	9/3/2016 21:41
RB	9/3/2016 21:48
mb 320-124066/1-a	9/3/2016 21:56
lcs 320-124066/2-a	9/3/2016 22:03
320-21174-a-1-a	9/3/2016 22:11
320-21174-a-2-a	9/3/2016 22:18
320-21174-a-3-a	9/3/2016 22:26
320-21174-a-4-a	9/3/2016 22:33
320-21174-a-5-a	9/3/2016 22:41
320-21174-a-6-a	9/3/2016 22:48
320-21190-b-1-a	9/3/2016 22:56
320-21190-a-2-a	9/3/2016 23:03
RB	9/3/2016 23:11
CCV L4	9/3/2016 23:18
CCV L4 ADD ON	9/3/2016 23:26
RB	9/3/2016 23:33
320-21190-a-3-a	9/3/2016 23:41
320-21190-a-4-a	9/3/2016 23:48
320-21190-a-5-a	9/3/2016 23:56
320-21190-a-6-a	9/4/2016 0:03
320-21190-a-7-a	9/4/2016 0:11
320-21190-a-8-a	9/4/2016 0:18
320-21190-a-8-b ms	9/4/2016 0:26
320-21190-a-8-c msd	9/4/2016 0:33
320-21190-a-9-a	9/4/2016 0:41
320-21190-a-10-a	9/4/2016 0:48
RB	9/4/2016 0:56
CCV L5	9/4/2016 1:03
CCV L5 ADD ON	9/4/2016 1:11
RB	9/4/2016 1:18
320-21190-a-11-a	9/4/2016 1:26
RB	9/4/2016 1:33
mb 320-124039/1-a	9/4/2016 1:41
lcs 320-124039/2-a	9/4/2016 1:48
320-21139-a-1-a	9/4/2016 1:56
320-21139-a-1-b ms	9/4/2016 2:03
320-21139-a-1-c msd	9/4/2016 2:11
320-21139-a-2-a	9/4/2016 2:18
320-21139-a-3-a	9/4/2016 2:26

320-21139-a-4-a	9/4/2016 2:33
320-21139-a-5-a	9/4/2016 2:41
RB	9/4/2016 2:48
CCV L4	9/4/2016 2:56
CCV L4 ADD ON	9/4/2016 3:03
RB	9/4/2016 3:11
RB	9/4/2016 3:18
CCV L4	9/4/2016 3:26
CCV L4 ADD ON	9/4/2016 3:33
RB	9/4/2016 3:41
mb 320-125185/1-a	9/4/2016 3:48
lcs 320-125185/2-a	9/4/2016 3:56
320-21334-a-1-a	9/4/2016 4:03
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320-21334-a-3-a	9/4/2016 4:18
320-21334-a-4-a	9/4/2016 4:26
320-21334-a-6-a	9/4/2016 4:33
320-21334-a-7-a	9/4/2016 4:41
320-21334-a-8-a	9/4/2016 4:48
320-21334-a-11-a	9/4/2016 4:56
RB	9/4/2016 5:03
CCV L5	9/4/2016 5:11
CCV L5 ADD ON	9/4/2016 5:18
RB	9/4/2016 5:26
320-21334-a-12-a	9/4/2016 5:33
320-21334-a-15-a	9/4/2016 5:41
320-21334-a-17-a	9/4/2016 5:48
320-21334-a-18-a	9/4/2016 5:56
320-21334-a-19-a	9/4/2016 6:03
320-21334-a-19-b ms	9/4/2016 6:11
320-21334-a-19-c msd	9/4/2016 6:18
320-21334-a-20-a	9/4/2016 6:26
320-21334-a-21-a	9/4/2016 6:33
RB	9/4/2016 6:41
CCV L4	9/4/2016 6:48
CCV L4 ADD ON	9/4/2016 6:56
RB	9/4/2016 7:03
RB	9/4/2016 7:11
CCV L5	9/4/2016 7:18
CCV L5 ADD ON	9/4/2016 7:26
RB	9/4/2016 7:33
mb 320-124878/1-a	9/4/2016 7:41
lcs 320-124878/2-a	9/4/2016 7:48
lcsd 320-124878/3-a	9/4/2016 7:56
320-21289-a-1-a	9/4/2016 8:03
320-21289-b-4-a	9/4/2016 8:11
320-21289-a-6-a 100X	9/4/2016 8:18

320-21289-a-13-a	9/4/2016 8:26
320-21289-a-14-a 100X	9/4/2016 8:33
320-21289-a-15-a	9/4/2016 8:41
RB	9/4/2016 8:48
CCV L4	9/4/2016 8:56
CCV L4 ADD ON	9/4/2016 9:03
RB	9/4/2016 9:11
320-21289-a-6-a 10X	9/4/2016 9:18
320-21289-a-14-a 10X	9/4/2016 9:26
RB	9/4/2016 9:33
mb 320-123332/1-a	9/4/2016 9:41
lcs 320-123332/2-a	9/4/2016 9:48
lcsd 320-123332/3-a	9/4/2016 9:56
320-21092-a-1-a 100X	9/4/2016 10:03
320-21092-a-2-a 100X	9/4/2016 10:11
320-21092-a-3-a 10X	9/4/2016 10:18
320-21092-a-4-a 10X	9/4/2016 10:26
RB	9/4/2016 10:33
CCV L5	9/4/2016 10:41
CCV L5 ADD ON	9/4/2016 10:48
RB	9/4/2016 10:56
mb 320-124922/1-a	9/4/2016 11:03
lcs 320-124922/2-a	9/4/2016 11:11
lcsd 320-124922/3-a	9/4/2016 11:18
320-21252-a-12-a 100X	9/4/2016 11:26
320-21252-a-13-a 100X	9/4/2016 11:33
320-21252-a-14-a 100X	9/4/2016 11:41
RB	9/4/2016 11:48
CCV L4	9/4/2016 11:56
CCV L4 ADD ON	9/4/2016 12:03
RB	9/4/2016 12:11
RB	9/4/2016 12:18
CCV L4	9/4/2016 12:26
CCV L4 ADD ON	9/4/2016 12:33
RB	9/4/2016 12:41
mb 320-123451/1-a	9/4/2016 12:48
lcs 320-123451/2-a	9/4/2016 12:56
lcsd 320-123451/3-a	9/4/2016 13:03
320-21044-a-1-a	9/4/2016 13:11
320-21044-a-2-a	9/4/2016 13:18
320-21044-a-3-a	9/4/2016 13:26
320-21044-a-4-a	9/4/2016 13:34
320-21044-a-5-a	9/4/2016 13:41
320-21044-a-6-a	9/4/2016 13:48
320-21044-a-7-a	9/4/2016 13:56
RB	9/4/2016 14:04
CCV L5	9/4/2016 14:11

CCV L5 ADD ON	9/4/2016 14:19
RB	9/4/2016 14:26
320-21044-a-8-a	9/4/2016 14:34
RB	9/4/2016 14:41
mb 320-123937/1-a	9/4/2016 14:49
lcs 320-123937/2-a	9/4/2016 14:56
320-21080-a-1-a	9/4/2016 15:04
320-21080-a-2-a	9/4/2016 15:11
320-21080-a-3-a	9/4/2016 15:19
320-21080-a-4-a	9/4/2016 15:26
320-21084-a-1-a	9/4/2016 15:34
320-21084-a-2-a	9/4/2016 15:41
RB	9/4/2016 15:49
CCV L4	9/4/2016 15:56
CCV L4 ADD ON	9/4/2016 16:04
RB	9/4/2016 16:11
320-21084-a-3-a	9/4/2016 16:19
320-21084-a-4-a	9/4/2016 16:26
320-21084-a-5-a	9/4/2016 16:34
320-21084-a-6-a	9/4/2016 16:41
320-21084-a-6-b ms	9/4/2016 16:49
320-21084-a-6-c msd	9/4/2016 16:56
320-21084-a-7-a	9/4/2016 17:04
320-21084-a-8-a	9/4/2016 17:11
RB	9/4/2016 17:19
CCV L5	9/4/2016 17:26
CCV L5 ADD ON	9/4/2016 17:34
RB	9/4/2016 17:41
RB	9/4/2016 17:49
CCV L4	9/4/2016 17:56
CCV L4 ADD ON	9/4/2016 18:04
RB	9/4/2016 18:11
mb 320-124980/1-a	9/4/2016 18:19
lcs 320-124980/2-a	9/4/2016 18:26
lcsd 320-124980/3-a	9/4/2016 18:34
320-21287-a-1-a	9/4/2016 18:41
320-21287-a-2-a	9/4/2016 18:49
320-21287-a-3-a	9/4/2016 18:56
320-21287-a-4-a	9/4/2016 19:04
320-21287-a-5-a	9/4/2016 19:11
320-21287-a-6-a	9/4/2016 19:19
320-21287-a-7-a	9/4/2016 19:26
RB	9/4/2016 19:34
CCV L5	9/4/2016 19:41
CCV L5 ADD ON	9/4/2016 19:49
RB	9/4/2016 19:56
320-21287-a-8-a	9/4/2016 20:04

320-21287-a-9-a	9/4/2016 20:11
320-21287-a-10-a	9/4/2016 20:19
320-21287-a-11-a	9/4/2016 20:26
RB	9/4/2016 20:34
CCV L4	9/4/2016 20:41
CCV L4 ADD ON	9/4/2016 20:49
RB	9/4/2016 20:56
RB	9/4/2016 21:04
CCV L4	9/4/2016 21:11
CCV L4 ADD ON	9/4/2016 21:19
RB	9/4/2016 21:26
mb 320-124801/1-a	9/4/2016 21:34
lcs 320-124801/2-a	9/4/2016 21:41
320-21226-a-2-a	9/4/2016 21:49
320-21226-a-5-a	9/4/2016 21:56
320-21226-a-7-a	9/4/2016 22:04
320-21226-a-8-a	9/4/2016 22:11
320-21226-a-9-a	9/4/2016 22:19
320-21226-a-11-a	9/4/2016 22:26
320-21226-a-12-a	9/4/2016 22:34
320-21226-a-12-b ms	9/4/2016 22:41
RB	9/4/2016 22:49
CCV L5	9/4/2016 22:56
CCV L5 ADD ON	9/4/2016 23:04
RB	9/4/2016 23:11
320-21226-a-12-c msd	9/4/2016 23:19
RB	9/4/2016 23:26
320-21226-a-14-a	9/4/2016 23:34
RB	9/4/2016 23:41
RB	9/4/2016 23:49
CCV L4	9/4/2016 23:56
CCV L4 ADD ON	9/5/2016 0:04
RB	9/5/2016 0:11
mb 320-124556/1-a	9/5/2016 0:19
lcs 320-124556/2-a	9/5/2016 0:26
lcsd 320-124556/3-a	9/5/2016 0:34
320-21264-a-1-a	9/5/2016 0:41
320-21264-a-2-a	9/5/2016 0:49
320-21264-a-3-a	9/5/2016 0:56
320-21264-a-4-a	9/5/2016 1:04
320-21264-a-5-a	9/5/2016 1:11
RB	9/5/2016 1:19
CCV L5	9/5/2016 1:26
CCV L5 ADD ON	9/5/2016 1:34
RB	9/5/2016 1:41
RB	9/5/2016 1:49
CCV L4	9/5/2016 1:56

CCV L4 ADD ON	9/5/2016 2:04
RB	9/5/2016 2:11
mb 320-125105/1-a	9/5/2016 2:19
lcs 320-125105/2-a	9/5/2016 2:26
320-21265-a-1-a	9/5/2016 2:34
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320-21265-a-3-a	9/5/2016 2:49
320-21265-a-4-a	9/5/2016 2:56
320-21265-a-5-a	9/5/2016 3:04
320-21265-a-6-a	9/5/2016 3:11
RB	9/5/2016 3:19
CCV L5	9/5/2016 3:26
CCV L5 ADD ON	9/5/2016 3:34
RB	9/5/2016 3:41
320-21265-a-7-a	9/5/2016 3:49
320-21265-a-7-b ms	9/5/2016 3:56
320-21265-a-7-c msd	9/5/2016 4:04
320-21265-a-8-a	9/5/2016 4:11
320-21265-a-9-a	9/5/2016 4:19
RB	9/5/2016 4:26
CCV L4	9/5/2016 4:34
CCV L4 ADD ON	9/5/2016 4:41
RB	9/5/2016 4:49
RB	9/5/2016 4:56
RB	9/5/2016 5:04
RB	9/5/2016 5:11
RB	9/5/2016 5:19
RB	9/5/2016 5:26
RB	9/5/2016 5:34
RB	9/5/2016 5:41
RB	9/5/2016 5:49
RB	9/5/2016 5:56
RB	9/5/2016 6:04
RB	9/5/2016 6:11
RB	9/5/2016 6:19
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RB	9/5/2016 6:41
RB	9/5/2016 6:49
RB	9/5/2016 6:56
RB	9/5/2016 7:04
RB	9/5/2016 7:11
RB	9/5/2016 7:19

Sample Name	Injection Date & Time
RB	9/3/2016 14:56
RB	9/3/2016 15:03
RB_b	9/3/2016 15:11
L1_b	9/3/2016 15:18
L2_b	9/3/2016 15:26
L3_b	9/3/2016 15:33
L4_b	9/3/2016 15:41
L5_b	9/3/2016 15:48
L6_b	9/3/2016 15:56
L7_b	9/3/2016 16:03
RB_b	9/3/2016 16:11
ICV_b	9/3/2016 16:18
RB_b	9/3/2016 16:26
L1 ADD ON	9/3/2016 16:33
L2 ADD ON	9/3/2016 16:41
L3 ADD ON	9/3/2016 16:48
L4 ADD ON	9/3/2016 16:56
L5 ADD ON	9/3/2016 17:03
L6 ADD ON	9/3/2016 17:11
L7 ADD ON	9/3/2016 17:18
RB	9/3/2016 17:26
ICV ADD ON	9/3/2016 17:33
RB	9/3/2016 17:41
LCPFC2SP_00017	9/3/2016 17:48
Manifold QC (7)	9/3/2016 17:56
MB 320-125349/1-A	9/3/2016 18:03
LCS 320-125349/2-A	9/3/2016 18:11
LCSD 320-125349/3-A	9/3/2016 18:18
320-20838-B-5-A	9/3/2016 18:26
RB	9/3/2016 18:33
CCV L4	9/3/2016 18:41
CCV L4 ADD ON	9/3/2016 18:48
RB	9/3/2016 18:56
MB 320-124781/1-A	9/3/2016 19:03
LCS 320-124781/2-A	9/3/2016 19:11
320-21226-A-1-A	9/3/2016 19:18
320-21226-A-1-B MS	9/3/2016 19:26
320-21226-A-1-C MSD	9/3/2016 19:33
320-21226-A-3-A	9/3/2016 19:41
320-21226-A-4-A	9/3/2016 19:48
320-21226-A-6-A 10X	9/3/2016 19:56
320-21226-A-10-A	9/3/2016 20:03
320-21226-A-13-A	9/3/2016 20:11
RB	9/3/2016 20:18
CCV L5	9/3/2016 20:26

CCV L5 ADD ON	9/3/2016 20:33
RB	9/3/2016 20:41
320-21226-a-15-a 10X	9/3/2016 20:48
RB	9/3/2016 20:56
CCV L4	9/3/2016 21:03
CCV L4 ADD ON	9/3/2016 21:11
RB	9/3/2016 21:18
RB	9/3/2016 21:26
CCV L5	9/3/2016 21:33
CCV L5 ADD ON	9/3/2016 21:41
RB	9/3/2016 21:48
mb 320-124066/1-a	9/3/2016 21:56
lcs 320-124066/2-a	9/3/2016 22:03
320-21174-a-1-a	9/3/2016 22:11
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320-21174-a-4-a	9/3/2016 22:33
320-21174-a-5-a	9/3/2016 22:41
320-21174-a-6-a	9/3/2016 22:48
320-21190-b-1-a	9/3/2016 22:56
320-21190-a-2-a	9/3/2016 23:03
RB	9/3/2016 23:11
CCV L4	9/3/2016 23:18
CCV L4 ADD ON	9/3/2016 23:26
RB	9/3/2016 23:33
320-21190-a-3-a	9/3/2016 23:41
320-21190-a-4-a	9/3/2016 23:48
320-21190-a-5-a	9/3/2016 23:56
320-21190-a-6-a	9/4/2016 0:03
320-21190-a-7-a	9/4/2016 0:11
320-21190-a-8-a	9/4/2016 0:18
320-21190-a-8-b ms	9/4/2016 0:26
320-21190-a-8-c msd	9/4/2016 0:33
320-21190-a-9-a	9/4/2016 0:41
320-21190-a-10-a	9/4/2016 0:48
RB	9/4/2016 0:56
CCV L5	9/4/2016 1:03
CCV L5 ADD ON	9/4/2016 1:11
RB	9/4/2016 1:18
320-21190-a-11-a	9/4/2016 1:26
RB	9/4/2016 1:33
mb 320-124039/1-a	9/4/2016 1:41
lcs 320-124039/2-a	9/4/2016 1:48
320-21139-a-1-a	9/4/2016 1:56
320-21139-a-1-b ms	9/4/2016 2:03
320-21139-a-1-c msd	9/4/2016 2:11
320-21139-a-2-a	9/4/2016 2:18

320-21139-a-3-a	9/4/2016 2:26
320-21139-a-4-a	9/4/2016 2:33
320-21139-a-5-a	9/4/2016 2:41
RB	9/4/2016 2:48
CCV L4	9/4/2016 2:56
CCV L4 ADD ON	9/4/2016 3:03
RB	9/4/2016 3:11
RB	9/4/2016 3:18
CCV L4	9/4/2016 3:26
CCV L4 ADD ON	9/4/2016 3:33
RB	9/4/2016 3:41
mb 320-125185/1-a	9/4/2016 3:48
lcs 320-125185/2-a	9/4/2016 3:56
320-21334-a-1-a	9/4/2016 4:03
320-21334-a-2-a	9/4/2016 4:11
320-21334-a-3-a	9/4/2016 4:18
320-21334-a-4-a	9/4/2016 4:26
320-21334-a-6-a	9/4/2016 4:33
320-21334-a-7-a	9/4/2016 4:41
320-21334-a-8-a	9/4/2016 4:48
320-21334-a-11-a	9/4/2016 4:56
RB	9/4/2016 5:03
CCV L5	9/4/2016 5:11
CCV L5 ADD ON	9/4/2016 5:18
RB	9/4/2016 5:26
320-21334-a-12-a	9/4/2016 5:33
320-21334-a-15-a	9/4/2016 5:41
320-21334-a-17-a	9/4/2016 5:48
320-21334-a-18-a	9/4/2016 5:56
320-21334-a-19-a	9/4/2016 6:03
320-21334-a-19-b ms	9/4/2016 6:11
320-21334-a-19-c msd	9/4/2016 6:18
320-21334-a-20-a	9/4/2016 6:26
320-21334-a-21-a	9/4/2016 6:33
RB	9/4/2016 6:41
CCV L4	9/4/2016 6:48
CCV L4 ADD ON	9/4/2016 6:56
RB	9/4/2016 7:03
RB	9/4/2016 7:11
CCV L5	9/4/2016 7:18
CCV L5 ADD ON	9/4/2016 7:26
RB	9/4/2016 7:33
mb 320-124878/1-a	9/4/2016 7:41
lcs 320-124878/2-a	9/4/2016 7:48
lcsd 320-124878/3-a	9/4/2016 7:56
320-21289-a-1-a	9/4/2016 8:03
320-21289-b-4-a	9/4/2016 8:11

320-21289-a-6-a 100X	9/4/2016 8:18
320-21289-a-13-a	9/4/2016 8:26
320-21289-a-14-a 100X	9/4/2016 8:33
320-21289-a-15-a	9/4/2016 8:41
RB	9/4/2016 8:48
CCV L4	9/4/2016 8:56
CCV L4 ADD ON	9/4/2016 9:03
RB	9/4/2016 9:11
320-21289-a-6-a 10X	9/4/2016 9:18
320-21289-a-14-a 10X	9/4/2016 9:26
RB	9/4/2016 9:33
mb 320-123332/1-a	9/4/2016 9:41
lcs 320-123332/2-a	9/4/2016 9:48
lcsd 320-123332/3-a	9/4/2016 9:56
320-21092-a-1-a 100X	9/4/2016 10:03
320-21092-a-2-a 100X	9/4/2016 10:11
320-21092-a-3-a 10X	9/4/2016 10:18
320-21092-a-4-a 10X	9/4/2016 10:26
RB	9/4/2016 10:33
CCV L5	9/4/2016 10:41
CCV L5 ADD ON	9/4/2016 10:48
RB	9/4/2016 10:56
mb 320-124922/1-a	9/4/2016 11:03
lcs 320-124922/2-a	9/4/2016 11:11
lcsd 320-124922/3-a	9/4/2016 11:18
320-21252-a-12-a 100X	9/4/2016 11:26
320-21252-a-13-a 100X	9/4/2016 11:33
320-21252-a-14-a 100X	9/4/2016 11:41
RB	9/4/2016 11:48
CCV L4	9/4/2016 11:56
CCV L4 ADD ON	9/4/2016 12:03
RB	9/4/2016 12:11
RB	9/4/2016 12:18
CCV L4	9/4/2016 12:26
CCV L4 ADD ON	9/4/2016 12:33
RB	9/4/2016 12:41
mb 320-123451/1-a	9/4/2016 12:48
lcs 320-123451/2-a	9/4/2016 12:56
lcsd 320-123451/3-a	9/4/2016 13:03
320-21044-a-1-a	9/4/2016 13:11
320-21044-a-2-a	9/4/2016 13:18
320-21044-a-3-a	9/4/2016 13:26
320-21044-a-4-a	9/4/2016 13:34
320-21044-a-5-a	9/4/2016 13:41
320-21044-a-6-a	9/4/2016 13:48
320-21044-a-7-a	9/4/2016 13:56
RB	9/4/2016 14:04

CCV L5	9/4/2016 14:11
CCV L5 ADD ON	9/4/2016 14:19
RB	9/4/2016 14:26
320-21044-a-8-a	9/4/2016 14:34
RB	9/4/2016 14:41
mb 320-123937/1-a	9/4/2016 14:49
lcs 320-123937/2-a	9/4/2016 14:56
320-21080-a-1-a	9/4/2016 15:04
320-21080-a-2-a	9/4/2016 15:11
320-21080-a-3-a	9/4/2016 15:19
320-21080-a-4-a	9/4/2016 15:26
320-21084-a-1-a	9/4/2016 15:34
320-21084-a-2-a	9/4/2016 15:41
RB	9/4/2016 15:49
CCV L4	9/4/2016 15:56
CCV L4 ADD ON	9/4/2016 16:04
RB	9/4/2016 16:11
320-21084-a-3-a	9/4/2016 16:19
320-21084-a-4-a	9/4/2016 16:26
320-21084-a-5-a	9/4/2016 16:34
320-21084-a-6-a	9/4/2016 16:41
320-21084-a-6-b ms	9/4/2016 16:49
320-21084-a-6-c msd	9/4/2016 16:56
320-21084-a-7-a	9/4/2016 17:04
320-21084-a-8-a	9/4/2016 17:11
RB	9/4/2016 17:19
CCV L5	9/4/2016 17:26
CCV L5 ADD ON	9/4/2016 17:34
RB	9/4/2016 17:41
RB	9/4/2016 17:49
CCV L4	9/4/2016 17:56
CCV L4 ADD ON	9/4/2016 18:04
RB	9/4/2016 18:11
mb 320-124980/1-a	9/4/2016 18:19
lcs 320-124980/2-a	9/4/2016 18:26
lcsd 320-124980/3-a	9/4/2016 18:34
320-21287-a-1-a	9/4/2016 18:41
320-21287-a-2-a	9/4/2016 18:49
320-21287-a-3-a	9/4/2016 18:56
320-21287-a-4-a	9/4/2016 19:04
320-21287-a-5-a	9/4/2016 19:11
320-21287-a-6-a	9/4/2016 19:19
320-21287-a-7-a	9/4/2016 19:26
RB	9/4/2016 19:34
CCV L5	9/4/2016 19:41
CCV L5 ADD ON	9/4/2016 19:49
RB	9/4/2016 19:56

320-21287-a-8-a	9/4/2016 20:04
320-21287-a-9-a	9/4/2016 20:11
320-21287-a-10-a	9/4/2016 20:19
320-21287-a-11-a	9/4/2016 20:26
RB	9/4/2016 20:34
CCV L4	9/4/2016 20:41
CCV L4 ADD ON	9/4/2016 20:49
RB	9/4/2016 20:56
RB	9/4/2016 21:04
CCV L4	9/4/2016 21:11
CCV L4 ADD ON	9/4/2016 21:19
RB	9/4/2016 21:26
mb 320-124801/1-a	9/4/2016 21:34
lcs 320-124801/2-a	9/4/2016 21:41
320-21226-a-2-a	9/4/2016 21:49
320-21226-a-5-a	9/4/2016 21:56
320-21226-a-7-a	9/4/2016 22:04
320-21226-a-8-a	9/4/2016 22:11
320-21226-a-9-a	9/4/2016 22:19
320-21226-a-11-a	9/4/2016 22:26
320-21226-a-12-a	9/4/2016 22:34
320-21226-a-12-b ms	9/4/2016 22:41
RB	9/4/2016 22:49
CCV L5	9/4/2016 22:56
CCV L5 ADD ON	9/4/2016 23:04
RB	9/4/2016 23:11
320-21226-a-12-c msd	9/4/2016 23:19
RB	9/4/2016 23:26
320-21226-a-14-a	9/4/2016 23:34
RB	9/4/2016 23:41
RB	9/4/2016 23:49
CCV L4	9/4/2016 23:56
CCV L4 ADD ON	9/5/2016 0:04
RB	9/5/2016 0:11
mb 320-124556/1-a	9/5/2016 0:19
lcs 320-124556/2-a	9/5/2016 0:26
lcsd 320-124556/3-a	9/5/2016 0:34
320-21264-a-1-a	9/5/2016 0:41
320-21264-a-2-a	9/5/2016 0:49
320-21264-a-3-a	9/5/2016 0:56
320-21264-a-4-a	9/5/2016 1:04
320-21264-a-5-a	9/5/2016 1:11
RB	9/5/2016 1:19
CCV L5	9/5/2016 1:26
CCV L5 ADD ON	9/5/2016 1:34
RB	9/5/2016 1:41
RB	9/5/2016 1:49

CCV L4	9/5/2016 1:56
CCV L4 ADD ON	9/5/2016 2:04
RB	9/5/2016 2:11
mb 320-125105/1-a	9/5/2016 2:19
lcs 320-125105/2-a	9/5/2016 2:26
320-21265-a-1-a	9/5/2016 2:34
320-21265-a-2-a	9/5/2016 2:41
320-21265-a-3-a	9/5/2016 2:49
320-21265-a-4-a	9/5/2016 2:56
320-21265-a-5-a	9/5/2016 3:04
320-21265-a-6-a	9/5/2016 3:11
RB	9/5/2016 3:19
CCV L5	9/5/2016 3:26
CCV L5 ADD ON	9/5/2016 3:34
RB	9/5/2016 3:41
320-21265-a-7-a	9/5/2016 3:49
320-21265-a-7-b ms	9/5/2016 3:56
320-21265-a-7-c msd	9/5/2016 4:04
320-21265-a-8-a	9/5/2016 4:11
320-21265-a-9-a	9/5/2016 4:19
RB	9/5/2016 4:26
CCV L4	9/5/2016 4:34
CCV L4 ADD ON	9/5/2016 4:41

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Batch Number: 123451 Batch Start Date: 08/22/16 13:34 Batch Analyst: Reed, Jonathan EBatch Method: 3535 Batch End Date: 08/24/16 20:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCSU 00043	LCPFCSP 00053
MB 320-123451/1		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	
LCS 320-123451/2		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	40 uL
LCSD 320-123451/3		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	40 uL
320-21044-A-1	FB081716	3535, 537 (Modified)	T	595.61 g	44.52 g	551.1 mL	1.00 mL	50 uL	
320-21044-A-2	EB081716	3535, 537 (Modified)	T	581.60 g	44.75 g	536.9 mL	1.00 mL	50 uL	
320-21044-A-3	MCFSMW-3_0816	3535, 537 (Modified)	T	578.54 g	45.12 g	533.4 mL	1.00 mL	50 uL	
320-21044-A-4	46MW05_0816	3535, 537 (Modified)	T	569.05 g	43.45 g	525.6 mL	1.00 mL	50 uL	
320-21044-A-5	46MW03_0816	3535, 537 (Modified)	T	571.85 g	44.39 g	527.5 mL	1.00 mL	50 uL	
320-21044-A-6	MCFSMW-14_0816	3535, 537 (Modified)	T	575.31 g	45.06 g	530.3 mL	1.00 mL	50 uL	
320-21044-A-7	MCFSMW-4_0816	3535, 537 (Modified)	T	572.97 g	44.83 g	528.1 mL	1.00 mL	50 uL	
320-21044-A-8	MCFSMW-5_0816	3535, 537 (Modified)	T	579.08 g	45.28 g	533.8 mL	1.00 mL	50 uL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

537 (Modified)

Page 1 of 2

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.: _____

Batch Number: 123451 Batch Start Date: 08/22/16 13:34 Batch Analyst: Reed, Jonathan EBatch Method: 3535 Batch End Date: 08/24/16 20:30

Batch Notes	
Balance ID	QA-070
Batch Comment	0.1N NaOH:645197
H2O ID	8/22/16
Hexane ID	0000135581
Manifold ID	3, 4
Methanol ID	691859
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	ERW
Solvent Lot #	710114
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002736075A

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): 21044, 21080, 21084

Work List ID(s): 34269

Extraction Batch: 123451, 123437

Analysis Batch(es): 126120

Delivery Rank: 4

Due Date: 9-10-16

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>125915</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? <u>NCM</u>	✓	<u>NCM</u>	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?			✓
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM# <u>See below</u>	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?			
5. Was QC Checker run for this job?			

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

1st Level (Analyst): JRB

Date: 9-19-16

2nd Level Reviewer: [Signature]

Date: 9/23/16

NCMs: 64079, 64080, 64225

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 03SEP2016E_PFC

Worklist Number: 34269

Instrument Name: A8

Chrom Method: PFC_A8_Full

Data Directory: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 126120	LC PFC ICAL Raw Batch: 126121	LC PFAS ICAL Raw Batch: 126122
# 1 RB	# 1 RB	# 1 RB	
# 2 CCV L4	# 2 CCV L4	# 2 CCV L4	# 2 CCV L4
# 3 CCV L4 Add-on	# 3 CCV L4 Add-on <i>6:2 FTS ↑</i>	# 3 CCV L4 Add-on	# 3 CCV L4 Add-on
# 4 RB	# 4 RB	# 4 RB	
# 5 MB 320-123451/1-A	# 5 MB 320-123451/1-A		
# 6 LCS 320-123451/2-A	# 6 LCS 320-123451/2-A		
# 7 LCSD 320-123451/3-A	# 7 LCSD 320-123451/3-A		
# 8 320-21044-A-1-A	# 8 320-21044-A-1-A		
# 9 320-21044-A-2-A	# 9 320-21044-A-2-A		
#10 320-21044-A-3-A	#10 320-21044-A-3-A — <i>needs 2X</i>		
#11 320-21044-A-4-A	#11 320-21044-A-4-A — <i>needs 5X</i>		
#12 320-21044-A-5-A	#12 320-21044-A-5-A		
#13 320-21044-A-6-A	#13 320-21044-A-6-A		
#14 320-21044-A-7-A	#14 320-21044-A-7-A		
#15 RB	#15 RB	#15 RB	
#16 CCV L5	#16 CCV L5	#16 CCV L5	#16 CCV L5
#17 CCV L5 Add-on	#17 CCV L5 Add-on	#17 CCV L5 Add-on	#17 CCV L5 Add-on
#18 RB	#18 RB	#18 RB	
#19 320-21044-A-8-A	#19 320-21044-A-8-A		
#20 RB	#20 RB	#20 RB	
#21 MB 320-123937/1-A	#21 MB 320-123937/1-A		
#22 LCS 320-123937/2-A	#22 LCS 320-123937/2-A		
#23 320-21080-A-1-A	#23 320-21080-A-1-A		
#24 320-21080-A-2-A	#24 320-21080-A-2-A		
#25 320-21080-A-3-A	#25 320-21080-A-3-A		
#26 320-21080-A-4-A	#26 320-21080-A-4-A		
#27 320-21084-A-1-A	#27 320-21084-A-1-A — <i>needs 5X</i>		
#28 320-21084-A-2-A	#28 320-21084-A-2-A		
#29 RB	#29 RB	#29 RB	
#30 CCV L4	#30 CCV L4	#30 CCV L4	#30 CCV L4
#31 CCV L4 Add-on	#31 CCV L4 Add-on	#31 CCV L4 Add-on	#31 CCV L4 Add-on
#32 RB	#32 RB	#32 RB	
#33 320-21084-A-3-A	#33 320-21084-A-3-A — <i>needs 10X</i>		
#34 320-21084-A-4-A	#34 320-21084-A-4-A		
#35 320-21084-A-5-A	#35 320-21084-A-5-A		
#36 320-21084-A-6-A	#36 320-21084-A-6-A		
#37 320-21084-A-6-B MS	#37 320-21084-A-6-B MS } — <i>need 5X</i>		
#38 320-21084-A-6-C MSD	#38 320-21084-A-6-C MSD		
#39 320-21084-A-7-A	#39 320-21084-A-7-A		
#40 320-21084-A-8-A	#40 320-21084-A-8-A		
#41 RB	#41 RB	#41 RB	
#42 CCV L5	#42 CCV L5	#42 CCV L5	#42 CCV L5
#43 CCV L5 Add-on	#43 CCV L5 Add-on	#43 CCV L5 Add-on	#43 CCV L5 Add-on
#44 RB	#44 RB	#44 RB	

#40

A80 9/4/16

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Open: 8/24/2016 2:17:53PM

Batch End: 8-25-16 12:35 P.m

Solid-Phase Extraction (SPE)

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-320-123937/1 N/A	N/A		500 mL 1.00 mL		N/A	N/A	N/A		MB 320-123937-1-A
2 LCS-320-123937/2 N/A	N/A		500 mL 1.00 mL		N/A	N/A	N/A		LCS 320-123937-2-A
3 320-21080-A-1 (PFC_IDA_DOD5)	N/A (320-21080-1)	551.80 g 43.71 g	508.1 mL 1.00 mL		8/26/16	20_Days	4		320-21080-A-1-A
4 320-21080-A-2 (PFC_IDA_DOD5)	N/A (320-21080-1)	564.96 g 44.28 g	520.7 mL 1.00 mL		8/26/16	20_Days	4		320-21080-A-2-A
5 320-21080-A-3 (PFC_IDA_DOD5)	N/A (320-21080-1)	553.70 g 42.94 g	510.8 mL 1.00 mL		8/26/16	20_Days	4		320-21080-A-3-A
6 320-21080-A-4 (PFC_IDA_DOD5)	N/A (320-21080-1)	548.57 g 42.81 g	505.8 mL 1.00 mL		8/26/16	20_Days	4		320-21080-A-4-A
7 320-21084-A-1 (PFC_IDA_DOD5)	N/A (320-21084-1)	554.24 g 44.44 g	509.8 mL 1.00 mL		8/26/16	20_Days	4		320-21084-A-1-A
8 320-21084-A-2 (PFC_IDA_DOD5)	N/A (320-21084-1)	559.79 g 44.34 g	515.5 mL 1.00 mL		8/26/16	20_Days	4		320-21084-A-2-A
9 320-21084-A-3 (PFC_IDA_DOD5)	N/A (320-21084-1)	558.18 g 43.93 g	514.3 mL 1.00 mL		8/26/16	20_Days	4		320-21084-A-3-A
10 320-21084-A-4 (PFC_IDA_DOD5) 2 Columns	N/A (320-21084-1)	557.80 g 45.53 g	512.3 mL 1.00 mL		8/26/16	20_Days	4		320-21084-A-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)







Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320

Batch End:

11	320-21084-A-5 (PFC_IDA_DOD5) <i>2 Colymar</i>	N/A (320-21084-1)	548.27 g 45.05 g	503.2 mL 1.00 mL				8/26/16	20_Days	4	
12	320-21084-A-6 (PFC_IDA_DOD5)	N/A (320-21084-1)	574.15 g 44.29 g	529.9 mL 1.00 mL				8/26/16	20_Days	4	
13	320-21084-A-6-MS (PFC_IDA_DOD5)	N/A (320-21084-1)	552.41 g 44.84 g	507.6 mL 1.00 mL				8/26/16	20_Days	4	
14	320-21084-A-6-MSD (PFC_IDA_DOD5)	N/A (320-21084-1)	546.21 g 44.24 g	502 mL 1.00 mL				8/26/16	20_Days	4	
15	320-21084-A-7 (PFC_IDA_DOD5)	N/A (320-21084-1)	564.44 g 42.88 g	521.6 mL 1.00 mL				8/26/16	20_Days	4	
16	320-21084-A-8 (PFC_IDA_DOD5)	N/A (320-21084-1)	532.33 g 43.91 g	488.4 mL 1.00 mL				8/26/16	20_Days	4	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320

Batch End:

Batch Notes

Manifold ID 1,2

Methanol ID 691859

Hexane ID 0000135581

Sodium Hypochlorite ID NA

First Start time NA

First End time NA

Balance ID QA-070

SPE Cartridge Type WAXC 500mg

Solid Phase Extraction Disk ID 002736075A

H2O ID 8/23/16

Pipette ID MDO5306

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 710114

Analyst ID - Reagent Drop JER

Analyst ID - SU Reagent Drop JER

Analyst ID - SU Reagent Drop
Witness *Erw*

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

NaCl ID NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH/H2O: 645197

Comments

320-21080-A-1	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21080-A-2	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21080-A-3	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21080-A-4	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-1	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-2	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-3	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-4	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-5	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6-MS	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6-MSD	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-7	Method Comments:	Q5Rev111213_StdVarApp_30day disposal
320-21084-A-8	Method Comments:	Q5Rev111213_StdVarApp_30day disposal

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937



Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-123937/1	LCMPFCSU_00044	50 uL	1.00 mL		
LCS 320-123937/2	LCMPFCSU_00044	50 uL	1.00 mL		
LCS 320-123937/2	LCPFCSU_00049	20 uL	1.00 mL		
320-21080-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-5	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCPFCSU_00049	20 uL	1.00 mL		
320-21084-A-6 MSD	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MSD	LCPFCSU_00049	20 uL	1.00 mL		
320-21084-A-7	LCMPFCSU_00044	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_JVWT-320

Batch End:

320-21084-A-8	LCMPFCSU_00044	50 uL	1.00 mL	<i>Reed</i> 8/24/16 <i>ERW</i> 8/24/16
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Other Reagents:		
Reagent	Amount/Units	Lot#:

Preparation Batch Number(s):

Test:

Earliest Holding Time: 8/25/16

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	✓	✓
Weights in anticipated range and not targeted	NA	NA
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: NSH

Date:

8-25-16

2nd Level Reviewer: SKW

Date:

8/25/16

Comments:

44

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Method Code: 320-3535_IWWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End: 8/24/16 20:30

Solid-Phase Extraction (SPE)

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-320-123451/1 N/A	N/A		500.00 mL 1.00 mL		N/A	N/A	N/A		MB 320-123451/1-A
2 LCS-320-123451/2 N/A	N/A		500.00 mL 1.00 mL		N/A	N/A	N/A		LCS 320-123451/2-A
3 LCSD-320-123451/3 N/A	N/A		500.00 mL 1.00 mL		N/A	N/A	N/A		LCSD 320-123451/3-A
4 320-21044-A-1 (PFC_IDA_DOD5)	N/A (320-21044-1)	595.61 g 44.52 g	551.1 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-1-A
5 320-21044-A-2 (PFC_IDA_DOD5)	N/A (320-21044-1)	581.60 g 44.75 g	536.9 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-2-A
6 320-21044-A-3 (PFC_IDA_DOD5)	N/A (320-21044-1)	578.54 g 45.12 g	533.4 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-3-A
7 320-21044-A-4 (PFC_IDA_DOD5)	N/A (320-21044-1)	569.05 g 43.45 g	525.6 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-4-A
8 320-21044-A-5 (PFC_IDA_DOD5)	N/A (320-21044-1)	571.85 g 44.39 g	527.5 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-5-A
9 320-21044-A-6 (PFC_IDA_DOD5)	N/A (320-21044-1)	575.31 g 45.06 g	530.3 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-6-A
10 320-21044-A-7 (PFC_IDA_DOD5)	N/A (320-21044-1)	572.97 g 44.83 g	528.1 mL 1.00 mL		8/25/16	20_Days	4		320-21044-A-7-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)


Batch Number: 320-123451

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

320-21044-A-8 (PFC_IDA_DOD5)	N/A (320-21044-1)	579.08 g	533.8 mL	8/25/16	20_Days	4	 320-21044-A-8-A
		45.28 g	1.00 mL				

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IWWT-320

Batch End:

Batch Notes

Manifold ID 3, 4

Methanol ID 691859

Hexane ID 0000135581

Sodium Hypochlorite ID NA

First Start time NA

First End time NA

Balance ID QA-070

SPE Cartridge Type WAX 500mg

Solid Phase Extraction Disk ID 002736075A

H2O ID 8/22/16

Pipette ID MD05306

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 710114

Analyst ID - Reagent Drop JER

Analyst ID - SU Reagent Drop JER

Analyst ID - SU Reagent Drop
Witness *ELW*

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

NaCl ID NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH:645197

Comments

320-21044-A-1	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-2	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-3	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-4	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-5	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-6	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-7	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-8	Method Comments: Q5Rev111213_StdVarApp_30day disposal

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-123451/1	LCMPFCSU_00043	50 uL	1.00 mL	<i>[Signature]</i> 8/22/16	<i>[Signature]</i> 8/22/16
LCS 320-123451/2	LCMPFCSU_00043	50 uL	1.00 mL		
LCS 320-123451/2	LCPFCSU_00053	40 uL	1.00 mL		
LCSD 320-123451/3	LCMPFCSU_00043	50 uL	1.00 mL		
LCSD 320-123451/3	LCPFCSU_00053	40 uL	1.00 mL		
320-21044-A-1	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-2	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-3	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-4	LCMPFCSU_00043	50 uL	1.00 mL	<i>[Signature]</i>	
320-21044-A-5	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-6	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-7	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-8	LCMPFCSU_00043	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

Reagent	Other Reagents: Amount/Units	Lot#:

Preparation Batch Number(s): 320-123451 Test: PFC-L
Earliest Holding Time: 8/24/16

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	NA	NA
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	NA	NA
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: 8/24/16

2nd Level Reviewer: HJA

Date: 8-25-16

Comments: _____

HPLC/LCMS Data Review Checklist

Job Number(s): 900-116565; 500-116566
21094; 21044; 21174; 21190
 Extraction Batch: 126349; 126038; 124066;
127219; 123451; 123937
 Delivery Rank 4; 2

Work List ID(s): 34702
 Analysis Batch(es): 128009; 128010
 Due Date: 8/25/16; 8/26/16; 8/29/16; 9/12/16

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch#	✓		
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):  JRB

Date: 09/22/16 09-23-16

2nd Level Reviewer: 

Date: 9/25/16

128009: 64476; 64584; 64586; 64588; ~~64589~~ 64590
128010: 64279; 64598; 64599; 645600
 SEC 9/22/16

TestAmerica Laboratories
Worklist QC Batch Report

Dilutions

Worklist Name: 19SEP2016A_PFC

Worklist Number: 34702

Instrument Name: A8

Chrom Method: PFC_A8_Full

Data Directory: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 128009	LC PFC ICAL Raw Batch: 128010	LC PFAS ICAL Raw Batch: 128011
#1 RB	#1 RB	#1 RB	#1 RB
#2 RB	#2 RB	#2 RB	#2 RB
#3 RB	#3 RB	#3 RB	#3 RB
#4 IC L1	#4 IC L1	#4 IC L1	#4 IC L1
#5 IC L2	#5 IC L2	#5 IC L2	#5 IC L2
#6 IC L3	#6 IC L3	#6 IC L3	#6 IC L3
#7 IC L4	#7 IC L4	#7 IC L4	#7 IC L4
#8 IC L5	#8 IC L5	#8 IC L5	#8 IC L5
#9 IC L6	#9 IC L6	#9 IC L6	#9 IC L6
#10 IC L7	#10 IC L7	#10 IC L7	#10 IC L7
#11 RB	#11 RB	#11 RB	#11 RB
#12 ICV	#12 ICV	#12 ICV	#12 ICV
#13 RB	#13 RB	#13 RB	#13 RB
#14 IC L1 Add-on	#14 IC L1 Add-on	#14 IC L1 Add-on	#14 IC L1 Add-on
#15 IC L2 Add-on	#15 IC L2 Add-on	#15 IC L2 Add-on	#15 IC L2 Add-on
#16 IC L3 Add-on	#16 IC L3 Add-on	#16 IC L3 Add-on	#16 IC L3 Add-on
#17 IC L4 Add-on	#17 IC L4 Add-on	#17 IC L4 Add-on	#17 IC L4 Add-on
#18 IC L5 Add-on	#18 IC L5 Add-on	#18 IC L5 Add-on	#18 IC L5 Add-on
#19 IC L6 Add-on	#19 IC L6 Add-on	#19 IC L6 Add-on	#19 IC L6 Add-on
#20 IC L7 Add-on	#20 IC L7 Add-on	#20 IC L7 Add-on	#20 IC L7 Add-on
#21 RB	#21 RB	#21 RB	#21 RB
#22 ICV	#22 ICV	#22 ICV	#22 ICV
#23 RB	#23 RB	#23 RB	#23 RB
#24 TPFOA	#24 TPFOA	#24 TPFOA	#24 TPFOA
#25 500-116565-A-1-A	#25 500-116565-A-1-A	#25 500-116565-A-1-A	#25 500-116565-A-1-A
#26 500-116565-A-1-B MS	#26 500-116565-A-1-B MS	#26 500-116565-A-1-B MS	#26 500-116565-A-1-B MS
#27 500-116565-A-1-C MSD	#27 500-116565-A-1-C MSD	#27 500-116565-A-1-C MSD	#27 500-116565-A-1-C MSD
#28 500-116565-A-4-A	#28 500-116565-A-4-A	#28 500-116565-A-4-A	#28 500-116565-A-4-A
#29 500-116565-A-5-A	#29 500-116565-A-5-A	#29 500-116565-A-5-A	#29 500-116565-A-5-A
#30 500-116565-A-6-A	#30 500-116565-A-6-A	#30 500-116565-A-6-A	#30 500-116565-A-6-A
#31 500-116565-A-7-A	#31 500-116565-A-7-A	#31 500-116565-A-7-A	#31 500-116565-A-7-A
#32 500-116565-A-9-A	#32 500-116565-A-9-A	#32 500-116565-A-9-A	#32 500-116565-A-9-A
#33 500-116565-A-10-A	#33 500-116565-A-10-A	#33 500-116565-A-10-A	#33 500-116565-A-10-A
#34 500-116565-A-13-A	#34 500-116565-A-13-A	#34 500-116565-A-13-A	#34 500-116565-A-13-A
#35 RB	#35 RB	#35 RB	#35 RB
#36 CCV L4	#36 CCV L4	#36 CCV L4	#36 CCV L4
#37 CCV L4 Add-on	#37 CCV L4 Add-on	#37 CCV L4 Add-on	#37 CCV L4 Add-on
#38 RB	#38 RB	#38 RB	#38 RB
#39 500-116565-A-14-A	#39 500-116565-A-14-A	#39 500-116565-A-14-A	#39 500-116565-A-14-A
#40 500-116565-A-15-A	#40 500-116565-A-15-A	#40 500-116565-A-15-A	#40 500-116565-A-15-A
#41 500-116565-A-16-A	#41 500-116565-A-16-A	#41 500-116565-A-16-A	#41 500-116565-A-16-A
#42 500-116565-A-3-A	#42 500-116565-A-3-A	#42 500-116565-A-3-A	#42 500-116565-A-3-A
#43 320-21044-A-3-A	#43 320-21044-A-3-A	#43 320-21044-A-3-A	#43 320-21044-A-3-A
#44 320-21044-A-4-A	#44 320-21044-A-4-A	#44 320-21044-A-4-A	#44 320-21044-A-4-A
#45 320-21084-A-1-A	#45 320-21084-A-1-A	#45 320-21084-A-1-A	#45 320-21084-A-1-A
#46 320-21084-A-3-A	#46 320-21084-A-3-A	#46 320-21084-A-3-A	#46 320-21084-A-3-A
#47 320-21084-A-6-A	#47 320-21084-A-6-A	#47 320-21084-A-6-A	#47 320-21084-A-6-A
#48 320-21084-A-6-B MS	#48 320-21084-A-6-B MS	#48 320-21084-A-6-B MS	#48 320-21084-A-6-B MS
#49 RB	#49 RB	#49 RB	#49 RB
#50 CCV L5	#50 CCV L5	#50 CCV L5	#50 CCV L5
#51 CCV L5 Add-on	#51 CCV L5 Add-on	#51 CCV L5 Add-on	#51 CCV L5 Add-on
#52 RB	#52 RB	#52 RB	#52 RB
#53 320-21084-A-6-C MSD	#53 320-21084-A-6-C MSD	#53 320-21084-A-6-C MSD	#53 320-21084-A-6-C MSD
#54 320-21174-A-1-A	#54 320-21174-A-1-A	#54 320-21174-A-1-A	#54 320-21174-A-1-A
#55 320-21174-A-2-A	#55 320-21174-A-2-A	#55 320-21174-A-2-A	#55 320-21174-A-2-A

Tune NCM 64476, Time Stamp NCM 64590

QC Batch: 1	LC PFC DOD ICAL Raw Batch: 128009	LC PFC ICAL Raw Batch: 128010	LC PFAS ICAL Raw Batch: 128011
#56 320-21174-A-2-A	#56 320-21174-A-2-A	<i>unnecessary DL @ 100x</i> <i>Add "REDL" suffix for -B-</i>	
#57 320-21174-A-3-A	#57 320-21174-A-3-A		
#58 320-21174-A-4-A	#58 320-21174-A-4-A		
#59 320-21174-A-5-A	#59 320-21174-A-5-A		
#60 320-21174-A-6-A	#60 320-21174-A-6-A		
#61 320-21190-B-1-A	#61 320-21190-B-1-A		
#62 320-21190-A-9-A	#62 320-21190-A-9-A		
#63 RB	#63 RB		
#64 CCV L4	#64 CCV L4		
#65 CCV L4 Add-on	#65 CCV L4 Add-on		
#66 RB	#66 RB	#64 CCV L4	
#67 320-21174-B-1-A	#67 320-21174-B-1-A	#65 CCV L4 Add-on	
#68 320-21174-B-4-A	#68 320-21174-B-4-A		
#69 320-21190-B-9-A	#69 320-21190-B-9-A		
#70 RB	#70 RB		
#71 CCV L5	#71 CCV L5	#71 CCV L5	#71 CCV L5
#72 CCV L5 Add-on	#72 CCV L5 Add-on	#72 CCV L5 Add-on	#72 CCV L5 Add-on
#73 RB	#73 RB		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Analyst: Reed, Jonathan E

Method Code: 320-Shake_Bath_14D-320

Batch Open: 9/8/2016 4:26:38PM

Batch End: 9/12/16 2:1:00

Shake Extraction with Ultrasonic Bath Extraction

Input Sample Lab ID (Analytical Method)	SDG (Job #)	Initial Amount	Final Amount	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
MB-320-126349/1 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		MB-320-126349/1-A
LCS-320-126349/2 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		LCS-320-126349/2-A
500-116565-A-1 (PFC_IDA)	N/A (500-116565-1)	5.00 g	1.00 mL	9/12/16	12_Days	2	10x 6:2 8:2 10:2 RI for 6:2 FTS	500-116565-A-1-A
500-116565-A-1-MS (PFC_IDA)	N/A (500-116565-1)	5.04 g	1.00 mL	9/12/16	12_Days	2	10x 8:2	500-116565-A-1-B
500-116565-A-1-MSD (PFC_IDA)	N/A (500-116565-1)	5.05 g	1.00 mL	9/12/16	12_Days	2	10x ↓	500-116565-A-1-C
500-116565-A-2 (PFC_IDA)	N/A (500-116565-1)	5.02 g	1.00 mL	9/12/16	12_Days	2		500-116565-A-2-A
500-116565-A-3 (PFC_IDA)	N/A (500-116565-1)	4.99 g	1.00 mL	9/12/16	12_Days	2		500-116565-A-3-A
500-116565-A-4 (PFC_IDA)	N/A (500-116565-1)	5.06 g	1.00 mL	9/12/16	12_Days	2	10x 6:2, 8:2, PFOA RI for 6:2	500-116565-A-4-A
500-116565-A-5 (PFC_IDA)	N/A (500-116565-1)	5.01 g	1.00 mL	9/12/16	12_Days	2	10x 8:2	500-116565-A-5-A
500-116565-A-6 (PFC_IDA)	N/A (500-116565-1)	5.06 g	1.00 mL	9/12/16	12_Days	2	100x PFOA	500-116565-A-6-A
500-116565-A-7 (PFC_IDA)	N/A (500-116565-1)	5.07 g	1.00 mL	9/12/16	12_Days	2	10x 6:2, 8:2 RI for 6:2	500-116565-A-7-A
500-116565-A-8 (PFC_IDA)	N/A (500-116565-1)	5.04 g	1.00 mL	9/12/16	12_Days	2		500-116565-A-8-A
500-116565-A-9 (PFC_IDA)	N/A (500-116565-1)	5.01 g	1.00 mL	9/12/16	12_Days	2	10x 6:2, 8:2, PFOA RI for 6:2	500-116565-A-9-A
500-116565-A-10 (PFC_IDA)	N/A (500-116565-1)	5.01 g	1.00 mL	9/12/16	12_Days	2	100x PFOA, PFOA, 8:2	500-116565-A-10-A
500-116565-A-11 (PFC_IDA)	N/A (500-116565-1)	5.07 g	1.00 mL	9/12/16	12_Days	2		500-116565-A-11-A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)






Batch Number: 320-126349

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Method Code: 320-Shake_Bath_14D-320

Batch End:

16	500-116565-A-12 (PFC_IDA)	N/A (500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2	
17	500-116565-A-13 (PFC_IDA)	N/A (500-116565-1)	5.00 g	1.00 mL	9/12/16	12_Days	2	<i>10x 6:2 8:2 PMSA</i> <i>RI for 6:2 PFCs</i> 
18	500-116565-A-14 (PFC_IDA)	N/A (500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2	<i>10x 8:2</i> 
19	500-116565-A-15 (PFC_IDA)	N/A (500-116565-1)	5.02 g	1.00 mL	9/12/16	12_Days	2	<i>10x 6:2 8:2 RI for 6:2</i> 
20	500-116565-A-16 (PFC_IDA)	N/A (500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2	<i>10x 8:2</i> 

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

Batch Notes

Balance ID QA-070

Blank Sand Lot # 156690

Filter ID NA

Millipore Water Dispense Date 9/06/16

Analyst ID - Reagent Drop Witness **ERW**

SPE Cartridge ID 016236116A

SPE Cartridge Type WAX 150mg

Hexane ID 0000135581

Methanol ID 691859

Ammonium Hydroxide/MeOH ID 720542

Sodium Hydroxide ID 722525

Methanolic Potassium Hydroxide ID 681019

Manifold ID **5,6**

Interference check solution ID **NA**

Acetic Acid ID 429065

Batch Comment PIPETTE: MDO5306

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

Comments

500-116565-A-1	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-1~MS	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-1~MSD	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-2	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-3	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-4	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-5	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-6	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-7	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-8	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-9	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-10	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-11	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-12	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-13	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-14	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-15	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-16	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

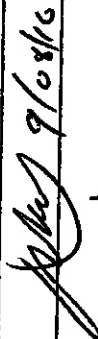

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-126349/1	LCMPFC2SU_00008	50 uL	1.00 mL	 9/8/16	SN 9/8/16
MB 320-126349/1	LCMPFCSU_00045	50 uL	1.00 mL		
LCS 320-126349/2	LCMPFC2SU_00008	50 uL	1.00 mL		
LCS 320-126349/2	LCMPFCSU_00045	50 uL	1.00 mL		
LCS 320-126349/2	LCPFCS2SP_00016	40 uL	1.00 mL		
LCS 320-126349/2	LCPFCS2SP_00053	40 uL	1.00 mL		
500-116565-A-1	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MS	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1 MS	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MS	LCPFCS2SP_00016	40 uL	1.00 mL		
500-116565-A-1 MS	LCPFCS2SP_00053	40 uL	1.00 mL		
500-116565-A-1 MSD	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1 MSD	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MSD	LCPFCS2SP_00016	40 uL	1.00 mL		
500-116565-A-1 MSD	LCPFCS2SP_00053	40 uL	1.00 mL		
500-116565-A-2	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-2	LCMPFCSU_00045	50 uL	1.00 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

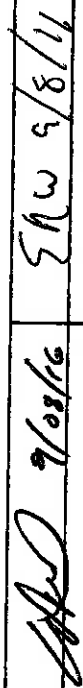

Batch Number: 320-126349

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

500-116565-A-3	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-3	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-4	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-4	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-5	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-5	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-6	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-6	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-7	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-7	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-8	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-8	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-9	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-9	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-10	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-10	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-11	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-11	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-12	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-12	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-13	LCMPFC2SU_00008	50 uL	1.00 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

500-116565-A-13	LCMPFC2SU_00045	50 uL	1.00 mL	SRU 9/8/16	9/8/16
500-116565-A-14	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-14	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-15	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-15	LCMPFC2SU_00045	50 uL	1.00 mL		
500-116565-A-16	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-16	LCMPFC2SU_00045	50 uL	1.00 mL		

Other Reagents:	
Reagent	Amount/Units
	Lot#:

Preparation Batch Number(s): 126349 Test: PFC-S
Earliest Holding Time: 9/14/16

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Worksheet Tab	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	NA	NA
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed correctly in TALS	✓	✓
All additional information transcribed into TALS is correct and raw data is attached	NA	NA
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: 9/14/16

2nd Level Reviewer: HSA

Date: 9-13-16

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126038

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End: 9-8-16 15:05

AS 9/16/16

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1					
1 MB-320-126038/1 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		MB 320-126038/1-A
2 LCS-320-126038/2 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCS 320-126038/2-A
3 LCSD-320-126038/3 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCSD 320-126038/3-A
4 500-116566-A-1 (PFC_IDA)	N/A (500-116566-1)	319.86 g 28.26 g	291.6 mL 0.5 mL			9/12/16	12_Days	2		500-116566-A-1-A
5 500-116566-A-2 (PFC_IDA)	N/A (500-116566-1)	294.45 g 43.60 g	250.9 mL 0.5 mL			9/12/16	12_Days	2		500-116566-A-2-A
6 500-116566-A-3 (PFC_IDA)	N/A (500-116566-1)	294.18 g 43.25 g	250.9 mL 0.5 mL			9/12/16	12_Days	2	PFNA, 10X PFNA, 6:2	500-116566-A-3-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126038

Method Code: 320-3535_IWWT-320

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Batch Notes	
Manifold ID	6
Methanol ID	713786
Hexane ID	0000135581
Sodium Hypochlorite ID	NA
First Start time	NA
First End time	NA
Balance ID	QA-070
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002736075A
H2O ID	9-06-16
Pipette ID	MD05306, MG05455
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	720542
Analyst ID - Reagent Drop	HJA
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	ERW
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
NaCl ID	NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126038

Method Code: 320-3535_IWWT-320

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1% NaOH/H2O: 722528

Comments

500-116566-A-1

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly

500-116566-A-2

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly

500-116566-A-3

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126038

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-126038/1	LCMPFC2SU_00007	25 uL	0.5 mL	HSA 9-7-16	ERL 9/7/16
MB 320-126038/1	LCMPFCSU_00044	25 uL	0.5 mL		
LCS 320-126038/2	LCMPFC2SU_00007	25 uL	0.5 mL		
LCS 320-126038/2	LCMPFCSU_00044	25 uL	0.5 mL		
LCS 320-126038/2	LCPF2SP_00016	20 uL	0.5 mL		
LCS 320-126038/2	LCPF2SP_00053	20 uL	0.5 mL		
LCSD 320-126038/3	LCMPFC2SU_00007	25 uL	0.5 mL		
LCSD 320-126038/3	LCMPFCSU_00044	25 uL	0.5 mL		
LCSD 320-126038/3	LCPF2SP_00016	20 uL	0.5 mL		
LCSD 320-126038/3	LCPF2SP_00053	20 uL	0.5 mL		
500-116566-A-1	LCMPFC2SU_00007	25 uL	0.5 mL		
500-116566-A-1	LCMPFCSU_00044	25 uL	0.5 mL		
500-116566-A-2	LCMPFC2SU_00007	25 uL	0.5 mL		
500-116566-A-2	LCMPFCSU_00044	25 uL	0.5 mL		
500-116566-A-3	LCMPFC2SU_00007	25 uL	0.5 mL		
500-116566-A-3	LCMPFCSU_00044	25 uL	0.5 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126038

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Reagent	Other Reagents:		Lot#:
	Amount/Units		

Preparation Batch Number(s): 320-126038 Test: PFC-L

Earliest Holding Time: 9-8-16

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

1st Level Reviewer: HJA

Date: 9-8-16

2nd Level Reviewer: VPM

Date: 9-08-16

Comments: _____

#40

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End: 8-20-16 16:25

RF 9/19/16

Solid-Phase Extraction (SPE)

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-320-124066/1 N/A	N/A		250 mL 0.5 mL		N/A	N/A	N/A		MB 320-124066/1-A
2 LCS-320-124066/2 N/A	N/A		250 mL 0.5 mL		N/A	N/A	N/A	RI	LCS 320-124066/2-A
3 320-21174-A-1 (PFC_IDA_DOD5)	N/A (320-21174-1)	295.65 g 28.35 g	267.3 mL 0.5 mL		8/29/16	12_Days	4	8/29/16/16 100x RI DL	320-21174-A-1-A
4 320-21174-A-2 (PFC_IDA_DOD5)	N/A (320-21174-1)	280.64 g 27.50 g	253.1 mL 0.5 mL		8/29/16	12_Days	4	10x, 100x	320-21174-A-2-A
5 320-21174-A-3 (PFC_IDA_DOD5)	N/A (320-21174-1)	294.17 g 27.53 g	266.6 mL 0.5 mL		8/29/16	12_Days	4	10x	320-21174-A-3-A
6 320-21174-A-4 (PFC_IDA_DOD5)	N/A (320-21174-1)	283.88 g 27.17 g	256.7 mL 0.5 mL		8/29/16	12_Days	4	10x RI DL	320-21174-A-4-A
7 320-21174-A-5 (PFC_IDA_DOD5)	N/A (320-21174-1)	277.43 g 27.48 g	250 mL 0.5 mL		8/29/16	12_Days	4	10x	320-21174-A-5-A
8 320-21174-A-6 (PFC_IDA_DOD5)	N/A (320-21174-1)	290.42 g 27.41 g	263 mL 0.5 mL		8/29/16	12_Days	4	10x	320-21174-A-6-A
9 320-21190-B-1 (PFC_IDA_DOD5)	N/A (320-21190-1)	315.62 g 27.83 g	287.8 mL 0.5 mL		8/30/16	12_Days	4	10x	320-21190-B-1-A
10 320-21190-A-2 (PFC_IDA_DOD5)	N/A (320-21190-1)	312.31 g 27.98 g	284.3 mL 0.5 mL		8/30/16	12_Days	4		320-21190-A-2-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)












Batch Number: 320-124066

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Method Code: 320-3535_IWWT-320

11	320-21190-A-3 (PFC_IDA_DOD5)	N/A (320-21190-1)	321.78 g 28.22 g	293.6 mL 0.5 mL			8/30/16	12_Days	4	
12	320-21190-A-4 (PFC_IDA_DOD5)	N/A (320-21190-1)	322.63 g 27.69 g	294.9 mL 0.5 mL			8/30/16	12_Days	4	
13	320-21190-A-5 (PFC_IDA_DOD5)	N/A (320-21190-1)	307.88 g 27.73 g	280.2 mL 0.5 mL			8/30/16	12_Days	4	
14	320-21190-A-6 (PFC_IDA_DOD5)	N/A (320-21190-1)	309.01 g 27.59 g	281.4 mL 0.5 mL			8/30/16	12_Days	4	
15	320-21190-A-7 (PFC_IDA_DOD5)	N/A (320-21190-1)	307.12 g 28.97 g	278.2 mL 0.5 mL			8/30/16	12_Days	4	
16	320-21190-A-8 (PFC_IDA_DOD5)	N/A (320-21190-1)	305.72 g 28.04 g	277.7 mL 0.5 mL			8/30/16	12_Days	4	
17	320-21190-A-8-MS (PFC_IDA_DOD5)	N/A (320-21190-1)	302.95 g 28.15 g	274.8 mL 0.5 mL			8/30/16	12_Days	4	
18	320-21190-A-8-MSD (PFC_IDA_DOD5)	N/A (320-21190-1)	304.44 g 28.01 g	276.4 mL 0.5 mL			8/30/16	12_Days	4	
19	320-21190-A-9 (PFC_IDA_DOD5)	N/A (320-21190-1)	302.73 g 27.68 g	275.1 mL 0.5 mL			8/30/16	12_Days	4	
20	320-21190-A-10 (PFC_IDA_DOD5)	N/A (320-21190-1)	304.55 g 27.68 g	276.9 mL 0.5 mL			8/30/16	12_Days	4	
21	320-21190-A-11 (PFC_IDA_DOD5)	N/A (320-21190-1)	259.70 g 27.61 g	232.1 mL 0.5 mL			8/30/16	12_Days	4	

RI

tox 88 9/14/16

tox 88 9/14/16

tox 88 9/14/16

100% RID

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Batch Notes

Manifold ID 1

Methanol ID 691859

Hexane ID 0000135581

Sodium Hypochlorite ID NA

First Start time NA

First End time NA

Balance ID QA-070

SPE Cartridge Type WAXC 500mg

Solid Phase Extraction Disk ID 002736075A

H2O ID 8/24/16

Pipette ID MDO5306, M605455

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 710114

Analyst ID - Reagent Drop HJA

Analyst ID - SU Reagent Drop HJA

Analyst ID - SU Reagent Drop VPM
Witness

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

NaCl ID NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Method Code: 320-3535_IVWT-320

Batch End:

SOP Number	WS-LC-0025
Batch Comment	0.1N NaOH/H2O: 690327

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Method Code: 320-3535_IWWT-320

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Comments

320-21174-A-1	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21174-A-2	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21174-A-3	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21174-A-4	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21174-A-5	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21174-A-6	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-B-1	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-2	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-3	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-4	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-5	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-6	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-7	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-8	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-8-MS	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-8-MSD	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-9	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-10	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes
320-21190-A-11	Method Comments:	Samples from AFB - use caution, screen sample, include extra spikes

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Analyst: Arauz, Horacio J

Method Comments: Samples from AFB - use caution, screen sample, include extra spikes

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-124066/1	LCMPFC2SU_00007	25 uL	0.5 mL	HSA 8-25-16	VPW 8-25-16
MB 320-124066/1	LCMPFC2SU_00044	25 uL	0.5 mL		
LCS 320-124066/2	LCMPFC2SU_00007	25 uL	0.5 mL		
LCS 320-124066/2	LCMPFC2SU_00044	25 uL	0.5 mL		
LCS 320-124066/2	LCMPFC2SP_00012	20 uL	0.5 mL		
LCS 320-124066/2	LCMPFC2SP_00053	20 uL	0.5 mL		
320-21174-A-1	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-1	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21174-A-2	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-2	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21174-A-3	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-3	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21174-A-4	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-4	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21174-A-5	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-5	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21174-A-6	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21174-A-6	LCMPFC2SU_00044	25 uL	0.5 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Batch Open: 8/25/2016 9:13:11AM

Batch End:

320-21190-B-1	LCMPFC2SU_00007	25 uL	0.5 mL	HSA 8-25-16	VPN 8-25-16
320-21190-B-1	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-2	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-2	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-3	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-3	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-4	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-4	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-5	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-5	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-6	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-6	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-7	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-7	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-8	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-8	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-8 MS	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-8 MS	LCMPFC2SU_00044	25 uL	0.5 mL		
320-21190-A-8 MS	LCMPFC2SP_00012	20 uL	0.5 mL		
320-21190-A-8 MS	LCMPFCSP_00053	20 uL	0.5 mL		
320-21190-A-8 MSD	LCMPFC2SU_00007	25 uL	0.5 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Batch Number: 320-124066

Method Code: 320-3535_IVWT-320

Batch Open: 8/25/2016 9:13:11AM

Batch End:

320-21190-A-8 MSD	LCMPFCSU_00044	25 uL	0.5 mL	H3A 8-25-16	VPM 8-25-16
320-21190-A-8 MSD	LCPF2SP_00012	20 uL	0.5 mL		
320-21190-A-8 MSD	LCPF2SP_00053	20 uL	0.5 mL		
320-21190-A-9	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-9	LCMPFCSU_00044	25 uL	0.5 mL		
320-21190-A-10	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-10	LCMPFCSU_00044	25 uL	0.5 mL		
320-21190-A-11	LCMPFC2SU_00007	25 uL	0.5 mL		
320-21190-A-11	LCMPFCSU_00044	25 uL	0.5 mL		

Reagent	Other Reagents:	Lot#:
	Amount/Units	

Preparation Batch Number(s): 320-124066 Test: PFC-DOD5-L

Earliest Holding Time: 8-26-16

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

1st Level Reviewer: SKW

Date: 8/26/16

2nd Level Reviewer: VPM

Date: 8/26/16

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Batch End: 9-15-16 14:40 PM

Solid-Phase Extraction (SPE)

case 4-822 9/19/16

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-320-127219/1 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		MB 320-127219-1-A
2 LCS-320-127219/2 N/A	N/A		250.00 mL 0.50 mL		N/A	N/A	N/A		LCS 320-127219-2-A
3 320-21174-B-1 (PFC_IDA_DOD5)	N/A (320-21174-1)	289.60 g 27.75 g	261.9 mL 0.50 mL		8/29/16	12_Days	4	DL 10X	320-21174-B-1-A
4 320-21174-B-2 (PFC_IDA_DOD5)	N/A (320-21174-1)	285.37 g 27.19 g	258.2 mL 0.50 mL		8/29/16	12_Days	4	RE 10X 9/19/16	320-21174-B-2-A
5 320-21174-B-3 (PFC_IDA_DOD5)	N/A (320-21174-1)	297.72 g 27.79 g	269.9 mL 0.50 mL		8/29/16	12_Days	4	DL 10X 9/19/16	320-21174-B-3-A
6 320-21174-B-4 (PFC_IDA_DOD5)	N/A (320-21174-1)	277.07 g 26.07 g	251 mL 0.50 mL		8/29/16	12_Days	4	DL 10X	320-21174-B-4-A
7 320-21174-B-5 (PFC_IDA_DOD5)	N/A (320-21174-1)	296.97 g 27.94 g	269 mL 0.50 mL		8/29/16	12_Days	4	DL 10X 9/19/16	320-21174-B-5-A
8 320-21174-B-6 (PFC_IDA_DOD5)	N/A (320-21174-1)	278.16 g 27.46 g	250.7 mL 0.50 mL		8/29/16	12_Days	4	DL 10X 9/19/16	320-21174-B-6-A
9 320-21190-B-2 (PFC_IDA_DOD5)	N/A (320-21190-1)	281.60 g 27.73 g	253.9 mL 0.50 mL		8/30/16	12_Days	4	RE 10X 9/19/16	320-21190-B-2-A
10 320-21190-B-3 (PFC_IDA_DOD5)	N/A (320-21190-1)	293.56 g 27.84 g	265.7 mL 0.50 mL		8/30/16	12_Days	4		320-21190-B-3-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)











Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IVWT-320

Batch End:

11	320-21190-B-4 (PFC_IDA_DOD5)	N/A (320-21190-1)	295.38 g 27.78 g	267.6 mL 0.50 mL			8/30/16	12_Days	4	
12	320-21190-B-5 (PFC_IDA_DOD5)	N/A (320-21190-1)	295.98 g 27.82 g	268.2 mL 0.50 mL			8/30/16	12_Days	4	
13	320-21190-B-6 (PFC_IDA_DOD5)	N/A (320-21190-1)	246.79 g 27.65 g	219.1 mL 0.50 mL			8/30/16	12_Days	4	
14	320-21190-B-7 (PFC_IDA_DOD5)	N/A (320-21190-1)	262.25 g 26.47 g	235.8 mL 0.50 mL			8/30/16	12_Days	4	
15	320-21190-B-8 (PFC_IDA_DOD5)	N/A (320-21190-1)	283.41 g 27.44 g	256 mL 0.50 mL			8/30/16	12_Days	4	
16	320-21190-B-8-MS (PFC_IDA_DOD5)	N/A (320-21190-1)	286.60 g 27.39 g	259.2 mL 0.50 mL			8/30/16	12_Days	4	
17	320-21190-B-8-MSD (PFC_IDA_DOD5)	N/A (320-21190-1)	270.65 g 28.05 g	242.6 mL 0.50 mL			8/30/16	12_Days	4	
18	320-21190-B-9 (PFC_IDA_DOD5)	N/A (320-21190-1)	283.11 g 27.77 g	255.3 mL 0.50 mL			8/30/16	12_Days	4	 10X DL
19	320-21190-B-10 (PFC_IDA_DOD5)	N/A (320-21190-1)	283.81 g 27.69 g	256.1 mL 0.50 mL			8/30/16	12_Days	4	 COW RJE TX 9/19/16
20	320-21190-B-11 (PFC_IDA_DOD5)	N/A (320-21190-1)	289.72 g 28.06 g	261.7 mL 0.50 mL			8/30/16	12_Days	4	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Analyst: Reed, Jonathan E

Method Code: 320-3535_IWWT-320

Batch End:

Batch Notes
Manifold ID 2, 7
Methanol ID 728234
Hexane ID 000135581
Sodium Hypochlorite ID NA
First Start time NA
First End time NA
Balance ID QA-070
SPE Cartridge Type WAX 500mg
Solid Phase Extraction Disk ID 002736075A
H2O ID 9/14/16
Pipette ID MD05306
Solvent Name 0.3% NH4OH/MeOH
Solvent Lot # 729513
Analyst ID - Reagent Drop JER
Analyst ID - SU Reagent Drop JER
Analyst ID - SU Reagent Drop Witness <i>EW</i>
Acid Name NA
Acid ID NA
Reagent ID NA
Reagent Lot Number NA
NaCl ID NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IVWT-320

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH/H2O: 722525

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IVWT-320

Batch End:

	Comments
320-21174-B-1	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21174-B-2	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21174-B-3	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21174-B-4	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21174-B-5	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21174-B-6	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-2	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-3	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-4	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-5	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-6	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-7	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
320-21190-B-8	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_VWWT-320

Batch End:

320-21190-B-8-MS	Method Comments: Rework Comments:	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes
320-21190-B-8-MSD	Method Comments: Rework Comments:	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes
320-21190-B-9	Method Comments: Rework Comments:	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes
320-21190-B-10	Method Comments: Rework Comments:	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes
320-21190-B-11	Method Comments: Rework Comments:	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-127219/1	LCMPFC2SU_00008	25 uL	0.50 mL	J. Reed 9/14/16	ERW 9/14/16
MB 320-127219/1	LCMPFC2SU_00045	25 uL	0.50 mL		
LCS 320-127219/2	LCMPFC2SU_00008	25 uL	0.50 mL		
LCS 320-127219/2	LCMPFC2SU_00045	25 uL	0.50 mL		
LCS 320-127219/2	LCMPFC2SU_00016	20 uL	0.50 mL		
LCS 320-127219/2	LCMPFC2SU_00058	20 uL	0.50 mL		
320-21174-B-1	LCMPFC2SU_00008	25 uL	0.50 mL	J. Reed 9/14/16	ERW 9/14/16
320-21174-B-1	LCMPFC2SU_00045	25 uL	0.50 mL		
320-21174-B-2	LCMPFC2SU_00008	25 uL	0.50 mL		
320-21174-B-2	LCMPFC2SU_00045	25 uL	0.50 mL		
320-21174-B-3	LCMPFC2SU_00008	25 uL	0.50 mL		
320-21174-B-3	LCMPFC2SU_00045	25 uL	0.50 mL		
320-21174-B-4	LCMPFC2SU_00008	25 uL	0.50 mL		
320-21174-B-4	LCMPFC2SU_00045	25 uL	0.50 mL		
320-21174-B-5	LCMPFC2SU_00008	25 uL	0.50 mL		
320-21174-B-5	LCMPFC2SU_00045	25 uL	0.50 mL		
320-21174-B-6	LCMPFC2SU_00008	25 uL	0.50 mL	J. Reed 9/14/16	ERW 9/14/16
320-21174-B-6	LCMPFC2SU_00045	25 uL	0.50 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IWWT-320

Batch End:

320-21190-B-2	LCMPFC2SU_00008	25 uL	0.50 mL	<i>MD 9/14/16</i> <i>ERW 9/14/16</i>
320-21190-B-2	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-3	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-3	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-4	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-4	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-5	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-5	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-6	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-6	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-7	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-7	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-8	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-8	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-8 MS	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-8 MS	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-8 MS	LCPF2SP_00016	20 uL	0.50 mL	<i>N</i>
320-21190-B-8 MS	LCPF2SP_00058	20 uL	0.50 mL	
320-21190-B-8 MSD	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-8 MSD	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-8 MSD	LCPF2SP_00016	20 uL	0.50 mL	<i>ERW</i>

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-127219

Analyst: Reed, Jonathan E

Batch Open: 9/14/2016 3:45:00PM

Method Code: 320-3535_IVWT-320

Batch End:

320-21190-B-8 MSD	LCPFCSU_00058	20 uL	0.50 mL	ERW 9/14/16
320-21190-B-9	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-9	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-10	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-10	LCMPFCSU_00045	25 uL	0.50 mL	
320-21190-B-11	LCMPFC2SU_00008	25 uL	0.50 mL	
320-21190-B-11	LCMPFCSU_00045	25 uL	0.50 mL	

Reagent	Other Reagents:	Lot#:
	Amount/Units	

Preparation Batch Number(s): 127219

Test: Pfc-L

Earliest Holding Time: 8/26/16

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: [Signature]

Date: 9/15/16

2nd Level Reviewer: NSA

Date: 9-15-16

Comments: _____

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1					
MB-320-123451/1 N/A	N/A		500.00 mL 1.00 mL			N/A	N/A	N/A		MB 320-123451-1-A
LCS-320-123451/2 N/A	N/A		500.00 mL 1.00 mL			N/A	N/A	N/A		LCS 320-123451-2-A
LCSD-320-123451/3 N/A	N/A		500.00 mL 1.00 mL			N/A	N/A	N/A		LCSD 320-123451-3-A
320-21044-A-1 (PFC_IDA_DOD5)	N/A (320-21044-1)	595.61 g 44.52 g	551.1 mL 1.00 mL			8/25/16	20_Days	4		320-21044-A-1-A
320-21044-A-2 (PFC_IDA_DOD5)	N/A (320-21044-1)	581.60 g 44.75 g	536.9 mL 1.00 mL			8/25/16	20_Days	4		320-21044-A-2-A
320-21044-A-3 (PFC_IDA_DOD5)	N/A (320-21044-1)	578.54 g 45.12 g	533.4 mL 1.00 mL			8/25/16	20_Days	4	2x PFHXS	320-21044-A-3-A
320-21044-A-4 (PFC_IDA_DOD5)	N/A (320-21044-1)	569.05 g 43.45 g	525.6 mL 1.00 mL			8/25/16	20_Days	4	5x PFS	320-21044-A-4-A
320-21044-A-5 (PFC_IDA_DOD5)	N/A (320-21044-1)	571.85 g 44.39 g	527.5 mL 1.00 mL			8/25/16	20_Days	4		320-21044-A-5-A
320-21044-A-6 (PFC_IDA_DOD5)	N/A (320-21044-1)	575.31 g 45.06 g	530.3 mL 1.00 mL			8/25/16	20_Days	4		320-21044-A-6-A
320-21044-A-7 (PFC_IDA_DOD5)	N/A (320-21044-1)	572.97 g 44.83 g	528.1 mL 1.00 mL			8/25/16	20_Days	4		320-21044-A-7-A

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AB 9/4/16
RAB 9/19/16
Batch Open: 8/22/2016 1:34:40PM
Batch End: 8/24/16 20:30

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)


Batch Number: 320-123451

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

320-21044-A-8 (PFC_IDA_DOD5)	N/A (320-21044-1)	579.08 g	533.8 mL	8/25/16	20_Days	4	 320-21044-A-8-A
		45.28 g	1.00 mL				

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

Batch Notes	
Manifold ID 3, 4	
Methanol ID 691859	
Hexane ID 0000135581	
Sodium Hypochlorite ID NA	
First Start time NA	
First End time NA	
Balance ID QA-070	
SPE Cartridge Type WAX 500mg	
Solid Phase Extraction Disk ID 002736075A	
H2O ID 8/22/16	
Pipette ID MD05306	
Solvent Name 0.3% NH4OH/MeOH	
Solvent Lot # 710114	
Analyst ID - Reagent Drop JER	
Analyst ID - SU Reagent Drop JER	
Analyst ID - SU Reagent Drop <i>ELW</i>	
Witness	
Acid Name NA	
Acid ID NA	
Reagent ID NA	
Reagent Lot Number NA	
NaCl ID NA	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH:645197

Comments

320-21044-A-1	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-2	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-3	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-4	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-5	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-6	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-7	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21044-A-8	Method Comments: Q5Rev111213_StdVarApp_30day disposal

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451



Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Method Code: 320-3535_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-123451/1	LCMPFCSU_00043	50 uL	1.00 mL		ERW 8/22/16
LCS 320-123451/2	LCMPFCSU_00043	50 uL	1.00 mL		
LCS 320-123451/2	LCPFCSU_00053	40 uL	1.00 mL		
LCSD 320-123451/3	LCMPFCSU_00043	50 uL	1.00 mL		
LCSD 320-123451/3	LCPFCSU_00053	40 uL	1.00 mL		
320-21044-A-1	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-2	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-3	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-4	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-5	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-6	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-7	LCMPFCSU_00043	50 uL	1.00 mL		
320-21044-A-8	LCMPFCSU_00043	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123451

Method Code: 320-3535 IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

Reagent	Other Reagents:	
	Amount/Units	Lot#:

Preparation Batch Number(s): 320-123451 Test: PFC-L

Earliest Holding Time: 8/24/16

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

1st Level Reviewer: [Signature]
2nd Level Reviewer: HJA

Date: 8/24/16
Date: 8-25-16

Comments: _____

#440

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Batch End: 8-25-16 12:35 P.m

AB 9/4/16
PPAS 9/19/16

Solid-Phase Extraction (SPE)

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-320-123937/1 N/A	N/A		500 mL 1.00 mL				N/A	N/A	N/A		MB 320-123937-1-A
2 LCS-320-123937/2 N/A	N/A		500 mL 1.00 mL				N/A	N/A	N/A		LCS 320-123937-2-A
3 320-21080-A-1 (PFC_IDA_DOD5)	N/A (320-21080-1)	551.80 g 43.71 g	508.1 mL 1.00 mL				8/26/16	20_Days	4		320-21080-A-1-A
320-21080-A-2 (PFC_IDA_DOD5)	N/A (320-21080-1)	564.96 g 44.28 g	520.7 mL 1.00 mL				8/26/16	20_Days	4		320-21080-A-2-A
320-21080-A-3 (PFC_IDA_DOD5)	N/A (320-21080-1)	553.70 g 42.94 g	510.8 mL 1.00 mL				8/26/16	20_Days	4		320-21080-A-3-A
320-21080-A-4 (PFC_IDA_DOD5)	N/A (320-21080-1)	548.57 g 42.81 g	505.8 mL 1.00 mL				8/26/16	20_Days	4		320-21080-A-4-A
320-21084-A-1 (PFC_IDA_DOD5)	N/A (320-21084-1)	554.24 g 44.44 g	509.8 mL 1.00 mL				8/26/16	20_Days	4	5x PPOS	320-21084-A-1-A
320-21084-A-2 (PFC_IDA_DOD5)	N/A (320-21084-1)	559.79 g 44.34 g	515.5 mL 1.00 mL				8/26/16	20_Days	4		320-21084-A-2-A
320-21084-A-3 (PFC_IDA_DOD5)	N/A (320-21084-1)	558.18 g 43.93 g	514.3 mL 1.00 mL				8/26/16	20_Days	4	10x PPOS	320-21084-A-3-A
320-21084-A-4 (PFC_IDA_DOD5)	N/A (320-21084-1)	557.80 g 45.53 g	512.3 mL 1.00 mL				8/26/16	20_Days	4		320-21084-A-4-A

2 Columns

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)







Batch Number: 320-123937

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Batch End:

11	320-21084-A-5 (PFC_IDA_DOD5) <i>2 Colymar</i>	N/A (320-21084-1)	548.27 g 45.05 g	503.2 mL 1.00 mL				8/26/16	20_Days	4	 320-21084-A-5-A
12	320-21084-A-6 (PFC_IDA_DOD5)	N/A (320-21084-1)	574.15 g 44.29 g	529.9 mL 1.00 mL				8/26/16	20_Days	4	<i>SX</i>  320-21084-A-6-A
13	320-21084-A-6-MS (PFC_IDA_DOD5)	N/A (320-21084-1)	552.41 g 44.84 g	507.6 mL 1.00 mL				8/26/16	20_Days	4	<i>SX</i>  320-21084-A-6-B-MS
14	320-21084-A-6-MSD (PFC_IDA_DOD5)	N/A (320-21084-1)	546.21 g 44.24 g	502 mL 1.00 mL				8/26/16	20_Days	4	<i>SX</i>  320-21084-A-6-C-MSD
15	320-21084-A-7 (PFC_IDA_DOD5)	N/A (320-21084-1)	564.44 g 42.88 g	521.6 mL 1.00 mL				8/26/16	20_Days	4	 320-21084-A-7-A
16	320-21084-A-8 (PFC_IDA_DOD5)	N/A (320-21084-1)	532.33 g 43.91 g	488.4 mL 1.00 mL				8/26/16	20_Days	4	 320-21084-A-8-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Batch End:

Batch Notes	
Manifold ID	1,2
Methanol ID	691859
Hexane ID	0000135581
Sodium Hypochlorite ID	NA
First Start time	NA
First End time	NA
Balance ID	QA-070
SPE Cartridge Type	WAXC 500mg
Solid Phase Extraction Disk ID	002736075A
H2O ID	8/23/16
Pipette ID	MDO5306
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	710114
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop	Erw
Witness	
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
NaCl ID	NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH/H2O: 645197

Comments

320-21080-A-1	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21080-A-2	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21080-A-3	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21080-A-4	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-1	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-2	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-3	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-4	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-5	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6-MS	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-6-MSD	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-7	Method Comments: Q5Rev111213_StdVarApp_30day disposal
320-21084-A-8	Method Comments: Q5Rev111213_StdVarApp_30day disposal

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E


Batch Number: 320-123937

Method Code: 320-3535_IVWT-320

Batch Open: 8/24/2016 2:17:53PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-123937/1	LCMPFCSU_00044	50 uL	1.00 mL		SRW 8/24/16
LCS 320-123937/2	LCMPFCSU_00044	50 uL	1.00 mL		
LCS 320-123937/2	LCPFCSU_00049	20 uL	1.00 mL		
320-21080-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-5	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCPFCSU_00049	20 uL	1.00 mL		
320-21084-A-6 MSD	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MSD	LCPFCSU_00049	20 uL	1.00 mL		
320-21084-A-7	LCMPFCSU_00044	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-123937

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Batch End:

320-21084-A-8	LCMPFCSU_00044	50 uL	1.00 mL	<i>Reed</i> 8/24/16 <i>ERW</i> 8/24/16
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Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s):

Test:

Earliest Holding Time: 8/25/16

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: NSH

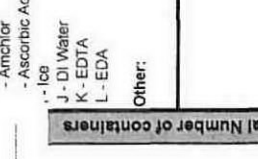
Date: 8-25-16

2nd Level Reviewer: SKW

Date: 8/25/16

Comments: _____

Shipping and Receiving Documents

Client Information Client Contact: Mike Dryden Company: Earth Toxics, Inc. Address: PO BOX 3382 City: Logan State, Zip: UT, 84321 Phone: _____ Email: mdryden@earthtoxics.com Project Name: Ensate-NWS - Earle, NJ PFCs Site: Groundwater		Lab PM: Johnstone, Michelle A E-Mail: michelle.johnstone@testamericainc.com Phone: _____ Page: 2 Page 1 of 3		Carrier Tracking No(s): 280-48902-18075.1 Job #: _____	
Due Date Requested: _____ TAT Requested (days): _____ PO #: _____ Purchase Order Requested: _____ WO #: _____ Project #: 28014493 SSOW#: _____		Analysis Requested  320-21044 Chain of Custody			
Preservation Codes: HCL - Hexane NaOH - None AsNaO2 - AsNaO2 ZnAcetate - Zn Acetate Nitric Acid - Nitric Acid NaHSO4 - NaHSO4 MeOH - MeOH Ascorbic Acid - Ascorbic Acid Ice - Ice DI Water - DI Water EDTA - EDTA EDA - EDA Other: _____		Special Instructions/Note: _____			
Sample Identification FB081716 EB081716 MCF5MW-3_0816 46MW05_0816 46MW03_0816 MCF5MW-14_0816 MCF5MW-4_0816 MCF5MW-5_0816		Sample Date 8-17-16 8-17-16 8-17-16 8-17-16 8-17-16 8-17-16 8-17-16 8-17-16		Sample Time 1020 1023 1106 1216 1331 0951 1131 1316	
Sample Type G=Grab W=Water, S=solid, O=waste/oil, BT=Toxic, A=Air		Preservation Code W W W W W W W W		Field Filtered Sample (Yes or No) N X X X X X X X X	
Perform MS/MSD (Yes or No) N X X X X X X X X		PFOs, PFOA, PFNA, PFHxS, PFHpA & PFBS N X X X X X X X X		Total Number of Containers 2 2 2 2 2 2 2 2 2	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) _____ Empty Kit Relinquished by: _____ Relinquished by: _____ Relinquished by: _____					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements: _____					
Relinquished by: _____ Relinquished by: _____ Relinquished by: _____		Date: 8-17-16 1550 8/17/16 1800		Method of Shipment: _____ Received by: _____ Received by: _____ Received by: _____	
Company: Earth Toxics, Inc. Address: PO BOX 3382 City: Logan State, Zip: UT, 84321 Phone: _____ Email: mdryden@earthtoxics.com Project Name: Ensate-NWS - Earle, NJ PFCs Site: Groundwater		Company: TestAmerica Address: _____ City: _____ State, Zip: _____ Phone: _____ Email: _____ Project Name: _____ Site: _____		Company: TestAmerica Address: _____ City: _____ State, Zip: _____ Phone: _____ Email: _____ Project Name: _____ Site: _____	
Custody Seals Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody Seal No.: 7.7		Cooler Temperature(s) °C and Other Remarks: _____			

Login Sample Receipt Checklist

Client: Earth Toxics, Inc

Job Number: 320-21044-1

Login Number: 21044

List Number: 1

Creator: Turpen, Troy

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.	N/A	
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Preservation labels on samples match COC
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	

Sample	Sample Name	Specific Method	CAS Number	Analyte	Result	Units	Qualifier	Limit	Reports To	Dilution	Result Basis	Batch	Sampled	Prepared	Analyzed	Analysis
320-21044-1	FB081716	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	ng/L	U	0.83	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-1	FB081716	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	2.4	ng/L		0.73	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-1	FB081716	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.4	ng/L		0.79	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-1	FB081716	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.8	ng/L	U	0.59	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-1	FB081716	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-1	FB081716	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	2.7	ng/L	M	0.68	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.85	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.75	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.9	ng/L	U	0.81	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U M	0.61	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.3	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-2	EB081716	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.9	ng/L	U M	0.70	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	ng/L		0.86	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	26	ng/L		0.75	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	790	ng/L	D	1.6	MDL	2.0	Total	128009	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/19/2016 8:40 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	8.7	ng/L	M	0.61	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	650	ng/L		1.2	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	100	ng/L	M	0.70	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	47	ng/L		0.87	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	18	ng/L		0.76	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	520	ng/L		0.83	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.0	ng/L	J	0.62	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1300	ng/L	D	6.1	MDL	5.0	Total	128009	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/19/2016 8:48 PM	Perfluorinated Hydrocarbons
320-21044-4	46MW05_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	82	ng/L	M	0.71	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.87	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.76	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.4	ng/L	M	0.82	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U	0.62	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.1	ng/L	M	1.2	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5	46MW03_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.9	ng/L	U M	0.71	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.87	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.76	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.0	ng/L		0.82	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U	0.62	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.5	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.1	ng/L	J M	0.71	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	26	ng/L		0.87	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	77	ng/L		0.76	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	200	ng/L		0.82	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	21	ng/L		0.62	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	69	ng/L	M	1.2	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	160	ng/L	M	0.71	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	12	ng/L		0.86	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	13	ng/L		0.75	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	45	ng/L		0.81	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	0.92	ng/L	J	0.61	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	ng/L	M	1.2	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	27	ng/L	M	0.70	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons



Purpose

Complete one copy of this form to accompany the paper and electronic versions of Environmental Restoration Program (ERP) records submitted for inclusion to NIRIS.

Submitted By:

Name: _____
Organization: _____
Email: _____ Phone: _____

Record Information:

Installation: _____

Program: ERN BRAC Supporting: ☐ MRP ☐ LUC ☐ RAD ☐ POL

Document Title: _____

AOC, SITE, SWMU,
UST, UXO: _____

Sample Delivery
Groups (SDGs): _____

Document Date: _____ Number of Pages: _____

Contract Number: _____ CTO/DO Number: _____

Author/Affiliation: _____

Distribution/Availability Statement: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F

Sensitive Content Yes No Cite Pages: _____

Recommended File Type: Administrative Record Post Decision Site File

Notes:

DATA VALIDATION REPORT

Site Name:	Naval Weapons Station Earle, Colts Neck, New Jersey, Site 46 — Military Sealift Command Firefighting School
Sample Date:	17 and 18 August 2016
Laboratory:	Test America, Sacramento, California
Sample Delivery Groups:	320-21044-1, 320-21084-1, and 320-21080-1
Matrix:	Groundwater and Potable Water
Data Quality Level:	Stage 4, Electronic and Manual
Analysis:	Select Perfluorinated Compounds (PFCs) via Method 537 Modified

This report summarizes data review findings for groundwater and potable water samples collected in August 2016 using the following reference documents:

- *Internal Draft Perfluorinated Compound Groundwater Investigation Sampling and Analysis Plan, Site 46 Military Sealift Command, Naval Weapons Station Earle Newport, Colts Neck, New Jersey*, Resolution Consultants. (December 2015).
- Laboratory standard operating procedure (SOP) *Perfluorinated Compounds (PFCs) in Water, Soils, Sediments, and Tissue [Method 37 Modified]*, Test America, Sacramento, California, WS-LC-0025, Revision 1.9. (May 2016).
- *Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data review*, United States Environmental Protection Agency. (September 2011).
- *Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.0. (July 2013).

Validation was performed on groundwater and potable water and quality control (QC) samples, summarized in Attachment A, Table A-1. Samples discussed in this validation report were analyzed and reported as definitive data. A full deliverable data packages, QC summaries and raw data, were submitted for data review.

The data were evaluated based on the following review elements:

- | | |
|---|--|
| * Data completeness | * Holding times |
| * Sample receipt and preservation | * Isotope dilution recoveries |
| * Initial calibration | * Laboratory method blanks |
| * Initial calibration verification | Blanks (equipment and field) |
| * Continuing calibration verification | * Field duplicate precision |
| * Laboratory control sample/laboratory control sample duplicate results | Matrix spike/matrix spike duplicates (MS/MSDs) |
| | * Sample result transcriptions/recalculations |

Acceptable data parameters for which all criteria were met or not qualified, as indicated above with an asterisk (*), are not discussed further.

Blanks

Blanks help determine how much, if any, contamination was introduced in the laboratory or the field. All results associated with a particular blank were evaluated to determine whether there was an inherent variability in the data, or if a problem was an isolated occurrence that did not affect the data. For this project, equipment blanks were collected by transferring laboratory-supplied water over a cleaned sampling device to assess potential cross-contamination that could potentially affect the quality of the associated samples. Field blanks were collected to assess potential ambient condition cross-contamination that could potentially affect the quality of the associated samples. The field blanks consisted of laboratory blank water bottles that were opened in the field and transferred into another container at each sampling location.

All laboratory blanks were free from contamination.

Equipment Blanks

EB081716 contained perfluorooctanesulfonic acid (PFOS) at a concentration of 1.3 nanograms per liter (ng/L). PFOS was detected below the limit of quantitation (LOQ) in MCFSMW-14_0816 and was qualified undetected "U" due to potential cross-contamination.

Field Blanks

FB081716 contained perfluorohexanesulfonic acid (PFHxS), PFOS, and perfluorooctanoic acid (PFOA) at concentrations of 2.4 ng/L, 2.9 ng/L, and 2.7 ng/L; respectively. PFOS was detected below the LOQ and were qualified as undetected "U" in groundwater sample MCFSMW-14_0816 due to potential cross-contamination. PFOA was detected below the LOQ and was qualified as undetected "U" in groundwater sample MCFSMW-14_0816 due to potential cross-contamination.

Matrix Spikes/Matrix Spike Duplicates

MS/MSDs are generated to provide information about the effect of each sample matrix on the sample preparation and the measurement methodology. MS/MSD percent recoveries (%Rs) assess the effect of the sample matrix on the accuracy of the analytical results. %Rs above the laboratory control limit could indicate a potential high result bias while %Rs below QC limits could indicate a potential low result bias. The relative percent difference (RPD) between the MS and MSD results is evaluated to assess sample precision. All RPDs were within QC limits.

Groundwater sample MCFSMW-16_0816 was spiked by the laboratory to assess accuracy and precision. PFOA (148%), PFOS (223%), and PFHxS (156%) %Rs was outside the 60-140% QC limit, indicating a potential high result bias. PFOA was qualified estimated "J" in MCFSMW-16_0816. PFOS and PFHxS groundwater sample result was greater than four times the added spike amount; therefore, no qualification was performed. MS/MSD qualifications performed were limited to the native (unspiked) sample and not the entire matrix batch.

Overall Assessment

The data from SDG 320-21044-1, 320-21084-1 and 320-21080-1 were reviewed independently from the laboratory to assess data quality. Results qualified as estimated may be high or low, but the data are usable for their intended purpose. The remaining results were acceptable without qualification; therefore, the data are usable for their intended purpose, according to U.S. Environmental Protection Agency and Department of Defense guidelines. Attachment B provides final results after data review.

Attachment A
Sample and Analysis Summary

**Table A-1
Sample Summary**

Sample Delivery Group	Lab ID	Sample ID	Location	Sample Date	Matrix
320210441	320-21044-1	FB081716		8/17/2016	Field Blank
320210441	320-21044-2	EB081716		8/17/2016	Equipment Blank
320210441	320-21044-3	MCFSMW-3_0816	MCFSMW03	8/17/2016	Groundwater
320210441	320-21044-4	46MW05_0816	46MW05	8/17/2016	Groundwater
320210441	320-21044-5	46MW03_0816	46MW03	8/17/2016	Groundwater
320210441	320-21044-6	MCFSMW-14_0816	MCFSMW14	8/17/2016	Groundwater
320210441	320-21044-7	MCFSMW-4_0816	MCFSMW04	8/17/2016	Groundwater
320210441	320-21044-8	MCFSMW-5_0816	MCFSMW05	8/17/2016	Groundwater
320210841	320-21084-1	46MW04_0816	46MW04	8/18/2016	Groundwater
320210841	320-21084-2	46MW02_0816	46MW02	8/18/2016	Groundwater
320210841	320-21084-3	46MW01_0816	46MW01	8/18/2016	Groundwater
320210841	320-21084-4	MCFSMW-17_0816	MCFSMW17	8/18/2016	Groundwater
320210841	320-21084-5	MCFSMW-17_0816DUP	MCFSMW17	8/18/2016	Duplicate of MCFSMW-17_0816
320210841	320-21084-6	MCFSMW-16_0816	MCFSMW16	8/18/2016	Groundwater
320210841	320-21084-7	FB081816		8/18/2016	Field Blank
320210841	320-21084-8	EB081816		8/18/2016	Equipment Blank
320210801	320-21080-1	PWSB2_0816	PWSB2	8/18/2016	Potable Water
320210801	320-21080-2	POSTTB2_0816	POSTTB2	8/18/2016	Potable Water
320210801	320-21080-3	PWSF1_0816	PWSF1	8/18/2016	Potable Water
320210801	320-21080-4	POSTTF1_0816	POSTTF1	8/18/2016	Potable Water

Notes:

All samples were analyzed via laboratory standard operating procedure *Perfluorinated Compounds (PFCs) in Water, Soils, Sediments, and Tissue [Method 37 Modified]*, Test America, Sacramento, California, WS-LC-0025, Revision 1.9, (May 2016) for the following select list of analytes: Perfluorobutanesulfonic Acid (PFBS), Perfluoroheptanoic Acid (PFHPA), Perfluorohexanesulfonic Acid (PFHXS), Perfluorononanoic Acid (PFNA), Perfluorooctane Sulfonic Acid (PFOS), and Perfluorooctanoic Acid (PFOA).

Attachment B
Final Validated Results after Data Review

Table B-1
Perfluorinated Compound Results: Groundwater – August 2016

Sample Delivery Group Lab ID Sample ID Sample Date Sample Type				320210441 320-21044-1 FB081716 8/17/2016 Field Blank			320210441 320-21044-2 EB081716 8/17/2016 Equipment Blank			320210441 320-21044-3 MCFSMW-3_0816 8/17/2016 Groundwater			320210441 320-21044-4 46MW05_0816 8/17/2016 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	1.8	U		1.9	U		31			47		
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	2.4			1.9	U		26			18		
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	2.4			1.9	U		790			520		
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.8	U		1.9	U		8.7			1	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	2.9	J		1.3	J		650			1300		
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	2.7			1.9	U		100			82		

Sample Delivery Group Lab ID Sample ID Sample Date Sample Type				320210441 320-21044-5 46MW03_0816 8/17/2016 Groundwater			320210441 320-21044-6 MCFSMW-14_0816 8/17/2016 Groundwater			320210441 320-21044-7 MCFSMW-4_0816 8/17/2016 Groundwater			320210441 320-21044-8 MCFSMW-5_0816 8/17/2016 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	1.9	U		1.9	U		26			12		
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	1.9	U		1.9	U		77			13		
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	3.4			5			200			45		
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.9	U		1.9	U		21			0.92	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	6.1			2.8	U	be,bf	69			22		
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	1.9	U		1.9	U	bf	160			27		

Sample Delivery Group Lab ID Sample ID Sample Date Sample Type				320210841 320-21084-1 46MW04_0816 8/18/2016 Groundwater			320210841 320-21084-2 46MW02_0816 8/18/2016 Groundwater			320210841 320-21084-3 46MW01_0816 8/18/2016 Groundwater			320210841 320-21084-4 MCFSMW-17_0816 8/18/2016 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	27			41			6.8			4.1		
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	16			22			0.95	J		11		
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	500			190			110			23		
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	21			13			3.9			2.2	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	1900			300			2900			36		
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	42			47			1.9	J		41		

Table B-1
Perfluorinated Compound Results: Groundwater – August 2016 (continued)

Sample Delivery Group Lab ID Sample ID Sample Date Sample Type				320210841 320-21084-5 MCFSMW-17_0816DUP 8/18/2016 Duplicate of MCFSMW-17_0816			320210841 320-21084-6 MCFSMW-16_0816 8/18/2016 Groundwater			320210841 320-21084-7 FB081816 8/18/2016 Field Blank			320210841 320-21084-8 EB081816 8/18/2016 Equipment Blank		
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	3.9			22			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	10			22			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	26			190			1.9	U		2	U	
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.9	J		5			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	32			1700	J		2.8	J		1.6	J	
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	41			110	J	m	1.9	U		2	U	

Notes:

NG_L = Nanograms per liter

Qual = Final qualifier

RC = Data qualification reason code

U = **Undetected** — The parameter was analyzed but undetected.

J = **Estimated Value** — One or more quality control parameters were outside control limits or the analyte concentration was less than the limit of quantitation.

Qualification Reason Codes

bf = Result qualified as undetected due to field-derived blank results.

be = Results qualified as undetected due to equipment blank results.

m = Results qualified as estimated due to matrix spike/matrix spike duplicate.

Table B-2
Perfluorinated Compound Results: Potable Water – August 2016

Sample Delivery Group				320210801	320210801	320210801	320210801
Lab ID				320-21080-1	320-21080-2	320-21080-3	320-21080-4
Sample ID				PWSB2_0816	POSTTB2_0816	PWSF1_0816	POSTTF1_0816
Sample Date				8/18/2016	8/18/2016	8/18/2016	8/18/2016
Sample Type				Potable Water	Potable Water	Potable Water	Potable Water
Method	Analyte	CAS No	Units				
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	3 U	2.9 U	2.9 U	3 U
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	2 U	1.9 U	2 U	2 U

Notes:

NG_L = Nanograms per liter

U = **Undetected** — The parameter was analyzed but undetected.

MIDCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYP	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_L
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961	N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961	N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961	N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-14_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961	N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-14_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961	N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-14_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001	N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441								N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16	Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855	N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16	Perfluoroalkyl Compounds